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CONSUMER FINANCIAL VULNERABILITY: TECHNICAL REPORT

European Credit Research Institute

and

Personal Finance Research Centre

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CONTENTS

List of Abbreviations

AT	Austria
BE	Belgium
DK	Denmark
ECRI	European Credit Research Institute
ECHP	European Community Household Panel
EE	Estonia
EL	Greece
ES	Spain
ESS	European Statistical System
EU-SILC	EU Statistics on Income and Living Conditions
FI	Finland
FR	France
GW	Genworth Financial
HRP	Household Reference Person
IE	Ireland
IS	Iceland
IT	Italy
KMO	Kaiser-Meyer-Olkin statistic
LU	Luxembourg
NO	Norway
PCA	Principal components analysis
PDI	Personal disposable income
PT	Portugal
PFRC	Personal Finance Research Centre
RO	Romania
SE	Sweden
TR	Turkey

I. INTRODUCTION

Consumer financial vulnerability – the personal feeling of being in a financially unstable situation – is one of the early indicators of financial stress in households. A number of factors can lead to perceptions of vulnerability, such as a darkening economic outlook, expected wage cuts or an increasing risk of unemployment. This topic has been the focus of greater interest in Europe over the past few years, leading to efforts by the European Commission to find a common definition of over-indebtedness.

The European Credit Research Institute (ECRI) and the Personal Finance Research Centre (PFRC) have conducted research on the development and construction of a Consumer Financial Vulnerability Index, supported through a grant by Genworth Financial. In addition, we have worked together with expert institutions (listed in **appendix 1**) in each of the 10 European countries covered by the survey. The countries selected for the survey were chosen by Genworth Financial, primarily as a reflection of their market activities.

In this report, we provide an in-depth description of the research methodology and approach taken to developing the index. The report also discusses the technical matters behind the new index. The companion report, *European Trends in Consumer Financial Vulnerability* (European Credit Research Institue and Personal Finance Research Centre, 2008) discusses the survey results and puts them into the context of general economic developments in the countries covered. We begin with a review of the literature (section II) that forms the general background for the Index. This section additionally includes a discussion of the latest research on household indebtedness, behavioural economics and consumer psychology as well as consumer finance and repayment problems. These research areas overlap, and the Index is located at the intersection of these topics.

Section III presents an overview of existing indices, with a view to verifying that we have avoided duplicating information that might already exist at the European level. The overview confirms that so far, an index similar to the Index has not been calculated based on representative polling in the countries covered in this study. There is, however, academic research for some individual countries, where comparable questions have been used to map out financial problems. We discuss this research where it is relevant.

Section IV discusses the initial exploratory analysis of the survey data, which has informed the development of the Index. The aim of this discussion is to provide the greatest transparency possible for those parties interested in the technical aspects of how the index has been constructed (and for replication). We then present the final index construction methodology and the initial results of the index in section V.

II. LITERATURE REVIEW

The main purpose of the Index is to identify those households in financially fragile situations. The theoretical background is provided by the literature on economic psychology. This section seeks to highlight the concepts that already exist and how the different economic or psychological factors relate to each other. The literature discussion takes into account research in the field of consumer finance, consumer psychology and perceptions about personal finances. Furthermore, the review covers the latest research on economic psychology as well as papers about creditworthiness analysis (scoring) as far as they are relevant for understanding consumer financial vulnerabilities.

2.1 ECONOMIC THEORY OF HOUSEHOLD INDEBTEDNESS

Borrowing decisions are made by consumers individually or jointly within households. In microeconomic theory, such decisions are modelled along with saving or consumption. There are two theories that explain individual or household behaviour, the *life-cycle hypothesis* and the *permanent income hypothesis*. According to the former, households maximise utility by conducting consumption smoothing, that is by maintaining approximately the same level of consumption throughout their lives.

Life-cycle and Permanent Income Hypothesis

Saving and borrowing are consumption-smoothing mechanisms: households borrow when their income is lower and save when their income is higher (Modigliani & Brumberg, 1954). Credit is used as a mechanism to transfer consumption intertemporally from periods of higher income to those with lower income, with the household borrowing in the latter (Ando & Modigliani, 1963). The behavioural life-cycle hypothesis maintains that individuals psychologically sort their assets into categories such as belonging to current or future income or current or future wealth (Shefrin & Thaler, 1988). Such accounting influences consumer behaviour significantly and affects credit or insurance decisions.[1]

Another concept related to the life-cycle theory is the *permanent income hypothesis*. The household financial situation is reflected in the household balance sheet – that is, the balance of income and expenditure. Friedman (1957) suggests that individuals base their consumption on what they perceive as "permanent income": the income that they expect to earn on average throughout their lives. The hypothesis holds that consumption expenditure is not determined by current income but rather by the long-term income expectations (permanent income) of households. Consumers are willing to maintain a level of consumption related to permanent income and less inclined to do so based on fluctuations in their current income stream.

One of the concerns of this study is how households manage to balance their inflows and outflows of money by saving or by taking credit. These decisions are made intertemporally and are sometimes subject to *unexpected shocks* (sudden increases or decreases in flows). Such shocks can provoke a sense of financial vulnerability, such that a household becomes uncertain about its capability to finance recurring expenditures. **Table 1** represents a household's balance sheet of income flows and expenditure flows. The right-hand side states that income can be spent on non-debt related items as well as on debt financing. Income can arise from labour income or capital income, but most households can be classified as wage earners. For financial stability, it is important that the household finds a financial equilibrium of income flows and expenditure flows.

Table 1
Household income and expenses

Income (inflows)	Expenses (outflows)
Recurring income (minus taxes) = personal disposable income	Non-debt related recurring expenses (such as food, insurance, telecoms, utilities, school fees)
	Debt-related recurring expenses (such as interest and instalment payments)

Financial instability can occur when expenditures are larger than income and there are no savings available. In such cases, a consumer or household can face financial difficulties.

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[1] Behavioural economics is discussed further below.

The next subsection gives an overview of intertemporal decision theory. Consumer choices are in many cases intertemporal: consumers take the future into account and have expectations about income and expenditures. In economic theory, however, welfare can be maximised by smoothing across time periods if there are possibilities of savings and credit.

Intertemporal Consumption Choices

Decisions to save or to take credit are in fact decisions on how to manage money over several time periods (days, months and years). When households take credit for the purchase of goods, they decide to consume immediately and to spend future income, as credit has to be paid back in future. Conversely, when a household saves, the decision is to postpone consumption to some future period and that consumption will be financed out of money earned today. This is briefly set out below in a formal way. Typically, a rational consumer is expected to maximise utility given some budget constraint. Based on this, consumers decide on spending and saving or 'dissaving' (obtaining credit). The utility U of consumers depends on their current consumption C_0 and on future consumption C_1 (we disregard savings here). Individuals need to decide how to spend their income Y: either on current or on future consumption. The funds set aside for future consumption are not spent immediately, and therefore can be invested to earn interest. The 'present value' of the income (which is the 'intertemporal budget constraint'), is

$$Y = C_0 + \left(\frac{1}{1+r}\right)C_1 \tag{1}$$

In equation (1), $\left(\frac{1}{1+r}\right)$ is a discount factor, which accounts for the present value of some future amount of money (so-called 'net present value'), where r is the discount rate. By discounting, one reduces an expected future sum to its present value. If the possibility to take credit is introduced, the equation becomes

$$Y = C_0 + \left(\frac{1}{1+r}\right)C_1 + C_0^b - \left(\frac{1}{1+r}\right)C_1^b \tag{2}$$

In equation (2), C_0^b represents the amount borrowed in the current period and C_1^b in the future period. The amount C_0^b increases consumption now, but it decreases future consumption by the same amount plus a discount rate. By borrowing, the person can consume more now, but less in the future. This shows that consumers can use the possibilities to save and to borrow to make the most of their budget. But as with all models, theory sometimes fails, especially when it is based on the rationality axiom, therefore we also consider behavioural economics as discussed below.

2.2 BEHAVIOURAL ECONOMICS AND CONSUMER PSYCHOLOGY

This section reviews literature on consumer psychology and behavioural economics. As described above, there is a body of theory with standard assumptions, but there are also new theoretical works that shed some light on possible sources of financial instability. In the standard microeconomic theory, consumers rationally maximise utility under budget constraints. These stylised assumptions are often breached in reality. These breaches might stem from psychological patterns inherent in consumers. This aspect is important for the construction of the Index (as consumers are asked for their perceptions). Thus, in this discussion the consumer is the centre of focus

There are a number of explanations that help to illuminate *consumers' decisions on financial matters* and the *potential* for becoming over-committed. There can be biases in the choices made about credit or repayment insurance. Of course, there might also be misinformation by lenders or abusive business practices.

Behavioural economics holds that judgment is the process whereby individuals estimate probabilities for occurrences of events (Camerer & Loewenstein, 2002). Assumptions about the future influence present behaviour, for instance, the expectation of a drop in income will have an influence on whether a consumer is inclined to become indebted.[2] The prospect theory of Kahneman & Tversky (1979) is seen as an important landmark of behavioural economics. It is considered the alternative assumption to the expected utility hypothesis. In the latter, the consumer assigns objective mathematical probabilities to events. Kahneman & Tversky state that people value gains and losses. "Utility depends on a reference point that partitions outcomes into gains and losses" (Pesendorfer, 2006, p. 714). For utility, the overall level of achievable welfare is less important compared with whether it is perceived as a gain or loss.

At the same time, the theory also explains loss aversion: "The disutility of a loss of *x* is worse than the utility of an equal-sized gain of *x*" (Camerer & Loewenstein, 2002, p. 23). In theory, the value function is a replacement for the expected utility function.[3] There is an asymmetry between decisions to acquire or to keep resources. Loss aversion is stronger when emotions play a role. For instance, a loan might bear the risk of losing the purchased house in case of repayment difficulties; therefore, the consumer will be more inclined to obtain payment protection.

Subjective beliefs are especially important when analysing demand for credit or insurance. Consumers will estimate the probability of an event that *negatively impinges* on their *repayment ability*. If a negative impact is considered likely, the propensity to purchase repayment insurance will increase.

Cognitive economics explains that adding information up to a critical point increases human performance, but further additions decrease it, because *information overload* results (Davis & Olson, 1985; Paredes, 2003). In insurance or credit transactions, consumers might not read the policy or contractual terms, or lenders may bury important clauses in loads of text in small print. This lack of information can lead to repayment problems later on. Consumers' decisions may also be blurred by remembering certain things that influence their thinking about how likely certain events are to occur (Raynard, 2006). For instance, if a consumer has been in arrears on a loan before, there might be an overestimation of the probability that this will happen again in the near future, because this is what the consumer remembers.

A *lack of information* also exists on the side of creditors/insurers, which can lead to distortions in the market: typically, a creditor has less information than the consumer does about that consumer's repayment capabilities. Although there are a number of remedies against information asymmetries such as guarantees, screening and monitoring, the lender will have to make decisions based on incomplete information. Creditors cannot predict unexpected life events that negatively affect the repayment ability of consumers. For instance, unemployment, divorce or illness can represent sudden income drops or expenditure rises. Asymmetric information in credit markets leads to credit rationing or pooling, among other problems. Literature on this subject, however, is not discussed in greater detail here, as psychological biases in credit decisions are of primary interest (for a detailed discussion of credit rationing literature, see Jentzsch, 2007).

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[2] The classical assumption in economics is that consumers act like so-called 'Bayesian updaters', meaning that they are assumed to revise/update beliefs based on *probability theory*. This point is important for economic modelling.

[3] In this function, the value of the outcome of an event is multiplied by the probability of its occurrence.

Insights from experimental economics help to clarify why biases exist if choices are made under uncertainty. Standard intertemporal choice assumes that it does not matter at which point in time a decision is made, if the outcome is the same, the utility derived will be the same. Dynamic decision theory modifies this simple assumption, stating that future utilities derived from the outcome are discounted with an exponentially declining factor. This means that some individuals tend to be impatient and choose earlier, smaller rewards that can be consumed immediately over later, larger rewards (the so-called 'immediacy effect'). This preference is called *hyperbolic discounting*. Some credit products (such as credit cards) support and facilitate impulse purchases. The impatience behind sudden consumption choices (unplanned expenditures) can later lead to over-indebtedness.

To cope with risk/complexity in uncertain situations, individuals employ *heuristics*: simple rules of thumb rather than assumptions about the true statistical distribution of occurrences. For instance, whether a consumer purchases repayment insurance depends on his/her perceptions of the likelihood of repayment difficulties. Heuristics are mental shortcuts for deriving quick decisions in complex situations.

