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Working Paper No. 402

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Economic Vulnerability and Severity of Debt Problems: An Analysis of the Irish EU-SILC 2008

Helen Russell,* Bertrand Maître* and Christopher T. Whelan**

Abstract: In this paper, using Ireland, where debt issues are of particular salience as a test case, we seek to understand the extent to which the measures currently employed as national indicators of poverty and social exclusion succeed in capturing over-indebtedness and, more broadly, severity of debt problems. Our analysis reveals a clear gradient with predictive ability increasing sharply as one moves from 'at risk of poverty' to consistent poverty and finally economic vulnerability indicators. In relation to debt problems, the key distinction is between the just under one in five households defined as economically vulnerable and all others. Financial exclusion, relating to access to a bank account and a credit card, was found to increase debt levels. However, such effects were modest. The impact of economic vulnerability seems to be largely a consequence of its relationship to a wide range of socio-economic attributes and circumstances. The manner in which a potential debt crisis unfolds will be shaped by the broader socio-economic structuring of life-chances. Any attempt to respond to such problems by concentrating on household behaviour or, indeed, triggering factors without taking the wider social structuring of economic vulnerability is likely to be both seriously misguided and largely ineffective.

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Key words: poverty, economic vulnerability, over-indebtedness, severity of debt, financial exclusion

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Economic Vulnerability and Severity of Debt Problems: An Analysis of the Irish EU-SILC 2008

Introduction

In this paper, using Ireland, where debt issues are of particular salience as a test case, we seek to understand the extent to which the measures currently employed as national indicators of poverty and social exclusion succeed in capturing over-indebtedness and, more broadly, severity of debt problems. Over-indebtedness and related debt problems are by no means new phenomena. However the rapid rise in personal debt and consumer credit from the mid 1990's to 2008 followed by the precipitous economic crash has made these issues increasingly pertinent. Rapidly increasing house prices, low interest rates and an expanding credit market resulted in a dramatic increase in the use of credit in Ireland and elsewhere. The level of mortgage lending per capita increased tenfold over the period 1995 to 2008, the level of credit card debt per capita rose by just under 700% (Central Bank 2005 and 2010) and the ratio of household debt to disposable income rose by 270% between 1995 and 2008 (Oireachtas Library & Research Service 2010). The growing interest amongst the relevant stake-holders in Ireland is evidenced by the formation of the number of high level policy groups and the publication of relevant reports by a number of national agencies. This list includes the Expert Group on Mortgage Arrears which published its final report in November 2010, as well as the recent publications by the Law Reform Commission on personal debt management and debt enforcement (LRC 2009, 2010 a, b) and the Free Legal Aid Centres report on debtors experiences in the Irish legal system (FLAC 2009).

Setting the experience of arrears and indebtedness in a macro-economic context, recent European statistics show that across the whole of Europe the overall level of household indebtedness is rising dramatically. Expressed as a ratio of household financial liabilities to national GDP, in some countries the debt level has reached level well above 100 per cent of GDP. In Ireland it reached 113% in 2008, one of the highest levels in Europe after Denmark (144%) and the Netherlands (121%) (Russell *et al* 2010). Not only is the importance of household debt rising in the economy as a whole, but also within households' personal financial portfolios. Recent figures from the OECD showed that for many European countries household debt as a percentage of household disposable income has risen consistently since the mid nineties (OECD, 2006).

This paper draws on the Irish component of the European Union Statistics on Income and Living Conditions (EU-SILC) which was carried out by the Central Statistics Office (CSO) in 2008 which provides much needed evidence on these issues. Our analysis will incorporate discussion of over-indebtedness but our focus is not primarily on the issues involved in establishing such a dichotomy but rather with the factors influencing severity of debt as captured by the use of multiple indicators. Our primary focus is on an assessment of which indicators of poverty and social exclusion succeed in capturing both over-indebtedness and severity of debt problems. In so doing we also seek to place the increasing scale and severity of debt problems in a wider socio-economic context.

EU-SILC 2008

In Ireland, the information required under the EU-SILC framework is obtained via a survey conducted by the Central Statistics Office each year. The EU-SILC survey is a voluntary random survey of private households. For this paper we use the EU-SILC 2008. In 2008, the total completed sample size was 5,247 households and 12,551 individuals. (for further details of the survey see CSO, 2009). In 2008 a special module was added on over-indebtedness and financial exclusion.

In this paper our analysis is conducted at household level. However, consistent with conventional practice poverty and economic vulnerability outcomes have been initially assigned to individuals and household outcomes have been determined on the basis of the corresponding values for the Household Reference person (HRP). The HRP is the person responsible for the accommodation or the older of such person where more than one person is involved.

We make use of three measures of poverty and social exclusion that have previously been developed in Ireland employing the Irish component of the ECHP and EU-SILC. These comprise the “at risk of poverty” measure, the consistent poverty indicator and a measure of “economic vulnerability”.

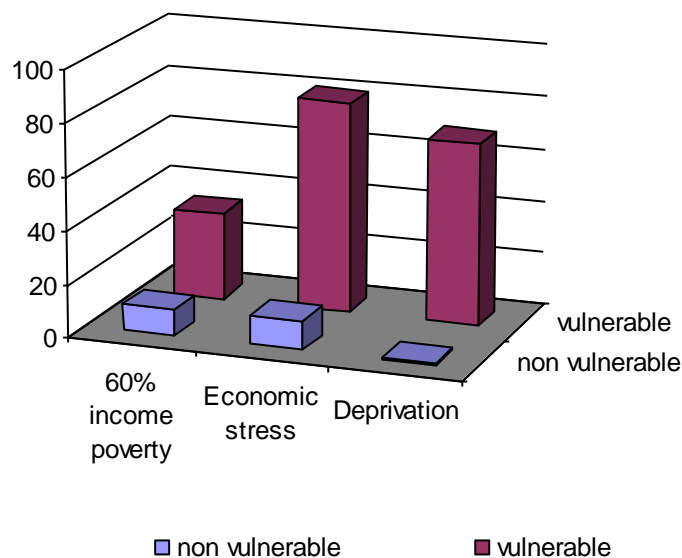
The “at risk of poverty” indicator identifies the proportion of the population with an equivalised household income below a certain percentage of the median income. Conventionally the income poverty threshold is drawn at 60% of median income. This measure is used in the Irish National Action Plan for Social Inclusion in Ireland and is also one of the key “Laeken indicators” devised to study poverty across Europe.

