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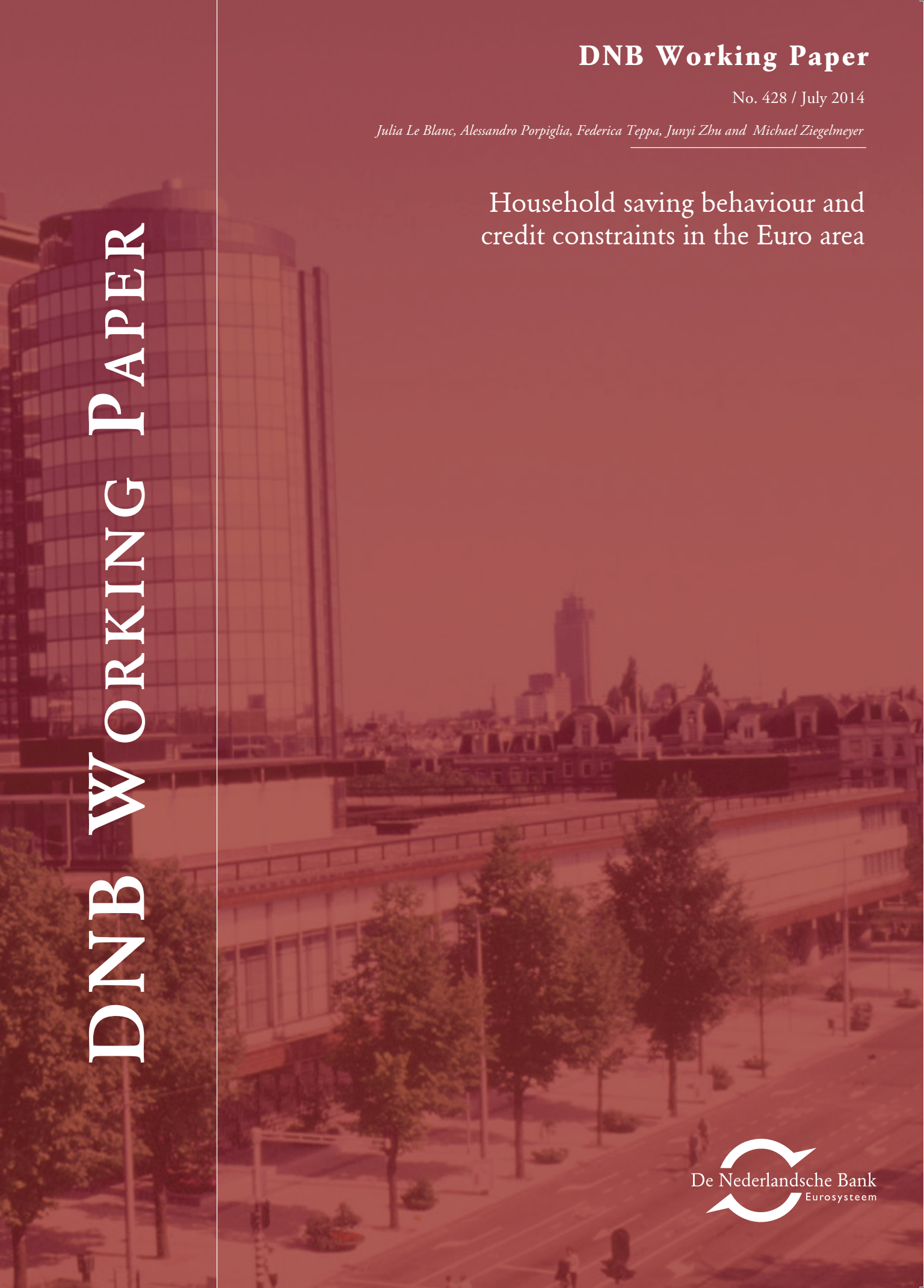

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* Views expressed are those of the authors and do not necessarily reflect official positions of De Nederlandsche Bank.

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Household Saving Behaviour and Credit Constraints in the Euro Area

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Abstract

We study the role of household saving behaviour, of individual motives for saving and that of perceived liquidity constraints in 15 Euro Area countries. The empirical analysis is based on the Household Finance and Consumption Survey, a new harmonized data set collecting detailed information on wealth holdings, consumption and income at the household level. Since the data is from 2010-2011, strong conclusions as regards the present are difficult to draw. This is because the crisis may have affected the data, especially in countries that were severely hit. Nevertheless we find evidence of some degree of homogeneity across countries with respect to saving preferences and the relative importance of different motives for saving. In addition, credit constraints are more heterogeneous across geographic regions and perceived to be binding for specific groups of respondents. Households living in Mediterranean countries report to be more subject to binding liquidity constraints than households living in Continental Europe. Household characteristics and institutional macroeconomic variables are significant and economically important determinants of household saving preferences and credit constraints.

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1 Introduction

This paper focuses on household saving behaviour, with particular emphasis on why households save, how much heterogeneity in savings motives and liquidity constraints there is across households and countries, and which factors determine the importance of saving motives and liquidity constraints. These topics are particularly relevant in light of the recent financial crisis in the household sector. Studying which motives drive households' savings within countries at different stages of their life cycle is fundamental for understanding household saving behaviour. A cross-country view on savings gives insights into how country-specific institutional settings shape saving behaviour and how differently formal lending channels are developed.

We use 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 15 Euro Area countries. In addition, the data allows us to study the underlying motives for saving and relate them to household characteristics and perceived liquidity constraints.

Household saving behaviour has been extensively studied in the literature. Several saving motives were first identified by Keynes (1936). Subsequent papers have primarily concentrated on precautionary saving, on life cycle or retirement saving as well as on saving for bequest. An additional saving motive, namely the "Down-payment" 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) and 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 (Palumbo (1999), Hubbard *et al.* (1995)). Further extensions of the life cycle model include a housing motive (Hayashi (1988)) and a bequest motive (Hurd (1987)).

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

In the life cycle framework the existence of *credit constraints* has direct predictions for savings (Deaton(1991)). Households that face binding borrowing constraints are prevented

from smoothing consumption as they can only consume less than they would optimally like to.

Uncertainty from income shocks, medical expenditures and other factors driving precautionary savings become particularly relevant when households simultaneously face borrowing constraints (see Deaton (1991)), so there is often an interaction between the precautionary saving motive and imperfections in financial markets. Therefore, institutional differences across countries may play a major role for different savings behaviour and credit constraints. Countries with a higher degree of uncertainty in income and other (future) economic circumstances will most likely feature higher saving 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 life-time income might have the same effects (see Hubbard *et al.* (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 capital market requirements and binding liquidity constraints and hence replace the need to save (Boersch-Supan and Lusardi (2003)).

We first study how differences in individual preferences and characteristics of households in different countries affect the extent of the heterogeneity in saving motives and liquidity constraints. As differences in institutions may explain a large part of cross-national differences in saving motives and perceived credit constraints, we then analyse a number of institutional variables to capture country-specific institutional settings. The present paper improves upon earlier studies by analyzing a much larger number of saving motives and perceived liquidity constraints and by using new and comparable micro data across 15 countries in the Euro zone. Since the data is from 2010-2011 strong conclusions as regards the present are difficult to draw. This is because the crisis may have affected the data, especially in countries that were severely hit. Nevertheless, our findings can be summarized as follows.

We find that in the years 2010-2011 for most households in the Euro Area expenses were perceived to be about the same as average expenses, and about the same as income. 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 in expenses higher than income. We also find evidence of households being rather confident in the possibility to get funded through informal lending channels, like family and/or friends.

Both household characteristics and institutional macroeconomic variables are significant and economically important determinants of both saving preferences and credit constraints households face. 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 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.

Saving for home purchase and precautionary saving are monotonically decreasingly important with age. Moreover, in accordance with the life cycle model, being retired is negatively related to the importance of saving for buying a house. Finally, the variables related to the structure of the tax system and that of the financing/generosity of the social security and welfare systems are important determinants of household saving.