2.3 RESEARCH ON CONSUMER FINANCE AND REPAYMENT PROBLEMS

The studies presented below examine problems related to consumer credit, mortgages, rent and utility bills, as well as indebtedness and financial difficulties. There is no general applicable definition of terms such as over-indebtedness, repayment problems, financial vulnerability or fragility. For instance, some authors use the term 'over-indebtedness' in relation to those who have large amounts of secured or unsecured credit relative to income (Betti et al., 2001). Others use the term not only concerning individuals who face payment difficulties on their secured and unsecured credit, but also on other recurring expenses such as household bills (Gloukoviezoff, 2006; Kempson, 2002; Poppe, 1999). An overview of measures is represented in **Table 2.**

Table 2
Overview of repayment difficulty measures

Measure	Explanation	Study
Arrears	Late or missed payments on all bills	Kempson (2002) Bridges & Disney (2002) Pyper (2002)
	Late or missed payments on specific bills	Herbert & Kempson (1995) Ford et al. (1995)
Payment problems	Situation in which no money is left to pay bills or debt repayments on the last due date	Poppe (1999) Tufte (1999)
Debt problems	Situation in which no money is left for debt financing in particular	Tufte (1999)
Use of overdraft facilities	Situation in which the household is using overdraft facilities as a financial coping mechanism	MORI (2003) Atkinson et al. (2006)
Subjective assessment	How well the household is making ends meet	Kempson (2002) Atkinson et al. (2006)
Debt index	The debt index is informed by multivariate analysis and constructed from the following variables: arrears, bank credit, poor creditworthiness, number of credit contracts and self-reported financial status	Webley & Nyhus (2001)
Problem group approach	Identification of problem groups through the identification of indicators of financial strain	Kempson & Atkinson (2006)

In the context of this survey, we understand repayment problems as situations in which consumers have difficulties in meeting or are falling behind in their current commitments. The latter may relate to secured and unsecured credit, rent obligations, utility payments or other recurring household bills. This is generally measured by levels of arrears, payment problems, financial coping strategies and subjective assessments, as discussed below.

- **Arrears**

  Repayment problems can be measured as arrears or late/missed payments. Some authors present detailed information about each type of commitment of a household such as mortgage and consumer credit commitments plus other household bills to determine the overall level of arrears on one or more bills (see Kempson, 2002; Bridges & Disney, 2002; Pyper, 2002). Other studies exclusively look at default on specific commitments, such as water bills (Herbert & Kempson, 1995) or mortgage repayments (Ford et al., 1995). The first study of credit and debt in the UK distinguishes between arrears and "problem debts", which are either arrears where there is a problem with paying the money owed or household worries about arrears (Berthoud & Kempson, 1992). Another study makes a distinction between general arrears and those that cannot be repaid (Atkinson et al., 2006). Additional studies have collected data on the duration of the arrears for similar reasons (Kempson, 2002; MORI, 2005); in so doing, it is possible to differentiate between arrears that are more persistent and those that are temporary in nature (so-called "structural arrears" after Oxera, 2004).

- **Payment problems**

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Studies in Norway have used the term 'payment problems' to refer to situations in which a household often or very often has no money left to pay bills or debt repayments on the last due date (e.g. Poppe, 1999; Tufte, 1999). Under this heading, 'debt problems' are further distinguished by examining just those payment difficulties that relate to servicing and repaying credit (Tufte, 1999). This definition is closely related to that for 'arrears', because individuals with payment problems fall into arrears. Nevertheless, this description of arrears is not based on detailed interrogation into the status of individual bills as described in relation to the arrears measures above, and is consequently more subjective and less quantifiable in nature.

- **Financial coping strategies**

Some studies have referred to the use of overdraft facilities as a coping mechanism for households under financial stress which are constantly in overdraft as an objective measure (for instance, MORI, 2003; Atkinson et al., 2006). In general, households can use different strategies to cope with financial strain. In Atkinson et al. (2006), the measure is the use of the extended facilities on credit cards to pay for everyday living expenses and for drawing cash. Others have looked at the need to take out additional credit in order to pay off debts (e.g. Kempson, 2002).

- **Subjective judgments**

Several studies ask respondents how well the household is making "ends meet" (e.g. Kempson, 2002; Atkinson et al., 2006), meaning to manage expenses such that they do not surpass budget constraints. Other subjective measures include a self-assessment of financial difficulties, such as comparing the current situation with that 12 months ago and the extent to which the household runs short of money before the next payday (Kempson, 2002) along with how well households can cover bills and other commitments without difficulties (Atkinson et al., 2006).

- **Combined measures**

Some studies employ a mix of objective and subjective measures to examine the problem of over-indebtedness (e.g. Kempson, 2002). Others have used batteries of measures examined in multivariate analysis to identify distinct groups that are defined by the combined answers to the various measures. One study in the Netherlands uses a debt index informed by multivariate analysis (non-metric multidimensional scaling) constructed from being in arrears, having bank credit, poor creditworthiness, the number of credit arrangements and self-reported financial status (Webley & Nyhus, 2001). A recent UK study uses cluster analysis to identify different groups of persons based on their responses to three indicators of financial strain. These indicators are respondents' own assessments of how well they are managing to make ends meet, the frequency of being overdrawn on a current account and the frequency of using the extended facilities on credit cards to meet daily living expenses (Kempson & Atkinson, 2006).

Still other surveys explore a variety of questions. For instance, Livingstone & Lunt (1992) investigate which consumers fall into debt, why some borrow more than others and the determinants of how far they slide into debt. We only briefly review the results of the first two questions. The authors use discriminant analysis, a statistical technique to identify those variables that best differentiate groups of borrowers. The sample is made up of 279 residents in the Oxford area. The amount of a person's debt is significantly associated with disposable income, the number of loans, his/her social class and psychological variables such as a belief that credit is useful. Individuals who

borrow more also display a greater external locus of control (that is, the attitude that events in life depend on outside circumstances).[4]

- **Financial expectations**

  Brown et al. (2003) explore expectation-based determinants of debt and growth in debt. Theory holds that there is a positive association between debt amount and optimism: optimistic households will take up more debt. The authors use the 1995 and 2000 waves of the British Household Panel Survey, which is a random sample of more than 5,000 private households interviewed in successive waves. The survey contains information about unsecured and secured credit and about individual's expectations concerning their financial future. The determinants of debt are estimated using a random effects Tobin model and by including a vector of personal characteristics.[5] Significant effects with varying impact can be found for marital status, income, second job and promotion opportunities in the future. For individuals, the authors also find a positive effect of optimism on the amount of debt.

  Optimistic individuals with otherwise average features incur *double* the amount of debt. The authors state that debt is primarily determined through individual decisions rather than household-level decisions. Also, when heads of households are considered, optimism has a positive impact. Indebtedness grows with optimism.

  The study additionally assesses the impact of optimism and pessimism on debt amount and growth. The authors construct a measure of expectations by counting how often individuals note optimism over a period of six months. The analysis shows that the more optimistic a person is, the more indebted s/he becomes.

2.4 RESEARCH ON CREDITWORTHINESS

Creditworthiness analysis (scoring) is the name given to statistical procedures used to estimate the risk of default or delinquencies of consumers (not households). In this section, we draw upon Jentzsch (2007) among others. Scoring models take several predictors of credit risk (payment history, number and types of accounts, late payments and collections, etc.) and relate them to variables that define credit risk. The purpose is to predict the likelihood of a default or delinquency by a consumer. If being in financial difficulty or stress is defined as delinquency (being late on paying bills), then the model predicts difficulty. To derive a credit score, the system awards points for each factor to predict the likelihood of delinquencies. These points are added to gain a score, with higher scores representing lower risk.

There are different methods available for the estimation of credit risk such as regression analysis, recursive partitioning algorithms (classification trees) and neural networks. These are not discussed here as they have been elaborated upon elsewhere (Crook, Edelman & Thomas, 2002; Fair Isaac, 2003; Thomas, 2000). Credit scoring models are proprietary and are not disclosed by banks, finance companies, scoring companies or credit reporting agencies that build or use such models.

The industry typically uses three different types of classifications: good credit risks (never in arrears), indeterminate risks (late one to two months) and bad credit risks (missed payments for three or more months). Hand & Henley (1997, p. 527) describe the typical characteristics that are included in a scoring model (presented in a shortened, modified version in **Table 3**). Models vary in the range of variables they use. For instance, far more information will be requested from an applicant seeking a €500,000 mortgage compared with someone who

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[4] The problem with this survey is that the sample size is very small. The analytical model includes a high number of variables considering the sample size, such that estimates of the regression could be unstable.

[5] The Tobin model is used because debt is a censored variable.

wants to finance a car. Although commercial models are not available and researchers usually have problems obtaining commercial data, some companies explain which of the variables are most important. The US firm Fair Isaac explains that its score is driven by the following five factors (contributions in percentages):

➢ Amounts owed (30%)

➢ Length of credit history (15%)

➢ New credit (10%)

➢ Types of credit used (10%) and

➢ Payment history (35%)

Table 3 gives an overview of the variables included in scorecards. These are primarily derived from applications (which ask more questions) as well as from data files of credit bureaus (compiled from the banks' client files). For the development of the financial vulnerability index, only a few questions can be asked. Thus, it is not directly comparable with an index built on very detailed application questions, which in addition uses credit bureau data.

Table 3
Typical characteristics included in scorecards

Characteristic	Attribute
Time at present address	0-1, 1-2, 3-4, 5+ years
Homeowner status	Owner, tenant, other
Postcode	Postcodes sorted in bands
Annual income of applicant	Amounts in ranges
Credit card ownership	Yes/no
Age	Years of age in ranges
Type of occupation	Encoded
Marital status	Married, divorced, single, other

The scoring literature that is most closely related to the present survey is that on building harmonised or common EU scoring models. At the European level, there have been attempts to develop a common scorecard that could be used in several countries. This effort is comparable to developing a scheme to predict consumer financial fragility in different countries, although the data used differs. Howe & Platts (1997) study whether variables change their predictive power across European countries. They select five countries to represent the different regions in Europe: the UK, Germany, Greece, Belgium and Italy. Furthermore, they select roughly 20 common variables for these countries from an Experian dataset. The authors build one European model and five regional ones. Yet, as Europeans use credit differently, the information items in the different markets vary. Common variables are

➢ Residential status

➢ Home telephone

➢ Credit cards

➢ Number of dependants

➢ Negative data

Some of these variables may be more predictive in one country than elsewhere. In their comparison, the European card 'scores' worse than the country models. Andreeva, Ansell &

Crook (2003, p. 7) use 16 common variables to predict the credit risk of consumers in three countries: Belgium, Germany and the Netherlands. They show that there is only a minor loss of prediction quality compared with national models. Note that these authors are able to use more variables than are possible for the consumer financial vulnerability index. The authors conclude that generic scoring is a viable option if the data are harmonised among the countries.

One problem is that such choices are intertemporal and consumers might not accurately predict the future. Therefore, to measure consumer financial vulnerability, an index should possibly combine questions related to the present situation as well as the future.

III. EXISTING INDICES: AN OVERVIEW

3.1 EUROPEAN INDICES

This section provides a brief summary of indices that exist at the international and national levels in Europe, to verify that the index developed as part of this research does not duplicate existing indicators. From this review, it can be ascertained that there are indices that identify consumer confidence and household financial situations (in terms of earnings), but there are no indices that directly map consumer financial vulnerability, with *national research excluded*. In some of the surveys, there are questions about the current financial situations of consumers and whether they can make ends meet (i.e. some of the questions used in our survey).

3.1.1 EU Statistics on Income and Living Conditions

There are intensified efforts at the European level to develop social indicators that track poverty, deprivation and over-indebtedness. These initiatives are described below as they are closely related to our research. In 1999, the European Directors of Social Statistics decided to replace the European Community Household Panel (ECHP) with a new collection of modules.

At a summit in 2001, the heads of state of European countries decided to collect indicators for measuring social exclusion and poverty. These indicators involve micro data on income, poverty, social exclusion and living conditions. They play a major role in the measurement and design of policies to reduce poverty in the EU member states. The EU Statistics on Income and Living Conditions (EU-SILC) was launched in 2003–04 with some countries having longer implementation periods.[6] EU-SILC is embedded in the European Statistical System (ESS) and is a representative annual panel survey. **Table 4** gives an indication of the core areas covered.

Some of the questions can be classified as factual questions, such as HS010 (whether the household has been in arrears over the past 12 months), whereas others are founded more on perceptions (such as the ability to make ends meet). Different researchers have taken replies to these questions as indications of over-indebtedness in individual countries (as discussed in the section on national indicators).

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[6] EU-SILC was launched in 2004 in 13 EU member states (BE, DK, EE, EL, ES, FR, IE, IT, LU, AT, PT, FI and SE) and in NO and IS. EU-SILC reached its full-scale extension in the 25 member states plus NO and IS in 2005. Later it will include TR and RO, among others.

Table 4
Information currently collected by the EU-SILC

Identification	Type of variable
HS010	Arrears on mortgage or rent payments
HS020	Arrears on utility bills
HS030	Arrears on hire purchase instalments or other loan payments
HS060	Capacity to face unexpected financial expenses
HS120	Ability to make ends meet
HS130	Lowest monthly income to make ends meet
HS140	Financial burden of total housing costs
HS150	Financial burden of the repayment of debts from hire purchase or loans
HY010	Total household gross income
HY020	Total disposable household income
HY022	Total disposable household income before social transfers other than old-age and survivors' benefits
HY100G/HY100N	Interest repayments on mortgage

Source: EU-SILC.

For 2008, EU-SILC has incorporated an extra module, which considers over-indebtedness and financial exclusion. This module asks very detailed questions with regard to bank accounts and overdrafts, credit cards, sources of credit/loans, arrears and drops in income, as well as future expectations. It is a one-off module, but can be repeated every four years.