The consistent poverty indicator measures the proportion of the population that is “at risk of poverty” and living in a household lacking two or more items of a set of eleven basic deprivation items. These items can be divided into two groups. In the first group it contains items that are regarded as basic goods such as food, clothing or heat. The second group includes items relating to participation in family and social life such as buying presents for family or socialising with friends (Whelan *et al* 2006 and Whelan, 2007). This measure has been employed as the basis of the official national poverty target in Ireland.

The economic vulnerability measure is derived from a latent class analysis involving a set of four categories of income poverty, the dichotomised version of the eleven item basic deprivation index and a measure of subjective economic stress that differentiates between those living in households experiencing “great difficulty” or “difficulty” in making ends meet. The analysis seeks to identify a cluster of vulnerable individuals who are characterised by a multidimensional profile relating to these three indicators that involves a heightened level of risk that sets them apart from the remainder of the population. The contrast between clusters is in terms of *risk profiles* rather than *current* patterns of disadvantage. The patterns of differentiation between the economically vulnerable and non vulnerable, in terms of relative risks of experiencing each of the three forms of disadvantage included are set out in a graphic summary in Figure 1. Focusing first on income poverty we see that economic

vulnerability carries a risk of 33.2 per cent of being found below the 60% of median income threshold compared to 10.0 per cent for the non-vulnerable (the corresponding figures for the 50% line are 16.5 and 5.9 per cent and for the 70% line 59.9 and 17.8 per cent). In each case the disparity between the two classes is approximately 3:1. The contrasts are even sharper in relation to the remaining elements. For economic stress the figures are 80.1 and 10.9 per cent and for basic deprivation 69.1 and 0.8 per cent (Whelan and Maître, 2010).

Figure1: Vulnerability to Economic Exclusion (% of individuals)



Defining and Measuring Over-indebtedness and Severity of Economic Debt

While there is an agreement that debt levels have substantially increased, there has been less consensus on how over-indebtedness has been defined and measured. Furthermore, it is widely recognised that the concept of over-indebtedness is multi-dimensional and therefore no one single indicator can encapsulate it. It is possible to identify three broad models for measuring consumer over-indebtedness (Ferreira 2000; Finlay 2006 and Betti et al 2007).

The first is an objective, quantitative model based on the notion of unsustainable spending behaviour (consumption/income ratio) or unsustainable level of debt (debt/asset ratio) or inability to service debt (debt payment/income ratio). However, there is no established methodology for determining the critical level of these ratios. Furthermore, Betti *et al.* (2007) argue that even if a critical level of indebtedness can be established it is likely to fluctuate widely through the life cycle of an individual.

A second model is a subjective model that classifies as over-indebted all those who judge themselves to be unable to repay their debts without reducing their other expenditure below their normal minimal levels, therefore the debt has become unsustainable. Within this model over-indebted households are identified as those that express 'difficulty' or 'serious difficulty' in making debt payments, including credit debt, mortgage payments and hire purchase instalments. One difficulty with this measure is that tolerance for debt may

vary across countries and time and therefore may be an unstable indicator if used in isolation.

The administrative model records as over-indebted all those cases of non-payments of debt that have been officially registered or declared before a court. As the point of reference is often bankruptcy or court proceedings, it can be regarded as a measure of the outcome rather than the experience of indebtedness (Betti *et al.* 2007).

Responding to such disparity, a consortium of researchers was appointed by the European Commission to develop a common operational definition of over-indebtedness. The indicators proposed by Davydoff *et al.* (2008: 55-56) are a mix of both the objective and subjective models. Indicators of over-indebtedness include payment commitments which push the household below the poverty threshold, structural arrears on at least one financial commitment, a burden of monthly commitment payments considered to be heavy for the household, limited payment capacity and illiquidity. Households who meet all the criteria are considered over-indebted. Households that fulfil all the criteria but whose income is not reduced below the poverty threshold are considered to be 'at risk' of over-indebtedness (Davydoff *et al.* 2008).

In this paper, employing data from the EU-SILC 2008 special module, we adopt three of the five measures recommended by the group:

- Structural arrears (being in arrears more than once in the last 12 months) on at least one financial commitment. Information on four types of credit commitments and bills are included: mortgage/rent, utilities, loan repayments and other bills. Outstanding credit card debts and overdrafts are not included as there is inadequate information on the persistence of these forms of debt.
- Burden of monthly commitment payments (housing costs including mortgage payments or rent; and/or re-payment of other loans) are considered to be a heavy burden for the household.
- Illiquidity (an inability to meet an unexpected expense).

Russell *et al.* (2011) define households that fulfil all three criteria as over-indebted.

