Household Saving Behavior in the Euro Area*

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We study saving motives and household saving behavior in fifteen euro-area countries using the first wave of the Household Finance and Consumption Survey that covers the years 2008–11. We find that precautionary saving is the most commonly reported motive in all countries, followed by saving for old-age provision. Preferences for other motives are then rather heterogeneous across countries. Saving for home purchase and precautionary saving are monotonically decreasingly important with age. Variables related to the structure of the tax system and to the generosity of the social security and welfare systems are important determinants of household saving. As for actual saving behavior, we find that most households in the euro area perceived their expenses over the last twelve months to be about the same as expenses in a "normal" year in the past and about the same as income over the last twelve

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months. The analysis by country reveals some degree of heterogeneity for this measure of self-assessed household saving: the countries that were hit most severely by the financial crisis display higher financial stress.

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1. Introduction

The severe and prolonged financial crisis that started in 2007 has hit the household sector massively worldwide, through adverse labor market shocks, turbulent financial markets, declining house prices, and tightening credit market conditions. The responses implemented at different points in time since then in terms of monetary policy and fiscal measures have been exceptional in many respects (targets, instruments, effects). This paper focuses on household saving behavior in the euro area at the onset of the recent economic crisis, with particular emphasis on why households save, how much heterogeneity in saving motives there is across households and countries, whether and how different saving motives relate to each other, and the main determinants of current saving behavior. We also shed light on the prevalence and background characteristics of households that report incurring negative savings, i.e., whose expenses are higher than income, and we study how the households at higher risk of financial fragility finance their negative savings.

The empirical analysis is based on a new cross-country household data set, the Household Finance and Consumption Survey (HFCS), that collects detailed information on wealth holdings, consumption, and income in the fifteen euro-area countries for the years 2008–11 (see Bover et al. 2015b for a more comprehensive description of the data set). The present paper improves upon earlier studies on saving behavior by analyzing a larger number of saving motives and by using new and comparable micro data across fifteen countries in the euro zone. Since the data is from 2008 to 2011, strong conclusions regarding the present are difficult to draw, and the comparability between countries might be partly limited due to the different field periods. Moreover, the crisis may have affected the data, especially in countries that were severely hit.

Household saving behavior has been extensively studied in the literature. Several saving motives were listed by Keynes (1936). Subsequent papers have primarily concentrated on precautionary saving, on life-cycle or retirement saving, and on saving for bequest. An additional saving motive, namely the "downpayment" motive, was added by Browning and Lusardi (1996). Most of these motives have by now been incorporated into the life-cycle model (Modigliani and Brumberg 1954; Friedman 1975). Early versions of this theory explain the old-age provision motive as the main saving motive: individuals save while working in order to counteract the income drop at retirement. The basic version of the life-cycle model has been extended to include also other saving motives, most prominently the precautionary savings motive. Precautionary saving can explain a large share of individual and aggregate wealth accumulation (Skinner 1988; Carroll 1997; Gourinchas and Parker 2002). The longevity risk and large out-of-pocket expenses that may occur at different stages of the life cycle are other reasons to save (Hubbard, Skinner, and Zeldes 1995; Palumbo 1999). Further extensions of the life-cycle model include a housing motive (Hayashi, Ito, and Slemrod 1988) and a bequest motive (Hurd 1987).

On the empirical side, a large literature has linked precautionary savings to income risk, coming to mixed results for the prevalence of a precautionary savings motive (Skinner 1988; Guiso, Jappelli, and Terlizzese 1992). While most papers focus on one saving motive only, a few papers in the economic and psychologic literature have studied the coexistence of different motivations to save (Katona 1975; Lindqvist, Julander, and Fjaestad 1978; Alessie, Lusardi, and Aldershof 1997; Horioka and Watanabe 1997; Schunk 2009). Only limited evidence of saving motives and saving behavior is available for cross-country comparable studies (with few exceptions such as Boersch-Supan and Lusardi 2003).

Saving behavior may be affected by the institutional and political environment, through social safety nets, tax rules, and capital market regulations (see Poterba 1994; Boersch-Supan 2003; Bover, Casado et al. 2015). Therefore, institutional differences across countries should be taken into account properly in explaining household saving. Countries with a higher degree of uncertainty in income and other (future) economic circumstances will most likely feature higher household savings rates in the presence of a precautionary savings

motive (Boersch-Supan and Lusardi 2003). High replacement rates after retirement may replace the need for precautionary savings (see Browning and Lusardi 1996), and unemployment benefits and other welfare policies which aim to reduce changes and shocks to lifetime income might have the same effects (see Hubbard, Skinner, and Zeldes 1995). In addition to public safety nets, individuals may also rely on the network of relatives and friends to offset shocks. Such informal borrowing opportunities may replace formal lending channels and binding credit constraints and hence replace the need to save (Boersch-Supan and Lusardi 2003). To understand saving, it therefore helps to exploit institutional variation.

Our findings can be summarized as follows.

Precautionary saving is the most commonly reported motive in all countries, followed by saving for old-age provision. Preferences for other motives are then rather heterogeneous across countries. We observe a relevant role for education and support of children and grandchildren, home purchase, and other major purchases. We also find evidence of a significant complementarity between the home-purchase saving motive and saving for old-age provision, as well as between precautionary saving and saving to build up a financial wealth stock to serve as a buffer against adverse financial shocks. In addition, saving for unexpected events is significantly and negatively correlated with saving for home purchase, and positively with the bequest motive. Both household characteristics and institutional macroeconomic variables are significant and economically important determinants of saving preferences. Saving for home purchase and precautionary saving are monotonically decreasingly important with age. Moreover, in accordance with the life-cycle model, retired respondents consider saving to purchase a home less important than younger households. Finally, variables related to the structure of the tax system and to the financing/generosity of the social security and welfare systems are important determinants of household saving. A cross-country view on the most important saving motives reveals that households in all countries are more likely to save for unexpected events than German households (with the exception of Slovenian households), even after controlling for sociodemographic and economic variables. Again, compared with households in Germany, saving for home purchase is more likely in the Netherlands, Portugal, and Malta. The saving motive for old-age provision is more

prevalent in the Netherlands, Malta, and Portugal than in Germany, while it is less prevalent in Cyprus and Spain.

As for actual saving behavior, we find that in the years 2008–11 most households in the euro area perceived their expenses over the last twelve months to be about the same as expenses in a "normal" year in the past and about the same as income over the last twelve months. This finding suggests that at the onset of the financial crisis household finances had not been influenced substantially. We also find that households whose head is female, young, or divorced are significantly more likely to have expenses exceeding income; in contrast, wealthier households are less likely to incur expenses higher than income. In addition, the data provide evidence of households being rather confident in the possibility to get funded through informal lending channels, like family and/or friends. From a cross-country perspective, financing negative saving out of informal loans plays a bigger role in Greece and Portugal than in Germany, while in all countries the probability of using formal loans to finance negative saving is significantly lower than in Germany. Distressed households in Greece and Cyprus have a higher tendency to leave bills unpaid than distressed households in Germany and are less likely to finance negative savings out of wealth. Only Dutch and Maltese households have a higher probability to cover negative savings out of their wealth.

The rest of the paper is organized as follows. Section 2 provides a description of the data set used in the empirical analysis, including an overview of the econometric models used. The relevance of saving motives and their main determinants are analyzed in section 3. Section 4 focuses on self-assessed, qualitative measures of household saving, with emphasis on how households perceive their saving and on how negative saving is financed. Section 5 concludes the paper.

2. The Data and Econometric Methods

The analysis in this paper is based on data collected from households participating in the first wave of the Eurosystem Household Finance and Consumption Survey (HFCS). A detailed description of the data set is provided by Bover, Schurz et al. (2015).

Our main indicators on household saving are an extensive list of saving motives, subjective perception of saving, and a list of sources

to finance negative saving. In the following, we describe the variables and methods used.

2.1 Household Characteristics and Institutional Variables

In our regressions we use a number of sociodemographic variables of the household, such as age, marital status, household size, employment and education, income, and wealth.

Individual variables for the reference person are selected according to the financially knowledgeable person, considered to be the main respondent providing financial information for the whole household, as this information is collected together for the household instead of by individual persons (Household Finance and Consumption Network 2013b). Table 1 displays the main variables and reports the summary statistics of the variables we use as controls in the regressions throughout the paper.

The sample is characterized by a slight predominance of male heads of households (54 percent). Age classes are roughly equally represented, although we observe more household heads aged between forty and fifty-four years (30 percent) and fewer household heads aged seventy years and above (20 percent). More than half of the sample consists of couples, defined as married or living with a partner (54 percent); single respondents represent 22 percent of the sample; and widowed and divorced follow with 13 and 11 percent, respectively. The average household size is slightly more than 2.3 persons. About one-third of household heads have a low level of education; 41 percent and 24 percent have a medium and high level of education, respectively.

As for labor-related variables, we observe that 5 percent only have a temporary contract. The vast majority of the sample consists of employees (44 percent), followed by retired respondents (31 percent), self-employed (8 percent), and unemployed (5 percent). About 12 percent work in the public sector and 2 percent in the financial sector. The public and financial sector are of special importance for this analysis, since public employees face a lower income risk compared with other occupational groups, and employees in the financial sector might have not only more knowledge on credits but also possibly easier access via their own institution.

Table 1. Summary Statistics of Household Characteristics

Statistics	Mean	Std. Err.	Min.	Max.	No. Obs.
Male Indicator	0.543	0.004	0	1	62,521
Age Classes—Dummies					
Less than 40 Years (ref. group)	0.255	0.003	0	1	62,521
Between 40 and 54 Years	0.300	0.003	0	1	62,521
Between 55 and 69 Years	0.243	0.002	0	1	62,521
Equal/More than 70 Years	0.202	0.002	0	1	62,521
Marital Status—Dummies					
Couple (ref. group)	0.537	0.003	0	1	62,514
Single	0.222	0.003	0	1	62,514
Divorced	0.107	0.003	0	1	62,514
Widowed	0.134	0.003	0	1	62,514
Household Size	2.321	0.005	1	16	62,521
Education Level—Dummies					
Low Education (ref. group)	0.350	0.003	0	1	62,370
Mid Education	0.414	0.004	0	1	62,370
High Education	0.236	0.003	0	1	62,370
Temporary Contract	0.054	0.002	0	1	57,930
Employment Status—Dummies					
Employee (ref. group)	0.445	0.003	0	1	62,521
Self-employed	0.082	0.002	0	1	62,521
Unemployed	0.054	0.001	0	1	62,521
Retired	0.309	0.002	0	1	62,521
Other	0.103	0.002	0	1	62,521
Missing Employment	0.008	0.001	0	1	62,521
Financial Sector	0.020	0.001	0	1	62,240
Public Sector	0.123	0.003	0	1	62,240
Household Gross Income	37,841	283	–449,254	9,804,966	62,521
Household Net Wealth	230,809	4,244	–1,370,892	4,09E+08	62,521

(*continued*)

Table 1. (Continued)

Statistics	Mean	Std. Err.	Min.	Max.	No. Obs.
Countries—Dummies					
Austria (AT)	0.027	0.000	0	1	62,521
Belgium (BE)	0.034	0.000	0	1	62,521
Cyprus (CY)	0.002	0.000	0	1	62,521
Finland (FI)	0.018	0.000	0	1	62,521
France (FR)	0.202	0.006	0	1	62,521
Germany (DE, ref. group)	0.287	0.002	0	1	62,521
Spain (ES)	0.123	0.001	0	1	62,521
Greece (GR)	0.030	0.000	0	1	62,521
Italy (IT)	0.172	0.001	0	1	62,521
Luxembourg (LU)	0.001	0.000	0	1	62,521
Malta (MT)	0.001	0.000	0	1	62,521
Netherlands (NL)	0.053	0.000	0	1	62,521
Portugal (PT)	0.028	0.000	0	1	62,521
Slovenia (SI)	0.006	0.000	0	1	62,521
Slovakia (SK)	0.014	0.000	0	1	62,521

Notes: Personal variables for the reference person are selected according to the financially knowledgeable person, considered to be the main respondent providing financial information for the whole household, since this information is collected together for the whole household instead of by individual persons (HFCN 2013b). Education dummies: Low education (ISCED-97 = 0,1,2); Mid education (ISCED-97 = 3,4); High education (ISCED-97 = 5,6). Employment sector dummies: Financial sector (NACE-code: K); Public sector (NACE-code: O, P, Q). Standard errors are calculated with the Rao-Wu rescaled bootstrap method using 1,000 replicate weights and five multiply imputed data sets.