Over-indebtedness has been described in the past by the European Commission as debt that has become unsustainable for the consumer or as structural disequilibrium between income and recurring expenditures, including payments of credit and debts. It can be measured by various indicators, but none of them alone is sufficient to reflect it. Instead, a combination of indicators must be applied.[7] The module is supposed to capture three dimensions of over-indebtedness: 1) level of repayments and debts, 2) subjective debt burden, and 3) arrears. Again, this has not been calculated on an EU-wide basis.

3.1.2 European System of Central Banks

The European System of Central Banks neither publishes nor otherwise develops indicators of consumer financial vulnerability or over-indebtedness. It only monitors the household sector balance sheets from a macroeconomic point of view. These activities are discussed here, if only briefly.

The European Central Bank monitors loans to households (housing credit, consumer credit and other loans) by monetary financial institutions as well as other balance sheet indicators (liabilities-to-assets and debt service-to-income ratios). In the past, various time series have been calculated from the ECHP. As discussed at an Expert Roundtable meeting hosted by ECRI in 2006,[8] aggregate macroeconomic data are not suitable for identifying financially vulnerable households. Only household surveys generating micro data will give suitable indications of the distribution of debt (and the debt burden) as well as of groups of households that might be particularly prone to shocks. The following list summarises the Central Bank

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[7] Examples of these indicators are debt-service burden, the number of credit commitments, indicators of arrears on credit commitments or any other recurring commitments such as rent, water and electricity.

[8] See ECRI, Expert Roundtable on the Latest Developments of EU Household Indebtedness, Meeting of 21 November 2006 in Brussels (retrieved from http://www.ecri.be/new/taxonomy/term/2).

indicators used for the analysis of financial fragility of the household sector (not of individual households). There are four main indicator groups (Kask, 2003, p. 36):

1) Indebtedness indicators
2) Capital gearing
3) Income gearing, also called the 'debt-service burden'
4) Wealth indicators

The Bank of England typically uses three of the above as indicators for the financial health of the household sector: debt-income ratios, income gearing and capital gearing measures (derived from the relationship between the liabilities and asset sides of the sector balance sheet – see Cox, Whitley & Brierley, 2002, p. 410). **Table 5** presents the macroeconomic indicators.

Table 5
Macroeconomic indicators

Indicator	Explanation
Indebtedness	Total household debt to GDP
	Total household debt to total disposable income
Capital gearing ratio	Total household liabilities to total assets
	Sub-indicators
	Household liabilities to financial assets
	Household liabilities to fixed assets
Income gearing ratio	Household debt-service/personal disposable income (PDI)
	Sub-indicators
	Household debt-service unsecured credit/PDI
	Household debt-service secured credit/PDI
Household net worth	Household net worth (assets–liabilities)

Although the above measures are suitable for monitoring financial pressure in the household sector, they provide little information on the distribution of debt or the demographics of it. Nor do macro data present the distribution of financial burdens across households. They also hide other important information such as risk at the disaggregated level: while some households might increase their assets, others might sharply decrease them, but this cannot be monitored by analysing aggregated data. In addition, it might not be the same households that compile assets and become indebted (Cox, Whitley & Brierley, 2002, p. 411). Debt burden varies enormously across households; the extreme cases (in the tails of the distribution) are the interesting ones in the sense that these cases are those at risk.

3.2   RESEARCH AND INDICES IN INDIVIDUAL COUNTRIES

We have worked together with different experts in the individual countries to enable coverage of the existing research and to answer the question of whether such an index already exists (a list of the country experts is given in **appendix 1**). There is a confidence index by Eurostat, which publishes harmonised data on consumer sentiment. This index identifies, over the subsequent 12 months, consumers' financial situations, the general economic outlook, unemployment expectations (with an inverted sign) and savings. The consumer confidence indicator is the arithmetic average of the balances (in percentage points) of the answers to the questions concerning each of these aspects over that time period. Thus, the index only

aggregates expectations. To aggregate and come up with EU results, different weights are given to different countries. The weights reflect the contribution of the EU member state to overall, private final consumption expenditure in the EU.[9] The consumer index seems to indicate changes in consumer spending with a lead-time of perhaps one to two quarters. The index has been implemented in the individual countries in Europe, and thus results can be obtained in a disaggregated way.

There have been works with indicators that include measurements of financial difficulties. For instance, Rebiere (2007) describes different possibilities for how over-indebtedness (a closely related concept, although not the same) can be measured taking national surveys into account: 1) arrears on accommodation, utility bills or loans; 2) subjective perception (self-assessment of being in financial difficulties); 3) a debt-service ratio exceeding 30%; and 4) the inability to pay debts without endangering subsistence. According to this methodology, in France 10.5% of households are in arrears, 16.4% have difficulties, 9.5% have a debt-to-income ratio of >30% and 9.8% cannot pay debts without endangering subsistence. He suggests that arrears and the impossibility of paying debts should be used for measurement.

Carpentier & Van den Bosch (forthcoming) study problematic debts in Belgium, with the main focus on situations in which debt pushes people into poverty – a very important concept reflected (but slightly modified) below. The main purpose of their research is to find reliable indicators using the Belgian SILC 2004 data (as commissioned by the Belgian Federal Public Service Social Security). The authors also make suggestions for revisions to the questions.

The Belgian SILC survey has some additional questions compared with the EU-SILC.[10] We would like to suggest the inclusion of similar questions in the revision of the EU-SILC. The authors suggest nine indicators for 'problematic debt situations'. Among these is the percentage of the population that becomes poorer owing to consumer credit payments, the increase in the poverty gap because of credit payments, a debt-service ratio above 20%, two or more arrears on household bills and the cut-off or limited use of water, electricity or gas. Of these, two are selected as the main indicators.[11] According to these indicators, 5-6% of the population has a problematic level of debt. They also state that only 1% of the population combines problematic arrears and poverty, and that the indicators would point to very distinct groups.

In Finland, Muttilainen & Reijo (2007) measure repayment difficulties based on national and EU-SILC data for Finland. Among their indicators is the predicament of falling behind in paying bills (either once or for extended periods). Other indicators used in their research are debt settlements with creditors or loans falling behind schedule (or both). The study shows that 7% of Finnish households have repayment problems, but overall the numbers have fallen for all the indicators from 2002 to 2005. Other research in this area is conducted by the University of Antwerp as well as by the Portuguese University of Coimbra. Altogether, there is already a large body of research, but the measurements of financial difficulties differ across countries and studies.

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[9] This is a two-year moving average (from the AMECO database of the Directorate-General for Economic and Financial Affairs, European Commission).

[10] These questions include the monthly amount of payment for consumption credit and the number of arrears individuals have faced for several kinds of expenses in the last 12 months (once, twice or more than twice). The question on arrears has also been broadened to other kinds of expenses (such as healthcare).

[11] These two indicators are the percentage of the population becoming poor or poorer owing to consumer credit payments and the percentage of persons in the household with at least two arrears for electricity, water or gas bills, or for healthcare, rent or mortgage payments.

IV.   INITIAL DATA EXPLORATION AND DESCRIPTION

4.1   INTRODUCTION TO DATA EXPLORATION

This section reports the results of exploratory analysis of the survey data used to inform the development of an index of financial vulnerability. A number of questions assumed to relate to financial difficulties, circumstances and vulnerabilities are included in the survey and form the baseline of the Index. It is not expected that all the questions will be used in the Index, nor would it seem efficient to ask more questions than required to 'capture' financial vulnerabilities on an ongoing basis. The relationship of these questions to each other and the distribution of responses to them are examined through largely multivariate statistical methods. The module of questions included in the Ipsos Mori omnibus survey contains eight questions that are of potential interest when building an index of financial vulnerability. These comprise three measures of current financial difficulties and up to five other measures and predictors of financial vulnerability, listed below.

Financial difficulties

- How often the household has experienced *financial difficulties* within the past 12 months (question GW08 in the questionnaire – see **appendix 2**)

- How often the household has been *unable to pay bills* at the last reminder (GW09)

- How well the household is currently *keeping up* with bills and credit commitments (GW14)

Measures of future financial vulnerability

- Perception of whether the household can afford more *borrowing* (GW13)

- Whether the household has *savings* equivalent to one month's income (GW10)

- Expectations of the future financial position of the household (*financial expectations*) (GW15)

The following additional financial measures are best considered as factors that might help explain (or 'predict') current financial difficulties or future financial vulnerabilities:

- the number of *credit commitments* in the household (derived from GW11 and GW12), and

- a *fall in income* in the past 12 months (derived from GW07).

The propensity to experience financial difficulties or vulnerability is expected to vary according to a range of socio-demographic and attitudinal dimensions. As such, these characteristics may also be helpful for predicting financial difficulties. A selection of these is also covered in the questionnaire:

- Age (available in the standard Ipsos Mori omnibus questions)

- Family type (derived from GW02)

- Occupational status of the household reference person (GW06)[12] (this, in combination with the number of earners in the household, is used principally as a

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[12] The household reference person is typically defined in social surveys as the householder with the highest earnings, and this approach has been adopted here.

proxy for income, which is too complicated to measure in a comparable way across different countries in a short questionnaire)

- Number of earners/whether there is a full-time earner in the household (derived from GW04 and GW05)

- Housing tenure (GW17)

- Attitudes towards saving, spending and borrowing (GW16)

4.2   SAMPLE CONSIDERATIONS AND NON-RESPONSES

Financial difficulties are considered at the household rather than the individual level. It is essential that the respondent is able to report on the situation of the household finances. Consequently, we are solely interested in the subset of the sample of respondents who are householders (defined as a person in whose name the accommodation is owned or rented, or his/her partner). We are also interested in drawing on a comparable subset of *adults* across all countries. As 18 is the minimum age for access to credit in at least some countries, we have therefore selected 18 as the minimum age for inclusion in the sample for analysis. Before undertaking any substantive analysis of survey data, it is necessary to examine key measures of interest for levels and distributions of item non-response, that is, instances in which a 'don't know' or 'refusal' has been given to an individual survey question by a respondent who has completed the module of questions. Non-response is expressed as a percentage of the total possible number of valid responses.

We are interested in examining

- individual countries in which there is a relatively high level of non-response across the individual questions;

- individual questions for which there is a highly *variable* rate of item non-response in different countries;

- individual questions for which there is a high level of item non-response overall (across all countries); and

- the kinds of individuals with high levels of non-response.

Together, these analyses inform the decisions around whether specific questions can be utilised in further analysis and if so, how the missing values should be treated. As we are interested in the raw data, this analysis has been undertaken without the application of the weights. Item non-response for each of the eight key measures by country is shown in **Table 6**.

In examining the item non-response, there is necessarily some judgment to be made in defining what constitutes a high or unacceptable level of non-response, along with what constitutes a high level of variation. Table 6 shows that the countries with the highest levels of non-response on average are Great Britain, Spain and Italy (all with an average non-response rate of over 10%) with Germany, Ireland and Portugal all recording an average item non-response rate for these measures of 5% or more.

Across the countries, there are relatively high rates of non-response (around 10%) for the *savings* measure and the *keeping up* measure. Some countries have very high rates of item non-response on these two measures, notably Great Britain and Spain on each measure. More specifically, Great Britain has a very high rate of missing values for *keeping up* (27.6%) as does Spain for *savings* (25.2%).

Table 6
Percentage of missing values (item non-response) by measure and country

	Denmark	France	Germany	Great Britain	Ireland	Italy	Norway	Portugal	Spain	Sweden	Average
Financial difficulties	0.7	2.7	6.4	10.1	2.3	8.6	0.3	1.9	6.7	1.2	3.8
Unable to pay bills	0.7	2.1	7.4	10.6	2.7	9.7	0.6	1.8	8.3	1.1	4.1
Keeping up	0.9	5.0	15.0	27.6	3.4	17.9	1.6	5.4	20.7	1.4	9.2
Borrowing	2.7	4.9	8.6	15.7	8.0	12.0	2.6	6.3	12.0	1.8	7.1
Savings	6.8	7.7	14.9	22.0	19.9	15.5	3.8	11.6	25.2	4.7	12.7
Financial expectations	2.1	7.2	6.6	14.4	10.9	14.8	2.8	7.0	10.9	3.3	7.1
Credit commitments	1.8	3.4	8.4	13.6	8.0	8.6	1.4	3.9	10.4	1.6	5.8
Fall in income	2.0	3.0	4.9	12.3	3.0	19.5	2.5	2.6	16.5	2.5	6.2
Average across measures	2.2	4.5	9.0	15.8	7.3	13.3	1.9	5.1	13.9	2.2	

Notes: Cells shaded in dark grey indicate non-response rates of 20% or higher. Cells shaded in light grey indicate non-response rates of 10% or higher (but not greater than 20%); unweighted cell percentages.

Two key socio-demographic characteristics that may sometimes influence item non-response on finance-related questions are age and occupation. Examination of non-response by these characteristics can help to determine whether certain groups have particular difficulties answering the relevant questions, and hence variations in how reliable and representative a measure will be based solely on valid responses for the different groups. Therefore, we have also looked at whether there have been any systematic or notable differences in the levels of missing values for each of the eight main measures of interest by these two characteristics.

