Background expenditure risk: Implications for household finances and psychological well-being

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This version: October 2015

ABSTRACT

We document that the most frequent reason for a deterioration in households' financial situation is higher expenditures, in contrast to improvements in their finances which are usually due to increases in earnings. The expenditure increases are persistent and linked to: (i) fluctuations in the prices of goods that make a large proportion of each households' budget, including mortgage expenses; (ii) life events, including the birth of the first child, divorce, and changes in health status; and (iii) psychological variables such as households' ability to face problems. Moreover, we provide evidence that financially worse off individuals are more likely to feel depressed and to lose sleep over worry, which in turn increases the likelihood of a further deterioration in their finances. Good financial management reduces the probability that individuals are worse off due to higher expenditures. Our results highlight the roles of expenditures as a source of background risk and of expenditure management in financial education.

JEL classification: G21, E21.

Keywords: Financial situation, expenditures, well-being, background risk, financial education.

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1   Introduction

In countries such as the United States or the United Kingdom, household final consumption expenditure represents around two-thirds of GDP,[1] so that fluctuations in household consumption can have large macroeconomic effects. At the micro level, when deciding how much to consume and save, and in which assets to save, households naturally take into account their current and expected future financial situation, and the risks associated with it. Understanding the factors that contribute to changes in such financial situation is therefore a question of great importance, that also has implications for savings behavior, portfolio choice and asset prices, as discussed in the literature on background risk (see for instance the early contributions of Kimball (1990), Gollier and Pratt (1996), Guiso, Jappelli, and Terlizzese (1996) and Heaton and Lucas (1996)).[2]

The measurement of the risks associated with a household's financial situation is not an easy task. One possible approach is to first calculate net worth as the difference between household assets and liabilities, and then evaluate changes in net worth and the factors that lead to such changes over time (Guiso, Haliassos, and Jappelli (2002)). An alternative approach is to measure flow variables directly, such as earnings, and how they change from year to year. This is the approach taken by a large literature that estimates the level and risk characteristics of earnings processes (Low, Meghir, Pistaferri (2010), and Guvenen, Ozkan, and Song (2014) are recent examples). Both or these approaches have generated important insights. However, they contain limited information on the extent to which households have found it difficult to meet some of their expenditures, whether they had to cutback on other consumption in order to do so, and their expectations of their future financial situation.

In this paper we use almost two decades of U.K. household panel data, in which individuals are asked to report on changes in their financial situation, to study the determinants of such changes. In each year individuals in the survey are asked whether their financial situation is significantly better, worse, or about the same than it was a year ago. For those who report being better off or worse off, the interviewer asks individuals to report on the main reason for the change. One important advantage of using a survey question is that the data measures the changes as perceived by the households themselves, based on all information available to them, and on which their consumption and portfolio decisions are based.

Interestingly, we find that the main reason why individuals report being worse off finan-

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cially is higher expenditures. The proportion of individuals who report being worse off due to higher expenditures is twice as high as the proportion of individuals who report being worse off due to lower earnings (0.52 compared to 0.24, respectively). In contrast, and as expected, the main reason why individuals report being better off financially is higher earnings. Furthermore we document that expenditure risks are as persistent as earnings risks. About one third of those individuals who report being currently better off (worse off) due to an increase in earnings (expenditures), also report being worse off for the same reason the following year. In other words, increases in both earnings and expenditures have similar persistence in growth rates. If instead we consider persistence in levels, namely how long does it take for these individuals to report that the initial increase has reversed itself, we actually find slightly higher persistence for increases in expenditures. Thus, in the data the risk of higher expenditures seems to be of first order importance for the majority of households, and an important source of background risk.[3]

With this observation in mind, we use the richness of our data to study the sources of expenditure risk. A complex picture emerges, in which both aggregate variables and changes in individual specific circumstances are important. For instance, households who spend a larger fraction of their income on energy or food are more likely to report that they are worse off due to higher expenditures in those years with higher energy or food price inflation. Increases in the ratio of mortgage expenses to income are also a contributing factor. These results highlight the importance of the cross-sectional dispersion in consumption baskets.[4] Our results also show that individuals who have recently divorced or separated and individuals who have recently had their first child are more likely to become financially worse off as a result of higher expenditures. And we find that individual psychological characteristics also matter. For example, those who report having difficulty facing problems are ten percent more likely to end up in a worse financial situation due to higher expenditures.

Importantly, we find evidence of a strong link between changes in financial circumstances and psychological well-being. Individuals who are worse off due to higher expenditures have a 29% higher probability of being more depressed than usual and a 23% percent higher probability of losing sleep due to worry. This increase is estimated after controlling for the direct impact on well-being of the other previously documented factors that led to the expenditure increase, such as the fact that the individual has recently become divorced or

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[3]In a recent paper Fagereng, Guiso and Pistaferri (2015) use an instrumental variables approach to estimate the size of background risk arising from human capital to be a small value. Our results point to the importance of expenditures as an alternative source of background risk.

[4]Even if wages were to go up with inflation every year, unless inflation would be equalized across all goods there would still be households that would find themselves worse off in any given year.

separated.[5]

Our data also includes responses to a question in which individuals are asked to look ahead, and to report on the *expected* changes to their financial situation. More precisely, they are asked whether they expect to be better off, worse off, or about the same in a one year time. We use the information contained in this question to distinguish between expected and unexpected changes in financial situation, and to study how they affect future expectations and psychological well-being. We find that individuals view expected changes as being more persistent than unexpected changes, and that the impact of expected and unexpected changes on well-being is comparable. In other words, the shock of an unexpected change appears to be counter-balanced by the fact that households expect such changes to be less persistent.

In the final part of our paper we ask what can individuals do to mitigate the risk that they become financially worse off due to higher expenditures. We find evidence that a measure of self-assessed good financial management reduces such risk. Lusardi and Mitchell (2007) and van Rooij, Lusardi and Alessie (2012) investigate the role of financial planning education for optimal retirement savings decisions. Our results emphasize instead the importance of teaching individuals about expenditure management, which is something that so far has received limited attention in the financial literacy literature (Lusardi and Mitchell (2014) provide an excellent survey of this literature).

In addition to the previously cited literatures on background risk and financial literacy, our paper is related to several others. The models of Hubbard, Skinner and Zeldes (1995), Palumbo (1999), De Nardi, French and Jones (2010) and Yogo (2013) focus on the risks that individuals face from changes in health status and uncertain medical expenditures that they must meet, and we borrow their framework to guide us in the empirical analysis. However, our analysis shows that there are several important sources of expenditure risk beyond the medical expenditures considered in their papers, making it quantitatively important to a large cross-section of individuals. Our empirical analysis quantifies their importance, and links a worse financial situation to a deterioration in psychological well-being, which in turn leads to a further deterioration in household finances.

The paper is organized as follows. Section 2 describes the data and the variables that we use. In section 3 we provide a simple framework that we use to guide the empirical analysis of the reasons for changes in financial situation. In this section we also provide evidence on the sources of expenditure risk and we relate changes in financial situation to psychological well-being. In section 4 we turn our attention to individual expectations of their future

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[5]For comparison, we find that a divorce or separation is associated with a roughly sixty percent increase in the probability that individuals become depressed or lose sleep.

financial situation, that we use to distinguish between expected and unexpected changes. Section 5 studies the role of financial management. The final section concludes.

2 The Data

2.1 Data sources

The main data source is the British Household Panel Survey (BHPS), which is a representative panel of UK households. The data starts in 1991 and there is annual data available until (and including) 2008. After 2008 the BHPS became part of a new survey entitled Understanding Society, but at this time several of the questions that are crucial for our study were dropped from the survey, so that we focus on the data contained in waves 1 through 18. The nature of the data, both in terms of the data collection process and the information available, is similar to that in the U.S. Panel Study of Income Dynamics (PSID).

Each year individuals are asked a wide range of questions about their circumstances including income, financial situation, demographic variables, expenditures, psychological well being, among others. The first wave contains information for around 5,500 households. In subsequent years more households were added to the survey bringing the total number to around 9,000. Not all households appear in each of the eighteen waves, so that we use an unbalanced panel. Furthermore, similar to the PSID, the data lacks detailed yearly information on household wealth. However, it is fairly rich in terms of income, both labor and asset income (interest, dividends, etc), housing, mortgage debt, and other information.[6] The retail price index data that we use is from the U.K. Office of National Statistics.

2.2 Variables description

We use several variables available in the BHPS data, including demographic and household composition variables such as age, gender, marital status, number of children, and health status. We construct a measure of household total income by adding the labor income, social security income, and asset income of the head of the household and his/her partner, if present. We use the retail price index to convert nominal variables into their real counterparts. In order to mitigate the influence of outliers we winsorize income (and other continuous variables) at the 5th and 95th percentiles of their respective distributions. The data contains information on the amount the household has spent in some categories, in-

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[6]In addition to the value of human capital, housing is for many households the most important component of wealth. The BHPS data has information on house values and mortgage loans.

cluding food and energy. We compute measures of the relative importance of each of these categories by scaling them by household income.

In the survey individuals are asked about changes in their financial situation. More precisely, in each year they are asked whether they are better off, the same, or worse off financially than they were a year ago. In addition, from 1993 onwards, those participants who responded that they were better off or worse off are asked about the reason for the change. We use the information contained in the responses to each of these questions by the household head.

The survey includes information on respondents' well being. Each year individuals are asked about the way they have been feeling over the last few weeks, including whether they have been finding it difficult to face problems, whether they have been feeling depressed or unhappy, and whether they have been losing much sleep over worry. The answer to these questions has four possible categories: better than usual, same as usual, more than usual, much more than usual. For each of these variables we construct a dummy variable that takes the value of one if the household head answers more than usual or much more than usual and zero otherwise.

It is hard to know exactly what respondents mean by usual. Some individuals respond more and much more than usual more often than others. This may either be the result of more in sample negative events that make individuals more often depressed or, alternatively, the result of individual specific traits that lead them to be more adversely affected by negative events or to have different views of what is the usual. To control for the latter possibility we include individual fixed effects in some of our regressions.

Part of the variation in our data is driven by changes in individual specific circumstances, such as a deterioration in health status, while the other part is driven by aggregate economic fluctuations, which are also reflected in household level variables (e.g. earnings). The proportion of households who report being financially worse off than in the previous year is highest, at around 35%, in the first three years (1991-93) and in the last year (2008) of our sample, which correspond to periods of economic recession. In contrast, during the early 2000s, which correspond to a period of economic expansion, this proportion is at the lowest level, at around 20%. Thus, both types of variation (individual-specific and aggregate) are important in our data.