Over-indebtedness and Severity of Debt by Income Poverty, Consistent Poverty

Our initial analysis focuses on the individual elements of the over-indebtedness. In Table 1 we show the breakdown of experiencing persistent arrears by income poverty, consistent poverty and economic vulnerability. Just less than 15 per cent of households fall below the 60% of median income poverty threshold. The risk of persistent arrears for such households is 15 per cent compared to just over 6 per cent for the non-poor. For the 4 per cent of households that are consistently poor the contrast is sharper with the respective figures being 6.3 and 37.2. The proportion in persistent arrears increases from below 3 per cent for the non-vulnerable cluster to 30 per cent for the vulnerable. The odds ratio showing the odds of experiencing persistent arrears rise from 2.6 for "at risk of poverty" to 6.3 in relation to consistent poverty and finally to 15.4 for economic vulnerability. It is to be expected that

the contrast is greater for consistent poverty than income poverty since the former are a sub-group of the latter identified on the basis of being above the basic deprivation threshold. However, the vulnerable cluster represents almost 18 per cent of households but the odds ratio associated with this dichotomy prove to be the most striking. This is true despite the fact that the consistently poor group also constitutes a sub-set of the vulnerable cluster. This arises because while the level of persistence of arrears is higher for the consistently poor households than for the vulnerable, the rate is substantially lower for the non-vulnerable than for those not exposed to consistent poverty. The vulnerability measure is more successful in identifying household experiencing persistent arrears not because it focuses on a smaller group but because it succeeds in identifying a group of households that, in important respects, is different from those captured by the income poverty measure (Whelan and Maître, 2010).

Table 1: Persistent Arrears by At Risk of Poverty, Consistent Poverty & Economic Vulnerability		
	%	% of Households
At Risk of Poverty at 60% of median		
No	6.3%	
Yes	15.0	14.6
Odds ratio	2.624	
Consistent Poverty		
No	6.3	
Yes	37.2	4.3
Odds ratio	8.811	
Economic Vulnerability		
No	2.7	
Yes	30.0	17.8
Odds ratio	15.447	

A similar pattern is observed in relation to the burden of monthly commitments as can be seen from Table 2. Almost 40 per cent of income poor households compared to just over 20 per cent of non-poor households report an undue burden of commitments producing an odds ratio of 2.3. For consistent poverty the respective percentages are 22 and 67 leading to an odds ratio of 7.1. Finally for economic vulnerability the relevant percentages are 14 and 67 and the odds ratio is 12.0.

Table 2: Burden of Monthly Commitments by At Risk of Poverty, Consistent Poverty & Economic Vulnerability	
	%
At Risk of Poverty at 60% of median	
No	21.3
Yes	38.5
Odds ratio	2.31
Consistent Poverty	
No	21.9
Yes	66.5
Odds ratio	7.079
Economic Vulnerability	
No	14.2
Yes	67.4
Odds ratio	11.994

The pattern for illiquidity is somewhat different as can be seen from Table 3. Among households experiencing income poverty 67 per cent report such difficulties but this figure is almost halved for the non-poor. The resulting odds ratio has a value of 3.7. For the vulnerability dichotomy the respective percentages are 30 and 91 giving an odds ratio of 22.3. For all three items economic vulnerability produces much sharper differentiation than income poverty. However, in this case the highest odds ratio is actually associated with consistent poverty. This arises because almost all of the consistent poor report such difficulties with the figure reaching 98.4 per cent compared to 38.2 for the non-poor. The resultant odds ratio reaches 99.

Table 3: Illiquidity by At Risk of Poverty, Consistent Poverty & Economic Vulnerability	
	%
At Risk of Poverty at 60% of median	
No	36.3
Yes	67.3
Odds ratio	3.655
Consistent Poverty	
No	38.2
Yes	98.4
Odds ratio	99.015
Economic Vulnerability	
No	29.9
Yes	90.5
Odds ratio	22.329

In Table 4 we combine the three items in order to consider both level of over-indebtedness and severity of debt problems. Just less than one in two households report at least one debt problem, 28 per cent report only one problem and half as many report two problems. Finally 5.4 per cent fulfil the three conditions set by Russell *et al* (2011) in order for a household to be counted as over-indebted. Presumably applying the five conditions proposed by Davydoff *et al* (2008) would lead to a significantly lower figure and introducing an additional income poverty threshold condition would reduce it even further.

Table 4: Level of Over-Indebtedness and Severity of Debt Problems	
	%
<i>Severity of Debt Problems</i>	
0	52.5
1	28.1
2	14.0
3 (over- indebted)	5.4
Total	100.0

These findings suggest to us that restricting our focus to those fulfilling all three conditions may restrict our ability to understand the processes contributing to debt problems. Consequently, in Table 5 we look at the relationship between income poverty, consistent poverty and economic vulnerability and debt problem scores ranging from 0 to 3. Focusing first on households experiencing income poverty, we find that they are twice as likely as the non-poor to fulfil all three conditions with the respective percentages being 11 and 5. However, differentiation between the poor and the non-poor is not restricted to this dichotomy. Poor households are more than twice as likely to experience problems in relation to two of the items with the relevant percentages being respectively 26 and 12. The corresponding figures for one difficulty are 38 and 27 per cent. Finally the figures for experiencing at least one problem are respectively 74 and 43 per cent. These findings make clear that restricting our attention solely to over-indebtedness, defined in terms of meeting all three conditions, would give us a rather restricted view of the relationship between income poverty and debt problems.

A similar picture emerges for consistent poverty, 28 per cent of such households were over-indebted compared to only 4 per cent of the remainder. Similarly the consistently poor are almost four times more likely to report problems with two items with the respective percentages being 47 and 13. Focusing on the numbers experiencing at least one debt problem we find that over 98 per cent of the consistently poor fall into this category compared to less than 50 per cent of the remaining households.

Finally, we look at the impact of economic vulnerability on the distribution of debt problems. The contrast in terms of over-indebtedness is sharper than for either of the poverty measures with 25 per cent of vulnerable households experiencing such difficulties compared to only 1 per cent of other households. Similarly while 43 per cent of the former report two difficulties this is true of only 8 per cent of the latter. The respective figures for being exposed to at least one difficulty are 95 and 37 per cent.