With reference to **Tables 7 and 8**, it is clear that item non-response is most variable by occupational status. Non-response for each measure is consistently high for those who refused to provide the occupational status of the household reference person. It is also relatively high, although more variable, among those who reported having never worked. Rates of non-response are again more variable for the *keeping up* and *savings* questions.

Nonetheless, there is some variation by age for some measures, notably, *savings, keeping up* and to a lesser extent, a *fall in income*. For each measure, respondents aged in their 30s were towards the lower end of the range and those aged 70 or over at the higher end. Even so, there are some variations: non-response was relatively high for those under 30 for some measures, including *keeping up*, and those in their 40s had the highest non-response rate for *borrowing*.

Table 7
Percentage of missing values (item non-response) by measure and age

	18 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 or over	Average
Financial difficulties	3.4	3.1	3.3	4.4	3.7	5.1	3.8
Unable to pay bills	4.5	3.0	3.7	4.6	4.0	5.8	4.1
Keeping up	10.0	7.0	7.8	9.0	9.9	13.0	9.2
Borrowing	6.3	6.8	8.3	8.1	6.1	6.7	7.1
Savings	11.7	9.9	12.1	13.1	13.4	17.0	12.7
Financial expectations	7.3	6.7	8.4	8.1	6.9	8.4	7.1
Credit commitments	4.9	5.2	6.1	6.5	5.6	6.6	5.8
Fall in income	7.7	4.7	5.8	6.4	5.7	8.1	6.2
Average across measures	7.0	5.8	6.9	7.5	6.9	8.8	–

Notes: Cells shaded in light grey indicate non-response rates of 10% or higher (but not greater than 20%).

Table 8
Percentage of missing values (item non-response) by measure and occupational status

	Senior manager or director	Professional or technical	Skilled manual	General manual	Clerical	Other	Never worked	Refused	Average
Financial difficulties	2.4	2.2	2.5	3.4	3.7	3.6	8.8	31.4	3.8
Unable to pay bills	2.3	2.4	3.3	3.8	3.3	3.7	10.9	33.0	4.1
Keeping up	7.7	5.9	7.3	10.6	8.4	9.0	21.8	39.7	9.2
Borrowing	5.7	5.5	6.6	7.6	6.6	5.9	12.9	34.0	7.1
Savings	9.9	8.8	12.3	13.9	10.3	13.1	22.4	43.8	12.7
Financial expectations	5.9	4.4	6.7	8.6	5.6	8.4	15.6	33.5	7.1
Credit commitments	5.2	3.7	5.1	6.0	4.8	5.2	9.5	35.1	5.8
Fall in income	5.2	3.9	4.5	6.0	5.3	6.1	17.7	36.1	6.2
Average across measures	5.5	4.6	6.0	7.5	6.0	6.9	15.0	35.8	–

Notes: Cells shaded in dark grey indicate non-response rates of 20% or higher. Cells shaded in light grey indicate non-response rates of 10% or higher (but not greater than 20%).

Conclusions on the treatment of item non-response

Given that the different countries and age and occupational groups have varying non-response rates across all the measures, it is necessary to deal with the missing cases carefully. Among those respondents with missing values for at least one of the above eight measures, more than 60% have missing values for only one measure. Consequently, to exclude a respondent from the analysis based on one measure alone would result in 15% of the sample being lost, which we would consider unacceptably and unnecessarily high. Moreover, the loss of valuable information would be exceedingly variable according to country and occupational status (for

example, in the UK more than 43% of respondents would have to be omitted from the analysis, compared with 11% in Sweden), thus potentially introducing bias into the findings. For the remaining exploratory analysis, we have therefore retained missing responses as the average or middle scores for each respective question so as not to lose the richness of the information from the other questions.

We have refined this slightly for the three measures of financial difficulty. By taking a binary version of each of the three measures – defined as 'under strain' (assigned a value of 1) and 'not under strain' (assigned a value of 2) and excluding missing values – we have calculated an average strain value from the valid responses to questions on *financial difficulties*, *unable to pay bills* and *keeping up* for respondents who did not provide a valid answer to each of these questions. The analysis shows that for each variable, the mean is closer to 2 than it is to 1. In other words, consistently across the three measures, respondents who did not provide a valid answer to the financial difficulties query were more likely to say they do not have difficulties than the opposite, based on their answers to the other measures. Of course, some individuals evaded all the questions (231 persons in this sample), but we cannot control for this. A cautious approach would be to reassign the missing answers to these questions to the category just off-centre in the direction of not being under strain.

The recoding of missing values for the remaining exploratory analysis is therefore as follows:

- *Financial difficulties* – off-middle value ('hardly ever')

- *Unable to pay bills* – off-middle value ('hardly ever')

- *Keeping up* – off-middle value ('struggle to do so from time to time')

- *Borrowing* – neutral value ('level of borrowing is about right')

- *Savings* – most common value ('has savings')

- Financial *expectations* – middle value ('stay the same')

- *Credit* commitments – one commitment (the arithmetic mean)[13]

- *A fall in income* – most common value ('no fall in income')

Exploring underlying relationships: What do the 'measures' measure?

Earlier in this section, we outlined six measures that in some way relate to financial vulnerability, with three of these relating more directly to current financial difficulties. We want to gain a better understanding of the way in which these measures relate to one another before we can properly consider how to build an index of financial vulnerability. In particular, we want to know whether and to what extent any two questions in fact measure the same underlying dimension (or factors). The inclusion of duplicate questions in an index would be wasteful (in terms of repeat data collection) and would artificially inflate the importance of that factor in the index.

Principal components analysis (PCA) is a multivariate analysis technique that enables the relationship between a set of measures to be examined more closely.[14] It looks at the multiple

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[13] As this is a derived variable, it has been possible to impute some values for respondents for whom we know the kinds of borrowing they have undertaken, but who did not report their total number of commitments. For these respondents, we have assumed two commitments for each kind of commitment they did report. Some additional data-cleaning has been conducted to correct for double-typing and outliers (details are available in the syntax file).

[14] PCA is a form of exploratory factor analysis. We have used direct oblimin as the method of rotation in the initial model as it allows factors to be correlated, which we would expect from the nature of the measures entered.

correlations between the measures to determine how many underlying dimensions the various measures tap into and how strongly they do so.

Initially, a PCA with a three-factor solution was undertaken,[15] which indicated only one clearly identifiable dimension from the six vulnerability measures tested. The model has a KMO of 0.77 and the first factor explains 41% of the variance, with four questions loading highly onto this factor (**Table 9**).[16] The two remaining factors have only single questions loading highly onto them – *financial expectations* and *borrowing*, respectively. As such, they cannot be interpreted as representing any underlying dimensions; in other words, they can only be considered for use as individual questions in their own right.

Table 9
Summary results of principal components analysis (component matrix)
for a three-factor solution

Measures	Factor loadings (structural coefficients)		
	Factor 1	Factor 2	Factor 3
Financial difficulties	-0.82	-0.05	-0.08
Keeping up	0.79	0.16	0.07
Unable to pay bills	-0.75	-0.12	-0.12
Savings	0.68	-0.34	-0.21
Financial expectations	0.10	0.93	-0.13
Borrowing	0.09	-0.13	0.95
KMO = 0.77			
% of variance explained	41.05	17.85	14.40
Cumulative % of variance explained	41.05	58.90	73.30
Initial Eigenvalue	2.46	1.07	0.86

Notes: The extraction method is the principal components analysis; the rotation method is the direct oblimin rotation. Shaded cells indicate questions that load highly onto each factor.

We therefore settled on a one-factor solution (**Table 10**), which appears to relate to financial difficulties (a dimension we should expect to be identified based on the design of the survey questions) or perhaps more broadly to 'liquidity'. The three measures of difficulty load highly onto this factor (indicated by structural coefficients close to 1 and -1), all at or around +/- 0.8. We can see from this one-factor solution that *savings* and *borrowing* load moderately onto this factor, indicating that they would not add much understanding to this underlying dimension, and thus value to an index of this dimension. At the same time, a moderate loading suggests that these questions do not measure unique dimensions because they overlap with the financial difficulties dimension to some extent. Hence, savings and borrowing may better be seen as descriptors or predictors than measures of financial vulnerability in their own right. The weak loading of *financial expectations* onto the difficulties dimension confirms that it is largely unrelated to financial difficulties (referring back to the initial three-factor solution), and as such represents a dimension in its own right.

[15] We initially settled on a three-factor solution, based on a cut-off of Eigenvalues at 0.82 (which takes into account sampling error further to Kaiser's rule of Eigenvalue >1.0).

[16] An overall KMO score of over 0.60 indicates sufficient sampling adequacy, meaning the PCA model is reliable.

Table 10
Summary results of principal components analysis (component matrix)
for a one-factor solution

Measures	Factor loadings (structural coefficients)
Financial difficulties	-0.84
Keeping up	0.82
Unable to pay bills	-0.78
Savings	0.57
Borrowing	0.37
Financial expectations	0.16
KMO	0.77
% of variance explained	41.05
Initial Eigenvalue	2.46

Note: The extraction method is the principal components analysis.

In summary, there are *three clear measures of one financial dimension* (from now on referred to as financial difficulties) and a separate one relating to financial expectations. An index could potentially be constructed for financial difficulties that uses either the highest loading question above (as the best overall proxy of difficulties), or a combination of two or all three. If the aim is to use a composite measure of financial difficulties, the main options would be produced either by an 'any difficulties' measure as above or by using factor loadings, which will give weight to the relative importance of the measures of financial difficulty. This could potentially be combined with or reported alongside a measure of financial optimism or pessimism using the *financial expectations* measure.

The next step explores in more detail the way in which the three measures of financial difficulty relate to each other, in order to determine whether there is any value in producing a combination of the measures. This is done by examining the extent of difficulties indicated by these measures, their overlap (the extent to which individuals report difficulties on one, two or three measures) and how socio-demographic characteristics relate to them.

Financial difficulties: Extent, overlap and characteristics of those affected

Similar proportions of householders (about 1 in 10 – see **Table 11**) report difficulties on one of the first two response categories for each of the three measures: 14% for *financial difficulties* and *unable to pay bills* and 9% for *keeping up*.

By combining the first two categories in each case as a measure of experiencing difficulties on each of the variables, we can construct a composite measure of being in difficulties on any of the three measures.

Table 11
Distribution of responses to the three measures of financial difficulty

	Valid percentage	Cumulative percentage
Financial difficulties		
All the time	5	5
More often than not	9	14
Sometimes	26	40
Hardly ever	30	69
Never	31	100
Unable to pay bills		
More often than not	3	3
Sometimes	10	14
Hardly ever	20	34
Never	66	100
Keeping up		
Falling behind	2	2
Constant struggle	7	9
Struggle from time to time	40	49
Keeping up without difficulties	51	100
Unweighted base	7,534	–

Note: Weighted column percentages

On average, 23% of householders across the 10 countries show difficulties on one or more measure. Yet, this rate varies considerably by country. **Table 12** shows that householders in Portugal and Italy are among those most likely to report any difficulties (36% and 35%, respectively) with Norway, Denmark and Sweden at the lower end of the range, with under 10% of householders in each of these countries reporting any difficulties.

Table 12
Percentage of householders in difficulties on the three measures,
and on any one measure, by country

Country	In difficulty on one or more measure	Financial difficulties: More often than not or all the time	Unable to pay bills: Sometimes or more often than not	Keeping up: Constant struggle or falling behind	Unweighted base
Portugal	36	19	25	13	702
Italy	35	18	22	22	547
France	29	20	17	13	876
Spain	22	14	13	6	649
Ireland	18	8	14	8	779
Germany	17	12	10	5	692
Great Britain	16	9	9	7	796
Norway	9	5	5	4	763
Denmark	9	7	4	3	917
Sweden	7	5	2	3	738
Total	23	14	14	9	7,459

Note: Weighted cell percentages

Table 12 data are consistent – or inconsistent – across the measures in each of the countries (the results are also displayed in **Figure 1**). The pattern for each country largely reflects the overall pattern: as we would expect from the total percentages in difficulty for each specific measure, in some countries there are slightly higher rates of persons having problems according to the *financial difficulties* measure than there are for *unable to pay bills*, which in turn shows substantially higher rates than the *keeping up* measure.

