

Households with insufficient liquid assets: Consumption responses to income changes*

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Abstract

The fraction of households living with insufficient liquid assets is important to understand consumption responses to income changes. Using harmonized data for 23 European countries over 2010–2023 from the Household Finance and Consumption Survey, we investigate the prevalence and characteristics of hand-to-mouth (HtM) households, grouped into non-HtM, poor HtM and wealthy HtM. Our findings indicate significant variability across countries in the shares of HtM households, with the majority in all countries being wealthy households with sizeable wealth in housing and other real estates. We also find that poor HtM households exhibit the highest marginal propensity to consume (MPC), whereas wealthy HtM households display a negative association with the MPC. The relationship for poor HtM households seems to be driven by unobserved factors, whereas the relationship with wealthy HtM is negative and significant even controlling for unobserved preference heterogeneity. These results align with life-cycle models with liquidity constraints and precautionary savings.

Keywords: hand-to-mouth, savings, marginal propensity to consume, HFCS data

JEL classification: D12, D14, D15, E21, G51

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1 Introduction

Households allocate their current income between consumption and savings taking into account the persistence of current changes and the uncertainty about their future income flows. As a result, forward looking consumers adjust their consumption only in response to unexpected and permanent income shocks, against expected and transitory ones. From a theoretical perspective, these implications are formalized under the so-called Life-Cycle and Permanent Income models ([Modigliani and Brumberg, 1954](#); [Friedman, 1957](#)). However, contrary to these economic theories on consumption behavior, anticipated and temporary changes to income components are not smoothed and also trigger meaningful responses in consumption (e.g. see [Blundell et al., 2008, 2016](#); [Jappelli and Pistaferri, 2010](#); [Crawley, 2020](#); [Fagereng et al., 2021](#); [Wu and Krueger, 2021](#); [Commault, 2022](#); [Bryukhanov and Hryshko, 2024](#)).

Households' wealth is composed of a wide variety of (safe and risky) assets that are stored in either financial markets or their homes, with possibly very different degrees of liquidity, returns and adjustment costs. One of the most prominent determinants in explaining the issue of excessive sensitivity of consumption to current income is liquidity constraints ([Attanasio and Weber, 2010](#); [Kaplan et al., 2014](#); [Fuchs-Schündeln and Hassan, 2016](#); [Fisher et al., 2020](#)). Specifically, the lack of liquid assets as a mechanism to self-insure against fluctuations of income through financial assets prevents households from responding to income risks and completely smooth consumption over the life-cycle.

This household heterogeneity in the consumption–income dynamics due to differences in assets holdings, which implies that marginal propensities to consume (MPCs) out of income changes are decreasing in liquid wealth, has stimulated research aiming to identify which consumers are more likely to be liquidity constrained and thus overrespond to changes in the household economic environment. However, any definition of liquidity constraints depends on household characteristics typically not observed in data sources (i.e., preference heterogeneity across households) that could drive the excess sensitivity of consumption and thus contaminate results, such as impatience and risk attitudes ([Aguiar et al., 2025](#); [Jappelli and Pistaferri, 2025](#)). As a result, it is difficult to empirically measure the degree of household-level liquidity constraints and different definitions have been proposed.

For instance, [Kaplan et al. \(2014\)](#) (henceforth, KVV), use the Survey of Consumer Finances (SCF) and show that the fraction of households that are unable to save and have insufficient amounts of liquid wealth is around 31% in the US. These households have been labeled as hand-to-mouth (HtM) households. Furthermore, they show that most of these households are rich because they hold positive, and sometimes substantial, illiquid wealth. They incorporate these households into the HtM pool and call them “the wealthy HtM”. Although traditionally overlooked in the literature because of their

sizeable wealth position due to their large illiquid asset holdings, these consumers are also important in explaining heterogeneous consumption responses, since they are still affected by liquidity constraints, and behave like HtM households because they hold low levels of liquid assets.