Table 5: Level of Over-Indebtedness and Severity of Debt Problems by At Risk of Income Poverty, Consistent Poverty & Economic Vulnerability						
	<i>At Risk of Poverty</i>		<i>Consistent Poverty</i>		<i>Economic Vulnerability</i>	
	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
	%	%	%	%	%	%
<i>Severity of Debt Problems</i>						
0	57.0	26.0	54.8	1.6	62.9	5.2
1	26.5	37.5	28.3	23.6	28.5	26.6
2	11.9	26.0	12.5	46.6	7.5	43.4
3 (Over-indebted)	4.5	10.6	4.4	28.3	1.1	24.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Analysing Socio-Economic Influences on the Severity of Debt Problems

Our analysis clearly supports the argument that, if our concern is to understand the socio-economic differentiation of debt problems, a focus on a continuum of severity of debt difficulties seems more appropriate than restricting our attention to the contrast between those simultaneously exposed to multiple pressures. In Table 6 we show the results of a set of ordered logit models for the four category variable relating to severity of debt problems. The ordered logit model assumes parallel slopes for the J-1 cumulative logits that can be constructed for a variable with J categories. Focusing first on the ‘at risk of poverty’ measure we see that the odds ratio is 3.3 and the Nagelkerke² is 0.056. For consistent poverty the odds ratio is 12.5 and the Nagelkerke² is 0.085. Finally for economic vulnerability the odds ratio rises to 24.8 and the Nagelkerke² to 0.329. Thus, consistent with our earlier discussion, we find that our ability to differentiate between households in terms of the severity of their exposure to debt problems increases as one moves from income poverty to consistent poverty and most particularly to economic vulnerability.

An important question that arises is the extent to which the relationship between severity of debt problems and economic vulnerability is a consequence of the multidimensional risk profile defining vulnerability or is potentially an artefact of the fact that one of the component elements of economic vulnerability is the item relating to the extent to which a household has “difficulty” or “great difficulty” in making ends meet. In order to address this question we create a four category variable by cross-classifying the economic vulnerability dichotomy with the economic stress dichotomy. This enables us to distinguish between the following four categories.

- Those households which are neither economically vulnerable nor economically stressed.
- Those stressed but not vulnerable.
- Those vulnerable but not stressed.
- Finally those which are both vulnerable and stressed.

Table 6: Ordered Logits of Severity of Debt on Income Poverty, Consistent Poverty & Economic Vulnerability			
	<i>At Risk of Poverty</i>	<i>Consistent Poverty</i>	<i>Economic Vulnerability</i>
	<i>B</i>	<i>B</i>	<i>B</i>
Odds Ratio	3.254***	12.453***	24.827***
Reduction in Log Likelihood	228,775	350.461	1,537.318
Degrees of freedom	1	1	1
Nagelkerke R ²	0,056	0.085	0.329
N	4,427	4.427	4,427
*** p< .001			

In Table 7 we show the results of an ordered logistic regression with severity of economic stress as the dependent variable and a set of dummy variables capturing the impact of the vulnerability/stress typology with the group that is neither vulnerable nor stressed as the benchmark. Compared to the reference group we can see that the odds on being in the category experiencing greater severity of debt problems for each of the three possible cumulative comparisons is 13.3 times higher for the group that is stressed but not vulnerable. It is clear that economic stress is associated with severity of debt problems even where it is not accompanied by economic vulnerability. We are not in a position to distinguish the direction of causality. However, our analysis reveals that the ability of the economic vulnerability measure to capture those experiencing debt problems is far from being accounted for by its association with economic stress. This is clear from the fact that for those experiencing economic vulnerability but not currently reporting economic stress the odds ratio relative to those experiencing neither is 13.1. Finally for those households that are both economically vulnerable and currently experiencing economic stress, who comprise the vast bulk of economically vulnerable households, the odds ratio rises sharply to 58.5. It is clear that both economic vulnerability and current economic stress are significantly associated with severity of debt problems. However, the capacity of the vulnerability measure to capture those experiencing debt problems cannot be accounted for simply by its association with the economic stress measure but rather is derived from the multidimensional risk profile characterising the economically vulnerable group.

Table 7: Ordered Logit for Severity of Debt on Typology of Economic Stress & Vulnerability	
	<i>Ordered Logit</i>
	<i>Odds Ratio</i>
Ref. Neither Economically Stressed nor Vulnerable	1.000
Economically Stressed but not Vulnerable	13.276***
Vulnerable but not Economically Stressed	13.079***
Economically Stressed and Vulnerable	58.498***
Reduction in Log Likelihood	2,130.143
Degrees of freedom	3
Nagelkerke R ²	0.427
N	4.427
*** p< .001	

Severity of Debt Problems and Financial Exclusion

A number of commentators have linked the rapid rise in debt to changes in access to and use of credit, even for those on lower incomes who were traditionally excluded (Kempson 2002; Burton et al. 2004; Oireachtas Library & Research Service 2010). These commentators point out an ever-broadening range of credit available through both prime and sub-prime markets. In addition, due to the widespread access to prearranged lines of credit and technological advances, it has become easier for creditors to offer revolving credit which promotes a vicious circle of indebtedness (O'Loughlin 2006).