Figure 1

Percentage of householders in difficulty according to one or more measures
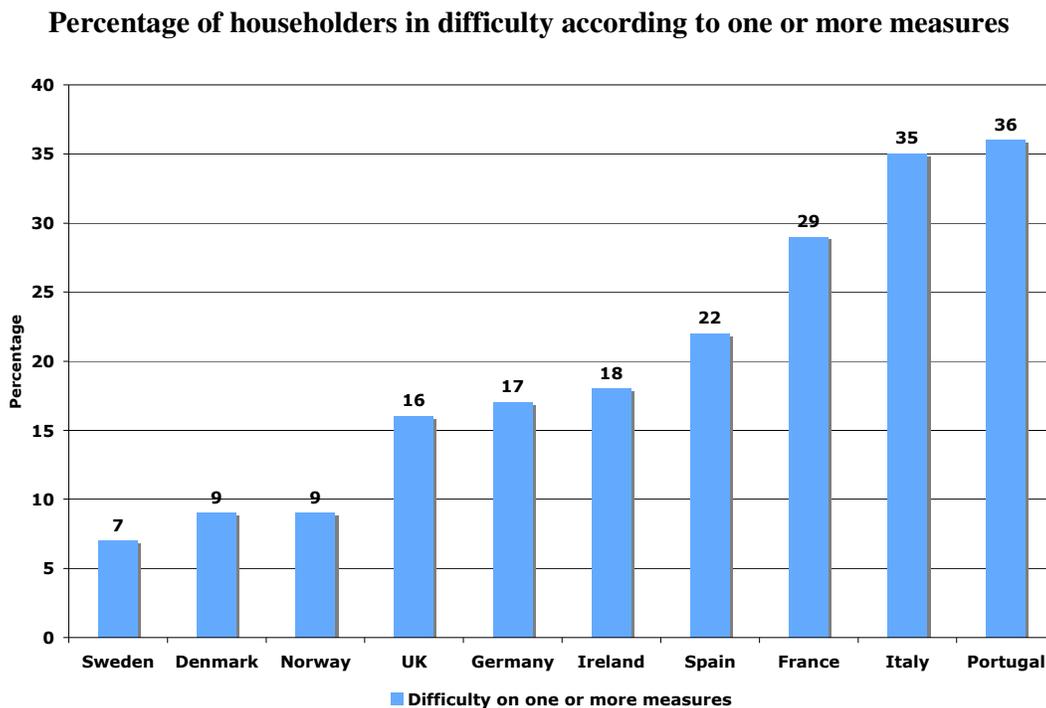
Note: Authors' calculations.

There are some notable exceptions, however:

- In Italy, the proportion of the population having difficulties *keeping up* is much higher than we would expect from the average for all countries; moreover, it is the same as the proportion who report being *unable to pay bills*.

- In Ireland, a relatively low percentage of the population reported experiencing *financial difficulties.*

- In Sweden, fewer individuals reported being *unable to pay bills* than we might have expected from the averages, suggesting higher rates of subjective and lower rates of structural difficulties.

- The least variation in the percentages across the measures is for Norway and Great Britain at the middle to lower end of the table, and for Italy at the higher end of the range.

These findings suggest that there are subtleties in either the way in which people in different countries experience financial difficulties or the way in which they interpret and report their situations, or both. As such, the three measures pick up slightly different aspects of financial difficulties, although it is difficult to quantify how they are different. If we were to repeat this analysis using an alternative threshold for being in difficulty, we might see further variations. Therefore, the simple binomial ('in difficulty' or 'not in difficulty') may not be entirely

appropriate, at least not without further examination, as it may mask these differences. Categories that are more detailed or a different way of collapsing the measures may be a more suitable approach. We return to this point later in the report (under the heading of "Segmenting the population").

Nonetheless, **Figure 2** shows that there is a fair degree of overlap between the measures when classified in this way. Of the householders in any difficulty, 44% reported being in difficulty on two or three measures, with just under one in five (18%) reporting difficulties on all three measures.

Figure 2

Overlap in reporting difficulties among the three measures of financial difficulty

Unweighted base:1640
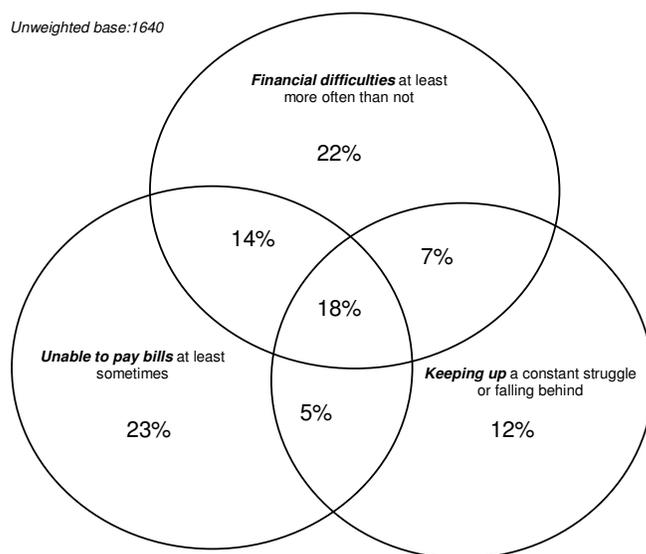
The greatest overlap overall is between *financial difficulties* and *unable to pay bills*, which is to be expected if only because these two measures have slightly larger shares of respondents reporting problems. As before, it is helpful to examine variations in the overlaps at the level of specific countries to enable comparisons across them. Here we simplify the analysis to allow easier comparisons by taking the percentages reporting one, two and all three forms of difficulties. **Table 13** again shows the countries in descending order of the rates of 'any difficulties' and shows considerable variations in the shares reporting difficulties on two and all three measures.

- Italy, towards the top of the table, has relatively high rates of those reporting problems under two or three measures. That being stated, householders in Portugal, who are highly likely to report difficulties on one or more measures, are less likely than are those in Italy to report difficulties on two or three measures.

- Ireland, which is in the middle of the table in terms of the proportions reporting any difficulties, is towards the high end of the range for difficulties on all three measures (23%). Meanwhile, Spain, which is in the middle-to-high end of the table, has a relatively low rate of householders who report problems experiencing difficulties under two or more measures (36%) or all three (9%).

Table 13
Number of measures on which difficulties are reported for those reporting problems

Country	One	Two or more	Two	All three
Portugal	56	44	28	16
Italy	47	53	31	22
France	54	46	22	25
Spain	64	36	27	9
Ireland	54	46	23	23
Germany	63	38	25	13
Great Britain	58	42	30	12
Norway	64	36	26	10
Denmark	61	39	33	6
Sweden	62	38	22	16
Total	57	43	27	17

Notes: Countries are presented in order according to the percentage of those reporting difficulties on any measure; weighted cell percentages.

Although we can conclude that individuals have reported difficulties to different degrees against the various measures, we do not know whether individuals with the same characteristics have reported difficulties across these measures. If the individuals reporting difficulties do have the same characteristics, then we can be more confident that a single measure can adequately represent the others.

Logistic regression, a form of multivariate analysis, can help to determine the extent to which similar or different characteristics predict whether someone reports being in difficulties on each of the measures. The technique allows us to identify which socio-demographic characteristics are related to the difficulty measures of interest, after the effects of other characteristics are taken into account (as such indicating which characteristics are 'independently' related to financial difficulties).

For example, we know that being young is associated with financial difficulties, as is being a heavy credit user. Yet, being young and being a heavy credit user are themselves related, so by using logistic regression we are able to determine whether being a heavy credit user is still important once age has been taken into account. It is helpful to include country as a characteristic in this analysis so that the influence of other socio-demographic characteristics can be assessed after considering any systematic variations by country.

Table 14 shows that across all the measures, the characteristics of age, family type, occupation, number of earners, a fall in income and country are all independently predictive of financial difficulties (indicated by a significance of $p < 0.05$). We can see that among the householders most likely to be experiencing difficulties are younger persons (especially those aged 18 to 29), lone parents, skilled and general manual workers, those in non-earning households, and those who have experienced a fall in income. We see that gender is not independently related to financial difficulties on any of the measures.

Table 14
Logistic regression results: Predictors of 'any difficulties' and difficulties on each of the three difficulty measures

	Any difficulties		Financial difficulties		Unable to pay bills		Keeping up	
	Sig	Exp(B)	Sig	Exp(B)	Sig	Exp(B)	Sig	Exp(B)
Age (reference is 70 or over)	0.00	1.0	0.00	1.0	0.00	1.0	0.00	1.0
18 to 29	0.00	3.5	0.00	3.5	0.00	3.9	0.01	1.7
30 to 39	0.00	3.1	0.00	3.2	0.00	3.3	0.00	1.9
40 to 49	0.00	3.0	0.00	3.0	0.00	3.0	0.00	1.9
50 to 59	0.00	2.2	0.00	2.2	0.00	2.6	0.04	1.5
60 to 69	0.02	1.3	0.02	1.4	0.03	1.4	0.87	1.0
Family type (reference is one adult no dep. children)	0.00	1.0	0.00	1.0	0.00	1.0	0.00	1.0
Two adults no dep. children	0.00	0.7	0.00	0.7	0.00	0.6	0.00	0.7
One adult with at least one dep. child	0.00	1.6	0.00	1.8	0.01	1.6	0.03	1.5
Two parents with at least one dep. child	0.54	0.9	0.36	0.9	0.53	0.9	0.64	0.9
Other (multiple households)	0.17	0.8	0.04	0.7	0.59	0.9	0.01	0.6
Occupation of HRP (reference is senior manager or director)	0.00	1.0	0.00	1.0	0.00	1.0	0.00	1.0
Professional or technical	0.74	1.1	0.54	0.9	0.92	1.0	0.80	1.1
Skilled manual	0.00	2.2	0.00	1.9	0.00	2.0	0.00	3.3
General manual	0.00	3.1	0.00	2.4	0.00	3.0	0.00	5.1
Clerical	0.00	1.7	0.06	1.5	0.18	1.3	0.00	2.9
Other	0.00	1.9	0.02	1.7	0.01	1.7	0.00	2.8
Never worked	0.03	1.8	0.11	1.7	0.20	1.5	0.00	4.5
Number of earners in household (reference is none)	0.00	1.0	0.00	1.0	0.00	1.0	0.00	1.0
One	0.00	0.6	0.00	0.6	0.00	0.7	0.06	0.8
Two	0.00	0.4	0.00	0.3	0.00	0.5	0.00	0.4
At least one but number unknown	0.40	0.7	0.70	0.8	0.73	0.8	0.71	0.8
Fall in income (reference is no fall)	0.00	3.1	0.00	2.9	0.00	3.0	0.00	3.0
Five or more credit commitments (reference is low or no credit commitments)	0.00	1.9	0.00	3.1	0.23	1.4	0.00	4.0
Gender (reference is male)	0.44	1.1	0.10	1.1	0.58	1.0	0.79	1.0
Country (reference is Denmark)	0.00	1.0	0.00	1.0	0.00	1.0	0.00	1.0
France	0.00	3.4	0.00	3.0	0.00	3.8	0.00	4.3
Germany	0.00	1.8	0.01	1.6	0.00	2.2	0.04	1.7
Great Britain	0.00	2.0	0.05	1.4	0.00	2.6	0.00	2.6
Ireland	0.00	1.9	0.96	1.0	0.00	3.4	0.00	2.6
Italy	0.00	6.1	0.00	3.5	0.00	7.3	0.00	11.3
Norway	0.75	1.1	0.13	0.7	0.16	1.4	0.21	1.4
Portugal	0.00	6.0	0.00	3.9	0.00	8.1	0.00	5.9
Spain	0.00	2.7	0.00	2.2	0.00	3.2	0.01	2.1
Sweden	0.28	0.8	0.57	0.9	0.09	0.6	0.43	1.3
Constant	0.62	0.7	0.00	0.0	0.00	0.0	0.00	0.0
R-squared	0.24		0.20		0.21		0.20	

Notes: Significance is reported as a p (probability) value. A characteristic is deemed significantly predictive if p<0.05. Similarly, an individual category of a characteristic is significantly different from the reference category of that characteristic if p<0.05. Significant categories are shown with grey shading. Exp(B) values indicate the odds of being in difficulties compared with the reference category (also called the 'odds ratio'). The odds ratio for the reference category is, by definition, exactly 1.0.

Notably, being a heavy credit user (defined as having five or more credit commitments) is independently related to financial difficulties on all of the measures except for unable to pay bills. One possible explanation for this finding is that while heavy credit users subjectively feel that they are experiencing financial difficulties, they are still in a position to pay bills, presumably because the credit available to them provides the cash flow they need.

The odds ratios given in Table 14 (see Exp(B) values) indicate that, overall, there is little variation in the relative likelihood of specific aspects of a characteristic in predicting difficulties across the measures. Where there is considerable variation, it often relates to the country (for example, the relative likelihood of financial difficulties by measure in Italy varies from 3.5 in relation to financial difficulties to 11.3 for keeping up). In relation to keeping up we also see little variation in likelihood by age, at least when compared with the other financial difficulty measures.

In contrast, there is a fair amount of variation in the odds of being in difficulties across the measures for householders describing their occupation as general manual: the odds compared with being a senior manager or director range from 2.4 for financial difficulties to 5.1 for keeping up.

In other words, similar – although not the same – kinds of individuals are in difficulties on the different measures. This means that multiple measures of financial difficulty should ideally be considered. Finally, the R-squared in Table 14 indicates that the significant independent predictors explain a similar proportion of the variation in financial difficulties, at around 0.20 (which explains 20% of the variance). Nonetheless, the 'any difficulties' measure is better explained by the characteristics (0.24) than by the individual measures, reinforcing the notion that the use of a combination of measures for difficulties is the best approach.