3 Financial Situation

3.1 A simple framework

In this section we provide a simple framework that we use to guide and interpret the empirical analysis. Consider an individual i who chooses date t real consumption c_{it} so as to maximize the present discounted value of his/her utility. Assuming a within period preference specification similar to Palumbo (1999) and De Nardi, French, and Jones (2010), where h_{it} denotes period t health status (that can either be good, $h_{it} = 1$, or bad, $h_{it} = 0$), the individual maximizes:[7]

$$V(Z_{it}) = \underset{\{c_{it}\}}{MAX} \left\{ (1 + \delta_i h_{it}) \frac{c_{it}^{1-\gamma_i}}{1 - \gamma_i} + E_{it} \beta_i V(Z_{i,t+1}) \right\} \tag{1}$$

where V denotes the value function, Z denotes the vector of state variables of the problem, γ is the coefficient of relative risk aversion, δ is a preference parameter that determines the impact of health status on utility, and β is the discount factor. We will consider a broad definition of health status that takes into account both physical and psychological health.

The equation describing the evolution of *nominal* cash-on-hand (X) is:

$$X_{i,t+1} = (X_{it} - p_{it}c_{it})(1 + R_{i,t+1}) + B_{i,t+1} - M_{i,t+1} + Y_{i,t+1}, \tag{2}$$

where p_{it} is the date t price of the consumption basket of individual i, $R_{i,t+1}$ is the return on his/her portfolio of assets, B denotes government transfers and other benefits, M are other expenditures that the individual must meet, and Y denotes earnings. In this equation all variables except consumption are written in nominal terms, so that we let uppercase letters denote the nominal counterpart of the real variable.

The term M represents uncertain expenditures that the individual is required to meet, such as out-of-pocket medical expenditures, car repairs, mortgage payments, among others. This is similar to the approaches of De Nardi, French and Jones (2010) for medical expenditures and Fratantoni (2001) for mortgage payments. However, we would like to emphasize that we think of them as including not only these two sources of expenditure risk, but also others such as those arising from divorce, children, among others.

One can also write the real counterpart of the above equation as:

$$x_{i,t+1} = (x_{it} - \frac{p_{it}}{p_t}c_{it})(1 + r_{i,t+1}) + b_{i,t+1} - m_{i,t+1} + y_{i,t+1}, \tag{3}$$

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[7]Yogo (2013) considers a more general specification in a model where health status is endogenous.

where lower case letters denote the real counterpart of the nominal variables, and p_t denotes the date t price level. The above equation is useful because it allows us to think of the different channels through which households can be made better or worse off. In addition to lower investment returns ($r_{i,t+1}$), an important channel that has been the focus of the literature on background risk is *real* earnings ($y_{i,t+1}$). But households can also be worse off (lower cash-on-hand) because of lower net government transfers (net of taxes, $b_{i,t+1}$), higher real expenditures (m_{it}), or because of a higher price for the goods that form his/her consumption basket (p_{it}). When this consumption basket is similar to the consumption basket that is used to compute the price level p_t equals p_{it} and the two cancel out. When that is not the case, the evolution of the individual's financial situation will depend on the evolution of the prices of the goods that make a larger part of their expenditures. Finally, some individuals may choose a suboptimal consumption level (c_{it}) because of poor financial planning (e.g. Lusardi and Mitchell (2007) or van Rooij, Lusardi and Alessie (2012)) or lack of self-control (e.g. Harris and Laibson (2001), Laibson, Repetto and Tobacman (1998) or Laibson (1997)), thus leaving them with too little savings going forward.

Our data allows us to quantify the importance of the different channels through which individuals can be better or worse off financially (earnings, investment income, benefits, expenditures). It also allows us to study the impact of a change in financial situation on psychological well-being, so that in terms of the above equations, a drop in earnings will mean lower cash-on-hand, and it may also affect utility through the term h_{it}, if the worse financial situation makes individuals depressed. De Nardi, French, and Jones (2010) estimate δ equal to -0.36, so that the health preference parameter shifter implies a higher marginal utility of consumption when health status is bad. Note that in this case, and ceteris paribus, individuals will increase their consumption when depressed, which in turn may lead to a further deterioration in their financial situation.[8]

3.2 Changes in financial situation

In each year participants are asked whether they are financially better off or worse off than a year ago. In Panel A of Table I we report the number and the proportion of responses for each category, for all years in the sample. Thus the unit of observation is household/year.

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[8] One potentially important aspect of individuals' financial situation that is not directly reflected in the equations above are changes in the value of housing. However, changes in housing value does not appear as one of the categories in the survey. There is a residual category of other reasons, but it is not quantitatively very important. One possible explanation is that individuals do not think of fluctuations in the value of their house as making them financially better or worse off since they must live in the house, so that they are implicitly hedged against fluctuations in its value.

Roughly half of the responses are for about the same, and the remainder are equally split between better off and worse off. Although not immediately visible in Panel A of Table I there is considerable individual time-series variation in the data.

[Table I here]

To show this variation in Panel B we report the probability of year t responses conditional on year $t-1$ responses by the same individual. Out of those who reported being better off in year $t-1$ than in year $t-2$ (first row of Panel B), 44% reported being better off at t than at $t-1$, 39% reported being about the same, and the remainder 17% reported being worse off. In Panel B of Table I the main diagonal always has the highest value, so that in the data there is persistence in *changes* in financial situation, with some households benefiting from consecutive years of improvement, and others facing consecutive years of deterioration in their finances, and we will explore this in more detail later in the paper. In addition to this persistence, the probabilities off the main diagonal are economically large, so that there is meaningful time series variation in the responses of each individual.

3.3   Reasons for the change in financial situation

3.3.1   Unconditional univariate results

Those individuals who report being better off or worse off than in the previous year are asked to provide the reason for the change. In Panel A of Table II we tabulate the answers for better off individuals. Unsurprisingly, the main reason is higher earnings (54%). The second highest category is lower expenses, with a response rate of 15%. Interestingly, five percent of the responses are for good financial management, an issue which we investigate later in the paper. In Panel B we tabulate the answers for those individuals who report being worse off than a year ago. Strikingly, the main reason why individuals report being worse off is higher expenditures (52%), a reason that is given twice more often than lower earnings (24%).[9]

[Table II here]

There is a vast literature that estimates the properties of individual earnings, how they change over the life-cycle, and the nature of the earnings shocks that different individuals

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[9]The number of observations for the reasons why individuals are better off and worse off in Table II add to 51,838 whereas in Table I they add to 55,585. The main reason is that, as previously mentioned, the question on "why the change in financial situation" is only available from 1993 onwards.

face (e.g. Guvenen, Ozkan and Song, 2014, and Low, Meghir, and Pistaferri, 2010). While earnings fluctuations are clearly important, the data in Panel B of Table II suggests that more attention should be given to the expenditure part of the budget equation, since in the data it is the main reason for a worsening of a household's financial situation, explaining 52% of such occurrences. Multiplying the latter value by the probability that individuals are financially worse off reported in Table I (24%), gives a value of 12.5%. This means that, in a typical year, an average individual in our sample had an 12.5% probability of being worse off due to higher expenditures. This probability is likely to be higher for some individuals than for others, the determinants of which we will study in the regression analysis.

The permanent income model of consumption (Friedman, 1957) and the buffer-stock consumption models (Deaton, 1991, Carroll, 1997) treat expenditures as a choice variable of consumers who choose them in response to fluctuations in earnings. In these models there is no risk arising from the expenditures. This assumption is relaxed in the models of Hubbard, Skinner and Zeldes (1995), Palumbo (1999), De Nardi, French, and Jones (2010) and Yogo (2013) in which fluctuations in out-of-pocket medical expenditures that consumers must meet introduces expenditure risk. In these models large medical expenditures affect the resources available for other consumption through the budget constraint, and contribute to individuals being financially worse off.

This channel is likely to be at work in our data but given the large proportion of individuals who cite higher expenditures as the reason for being financially worse off, medical expenditures alone are unlikely to be the explanation. We will investigate this in more detail later in the paper, but in Panel C of Table II we provide some initial evidence to support this claim. Here we again report the reasons for being worse off, but now restricting the sample only to those individuals who are in excellent wealth, for whom medical expenditures are not likely to be significant. Their responses are quantitatively similar to the full sample of individuals, suggesting that health expenditures are only part of the reasons.[10]

3.3.2 Persistence

In a similar exercise to that of Panel B of Table I, in Table III we report the persistence in changes in financial situation, by reason given for change. We focus on the largest categories, namely earnings and expenditures increases/decreases.[11] The first row of this table shows

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[10] We do not observe medical expenditures in our data, but we have detailed information on health status. In addition, due to the features of the National Health Service, out-of-pocket medical expenditures are likely to be less significant in our data than in U.S. data.

[11] More detailed information on the transition probability matrix across different events is provided in the Appendix, Table AI.

the transition probabilities for individuals who in year t reported being better off than in year $t-1$ due to higher earnings. Out of these, 36% report being better off at $t+1$ than at t again due to higher earnings, so that they benefit from consecutive years of earnings increases. Furthermore, we find that 16% are better off due to an earnings increase for three years in a row. The persistence of an earnings decrease is smaller: only 18% report an additional decrease at $t+1$, and this proportion drops to 4% when we condition on an earnings decrease for three consecutive years of the survey.

[Table III here]

Interestingly, for changes in expenditures we observe an opposite picture. Of those individuals who in t are worse off due to an increase in expenditures, 33% of them face a further deterioration in their financial situation at $t+1$ for the same reason. And 15% are hit by this event yet again two years later. On the other hand, being better off due to a decrease in expenditures is an event that is much less likely to repeat itself in consecutive years. Overall these results show that the main factors driving both improvements and declines in the financial situation of households often compound themselves over time, i.e. have significant persistence in growth rates, thus further magnifying their importance.

In Panel B of Table III we measure the expected duration of these shocks, or alternatively, their persistence in levels. For example, in the first row we report the probability that an increase in earnings at time t is not reversed in year $t+1$, by year $t+2$, or by year $t+3$. Since we do not have a response in the survey that allows us to identify precisely when the reversal has taken place, we report two estimates, that provide an upper and lower bound for this number.[12] The probability that an earnings increase is not reversed in the following year is between 0.83 and 0.93. Even three years later, the probability that the initial change in earnings is still there is at least 61%, and as high as 82%. So these events are extremely persistent and as for growth rates we find that increases in the level of earnings are more persistent than decreases in their level.