Some research has found higher levels of credit are linked to the experience of debt problems. Poppe (1999) Berthoud and Kempson (1992) and Kempson (2002) found the more credit commitments a household had, and the larger proportion of their income that they spent on repaying them, the more serious was the level of arrears/financial difficulties. In contrast, a number of cross-national studies have shown that in countries where access to credit is more restricted, over-indebtedness appears to be more severe. For example Betti et al (2007) found that in Denmark where 43% households had consumer debts, 19% of these households were over-indebted, and in Ireland, where 29% of households had consumer debt, 25% of these households were over-indebted. In Greece, in contrast, where only 9% of households borrowed, 96% of these households had a serious problem with debt repayment. Betti et al (2007) find that high borrowing countries (such as UK, Ireland, and Denmark) tend to have lower proportions of over-indebted households across all income groups. This may be because more households face a liquidity constraint in times of personal economic shocks in countries where consumer debt market is less liberalised (Byrne et al. 2005; Pleasence et al. 2007; Betti et al 2007).¹

Financial exclusion, according to the European Commission (2008), is

“A process whereby people encounter difficulties accessing and/or using financial services and products in the mainstream market that are appropriate to their needs and enable them to lead a normal social life in the society in which they belong.”

In what follows we consider the extent to which financial inclusion or exclusion is related to severity of debt problems. However, we do not seek to distinguish between voluntary and compulsory exclusion. Our focus is on banking exclusion and credit exclusion. However, it should be noted that the EU SILC special module measures access to services but does not address the broader issues of how these services are used. Respondents may have access to a service but it may be inappropriate to their needs or they may be using it ineffectively.

The specific items we consider include both access as such and usage and are as follows:

- Access to a bank current account
- Having access to an overdraft
- Being overdrawn due to financial difficulties (among bank account holders)
- Access to credit card
- Having an outstanding credit card balance
- Having an outstanding credit card balance (among credit card holders)
- Currently availing of other loans.

In Table 8 we show the relationship between such items and economic vulnerability. The vulnerable households are four times more likely not to have a bank account with the respective percentages being 44 and 14. They are almost twice as likely not to have a credit card with the respective figures in this case being 80 per cent and 42 per cent. Among those with access to bank accounts and credit cards the risk of both overdrafts and outstanding balances are twice as high for the vulnerable as the non-vulnerable. For an overdraft the respective figures are 11 and 5 per cent and for credit card outstanding balance 32 and 16 per cent. Converted into absolute terms, the vulnerable are not more likely to have an overdraft or a credit card outstanding balance. For the former, the figures for the vulnerable and non-vulnerable respectively were 6 and 5 per cent and for the latter 7 and 9 per cent. Finally, the vulnerable are somewhat more likely to have other loans with the relevant figures are 38 and 28 per cent. Credit card debt and overdraft debt seem to be qualitatively different from other forms of arrears. Clearly, accumulating such debt is predicated on having to such services and such access is significantly associated with socio-economic advantage (see Russell et al 2011, for further analysis of access to financial services).

Clearly economically vulnerable households have less access to the financial system but it is not entirely obvious that this will impact on the severity of their debt problems. In Table 9 we show the distribution of debt problems broken down by possession of a bank account and a credit card within the vulnerable and non-vulnerable groups.

Among non-vulnerable households we can see that possession of both a bank account and a credit card bears a strong negative relationship to severity of debt problems. Over two thirds of those non-vulnerable households with a bank account have a score of zero on the debt scale compared to just over one-third of those without accounts. They are half as likely to have scores of 1, 2 or 3 although the number in the over-indebtedness category even among those without bank accounts is extremely modest at 2 per cent.

Table 8: Access to Banking and Credit and Frequency of Overdrafts and Balances by Economically Vulnerable		
	<i>Vulnerable</i>	<i>Non-Vulnerable</i>
	%	%
No Bank Account	43.5	14.4
Bank Overdraft among Bank Account Holders	11.0	5.3
Bank Overdraft ¹	6.2	4.5
No Credit Card	79.9	42.1
Outstanding Credit Card Balance among Credit card Holders	32.3	16.2
Outstanding Credit Card Balance	6.5	9.4
Other Loans	38.4	27.5

¹ Over-drawn due to financial difficulties.

Focusing on credit cards, we find that almost three quarters of non-vulnerable households possessing such cards have scores of zero on the debt scale compared to almost half those without such cards. They are also half as likely to have scores of 1 or 2 and are five times

more likely to be located in the over-indebtedness category although the figure for those without credit cards does not rise above 2 per cent.

Table 9: Severity of Debt by Having a Bank Account and Credit Card by Economic Vulnerability				
	<i>Bank Account</i>		<i>Credit Card</i>	
	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
<i>Non-Vulnerable</i>				
<i>Severity of Debt Problems</i>				
0	36.1	67.4	49.0	73.0
1	49.1	25.0	38.4	21.2
2	12.8	6.6	10.4	5.4
3 (over-indebtedness)	1.9	1.0	2.2	0.4
<i>Vulnerable</i>				
<i>Severity of Debt Problems</i>				
0	2.9	7.0	4.6	7.6
1	24.9	27.9	24.4	35.4
2	45.3	42.0	43.7	42.4
3 (over-indebtedness)	26.9	23.1	27.3	14.6

Turning our attention to the vulnerable households we find that those having a bank account were twice as likely to have scores of zero with the respective figures being 7 per cent and 3 per cent. For the remaining categories modest but consistent differences are observed in each case, for examples the figures for over-indebtedness are 23 and 27 per cent. For credit cards, however, the picture is nearer to that for the non-vulnerable with those with credit cards being only half as likely to be found in the over-indebtedness category with the observed rates being 15 and 27 per cent and almost twice as likely to have scores of zero – 8 versus 5 per cent.

What do these findings suggest regarding the impact of financial inclusion in interaction with personal characteristics on severity of debt problems? It is clear that such inclusion, as reflected in having a bank account and a credit card are negatively associated with debt problems for both vulnerable and non-vulnerable groups. This relationship holds even though it is true that where vulnerable households have bank accounts and credit cards their conditional probabilities of having overdrafts and outstanding balances are significantly greater. These findings provide very little support for the view that increased access to credit and the misuse or inefficient uses of such credit by vulnerable groups contribute in a general fashion to exacerbating the severity of debt problems. However, in the recent past, mortgage lending is almost certain to have been an exception to this conclusion and such effects will have influences on our debt measure through the burden of repayments component. In addition, we lack sufficient information on ‘unofficial’ money lending to evaluate its impact.