The country with the highest number of weighted households is Germany (29 percent), followed by France (20 percent), Italy (17 percent), and Spain (12 percent).

Financial institutions and capital markets are key in bringing together savers who want to lend and consumers with a shortage of funds who want to borrow. The functioning of financial intermediation is very likely to affect differences in individual saving behavior.

In addition, household private savings might be influenced by the presence of mandatory public pension schemes. In a simple life-cycle framework, a public pension scheme financed through payroll taxes

may lead to a one-to-one crowding out of private saving for retirement, and high future replacement rates may lead to lower private saving. However, several studies show that this theoretical prediction is not fully supported empirically (Feldstein 1980; Koskela and Viren 1983; Gale 1998). The quantitative impact of the crowding-out effect of compulsory public retirement programs on saving behavior has been very difficult to estimate appropriately (see Jappelli 1995, among others), mainly for the lack of proper data (Hurd, Michaud, and Rohwedder 2012) and is estimated well below one.

Moreover, the impact of public policy on household saving behavior and spending has gained increasing importance in recent years, as reforms of both pension and tax systems in many euro-area countries will very likely influence consumption and saving through the effects on lifetime wealth and on the rate of return on saving. A relatively easy way to influence saving behavior is to change fiscal regimes or tax levels. One mechanism at place behind these policies is that the increase in the net returns to saving induced by the reduction in capital income taxation increases private savings, provided that the substitution effect dominates the income effect. Yet the empirical evidence shows that the impact is rather small (Willi, Thornton, and Bibee 1997; Attanasio, Banks, and Wakefield 2004; Disney, Emmerson, and Wakefield 2010).

Finally, household characteristics that are only available at the country level, such as financial literacy, can be key in savings decisions over the lifetime. Lusardi, Michaud, and Mitchell (2015) use a life-cycle model with endogenous financial knowledge accumulation to study how financial education programs affect retirement savings (among other key economic outcomes). They show that financial education provided to employees aged around forty years can raise savings at retirement by roughly 10 percent.

2.2 Econometric Methodology

Our main model is a probit model run either on a country-by-country basis or taking the pooled data and adding country-level fixed effects. A probit model with the pooled data and country fixed effects has the following form:

$$P(D_{h,c} = 1|\alpha_c, X_{h,c}) = \Phi(\alpha_c + \beta X_{h,c}), \tag{1}$$

where $D_{h,c}$ is a dummy denoting a binary outcome (e.g., whether expenses for household h in country c are higher than income), α_c is a vector of country-level fixed effects, and β is the slope for household-level characteristics that is common across countries. The country fixed effect captures country-specific differences in the distribution of wealth and income as well as other macro factors and is thus crucial for our type of analysis. As the coefficients of the model have no direct interpretation, after estimating the probit models, we calculate the marginal effects at the household level and then average them. The appendix elaborates further on the data preparation and manipulation.

As institutional variation across countries is likely to play an important role for households' behavior in different countries, we then implement a two-step estimation procedure using the institutional variables defined above that might have a direct effect on saving behavior.[1] The two-step procedure uses as a first step a probit model such as the one described by equation (1) with country-level fixed effects. In a second step, we then calculate the predicted values linked to each probit and run linear regressions of these fitted values from the first-step estimation on the macro indicators described above, i.e., we obtain $\hat{P}(D_{h,c} = 1|\alpha_c, X_{h,c})$ and then regress this on the country-specific institution(s) of interest.

Our model is

$$\hat{P}(D_{h,c} = 1|\alpha_c, X_{h,c}) = const + \beta X_c + \epsilon, \tag{2}$$

where X_c now captures country-level institution(s). Note that the number of observations in this regression corresponds to the number of countries with a particular institution in place and there is no heterogeneity with respect to households anymore.

While the first step of micro-level estimations accounts for compositional outcomes within and across each country, the second step analyzes pure differences at the macro level that influence saving motives across the sample of countries. We then derive scatter plots reporting country-specific regression coefficients with the institutional variables in order to better visualize the outcome of this methodology.

[1]We thank an anonymous referee for suggesting this procedure.

Table 2. Institutional Variables

Variable	Description and Source
Income Tax	Average and marginal income taxes (national average) (OECD 2010). For average income tax: table 1.3. For marginal income tax: table 1.7. We use the figures for the average worker who is single without children. Data refer to 2009.
Financial Literacy	Senior business leaders' evaluation of the following statement: Economic literacy among the population is generally high, measured on a 0–10 scale. (International Institute for Management Developtment, various years). Averages for the period 1998–2005, as reported in figure 1 of Japelli (2010).
Dependency Ratios (past or projected)	Ratio of population aged 65 and more to the population aged between 15 and 64 computed at the year the household becomes 65 years of age. (AMECO dependency ratio (from 1960–2010/ 2011), Eurostat, projected old-age dependency ratio (2015–2060).) The future years with missing values are our own calculations using linear approximation.
Replacement Ratios (past or projected)	Ratio of average first pension to the average wage at retirement. Three replacement ratios are available and considered: (i) gross replacement rates from the first pillar (public), (ii) total gross replacement rates (in cases where replacement rates from the second pillar are minor, the total gross replacement rate is the same as the replacement rate from the first pillar), and (iii) total net replacement rates (European Commission 2006). In addition we also consider gross average replacement rates in 2010 and 2060 (European Commission 2012, p. 129).

The institutional factors used in the two-step procedure are reported in table 2. As discussed above, differences in household saving behavior across countries may be likely induced by differences in the pension systems in place. Hence, we include a set of pension-related variables, which have the advantage that they vary both across countries and across households. Income tax rates and the overall financial literacy of the population in a specific country

may also have effects on household saving behavior. Life-cycle saving for retirement may be connected to the current and, in particular, future dependency ratios and replacement rates in each country.

3. Saving Motives

The HFCS elicits information on the importance of a number of saving motives. The question used in this paper to identify saving purposes asks respondents to report their (household's) most important reasons for saving.[2] The list of saving motives includes home purchase, other major purchases (other residences, vehicles, furniture, etc.), set up a private business or finance investments in an existing business, invest in financial assets,[3] provide for unexpected events, pay off debts, provide for old age, travels/holidays, education/support of children or grandchildren, bequests, and take advantage of state subsidies (for example, subsidies to voluntary pension plans).[4]

Similar questions are also asked in the Survey of Consumer Finances (SCF) for the United States[5] and in the SAVE Survey for Germany, even though in the latter case each reason for saving has to be rated on a scale from 0 (no importance) to 10 (very important). The British Household Panel Survey (BHPS) contains data on whether respondents save, the reasons why they save, and their average monthly saving amounts. The Health and Retirement Survey (HRS) lacks information on overall saving motives, with the exception of the bequest motive. This is probably due to the fact that the survey focuses on the elderly population, thus inheritance

[2]Information on savings motives was not collected in Italy, France, and Finland.

[3]One can argue that "invest in financial assets" and "pay off debts" could be seen more as vehicles of saving rather than as motives to save.

[4]Multiple answers are allowed. In the Netherlands, however, a slightly different format is used: respondents rate each reason for saving on a scale from 1 (no importance) to 7 (very important). In all countries, respondents may also choose the "Do not know" option or the "No answer" option.

[5]In particular, the thirty-four categories of saving reasons in the SCF can be grouped into six types of saving goals as in Katona (1975), Xiao and Noring (1994), and Devaney, Anong, and Whirl (2007): saving for basic needs, saving for emergency and safety, saving for retirement and security, saving for love/family needs, saving for esteem/luxuries, and saving for self-growth.

and intergenerational relationships are very relevant. Similarly, the English Longitudinal Survey of Ageing (ELSA) and the Survey of Health, Ageing and Retirement in Europe (SHARE) do not specifically elicit reasons for savings, as they are targeted to the population aged fifty plus. SHARE only asks how likely it is whether respondents leave a bequest.

Table 3 reports the average percentage of respondents reporting each single motive for saving as important, both at the euro-area level and at the country level.

Precautionary saving (saving for unexpected events) is reported as the most important motive at the euro-area level by 53 percent of respondents, followed by saving for old-age provision (40 percent of respondents). Also, major purchases such as second homes, cars, and other durables are important motives to save, as is education/support of children and grandchildren. The percentage of households reporting precautionary saving as an important reason for saving ranges between 89 percent in the Netherlands and 43 percent in Germany. This motive is most prevalent across all countries, stressing its high importance despite differences in institutions and welfare systems. These findings are fully in line with Kennickell and Lusardi (2005), who used SCF data and find that "a precautionary saving motive exists and affects virtually every household." The percentage related to saving for old age ranges between 71 percent in the Netherlands and 28 percent in Spain. Preferences for other motives are then rather heterogeneous across countries. We observe a relevant role for education and support of children and grandchildren, home purchase, and other major purchases. Saving to pay off debts is rather important in the Netherlands, a country with a relatively substantial household indebtedness. These patterns are remarkably in line with those from the SCF, where the retirement/security goal is the most prevalent goal in both frequency and percent saved, followed by the emergency/saving goal.

3.1 Links among Saving Motives

Up to this point each preference for saving has been considered separately. This implicitly points to the direction of mental accounting: individuals save either for one purpose or for another one. In reality, we may think that saving behavior should be interpreted in a

Table 3. Summary Statistics for Saving Motives in the Euro Area and by Country

Statistics	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
	Euro Area (Exluding Finland, France, and Italy)					
Purchase Own Home	0.097	0.005	24,144			
Other Major Purchases (other residences, vehicles, furniture)	0.331	0.010	24,150			
Set up a Private Business, Invest in Existing Business	0.016	0.002	24,147			
Invest in Financial Assets	0.035	0.002	24,147			
Provision for Unexpected Events	0.525	0.009	24,151			
Pay Off Debts	0.070	0.003	24,150			
Old-Age Provision	0.398	0.008	24,149			
Travels/Holidays	0.312	0.010	24,151			
Education/Support of Children or Grandchildren	0.242	0.007	24,147			
Bequests	0.057	0.003	24,148			
Take Advantage of State Subsidies	0.039	0.003	20,973			
Other (specify)	0.214	0.007	24,152			
	Austria			*Luxembourg*		
Purchase Own Home	0.101	0.007	2,380	0.144	0.013	950
Other Major Purchases (other residences, vehicles, furniture)	0.349	0.012	2,380	0.218	0.015	950
Set up a Private Business, Invest in Existing Business	0.024	0.004	2,380	0.023	0.005	950
Invest in Financial Assets	0.031	0.004	2,380	0.038	0.006	950
Provision for Unexpected Events	0.668	0.012	2,380	0.600	0.019	950
Pay Off Debts	0.094	0.008	2,380	0.103	0.011	950
Old-Age Provision	0.371	0.012	2,380	0.354	0.017	950
Travels/Holidays	0.349	0.012	2,380	0.370	0.019	950
Education/Support of Children or Grandchildren	0.228	0.011	2,380	0.215	0.014	950
Bequests	0.076	0.007	2,380	0.123	0.013	950
Take Advantage of State Subsidies	0.112	0.010	2,380	0.050	0.008	950
Other (specify)	0.058	0.006	2,380	0.052	0.009	950

(*continued*)

Table 3. (Continued)

Statistics	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
	Belgium			*Malta*		
Purchase Own Home	0.120	0.009	2,327	0.145	0.014	841
Other Major Purchases (other residences, vehicles, furniture)	0.159	0.010	2,327	0.236	0.017	842
Set up a Private Business, Invest in Existing Business	0.012	0.003	2,327	0.043	0.008	839
Invest in Financial Assets	0.021	0.003	2,327	0.107	0.012	842
Provision for Unexpected Events	0.541	0.014	2,327	0.839	0.013	843
Pay Off Debts	0.050	0.006	2,327	0.197	0.015	842
Old-Age Provision	0.356	0.012	2,327	0.436	0.018	840
Travels/Holidays	0.236	0.012	2,327	0.453	0.018	843
Education/Support of Children or Grandchildren	0.229	0.011	2,327	0.390	0.016	843
Bequests	0.142	0.009	2,327	0.168	0.013	842
Take Advantage of State Subsidies	0.105	0.008	2,327	Missing Category		0
Other (specify)	0.045	0.005	2,327	0.029	0.006	843
	Cyprus			*Netherlands*		
Purchase Own Home	0.065	0.010	1,237	0.190	0.015	1,167
Other Major Purchases (other residences, vehicles, furniture)	0.080	0.010	1,237	0.666	0.018	1,172
Set up a Private Business, Invest in Existing Business	0.030	0.007	1,237	0.075	0.012	1,172
Invest in Financial Assets	0.041	0.008	1,237	0.200	0.016	1,173
Provision for Unexpected Events	0.617	0.018	1,237	0.886	0.012	1,172
Pay Off Debts	0.158	0.014	1,237	0.251	0.018	1,172
Old-Age Provision	0.276	0.016	1,237	0.707	0.018	1,173
Travels/Holidays	0.173	0.014	1,237	0.742	0.017	1,172
Education/Support of Children or Grandchildren	0.321	0.016	1,237	0.521	0.020	1,168
Bequests	0.064	0.009	1,237	0.230	0.018	1,170
Take Advantage of State Subsidies	0.001	0.002	1,237	0.176	0.014	1,172
Other (specify)	0.018	0.005	1,237	0.951	0.008	1,173