Segmenting the population

To explore further how the financial difficulty measures operate, we have used cluster analysis, another multivariate analysis technique.[17] This technique permits us to segment the population based on their responses to these measures, which in turn allows us to see the extent to which identifiable groups of persons emerge, and how these groups may be defined. The method has the advantage of enabling us to use the full response breakdown of each measure, rather than collapsing this into a binary 'in difficulties' or 'not in difficulties' categorisation.[18]

In the analysis, we specify models for three, four, five and six clusters and examine the results.[19] A four-cluster solution provides the clearest and most meaningful breakdown of the population of the 10 countries studied. Just over a half of the population might be described as largely doing fine (cluster 1); a quarter is sometimes in difficulty (cluster 2); one in five is sometimes in difficulty, but is never unable to pay their bills (cluster 3); while a small proportion (7%) is experiencing real difficulty (cluster 4) (**Table 15**).

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[17] The K-means or 'quick cluster' approach is the method we have used.

[18] As we see later, however, the collapsing of categories can be helpful. It is how a suitable cut-off point is identified that is crucial.

[19] Examination of the within and between cluster variance has shown this to be an efficient model.

Table 15
Percentage within the cluster reporting difficulties on the three measures

	Cluster			
	1 = 52%	**2 = 24%**	**3=18%**	**4=7%**
Financial difficulties				
All the time	0	2	8	40
More often than not	0	15	15	43
Sometimes	10	47	45	17
Hardly ever	32	32	30	0
Never	57	4	2	0
Unable to pay bills				
More often than not	0	3	0	36
Sometimes	0	28	0	53
Hardly ever	6	69	0	11
Never	94	0	100	0
Keeping up				
Keeping up without difficulties	90	13	6	0
Struggle from time to time	10	83	79	15
Constant struggle	0	4	13	61
Falling behind	0	0	2	24

Note: Weighted percentages

The cluster analysis also shows that *financial difficulties* and *keeping up* operate in the same way as each other no matter which group is selected. This confirms that these two measures are picking up the same phenomenon (as the principal components analysis clearly showed). Even so, *unable to pay bills* stands out a little (which the earlier analysis did not reveal so well). This may again relate to credit use permitting the payment of bills, although it suggests that it may be more appropriate to think of *financial difficulties* and *keeping up* as one measure and *unable to pay bills* as something subtly different, and that both should be represented in an index.

We have therefore retained *financial difficulties* and removed *keeping up*, because responses to *keeping up* have a more uneven distribution and suffer from higher levels of non-response. We have subsequently added *unable to bills* and *financial expectations* to the cluster analysis. Another four-cluster solution provides meaningful results (**Table 16**). A little over a half of the population is largely doing fine and expects to continue doing so (cluster 1). About a quarter is doing fine and expects things to get better (cluster 2). Around 1 in 10 is in some difficulty but is optimistic about the future (cluster 3) and a further 1 in 10 (9%) is in difficulty and is pessimistic about the future (cluster 4).

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Table 16
Percentage within cluster reporting difficulties and
financial expectations, four-cluster solution

	Cluster			
	1 = 54%	**2 = 26%**	**3=10%**	**4=9%**
Financial difficulties				
All the time	0	4	20	16
More often than not	0	13	32	26
Sometimes	0	65	41	49
Hardly ever	44	17	4	9
Never	56	0	3	1
Unable to pay bills				
More often than not	0	0	22	10
Sometimes	0	0	75	28
Hardly ever	17	32	3	27
Never	83	68	0	34
Financial expectations				
Get better	10	41	32	0
Stay the same	83	59	68	0
Get worse	7	0	0	100

Note: Weighted percentages

If we look at these clusters for each country there is evidence of wide variation in the relative size of each cluster, compared with the cluster proportions overall (**Table 17**). By organising the countries by their location in Europe, it is clear that the percentages in each cluster are similar within a group of countries. This is especially true for the Scandinavian countries: householders in these countries are very likely to be in the cluster in which most individuals are not in difficulties and are expecting this situation to continue in a similar way (more than 70%). Spain, however, is more similar to Germany and Ireland than it is to other countries in southern Europe. Germany and Spain are most typical of the average.

Overall, respondents in France are among the most optimistic, but are especially likely to be without difficulties now and to expect things to get (even) better for them in the future. Individuals in Portugal and Italy are among those most likely to be in difficulties and pessimistic about their financial position over the next 12 months.

On examining the composition of each of the clusters by socio-demographic characteristics, it is evident that the profile of each cluster is different (**Table 18**). The first cluster – those who appear to be doing well financially and expect much to remain the same – are disproportionately represented by older persons (singles and couples, many of whom are well into retirement age) without dependent children, who tend to be drawn from higher occupational groups, who have savings and few or no credit commitments. They are also slightly more likely than the population as a whole to consider themselves savers rather than spenders, and are credit-shy.

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Table 17
Cluster profile for each country, four-cluster solution

	1	2	3	4
	Doing fine & steady	Doing fine & optimistic	In difficulties with some optimism	In difficulties & pessimistic
Scandinavian Europe				
Denmark	71	23	3	2
Norway	73	20	5	2
Sweden	73	23	2	2
Northern Europe				
France	43	35	14	8
Germany	59	24	8	9
Great Britain	66	23	8	3
Ireland	62	22	11	5
Southern Europe				
Italy	42	26	14	18
Portugal	36	26	15	23
Spain	57	25	10	7
Total	54	26	10	9

Note: Weighted percentages.

The next two groups have a much younger profile. Group 2 (doing well financially and expecting their situation to get better) are over-represented by parents in their 20s and 30s. Although about average levels are heavy credit users, this group is more likely than the average to have a savings safety net. Despite their tendency to see themselves as savers they are in reality both borrowing and saving, which may be a reflection of their financial situation and life-stage. Respondents in Group 3 (currently in difficulties but optimistic) are of a similar age, occupational and family status to Group 2, but they are especially likely to be lone parents. Even though they are earning, they are highly likely to have had a fall in income in the past 12 months and unlikely to have savings. They are also perhaps slightly more liable than the average to be heavy credit users: they tend to agree that they prefer to buy things on credit rather than wait and are more inclined than the average to describe themselves as spenders rather than savers.

Finally, those in Group 4 are drawn from a wider range of ages – although many are in their 60s – and from general manual, clerical and 'other' occupations. They are quite likely to have experienced a fall in income in the past 12 months. They are also the most likely of all the groups to be in a non-earning household, and perhaps as a reflection of this, to be without the savings equivalent of one month's income. Fewer than the average are heavy credit users, and a disproportionate number of them disagree strongly with the statement "I prefer to buy things on credit rather than wait and save up".

Their circumstances may indicate that this group is less able to access credit. It is interesting to refer back to the disproportionately high number of householders in Italy and Portugal who fall into this group; in these countries, the credit markets remain relatively small and underdeveloped (Bertola et al., 2006).

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Table 18
Socio-demographic and attitudinal profile, four-cluster solution (%)

	1 Doing fine & steady	2 Doing fine & optimistic	3 In difficulties with some optimism	4 In difficulties & pessimistic	Total
Age					
18 to 29	9	17	19	8	12
30 to 39	15	25	26	18	19
40 to 49	19	22	22	18	20
50 to 59	18	17	17	19	18
60 to 69	21	10	12	23	17
70 or over	19	8	4	15	15
Family type					
One adult no children	20	17	15	19	19
Two adults no children	50	36	29	44	44
One adult with at least one child	3	7	12	4	5
Two parents with at least one child	20	32	32	27	25
Other (multiple households)	6	8	12	7	7
Occupation					
Senior manager or director	9	5	3	3	7
Professional or technical	19	18	11	9	17
Skilled manual	21	24	31	22	23
General manual	10	17	23	19	14
Clerical	11	11	11	14	11
Other	23	20	19	30	22
Never worked	2	2	1	2	2
Number of earners					
None	38	27	29	44	35
One	29	38	43	25	32
Two	31	34	28	29	32
Savings					
Yes	78	49	24	36	61
No	22	51	76	64	39
A fall in income					
Yes	16	34	50	54	28
No	84	66	50	46	72
Three or more credit commitments					
Yes	11	8	9	4	7
No	89	92	91	96	93
I am more of a saver than a spender					
Agree strongly	22	18	15	18	20
Tend to agree	38	31	30	31	34
Tend to disagree	21	25	23	19	22
Disagree strongly	12	23	31	30	18
I prefer to buy things on credit than wait and save up					
Agree strongly	3	5	9	5	4
Tend to agree	12	18	25	18	15
Tend to disagree	22	29	24	24	24
Disagree strongly	55	44	37	46	50

Notes: Weighted percentages; not all columns sum to 100 owing to refusals and don't knows.

The profiles of these groups are borne out in previous research. Notably, previous research indicates that financial difficulty is associated with a recent fall in income and a lack of savings, and that among poorer individuals it tends to reflect a struggle in making ends meet, whereas in higher-earning households it can relate to financial over-commitment through excessive borrowing (see for example, Kempson, 2002; Kempson & Atkinson, 2006).

A variation on this clustering has been undertaken using simplified versions of the two financial difficulty measures used in the analysis reported immediately above. The results shown in Table 16 suggest that it has been possible to create two-category variables for each of the two financial difficulty measures since most cases clearly steer towards one of the range of categories than the other across the cluster groups. The financial expectations measure has been retained in its original form.[20] The two measures are recategorised as follows, whereby the respondent is

- in *financial difficulties* sometimes or more often vs. hardly ever or never; and

- *unable to pay bills* sometimes or more often vs. hardly ever or never.

In this case, we have settled on a five-cluster solution (**Table 19**). Overall, similar results have been found. Yet, the simplification of the financial difficulty measures has revealed more subtle differences in the levels of financial difficulty: a distinction can be made between respondents who are only feeling stretched – indicated by their grouping under *financial difficulties* – and those who are also in structural difficulties, based on respondents who have reported problems in paying bills. There are no instances in which those experiencing structural difficulties are not also feeling stretched.

Table 19
Percentage within cluster reporting difficulties and
financial expectations, five-cluster solution

	Cluster				
	1 = 55%	2=5%	3 = 27%	4=3%	5=10%
Financial difficulties					
Sometimes or more often	0	100	100	93	94
Hardly ever or never	100	0	0	7	6
Unable to pay bills					
Sometimes or more often	0	0	0	100	100
Hardly ever or never	100	100	100	0	0
Financial expectations					
Get better	18	24	24	100	0
Stay the same	82	59	59	0	67
Get worse	0	17	17	0	33

Note: Weighted percentages

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[20] Analysis was also undertaken with a collapsed version of the *financial expectations* variable by combining the 'stay the same' and 'get better' categories. But the loss of detail when merging their categories made interpretation of the cluster very difficult. It was therefore decided to retain the more detailed financial expectations measure.

Looking at the distribution of the clusters in each country, we see a similar pattern as before. Those in Scandinavian countries are highly likely to be comfortable and optimistic about the future (**Table 20**). Again, individuals in Portugal and in Italy are among those most likely to report being in structural difficulties and pessimistic about the future (23% and 19%, respectively). Respondents in France and Ireland are slightly more likely than the average to be experiencing structural difficulties but are optimistic about what the future will bring (6% and 5%, respectively). Finally, there is a similar proportion of those feeling stretched in France as in Italy and Portugal.

Table 20
Five-cluster solution (by country) based on simplified financial difficulty measures

Country/region	1 Comfortable and optimistic	2 Comfortable but pessimistic	3 Feeling stretched	4 Structural difficulties but optimistic	5 Structural difficulties and pessimistic
Scandinavian Europe					
Denmark	73	7	16	2	2
Norway	76	4	15	3	2
Sweden	74	8	16	1	1
Northern Europe					
France	45	4	34	6	11
Germany	58	5	26	2	8
Great Britain	70	3	18	3	6
Ireland	64	4	18	5	10
Southern Europe					
Italy	39	5	34	3	19
Portugal	36	5	35	2	23
Spain	55	6	26	2	11
Total	55	5	27	3	10

Note: Weighted percentages

There are again clear socio-demographic and attitudinal profiles for each of these clusters (**Table 21**). Briefly, Group 1, composed of those who are *comfortable and optimistic*, are again most likely to be retirees who are comfortably-off: they are often older couples without children who have held high-status occupations, who have savings and are less likely than the average to have had a fall in income in the past 12 months. They tend to consider themselves savers and are credit-averse. The small group of householders who are *comfortable but pessimistic* also includes a disproportionate number of persons aged 60 and over, in two-adult households without dependent children (Group 2). They are unlikely to be heavy credit users and tend to have savings. Similar to Group 1, these respondents are most likely retirees, although they are not drawn from the higher occupational groups and are more likely to have experienced a fall in income; furthermore, more of them are in non-earning households, perhaps explaining their pessimism about the future.