Care needs to be exercised in interpreting the negative association between financial inclusion and severity of debt problems. Such inclusion is likely to be associated with a range

of socio-economic and personal characteristics that impact on severity of debt problems. In our later analysis, where we take into account such factors, we find that it is necessary to modify our conclusions relating to credit cards.

Adverse Financial Shocks and Severity of Debt Problems

Adverse financial shocks which lead to loss of income are common reasons for financial stress across a range of studies. Betti et al (2007) found unexpected adverse shocks to expenditure requirements and/or total resources were consistently related to over-indebtedness. Similarly, Herbert and Kempson (1995) found drops in income to be predictive of over-indebtedness independently of income *per se*. More recently, in a survey of over-indebtedness in the UK, loss of income was cited by 45% of households as a reason for being in financial difficulties, with job loss or redundancy being cited by one in five of households (Kempson 2002).

Such shocks can include not only changes in employment status, but also interest rates, the value of household financial and fixed assets, health, family structure and hence changes to both household resources and basic expenditure requirements. For example, a number of studies have found that a change in family circumstances, most especially relationship breakdown leading to separation or divorce, is a potential trigger for financial difficulty (Berthoud & Kempson 1992; Kempson 2002; Kempson et al 2004; Mori 2005). Other studies have shown that loss of income through illness, accident or disability was the explanation for 11 per cent of people who were over-indebted in France (Gloukoviezoff 2006 cited in Davydoff *et al* 2008) and 6% of households with arrears in the UK (Kempson 2002).

EU-SILC respondents in Ireland were asked whether their household had experienced “a major drop in income in the past 12 months”. Overall 19 per cent of households had experienced such a drop in income. This figure rose to 40 per cent for households who are classified as over-indebted. The survey also sheds further light on the reasons behind this income drop. Unsurprisingly, given the survey covers the beginning of the recession in Ireland, one quarter of those who experienced a drop in income said this was due to job loss or redundancy, this figure rose to 31% among over-indebted households.² A drop in hours or wages, which may also be linked to the economic downturn, was responsible for the income shock in 17.5% of cases, while illness/disability which limited a household member’s capacity to work emerged in 12% of cases overall and 19% of cases where the household was over-indebted. The increased household costs that come with the birth of a child (including reduced earning capacity) discussed in the literature is evidenced among the 8% of households where the income drop is due to maternity/parental leave or childcare. The birth of children may also be picked up in the “other changes in household composition” category, which was given as a reason for a major drop in income by 8% of respondents (12% among over-indebted household). Relationship breakdown was mentioned in 2% of cases.

Vulnerable households were over twice as likely to have experienced an adverse income as their non-vulnerable counterparts with the respective figures being 33 and 16 per cent. They

were also almost twice as likely to expect that their financial situation would get worse with the respective figures being 33 and 19 per cent. In Table 10 we look at the impact of an income shock taking into account the impact of economic vulnerability. Having controlled for economic vulnerability, a financial shock in the past twelve months raises the odds for severity of economic debt by 1.9 and produces a modest reduction in the impact of economic vulnerability from 24.5 to 23.0. It increases the Nagelkerke R^2 from 0.329 to 0.341. The financial shock variable clearly has a significant effect but it must be viewed as modest when viewed in the context of the economic vulnerability effect.

Table 10: Ordered Logit of Severity of Debt on Economic Vulnerability and Income Shock		
	(i)	(ii)
	<i>Odds Ratio</i>	<i>Odds Ratio</i>
Economic Vulnerability	24.53	23.011***
Income Shock		1.902***
Reduction in Log Likelihood	1,537.318	1,604.595
Degrees of freedom	1	2
Nagelkerke R^2	0.329	0.341
N	4,415	4,415
*** p < ,001 * p < ,01		

Severity of Debt Problems, Socio-economic Differentiation and Economic Vulnerability

Our analysis to date has shown that the indicators that have been employed in previous analysis of poverty and social exclusion in Ireland, comprising 'at risk of income poverty', consistent poverty and economic vulnerability, all succeed in identifying groups that are sharply differentiated in terms of the severity of the debt problems they experience. However, it was clear that the discriminatory power of the economic vulnerability variable was substantially greater. In this section we seek to develop our interpretation of the strength of this relationship by introducing a range of variables that might be expected to impact on the relationship.

Our analysis, which is set out in Table 11, proceeds as follows. Taking the four category of severity of debt classification as our dependent variable we enter a range of socio-economic characteristics of the Household Reference Person and financial circumstances of the household as independent variables in an ordered logistic regression. Our interest is not so much in the net effect of such variables but in their cumulative predictive power in relation to severity of debt problems. However, it is clear that each of the variables has a significant independent effect. Looking at first to the results from the first model (i), thus the odds ratio for the unemployed is 1.7. For divorce it is also 1.7 and for a lone parent 2.0. For those without educational qualifications it is 2.1. Households with younger HRPs have higher levels of risk and for those where the HRP is less than 30 the odds ratio is 2.8. Not surprisingly low income households are more likely to report more severe problems and the odds ratio for the bottom quintile reaches 5.5. Both, the 11-item basic deprivation and 18-item consumption deprivation scales are strongly related to debt variable. Finally, both the

income shock variable and that relating to the expectation of deteriorating economic circumstances have net significant effects.