(*continued*)

Table 3. (Continued)

Statistics	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
	Germany			*Portugal*		
Purchase Own Home	0.080	0.007	3,453	0.149	0.013	4,260
Other Major Purchases (other residences, vehicles, furniture)	0.362	0.016	3,453	0.028	0.003	4,260
Set up a Private Business, Invest in Existing Business	0.005	0.002	3,453	0.011	0.002	4,260
Invest in Financial Assets	0.014	0.003	3,453	0.016	0.003	4,260
Provision for Unexpected Events	0.426	0.015	3,453	0.545	0.018	4,260
Pay Off Debts	0.031	0.005	3,453	0.083	0.007	4,260
Old-Age Provision	0.360	0.012	3,453	0.408	0.014	4,260
Travels/Holidays	0.284	0.016	3,453	0.063	0.005	4,260
Education/Support of Children or Grandchildren	0.195	0.012	3,453	0.261	0.011	4,260
Bequests	0.008	0.003	3,453	0.093	0.007	4,260
Take Advantage of State Subsidies	0.008	0.003	3,453	0.015	0.007	4,260
Other (specify)	0.181	0.012	3,453	0.017	0.002	4,260
	Spain			*Slovenia*		
Purchase Own Home	0.045	0.007	2,331	0.072	0.016	343
Other Major Purchases (other residences, vehicles, furniture)	0.234	0.017	2,331	0.228	0.024	343
Set up a Private Business, Invest in Existing Business	0.038	0.007	2,331	0.027	0.011	343
Invest in Financial Assets	0.111	0.013	2,331	Missing Category		339
Provision for Unexpected Events	0.525	0.019	2,331	0.378	0.028	343
Pay Off Debts	0.075	0.009	2,331	0.077	0.018	343
Old-Age Provision	0.276	0.016	2,331	0.337	0.029	343
Travels/Holidays	0.400	0.021	2,331	0.173	0.024	343
Education/Support of Children or Grandchildren	0.312	0.020	2,331	0.197	0.024	343
Bequests	0.092	0.011	2,331	0.012	0.005	343
Take Advantage of State Subsidies	Missing Category		0	Missing Category		339
Other (specify)	0.189	0.015	2,331	0.113	0.021	343

(*continued*)

Table 3. (Continued)

Statistics	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
	Greece			*Slovakia*		
Purchase Own Home	0.054	0.009	2,798	0.054	0.005	2,057
Other Major Purchases (other residences, vehicles, furniture)	0.071	0.011	2,798	0.186	0.011	2,057
Set up a Private Business, Invest in Existing Business	0.015	0.003	2,798	0.030	0.004	2,057
Invest in Financial Assets	0.024	0.005	2,798	0.021	0.003	2,057
Provision for Unexpected Events	0.716	0.014	2,798	0.589	0.014	2,057
Pay Off Debts	0.133	0.013	2,798	0.090	0.006	2,057
Old-Age Provision	0.348	0.016	2,798	0.413	0.013	2,057
Travels/Holidays	0.210	0.016	2,798	0.300	0.013	2,057
Education/Support of Children or Grandchildren	0.225	0.016	2,798	0.296	0.014	2,057
Bequests	0.036	0.008	2,798	0.199	0.012	2,057
Take Advantage of State Subsidies	0.003	0.001	2,798	0.028	0.007	2,057
Other (specify)	0.000	0.000	2,798	0.001	0.001	2,057

Notes: The table reports the mean percentage of households' self-reported main reasons to save. Multiple answers are allowed. Standard errors are calculated with the Rao-Wu rescaled bootstrap method using 1,000 replicate weights and five multiply imputed data sets. Sample: Euro area excludes Finland, France, and Italy, as the question about saving motives is not collected in those countries.

broader sense instead. It is an attitude, a personal trait. Some people save (irrespective of the specific reason why) because they can and because they are patient and prudent; some other people do not save, not only because they cannot, but also because they are impatient or risk lovers. Ultimately, reasons for saving are not necessarily mutually exclusive (Smith 1999; Dynan, Skinner, and Zeldes 2004). Despite the large empirical literature on saving motives, it is surprising that relatively few studies allow for several saving motives to coexist. One exception is the paper by Fisher and Montaldo (2010), who investigate how several saving motives are related to the likelihood of saving by using SCF data. They find that saving motives differ by saving horizon, but the exact relationships are unclear. In this section we investigate whether and how different saving motives relate to each other, by computing simple pairwise correlations.[6] Table 4 reports the results.

We observe very high significance levels for basically all pairs of saving motives. It is interesting to note that the motive reported to be the most important one across countries and households—saving to provide for unexpected events—is associated negatively with the motives that immediately follow in importance—saving for home purchase, saving for old-age provision, and saving for other major purchases. This indicates that these motives for saving are substitutes. A positive effect is nevertheless observed between saving for unexpected events and saving to invest in financial assets, and saving to pay off debts and saving to take advantage of state subsidies, suggesting a complementarity between precautionary saving and building up a financial wealth stock intended to be used as buffer against adverse financial shocks. The bequest motive is positively related to precautionary saving. This finding is in line with the literature and has an intuitive interpretation. Bequests can be unintentional, so that a (risk-averse) household may decide to save for "rainy days" and leave the amount of savings left to its offspring. In addition, we observe that the bequest motive is associated positively with the family support motive, so that intervivos transfers are complements to bequests.

[6]The correlation coefficient comes from an OLS regression between a pair of standardized binary variables (motives to save) under multiply imputed data with 1,000 replicate weights.

Table 4. Correlations between Saving Motives

	Purchase Own Home	Old-Age Provision	Other Major Purchases	Set Up/ Invest in Private Business	Invest in Financial Assets	Pay Off Debts	Travels/ Holidays	Education/ Support of (Grand) Children	Bequests	Take Advantage of Subsidies
Provision for Unexpected Events	−0.062*** (−4.365)	−0.043*** (−2.899)	−0.063*** (−3.528)	0.015 (1.422)	0.059*** (5.934)	0.035*** (2.979)	0.049*** (3.222)	0.008 (0.608)	0.070*** (7.932)	0.126*** (11.488)
Purchase Own Home		0.020 (1.263)	0.053*** (3.207)	0.082*** (4.473)	0.097*** (5.610)	0.061*** (3.982)	0.064*** (3.819)	0.0305** (2.105)	0.044*** (3.387)	0.085*** (5.255)
Old-Age Provision			0.052*** (2.979)	0.041*** (3.671)	0.087*** (8.204)	0.038*** (3.371)	0.090*** (6.304)	0.100*** (7.464)	0.089*** (9.191)	0.121*** (10.388)
Other Major Purchases				0.045*** (4.079)	0.061*** (5.958)	0.046 (4.198)	0.230*** (13.97)	0.052*** (3.752)	0.011 (1.459)	0.058*** (5.345)
Set Up/Invest in Private Business					0.145*** (4.842)	0.122*** (4.988)	0.079*** (4.394)	0.060*** (3.605)	0.073*** (3.441)	0.120*** (3.972)
Invest in Financial Assets						0.142*** (6.985)	0.115*** (7.787)	0.070*** (4.746)	0.133*** (6.917)	0.183*** (7.697)
Pay Off Debts							0.114*** (6.709)	0.116*** (7.728)	0.098*** (5.631)	0.152*** (6.929)
Travels/Holidays								0.134*** (8.630)	0.065*** (6.357)	0.109*** (8.591)
Education/ Support of (Grand)Children									0.154*** (12.257)	0.086*** (6.591)
Bequests										0.151*** (6.341)
Take Advantage of Subsidies										

Notes: The table reports the coefficient from OLS regressions between a pair of standardized binary variables (saving motives) under multiply imputed data with 1,000 replicate weights. Sample: Euro area excludes Finland, France, and Italy, as the question about saving motives is not collected in those countries.

Saving for holidays is positively related with all other motives, indicating that holidays are luxury goods.

3.2 Determinants of Saving Motives

We now focus on three motives for saving, namely saving for home purchase, saving for old-age provision, and saving for unexpected events.[7] For each of these motives we perform probit analyses with country fixed effects to better characterize the main determinants of saving behavior. Table 5 reports the results.

In all countries but Slovenia, saving for unexpected events is significantly (at the 1 percent level) more important than in Germany (the omitted category). The marginal effects are rather large and rather heterogenous in magnitude, going from 10 percentage points in Spain to 51 percentage points in the Netherlands. As for the other two savings motives, we observe that saving for buying a home is significantly (at the 1 percent level) more important for households in Austria, Belgium, Luxembourg, Malta, the Netherlands, and Portugal than for households in Germany. In Spain and Slovakia, however, this reason for saving is significantly less important than in Germany. Putting money aside for old-age provision is significantly less important in Cyprus and in Spain than in Germany, and significantly more important in Malta, the Netherlands, Portugal, and Slovakia than in Germany.

Age is a relevant determinant for saving behavior, both in terms of significance levels and in terms of marginal effects. There is a clear pattern for home purchase: saving for buying a home is monotonically decreasingly important with age. Marginal effects range between 8 and 14 percentage points. Households belonging to the younger age class (defined as households aged less than forty) are significantly more likely to report saving for buying a house as a very important motive for putting money aside. Moreover, the age marginal effects for saving for old-age provision imply that retirement savings are particularly important in the middle part of the life cycle and less so for the young (defined as people up to forty

[7]We chose saving for home purchase because the main residence is typically the asset with the highest value in household finances in all countries. In addition, saving for old-age provision and precautionary saving are reported as the most important reasons to put money aside.

Table 5. Determinants of Main Saving Motives: Probit Estimates

	Home Purchase	Old-Age Provision	Unexpected Events
Male	0.004	−0.003	−0.014
	(0.51)	(−0.18)	(−0.90)
Age 41–55 Years	−0.082***	0.124***	−0.024
	(−7.98)	(5.80)	(−1.06)
Age 56–70 Years	−0.126***	0.118***	−0.021
	(−9.24)	(4.52)	(−0.78)
Age 71 Years and More	−0.142***	0.104***	−0.066*
	(−7.88)	(3.09)	(−2.06)
Single	0.006	0.033	0.019
	(0.56)	(1.34)	(0.77)
Divorced	0.007	−0.032	−0.025
	(0.45)	(−1.22)	(−0.80)
Widowed	−0.019	−0.011	−0.029
	(−1.28)	(−0.43)	(−1.03)
Household Size	−0.005	−0.028***	−0.007
	(−1.30)	(−3.75)	(−0.77)
Mid Education	−0.027**	−0.016	0.016
	(−2.25)	(−0.80)	(0.73)
High Education	0.006	0.007	0.039*
	(0.44)	(0.31)	(1.77)
Temporary Contract	−0.017	−0.096**	0.011
	(−1.00)	(−2.56)	(0.30)
Self-employed	−0.031**	−0.019	0.025
	(−2.08)	(−0.69)	(0.91)
Unemployed	−0.008	−0.095***	−0.073**
	(−0.47)	(−3.16)	(−2.46)
Other	−0.036**	−0.066**	0.045
	(−2.35)	(−2.49)	(1.60)
Missing Employment	−0.097***	−0.077	0.012
	(−3.66)	(−1.37)	(0.21)
Retired	−0.032**	−0.097***	0.011
	(−2.14)	(−4.01)	(0.48)
Financial Sector	0.027	0.120***	0.028
	(1.29)	(2.75)	(0.51)
Public Sector	−0.006	−0.016	0.001
	(−0.42)	(−0.59)	(0.03)
HH Income: 2nd Quintile	−0.032*	0.012	0.044
	(−1.86)	(0.41)	(1.47)
HH Income: 3rd Quintile	0.008	0.012	0.074**
	(0.48)	(0.43)	(2.44)

(*continued*)