We find credit constraints to be more heterogeneous and perceived to be binding for specific groups of households living in particular geographic regions. Households living in Mediterranean countries report to be more subject to binding liquidity constraints than households living in Continental Europe. This might reflect the higher degree of market imperfections in the first macroeconomic region, as reflected in lower loan-to-value ratios. Moreover, the financial and economic crisis that hit these countries might also have played an important role, but this is not included in our analysis. As expected, the existence of personal bankruptcy laws remarkably decreases the probability of being liquidity constrained, pointing to the role of guarantee of this factor on the propensity to give a loan to the household sector.

The rest of the paper is organized as follows. Section 2 provides a description of the data set used in the empirical analysis. Section 3 focuses on self assessed, qualitative measures of household saving, with emphasis on how households perceive their saving and on how negative saving is financed. The relevance of saving motives and their main determinants are analyzed in Section 4. Liquidity constraints are analyzed in Section 5. Section 6 concludes the paper.

2 The data

The analysis in this paper is based on data collected from households participating in the Eurosystem Household Finance and Consumption Survey (HFCS), a joint project of 15 central banks of the Eurosystem. The survey collects detailed household-level data on various aspects of household balance sheets and related economic and demographic variables, including income, pensions, employment, gifts and measures of consumption. A key distinguishing feature of the HFCS is that it provides country-representative data, which have been collected in a harmonised way in all Euro Area countries with the exception of Estonia, Ireland and Latvia for a sample of more than 62,000 households. Consequently, the survey is unique as it makes it possible to undertake detailed analyses of issues related to wealth while at the same time allowing consistent comparisons across countries.

The survey was conducted from November 2008 in Spain to August 2011 in Italy. The fieldwork for most countries was 2010. 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 interview mode[1] and applied a stratified random sampling as sampling strategy. Most countries over-sampled the wealthy in order to better assess the right tail of the wealth distribution (HFCN, 2013b, section 4).[2] In this paper, we neither apply an inflation adjustment nor a purchasing power parities (PPP) adjustment of the monetary variables. Table 9.2 of HFCN (2013b) shows that inflation correction has a very small impact. Differences in PPP are taken into account since monetary control variables are included as weighted quintile dummies (calculated separately over each country). Individual answers are subject to logical consistency checks and possible corrections based on editing. 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, 2013b, section 6).

All descriptive and multivariate analyses combine the results obtained from each of the five implicates according to Rubin's rule (Rubin, 1987). Imputations are done for the most important variables such as wealth and income. For these questions all variables necessary to construct the aggregates are imputed in all countries. Marginal effects are calculated at the observation level and then averaged. Moreover, all descriptive statistics and marginal effects are weighted to obtain country and Euro Area representative results (HFCN, 2013b, section 5). We execute weighted regressions, as suggested in case of complex survey designs (Magee *et al.*, 1998).

2.1 Household characteristics

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

Personal variables for the reference person are selected according to the financially knowledgeable person (FKP), 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). 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, even if we observe more household heads aged between 40 and 54 years (30 percent), and fewer household heads aged 70 years and above (20 percent). More than half of the sample is made of couples, defined as married or living with a partner (54 percent); single respondents represent 22 percent of the sample; widowed and divorced follow with 13 and 10 percent, respectively. The average household size is slightly more than 2.3 persons. About one third of household

[1] In the Netherlands CAWI (Computer Assisted Web Interviews) was adopted instead.

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

heads have a low level of education, 41 percent and 24 percent have a medium and high level of education, respectively.

As for labour-related variables, we observe that 5 percent only have a temporary contract. The vast majority of the sample consists of employees (45 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 country with the highest number of weighted households is Germany (29 percent) followed by France (20 percent), Italy (17 percent) and Spain (12 percent).

Table 1 about here

2.2 Institutional variables

Financial institutions and capital markets are key in bringing together savers who want to lend with consumers with a shortage of funds who want to borrow. The functioning of financial intermediation is very likely to affect differences in individual saving behaviour and credit constraints, that typically arise when capital markets are imperfect (Deaton, 1991).

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 and Viren, 1983; Gale, 1998). The quantitative impact of the crowding-out effect of compulsory public retirement programs on saving behaviour has been very difficult to estimate appropriately (see Jappelli, 1995 among others), mainly for lack of proper data (Hurd *et al.*, 2012), and is estimated well below one.

Finally, the impact of public policy on household saving behaviour 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.

To take these considerations into account, we implement a 2-step estimation procedure using institutional variables that might have a direct effect on both saving behaviour and liquidity constraints.[3] We strictly follow Bover *et al.* (2013) in selecting the variables of interest for credit conditions and the rules governing financial institutions. In addition, we include a set of pension-related variables, which have the advantage that they vary both across countries and across households. The full list of institutional factors used in the 2-step procedure is reported in Table 2. Differences in household saving behaviour across countries may be induced by the existence and level of property taxes in place. In particular, home ownership rates (and therefore saving for a home) may be influenced by the loan-to-value ratios for first-time house buyers, transaction costs of buyers and the

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

existence of tax reliefs on mortgage payments. Income tax rates and the overall financial literacy of the population in a specific country may also have effects on household saving behaviour. Life-cycle saving for retirement may be connected to the current and in particular future dependency ratios and replacement rates in each country. Moreover, factors such as the duration of foreclosure proceedings, the existence of a personal bankruptcy law and credit information on borrowers may play a role for households' liquidity constraints.

Table 2 about here

The 2-step procedure uses as a first step a probit model with country-level fixed effects that capture country-specific differences in the distribution of wealth and income as well as other micro factors. In a second step we calculate the predicted values linked to each probit and run regressions of these fitted values from the first step estimation on the macro indicators described above. While the first step of micro level estimations accounts for compositional outcomes within and across each country, the second step analyses pure differences at the macro level that influence saving motives and liquidity constraints 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.

3 Self assessed measures of household saving

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

3.1 Perception of saving

We ask households to report how their overall expenses in the previous 12 months compare with the average expenses they typically face, and with their income.

More than 70 percent of respondents in the Euro Area claim that in the previous 12 months their household expenses were about the same as average household expenses. About 19 percent claim current expenses were higher, and the remaining 7 percent claim they were lower than average expenses. If compared with household income, expenses turned out to be about the same for almost half of the respondents and lower for 41 percent.

About 11 percent of all households report that their expenses were above their income. 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 5 implicates and t-statistics) are reported in Table 3. Some of the control variables turn out to be significant, some at the 1-percent level. Households whose head is female and divorced are significantly more likely to have expenses exceeding income (the marginal effects are 1.4 and 3.7 percentage points, respectively). Singles are significantly less likely to incur in spending more than their

income, with a marginal effect of 3 percentage points. 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 to those households whose head is less than or equal to 40 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 *et al.* (2013) who show that negative saving and holding secured debt or unsecured debt is predominant in the beginning of the life cycle and decreases after the age of 44. There are no significant effects for the level of education. Household size, being self-employed, unemployed, or retired 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 in expenses higher than income.

Table 3 about here

3.2 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 12 months are then asked how they dealt with those expenses.[4]

The majority of households says that they mostly spent out of past savings (55 percent). The next most relevant sources of financing are a credit card/overdraft facility and assistance from relatives/friends (22 percent for each of these categories). Some 13 percent of households, for which average expenses were above average income during the last 12 months, claim they left bills unpaid.

Figure 1 panel (a) shows the distribution of answers by country. 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 (51 percent), and in Cyprus, where it is very common to get a credit card/overdraft facility (more than 90 percent).

Figure 1 about here

[4] 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.