Table 11: Ordered Logits of Severity of Debt on Socio-Economic Factors			
	(i)	(ii)	(iii)
HRP Labour Force Status			
Farmer	0.674**	0.743*	0.729*
Unemployed	1.670***	1.565***	1.459**
Ill/Disabled	1.522***	1.438*	1.447*
Retired	0.723*	0.764*	0.795*
HRP Marital Status			
Widowed	1.718***	1.682***	1.733***
Single	1.242**	1.175*	1.256*
Separated	1.570***	1.481**	1.499***
Divorced	1.680***	1.680**	1.429***
Tenure			
Owned Outright	0.457***	0.470***	0.448***
HRP Lone Parent	2.011***	1.793***	1.690**
One Person Household	0.726***	0.742**	0.726**
HRP Education			
No Qualifications	2.064***	1.592***	1.645***
Intermediate Certificate	1.779***	1.500***	1.656***
Leaving Certificate	1.423***	1.280*	1.332***
HRP Age			
< 30	2.768***	2.869***	2.896***
30-49	1.537***	1.531**	1.537***
50-64	1.321***	1.280*	1.361***
Income Quintile			
First	5.485***	5.254***	3.743***
Second	5.109***	4.591***	3.789***
Third	3.869***	3.673***	3.370***
Fourth	1.974***	1.847***	1.670***
Basic Deprivation	1.639***	1.582***	1.279***
Consumption Deprivation	1.196***	1.179***	1.174***
Major drop of income in the past 12 months	2.117***	2.171***	1.984**
Expect financial situation to be worse in the next 12 months	1.361***	1.379***	1.307***
Having a bank account		0.629***	0.634***
Having a loan		2.367***	2.307**
Having a credit card		0.593***	0.513***
Economic vulnerability			3.277***
Economic Vulnerability*Having a credit card			2.591***
Nagelkerke R ²	0.510	0.537	0.556
Reduction in likelihood ratio	2,645.5	2,838.1	2,977.949
Degrees of freedom	25	28	29
N	4,338	4,338	4,338
*P.< .1 ** P<.05 *** P < .001			

The overall set of variables produces a reduction on the log likelihood ratio of 2,645.5 for 25 degrees of freedom and a Nagelkerke R² of 0.510. Clearly, severity of debt is structured in socio-economic terms in a highly predictable fashion. It should be noted that we have not included the subjective economic stress variable in this equation. Adding the financial inclusion variables relating to possessing a bank account and a credit card and the variable

relating to having a loan reduces the log likelihood ratio by 192.6 and increases the Nagelkerke R^2 to 0.537. Thus the financial inclusion variables increase our explanatory power but the increase is of a modest scale. In the final equation we add the economic vulnerability variable and allow for the interaction between economic vulnerability and having a credit card. In other words we allow for the possibility that the impact of having a credit card may be different between the vulnerable and non-vulnerable. The addition of these two terms produces a reduction in the log likelihood ratio of 139 for 29 degrees of freedom and increases the R^2 to 0.556.

The interaction between having a credit card and economic vulnerability does prove to be significant. If we take the group who are not economically vulnerable as the reference category in calculating the net effects and assign it a value of 1 we find that possession of a credit card reduces the odds on severity of debt problems by 0.513. For those who are economically vulnerable having a credit card raises the odds on severity of debt problems by 1.338. Thus the relative net odds go from 1 for the non-vulnerable without a credit care to 0.513 for with a card. It then rises to 3.277 for the vulnerable without credit cards before peaking at 4.287 for the vulnerable possessing cards. Thus the consequences of having a credit card is crucially dependent on vulnerability and the impact of the latter is to some extent dependent on possession of the former. For those without credit cards vulnerability raises the odds on severity of debt problems by 3.227 while among those with a credit card this figure rises to 8.357 ($4.287/0.513$). These net effects differ from the gross effects reported in Table 9. They suggest that the gross positive effect reported for possession of credit cards by the economically vulnerable group is a consequence not of the possession of a credit card *per se* but of the fact that such possession is associated with the range of socio-economic factors for which we control in Table 11

The net effect of having a bank account is positive for both vulnerable and non-vulnerable groups. The interaction effect reported for credit card possession provides evidence that, having taken into account a range of socio-economic factors, the experience of debt problems may be exacerbated among the economically vulnerable by availability of credit card debt. However, an alternative interpretation is that such availability reflects unmeasured factors additional to those included in our analysis reflecting superior economic resources among the non-vulnerable but additional economic pressures among the vulnerable. Thus the relative importance of chronic and acute stressors remains an open question. It is also important to keep in mind that only 20 per cent of the vulnerable class have credit cards compared to 60 per cent of the non-vulnerable.

Notwithstanding the above interaction, it is important to note that the introduction of the HRP socio-demographic variables and household financial circumstances factors accounts for 95 per cent of the average explanatory power of the economic vulnerability variable. Introducing the subjective economic stress variables this figure rises to close to 100 per cent.

Turning our focus to a consideration of economic vulnerability as a dependent variable, we find that the set of HRP socio-economic characteristics and household attributes in equation (i) produce a Nagelkerke R^2 of 0.796 when regressed on economic vulnerability. Adding the

financial inclusion variables produces no further increase. However, the addition of the measure of current subjective economic stress produces a further increase to 0.901. The ability of the economic vulnerability variable to differentiate households in terms of the severity of their debt problems is largely accounted for by the fact that it acts as a proxy for a weighted set of socio-economic circumstances that in turn are powerful predictors of severity of economic stress. Accounting for its average explanatory power requires relatively little reference to additional independent effects of financial exclusion indicators or personal coping capacities. The evidence for a degree of interaction between economic vulnerability and possession of a credit card could reflect the impact of the latter although that is by no means the only possible explanation.

Our analysis provides additional support for conceptualising and measuring social exclusion in a manner that goes beyond our current measures of 'at risk of poverty' and consistent poverty.