Table 5. (Continued)

	Home Purchase	Old-Age Provision	Unexpected Events
HH Income: 4th Quintile	0.012	0.059**	0.053*
	(0.78)	(2.03)	(1.58)
HH Income: 5th Quintile	0.015	0.069**	0.040
	(0.78)	(2.23)	(1.16)
HH Net Wealth: 2nd Quintile	0.022	0.043	0.065**
	(1.41)	(1.56)	(2.46)
HH Net Wealth: 3rd Quintile	0.020	0.112***	0.064**
	(1.42)	(4.20)	(2.30)
HH Net Wealth: 4th Quintile	0.022	0.151***	0.070***
	(1.37)	(5.59)	(2.80)
HH Net Wealth: 5th Quintile	0.006	0.193***	0.024
	(0.34)	(7.53)	(0.95)
AT	0.030***	0.019	0.234***
	(3.15)	(1.08)	(12.65)
BE	0.040***	0.005	0.123***
	(3.93)	(0.28)	(6.58)
CY	−0.023	−0.071***	0.181***
	(−1.45)	(−3.19)	(7.61)
ES	−0.055***	−0.107***	0.095***
	(−3.45)	(−4.58)	(3.98)
GR	−0.022	0.019	0.280***
	(−1.38)	(0.87)	(13.11)
LU	0.049***	−0.011	0.165***
	(4.14)	(−0.49)	(6.98)
MT	0.076***	0.086***	0.442***
	(6.12)	(3.57)	(17.15)
NL	0.099***	0.318***	0.511***
	(8.72)	(14.70)	(19.81)
PT	0.075***	0.060***	0.141***
	(5.84)	(2.70)	(5.84)
SI	0.011	0.001	−0.038
	(0.57)	(0.03)	(−1.24)
SK	−0.027**	0.077***	0.156***
	(−2.28)	(4.20)	(7.77)
Mean No. Obs.	23,921	23,926	23,928

Notes: The table reports probit marginal effects and t-statistics (in parentheses) of the importance of saving for home purchase, old-age provision, and unexpected events. All specifications include country fixed effects. Reference groups are reported in table 1. Sample: Finland, France, and Italy are excluded, as the questions about saving motives are not available. The mean number of observations reported refers to the average over the five implicates used in the regressions. Standard errors are calculated with the Rao-Wu rescaled bootstrap method using 1,000 replicate weights and five multiply imputed data sets. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively.

years old) and the eldest old (seventy and above). While it is not very surprising that pension savings are perceived to be not very relevant for the eldest old (very likely to be already retired), it is more difficult to understand why young agents do not devote enough importance to retirement issues, given that several countries have implemented pension reforms that include the entire lifetime earnings rather than the best five/ten years of earnings, typically coinciding with the last phase of the working life. The main consequence will be that the last periods will count less than they did previously in determining the pension level, while earlier years will count much more.

Household size is significantly (at the 1 percent level) and negatively associated with saving for old-age provision, suggesting a potential substitutability between formal (via pension plans) and informal (via intrafamily support) financial provisions upon retirement.

Education level is a significant determinant for saving for home purchase and for saving for unexpected events. Households with mid-level education consider saving for buying a house less important than the low-educated households (marginal effects of about 3 percentage points), maybe because credit constraints are less relevant for them. On the other hand, high education is positively associated with the importance of precautionary saving. This finding is in line with Solomon (1975), who finds a positive association between precautionary savings rates and schooling.

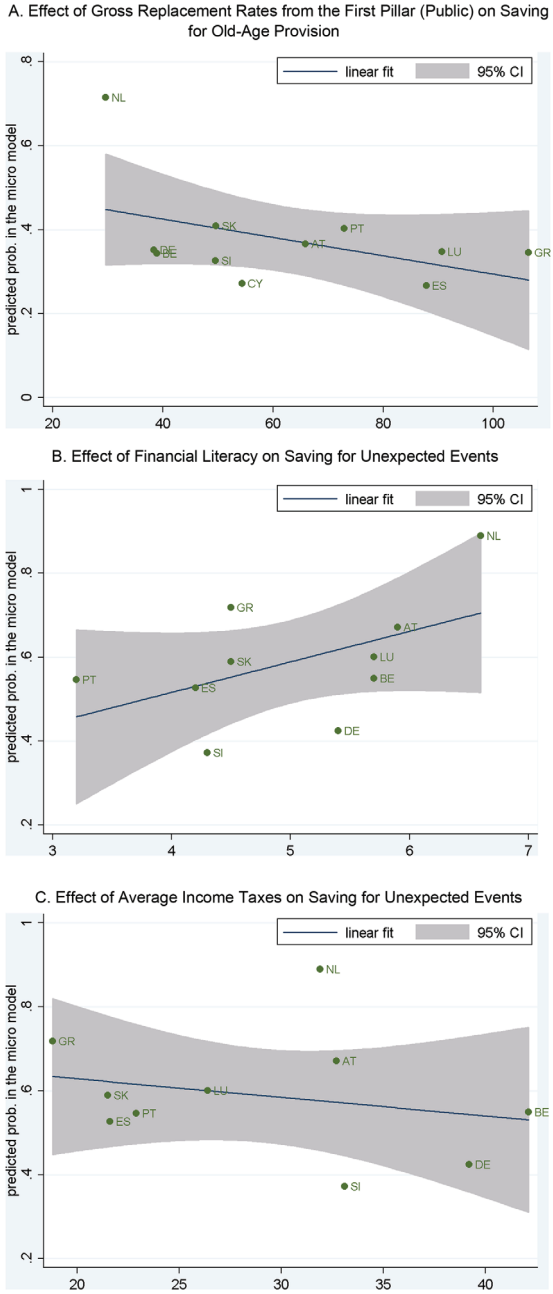
The self-employed are significantly less likely than employees to report saving for home purchase as an important motive for putting money aside. This could reflect the lower degree of risk aversion of the self-employed. One plausible explanation for our finding could be that this motive conflicts with the project to improve their business. On the other hand, if we believe the latter hypothesis, we should be expecting a significant and positive relationship between the self-employed and saving for unexpected events, as indeed Kennickell and Lusardi (2005) find for business owners, or as Deaton (1991) and Carroll (1994), among others, find for households facing higher income risk. Instead, our finding is more in line with Fisher (2010), who finds no significant relationship between income uncertainty and saving behavior.

As expected and in accordance with the life-cycle model, being retired is negatively related to the importance of saving for buying a house: presumably households are already homeowners or they have sold their house to finance old-age consumption. Not surprisingly, retired households are significantly less likely to report saving for old-age provision as an important motive to set money aside.

All other household characteristics, including income and wealth, have no significant impact on the probability of considering home purchase as an important motive for saving. However, there is a significant positive wealth effect (and to a minor extent, an income effect) on both old-age provision and on saving for unexpected events. Our finding is not consistent with Leland (1968) or with Dynan, Skinner, and Zeldes (2004): both studies show that poorer individuals save more against future uncertainties. However, the empirical evidence of a positive relationship between saving and income (Chang 1994 and Yuh and Hanna 2010, among others) finds support in our data.

Certainly, savings motives across our sample of countries should also be shaped by the diverse country-specific institutional arrangements in place. When considering differences in pension systems (see figure 1), we find that the gross replacement rate from the first (public) pillar remarkably decreases the importance of saving for old-age provision, suggesting a substitution effect between public and private pension savings. This finding is in line with Attanasio and Brugiavini (2003), among others, who find that savings rates increase as a result of a reduction in (public) pension wealth. We also find a significant and positive effect of financial literacy on saving for unexpected events, consistently with the literature showing better/more sophisticated financial choices and higher wealth levels by the households scoring high in numeracy and financial literacy (Lusardi and Mitchell 2007). Finally, saving for unexpected events is significantly and negatively related to (average) income taxes, implying that public and personal insurance mechanisms are perceived to be substitutes. Overall, our findings are line with International Monetary Fund (1997), which finds that variables related to the structure of the tax system and to the financing/generosity of the social security and welfare systems are important determinants of household saving.

Figure 1. The Effect of Institutional Variables on Saving Motives



Notes: The estimations are based on the two-step procedure described in section 2.2. The institutional variables are described in table 2.

4. Self-Assessed Measures of Household Saving

This section focuses on how households perceive their saving behavior and, in addition, on how they cope with negative saving.

4.1 Perception of Saving

In the HFCS, households are asked to report how their overall expenses in the previous twelve months compare with the average expenses they typically face and with their income.[8] The two questions read as follows:

(i) Aside from any purchases of assets, would you say that your (household's) overall expenses over the last twelve months were unusually high or low compared to what you would expect in a "normal" year, or were they about normal?

(ii) Again aside from any purchases of assets, over the last twelve months would you say that your (household's) regular expenses were higher than your (household's) income, just about the same as your (household's) income or that (you/your household) spent less than (your/its) income?

Similar questions are also asked in the Survey of Consumer Finances (SCF) for the United States.

Table 6 reports the average percentages of respondents claiming how their overall expenses compare with average typical expenses and with income for the euro area and by country. More than 70 percent of respondents in the euro area claim that in the previous twelve months their household expenses were in line with their past average expenses (i.e., the household faced no higher expenses compared with what they expect in a "normal" year).

About 19 percent claim current expenses were higher and the remaining 8 percent claim they were lower than their average expenses in the past. The analysis by country reveals some degree of heterogeneity for this measure of self-assessed households saving. The expenses in the last twelve months are perceived to be higher

[8]Finland and France are excluded from the analysis, as the dependent variable is not available in these countries.

Table 6. Subjective Measures of Household Saving in the Euro Area and by Country

Statistics	Household Expenses in the Last Twelve Months Compared with:					
	Average Expenses			Household Income		
	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
Euro Area (Exluding Finland and France)						
Higher	0.189	0.004	36,199	0.112	0.003	36,342
About the Same	0.735	0.005	36,199	0.477	0.006	36,342
Lower	0.077	0.002	36,199	0.411	0.006	36,342
Austria						
Higher	0.264	0.012	2,380	0.111	0.009	2,380
About the Same	0.681	0.013	2,380	0.483	0.013	2,380
Lower	0.054	0.006	2,380	0.406	0.013	2,380
Belgium						
Higher	0.280	0.012	2,294	0.121	0.009	2,294
About the Same	0.636	0.013	2,294	0.403	0.014	2,294
Lower	0.084	0.007	2,294	0.477	0.014	2,294
Cyprus						
Higher	0.480	0.018	1,237	0.211	0.015	1,237
About the Same	0.477	0.018	1,237	0.581	0.018	1,237
Lower	0.044	0.008	1,237	0.207	0.015	1,237
Germany						
Higher	0.164	0.010	3,565	0.101	0.007	3,565
About the Same	0.802	0.011	3,565	0.368	0.015	3,565
Lower	0.033	0.004	3,565	0.531	0.015	3,565
Spain						
Higher	0.266	0.011	6,197	0.175	0.009	6,197
About the Same	0.597	0.012	6,197	0.513	0.012	6,197
Lower	0.137	0.008	6,197	0.313	0.011	6,197
Greece						
Higher	0.250	0.017	2,971	0.131	0.013	2,971
About the Same	0.570	0.015	2,971	0.650	0.016	2,971
Lower	0.180	0.011	2,971	0.219	0.014	2,971

(*continued*)

Table 6. (Continued)

Statistics	Household Expenses in the Last Twelve Months Compared with:					
	Average Expenses			Household Income		
	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
Italy						
Higher	0.130	0.005	7,749	0.075	0.004	7,951
About the Same	0.807	0.006	7,749	0.554	0.008	7,951
Lower	0.064	0.004	7,749	0.371	0.007	7,951
Luxembourg						
Higher	0.314	0.017	950	0.076	0.010	950
About the Same	0.603	0.019	950	0.456	0.019	950
Lower	0.082	0.010	950	0.468	0.019	950
Malta						
Higher	0.649	0.017	840	0.287	0.017	842
About the Same	0.301	0.017	840	0.476	0.019	842
Lower	0.050	0.009	840	0.237	0.015	842
Netherlands						
Higher	0.143	0.014	1,233	0.143	0.015	1,173
About the Same	0.756	0.017	1,233	0.526	0.020	1,173
Lower	0.101	0.012	1,233	0.331	0.017	1,173
Portugal						
Higher	0.260	0.011	4,383	0.109	0.007	4,382
About the Same	0.688	0.011	4,383	0.689	0.012	4,382
Lower	0.051	0.006	4,383	0.202	0.011	4,382
Slovenia						
Higher	0.215	0.021	343	0.130	0.020	343
About the Same	0.580	0.029	343	0.598	0.029	343
Lower	0.205	0.026	343	0.271	0.026	343
Slovakia						
Higher	0.133	0.010	2,057	0.048	0.008	2,057
About the Same	0.557	0.015	2,057	0.571	0.015	2,057
Lower	0.309	0.013	2,057	0.381	0.014	2,057

Notes: The table reports the mean percentage of households claiming how their overall expenses in the previous twelve months compare with the average expenses they typically face, and with their income. Standard errors are calculated with the Rao-Wu rescaled bootstrap method using 1,000 replicate weights and five multiply imputed data sets. Sample: Euro area excludes Finland and France, as these questions are not collected in those countries.

than typical ones by a larger fraction of respondents in Malta (65 percent), Cyprus (48 percent), Spain (27 percent), and Portugal (26 percent). There is some evidence that the countries that were hit most severely by the financial crisis display higher financial stress, but also in Luxembourg the percentage is high (31 percent).