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

We then perform a probit regression analysis for each of the four sources of financing negative saving.[5] Table 4 reports the full set of results. We observe a very significant (at the 1-percent level) wealth effect 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 14 percentage points in quintuile 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 to lower probabilities of asking informal loans from family and friends. The marginal effects are again rather high (between 10 percentage points and 22 percentage points) and non-monotonic. These findings are consistent with Arrondel *et al.* (2013), who find that the ownership rates of all asset categories generally increase with wealth, therefore allowing them to decumulate assets more flexibly in case of need.

We also observe an income effect, although some findings are less intuitive than for the wealth effect. 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 with the probability to take out new formal loans, and negatively with the probability to ask informal loans. This result underlines the fact that income richer households can take out formal loans more easily while the poorer 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.

Table 4 about here

To further elaborate on the role of informal lending channels, the HFCS contains a question on the ability to get financial assistance from relatives and friends. Figure 1 panel

[5] 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.

(b) shows the distribution of the percentages reported by countries.[6] In all countries where this information is available there seem to be a pretty 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 the percentage is below 40.

4 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. 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, 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, a subsidy to building society savings).[7]

Precautionary saving is reported as the most important motive in all countries, followed by saving for old-age provision. The percentage of households reporting precautionary saving as an important reason for saving ranges between 89 percent in the Netherlands and 42 percent in Germany. 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 Netherlands, a country with a relatively substantial household indebtedness.

4.1 Links among saving motives

Up to this point each preference for saving has been considered separately. This implicitly points in the direction of mental accounting: individuals save either for one purpose or for another one. In reality, we may think that saving behaviour should be interpreted in a 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 or alike. In this section we investigate whether and how different saving motives relate to each other, by computing simple pairwise correlations.

We observe very high significance levels for basically all pairs of saving motives.[8] Saving to provide for unexpected events is associated negatively to saving for home purchase

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

[7]Multiple answers are allowed. Respondents may also choose the "Do not know" option or the "No answer" option.

[8]The corresponding table is not reported here to save space, but it is available upon request.

and to saving to build up own business, indicating that these motives for saving are substitutes. A positive effect is nevertheless observed between saving for unexpected events and saving for old-age provision 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 has a positive effect on 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 offsprings. Moreover, Arrondel *et al.* (2013) show that the significance of inheritances for wealth accumulation is remarkable and underlines its key role in the process of persistent wealth inequality. In addition, we observe that the bequest motive is associated positively with the family support motive, so that inter-vivo transfers are complements to bequests.

Saving for home purchase is correlated negatively with saving for old-age provision and with the bequest motive. These relationships are consistent with the idea of the home being both a consumption good (to be liquidated at late stages of the life cycle in case of need) and an investment good (to pass on to offsprings). Saving for holidays is positively related with all other motives, indicating that holidays are luxury goods.

4.2 Subjective perception of saving and importance of saving motives

In Section 3.1 we identified three groups of households on the basis of their subjectively reported saving situation, in particular whether on average their expenses were higher, about the same, or lower than their income. We now analyze the (relative) importance of the several motives for saving discussed above across these groups of households, with a particular focus on those potentially at risk of financial stress. We perform probit regressions for each of the three household categories and control for the saving motives, on top of the main background characteristics described in Table 1. Table 5 reports the results relative to the saving motives only.

Putting money aside for paying off debts is significantly (at the 1-percent) more likely to be indicated as an important reason for saving by the households reporting expenses higher than income (regression (I)). Symmetrically paying off debts is significantly (at the 5-percent level) less likely to be reported as important by the households with positive saving (regression (III)). Another opposite finding between households with negative and positive saving relates to saving for other major purchases (other residences, vehicles, furniture, etc.) and saving for unexpected events: both of these motives turn out to be significantly unimportant for the former group and significantly important for the latter group.

Overall, there is evidence of heterogeneity with respect to the relevance of reasons for putting money aside among households depending on their financial situation.

Table 5 about here

4.3 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.[9] For each of these motives we perform probit analyses to better characterize the main determinants of saving behaviour. Table 6 reports the results.

Age is a relevant determinant for saving behaviour, 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 40) are significantly more likely to report saving for buying a house as a very important motive for putting money aside. Moreover, the age coefficients for saving for old-age provision are estimated to be significant and positive, with marginal effects monotonically decreasing with age. This implies 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 40 years old) and the eldest old (70 and above).

Household size is significantly (at the 1-percent level) and negatively associated to saving for old-age provision, suggesting a potential substitutability between formal (via pension plans) and informal (via intra-family 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 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.

The self-employed are significantly less likely than employees to report saving for home purchase as an important motive for putting money aside. One plausible explanation could be that this motive conflicts with the project to improve their business. 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 home owners 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.

[9]We chose saving for home purchase as 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 very important reasons to put money aside.

Table 6 about here

When considering institutional variables (see Figure 2), 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. These findings are in line with Attanasio and Brugiavini (2003), among others, who find that saving 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, 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 IMF (1997) who find that variables related to t he structure of the tax system and to the financing/generosity of the social security and welfare systems are important determinants of household saving.

Figure 2 about here

5 Credit constraints

We strictly follow Jappelli *et al.* (1998) in defining liquidity-constrained households. We construct four indicators of which three are directly derived from answers given to HFCS respondents and one derives from a calculation based on household net liquid assets. The liquidity constraints indicators are described as follows:

1. "Turned down/discouraged" - The first indicator includes households who gave an affirmative answer to any of the following questions:
    - *In the last three years, has any lender or creditor turned down any request you [or someone in your household] made for credit, or not given you as much credit as you applied for?*
    - *In the last three years, did you (or another member of your household) consider applying for a loan or credit but then decided not to, thinking that the application would be rejected?*
2. "Turned down/discouraged and no credit card/line" - The second indicator excludes from the constrained group all households that report that they have a credit card or a line of credit.
3. "No credit card/line" - The third indicator of liquidity constraints considers only those households that have neither a credit card nor a line of credit.
4. "Low assets" - The fourth indicator includes households whose net liquid assets are worth less than six months' gross income.

In order to better capture the difference across European countries with respect to both institutional settings and cultural habits in formal and informal lending channels, we identify three geographic areas, namely Continental (Austria, Belgium, Germany, France, Luxembourg, Netherlands), Mediterranean (Cyprus, Spain, Greece, Italy, Malta, Portugal), Other (Slovakia, Slovenia, Finland).[10]

Table 7 reports the mean values for each of the four liquidity constraints indicators. We first report the values for the full sample and compare them with the values found by Jappelli *et al.* (1998) for the US. We observe that 8.2 percent of households in the Euro Area report to have been turned down or discouraged from asking for a loan. The percentage drops to 1.4 percent when households with no credit card are considered additionally. About 23 percent of households claim they do not have any credit card or credit line. When the indirect measure of liquidity constraints (indicator 4 - low assets) is considered, we observe that 43.8 percent of households are likely to have problems in getting credit due to their low assets. The patterns of all indicators resemble those by Jappelli *et al.* (1998), despite the fact that they are based on a different time period and on different countries.

From Table 7 we also observe that households living in Mediterranean countries perceive (and report) to be more subject to liquidity constraints than households living in Continental Europe. This might reflect the substantial difference in the structure of formal lending markets between the two macroeconomic regions (as reflected in different levels of loan-to-value ratios), and ultimately the different role and development of informal credit channels. In addition, the financial and economic crisis hit these countries differently, but this aspect is not included in our analysis.[11]

Table 7 about here

We then run probit regressions for each of the four indicators on household characteristics.

Table 8 shows that gender has hardly any effect on the probability of being liquidity constrained. Only when the indirect asset-based indicator of liquidity constraints is used (column IV), females turn out to be significantly more subject to credit constraints. The marginal effect is around 2 percentage points. This finding reflects the lower amount of assets that females typically hold and the more limited credit card holdings by women. Older individuals are significantly less likely to be liquidity constrained for all indicators but the third one. Not having a credit card or a credit line is significantly and positively related to age since older households have had less exposure to these "more recent" payment devices

[10]This classification comes from several studies in the literature about welfare systems (e.g. Esping-Andersen (1990) and Arts and Gelissen (2002), among others). In the empirical analysis Italy and Finland are excluded as data on liquidity constraints are not collected there.