When we consider changes in the level of expenditures over the following three years, the asymmetry is somewhat less pronounced than it was for growth rates, but it is still the case that increases in expenditures are more persistent than decreases. In summary the

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[12]The lower bound is obtained by considering that a reversal has taken place only if the individual responds that he/she is worse off because of lower income. This represents a lower bound because it is possible that in some other instances the individual is worse off for multiple reasons, one of them being a lower income, but in the survey he reports another reason. The survey asks for the main reason why the individual is worse off. The upper bound is computed by taking all events with a "worse off" response regardless of the listed reason.

events most commonly cited for both improvements and deterioration in the household's financial situation are very persistent. Furthermore a significant fraction of increases in both earnings and expenditures are followed by subsequent increases in the following years. We can therefore conclude that it is not just the case that changes in expenditures are very common, they also have similar time-series risk properties to those of changes in earnings.

3.4   Summary statistics

In Table IV we report means for several of the variables that we use in our regression analysis. The first column reports means across all observations in our sample, the second and third columns for observations in which individuals report being better off and worse off, respectively, and the numbers in the last column refer to those who report being worse off due to higher expenditures. Thus the observations in the last column correspond to a subset of those in the one next to the last. We should also add that the number of observations reported in the first row of Table IV correspond to observations for which we have information on whether there has been a change in financial situation. For some of the other variables there is sometimes missing information, which reduces the number of observations available for the regression analysis.

[Table IV here]

There are some interesting differences in mean values across the different groups. Individuals who report being better off are on average much younger than those who report being worse off. As we have seen a large proportion of individuals are better off due to higher earnings, and earnings profiles are on average steeper earlier in life. The proportion of married individuals is lowest amongst those who report being worse off due to higher expenditures. Lower income households, and households who spend a higher fraction of their income in food and in energy are more likely to report that they are financially worse off due to higher expenditures. These results suggest that households on a tighter budget, are potentially more sensitive to fluctuations in the prices of food and/or energy.

The next two rows suggest that indeed this channel seems to be, at least partly, at work in our data. They report average values for food inflation and energy inflation in our sample. In any given year, the values for food (and energy) inflation are the same for all individuals. Therefore, any variation in means across the different columns in Table IV is driven by differences in the year in which households report being better or worse off. And interestingly, across the four groups, the average inflation values are highest for individuals who report being worse off due to higher expenditures.

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The next five rows of Table IV report the average values for dummy variables for different health status, from excellent health to very poor health. Individuals who report being better off financially are on average healthier than the sample mean, more so when compared to those who report being worse off. For example, 73% of those who report being better off have excellent or good health. The corresponding value for those who report being worse off is only 61%. A worse health status may affect the ability of individuals to work and generate earnings, and there may be medical expenses that they need to meet.

On average, households who are better off tend to have more children. This may be because as we have seen there is some persistence in the households who report being better off. And those who expect to be better off financially may decide to have more children. Alternatively, this may simply be a reflection of the fact that those individuals who are better off are on average younger, and at a stage when children have not left the household.

The last two rows of Table IV report the average values for the dummy variables that measure whether individuals are having difficulty facing problems and are depressed or unhappy. For one in ten (one in five) observations individuals report having difficulties facing problems (or are depressed). These proportions are significantly larger among those who also report that they are worse off financially: one in five have difficulties facing problems and almost one in three are unhappy or depressed. One should be careful interpreting these differences, though. The worse financial situation may be the result, for example, of individuals feeling depressed and spending money to try to overcome it, or even of another life event such as a divorce that leads to individuals feeling both depressed and being financially worse off. Furthermore, the summary statistics in Table IV are all based on univariate comparisons, thus ignoring the correlation amongst the different variables. In the next section we consider a more formal regression analysis.

3.5   The determinants of being worse off due to higher expenditure

We have documented that the majority of households who report a worsening of their financial situation attribute it to an increase in their expenditures rather than a decrease in income or any other reason. In this section we will try to identify the determinants of this event, i.e. of the worsening of one's financial situation due to higher expenditures.

Empirical specification

For the regression analysis we create a dummy variable that takes the value of one for individuals who report being worse off in year t than in year $t-1$ due to higher expenditures, and zero otherwise ($d_{it}^{worse/exp}$). We estimate random-effects panel probit regressions, and in

the tables we report the estimated marginal effects so that they interpreted as a probability effect.

Among the set of independent variables we include variables that characterize the household at time $t-1$ (denoted by $X_{i,t-1}$) and variables that capture changes between time $t-1$ and t (denoted by ΔX_{it}), so that we are modelling:

$$d_{it}^{worse/exp} = f(X_{i,t-1}, \Delta X_{it}, \varepsilon_{it}). \tag{4}$$

Recall that our dependent variable measures whether the household is worse off at t than at $t-1$. Therefore time $t-1$ independent variables tell us about the beginning of period household characteristics that make it more likely that households become worse off. Independent variables that measure changes between $t-1$ and t capture the changes that have taken place during the year that made it more or less likely that households become financially worse off due to higher expenditures. The inclusion of variables that refer to changes from time $t-1$ to t creates a potential endogeneity problem in the regression, if some of those changes have been caused by the increase in expenditures and not the other way around. We address this potential concern below. In all regression results reported in Table V we control for a second order polynomial in age.

Income

Let us start with the first two rows of Table V, which correspond to log real household income at $t-1$ and changes in real household income between $t-1$ and t. In the first three specifications the estimated coefficients on both of these variables are always negative and statistically significant. Therefore, unsurprisingly, households with higher levels of income and who have experienced an increase in their income are less likely to find themselves financially worse off at t than at $t-1$ as a result of higher expenditures.[13]

[Table V here]

Direct measures of expenditures: food, energy and mortgage payments

The next group of independent variables captures payments in important categories, such as food, energy, and mortgage payments. Our choice of these categories is motivated by their importance and by restrictions on data availability, since the data does not include information on spending in all categories. Column (1) reports the results for a regression with

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[13]As mentioned above we will discuss specifications (4) and (5) below, where we address potential endogeneity concerns.

both energy and food expenditure shares, but due to the high collinearity between them, in columns (2) and (3) we only include one of them at a time. The estimated positive significant coefficients on the beginning of period ratios of energy expenditures to total income, food expenditure to total income, and mortgage payments to total income tell us that households who allocate a higher fraction of their income to these categories are more likely to become financially worse off due to higher expenditures.[14]

One likely channel for this effect is that households who spend a higher fraction of their income in these categories are likely to face a tighter budget. And those on a tight budget are more likely to become significantly worse off when such expenditures increase.[15] To test this more explicitly we include in the regression measures of food and energy price inflation. And indeed we find that households are more likely to be worse off in years of high food or energy inflation.

Furthermore the interaction of the ratio of energy expenditure to total income at time $t-1$ with energy inflation between time $t-1$ and t has a positive and significant coefficient telling us that those households who at the beginning of the period spent a higher fraction of their income in energy are particularly affected by increases in energy prices. The estimated coefficient for the interaction term for food expenditure and food inflation is not statistically significant, though. This may be due to the fact that in our sample energy price inflation is considerably more volatile than food price inflation.[16] Finally, and as one would have expected, households whose mortgage payments increase more relative to their income during the year are more likely to become worse off due to higher expenditures.[17]

Life events: health status, marital status and number of children

A third group of independent variables that we consider captures the effects of life events, related to health status, children, and marital status. For health status, and as before, we consider both the effects of beginning of period health status and changes in health status

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[14] The estimated coefficient on the ratio of energy to total income in the first specification, where we include all of these variables simultaneously, is not statistically significant. This is likely to be due to multicolinearity between these variables.

[15] There is significant heterogeneity in the data in the income shares of energy and food. The average food-to-income ratio is 20.3% but the 10th percentile is only 6.7% while the 90th percentile 42.3%. Similarly, while the average energy-to-income ratio is 5.0%, the 10th percentile is only 1.3% while the 90th percentile is 11.4%.

[16] The standard deviation of the RPI Energy index during our sample period was 7.62%, compared with 2.33% for the RPI Food index.

[17] The results in this regression are qualitatively identical and quantitatively almost the same if we exclude from the sample the years in which households are taking a new mortgage. Thus our results are not driven by the mortgage choices made by these individuals. Mortgages in the UK are mostly ajustable-rate, which have higher cash-flow risk than the fixed-rate mortgages that are more common in the US.

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during the year. We use dummies for the different health status at time $t - 1$. Omitted from the table is the dummy for the base case of excellent health, so that the remaining dummies should be interpreted as the additional probability of the household becoming financially worse off due to higher expenditures relative to this case. Across all specifications, the estimated coefficients are positive and statistically significant. Furthermore, they increase as health status becomes worse and they are economically meaningful. For instance, if we consider the first three regressions specifications, an individual with poor health status has roughly a 25% higher probability of becoming worse off due to higher expenditures than an individual in excellent health.

Changes in health status between $t - 1$ and t are also important. The next two rows in Table V show the estimated coefficients for dummy variables that take the value of one if between $t - 1$ and t there is an improvement (deterioration) in health status, and zero otherwise. The estimated negative (positive) coefficients mean that an improvement (deterioration) in health status reduces (increases) the probability of households becoming financially worse off due to higher expenditures. An explanation for these results is that health status affects medical expenditures. Unfortunately our data does not contain information on medical expenditures so that we cannot test this channel explicitly. And as a result, we cannot rule out other possibilities, such as those in poorer health increasing expenditures in other categories, perhaps in an attempt to make them feel better.[18]

To assess the effects of household composition we consider variables that measure marital status and number of children (and changes in these). The estimated coefficient on a dummy for married at $t - 1$ is negative, but not statistically significant in four out of the five specifications that we consider. In contrast, a dummy variable that takes the value of one if the individual separated or divorced between $t - 1$ and t is positive and statistically significant. Its economic magnitude is large: an increase of 12% to 14% in the probability that individuals become financially worse off due to higher expenditures.[19]

For children related variables, in Table V we report the results for number of children at time $t - 1$ and first child born between time $t - 1$ and t. The estimated coefficients on the former are not statistically significant in most of the specifications. However, having a first child born between $t - 1$ and t increases the probability that households report being financially worse off due to an increase in expenditures by roughly a third. This is a large

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[18]This would be consistent with preference specification (1) with a negative δ as estimated by De Nardi et al. (2010), since it implies higher marginal utility of consumption when health status is bad.

[19]Love (2010) solves a life-cycle model of consumption and portfolio choice which explicitly considers the impact of demographic shocks and studies how these variables empirically affect observed household portfolio allocations.

effect.

Although not reported in Table V, we have tried to include a dummy variable that takes the value of one if there is an additional child born between time $t-1$ and t, regardless of whether or not it is the first child. The estimated coefficient on this variable was always statistically insignificant. This suggests that there is something about the first child, either because expenses are relatively higher for the first child (since younger siblings typically use prams, clothes, etc. of older siblings) or because parents are less prepared for the required expenditure than when having subsequent children.