Conclusions

In this paper, taking Ireland as a test case, we have sought to understand the extent to which measures currently employed as indicators of poverty and social exclusion succeed in capturing over-indebtedness and, more broadly, severity of debt problems. Our decision to extend our analysis beyond over-indebtedness as such was due to the clear evidence of the substantial role of socio-economic factors in structuring a broader continuum of debt problems.

Our analysis reveals that there is a clear gradient in terms of capacity to identify such problems with predictive ability increasing sharply as one moves from 'at risk of poverty' to consistent poverty and finally economic vulnerability. The key distinction between the 18 per cent of households defined as economically vulnerable and all others.

Further analysis confirmed that it was economic vulnerability characterised by a multi-dimensional profile relating to heightened risk in relation to income poverty, basic deprivation and subjective economic stress rather than simply current exposure to economic stress that is crucial.

Financial exclusion relating to access to a bank account and a credit card was found to increase debt levels. However, the effect was rather modest when viewed in the context of the substantial effects associated with economic vulnerability. Having a bank account had a positive effect for both vulnerable and non-vulnerable groups both before and after controlling for a range of socio-economic factors. For the non-vulnerable this is also true in relation to possession of a credit card but for the non-vulnerable group the original positive effect is reversed when controls are introduced.

While the net effect was modest, the relationship between access to a bank current account and less severe debt problems suggests that access to basic financial services of this sort can assist households to manage income and payments, although the current data do not provide details on the precise type of banking services that would be most useful to vulnerable households. The manner in which economic vulnerability succeeds in

differentiating between levels of severity of debt problems seems to be largely a consequence of its relationship to a wide range of socio-economic attributes and socio-economic circumstances. However, the net impact of economic vulnerability on severity of debt problems controlling for a range of socio-economic factors is exacerbated for those with access to credit card facilities.

Exposure to income shocks and concerns about further deterioration in financial circumstances are features of this wider vulnerability. However, the relatively modest role of such acute stressor needs to be viewed in the context of enduring levels of more chronic financial pressures to which economically vulnerable households are subjected.

It may still be the case that personal characteristics and income, various aspects of money management are associated with the risk of over-indebtedness and interaction with economic vulnerability may provide one channel of influence. McCarthy (2010) argues that while demographic and economic variables are important, behavioural characteristics like an individual's capacity for self control, planning and patience are both statistically significant and economically important for predicting 'financial distress'. Similarly, in the UK, Berthoud and Kempson (1992) found that those who placed high importance on making payments, even if this meant going without other things, were much less likely to have problems with debt. In addition the absence of savings has been found to be related to heightened levels of being in arrears (Berthoud and Kempson 1992).

As with most complex social phenomena, there is unlikely to be a single simple cause of over-indebtedness (Davydoff et al 2008). Bradshaw and Finch (2003) suggest that it is useful to distinguish between *risk factors* which signal the vulnerability of a category of households or individuals and *triggers* which translate such propensities into actual outcomes. Risk factors (such as low income, unemployment, absence of educational qualifications, lone parenthood) will work in combination with each other and with triggers (changes in circumstances) to lead to over-indebtedness, while poor money management, over-commitment and financial exclusion may compound the problems being faced.

While the latter factors may play a role in helping us to understand the micro-processes through which economically vulnerable households become exposed to severe debt problems we could find little evidence that they play an important role in mediating economic vulnerability in a manner that is independent of the socio-economic circumstances of households. A lack of savings appears to be indicative of diminished resources rather than poor financial management. The significance of financial management is critically related to the level of available resources. As Atkinson (2006:20) notes, day-to-day money management is of prime importance for households who do not have the wherewithal to engage in long-term financial planning and are disassociated from the world of financial services. For well endowed households the consequences of inappropriate money management are a good deal less drastic.³

This is not to say that "over- borrowing" or reckless-lending might not become a more common source of over-indebtedness as the economic recession persists. The EU SILC module on over-indebtedness was carried out in 2008 early on in the current recession.

Households with a high level of credit, particularly mortgage credit may be at risk of over-indebtedness due to income loss caused by unemployment and pay cuts. This is particularly true if loss of income becomes more permanent through long term unemployment or inactivity, which will mean that resources, insurance and savings are depleted. The level of long term unemployment has increased significantly since 2008, from 1.5% to 5.9% in the second quarter of 2010. Almost half of unemployed men (49%) and one third of unemployed women are now long term unemployed (49%) (CSO, 2010). Combined with significant cuts in pay and rises in tax levels since the survey in 2008 there is likely to have been a significant increase in over-indebtedness in 2009 and 2010, however the data is not available to conduct this analysis as the special module was only fielded in 2008

While these problems may become more widespread than in the past, our analysis suggests that those drawn into the debt net will come from an enlarged set of economically vulnerable households. The scale of debt problems may be substantially greater than heretofore. However, the composition of those households affected is almost certain to reflect the impact of the socio-economic factors that we have shown to be crucial in predicting both economic vulnerability and severity of debt problems. However, the scale of mortgage debt is likely to mean that life-cycle stage is likely to play an increasing important role although in interaction with rather than independently of other socio-economic characteristics. The manner in which a potential debt crisis unfolds will be and be shaped by the broader socio-economic structuring of life-chances. Any attempt to respond to such problems by concentrating on household behaviour or, indeed, triggering factors without taking the wider context of social structuring of economic vulnerability is likely to be both seriously misguided and largely ineffective.

Notes

- ¹ It is worth noting that households may become over-indebted without any access to sanctioned credits as they run up debt on utility bills, mortgages or rent etc.
- ² Caution must be exercised with these figures as there are only 74 households who were both over-indebted and had experienced an income shock.
- ³ For those attracted to 'behavioural' explanations it is salutary to note that while being a local authority tenant household had a significant impact on severity of debt problems, its net effect when controlling for other socio-economic attributes was insignificant.

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