[11]These results should be interpreted in light of the fact that "*data for Spain refer to availability of credit in the last two years. Due to a slightly different implementation of the questions related to credit constraints in the Greek questionnaire, there may be an upward bias towards being refused credit/being credit constrained in the respective estimate. (HFCN (2013b), page 103)*"

over their life cycles. Marital status has a mixed effect on liquidity constraints. Divorced households are significantly more likely to report they are liquidity constrained (indicator 1) and more likely to have low assets at disposal. Higher degrees of education are associated with significantly lower probability of facing liquidity constraints for the third and fourth indicator. For the first two indicators the sign is as expected (negative) but not significant. Household size is significantly and positively related to all indicators of liquidity constraints. Similarly, the respondents who are self-employed and unemployed are more likely to face credit constraints than employed individuals. The findings for retired respondents are mixed, as the estimates are positive and negative depending on the liquidity indicator analyzed, but almost always significant at the 1-percent level. Household income and household net wealth are negatively related to liquidity constraints.[12]

Table 8 about here

The analysis of the role of the institutional variables shows (Figure 3) that, not surprisingly, generous loan-to-value ratios for first-time house buyers can help relax credit constraints. In addition, the existence of personal bankruptcy laws remarkably decreases the probability of being liquidity constrained, highlighting the role of guarantee of this factor on the propensity to give a loan to the household sector.

Figure 3 about here

6 Concluding remarks

The paper studies several aspects of household saving behaviour, of individual motives for saving and of perceived liquidity constraints in 15 Euro Area countries, using the Household Finance and Consumption Survey, a new harmonized data set collecting detailed information on wealth holdings, consumption and income.

We find a rather similar perception of household saving behaviour across countries. The majority of respondents claims that in the previous 12 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, to be less than 40 years old or divorced. In contrast, wealthier households are less likely to incur in expenses higher than income. We further analyze alternative sources of financing negative saving, namely dissaving, borrowing, and leaving bills unpaid. We observe a very significant wealth effect for all sources of financing and with the expected sign. Wealthier households are more likely to cover negative saving by decumulating existing wealth or by dissaving, and 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

[12] With the exception of specification IV where household income has a positive effect instead.

related with the probability to take out new formal loans, and negatively with the probability to ask 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.

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.

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. Consistently 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) 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.

Finally, we find a more heterogeneous impact of credit constraints, that are perceived to be binding for specific groups of respondents, namely the young, least educated, divorced and more numerous households, as well as the self-employed and the unemployed households. We also find that households living in Mediterranean countries report to be more subject to liquidity constraints than households living in Continental Europe. This might reflect different stages of the development of formal lending channels in the two macroeconomic regions. The existence of personal bankruptcy laws significantly decreases the probability of being liquidity constrained, pointing to the role of guarantee of those factors on the propensity to give a loan to the household sector.

In view of the European integration process, our findings reveal that a micro perspective on household savings and liquidity constraints uncovers substantial heterogeneity within and across the population in each country with potential effects on the monetary transmission process. Future research should focus on the changing institutional environments and its impact on household behaviour as the European integration process proceeds.

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Table 1: Summary statistics of household characteristics

Statistics	**Mean**	**Std.Dev.**	**Min.**	**Max.**	**N.Obs**
Male indicator	0.543	0.002	0	1	62,521
Age classes - dummies					
Less than 40 years (Ref. Group)	0.255	0.0017	0	1	62,521
Between 40 and 54 years	0.300	0.0018	0	1	62,521
Between 55 and 69 years	0.243	0.0017	0	1	62,521
Equal/more than 70 years	0.202	0.0016	0	1	62,521
Marital status - dummies					
Couple (Ref. Group)	0.536	0.002	0	1	62,514
Single	0.222	0.0017	0	1	62,514
Divorced	0.106	0.0012	0	1	62,514
Widowed	0.134	0.0014	0	1	62,514
Household size	2.321	0.0001	1	16	62,521
Education level - dummies					
Low education (Ref. Group)	0.349	0.0019	0	1	62,370
Mid education	0.414	0.002	0	1	62,370
High education	0.235	0.0017	0	1	62,370
Temporary contract	0.053	0.001	0	1	57,930
Employment status - dummies					
Employee (Ref. Group)	0.445	0.002	0	1	62,521
Self-employed	0.081	0.0011	0	1	62,521
Unemployed	0.054	0.0009	0	1	62,521
Retired	0.309	0.0018	0	1	62,521
Other	0.102	0.0012	0	1	62,521
Missing employment	0.007	0.0003	0	1	62,521
Financial sector	0.019	0.0006	0	1	62,240
Public sector	0.123	0.0014	0	1	62,240
Household gross income	37,841	196	-449,254	9,804,966	62,521
Household net wealth	230,809	3222	-1,370,892	4,09E+08	62,521
Countries - dummies					
Austria	0.027	0.0007	0	1	62,521
Belgium	0.033	0.0007	0	1	62,521
Cyprus	0.002	0.0002	0	1	62,521
Finland	0.018	0.0005	0	1	62,521
France	0.201	0.0016	0	1	62,521
Germany (Ref. Group)	0.287	0.0018	0	1	62,521
Spain	0.123	0.0013	0	1	62,521
Greece	0.029	0.0007	0	1	62,521
Italy	0.172	0.0015	0	1	62,521
Luxembourg	0.001	0.0001	0	1	62,521
Malta	0.001	0.0001	0	1	62,521
Netherlands	0.053	0.0009	0	1	62,521
Portugal	0.028	0.0007	0	1	62,521
Slovenia	0.005	0.0003	0	1	62,521
Slovakia	0.013	0.0005	0	1	62,521

Personal variables for the reference person are selected according to the financially knowledgeable person (FKP), 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)

Table 2: Institutional Variables

Variable	**Description and Source**
	Financial institutions and credit conditions
TAX ON IMPUTED RENT	Indicator for the existence of tax on imputed rent (ESCB (2009)). Data refer to 2007.
TAX ON PROPERTY	Indicator for existence of tax on property (ESCB (2009)). Data refer to 2007.
TAX ON PROPERTY (%)	In percentage of GDP (ESCB (2012)). Data refer to 2010.
LTV RATIO FOR FIRST-TIME HOUSE BUYER	(ESCB 2009). Data refer to 2007.
TRANSACTION COSTS OF BUYER	Transaction costs refer to average costs. The estimates do not take into account the various tax breaks that exist in countries for certain dwellings (OECD (2011)). Data refer to 2011.
TAX RELIEF ON MORTGAGE	Indicator for whether the interest payments on mortgages are deductible from taxable income and whether there are limits on the allowed period of deduction/the deductable amount (OECD (2011)). Data refer to 2011.
INCOME TAX	Average and marginal income taxes (national average)(OECD (2010)). For average income tax: Table I.3. For marginal income tax: Table I.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 statement: *Economic literacy among the population is generally high*, measured on a 0-10 scale. (International Institute for Management Development). Averages for the period 1998-2005, as reported in Figure 1 of Jappelli (2010).
DURATION OF FORECLOSURE (in number of months)	Period usually required for the completion of foreclosure proceeding. It includes the completion of court proceedings, the sale of the asset and the distribution of the proceeds to the creditors (ESCB (2009)). Data refer to 2007.
EXISTENCE OF PERSONAL BANKRUPTCY LAW	Indicator for legal status of a person or other entity that cannot repay the debts it owes to creditors. In most jurisdictions, bankruptcy is imposed by a court order, often initiated by the debtor (ESCB (2009)). Data refer to 2007.
VARIABLE-RATE MORTGAGE	Share of adjustable-rate mortgages relative to all mortgages (ESCB (2009)). Data refer to 2007.
CREDIT INFORMATION	Depth of credit information on borrowers, i.e. the rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau. The indicator is based on information from banking supervision and measured on a 0-6 scale. Data from Chapter 5.5 of World Bank (2012). Data refer to 2011.
	Pension related variables
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: Gross replacement rates from the first pillar (public). 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. 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)).