The answers to the second question above are consistent with this finding. If compared with household income in the last twelve months, expenses turn out to be about the same for almost half of the respondents and lower for 41 percent in the euro area. However, a smaller fraction of respondents who report their expenses being lower than income is observed in Portugal, Cyprus, Greece, and Malta (between 20 and 24 percent).

About 11 percent of all households report that their expenses were above their income over the last twelve months. We perform a simple probit analysis in order to better understand who these households are more likely to be. Results (average marginal effects over the five implicates of the multiply imputed data set and t-statistics) are reported in table 7. We start with a specification for the euro area that includes country fixed effects and household background characteristics (regression (1)). Germany serves as a reference group. We then run the same specification in each single country (regressions (2)–(14)) by including the same set of household covariates as in regression (1).

Country fixed effects (reported at the bottom of table 7, corresponding with each country) enter significantly (at the 1 percent level) and with a positive sign for Cyprus, Spain, Malta, and the Netherlands, and significantly (at the 1 percent level) with a negative sign for Italy, Luxembourg, and Slovakia. In all other cases, country fixed effects are not significantly different from Germany. The highest marginal effect (in absolute value) is found for Malta (11.8 percentage points). Slovakia and Cyprus follow (8.9 and 7.6 percentage points, respectively).

Households whose head is divorced are significantly more likely to have expenses exceeding income in the euro area (the marginal effect is 3.7 percentage points), whereas singles are significantly less likely to incur expenses higher than their income, with a marginal effect of 3.2 percentage points. In both cases the significance level is 1 percent. When running the analysis by country, we observe that the marginal effect for divorced heads of households is higher in

Table 7. Household with Expenses Higher than Income: Probit Estimates

	Euro Area Marg. Eff. (t-stats) (1)	AT Marg. Eff. (t-stats) (2)	BE Marg. Eff. (t-stats) (3)	CY Marg. Eff. (t-stats) (4)	DE Marg. Eff. (t-stats) (5)	ES Marg. Eff. (t-stats) (6)	GR Marg. Eff. (t-stats) (7)	IT Marg. Eff. (t-stats) (8)	LU Marg. Eff. (t-stats) (9)	MT Marg. Eff. (t-stats) (10)	NL Marg. Eff. (t-stats) (11)	PT Marg. Eff. (t-stats) (12)	SI Marg. Eff. (t-stats) (13)	SK Marg. Eff. (t-stats) (14)
Male	−0.014*	−0.023	−0.030*	−0.049	−0.034**	−0.011	−0.015	0.024**	0.021	0.020	−0.038	−0.025*	−0.010	−0.007
	(−1.81)	(−1.50)	(−1.65)	(−1.52)	(−2.14)	(−0.63)	(−0.95)	(2.30)	(1.01)	(0.45)	(−0.88)	(−1.71)	(−0.39)	(−0.63)
Age 41–55	0.003	−0.002	0.066**	0.006	−0.014	0.003	−0.006	0.015	0.042*	−0.008	−0.016	−0.022	0.089**	0.005
Years	(0.26)	(−0.10)	(2.20)	(0.14)	(−0.66)	(0.12)	(−0.25)	(1.37)	(1.69)	(−0.15)	(−0.31)	(−1.22)	(2.32)	(0.42)
Age 56–70	−0.002	−0.001	0.040	−0.049	−0.007	−0.024	0.023	0.002	0.031	0.004	−0.034	−0.019	0.011	0.032
Years	(−0.13)	(−0.03)	(1.14)	(−0.97)	(−0.25)	(−0.89)	(0.89)	(0.12)	(0.85)	(0.07)	(−0.58)	(−0.86)	(0.24)	(1.42)
Age 71 Years	−0.039**	−0.072**	0.050	−0.257***	−0.074*	−0.028	−0.011	−0.018	−0.062	−0.019	−0.091	−0.041	0.040	0.036
and More	(−2.49)	(−2.27)	(1.17)	(−2.98)	(−1.94)	(−0.82)	(−0.32)	(−0.89)	(−1.11)	(−0.27)	(−1.18)	(−1.50)	(0.66)	(0.88)
Single	−0.032***	0.024	−0.038	0.010	−0.052**	0.001	−0.021	−0.031*	0.024	0.021	−0.037	0.021	0.084**	0.012
	(−2.79)	(1.16)	(−1.29)	(0.16)	(−2.00)	(0.04)	(−0.88)	(−1.87)	(0.86)	(0.39)	(−0.74)	(1.11)	(2.21)	(0.78)
Divorced	0.037***	0.042*	−0.032	0.007	0.033	0.080***	0.021	0.006	0.037	−0.002	0.030	0.060***	0.163***	0.020
	(3.19)	(1.90)	(−1.08)	(0.14)	(1.48)	(2.89)	(0.71)	(0.41)	(1.08)	(−0.03)	(0.46)	(2.81)	(3.62)	(1.29)
Widowed	0.002	0.028	−0.028	0.043	−0.021	0.050*	0.011	0.000	−0.027	0.020	−0.021	0.008	0.010	0.004
	(0.13)	(0.92)	(−1.02)	(0.66)	(−0.69)	(1.76)	(0.45)	(0.02)	(−0.56)	(0.32)	(−0.27)	(0.43)	(0.23)	(0.23)
Household	0.016***	0.009	−0.000	0.032**	0.011	0.027***	0.014*	0.013***	0.011	0.046***	0.041**	0.016***	0.012	0.013**
Size	(4.85)	(1.16)	(−0.02)	(2.55)	(1.31)	(3.05)	(1.84)	(2.80)	(1.36)	(2.95)	(2.41)	(2.60)	(0.95)	(2.10)
Mid	0.009	−0.013	0.048**	0.020	0.019	0.008	−0.010	0.013	0.026	−0.114***	−0.020	−0.022	0.020	0.012
Education	(0.94)	(−0.63)	(2.29)	(0.49)	(0.82)	(0.37)	(−0.49)	(1.27)	(1.04)	(−2.60)	(−0.53)	(−1.12)	(0.69)	(0.41)
High	−0.000	−0.039	0.066***	0.005	0.029	−0.035*	−0.033	0.011	0.028	−0.041	−0.053	−0.052**	0.017	0.004
Education	(−0.00)	(−1.34)	(2.85)	(0.11)	(1.06)	(−1.65)	(−1.29)	(0.69)	(0.91)	(−0.73)	(−1.16)	(−2.07)	(0.41)	(0.13)
Temporary	−0.001	−0.075	−0.032	−0.118	−0.034	0.019	−0.009	0.010	0.007	0.025	−0.040	0.051**	0.002	0.007
Contract	(−0.08)	(−0.71)	(−0.53)	(−0.93)	(−0.99)	(0.59)	(−0.38)	(0.48)	(0.11)	(0.17)	(−0.16)	(2.07)	(0.03)	(0.39)
Self-	0.050***	0.008	−0.033	−0.050	0.046	0.080**	−0.005	0.043***	0.072**	−0.074	−0.080	0.054**	0.161**	0.026
Employed	(3.35)	(0.25)	(−0.70)	(−0.98)	(1.30)	(2.44)	(−0.22)	(2.61)	(2.29)	(−0.80)	(−0.69)	(2.38)	(2.56)	(1.30)
Unemployed	0.072***	0.103***	0.105***	0.102	0.057*	0.097***	0.081**	0.038*	§	0.131	0.144	0.052***	0.153***	0.035
	(5.57)	(3.21)	(3.21)	(1.59)	(1.82)	(3.63)	(2.35)	(1.80)		(1.32)	(1.26)	(2.71)	(3.85)	(1.63)
Other	0.037***	0.023	−0.002	0.069	0.053**	0.027	−0.031	0.018	0.052	0.080	0.110*	0.039	0.156***	−0.010
	(2.80)	(0.68)	(−0.06)	(1.06)	(2.06)	(0.91)	(−1.19)	(1.05)	(1.57)	(1.32)	(1.84)	(1.39)	(3.54)	(−0.36)
Retired	0.026**	0.046**	0.030	0.053	0.052*	−0.015	−0.077**	0.021	0.030	0.085	0.035	0.010	0.022	−0.047
	(2.10)	(1.99)	(0.81)	(0.88)	(1.76)	(−0.52)	(−2.39)	(1.32)	(0.70)	(1.45)	(0.61)	(0.47)	(0.54)	(−1.57)

(*continued*)

Table 7. (Continued)

	Euro Area Marg. Eff. (t-stats) (1)	AT Marg. Eff. (t-stats) (2)	BE Marg. Eff. (t-stats) (3)	CY Marg. Eff. (t-stats) (4)	DE Marg. Eff. (t-stats) (5)	ES Marg. Eff. (t-stats) (6)	GR Marg. Eff. (t-stats) (7)	IT Marg. Eff. (t-stats) (8)	LU Marg. Eff. (t-stats) (9)	MT Marg. Eff. (t-stats) (10)	NL Marg. Eff. (t-stats) (11)	PT Marg. Eff. (t-stats) (12)	SI Marg. Eff. (t-stats) (13)	SK Marg. Eff. (t-stats) (14)
Financial Sector	0.015	0.022	−0.006	0.055	0.011	−0.033	0.080	0.017	0.040	0.135	0.082	0.051	0.011	§
	(0.66)	(0.47)	(−0.10)	(0.69)	(0.29)	(−0.43)	(1.30)	(0.31)	(1.07)	(1.17)	(0.56)	(0.83)	(0.17)	
Public Sector	0.012	0.044*	0.002	−0.028	0.036	−0.042	−0.007	0.001	−0.010	0.055	−0.005	0.031	−0.043	0.004
	(1.04)	(1.75)	(0.07)	(−0.66)	(1.57)	(−1.47)	(−0.19)	(0.08)	(−0.28)	(0.93)	(−0.09)	(1.27)	(−0.94)	(0.29)
Household Income: 2nd Quintile	0.001	0.029	0.036	−0.048	0.020	0.024	−0.091***	−0.033***	0.009	−0.065	0.032	0.015	0.046	−0.018
	(0.13)	(1.06)	(1.22)	(−0.92)	(0.77)	(1.08)	(−3.92)	(−2.65)	(0.25)	(−1.19)	(0.58)	(0.85)	(1.32)	(−1.04)
Household Income: 3rd Quintile	−0.027**	−0.002	−0.005	−0.089*	0.001	−0.025	−0.097***	−0.065***	−0.001	−0.100	−0.009	−0.016	0.060	−0.029
	(−2.12)	(−0.07)	(−0.17)	(−1.66)	(0.04)	(−0.96)	(−3.96)	(−4.34)	(−0.04)	(−1.60)	(−0.16)	(−0.80)	(1.46)	(−1.43)
Household Income: 4th Quintile	−0.039***	0.031	−0.017	−0.110*	−0.019	−0.020	−0.173***	−0.061***	−0.029	−0.103	−0.027	−0.037*	−0.050	−0.032
	(−2.89)	(0.96)	(−0.49)	(−1.92)	(−0.62)	(−0.64)	(−5.58)	(−3.26)	(−0.73)	(−1.61)	(−0.50)	(−1.65)	(−0.93)	(−1.41)
Household Income: 5th Quintile	−0.065***	0.022	−0.072*	−0.207***	−0.058*	−0.016	−0.201***	−0.091***	−0.034	−0.161**	−0.055	−0.042*	0.036	−0.081**
	(−4.70)	(0.66)	(−1.70)	(−3.23)	(−1.69)	(−0.50)	(−4.80)	(−5.49)	(−0.79)	(−2.32)	(−0.86)	(−1.69)	(0.72)	(−2.28)
Household Net Wealth: 2nd Quintile	−0.039***	−0.049*	0.013	−0.022	−0.050**	−0.057**	−0.036	−0.015	−0.049	−0.053	−0.037	−0.035**	0.021	−0.012
	(−3.54)	(−1.75)	(0.42)	(−0.44)	(−2.18)	(−2.30)	(−1.57)	(−0.98)	(−1.41)	(−0.90)	(−0.63)	(−2.04)	(0.38)	(−0.64)
Household Net Wealth: 3rd Quintile	−0.032***	−0.017	−0.001	0.007	−0.049**	−0.042*	−0.022	−0.012	−0.015	−0.059	−0.042	−0.017	−0.033	−0.004
	(−2.85)	(−0.58)	(−0.02)	(0.14)	(−1.98)	(−1.67)	(−1.06)	(−0.91)	(−0.49)	(−1.13)	(−0.72)	(−0.89)	(−0.93)	(−0.22)
Household Net Wealth: 4th Quintile	−0.037***	−0.011	−0.053	−0.001	−0.047*	−0.052**	−0.068***	0.006	−0.046	−0.017	−0.087	−0.023	−0.183***	−0.024
	(−3.23)	(−0.41)	(−1.63)	(−0.02)	(−1.91)	(−1.99)	(−3.02)	(0.37)	(−1.25)	(−0.28)	(−1.64)	(−1.18)	(−3.44)	(−1.12)
Household Net Wealth: 5th Quintile	−0.036***	−0.020	−0.033	0.008	−0.048	−0.056*	−0.045	0.013	−0.042	−0.133**	−0.077	−0.049**	−0.037	−0.025
	(−2.65)	(−0.58)	(−0.96)	(0.14)	(−1.62)	(−1.84)	(−1.42)	(0.77)	(−1.03)	(−2.30)	(−1.49)	(−2.18)	(−0.77)	(−1.21)
Country Fixed Effect for Regression (1)	Yes	0.006	0.015	0.076***	Ref. Group	0.050***	0.013	−0.037***	−0.032**	0.118***	0.045***	0.001	0.016	−0.089***
		(0.48)	(1.32)	(6.37)		(5.24)	(0.99)	(−3.76)	(−2.07)	(10.36)	(3.03)	(0.05)	(0.86)	(−5.72)
Mean No. Obs.	36,100	2,361	2,205	1,206	3,565	6,182	2,904	2,904	950	840	1,173	4,371	342	2,057