Psychological variables: depression, ability to face problems and loss of sleep

The final set of three variables that we consider captures psychological characteristics. The first is a dummy variable that takes the value of one if at time $t-1$ the individual reports that he/she has been having difficulties facing problems more than usual or much more than usual, and zero otherwise. These individuals might be more prone to finding themselves in a worse off financial situation in year t due to a failure to manage their finances adequately. And indeed we estimate a 7% to 9% higher probability (depending on the specification) of that happening.

Since the question in the survey is fairly general, and it does not ask specifically about what sort of problems individuals have been having difficulty facing, there are at least two possible explanations for the positive and statistically significant estimated coefficient. First, individuals may be facing a personal problem that they have difficulty facing, and they spend more to make them feel better. Second, stressed household finances and higher expenditures are the source of the problem, and individuals who have difficulty facing them and take a passive attitude are more likely to become financially worse off.

The second dummy that we include takes on the value of one if at time $t-1$ the individual reports that he/she has been losing rather more or much more sleep over worry than usual, and zero otherwise. The third variable is also a binary indicator, identifying those individuals that report being rather more or much unhappy/depressed than usual. These final two regressors might capture the impact that a low psychological condition might have on one's ability to manage his/her finances. We indeed find that loss of sleep appears as strongly significant, although unhappy or depressed does not.

Endogeneity and fixed effects

There is a potential endogeneity concern with the regression estimates in specifications (1) through (3) of Table V, that arises from the fact that among the explanatory variables

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we include some that refer to changes from time $t-1$ to t. For example, one could argue that households who face an increase in expenditures unrelated to their health must cut back on their medical expenditures, and that it is this that leads them suffer a decrease in their health status. Alternatively, the increase in expenditures might affect one's willingness or ability to work, thus leading to a reduction in earnings. One could also argue that the higher stress generated by increased expenditures may lead to an increase in the probability of a divorce/separation. To alleviate these concerns we repeat the previous regressions, but excluding all contemporaneous household-level variables.[20]

The estimation results are reported in the column (4) of Table V. It is re-assuring to see that removing all the potentially endogenous variables does not affect our inference for the remainder. The results remain qualitatively and even quantitatively almost the same as in specification (3). The only change is that even though the coefficient on real income is still negative as before, it is not significant.

In the Probit panel regression estimates reported in Table V we cannot include individual fixed effects since they will result in inconsistent coefficient estimates. As an alternative we have estimated individual fixed-effects OLS panel regressions, whose results we report in the Appendix Table AII. They are qualitatively identical to those in Table V, which shows that our results are to a significant extent explained by variation across time for the same individual, and not solely by differences across individuals.

Persistence

As previously discussed, an individual who is in a worse off financial situation due to higher expenditures at time t is more likely to find himself/herself in the same situation at time $t+1$. In the previous regressions we did not include a lagged dependent variable because we were interested in isolating the reasons for a worse financial situation. However it is also interesting to augment the regression with the dependent variable as measured at time $t-1$.

The results are reported in the last column of Table V. Most variables remain significant as before, but the magnitude of the coefficients and/or t-statistics of some of them are more affected than others. The ratio of mortgage payments to income is no longer significant, and the ratio of energy expenditures to income, although still economically and statistically significant has a relatively lower coefficient and significance than in the previous regression.

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[20]We also exclude "change in mortgage payments between t-1 and t" and "first child born between t-1 and t" even though for these variables the endogeneity would probably imply a coefficient with the opposite sign from the one that we have estimated in the regressions. We still include the RPI related variables since the endogeneity concern does not apply to them.

These results suggest that these particular measures of financial stress are one important driver of the persistence in being worse off due to higher expenditures.

3.6 Psychological well-being

In the previous section we have characterized the households who are more likely to become financially worse off due to higher expenditures, and we have identified several factors that contribute to such an outcome. An increase in certain expenditures may force households to cutback on their consumption of other items, which will decrease their utility. In addition there may be an impact on individual's psychological well being, which may make households even worse off in utility terms. In this section we study the extent to which households being financially worse off affects their psychological well-being.

Empirical specification

The outcome variables that we focus on are whether in year t individuals have been feeling more depressed or unhappy than usual, whether they have been losing more sleep than usual due to worry, and whether they have been having more difficulties facing problems. Since these dependent variables are dummy variables we estimate random effects panel probit regressions.[21]

Among the set of explanatory variables we include the previously described dummy variable that takes the value of one if the individual reports being worse off due to an increase in expenditures, and zero otherwise. For completeness we also include similarly constructed dummy variables for individuals who report being better off due to a higher earnings, being better off due to lower expenditures, and being worse off due to lower earnings. A difficulty when interpreting the estimated coefficients in these regressions is that there may be factors that may be the reason for households becoming more depressed and at the same time financially worse off, such as for example a divorce or a deterioration in health status. To try to at least partly control for these factors in the regressions we include additional explanatory variables, so that the specification that we estimate is:

$$d_{it}^{depressed} = f(d_{it}^{worse/exp}, d_{it}^{worse/earn}, d_{it}^{better/exp}, d_{it}^{better/earn}, controls_{it}, u_{it}), \qquad (5)$$

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[21] As before, in the Appendix Table AIII we include the results of fixed-effects OLS panel regressions. The comparison of the two shows that the results that we emphasize in this section are to a large extent driven by time series variation in the responses by the same individual. In order to control for persistence we have also estimated these regressions including the lagged dependent variable among the explanatory variables and the results are qualitatively unchanged (Appendix Table AIV).

and the same for the other two dependent variables.

Changes in financial situation

Table VI reports the results. Individuals who are financially worse off due to higher expenditures have an increased probability of being depressed, of loosing sleep due to worry, and are also more likely to report that they have difficulties facing problems. Furthermore, the increase in these probabilities is large, with estimated coefficients on the higher expenditures variable varying between 0.23 and 0.29 (for the different dependent variables considered).

[Table VI here]

These results are important for two reasons. First, they reveal an important psychological channel through which households may be made worse off, in utility terms, as a result of the higher expenditure (a deterioration in health status, with a utility impact through the h_{it} term in equation (1)). Second, combined with the results in the previous section, which show that individuals who have more difficulty facing problems are more likely to become worse off due to higher expenditures, these estimates highlight a potential vicious circle in household finances.

The remaining dummy variables that measure the change in financial situation are also statistically and economically significant with the expected signs. For instance, individuals who are financially better off due to higher earnings are less likely to feel depressed or to lose sleep due to worry. Interestingly for both individuals who are better off and who are worse off, the (absolute) value of the estimated coefficients on the earnings variables are higher than those on the expenditure variables. This tells us that even though individuals being worse off due to an expenditure increase is a more common occurrence, the impact of an earnings decrease on individuals' well being is larger.

The estimated coefficients on the dummy variables in Table VI measure the estimated change in probability when the independent variables are increased from zero to one. In order to obtain an alternative measure of the effects, we have used the estimated regression coefficients to obtain predicted values for the different dependent variables (being depressed, losing sleep due to worry, and difficulty facing problems).[22] In Figure 1 we plot the average of these predicted values for individuals who have reported being better/worse off due to higher/lower earnings/expenditures (the benchmarks are the predicted values for individuals for whom the four dummies are zero).

[Figure 1 here]

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[22] We calculate these predicted values using the values for the dependent variables observed in our data.

The figure shows that individuals in our data who report being better off due to higher earnings have an eleven percent probability of being unhappy or depressed. This value is significantly lower than the roughly fifteen percent predicted probability for the benchmark individuals. Figure 1 also shows that negative events tend to have a particularly large effect on psychological well-being: the predicted probability of being depressed is a high as twenty-eight (twenty-four) percent for individuals who are financially worse off due to lower earnings (higher expenditures). The patterns are similar for the loss of sleep and difficulty facing problems variables.

Control variables

It is re-assuring to see that many of the estimated coefficients on the control variables are significant and have the expected signs. A deterioration (an improvement) in health status has a large positive (negative) impact in the probability that individuals become depressed, lose sleep due to worry, or have difficulty facing problems. The (absolute) values of the estimated coefficients on these variables are around 40%. The estimated coefficients on the dummies that measure health status at time $t-1$ are also large and significant.[23]

The first child being born reduces significantly the probability of individuals being depressed. Perhaps surprisingly, particularly for those with children, the estimated coefficient on the first child variable in the loss of sleep regression is not statistically significant, but the survey asks specifically about loss of sleep due to worry. Divorce or separation leads to a large, equal to 60%, increase in the probability that the individual is depressed or loses sleep due to worry.

The last two rows of Table VI report the estimated coefficients on the log real income at time $t-1$ and the change in log real total income between $t-1$ and t, both of which are negative and statistically significant. Therefore higher levels of income and increases in income reduce the probability that individuals are depressed, lose sleep due to worry, or have more difficulties facing problems than usual.

It is important to note that in the regressions reported in Table VI we have included two related dependent variables, both of which are statistically significant with the same sign. The first is the dummy variable that measures whether individuals respond affirmatively to the question of whether they are financially better off in year t than in year $t-1$ due to

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[23]Some of the estimated coefficients on these dummy variables are larger than one. This is because the estimated coefficient measures the probability impact of a discrete change from zero to one. We have computed predicted values, as in Figure 1, and the probability that individuals are depressed or unhappy increases monotonically from 9.4% for individuals in excellent health to 39.7% to individuals in very poor health.

an earnings increase. The second is the actual earnings increase from year $t - 1$ to year t. Although these variables are related, they do not contain the same information.

An individual may experience an earnings increase, but the magnitude of the earnings increase may not be sufficiently large for him/her to answer affirmatively to the question of whether he/she is significantly better off. Alternatively, an individual may experience only a relatively small earnings increase, but he/she may expect that increase to persist well into the future, providing the basis for an affirmative answer to the question of whether the individual is better off. A third possibility is that an individual may experience an earnings increase and a simultaneous increase in expenditures, or some other offsetting event. This is related to persistence of the reasons that led the individual to be better or worse off, an issue which we have earlier discussed, and his/her expectations of this persistence, an issue that we study in the next section.

4 Financial Expectations

In the previous section we made use of the information in the survey question that asks individuals whether they were better or worse off financially than they were a year before. We have used these realized changes in financial situation, and we have not distinguished between those that were expected and those which were not expected. Therefore, we cannot interpret them as shocks. However, in the following survey question individuals are asked to look ahead, and to report on how they think they will be financially a year from the date of the survey. The possible answers are: better off, worse off than what they are at the time of the survey, or about the same. Thus this question elicits individuals' expectations of their future financial situation. Combining the information in this question with the one we have used before allows us to distinguish between changes in financial situation that were expected the previous year and those which were not expected.