Table 3: Household with expenses higher than income - probit estimates

Variable	**(I)**
	Marg.eff.
	(t-stats)
Male	-0.014 *
	(-1.91)
Age 41-55 years	0.002
	(0.24)
Age 56-70 years	-0.002
	(-0.15)
Age 71 years and more	-0.039 **
	(-2.38)
Single	-0.032 ***
	(-2.74)
Divorced	0.037 ***
	(2.98)
Widowed	0.002
	(0.13)
Household size	0.016 ***
	(5.02)
Mid education	0.009
	(0.98)
High education	-0.000
	(-0.02)
Temporary contract	-0.001
	(-0.05)
Self-employed	0.049 ***
	(3.92)
Unemployed	0.073 ***
	(5.65)
Other	0.037 ***
	(2.85)
Missing employment	0.006
	(0.17)
Retired	0.026 **
	(2.07)
Financial sector	0.015
	(0.66)
Public sector	0.012
	(1.01)
Household income - 2nd quintile	0.005
	(0.05)
Household income - 3rd quintile	-0.027 **
	(-2.28)
Household income - 4th quintile	-0.039 ***
	(-3.16)
Household income - 5th quintile	-0.066 ***
	(-4.83)
Household net wealth - 2nd quintile	-0.036 ***
	(-3.46)
Household net wealth - 3rd quintile	-0.030 ***
	(-2.74)
Household net wealth - 4th quintile	-0.035 ***
	(-3.34)
Household net wealth - 5th quintile	-0.034 ***
	(-2.72)
Country FE	YES
Pseudo R2	0.051
N.Obs.	36,100

The table reports probit marginal effects and t-statistics (in parenthesis) on the probability of reporting household expenses in the previous 12 months higher than income.
The dependent variable takes value 1 if household expenses in the previous 12 months are higher than income; 0 if household expenses in the previous 12 months are about the same or lower than income.
Reference groups are reported in Table 1.
Finland and France are excluded from the analysis as the dependent variable is not available in these countries.
Country fixed effects are included but not reported for space reasons.
*** denotes significant at 1-percent level; ** denotes significant at 5-percent level;
* denotes significant at 10-percent level.

Table 4: Financing negative saving - probit estimates

Variable	**(I)** **Out of wealth** Marg.eff. (t-stats)	**(II)** **Out of formal loans** Marg.eff. (t-stats)	**(III)** **Out of informal loans** Marg.eff. (t-stats)	**(IV)** **Unpaid bills** Marg.eff. (t-stats)
Male	0.015	0.028	-0.031	0.039
	(0.45)	(0.67)	(-1.20)	(1.50)
Age 41-55 years	0.006	-0.120 **	-0.012	0.028
	(0.15)	(-2.49)	(-0.38)	(0.84)
Age 56-70 years	0.038	-0.145 **	-0.062	-0.011
	(0.73)	(-2.16)	(-1.43)	(-0.23)
Age 71 years and more	0.042	-0.274 ***	-0.005	-0.045
	(0.60)	(-2.80)	(-0.11)	(-0.85)
Single	-0.044	-0.067	0.044	-0.003
	(-0.86)	(-1.17)	(1.20)	(-0.07)
Divorced	-0.077	0.091	0.039	0.033
	(-1.53)	(1.46)	(1.08)	(0.77)
Widowed	0.025	0.062	0.043	0.048
	(0.44)	(0.71)	(1.20)	(1.15)
Household size	-0.021	0.005	0.015	0.010
	(-1.42)	(0.26)	(1.26)	(1.08)
Mid education	0.009	0.005	-0.000	-0.068 *
	(0.23)	(0.09)	(-0.01)	(-1.89)
High education	0.047	-0.084	0.021	-0.149 ***
	(0.97)	(-1.38)	(0.60)	(-3.16)
Temporary contract	0.060	-0.197 **	0.039	-0.001
	(0.85)	(-2.13)	(0.68)	(-0.02)
Self-employed	0.023	-0.067	-0.011	0.110 **
	(0.38)	(-0.89)	(-0.25)	(2.07)
Unemployed	0.045	-0.133 **	0.049	0.048
	(0.87)	(-1.96)	(1.30)	(1.15)
Other	0.055	-0.188 ***	0.053	0.046
	(0.99)	(-2.68)	(1.27)	(1.10)
Missing employment	-0.108	0.169	0.238 **	
	(-0.73)	(-2.68)	(1.27)	
Retired	0.068	-0.082	-0.117**	-0.073 *
	(1.11)	(-1.13)	(-2.52)	(-1.65)
Financial sector	0.012	-0.125	0.028	-0.072
	(0.12)	(-1.19)	(0.27)	(-0.98)
Public sector	-0.057	0.006	0.021	0.040
	(-0.97)	(0.09)	(0.43)	(0.92)
Household income - 2nd quintile	0.125 ***	0.015	-0.109***	0.067 *
	(2.74)	(0.23)	(-3.56)	(1.95)
Household income - 3rd quintile	0.084 *	0.212 ***	-0.159 ***	0.018
	(1.72)	(3.56)	(-4.17)	(0.43)
Household income - 4th quintile	0.045	0.171 **	-0.143 ***	0.029
	(0.74)	(2.33)	(-3.25)	(0.61)
Household income - 5th quintile	0.130 **	0.107	-0.195 ***	-0.013
	(2.21)	(1.51)	(-4.32)	(-0.28)
Household net wealth - 2nd quintile	0.138 ***	-0.023	-0.104 ***	-0.107 ***
	(3.21)	(-0.42)	(-3.21)	(-3.41)
Household net wealth - 3rd quintile	0.279 ***	-0.166 ***	-0.177 ***	-0.155 ***
	(6.44)	(-2.99)	(-5.34)	(-4.60)
Household net wealth - 4th quintile	0.355 ***	-0.156 **	-0.159 ***	-0.175 ***
	(8.16)	(-2.39)	(-4.28)	(-4.38)
Household net wealth - 5th quintile	0.371 ***	-0.162 ***	-0.223 ***	-0.093 **
	(7.41)	(-2.60)	(-5.99)	(-2.07)
Country FE	YES	YES	YES	YES
Pseudo R2	0.164	0.173	0.211	0.215
N.Obs.	3,620	2,384	3,620	2,549

The table reports probit marginal effects and t-statistics (in parenthesis) on the probability of financing negative saving out of wealth (I), out of formal loans (II), out of informal loans (III), or leaving bills unpaid (IV).
Reference groups are reported in Table 1.
Finland, France and Italy are dropped from all specifications since data on financing negative saving have not been collected.
Spain is excluded from specification (II) since the category "Got some other loan" was not asked.
Cyprus is dropped from the specification (II) since all households in this subsample can rely on a credit card or overdraft facility [4 households cannot, but they have missing values for the category "Got some other loan"].
The Netherlands and Spain are dropped from specification (IV) since this category is not asked in these countries.
Country fixed effects are included but not reported for space reasons.
*** denotes significant at 1-percent level; ** denotes significant at 5-percent level; * denotes significant at 10-percent level.