Notes: The table reports probit marginal effects and t-statistics (in parentheses) of the probability of reporting household expenses in the previous twelve months higher than income. The dependent variable takes value 1 if household expenses in the previous twelve months are higher than income; 0 if household expenses in the previous twelve months are about the same or lower than income. Sample: Finland and France are excluded from the analysis, as the dependent variable is not available in these countries. Reference groups are reported in table 1. The mean number of observations reported refers to the average over the five implicates used in the regressions. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively. §= "Unemployment" for Luxembourg and "Financial Sector" for Slovakia had to be dropped due to perfect failure prediction.

Slovenia, Spain, and Portugal (16.3, 8, and 6 percentage points, respectively). Single heads of households are instead more likely to report expenses higher than income in Slovenia, with a marginal effect of 8.4 percentage points and a significance level of 5 percent.

The role of gender is somewhat mixed across European countries. At the euro-area level, male heads of households are less likely to incur expenses higher than income (the marginal effect is 1.4 percentage points) and significantly so at the 10 percent level only. In Italy, however, the finding is reversed: households whose head is male report more likely to have expenses higher than income, with a higher marginal effect (2.4 percentage points) and a higher significance level (5 percent). In most of the other countries, gender does not play any significant role.

For the euro area, aging is negatively correlated with having expenditures exceed income. Households whose head is in the oldest age category are less likely to have expenditures exceeding income compared with those households whose head is less than or equal to forty years old (marginal effect is 3.9 percentage points). This finding is in line with the predictions of the life-cycle model. Young households whose incomes are low and whose marginal propensity to consume is high are more likely to spend all of their income and will additionally finance their age-specific expenses by borrowing. As households grow older and their income increases, they will have enough means to cover their expenses. In addition, the retirement dummy is estimated to be positive and significant. Our result is also in line with the findings of Bover, Casado et al. (2015), who show that negative saving and holding secured debt or unsecured debt is predominant in the beginning of the life cycle and decreases after age forty-four. These results hold for most of the countries, separately. The biggest difference is found for Greece, where being retired significantly (at the 5 percent level) decreases the probability to have spending higher than income, with a rather large marginal effect (7.7 percentage points).

There are no significant effects for the level of education at the aggregate level. However, in Belgium higher education is significantly and positively related to claiming expenses higher than income; in Spain, Malta, and Portugal reversed findings are obtained. From a theoretical point of view, it is not clear what effect one should expect ex ante. On the one hand, there is ample evidence in the

wage differential literature of the positive correlation of education with wages (Tinbergen 1974; Katz and Murphy 1992; Acemoglu and Autor 2010; Carneiro and Lee 2011, among others), and therefore with income and earnings. On the other hand, the empirical evidence of the correlation of education with expenditures is much less clear, in view of the redistributive role and progressivity of income taxes, which is substantial in European countries (Verbist and Figari 2014). Therefore, whether household spending rises more or less than proportionately as income rises remains an open question.

Household size, being self-employed, or being unemployed are positively and significantly related to having expenses higher than income. Similarly, wealthier households (in terms of household income and household net wealth) are less likely to incur expenses higher than income. These findings hold both at the euro-area level and for most of the countries analyzed separately.

4.2 Financing Negative Saving

The fact that expenses are higher than income is not per se an indication of vulnerability, as long as it is a transitory/occasional situation and it is possible to finance this negative saving somehow. Therefore, in order to better understand this issue we consider additional information available in the HFCS.

The respondents who reported their expenses were higher than their income in the last twelve months are then asked the following question:[9] You have told me that your expenses in the last twelve months have been above your income. What did you do to meet expenses?

Multiple answers are allowed. Respondents may also choose the "Do not know" option or the "No answer" option. This HFCS question is similar to the one in the SCF for the United States.

The main summary statistics relative to the answers given to this question, both at the euro-area level and by country, are reported in table 8. Figure 2, panel A helps better visualize the distribution of answers by country.

[9]Data on financing negative saving have not been collected in Italy, Finland, and France. Moreover, multiple answers are responsible for mean values not summing up to 100.

Table 8. Summary Statistics for Financing Sources of Negative Saving in the Euro Area and by Country

Statistics	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
	Euro Area (Exluding Finland, France, and Italy)					
Sold Assets	0.067	0.014	3,654			
Got a Credit Card/Overdraft Facility	0.203	0.022	3,655			
Got Some Other Loan	0.167	0.019	2,732			
Spent Out of Savings	0.521	0.023	3,654			
Asked for Help from Relatives or Friends	0.228	0.019	3,654			
Left Some Bills Unpaid	0.127	0.017	2,590			
Other (specify)	0.054	0.010	3,654			
	Austria			*Luxembourg*		
Sold Assets	0.048	0.015	252	0.055	0.029	75
Got a Credit Card/Overdraft Facility	0.139	0.027	252	0.095	0.037	75
Got Some Other Loan	0.172	0.030	252	0.198	0.056	75
Spent Out of Savings	0.696	0.031	252	0.451	0.071	75
Asked for Help from Relatives or Friends	0.234	0.027	252	0.125	0.040	75
Left Some Bills Unpaid	0.040	0.013	252	0.109	0.040	75
Other (specify)	0.065	0.016	252	0.165	0.052	75

(*continued*)

Table 8. (Continued)

Statistics	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
	Belgium			*Malta*		
Sold Assets	0.055	0.017	288	0.026	0.011	237
Got a Credit Card/Overdraft Facility	0.094	0.023	288	0.054	0.020	237
Got Some Other Loan	0.095	0.023	288	0.045	0.017	237
Spent Out of Savings	0.634	0.038	288	0.664	0.035	237
Asked for Help from Relatives or Friends	0.063	0.020	288	0.082	0.019	237
Left Some Bills Unpaid	0.080	0.021	288	0.085	0.021	237
Other (specify)	0.128	0.027	288	0.046	0.014	237
	Cyprus			*Netherlands*		
Sold Assets	0.016	0.010	324	0.052	0.024	142
Got a Credit Card/Overdraft Facility	0.997	–	325	0.249	0.047	142
Got Some Other Loan	0.162	0.029	324	0.071	0.036	142
Spent Out of Savings	0.265	0.035	324	0.708	0.054	142
Asked for Help from Relatives or Friends	0.239	0.036	324	0.163	0.045	142
Left Some Bills Unpaid	0.217	0.032	324	Missing Category		0
Other (specify)	0.052	0.017	324	0.024	0.015	142

(*continued*)

Table 8. (Continued)

Statistics	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
	Germany			*Portugal*		
Sold Assets	0.083	0.021	361	0.023	0.008	507
Got a Credit Card/Overdraft Facility	0.247	0.033	361	0.083	0.013	507
Got Some Other Loan	0.201	0.030	361	0.053	0.012	507
Spent Out of Savings	0.528	0.035	361	0.567	0.029	507
Asked for Help from Relatives or Friends	0.205	0.029	361	0.320	0.027	507
Left Some Bills Unpaid	0.125	0.026	361	0.138	0.019	507
Other (specify)	0.049	0.015	361	0.003	0.002	507
	Spain			*Slovenia*		
Sold Assets	0.014	0.005	922	0.010	0.010	48
Got a Credit Card/Overdraft Facility	0.281	0.024	922	0.177	0.047	48
Got Some Other Loan	Missing Category		0	0.309	0.074	48
Spent Out of Savings	0.562	0.024	922	0.212	0.056	48
Asked for Help from Relatives or Friends	0.225	0.020	922	0.130	0.045	48
Left Some Bills Unpaid	Missing Category		0	0.105	0.044	48
Other (specify)	0.031	0.007	922	0.056	0.030	48

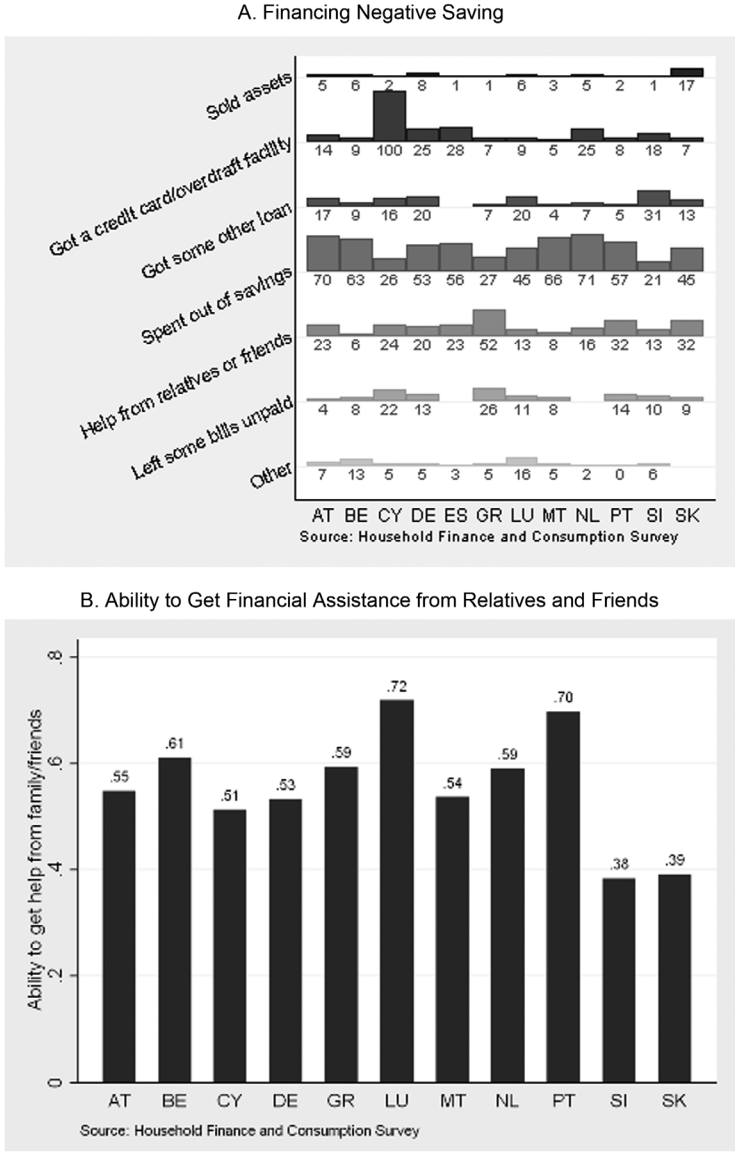
(*continued*)

Table 8. (Continued)

Statistics	Mean Perc.	Std. Err.	No. Obs.	Mean Perc.	Std. Err.	No. Obs.
	Greece			*Slovakia*		
Sold Assets	0.011	0.006	392	0.174	0.099	106
Got a Credit Card/Overdraft Facility	0.072	0.018	392	0.073	0.028	106
Got Some Other Loan	0.066	0.017	392	0.130	0.042	106
Spent Out of Savings	0.272	0.037	392	0.450	0.072	106
Asked for Help from Relatives or Friends	0.518	0.040	392	0.317	0.063	106
Left Some Bills Unpaid	0.260	0.042	392	0.087	0.035	106
Other (specify)	0.049	0.018	392	Missing Category		106

Notes: This table reports the mean percentage of households claiming how they finance their negative savings. Multiple answers are allowed. Standard errors are calculated with the Rao-Wu rescaled bootstrap method using 1,000 replicate weights and five multiply imputed data sets. Sample: Euro area excludes Finland, France, and Italy, as these questions are not collected in those countries.