4.1 Financial situation and expectations

In Table VII we report the distribution of individuals' financial expectations at year t for year $t + 1$, conditional on the year t change in their financial situation. We report results for those who are better off, worse off, and who report no change at date t, and for the most important sub-categories, namely earnings and expenditures increases/decreases.

A very small proportion of those who are better off at t expect the reasons which led them to be better off to be reversed: only a small fraction of 6% expect to be worse off at

$t+1$ than a t (first row of Table VII). The vast majority of individuals, equal to 94%, expect to be at least as well off at $t + 1$, with a considerable proportion of 42% expecting their financial situation to improve even further in the following year.

[Table VII here]

In contrast, a more significant proportion of those who are worse off in year t than in year $t - 1$ expect this worse financial situation to be a temporary event. This is particularly the case for those individuals who are worse off due to an earnings decrease: 42% of them expect to be better off in year $t+1$ than in year t. But even for the group of individuals who are worse off at t due to an earnings decrease, the majority of them expect no improvement in year $t + 1$ (44%) or a further worsening of their financial situation (14%). It is also interesting to note that those who are worse off due to an increase in expenditures tend to be more pessimistic going forward than those who are worse off due to an earnings decrease: the proportion of those who expect to be even worse off is 32% among the former and only 14% among the latter.[24]

4.2 Expected and unexpected changes in financial situation

Table VIII reports financial expectations for year $t + 1$, conditional on the reason for the change in financial situation at t, but distinguishing between whether the change was expected or not. Interestingly we see that expected changes in financial situation tend to be viewed by individuals as being much more persistent in nature than unexpected changes. Of those who are better off at time t due to an earnings increases, 61% expect to be even better off at time $t+1$ when such change was expected, compared to 33% when the earnings increase was unexpected (Panel A). Of those who are worse off at time t due to an expenditures increase, 57% expect to be even worse off at $t + 1$ when the worse financial situation was expected, compared to 25% when it was unexpected (Panel D).

[Table VIII here]

These differences in expectations are consistent with the actual persistence of expected versus unexpected changes in our sample. For example, the probability of being better

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[24]These results are at broadly consistent with the results in Table III, on the persistence of the different events. In the Appendix Table AV we show the extent to which households correctly forecast future realizations. Without knowning the underlying distribution of the different shocks it is however impossible to give much interpretation to those results which is why we do not include them in the main body of the paper.

(worse) off due to an increase in earnings (expenditures) in two consecutive years is 0.40 (0.39) if the change was expected compared to 0.30 (0.28) for an unanticipated change.[25] This is an important result because all else equal unexpected changes should have more important consequences than expected ones. Households will be less prepared for the former and thus they will probably have to cut their consumption and/or savings by more. However, the results in Table VIII are telling us that the "all else equal" scenario is not appropriate here. Unexpected shocks are viewed as having lower persistence and therefore, for the same level of savings, they require a lower adjustment in the savings rate and/or consumption than those that were anticipated but are expected to last longer. These two effects seem to counteract each other, a point to which we will return later in the paper.

In Table IX we test whether unexpected changes in financial situation are predictable based on past unexpected changes, in other words whether households make systematic forecasting errors. We first construct a dummy variable that takes the value of one if the individual is in an unexpected worse financial situation at time t, and zero otherwise. We then regress this variable on its first lag. The estimated coefficient in specification (1) says that individuals who are unexpectedly worse off in year $t-1$ have a 32% higher probability of being unexpectedly worse off again in year t. This number is statistically significant and economically meaningful, suggesting that there is persistence in the estimation errors. In Probit regressions we cannot include individual fixed effects since they will result in inconsistent estimates. Therefore, from this regression we cannot say to what extent this result is driven by individual characteristics.

[Table IX here]

In order to shed light on this question, in column (3) we report the results of an OLS estimation where we include individual fixed-effects. To confirm that the differences in results are due to the inclusion of the fixed effects rather than to the differences in estimation methods, in column (2) we show the results of an OLS regression with random effects, just like in the Probit estimation.

Interestingly, when we include individual fixed-effects the estimated coefficient becomes much smaller in absolute value, and even flips sign. Therefore, the serial correlation in unexpectedly worse financial situation appears to be driven by a group of individuals who systematically expect to be better off than what they are. An alternative interpretation is that such individuals underestimate the persistence of the reasons that led them to be worse off.

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[25] The average of the two is similar to the 0.36 (0.33) probability reported in panel A of Table III.

In specifications (4) through (6) we perform a similar exercise, but with a dummy variable that takes the value of one if individuals are in an unexpectedly better financial situation, and zero otherwise. Individuals who are unexpectedly better off in year $t - 1$, have a 21% higher probability of also being unexpectedly better off in year t. But as before the estimated coefficient decreases and the sign flips in OLS fixed-effects regressions. As it was the case for the negative shocks, a proportion of individuals seems to underestimate the persistence of the reasons that led them to be better off.

4.3 Unexpected changes and psychological well-being

In order to estimate the effects of unexpected changes in financial situation on psychological well being we have estimated probit regressions similar to those in Table VI, but in which we include as additional explanatory variables the earnings and expenditures increase/decrease variables interacted with dummy variables that measure whether the change in financial situation was unexpected or not. The estimated coefficients on these variables tell us the additional effect on well-being of the change being unexpected. A priori one might expect that such changes would have a stronger effect on well-being. The estimation results in Table X show that this is not necessarily the case.

Of all the specifications and interactions considered, the only estimated coefficient that is statistically significant is the one on unexpected earnings decrease for the regression that measures whether the individual is losing more sleep than usual. Individuals who are worse off at t due to an earnings decrease have a 22% higher probability of losing sleep due to worry, and that this probability is much higher, equal to 37%, when the worse financial situation was unexpected.

[Table X here]

One possible reason why for the most part unexpected changes in financial situation do not seem to have an additional effect on well-being is that, as we have seen in Table VIII, such changes tend to be perceived by individuals as being less persistent than those changes that are expected. Thus, even though they are unanticipated, they are less likely to persist into the future, so that they do not have an additional impact in psychological well-being (compared to expected changes). Finally, to control for persistence in these conditions, we have estimated these regressions including the lagged dependent variable and the results are qualitatively unchanged (the estimates are reported in the Appendix Table AVI).

5 Financial Management

As we have previously seen in Table II, there are individuals who in some of the years in the sample report that they are better off due to good management. If these are the result of them being able to make better financial decisions/planning, then we might expect that good management *reduces* the probability that in other years these same individuals find themselves worse off due to higher expenditures.

Naturally we do not observe those events directly in our data since there is no survey question asking individuals if they would have been worse off but were able to avoid this due to good financial management/planning. We are therefore required to estimate the likelihood of those events using the data that we have available. In order to do so we first calculate the proportion of times that each individual in our sample reports being better off due to good management relative to the total years in which he/she appears in the sample ($p_i^{\text{Good Manag}}$). The higher this number the more likely it is that the individual is particularly good at financial planning and/or managing expenditures, and therefore we call this variable "good management."

We then regress the proportion of times that the same individual reports being worse off due to higher expenditures on our "good management" variable. This will allow us to test the hypothesis that individuals who are better at financial management are less likely to find themselves in financial difficulties due to an increase in their expenditures:

$$\frac{\text{\# Worse off due } \uparrow \text{ expenditure}_i}{\text{Total \# Years}_i} = f(p_i^{\text{Good Manag}}, v_i) \tag{6}$$

where v_i is the residual. It is important to clarify that when calculating the proportion of times that the individual is worse off due to higher expenditures we set equal to missing all those observations for which the individual reports being better off due to good management. Otherwise there would be a mechanic negative relation between the two variables: the more often the individual reported being better off due to good management the smaller the proportion of times that the same individual could be worse off (due to higher expenditures or any other factor).

In Table XI we report the regression results. The unit of observation is each individual in our sample, not an individual/year pair, thus the smaller number of observations than in previous tables. The estimation results in column (1) confirm that indeed good management reduces the frequency with which individuals are worse off due to higher expenditures. In column (2) we consider only the cases in which the individual was *unexpectedly* worse off due

to higher expenditures. Again the coefficient is negative, albeit smaller than in the previous regression, but still strongly significant. These results suggest that households with better financial/expenditure management skills are better able to prepare themselves for uncertain future events.

[Table XI here]

In column (3) we test whether our good management indicator also has predictive power for the likelihood that the individual is better off due to lower expenditures. Although also a natural prediction of our hypothesis, it might be harder to identify since in those events the individual may have already explicitly answered "good management" as the reason for why he/she is better off. Despite this our results still reveal a positive and strongly significant coefficient, confirming that some of these events might indeed be due to the financial management skills of those individuals.

For further validation of these results we perform a placebo test by asking whether good management increases the probability that individuals are better off due to higher income. One might argue that individuals with good management skills might also be more dedicated workers and thus one might still find an effect. But on one hand this only works against our placebo hypothesis, and even then we should still expect a weaker effect. We run the test by estimating the following regression:

$$\frac{\text{\# Better off due to } \uparrow \text{ earnings}}{\text{Total \#Years}} = f(p^{\text{Good Manag}_i}, v_i). \tag{7}$$

The results are shown in the last column of Table XI. The estimated coefficient is essentially zero and not statistically significant, thus ruling out any potential mechanical effect in our previous results.

6   Conclusion

We have used almost two decades of household level panel data to show that higher expenditures is the main reason for a deterioration in household finances. We have traced the sources of the higher expenses to increases in the prices of goods that constitute an important fraction of households budget, such as food, energy and mortgage payments, and to life events, including divorce and separation, a deterioration in health status, and the birth of the first child. Furthermore we have documented that the impact of these events on

household finances is persistent. These results suggest that we should re-evaluate the main sources of background risk that determine household savings behavior. In addition we have shown that psychological variables, such as individuals' ability to face problems, also matter. Moreover, we have shown that there are important links between individuals' changes in financial situation and their psychological well being, with worse off individuals more likely to feel depressed and to lose sleep over worry. These in turn increase the probability of a further deterioration in household finances.

We have also analyzed individuals' expectations of their future financial situation, to show that individuals tend to perceive expected changes as being more persistent than unexpected ones, so that they have a comparable effect on psychological well-being. Finally, we have presented evidence that self-reported measures of good financial management may help to reduce the probability that individuals become worse off as a result of higher expenditures.

A word of caution: the persistence in the variables studied and the feedback effects that we have identified mean that it is very hard to completely isolate the effects of the individuals' financial situation on psychological well-being (or vice versa). However, our results have shown that for many households expenditures are an important source of background risk, and that there are important links between financial and psychological well-being. Our results also support the importance of focusing on expenditure management in financial education.