Table 5: Importance of saving motives on household savings - probit estimates

	(I) **Expenses>income** Marg.eff. (t-stats)	(II) **Expenses=income** Marg.eff. (t-stats)	(III) **Expenses<income** Marg.eff. (t-stats)
Purchase own home	-0.020	-0.067***	0.086***
	(-1.22)	(-2.75)	(3.51)
Other major purchases	-0.030***	-0.015	0.044**
	(-2.65)	(-0.81)	(2.47)
Private business	0.040	-0.016	-0.025
	(1.41)	(-0.28)	(-0.43)
Invest in financial assets	-0.003	-0.073**	0.078**
	(-0.16)	(-2.09)	(2.38)
Provision for unexpected events	-0.027***	-0.004	0.032**
	(-2.82)	(-0.24)	(2.02)
Paying off debts	0.064***	-0.032	-0.057**
	(4.58)	(-1.35)	(-2.36)
Old-age provision	-0.010	-0.048***	0.057***
	(-1.03)	(-3.03)	(3.75)
Travels/holidays	-0.023*	-0.002	0.026
	(-1.96)	(-0.14)	(1.49)
Education/support of children	-0.011	-0.053***	0.066***
	(-0.88)	(-2.96)	(3.68)
Bequests	-0.003	-0.006	0.015
	(-0.19)	(-0.26)	(0.62)
Country FE	YES	YES	YES
Pseudo R2	0.060	0.086	0.132
N.Obs.	21,532	21,532	21,532

The table reports probit marginal effects and t-statistics (in parenthesis) on the effect of saving motives on the household saving situation.
All specifications include household characteristics (see Table 1) and country fixed effects.
Reference groups are reported in Table 1.
Finland and France are excluded from the analysis since the question of household expenses higher than income is not asked.
In addition, Italy is excluded as questions on saving motives are not available.
Spain is dropped as outcome does not vary when saving motives are included.
*** denotes significant at 1-percent level; ** denotes significant at 5-percent level;
* denotes significant at 10-percent level.

Table 6: Determinants of main saving motives - probit estimates

	(I)	(II)	(III)
	Home purchase	**Old-age provision**	**Unexpected events**
Male	0.004	-0.003	-0.014
	(0.50)	(-0.19)	(-0.91)
Age 41-55 years	-0.082***	0.124***	-0.024
	(-7.68)	(6.07)	(-1.14)
Age 56-70 years	-0.126***	0.118***	-0.021
	(-9.24)	(4.82)	(-0.81)
Age 71 years and more	-0.142***	0.104***	-0.067*
	(-7.49)	(3.18)	(-1.91)
Single	0.007	0.033	0.019
	(0.60)	(1.49)	(0.84)
Divorced	0.007	-0.032	-0.025
	(0.46)	(-1.19)	(-0.89)
Widowed	-0.019	-0.011	-0.030
	(-1.35)	(-0.39)	(-1.00)
Household size	-0.005	-0.027***	-0.007
	(-1.46)	(-1.17)	(-0.89)
Mid education	-0.027**	-0.016	0.015
	(-2.24)	(-0.86)	(0.71)
High education	0.006	0.007	0.039*
	(0.45)	(0.34)	(1.67)
Temporary contract	-0.016	-0.097***	0.011
	(-0.95)	(-2.67)	(0.31)
Self-employed	-0.031**	-0.019	0.026
	(-2.35)	(-0.71)	(0.91)
Unemployed	-0.009	-0.095***	-0.072**
	(-0.53)	(-2.98)	(-2.13)
Other	-0.037**	-0.066**	0.045
	(-2.37)	(-2.34)	(1.53)
Missing employment	-0.098***	-0.077	0.012
	(-3.63)	(-1.29)	(0.21)
Retired	-0.032**	-0.097***	0.012
	(-2.29)	(-3.90)	(0.45)
Financial sector	0.027	0.121***	0.028
	(1.19)	(2.68)	(0.59)
Public sector	-0.006	-0.015	0.001
	(-0.45)	(-0.62)	(0.04)
HH income - 2nd quintile	-0.031*	0.014	0.045
	(-1.81)	(0.52)	(1.55)
HH income - 3rd quintile	0.006	0.008	0.074**
	(0.40)	(0.30)	(2.55)
HH income - 4th quintile	0.011	0.059**	0.055*
	(0.73)	(2.15)	(1.66)
HH income - 5th quintile	0.014	0.067**	0.041
	(0.74)	(2.32)	(1.22)
HH net wealth - 2nd quintile	0.021	0.044*	0.068**
	(1.49)	(1.79)	(2.55)
HH net wealth - 3rd quintile	0.020	0.111***	0.062**
	(1.51)	(4.25)	(2.26)
HH net wealth - 4th quintile	0.022	0.151***	0.072***
	(1.36)	(5.76)	(2.64)
HH net wealth - 5th quintile	0.006	0.194***	0.024
	(0.39)	(7.51)	(0.93)
Pseudo R2	0.132	0.085	0.079
N.Obs.	23,921	23,926	23,928

The table reports probit marginal effects and t-statistics (in parenthesis) on 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.
Finland, France and Italy are excluded as questions on saving motives are not available.
*** denotes significant at 1-percent level; ** denotes significant at 5-percent level;
* denotes significant at 10-percent level.

Table 7: Mean values for liquidity constraints indicators

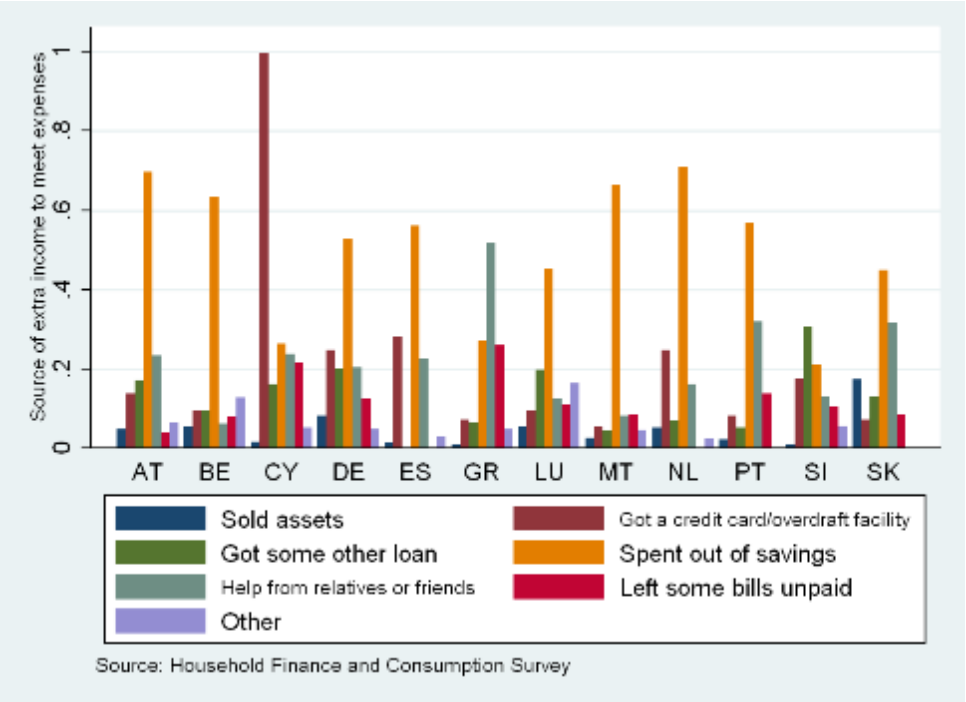
Area	**(1)**	**(2)**	**(3)**	**(4)**
Full sample	0.082	0.014	0.229	0.438
Jappelli et al. (1998)	*0.144*	*0.058*	*0.237*	*0.621*
Continental	0.082	0.011	0.116	0.460
Mediterranean	0.073	0.032	0.473	0.506
Other	0.144	0.051	0.462	0.593

(1) - Turned down/discouraged
(2) - Turned down and no credit card
(3) - No credit card or credit line
(4) - Low assets
Finland and Italy are excluded from the sample
in the calculation of (1) as data are not collected.
Finland, France and Italy are excluded from the sample
in the calculation of (2) as data are not collected.
Finland and France are excluded from the sample
in the calculation of (3) as data are not collected.