Figure 2. Financing Negative Saving



Notes: Panel A is derived from the following question: You have told me that your expenses in the last 12 months have been above your income. What did you do to meet expenses? Multiple answers are allowed. Respondents may also choose the "Do not know" option or the "No answer" option. Panel B is derived from the following question: In an emergency, could (you/your household) get financial assistance of say EUR 5,000 from friends or relatives who do not live with you? Data on the ability to get financial assistance from relatives and friends have not been collected in Spain, Italy, Finland, and France.

The majority of households in the euro area reports that they mostly spent out of past savings (52 percent). The next most relevant sources of financing are assistance from relatives/friends (23 percent) and a credit card/overdraft facility (20 percent). Some 13 percent of households, for which average expenses were above average income during the last twelve months, claim they left bills unpaid. At least two other European surveys include questions relative to utility arrears (and mortgage or rent arrears), namely the European Union Statistics on Income and Living Conditions (EU-SILC) and Eurofound's European Quality of Life Survey (EQLS). Our finding is consistent with Eurofound (2013). This report shows that the proportion of people unable to make payments related to utility bills increased between 2007 and 2011, especially among homeowners, both without a mortgage (from 11 percent to 14 percent) and with a mortgage (from 10 percent to 13 percent).

Figure 2, panel A displays the different instruments that households use to finance negative saving by country, and the fraction of households in each country who reported to use the instrument. A certain degree of homogeneity can be observed across countries. The most commonly reported source of financing negative saving is spending out of savings cumulated in the past in all countries, with the exception of Greece, where there is a predominance of the habit to ask for help from relatives and friends (52 percent); of Cyprus, where it is very common to get a credit card/overdraft facility (almost 100 percent); and of Slovenia, where it is common to get some other form of loan (31 percent).[10] In addition, Greece and Cyprus are the two countries with the highest fraction of households claiming they left bills unpaid (26 and 22 percent, respectively).

The HFCS question allows identification of four groups of households. Negative saving can be financed out of wealth/past saving, out of formal loans (credit cards/overdraft facilities/other loans), out of informal loans (family and friends), and out of unpaid bills.

Therefore we are able to identify the households who have been able to cope with negative saving (either by dissaving or by

[10]For Cyprus, the share of households reporting to get a credit card/overdraft facility was exactly 100 percent for two out of the five implicates. Since no variance exists for those two implicates, it is not possible to calculate the standard error over all five implicates.

relying on some forms of borrowing) and those who have not (by leaving unpaid bills), thus being financially vulnerable to adverse economic conditions and potentially "at risk" of poverty. The recent Social Investment Package (European Commission 2013) reports an increase in evictions and homelessness since the onset of the crisis in Europe. An increasingly prominent cause of poverty is over-indebtedness. The focus of policy discussion, data collection, and research is typically on formal debts, e.g., debts with institutions such as banks and insurance companies, utility companies, and public authorities. However, many people borrow from family, relatives, or friends when in need of money.

We perform a probit regression analysis for each of the four sources of financing negative savings.[11] Table 9 reports the full set of results.

In all regressions we control for country fixed effects, where Germany serves as a reference. Greece is the only country for which the country fixed effect enters strongly significantly in the four regressions. The marginal effects are also high. We observe that Greek households are less likely than German households to finance their negative savings by dissaving, either by wealth decumulation (marginal effect of 28 percentage points) or by relying on formal loans (marginal effect of 26 percentage points). At the same time, Greek households are more likely to rely either on informal forms of loans (marginal effect of 21 percentage points) or by leaving bills unpaid (marginal effect of 8 percentage points). The same story applies to Cyprus and to Portugal. In the former country, the fixed-effect dummy enters significantly and positively in the specification for unpaid bills (marginal effect of 8 percentage points), and significantly and negatively in the one for wealth/past savings decumulation (marginal effect of 29 percentage points). In the latter country, the fixed-effect dummy enters significantly and positively in the specification for informal loans (marginal effect of 12 percentage points), and significantly and negatively in the one for formal loans (marginal effect of 32 percentage points). Households from Belgium and Malta are significantly less likely to report financing negative savings by

[11] Another way to model this analysis is to perform multinomial probit regressions. However, our data do not allow this since multiple answers are possible, making the four alternative forms of financing not fully mutually exclusive.

Table 9. Financing Negative Saving: Probit Estimates for the Euro Area

Variable	Out of Wealth Marg. Eff. (t-stats) (1)	Out of Formal Loans Marg. Eff. (t-stats) (2)	Out of Informal Loans Marg. Eff. (t-stats) (3)	Unpaid Bills Marg. Eff. (t-stats) (4)
Male	0.017	0.027	−0.032	0.038
	(0.46)	(0.62)	(−1.13)	(1.16)
Age 41–55 Years	0.006	−0.121**	−0.012	0.028
	(0.13)	(−2.27)	(−0.37)	(0.93)
Age 56–70 Years	0.037	−0.144**	−0.061	−0.010)
	(0.66)	(−2.01)	(−1.41)	(−0.20)
Age 71 Years and More	0.042	−0.274***	−0.005	−0.045
	(0.56)	(−2.71)	(−0.10)	(−0.80)
Single	−0.043	−0.065	0.043	−0.005
	(−0.85)	(−1.05)	(1.11)	(−0.11)
Divorced	−0.077	0.091	0.041	0.034
	(−1.36)	(1.30)	(1.03)	(0.75)
Widowed	0.025	0.060	0.043	0.048
	(0.43)	(0.65)	(1.13)	(1.02)
Household Size	−0.021	0.004	0.015	0.010
	(−1.36)	(0.21)	(1.27)	(0.93)
Mid Education	0.011	0.005	−0.002	−0.069*
	(0.25)	(0.09)	(−0.05)	(−1.77)
High Education	0.049	−0.084	0.020	−0.150***
	(0.96)	(−1.32)	(0.52)	(−2.86)
Temporary Contract	0.059	−0.198*	0.039	−0.000
	(0.85)	(−1.89)	(0.67)	(−0.00)
Self-employed	0.024	−0.065	−0.013	0.111*
	(0.33)	(−0.80)	(−0.25)	(1.73)
Unemployed	0.044	−0.131*	0.049	0.048
	(0.75)	(−1.85)	(1.13)	(1.02)
Other	0.056	−0.189**	0.052	0.046
	(0.89)	(−2.25)	(1.06)	(0.82)
Missing Employment	−0.115	0.192	0.232	–
	(−0.64)	(1.22)	(1.31)	
Retired	0.070	−0.083	−0.119**	−0.074
	(0.99)	(−1.07)	(−2.47)	(−1.62)
Financial Sector	0.014	−0.132	0.030	−0.071
	(0.12)	−(1.09)	(0.25)	(−0.66)

(*continued*)

Table 9. (Continued)

Variable	Out of Wealth Marg. Eff. (t-stats) (1)	Out of Formal Loans Marg. Eff. (t-stats) (2)	Out of Informal Loans Marg. Eff. (t-stats) (3)	Unpaid Bills Marg. Eff. (t-stats) (4)
Public Sector	−0.057	0.006	0.022	0.040
	(−0.92)	(0.10)	(0.41)	(0.75)
HH Income: 2nd Quintile	0.124***	0.018	−0.108***	0.069*
	(2.73)	(0.24)	(−3.12)	(1.79)
HH Income: 3rd Quintile	0.082*	0.209***	−0.161***	0.015
	(1.68)	(3.26)	(−3.83)	(0.31)
HH Income: 4th Quintile	0.043	0.172**	−0.143***	0.031
	(0.73)	(2.16)	(−3.11)	(0.53)
HH Income: 5th Quintile	0.129**	0.107	−0.194***	−0.013
	(2.08)	(1.36)	(−4.11)	(−0.25)
HH Net Wealth: 2nd Quintile	0.127***	−0.019	−0.095***	−0.102***
	(2.94)	(−0.34)	(−2.67)	(−2.94)
HH Net Wealth: 3rd Quintile	0.273***	−0.161***	−0.172***	−0.149***
	(6.19)	(−2.94)	(−5.10)	(−4.06)
HH Net Wealth: 4th Quintile	0.348***	−0.153**	−0.156***	−0.177***
	(7.16)	(−2.23)	(−4.13)	(−4.15)
HH Net Wealth: 5th Quintile	0.368***	−0.162**	−0.218***	−0.091*
	(7.41)	(−2.47)	(−5.70)	(−1.67)
AT	0.125	−0.117**	0.067*	−0.095*
	(2.61)	(−2.39)	(1.83)	(−1.89)
BE	0.055	−0.171***	−0.177***	−0.038
	(1.08)	(−3.36)	(−3.08)	(−0.97)
CY	−0.285***	†	0.037	0.076***
	(−5.06)		(0.88)	(2.72)
ES	−0.015	‡	0.006	§
	(−0.32)		(0.20)	
GR	−0.283***	−0.256***	0.213***	0.082**
	(−5.00)	(−4.84)	(5.99)	(2.43)
LU	−0.070	−0.074	−0.092	−0.055
	(−0.94)	(−0.97)	(−1.19)	(−0.99)
MT	0.097*	−0.286***	−0.146***	−0.076
	(1.67)	(−4.04)	(−2.82)	(−1.59)
NL	0.168**	−0.103	−0.084	§
	(2.39)	(−1.63)	(−1.53)	

(*continued*)

Table 9. (Continued)

Variable	Out of Wealth Marg. Eff. (t-stats) (1)	Out of Formal Loans Marg. Eff. (t-stats) (2)	Out of Informal Loans (Marg. Eff. (t-stats) (3)	Unpaid Bills Marg. Eff. (t-stats) (4)
PT	0.018	-0.319^{***}	0.116^{***}	-0.061
	(0.33)	(-5.56)	(3.19)	(-1.36)
SI	-0.333^{***}	0.073	-0.068	-0.035
	(-4.69)	(1.10)	(-1.21)	(-0.77)
SK	0.083	-0.258^{***}	0.053	-0.039
	(1.09)	(-3.80)	(0.84)	(-0.71)
Mean No. Obs.	3,621	2,384	3,621	2,549

Notes: The table reports probit marginal effects and t-statistics (in parentheses) of the probability of financing negative saving out of wealth (1), out of formal loans (2), out of informal loans (3), or by leaving bills unpaid (4). Reference groups are reported in table 1. Sample: Finland, France, and Italy are dropped from all specifications since data on financing negative saving have not been collected. The mean number of observations reported refers to the average over the five implicates used in the regressions. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively.
†Cyprus is dropped from specification 2 since all households in this subsample can rely on a credit card or overdraft facility (four households cannot, but they have missing values for the category "Got Some Other Loan").
‡Spain is excluded from specification 2 since the category "Got Some Other Loan" was not asked.
§The Netherlands and Spain are dropped from specification 4 since this category is not asked in these countries.

taking out loans, both formal (the marginal effect is 17 and 29 percentage points, respectively) and informal ones (the marginal effect is 18 and 15 percentage points, respectively).