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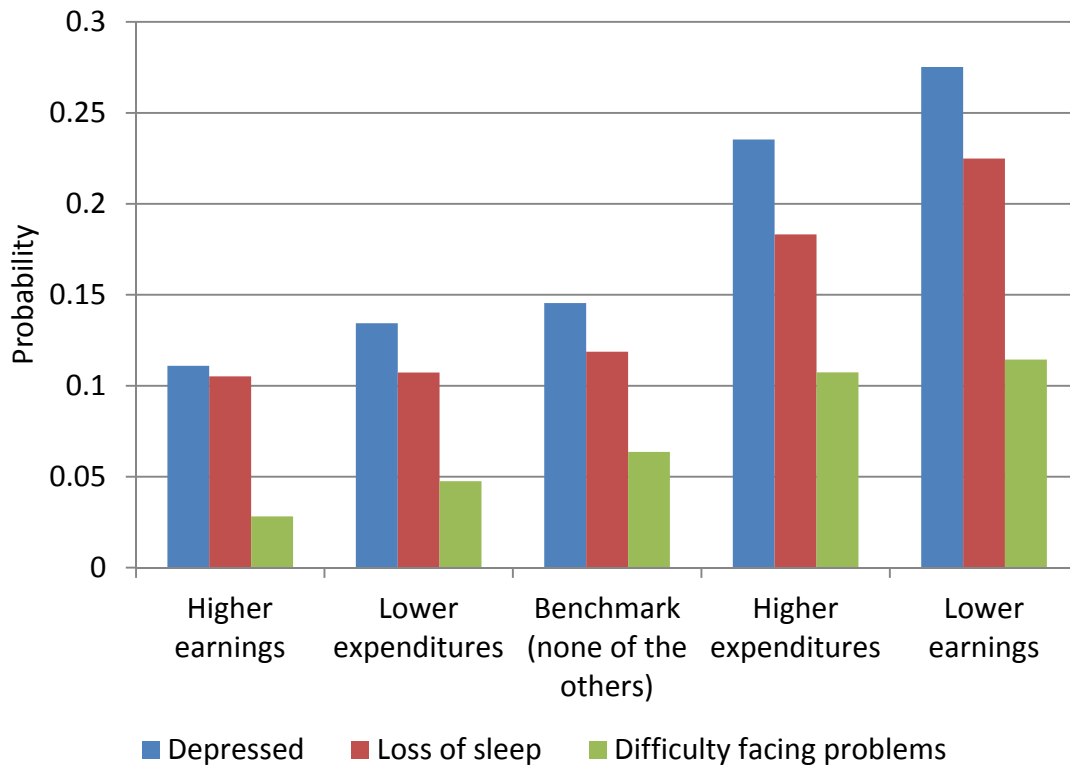
Figure 1: Predicted probabilities of feeling depressed, losing sleep to worry, and of having difficulty facing problems. This figure plots such probabilities for individuals who report being financially better off (worse off) due to higher earnings/lower expenditures (lower earnings/higher expenditures). The benchmark individuals are the remainder.

Table I
Financial situation.

This table reports the number of observations for which individuals in year t reported that they were financially better off, the same, and worse off than in year t-1, for t=1991,...,2008. Panel B reports the probability that individuals report each of these alternatives in year t, conditional on their year t-1 answer, i.e. on whether in year t-1 they reported that they were better off, the same, or worse off than in year t-2.

	Better off at t	Same at t	Worse off at t	Total
Panel A: Financial situation in year t				
Number of obs.	28,830	63,695	29,755	122,280
Fraction of total	0.24	0.52	0.24	1.00
Panel B: Fin. situation in year t conditional on year t-1 response				
Better off at t-1	0.44	0.39	0.17	1.00
Same at t-1	0.16	0.67	0.17	1.00
Worse off at t-1	0.19	0.37	0.45	1.00

Table II
Reasons for change in financial situation.

Panel A (Panel B) reports the reasons given by individuals for why they were financially better off (worse off) in year t than in year t-1. Panel C reports the reasons given by individuals in excellent health for why they were financially worse off than in the previous year.

Panel A: Better off		
Reason	# obs.	Fraction
Earnings ↑	14,080	0.54
Benefits ↑	2,739	0.11
Inv income ↑	749	0.03
Expenses ↓	3,883	0.15
Windfall payment	781	0.03
Good management	1,310	0.05
Other reasons	2,507	0.10
Total better off	26,049	1.00
Panel B: Worse off		
Reason	# obs.	Fraction
Earnings ↓	6,206	0.24
Benefits ↓	990	0.04
Inv income ↓	878	0.03
Expenses ↑	13,530	0.52
One-off expenditure	513	0.02
Other reasons	3,672	0.14
Total worse off	25,789	1.00
Panel C: Worse off/excellent health		
Reason	# obs.	Fraction
Earnings ↓	1,348	0.28
Benefits ↓	118	0.02
Inv income ↓	163	0.03
Expenses ↑	2,395	0.50
One-off expenditure	126	0.03
Other reasons	688	0.14
Total worse off	4,838	1.00

Table III
Persistence in changes in financial situation, by reason given for change.

Panel A reports the probability that an individual gives the same reason for change in financial situation in year t and in each of the consecutive future years. Panel B reports the probability of the event that caused the change in financial situation not being reversed in year $t+1$, by year $t+2$, and by year $t+3$. This panel reports both a lower bound and upper bound of the estimated probabilities. The lower bound is obtained by considering that a reversal has taken place only if the individual responds in a future year that he/she is better off (having reported worse off at t) because of a similar reason (E.g. better off in a future period due to an eanings increase when at t reported worse off due an earnings decrease). The upper bound is computed by taking all future events with a "better off" response (having reported worse off at t) regardless of the listed reason.

Panel A: Consecutive Realizations

Event at t	Repeat at t+1	Repeat at t+2	Repeat at t+3
Earnings ↑	0.36	0.16	0.07
Expenses ↓	0.13	0.03	0.00
Earnings ↓	0.18	0.04	0.01
Expenses ↑	0.33	0.15	0.09

Panel B: Non-reversals

Event at t	non-rev. at t+1	non-rev. at t+2	non-rev. at t+3
Earnings ↑	0.83/0.93	0.71/0.87	0.61/0.82
Expenses ↓	0.84/0.92	0.73/0.86	0.62/0.78
Earnings ↓	0.76/0.84	0.60/0.72	0.48/0.60
Expenses ↑	0.83/0.97	0.73/0.95	0.67/0.93

Table IV
Summary statistics.

This table reports the mean for several variables and for different samples. The second column reports the mean for all observations, the third (fourth) column reports the means for observations corresponding to individuals who report being better off (worse off) in year t than in year t-1. The last column reports the means for observations corresponding to individuals who report being worse off in year t than in year t-1 due to more expenditures.

Variable	All obs.	Better off	Worse off	More exp.
Number of obs.	126,539	28,830	29,755	13,530
Age	50.439	42.598	49.272	51.227
Male	0.547	0.554	0.548	0.534
Married	0.603	0.650	0.596	0.568
Real total inc	22,967	27,584	21,194	20,662
Food exp./Total inc.	0.203	0.170	0.217	0.222
Energy exp./Total inc.	0.050	0.039	0.054	0.056
Food inflation	0.023	0.021	0.026	0.027
Energy inflation	0.052	0.047	0.055	0.062
Excelent health	0.220	0.282	0.193	0.177
Good health	0.438	0.451	0.417	0.416
Fair health	0.225	0.186	0.242	0.254
Poor health	0.088	0.064	0.109	0.114
Very poor health	0.028	0.018	0.039	0.039
Number of kids	0.539	0.626	0.555	0.511
Diff. face problems	0.119	0.085	0.182	0.181
Depressed	0.212	0.176	0.317	0.307

Table V
Probit panel regressions for explaining worse financial situation due to increase in expenditures.

The dependent variable is a dummy variable that takes the value of one if the individual reports that he/she is financially worse off in year t than in year t-1 due to an increase in expenditures, and zero otherwise. Panel probit regressions using random effects. The reported estimated coefficients are marginal effects. T-statistics are shown below the estimated coefficients. The baseline case for health status at t-1 is excellent. We include a second order polynomial in age in all specifications (coefficients not reported).

Independent variables	(1)	(2)	(3)	(4)	(5)
Log real total inc at t-1	-0.03	-0.03	-0.03	-0.01	0.00
	(-1.92)	(-2.47)	(-1.93)	(-0.67)	(-0.35)
Δ log real total inc at t	-0.03	-0.04	-0.03		
	(-2.32)	(-4.46)	(-2.32)		
(Energy Exp./Total inc) at t-1	-1.15		0.70	0.71	0.59
	(-0.39)		(2.08)	(2.16)	(1.92)
(Food Exp./Total inc) at t-1	0.25	0.46			
	(2.28)	(5.82)			
Mortgage payments/income at t-1	0.49	0.23	0.60	0.18	0.13
	(4.21)	(2.56)	(5.20)	1.70)	(1.36)
RPI Energy at t	0.43		1.45	1.43	1.28
	(2.66)		(10.16)	(10.11)	(9.43)
(Energy Exp./Total inc) at t-1 x RPI Energ. at t	4.1		6.28	5.65	5.22
	(1.73)		(2.92)	(2.66)	(2.56)
RPI Food at t	7.12	8.06			
	(13.84)	(19.80)			
(Food Exp./Total inc) at t-1 x RPI Food at t	0.91	-1.26			
	(0.45)	(-0.78)			
Δ Mort. payments/Inc at t	1.22	1.08	1.18		
	(8.50)	(9.41)	(8.33)		
Dummies for health status at t-1					
Good	0.08	0.08	0.07	0.03	0.02
	(3.23)	(4.02)	(2.93)	(1.17)	(0.89)
Fair	0.23	0.19	0.21	0.13	0.12
	(7.44)	(7.89)	(7.03)	(5.00)	(4.70)
Poor	0.29	0.24	0.26	0.16	0.14
	(7.27)	(7.54)	(6.70)	(4.64)	(4.29)
Very poor	0.33	0.26	0.30	0.17	0.16
	(5.63)	(5.63)	(5.15)	(3.29)	(3.21)
Better health status at t than at t-1	-0.05	-0.06	-0.07		
	(-2.52)	(-3.45)	(-3.06)		
Worse health status at t than at t-1	0.09	0.07	0.09		
	(4.73)	(4.41)	(4.53)		
Marital status at t-1	-0.01	-0.03	0.00	0.00	0.01
	(-0.52)	(-1.86)	(-0.12)	(0.15)	(0.36)
Separated bet. t-1 and t	0.14	0.14	0.12		
	(1.94)	(2.48)	(1.71)		
Number of kids at t-1	-0.02	-0.01	-0.02	-0.03	-0.02
	(-1.63)	(-1.37)	(-1.54)	(-2.28)	(-1.92)
First child born bet. t-1 and t	0.35	0.36	0.33		
	(5.77)	(7.72)	(5.51)		
Difficulty facing problems at t-1	0.08	0.09	0.08	0.09	0.07
	(2.95)	(4.08)	(2.84)	(3.07)	(2.73)
Depressed at t-1	0.02	0.03	0.02	0.03	0.02
	(0.80)	(1.58)	(0.93)	(1.09)	(0.68)
Losing sleep at t-1	0.11	0.11	0.12	0.11	0.10
	(4.41)	(5.73)	(4.61)	(4.91)	(4.62)
Worse off at t-1 (due to expenditures ↑)					0.55
					(24.15)
Number of obs.	62,172	92,636	62,237	63,857	63,857

Table VI
Relation to psychological well-being.