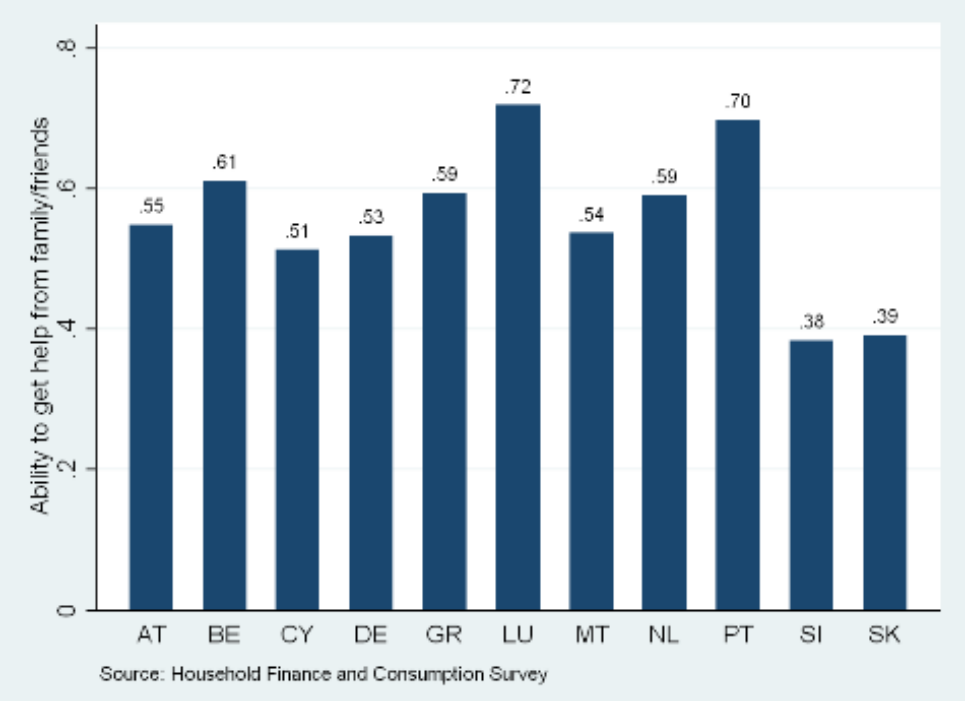
Table 8: Credit constraints indicators - probit estimates

	(I) **Turned down or discouraged**	(II) **Turned down/disc. and no credit card**	(III) **No credit card/line**	(IV) **Low assets**
Male	0.006	0.004	0.002	-0.018**
	(0.92)	(1.23)	(0.28)	(-2.05)
Age 41-55 years	0.003	-0.005	0.014	0.010
	(0.36)	(-1.39)	(1.23)	(0.82)
Age 56-70 years	-0.005	-0.008*	0.027**	-0.023
	(-0.50)	(-1.75)	(2.01)	(-1.61)
Age 71 years and more	-0.047***	-0.019**	0.086***	-0.115***
	(-3.22)	(-2.18)	(4.95)	(-6.21)
Single	0.007	-0.003	0.030**	-0.037***
	(0.86)	(-0.77)	(2.28)	(-3.01)
Divorced	0.041***	0.006	0.022	0.037**
	(4.21)	(1.10)	(1.47)	(2.54)
Widowed	0.009	0.012	0.015	-0.009
	(0.64)	(1.54)	(1.17)	(-0.67)
Household size	0.012***	0.004**	0.014***	0.041***
	(4.71)	(2.14)	(3.30)	(9.32)
Mid education	-0.002	-0.005	-0.095***	-0.056***
	(-0.23)	(-1.55)	(-10.63)	(-5.57)
High education	-0.005	-0.001	-0.116***	-0.111***
	(-0.60)	(-0.27)	(-9.35)	(-8.99)
Temporary contract	0.015	0.007	0.036*	0.024
	(1.35)	(1.30)	(1.95)	(1.21)
Self-employed	0.052***	0.011**	0.020	0.054***
	(4.71)	(2.04)	(1.14)	(3.58)
Unemployed	0.038***	0.022***	0.066***	0.076***
	(3.91)	(4.37)	(4.05)	(4.15)
Other	0.005	0.012**	0.074***	-0.015
	(0.52)	(2.55)	(5.31)	(-0.99)
Missing employment	-0.072*		-0.027	0.019
	(-1.67)		(-0.68)	(0.36)
Retired	-0.029**	0.006	0.058***	-0.043***
	(-2.50)	(0.82)	(4.24)	(-3.05)
Financial sector	-0.039	0.014	-0.021	-0.045
	(-1.35)	(1.00)	(-0.43)	(-1.60)
Public sector	-0.009	0.000	0.004	0.017
	(-0.96)	(0.02)	(0.25)	(1.23)
HH income - 2nd quintile	0.007	-0.004	-0.070***	0.023*
	(0.78)	(-0.79)	(-5.66)	(1.71)
HH income - 3rd quintile	0.002	-0.012**	-0.125***	0.045***
	(0.24)	(-2.52)	(-9.16)	(3.09)
HH income - 4th quintile	-0.021*	-0.018***	-0.179***	0.054***
	(-1.78)	(-3.65)	(-13.83)	(3.58)
HH income - 5th quintile	-0.038***	-0.023***	-0.231***	0.047**
	(-3.02)	(-3.52)	(-15.43)	(2.56)
HH net wealth - 2nd qnt	-0.034***	-0.014***	-0.048***	-0.320***
	(-4.31)	(-3.17)	(-3.81)	(-25.15)
HH net wealth - 3rd qnt	-0.054***	-0.021***	-0.063***	-0.404***
	(-6.63)	(-4.58)	(-5.15)	(-33.82)
HH net wealth - 4th qnt	-0.084***	-0.027***	-0.097***	-0.496***
	(-9.07)	(-5.52)	(-7.96)	(-41.28)
HH net wealth - 5th qnt	-0.099***	-0.031***	-0.132***	-0.597***
	(-9.05)	(-5.08)	(-9.93)	(-42.19)
Pseudo R2	0.124	0.176	0.347	0.195
N.Obs.	43,058	28,242	36,280	57,548

The table reports probit marginal effects and t-statistics (in parenthesis) on the probability of being credit constrained, measured by Turned down/discouraged (I), Turned down/discouraged and no credit line (II), No credit card/line (III), or Low assets (IV).
Reference groups are reported in Table 1.
Finland and Italy are dropped from specifications (I) and (II) since the dependent variable is missing;
Finland and France are dropped from specification (III) since the dependent variable is missing.
*** denotes significant at 1-percent level; ** denotes significant at 5-percent level;
* denotes significant at 10-percent level.