Table 21
Socio-demographic and attitudinal profiles, five-cluster solution

	1 Comfortable and optimistic	2 Comfortable but pessimistic	3 Feeling stretched	4 Structural difficulties but optimistic	5 Structural difficulties and pessimistic	Total
Age						
18 to 29	10	6	14	27	14	12
30 to 39	16	13	22	26	24	19
40 to 49	19	15	22	24	18	20
50 to 59	18	18	17	16	19	18
60 to 69	19	26	14	6	16	17
70 or over	18	22	10	1	9	15
Family type						
One adult no children	20	16	17	16	17	19
Two adults no children	48	59	38	21	35	44
One adult with at least one child	3	1	6	11	10	5
Two parents with at least one child	21	20	31	41	27	25
Other (multiple households)	6	4	7	11	11	7
Occupation						
Senior manager or director	10	5	4	0	3	7
Professional or technical	20	16	14	18	8	17
Skilled manual	21	20	24	30	29	23
General manual	10	7	18	23	24	14
Clerical	10	15	13	14	9	11
Other	23	30	22	12	22	22
Never worked	2	2	2	1	2	2
Number of earners						
None	36	42	32	28	34	35
One	30	26	36	46	36	32
Two	32	32	32	26	29	32
Savings						
Yes	77	70	45	16	25	61
No	23	30	55	84	75	39
A fall in income						
Yes	16	36	37	62	48	28
No	84	64	63	38	52	72
Three or more credit commitments						
Yes	5	5	10	11	8	7
No	95	95	90	89	92	93
I prefer to buy things on credit than wait and save up						
Agree strongly	4	1	5	5	10	4
Tend to agree	12	12	19	24	25	15
Tend to disagree	23	19	28	24	25	24
Disagree strongly	54	61	45	44	35	50
I am more of a saver than a spender						
Agree strongly	22	22	17	11	17	20
Tend to agree	37	38	33	24	29	34
Tend to disagree	22	18	23	29	20	22
Disagree strongly	12	17	24	36	32	18

Notes: Weighted percentages; not all columns sum to 100 owing to refusals and don't knows.

The next largest group, who are merely *feeling stretched* rather than having actual difficulties paying bills (and who have very mixed views about the future), are much younger couple parents with dependent children (Group 3). They are less likely than the average to have savings and are slightly more likely to have experienced a fall in income in the previous 12 months. This group also consists of a disproportionately high number of heavy credit users and are less likely to have savings than the average, reflected in attitudes that are more favourable towards credit and spending, over saving.

Group 4, made up of those who have *structural difficulties but are optimistic*, are also young, but are over-represented by couple parents with children. They are more likely than the average to be in an earning household, yet they are nevertheless the group least likely to have savings and they are at the higher end of the range in terms of heavy credit users. These findings may be explained by the high proportions in this group who report having had a fall in income in the past 12 months, although their attitudes reflect their saving and borrowing behaviour. It is possible that these are primarily householders who have just started or are expanding their families – typically a period during which demands on the budget are highest.

The final cluster of Group 5, representing those who have *structural difficulties and are pessimistic*, are disproportionately in their 30s and are more likely than average to be lone parents or in multiple households. They are over-represented by general manual workers. Three-quarters have no savings, although they are no more probable than average to be heavy credit users. Notably, they are much more likely than average to have had a fall in income in the past 12 months. Members of this group are more likely to see themselves as spenders and to prefer buying things on credit (Table 21).

V.   RESULTS AND CONCLUSIONS

The initial exploratory data analysis has demonstrated various ways in which the potential index measures can be combined to describe the data, as well as – in statistical terms – how the measures themselves relate to one another. In designing and constructing the final index, it has been desirable to capture the full range of information that the main survey questions have collected, while at the same time being able to describe the results of the index readily and for a wide audience. The index therefore takes as its starting point responses to two questions, concerning whether the respondent is experiencing *financial difficulties* and his/her *financial expectations*. As established earlier, these two questions best reflect the key underlying factors that the various questions seek to measure.

Taking the simple combinations of responses to these two questions produces 12 groups of respondents who give different combinations of answers, as shown in **Table 22**.[21] The shaded cells in the bottom left and the top right reflect the two ends of the spectrum. At the bottom left are the financially secure (those who have not experienced any financial difficulties in the past 12 months and who are currently feeling confident about the future financial situation of the household). At the top right are the financially vulnerable (those who have often or always experienced financial difficulties in the last 12 months and who feel pessimistic about the future financial position of the household).

Table 22
Frequency of experiencing financial difficulties by expectations
of the future financial position of the household

		GW15 Expectations of the future financial position of the household			
		Get better	**Stay the same**	**Get worse**	**Total**
GW08 Frequency of experiencing financial difficulties	Often or always	214	340	241	795
	Sometimes	430	938	266	1,634
	Hardly ever	404	1,079	162	1,645
	Never	658	1,918	198	2,774
Total		1,706	4,275	867	6,848

Notes: Cells show the number of persons in the sample providing each combination of answers; unweighted data.

The starting point above has been developed by using cluster analysis to introduce additional important information from all the remaining financial vulnerability questions. This approach has enabled us to determine which of these 12 groups are 'most' similar to each other and how many clusters of groups they naturally form on this basis. In other words, we have taken the totality of respondents' financial situations to enrich our understanding of patterns of similarity that underlie the 12 groups, and to reduce the number of groups on this basis. At the same time, these collapsed groupings can still be described meaningfully with reference to the two original questions alone. The analysis has found that respondents are best classified into four groups, shown by the colour coding in **Table 23**. The four groups can be summarised as follows:

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[21] Note that only those with 'valid' responses have been included – that is, individuals who did not answer either question have been excluded (9% of the full sample across countries). Leading the index with just these two measures limits the impact of missing data on the final index. Nevertheless, it is recommended that rates of non-response be monitored at each survey: any attempts made by the survey company to reduce non-response rates (or indeed any other aspects of the data collection design) may introduce systematic bias and make comparisons to earlier surveys less reliable.

- **Group A** is composed of financially vulnerable persons who tend to have been in difficulties often in the past 12 months and who feel that their situation is unlikely to improve.

- **Group B** is a relatively small group of persons who tend to have experienced financial difficulties relatively frequently in the past 12 months but who now feel more confident (i.e. they are expecting their situation to improve). These individuals are neither financially vulnerable nor financially secure.

- **Group C** is a large group who have not often experienced difficulties, if at all, and who tend to expect their situation to remain the same. These individuals are again neither financially vulnerable nor secure.

- **Group D** is made up of financially secure persons who have rarely or never experienced financial difficulties in the past 12 months, and who expect their financial situation to improve.

The distribution of responses to all eight financial vulnerability questions is given for each cluster in the accompanying **Table A1** (**appendix 3**). The socio-demographic composition of each cluster group is shown in **Table A2** (**appendix 3**). We have calculated the proportion of persons falling into each cluster (shown in **Table A3 in appendix 3**). We propose, however, that the index is not based on the percentage of persons who fall into Group A (financially vulnerable), but as a ratio of the percentage of persons who fall into Group A, relative to the percentage who fall into Group D (financially secure). In this way the index will be sensitive to movements in and out of financial vulnerability as well as in and out of financial security, that is, in or out of either Group B or C. Additionally, the index will be sensitive to those who move from Group A to Group D or vice versa. Moreover, it will provide an indication of the overall situation of a country in respect of financial vulnerability, rather than simply report the proportion of the population falling into a single group of interest.

Table 23
Frequency of experiencing financial difficulties by expectations
of the future financial position of the household: Groupings

| | | GW15 Expectations of the future financial position of the household | | | |
		Get better	Stay the same	Get worse	Total
GW08 Frequency of experiencing financial difficulties	Often or always*	B	A	A	795
	Sometimes	B	C	A	1,634
	Hardly ever	D	C	C	1,645
	Never	D	C	C	2,774
Total		1,706	4,275	867	6,848

* The response categories of often and always have been combined in the analysis owing to the small numbers of persons who gave each of these answers. *Notes*: Cells show the number of persons in the sample providing each combination of answers; unweighted data.

We can rescale this ratio so that all scores fall between -100 and +100, whereby a score of 100 indicates the maximum possible level of financial vulnerability and a score of -100 indicates the minimum. A score of 0 indicates a country that has equal proportions of those who are vulnerable and secure. **Table 24** shows the ratios after rescaling in this way, in order of the highest relative level of financial vulnerability to the lowest.

Table 24
Index score, by country

Country	Index score
Italy	39
Portugal	34
Spain	15
France	7
Germany	16
Ireland	-16
Great Britain	-19
Norway	-41
Denmark	-37
Sweden	-46
Total	-5

Note: Figures are based on weighted values.

Table A4 in **appendix 3** provides a breakdown of index scores by some of the key socio-demographic variables. The index has been designed so that in future responses to the two key index questions alone – *financial difficulties* and *financial expectations* – will enable the calculation of the index. We know how the other information relates to these questions, and hence it is not essential to collect it in every wave. Thus, for each ongoing survey, it will only be necessary to collect data for the two key index questions. However, it may be of interest to include some of the socio-demographic questions to enable any changes over time in the composition of the clusters of interest to be monitored and described. This effort may help to explain changes in the levels of financial vulnerability over time.

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APPENDIX 1. LIST OF COUNTRY EXPERTS

Countries	Institute in charge	Country experts
Denmark	University of Copenhagen	Kalle Stahl Nielsen
France	ECRI	Anthony Bisch, Wolf Müller & Marc Rothemund
Germany	ECRI	Pauli Lepisto, Wolf Müller & Marc Rothemund
Ireland	National Institute for Regional and Spatial Analysis	Stuart Stamp
Italy	University of Milan	Daniela Vandone
Norway	National Institute for Consumer Research	Christian Poppe
Portugal	ECRI	Filipa Figueira
Spain	University of Milan	Daniela Vandone
Sweden	MidSweden University	Richard Alhstrom
UK	University of Bristol	Elaine Kempson & Andrea Finney

APPENDIX 2. MODULE FOR IPSOS MORI

GENWORTH DRAFT QUESTIONNAIRE

Introduction:

I'd now like to talk to you about managing your finances. There are some questions here that some people might regard as asking about sensitive information. Please be assured that any answer you give will be treated in the strictest confidence, will only be used for research purposes, and will not under any circumstances be used for sales or direct marketing purposes.

ASK ALL.

GW01. Are you (or is your partner), the person in whose name this home is rented/owned?

(SP)

1. Yes
2. No

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)

GW02. SHOWCARD GW02. Who normally shares your accommodation with you?

(MP but code 1 should be SP only, **allow REF**)

1. No one else
2. Wife, husband or partner you live with as a couple
3. Children aged under 16
4. Children aged 16-18 who are at school or college
5. Other children aged 16 or over
6. Other adults who share meals or the living room with you

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)

GW03. And how many people in your household, including yourself, are aged 15 or over (please substitute '15 or over' for '14 or over' in Germany)

(Numeric **1-20**, allow REF)

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)

GW04. SHOWCARD GW04. Starting from the top of this card, please can you tell me which of these best describes your current employment situation?

(SP, allow DK & REF)

1. Working full time (30+ hours), even if you are temporarily off work
2. Working part time (up to 29 hours), even if you are temporarily off work
3. Looking after the home or family
4. Retired from paid work
5. Unemployed
6. On a government work or training scheme
7. Permanently sick or disabled
8. In full-time education

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD) and CODED 2 at GW02 (i.e. have a partner)

GW05. SHOWCARD GW04. Starting from the top of this card, please can you tell me which of these best describes your partner's current employment situation?

(SP, allow DK & REF)

1. Working full time (30+ hours), even if they are temporarily off work
2. Working part time (up to 29 hours), even if they are temporarily off work
3. Looking after the home or family
4. Retired from paid work
5. Unemployed
6. On a government work or training scheme
7. Permanently sick or disabled
8. In full-time education

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEAD OF HOUSEHOLDS)

GW06. SHOWCARD GW06. Which of these descriptions most closely matches (your current/usual occupation – **for single person households**) (the current/usual occupation of the one who usually earns the most money, out of you and your partner **– for people with partners**)?

(SP, allow REF)

1. Senior management/director
2. Professional/technical (e.g. teacher, engineer, lawyer, architect, police, IT specialist)
3. Skilled manual/crafts (e.g. plumber, hairdresser, mechanic, machine operator, farmer, nurse)
4. General manual (e.g. crop picker, labourer, porter, delivery driver, shop assistant, cleaner, care-assistant)
5. Clerical (e.g. administrator, call centre operator, secretary)
6. Other
7. Never worked

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)

GW07. SHOWCARD GW07. Thinking back over the past 12 months, has your total household income ever fallen for any of the reasons shown on this card?

(**MP**, allow DK, REF & NULL)

INTERVIEWER: CODE NULL FOR NO FALL IN INCOME

1. Redundancy/job loss
2. Drop in wages (including overtime or bonus payments)
3. Own business failed
4. Drop in income from self-employment
5. Relationship breakdown
6. Retirement
7. Stopped working for health reasons
8. Fall in social security payments
9. Fall in income for some other reason

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEAD OF HOUSEHOLDS)

GW08. Thinking about the general financial position of your household now, how often do you experience financial difficulties?

(SP, allow DK & REF); READ OUT

1. All the time
2. More often than not
3. Sometimes
4. Hardly ever
5. Never

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEAD OF HOUSEHOLDS)

GW09. In the last 12 months, how often was your household unable to pay bills or financial commitments at the very last reminder due to lack of money?

(SP, allow DK & REF); READ OUT

1. More often than not
2. Sometimes
3. Hardly ever
4. Never

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)

GW10. And do you (and your partner) currently have as much money in savings as you get in income each month?