In specification (1) the dependent variables is a dummy variable that takes the value of one if in year t the individual is more depressed than usual and zero otherwise. In specification (2) it is a dummy variable that takes the value of one if the individual reports having more difficulties facing problems than usual. In specification (3) it is a dummy variable that takes the value of one if the individual reports that he/she is loosing more sleep than usual. Panel probit regressions using random effects. The reported estimated coefficients are marginal effects. T-statistics are shown below the estimated coefficients. We include a second order polynomial in age in all specifications (coefficients not reported).

Independent variables	More depressed than usual	More loss of sleep due to worry than usual	More diff. facing prob. than usual
Earnings ↑ at t	-0.21	-0.12	-0.21
	(-11.28)	(-6.42)	(-8.32)
Expenditure ↓ at t	-0.1	-0.11	-0.07
	(-3.07)	(-3.44)	(-1.8)
Earnings ↓ at t	0.39	0.34	0.38
	(17.28)	(14.34)	(14.08)
Expenditure ↑ at t	0.29	0.23	0.25
	(17.38)	(13.33)	(12.5)
Better health status at t than at t-1	-0.38	-0.31	-0.4
	(-24.54)	(-19.63)	(-21.2)
Worse health status at t than at t-1	0.45	0.38	0.50
	(32.74)	(26.79)	(30.73)
Dummies for health status at t-1			
Good	0.38	0.32	0.38
	(21.51)	(17.71)	(17.04)
Fair	0.81	0.71	0.88
	(37.57)	(31.96)	(33.02)
Poor	1.23	1.04	1.37
	(44.6)	(36.69)	(42.03)
Very poor	1.63	1.41	1.77
	(40.22)	(33.87)	(38.8)
First child born bet. t-1 at t	-0.17	-0.03	-0.11
	(-3.96)	(-0.72)	(-1.93)
Separated bet. t-1 at t	0.57	0.57	0.47
	(12.69)	(12.49)	(9.16)
Log real total inc at t-1	-0.03	-0.03	-0.04
	(-3.63)	(-4.06)	(-4.23)
Δ log real total inc at t	-0.03	-0.03	-0.03
	(-3.61)	(-4.06)	(-3.56)
Number obs.	100,021	99,879	99,978

Table VII
Financial situation and financial expectations.

This table reports household financial expectations in year t for their financial situation in year t+1, conditional on the change in financial situation in year t.

Fin. situation at t	Fin. expectations at t for year t+1		
	Better off	Worse off	No change
Better off	0.42	0.06	0.52
Better off due to Earnings ↑	0.49	0.06	0.46
Better off due to Expenditures ↓	0.40	0.06	0.54
Worse off	0.28	0.28	0.44
Worse off due to Earnings ↓	0.42	0.14	0.44
Worse off due to Expenditures ↑	0.22	0.32	0.45
No change	0.14	0.07	0.79

Table VIII
Expected and unexpected changes in financial situation and financial expectations.

This table reports household financial expectations in year t for their financial situation in year t+1, conditional on the reason for the change in their financial situation at t, and whether this change was expected or unexpected.

	Financial expectations for year t+1		
Fin. situation at t	Better off	Worse off	No change
Panel A: Earnings ↑			
Expected	0.61	0.04	0.34
Unexpected	0.33	0.07	0.60
Panel B: Expenditures ↓			
Expected	0.55	0.05	0.39
Unexpected	0.26	0.06	0.67
Panel C: Earnings ↓			
Expected	0.27	0.28	0.46
Unexpected	0.46	0.10	0.43
Panel D: Expenditures ↑			
Expected	0.09	0.57	0.34
Unexpected	0.25	0.25	0.50

Table IX
Persistence in unexpected changes in financial situation.

In specifications (1) through (3) the dependent variable is a dummy variable that takes the value of one if the household reported an unexpected worse financial situation in year t, and zero otherwise. The independent variable is the first lag of this variable. In specifications (4) through (6) the dependent variable is a dummy variable that takes the value of one if the household reported an unexpected better financial situation in year t, and zero otherwise. The independent variable is the first lag of this variable. The table reports estimation results for alternative estimation methods.

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
Unexp. worse fin. sit. at t-1	0.32	0.17	-0.04			
	(24.95)	(47.86)	(-9.88)			
Unexp. better fin. sit. at t-1				0.21	0.10	-0.07
				(13.91)	(28.43)	(-18.49)
Number obs	81,295	81,295	81,295	81,295	81,295	81,295
Estimation method	Probit re	OLS re	OLS fe	Probit re	OLS re	OLS fe

Table X
The effects of unexpected changes in financial situation on psychological well-being.

In specification (1) the dependent variables is a dummy variable that takes the value of one if in year t the individual is more depressed than usual and zero otherwise. In specification (2) it is a dummy variable that takes the value of one if the individual reports having more difficulties facing problems than usual. In specification (3) it is a dummy variable that takes the value of one if the individual reports that he/she is loosing more sleep than usual. Panel probit regressions using random effects. The reported estimated coefficients are marginal effects. T-statistics are shown below the estimated coefficients. We include a second order polynomial in age in all specifications (coefficients not reported).

Independent variables	More depressed than usual	More diff. facing prob. than usual	More loss of sleep than usual
Earnings ↑ at t	-0.23	-0.23	-0.15
	(-9.09)	(-6.69)	(-5.71)
Expenditure ↓ at t	-0.13	-0.15	-0.14
	(-2.85)	(-2.32)	(-2.92)
Earnings ↓ at t	0.34	0.36	0.22
	(6.99)	(6.24)	(4.34)
Expenditure ↑ at t	0.29	0.26	0.21
	(9.13)	(6.95)	(6.17)
Unant. Earnings ↑ at t	0.03	0.04	0.05
	(0.80)	(0.91)	(1.59)
Unant. Expenditure ↓ at t	0.06	0.12	0.05
	(0.94)	(1.49)	(0.82)
Unant. Earnings ↓ at t	0.07	0.04	0.15
	(1.30)	(0.58)	(2.75)
Unant. Expenditure ↑ at t	0.00	-0.01	0.04
	(0.04)	(-0.25)	(1.15)
Log real total inc at t-1	-0.03	-0.04	-0.03
	(-3.65)	(-3.93)	(-3.69)
Δ log real total inc at t	-0.03	-0.03	-0.03
	(-3.42)	(-3.43)	(-3.62)
Better health status at t than at t-1	-0.39	-0.41	-0.32
	(-24.37)	(-21.10)	(-19.30)
Worse health status at t than at t-1	0.45	0.50	0.38
	(32.00)	(29.86)	(26.19)
Dummies for health status at t-1			
Good	0.38	0.39	0.32
	(21.31)	(16.90)	(17.64)
Fair	0.82	0.89	0.72
	(37.21)	(32.65)	(31.43)
Poor	1.25	1.38	1.04
	(43.95)	(41.15)	(35.68)
Very poor	1.65	1.79	1.45
	(39.18)	(37.62)	(33.65)
First child born bet. t-1 and t	-0.17	-0.11	-0.03
	(-3.70)	(-1.92)	(-0.71)
Separated bet. t-1 and t	0.60	0.50	0.60
	(12.85)	(9.37)	(12.62)
Number obs.	95,368	95,326	95,233

Table XI
Good financial management and expenditures.

The dependent variable in specification (2) is the proportion of times that household is worse off due to higher expenditures, in (2) that is worse off due to unexpected higher expenditures, in (3) that is better off due to lower expenditures, and in (4) that is better off due to higher income. The independent variable is the proportion of times that the household reports that he/she is better off due to good management.

	(1) Exp. ↑	(2) Unexp. exp. ↑	(3) Exp. ↓	(4) Inc. ↑
Good management	-0.11	-0.04	0.03	0.00
	(-6.45)	(-3.93)	(3.77)	(-0.24)
Number of obs.	12,255	12,255	12,255	12,255

Appendix Table AI
Transition probability matrix for change in financial situation, by reason given for change.

This table reports the probability that an individual gives a certain reason for change in financial situation in year t, conditional on the reason given in year t-1. The no change category refers to those individuals who reported no change in financial situation.

Reason at t-1	Reason for better off at t			Reason for worse off at t			No change at t
	Earnings ↑	Expenses ↓	Other	Earnings ↓	Expenses ↑	Other	
Earnings ↑	0.36	0.05	0.08	0.07	0.07	0.03	0.35
Expenses ↓	0.18	0.13	0.13	0.05	0.08	0.03	0.40
Better off other	0.13	0.06	0.19	0.04	0.07	0.04	0.47
Earnings ↓	0.16	0.02	0.06	0.18	0.13	0.07	0.38
Expenses ↑	0.08	0.03	0.06	0.05	0.33	0.07	0.39
Worse off other	0.09	0.03	0.07	0.07	0.20	0.17	0.37
No change at t-1	0.07	0.02	0.05	0.04	0.09	0.03	0.69

Fixed Effects regressions for explaining worse financial situation due to increase in expenditures.

The dependent variable is a dummy variable that takes the value of one if the individual reports that he/she is financially worse off in year t than in year t-1 due to an increase in expenditures, and zero otherwise. Panel OLS regressions using individual fixed-effects. The reported estimated coefficients are marginal effects. T-statistics are shown below the estimated coefficients. The baseline case for health status at t-1 is excellent. We include a second order polynomial in age in all specifications (coefficients not reported).