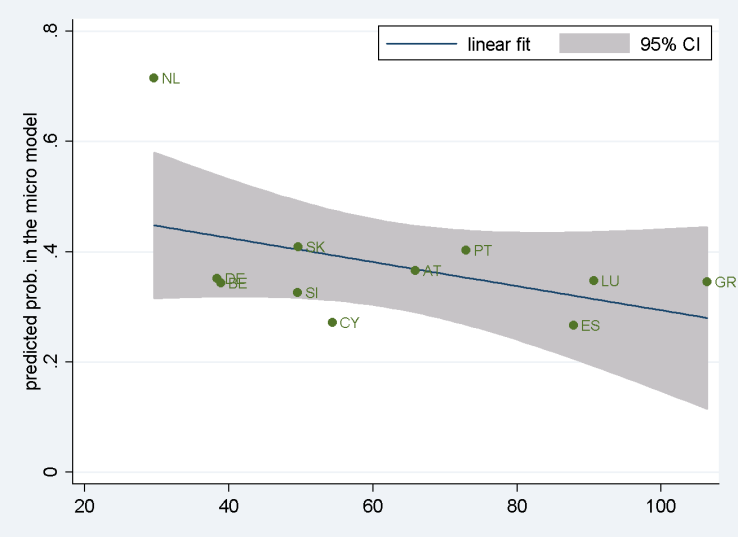


(a) Financing negative saving

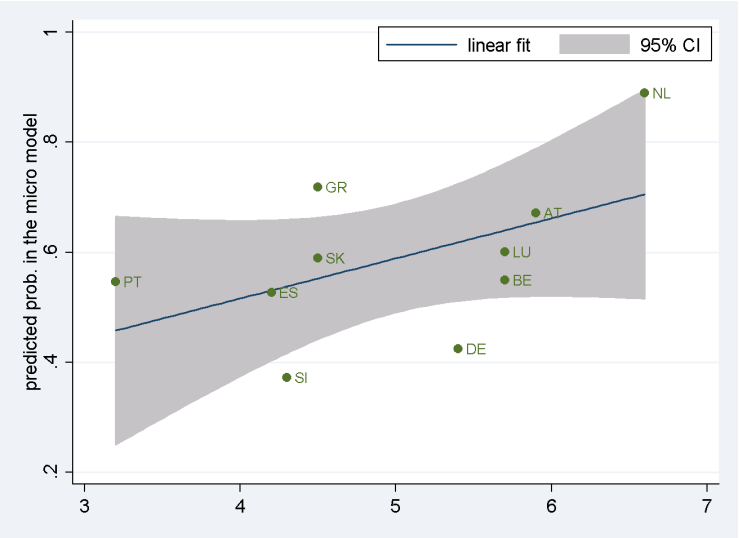


(b) Ability to get financial assistance from relatives and friends

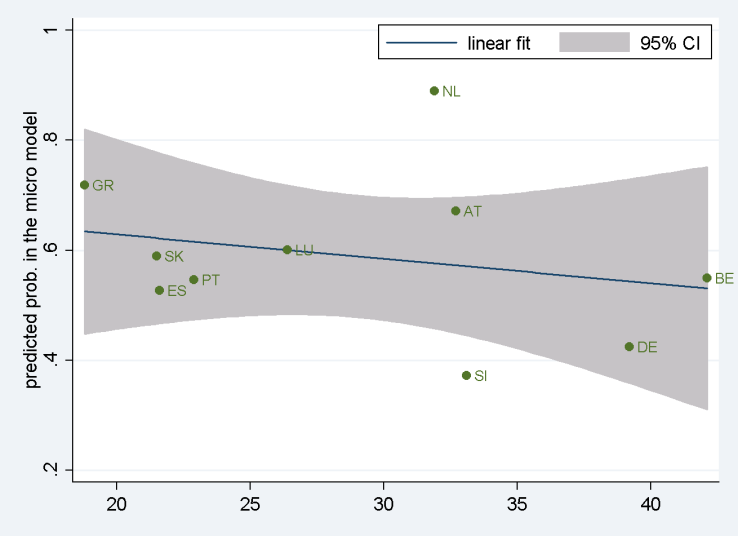
Figure 1: Financing negative saving



(a) Effect of gross replacement rates from the first pillar (public) on saving for old-age provision

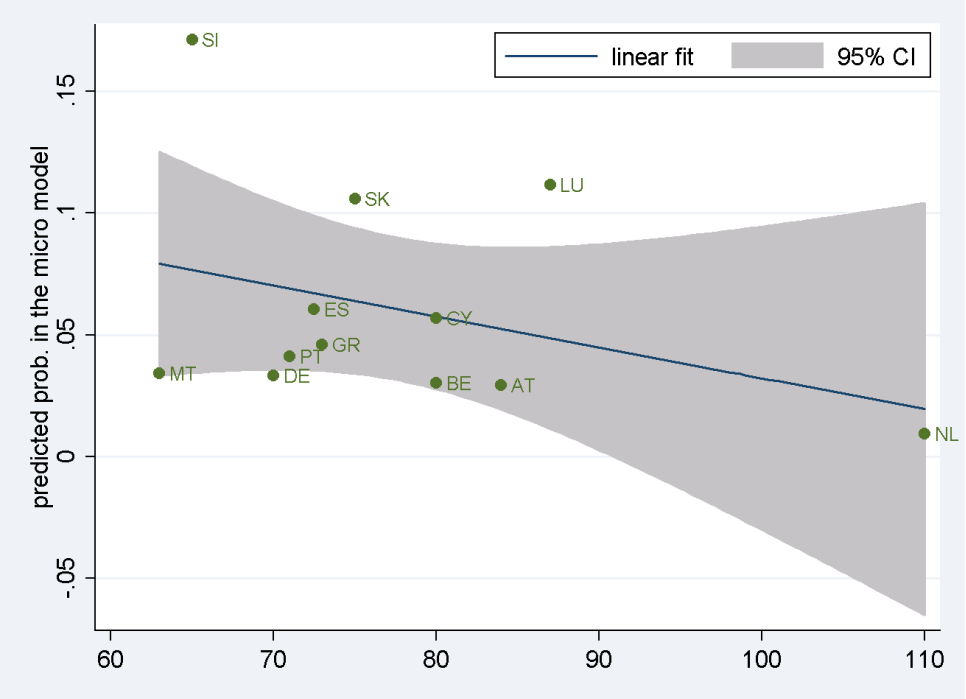


(b) Effect of financial literacy on saving for unexpected events

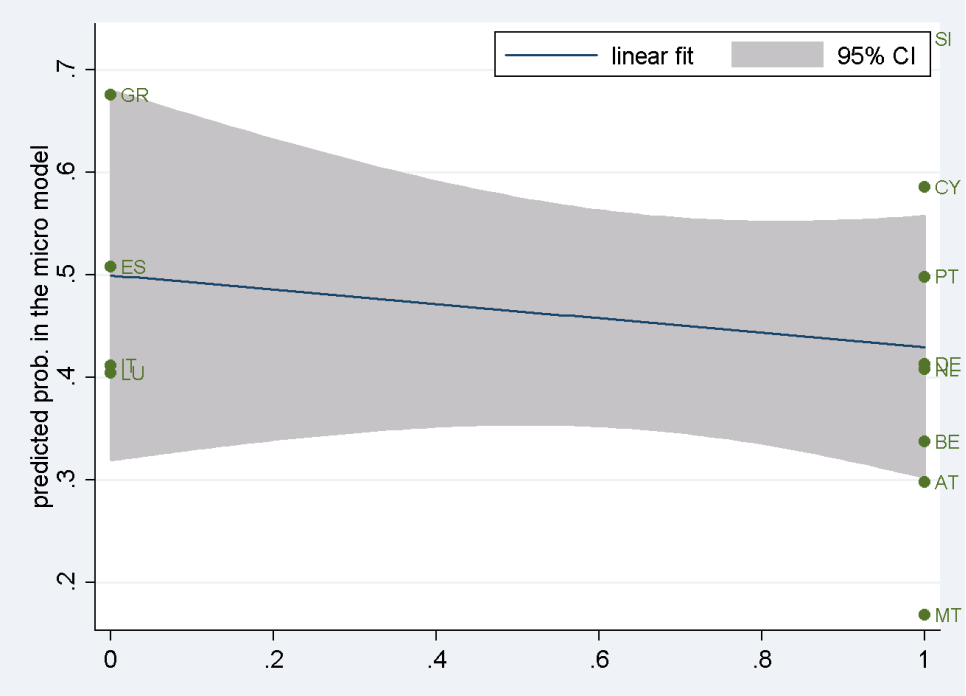


(c) Effect of average income taxes on saving for unexpected events

Figure 2: The effect of institutional variables on saving motives



(a) Effect of loan-to-value ratio for first-time house buyers



(b) Effect of existence of personal bankruptcy laws

Figure 3: The effect of institutional variables on liquidity constraints

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