INTERVIEWER: IF THE RESPONDENT'S SAVINGS ARE EQUAL TO OR ARE MORE THAN ONE MONTH'S INCOME THEY SHOULD BE CODED AS YES.

(**SP, allow DK and REF**)

1. Yes
2. No

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)

GW11. SHOWCARD GW11. Looking at this card, can you tell me which, if any, of the following types of credit you or your partner has used in the last 12 months?

(MP, allow DK, REF and NULL)

INTERVIEWER: CODE NULL FOR NONE OF THESE

1. Loan from bank, building society (excluding mortgage)
2. Loan from company that collects payments from your home
3. Loan from a financial company
4. Goods bought in instalments from a mail order catalogue
5. Goods bought on hire purchase or on credit
6. Social Fund Budgeting Loan and/or equivalent government loan for benefit recipients and/or low income households
7. Loan from a student loan company or equivalent
8. A credit card that you do not pay off in full each month
9. An overdraft you have used
10. Any other type of loan

ASK ALL WHO CODED 1 @ GW01 AND GW11 NOT EQUAL TO 0 (E.G. ALL HEADS OF HOUSEHOLD)

GW12. SHOWCARD GW11 AGAIN. And still looking at this card, how many separate credit commitments do you or your partner currently have of any type listed? For example, if you have one loan and two credit cards, this would be three credit commitments in total.

INTERVIEWER: PLEASE COUNT ALL COMMITMENTS AND NOT JUST THE NUMBER OF TYPES OF COMMITMENT.

(Numeric, 0-99, **allow REF**)

ASK ALL WHO CODED 1 @ GW01 AND GW11 NOT EQUAL TO 0 (E.G. ALL HEADS OF HOUSEHOLD)

GW13. SHOWCARD GW13. Thinking about all the money you or your partner owe on credit commitments at the moment, which of the statements on this card is closest to your current position?

(SP, allow DK & REF)

1. I could afford to borrow more if I wanted or needed to
2. My level of borrowing is about right, I would not want to borrow more
3. I have borrowed more than I can really afford

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)

GW14. SHOWCARD GW14. Looking at this card, which of the following best describes how your household is managing financially at present? Please just read out the letter that applies.

(SP, allow DK & REF)

A. I am/we are keeping up with all of our bills and credit commitments WITHOUT ANY DIFFICULTIES
B. I am/we are keeping up with all of our bills and credit commitments, but STRUGGLE TO DO SO FROM TIME TO TIME
C. I am/we are keeping up with all of our bills and credit commitments, but IT IS A CONSTANT STRUGGLE
D. I am/we are FALLING BEHIND WITH SOME OF OUR BILLS OR CREDIT COMMITMENTS

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)

GW15. Looking ahead over the next 12 months, do you think the financial position of your household will improve, stay the same or get worse?

(SP, allow DK & REF); READ OUT

1. Improve
2. Stay the same
3. Get worse

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)

GW16. SHOWCARD GW16. On this card are two statements that other people have made. Please can you tell me how much you agree or disagree with them?

(SP, allow DK & REF)

STATEMENTS:

1. I am more of a saver than a spender

2. I prefer to buy things on credit than wait and save up

SCALE:

1. Agree strongly
2. Tend to agree
3. Tend to disagree
4. Disagree strongly

ASK ALL WHO CODED 1 @ GW01 (E.G. ALL HEADS OF HOUSEHOLD)
GW17. In which of these ways do you (and your partner) occupy your home?
(SP, allow DK & REF); READ OUT

1. Own your home outright
2. Own your home with a mortgage
3. Rent your home from a private landlord
4. Rent your home from a local authority or housing association
5. Have some other arrangement

APPENDIX 3. TABLES

Table A1. Composition of clusters by measures of financial vulnerability

			A Financially vulnerable	B	C	D Financially Secure	*Average*
GW08_how often do	1	All the time	22	13	0	0	*5*
you experience	2	More often than not	46	23	0	0	*9*
financial difficulties	3	Sometimes	32	63	25	0	*26*
	4	Hardly ever	0	0	32	45	*23*
	5	Never	0	0	43	55	*31*
	6	Dont Know	0	0	0	0	*1*
	7	Refused	0	0	0	0	*5*
All Records			***100***	***100***	***100***	***100***	***100***
GW15_expectations	1	Improve	0	100	0	100	*19*
for financial position	2	Stay the same	41	0	92	0	*58*
of hhld	3	Get worse	59	0	8	0	*13*
	4	Don't know or refused	0	0	0	0	*10*
All Records			***100***	***100***	***100***	***100***	***100***
GW14_how hhld is	1	keeping up without difficulties	13	29	65	81	*51*
managing financially	2	struggle from time to time	44	47	21	12	*24*
at the moment	3	constant struggle	27	14	3	1	*7*
	4	falling behind	7	4	1	1	*2*
	5	Dont Know	4	2	3	1	*4*
	6	Refused	5	4	7	4	*11*
All Records			***100***	***100***	***100***	***100***	***100***
GW09_how often	1	More often than not	13	9	0	1	*3*
unable to pay bills at	2	Sometimes	32	23	5	1	*10*
last reminder	3	Hardly ever	20	18	14	7	*14*
	4	Never	34	49	80	90	*66*
	5	Dont Know	0	0	1	0	*2*
	6	Refused	2	0	0	0	*5*
All Records			***100***	***100***	***100***	***100***	***100***
Any fall in income in	0	No	45	45	75	73	*63*
the past 12 months	1	Yes	49	52	20	24	*28*
DV	8	Refused	2	1	3	2	*6*
	9	Dont Know	4	2	2	1	*3*
All Records			***100***	***100***	***100***	***100***	***100***
Equivalent of one	1	Yes	21	28	58	61	*45*
month income in	2	No	72	69	29	32	*39*
savings	3	Dont Know - elsewhere	2	1	5	2	*5*
	4	Dont Know -GB	1	0	2	3	*3*
	5	Refused	3	2	7	1	*8*
All Records			***100***	***100***	***100***	***100***	***100***
View of level of	0	No Borrowing	59	44	65	55	*59*
borrowing	1	I could afford to borrow more i	8	18	16	27	*15*
	2	My level of borrowing is about	20	30	13	14	*15*
	3	I have borrowed more than I c	7	5	1	0	*2*
	4	Dont Know	3	2	2	1	*2*
	5	Refused	3	2	4	3	*7*
All Records			***100***	***100***	***100***	***100***	***100***
Number of credit		0	59	44	65	55	*59*
commitments		1	18	21	15	18	*15*
		2	7	13	7	9	*7*
		3	5	10	3	6	*4*
		4	1	2	1	3	*1*
		5	2	4	1	2	*1*
		Refused	8	6	8	6	*12*
All Records			***100***	***100***	***100***	***100***	***100***

All figures are weighted.

Table A2: Composition of clusters by socio-demographic characteristics

		A Financially vulnerable	B	C	D Financially Secure	Average
Age group	18 - 29	10	25	8	21	12
	30 - 39	19	29	15	32	19
	40 - 49	20	22	20	21	20
	50 - 59	18	17	18	14	18
	60 - 69	20	5	21	7	17
	70 and over	13	1	19	5	15
All Records		**100**	**100**	**100**	**100**	**100**
Gender	1 Male	43	50	47	54	47
	2 Female	57	50	53	46	53
All Records		**100**	**100**	**100**	**100**	**100**
Family type	1 one adult no dep children	19	17	20	16	19
	2 two adults no dep children	40	28	48	39	44
	3 one adult with at least one dep child	7	9	3	5	5
	4 two parent with at least one dep child	27	37	22	34	25
	5 other (multiple households)	7	9	7	6	7
	8 refused	0	0	0	0	0
All Records		**100**	**100**	**100**	**100**	**100**
Number of earners	0 None	43	22	37	16	34
	1 One	31	41	31	36	32
	2 Two	26	36	31	47	32
	3 At least one but number unknown	1	0	0	0	1
	9 Don't know or refused	0	0	0	1	1
All Records		**100**	**100**	**100**	**100**	**100**
Occupation of highest earner	1 Senior manager or director	3	3	8	11	7
	2 Professional or technical	9	22	17	32	17
	3 Skilled manual	24	27	23	18	23
	4 general manual	19	21	12	10	14
	5 Clerical	12	12	12	9	11
	6 Other	29	13	23	17	22
	7 Never worked	2	1	2	1	2
	8 Refused	1	0	3	1	3
All Records		**100**	**100**	**100**	**100**	**100**
Housing tenure	1 Own home outright	32	13	48	27	38
	2 Own home on a mortgage	23	33	25	38	26
	3 Rent from private landlord	21	29	13	21	16
	4 Rent from social landlord	21	24	12	13	14
	5 Some other arrangement	3	2	1	1	2
	6 Dont know spontaneous	1	0	0	0	1
	7 Refused spontaneous	1	0	1	0	3
All Records		**100**	**100**	**100**	**100**	**100**
I am more of a saver than a spender	1 Agree strongly	16	15	21	25	20
	2 Tend to agree	33	25	39	27	34
	3 Tend to disagree	16	27	23	25	22
	4 Disagree strongly	32	33	13	20	18
	5 Dont Know	2	0	2	2	2
	6 Refused	1	0	1	1	3
All Records		**100**	**100**	**100**	**100**	**100**
I prefer to buy things on credit than wait and save up	1 Agree strongly	7	6	3	5	4
	2 Tend to agree	19	20	15	13	15
	3 Tend to disagree	24	26	25	26	24
	4 Disagree strongly	44	45	54	54	50
	5 Dont Know	3	1	2	1	2
	6 Refused	2	1	1	1	4
All Records		**100**	**100**	**100**	**100**	**100**

All figures are weighted

Table A3: Index score and percentage of people falling into each cluster, by country

	A "Financially vulnerable"	B	C	D "Financially secure"	Index score
Italy	24	6	49	4	39
Portugal	29	5	52	6	34
Germany	13	6	63	6	16
Spain	15	7	58	7	15
France	14	18	49	11	7
Ireland	7	8	58	15	-16
Great Britain	6	10	54	14	-19
Denmark	4	9	62	22	-37
Norway	4	8	59	27	-41
Sweden	3	8	58	27	-46
Total	*11*	*9*	*57*	*14*	-5

Notes:

Figures are based on weighted values

Approximately nine per cent of the sample overall could not be allocated to a group because they did not respond to one or both index questions. These are not shown in the table.

Table A4. Proportions falling into each cluster, by socio-demographic characteristic

Row percentage		A Financially vulnerable	B	C	D Financially Secure	Index score	Unweighted base
Age group short	18 - 29	12	20	39	17	-8	873
	30 - 39	14	15	44	17	-4	1,432
	40 - 49	13	10	54	10	5	1,506
	50 - 59	13	9	55	8	12	1,377
	60 - 69	16	3	67	4	31	1,287
	70 and over	12	1	71	3	29	1,059
Gender	1 Male	12	10	55	11	2	3,545
	2 Female	15	9	55	8	12	3,989
Family type	1 one adult no dep children	14	9	58	8	10	1,581
	2 two adults no dep children	12	6	60	9	7	3,221
	3 one adult with at least one d	20	18	38	10	15	376
	4 two parent with at least one	14	14	49	13	2	1,887
	5 other (multiple households)	13	12	52	8	12	432
Number of earners	0 None	17	6	59	4	29	2,397
	1 One	13	12	52	11	4	2,444
	2 Two	11	11	55	14	-6	2,571
Occupation of highest earners	1 Senior manager or director	7	5	60	16	-19	575
	2 Professional or technical	7	12	54	18	-21	1,336
	3 Skilled manual	14	11	56	8	13	1,637
	4 general manual	18	14	48	7	21	1,133
	5 Clerical	14	10	57	7	14	788
	6 Other	17	6	56	7	18	1,724
	7 Never worked	14	5	61	4	29	147
Housing tenure	1 Own home outright	11	3	68	7	11	2,777
	2 Own home on a mortgage	12	12	53	14	-4	2,423
	3 Rent from private landlord	17	17	44	12	7	1,054
	4 Rent from social landlord	19	16	46	9	17	997
	5 Some other arrangement	22	9	41	9	20	113
I am more of a saver than a spend	1 Agree strongly	11	7	60	12	-2	1,720
	2 Tend to agree	13	7	62	8	11	2,757
	3 Tend to disagree	10	12	58	11	-2	1,565
	4 Disagree strongly	23	17	40	11	17	1,124
I prefer to buy things on credit than	1 Agree strongly	22	14	39	11	14	303
	2 Tend to agree	17	13	53	8	16	915
	3 Tend to disagree	13	10	57	11	5	1,872
	4 Disagree strongly	12	9	60	10	3	4,066

Figures are based on weighted values

Approximately nine per cent of the sample overall could not be allocated to a group because they did not respond to one or both index questions. These are not shown in the table.

Categories with a total sample size of less than 100 are omitted from the table. Categories with smaller sample sizes are associated with greater sampling error, therefore should be treated with caution.

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European Credit
Research Institute

Place du Congrès 1
B-1000 Brussels
Tel.: +32 2 229 39 16
Fax: +32 2 219 41 51
E-mail: info@ecri.be
www.ecri.eu