Independent variables	(1)	(2)	(3)	(4)	(5)
Log real total inc at t-1	-0.01	-0.01	-0.01	0.00	0.00
	(-1.61)	(-3.34)	(-1.63)	(0.13)	(0.07)
Δ log real total inc at t	-0.01	-0.01	-0.01		
	(-2.38)	(-5.35)	(-2.87)		
(Energy Exp./Total inc) at t-1	-0.06		0.11	0.12	0.13
	(-0.83)		(1.68)	(1.79)	(1.89)
(Food Exp./Total inc) at t-1	0.03	0.06			
	(1.34)	(4.08)			
Mortgage payments/income at t-1	0.09	0.00	0.11	-0.01	-0.01
	(3.20)	(0.18)	(3.75)	(-0.52)	(-0.35)
RPI Energy at t	0.18		0.05	0.06	0.07
	(5.42)		(1.65)	(1.99)	(2.10)
(Energy Exp./Total inc) at t-1 x RPI Energ. at t	1.01		1.80	1.64	1.63
	(2.35)		(4.36)	(4.05)	(4.02)
RPI Food at t	1.39	1.26			
	(13.95)	(15.89)			
(Food Exp./Total inc) at t-1 x RPI Food at t	0.75	0.52			
	(1.95)	(1.62)			
Δ Mort. payments/Inc at t	0.19	0.14	0.19		
	(7.37)	(6.81)	(7.21)		
Dummies for health status at t-1					
Good	0.01	0.01	0.01	0.00	0.00
	(2.72)	(3.41)	(2.49)	(0.35)	(0.41)
Fair	0.04	0.03	0.03	0.02	0.02
	(5.47)	(5.69)	(5.13)	(2.94)	(3.01)
Poor	0.04	0.03	0.04	0.01	0.02
	(4.99)	(4.75)	(4.56)	(2.18)	(2.24)
Very poor	0.04	0.02	0.03	0.00	0.00
	(3.00)	(2.22)	(2.57)	(0.11)	(0.14)
Better health status at t than at t-1	-0.01	-0.01	-0.01		
	(-2.23)	(-2.36)	(-2.53)		
Worse health status at t than at t-1	0.01	0.01	0.01		
	(3.60)	(3.38)	(3.73)		
Marital status at t-1	0	-0.01	0.00	0.01	0.00
	(0.05)	(-1.11)	(0.32)	(0.79)	(0.74)
Separated bet. t-1 and t	0.03	0.02	0.03		
	(2.19)	(2.39)	(2.01)		
Number of kids at t-1	-0.01	-0.01	-0.01	-0.02	-0.02
	(-3.68)	(-2.25)	(-3.75)	(-4.64)	(-4.67)
First child born bet. t-1 and t	0.05	0.06	0.05		
	(4.34)	(6.50)	(4.17)		
Difficulty facing problems at t-1	0.01	0.01	0.01	0.01	0.01
	(1.75)	(2.73)	(1.75)	(1.90)	(1.95)
Depressed at t-1	-0.01	0.00	-0.01	-0.01	-0.01
	(-2.24)	(-1.12)	(-2.14)	(-2.18)	(-1.98)
Losing sleep at t-1	0.01	0.01	0.01	0.01	0.01
	(2.24)	(2.95)	(2.26)	(2.46)	(2.56)
Worse off at t-1 (due to expenditures ↑)					-0.03
					(-6.62)
Number of obs.	62,172	92,636	62,237	63,857	63,857

Appendix Table AIII
Fixed effects relation to psychological well-being.

In each specification the dependent variable is a dummy variable that takes the value of one if in year t the individual reports to: (1) be more depressed than usual, (2) be loosing more sleep than usual , and (3) have more difficulties facing problems than usual and zero otherwise. We include a second order polynomial in age in all specifications (coefficients not reported). Panel OLS regressions using fixed effects. T-statistics are shown below the estimated coefficients.

Independent variables	More depressed than usual	More loss of sleep due to worry than usual	More diff. facing prob. than usual
Earnings ↑ at t	-0.05	-0.03	-0.02
	(-11.03)	(-7.13)	(-6.71)
Expenditure ↓ at t	-0.02	-0.03	-0.01
	(-3.61)	(-4.14)	(-2.19)
Earnings ↓ at t	0.09	0.07	0.06
	(16.79)	(13.67)	(13.42)
Expenditure ↑ at t	0.06	0.04	0.03
	(14.49)	(9.61)	(9.62)
Better health status at t than at t-1	-0.07	-0.05	-0.05
	(-18.77)	(-14.55)	(-17.56)
Worse health status at t than at t-1	0.08	0.06	0.06
	(25.24)	(19.14)	(23.48)
Dummies for health status at t-1			
Good	0.06	0.04	0.04
	(14.80)	(11.38)	(12.20)
Fair	0.12	0.09	0.09
	(21.64)	(17.29)	(19.43)
Poor	0.18	0.13	0.14
	(23.59)	(17.07)	(23.78)
Very poor	0.24	0.17	0.19
	(20.95)	(15.36)	(21.14)
First child born bet. t-1 at t	-0.04	-0.01	-0.01
	(-3.86)	(-0.76)	(-1.96)
Separated bet. t-1 at t	0.14	0.13	0.07
	(12.11)	(12.36)	(8.09)
Log real total inc at t-1	0.00	0.00	0.00
	(0.15)	(-1.39)	(-0.43)
Δ log real total inc at t	0.00	-0.01	0.00
	(-2.10)	(-3.07)	(-1.69)
Number obs.	100,021	99,879	99,978

Appendix Table AIV
Relation to psychological well-being, controlling for persistence.

In each specification the dependent variable is a dummy variable that takes the value of one if in year t the individual reports to: (1) be more depressed than usual, (2) be loosing more sleep than usual , and (3) have more difficulties facing problems than usual and zero otherwise. We include a second order polynomial in age in all specifications (coefficients not reported). Panel probit regressions using random effects. The reported estimated coefficients are marginal effects. T-statistics are shown below the estimated coefficients. T-statistics are shown below the estimated coefficients.

Independent variables	More depressed than usual	More loss of sleep due to worry than usual	More diff. facing prob. than usual
Earnings ↑ at t	-0.20	-0.12	-0.21
	(-10.87)	(-6.19)	(-8.27)
Expenditure ↓ at t	-0.09	-0.11	-0.07
	(-2.96)	(-3.31)	(-1.73)
Earnings ↓ at t	0.37	0.32	0.36
	(16.42)	(14.01)	(13.42)
Expenditure ↑ at t	0.29	0.22	0.24
	(17.29)	(12.97)	(12.04)
Better health status at t than at t-1	-0.36	-0.30	-0.38
	(-23.74)	(-19.02)	(-20.20)
Worse health status at t than at t-1	0.43	0.36	0.49
	(32.02)	(25.93)	(30.27)
Dummies for health status at t-1			
Good	0.33	0.29	0.35
	(19.87)	(16.39)	(16.03)
Fair	0.73	0.65	0.79
	(34.96)	(30.03)	(30.98)
Poor	1.08	0.94	1.23
	(40.72)	(34.19)	(38.93)
Very poor	1.43	1.27	1.56
	(36.08)	(31.24)	(34.91)
First child born bet. t-1 at t	-0.16	-0.04	-0.10
	(-3.67)	(-0.88)	(-1.78)
Separated bet. t-1 at t	0.54	0.55	0.46
	(12.29)	(12.16)	(9.27)
Log real total inc at t-1	-0.03	-0.03	-0.04
	(-3.39)	(-3.71)	(-4.40)
Δ log real total inc at t	-0.02	-0.03	-0.03
	(-3.08)	(-3.48)	(-3.55)
Dependent Var. t-1	0.46	0.41	0.45
	(32.28)	(27.26)	(23.62)
Number obs.	98,257	97,976	98,181

Appendix Table AV
Financial expectations and realizations.

The first three rows of the table report the household financial situation in year t+1, conditional on their expectations in year t for this same financial situation. The fourth row reports the number of observations for individuals who at time t+1 had a change in financial situation that they did not expect in year t. The last row of the table reports the proportion of individuals who had an unexpected change in their financial situation.

Fin. expectations at t for t+1	Financial situation at t+1		
	Better off	Worse off	Same
Expect to be better off at t+1	0.45	0.20	0.35
Expect to be worse off at t+1	0.12	0.53	0.35
Expect to be same at t+1	0.17	0.20	0.63
# unexpected at t+1	12,532	17,267	12,246
Proportion unexpected at t+1	0.54	0.74	0.23

Appendix Table AVI
The effects of unexpected changes in financial situation on psychological well-being, controlling for persistence.

In each specification the dependent variable is a dummy variable that takes the value of one if in year t the individual reports to: (1) be more depressed than usual, (2) have more difficulties facing problems than usual, and (3) be loosing more sleep than usual and zero otherwise. We include a second order polynomial in age in all specifications (coefficients not reported). T-statistics are shown below the estimated coefficients.

Independent variables	More depressed than usual	More diff. facing prob. than usual	More loss of sleep than usual
Earnings ↑ at t	-0.21	-0.22	-0.13
	(-8.61)	(-6.56)	(-5.38)
Expenditure ↓ at t	-0.13	-0.12	-0.13
	(-2.72)	(-2.05)	(-2.73)
Earnings ↓ at t	0.30	0.31	0.21
	(6.16)	(5.45)	(4.09)
Expenditure ↑ at t	0.27	0.24	0.18
	(8.50)	(6.56)	(5.60)
Unant. Earnings ↑ at t	0.02	0.03	0.05
	(0.54)	(0.76)	(1.44)
Unant. Expenditure ↓ at t	0.05	0.09	0.05
	(0.82)	(1.19)	(0.72)
Unant. Earnings ↓ at t	0.10	0.07	0.16
	(1.80)	(1.11)	(2.90)
Unant. Expenditure ↑ at t	0.03	-0.01	0.06
	(0.73)	(-0.13)	(1.57)
Log real total inc at t-1	-0.03	-0.04	-0.03
	(-3.42)	(-4.22)	(-3.44)
Δ log real total inc at t	-0.02	-0.03	-0.03
	(-2.86)	(-3.49)	(-3.01)
Better health status at t than at t-1	-0.37	-0.39	-0.30
	(-23.53)	(-20.16)	(-18.67)
Worse health status at t than at t-1	0.43	0.48	0.37
	(31.32)	(29.36)	(25.34)
Dummies for health status at t-1			
Good	0.34	0.35	0.29
	(19.63)	(15.78)	(16.29)
Fair	0.73	0.80	0.65
	(34.50)	(30.54)	(29.44)
Poor	1.09	1.23	0.93
	(40.06)	(38.00)	(33.21)
Very poor	1.43	1.57	1.29
	(35.10)	(33.85)	(30.86)
First child born bet. t-1 and t	-0.15	-0.10	-0.04
	(-3.50)	(-1.73)	(-0.90)
Separated bet. t-1 and t	0.57	0.49	0.57
	(12.56)	(9.45)	(12.21)
Dependent Var. t-1	0.47	0.47	0.41
	(32.43)	(23.75)	(26.79)
Number obs.	94,006	93,931	93,741