Another aspect we observe is that households are less likely than German ones to rely on formal loans in all countries where the dummies are significant. The HFCS data do not allow disentangling demand from supply factors behind this finding. Similarly, any comparison with the U.S. experience is difficult to document, and we refrain from doing so. Nevertheless, it is interesting to note that Brown et al. (2010) report that "the Federal Reserve Bank of New York Consumer Credit Panel shows a substantial run-up in

total consumer indebtedness between the first quarter of 1999 and the peak in the third quarter of 2008, followed by a steady decline through the third quarter of 2010. During the same period, delinquencies rose sharply: Delinquent balances peaked at the close of 2009 and then began to decline again. . . . The data suggest that lenders have acted to curtail consumers existing credit in the face of growing delinquency rates and broader financial market uncertainty."

Turning the attention to households' characteristics, we observe a very significant (at the 1 percent level) effect of the stock of household wealth for all four sources of financing and with the expected sign. Wealthier households are more likely to cover negative saving by decumulating existing wealth or by dissaving. The marginal effects are rather high and monotonically increasing with wealth quintiles from 13 percentage points in quintile 2 to 37 percentage points in quintile 5. Wealthier households are also significantly less likely to leave bills unpaid, although the marginal effects are lower (in the range between 9 percentage points and 18 percentage points) and non-monotonic. In addition, wealthier households are significantly less likely to take out new loans or credit cards/overdraft facilities. Similarly, higher wealth quintiles are associated with lower probabilities of asking for informal loans from family and friends. The marginal effects are again rather high (between 10 percentage points and 22 percentage points) and non-monotonic.

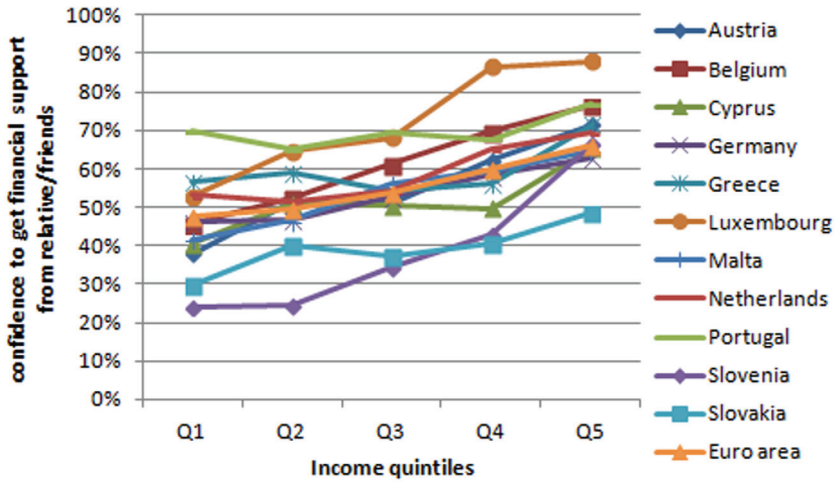
We also observe an effect of household income, although some findings are less intuitive than for wealth. We find that the higher the income, the higher the probability of dissaving, but also the higher the probability of leaving bills unpaid, even if the significance level is very high for the former effect and much lower for the latter (only for the second income quintile). Interestingly, we observe that income is positively related to the probability to take out new formal loans and negatively to the probability to ask for informal loans. This finding in not fully in line with Eurofound (2013), where people in higher income quartiles more often say they would turn to family, while people in lower income quartiles are more likely to have nobody to turn to. Rather, our finding underlines the fact that income-richer households can take out formal loans more easily, while the poorer households may be credit constrained and have to rely on informal loans.

Overall, households who leave bills unpaid are significantly more likely to be low educated and self-employed. Older or unemployed households and households with a temporary contract are significantly less likely to rely on formal loans or borrowing.

A relevant share of financial support to relatives and friends is provided as gifts rather than loans, but there is evidence that borrowing is common as well. According to Eurofound (2013), when urgently in need of money, people tend to turn to family or relatives (70 percent in 2011). A Portuguese study describes how loans are often provided free of interest and without any specific repayment schedule (Frade 2003), and households repay them whenever they have a surplus. This situation may change when the lending household itself is in urgent need of money, and this may have become more common during the crisis. To investigate the role of informal lending channels, the HFCS contains a question on the ability to get financial assistance from relatives and friends. The question reads as follows: In an emergency, could (you/your household) get financial assistance of say EUR 5,000 from friends or relatives who do not live with you? Figure 2, panel B shows the distribution of the percentages reported by countries.[12] In all countries where this information is available, there seems to be a fairly high confidence in the possibility to get financial assistance through informal borrowing. Peaks are found for Luxembourg and Portugal (70 percent). Only in Slovakia and in Slovenia is the percentage below 40. If one thinks of this informal borrowing in terms of a substitute for more formal credit channels (e.g., via the banking system or other financial institutions), then one should expect this form of borrowing to be more prominent for households with lower incomes or holding lower wealth stocks. Figure 3 reports the percentage of households claiming to be confident to be able to borrow from friends or relatives across income quintiles in each country. We see that for most countries the gradient is increasing with income. At the euro-area level the percentage goes from 48 percent for the lowest income quintile to 66 percent for the highest income quintile. However, in some countries that increase is much larger. In Austria, for example, the percentage goes from 38 percent to 71 percent. It is interesting to note that

[12]Data on the ability to get financial assistance from relatives and friends have not been collected in Spain, Italy, Finland, and France.

Figure 3. Confidence to Get Financial Support from Relatives and Friends by Income Quintiles



Notes: The question reads as follows: In an emergency, could (you/your household) get financial assistance of say EUR 5,000 from friends or relatives who do not live with you? Data on the ability to get financial assistance from relatives and friends have not been collected in Spain, Italy, Finland, and France.

in Mediterranean countries, typically associated with higher market imperfections, the gradient is less steep. In Portugal, for example, the difference ranges between 70 percent and 77 percent. Our findings are in a sense consistent with Eurofound (2013), where relatives and friends are considered sources of emergency financial support by households belonging to the top income quintile more than those belonging to the bottom income quintile.

5. Concluding Remarks

The paper studies different perspectives of household saving behavior in fifteen countries in the euro zone, using the Household Finance and Consumption Survey, a new harmonized data set collecting detailed information on wealth holdings, consumption, and income.

We first analyze individual motives for household saving. We find evidence of some degree of homogeneity across countries with

respect to saving preferences and the relative importance of several motives for saving. Saving for unexpected events is the most commonly reported motive in all countries, followed by saving for old-age provision. We observe also a relevant role for education and support of children and grandchildren, home purchase, and other major purchases. Households in all countries are more likely to save for unexpected events than German households (with the exception of Slovenian households). This finding holds also after controlling for sociodemographic and economic variables. Saving for home purchase is more likely to be important in the Netherlands, Portugal, and Malta than in Germany. The saving motive old-age provision is more prevalent in the Netherlands, Malta, and Portugal than in Germany, while it is less prevalent in Cyprus and Spain.

Our findings show evidence of heterogeneity with respect to the relevance of reasons for putting money aside among households depending on their financial situation. Saving for paying off debts is very important for the households reporting expenses higher than income, while this motive is relatively less important for the households with positive saving. Saving for home purchase and precautionary saving are decreasingly important with age. Consistent with the life-cycle model, being retired is negatively related to the importance of saving for buying a house. The gross replacement rate from the first (public pension) pillar significantly decreases the importance of saving for old-age provision, suggesting a substitution effect between public and private pension savings. We also find a significant and positive effect of financial literacy on saving for unexpected events. In addition, saving for unexpected events is significantly and negatively related to (average) income taxes, implying that public and personal insurance mechanisms are substitutes.

We then study how households perceive their actual saving behavior. We find a rather similar perception of household saving behavior across countries. The majority of respondents claim that in the previous twelve months their household expenses were about the same as average household expenses as well as their household income. Nevertheless, about 11 percent of households report that their expenses were above their income. These households potentially at risk of financial vulnerability are more likely to have a head who is female, less than forty years old, or divorced. In contrast,

wealthier households are less likely to incur expenses higher than income. We further analyze alternative sources of financing negative saving, namely dissaving, borrowing, and leaving bills unpaid.

Financing negative saving out of informal loans plays a bigger role in Greece and Portugal than in Germany, while in all countries the probability of using formal loans to finance negative saving is significantly lower than in Germany. Distressed households in Greece and Cyprus have a higher tendency to leave bills unpaid than distressed households in Germany and are less likely to finance negative savings out of wealth. Only Dutch and Maltese households have a higher probability of covering negative savings out of their wealth.

Wealthier households are more likely to cover negative saving by decumulating existing wealth or by dissaving and are less likely to leave bills unpaid. We also observe an income effect: the higher the income, the higher the probability of dissaving, but also the higher the probability of leaving bills unpaid. Income is positively related to the probability to take out new formal loans and negatively to the probability to ask for informal loans. Overall, households who leave bills unpaid are significantly more likely to be low educated and self-employed. Older or unemployed households and households with a temporary contract are significantly less likely to rely on formal loans or borrowing.

In view of the European integration process, our findings reveal that a micro perspective on household savings uncovers substantial heterogeneity within and across the population in each country. As the European integration process proceeds, future research should focus on the changing institutional environments and their impact on household behavior and the investigation of possible effects of cross-country heterogeneity of household savings on the monetary transmission process.

Appendix. Data Preparation

A key distinguishing feature of the HFCS is that it provides country-representative data, which have been collected in a harmonized way in all euro-area countries—with the exception of Estonia, Ireland, and Latvia—for a sample of more than 62,000 households (see Bover,

Schurz et al. 2015 for a more detailed description of the data collection and preparation).

The survey was conducted from November 2008 in Spain to August 2011 in Italy. The fieldwork for most countries was conducted in 2010.[13] Thus, the reference year of wealth is in most cases 2010 (at the point the survey was conducted) and the year prior to the survey year for income, which is 2009 for most countries. Almost all countries used CAPI (computer-assisted personal interviews) as the interview mode[14] and applied a stratified random sampling as the sampling strategy. Most countries oversampled the wealthy in order to better assess the right tail of the wealth distribution (HFCN 2013a, section 4).[15] Differences in purchasing power parities are taken into account, since monetary control variables such as income and wealth are included as weighted quintile dummies and are calculated separately over each country. Thus, the richest 20 percent of households in one country or another are always located in income or wealth quintile 5. Individual answers are subject to logical consistency checks and possible corrections based on editing that is performed prior to transmitting national data to the European Central Bank. Item non-response is addressed by country-specific multiple imputation models, which results in five implicates for each country data set to properly adjust for imputation uncertainty (HFCN 2013a, section 6).

In fact, the HFCS data are multiply imputed using the method of Rubin (1987) with five implicates. All descriptive and multivariate analyses combine the results obtained from each of the five implicates according to Rubin's rule (Rubin 1987). Instead of single imputation, multiple imputation can take into account the uncertainty in specifying the imputation model. The combined point estimate is

[13]The field phases were as follows: Austria (09/10–05/11), Belgium (04/10–11/10), Cyprus (04/10–01/11), Germany (09/10/–07/11), Spain (11/08–07/09), Finland (01/10–05/10), France (10/09–02/10), Greece (06/09–09/09), Italy (01/11–08/11), Luxembourg (09/10–04/11), Malta (10/10–02/11), the Netherlands (04/10–12/10), Portugal (04/10–07/10), Slovenia (10/10–12/10), and Slovakia (09/10–10/10).

[14]In the Netherlands CAWI (computer-assisted web interviews) was adopted instead.

[15]For a detailed overview on sampling mode and fieldwork periods, see HFCN (2013a).

the average of the point estimates over five implicates. The variance is produced as the weighted sum of two variances: the within-imputation variance and the between-imputation variance. The individual imputation value is simulated by drawing repeatedly from an estimate of the conditional distribution of the data using also the imputed outcomes from the last iteration (Gibbs sampling). During imputation, the logical constraints imposed by the questionnaire are incorporated.

Each country adopts the multi-stage weighting procedure to alleviate the deviations from a simple randomized survey due to complex sample design, which include unequal selection probability, unit nonresponse, undercoverage or overcoverage, and other design inadequacies. Due to data-protection reasons, additional replicate weights are provided to allow variability measures of the estimates. They result from the bootstrap simulations that integrate the sample design information and are calibrated, like the single survey weight, to maintain the representativeness of important marginal distributions in the population.

Therefore, all descriptive statistics and marginal effects are weighted with the sample weights to obtain country and euro-area representative results (HFCN 2013a, section 5). Standard errors are calculated with the Rao-Wu rescaled bootstrap method using 1,000 replicate weights and five multiply imputed data sets. We execute weighted regressions, as suggested in the case of complex survey designs (Magee, Robb, and Burbidge 1998).

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