Other related approaches that analyze binding financial constraints include the fraction of liquid assets to household income (Zeldes, 1989; Johnson and Li, 2010; Campbell and Hercowitz, 2019; Sokolova, 2023; Jappelli and Pistaferri, 2025), the position across household wealth and income deciles (Johnson et al., 2006; Parker et al., 2013; Christelis et al., 2020; Fisher et al., 2020; Fagereng et al., 2021; Kim and Koh, 2025; Belloc and Molina, 2026), the difficulty in obtaining loans for finance purchases (Jappelli, 1990; Cox and Jappelli, 1993; Paiella and Pistaferri, 2017; Toussaint-Comeau, 2021; Sala and Trivin, 2024; Castaldo and Tirelli, 2025), and the ratio between debt payments relative to household income (Johnson and Li, 2010; Wu and Krueger, 2021; Du Caju et al., 2023).¹

Recent research that updated the KVW estimates supports these figures using the modern Panel Study of Income Dynamics in the US (Aguar et al., 2025; Belloc et al., 2025), which collects detailed information on wealth and consumption at a biennial frequency since 1999. Beyond the US, a limited set of estimates appears, with recent research indicating that this fraction ranges from 23% in Belgium (Cherchye et al., 2024) to 27% in Portugal (Duarte and Pereira, 2023), with Spain falling between these two extremes (Cutanda and Sanchis, 2025). Although Kaplan et al. (2014) primarily focus on the US economy, they also report the shares of HtM across Australia, Canada, the United Kingdom and a limited number of large European countries in 2010, namely Germany, France, Italy, and Spain, with figures indicating that less than 20% of households in Spain and more than 30% of households in Germany live hand-to-mouth, most of them being wealthy HtM households. Extending their analysis in the same set of European countries to 2014, Slacalek et al. (2020) obtain averages between 18.3% in France and 23.6% in Germany, suggesting some variance over time in this measure within countries.

In other geographical contexts, Park (2017) and Song (2020) find shares of HtM households above 30% in South Korea, whereas Hara et al. (2016) obtain that the share of HtM is about 13% in Japan.² Although limited research attention has been devoted to developing countries due to data availability complications and very data-demanding requirements imposed by the empirical strategy of KVW, Cui and Feng (2017) obtain that on average 17% of households are HtM in China, whereas Gupta et al. (2025) use a different approach based on imputation techniques for household income and obtain that about 17–32% are HtM among Indian households. Similarly to developed economies, the vast majority of HtM households consists of wealthy HtM.

¹Table A.3 in Sokolova (2023) presents different definitions used for binding liquidity constraints.

²Song (2020) did not use the same measure to define HtM households.

Within this framework, the purpose of this paper is to investigate the prevalence and characteristics of HtM households using harmonized cross-country data in Europe, grouping them into non-HtM, poor HtM and wealthy HtM. In addition, we analyze household-specific MPCs among these categories, rather than average MPCs for all households, through a survey question that asks what percentage of a transitory, unanticipated, income change would hypothetically flow through either spending or saving choices. This method of eliciting MPCs has gained research attention and allows us to estimate possibly heterogeneous MPCs across different population groups, and compare these results with the predictions of standard consumption models. Related works have shown that holdings of liquid wealth correlate with MPCs (Jappelli and Pistaferri, 2014, 2020; Christelis et al., 2019, 2021; Fuster et al., 2021), but low holdings of liquid assets include both those who have low net worth as well as those who are wealthy HtM. The representative panel of the population allows to control for unobserved preference heterogeneity across households and constitutes a key advantage over previous research (Bunn et al., 2018; Christelis et al., 2019, 2021; Fuster et al., 2021; Albacete et al., 2025; Jappelli et al., 2026).

The remainder of the paper is organized as follows. Section 2 describes the data we use in our analysis and provides descriptive statistics of the shares of HtM households in Europe. This includes shares by country and recent trends over time, alongside analyses of the characteristics of HtM households. Section 3 outlines our econometric strategy, whereas Section 4 empirically analyzes the MPC using regression analysis across these household groups. Finally, Section 5 concludes the paper. The appendices contain additional results.

2 Data and variables

2.1 The HFCS dataset

Our empirical analysis is based on micro-data from the Household Finance and Consumption Survey (henceforth, HFCS), a harmonized cross-country survey coordinated by the European Central Bank, jointly conducted with all the national central banks of the Eurosystem and EU countries that have not yet adopted the euro, as well as various national statistical institutes. The HFCS is a repeated cross-sectional survey of a representative sample of European households, in general and at country level, that has been conducted in five waves: 2010, 2014, 2017, 2021, and 2023.³ For certain countries, it also includes a panel component for those five years. The main purpose of the HFCS is to provide insights into the distribution of household net wealth and its components in the

³The fieldwork period of the survey does not match across countries, both in terms of length and time period, but those years are the most common reference period for the data in each wave.

euro area, so it is particularly suitable to carry out our analysis.⁴

Our study uses data from all the years of the HFCS, the most recent data at the time of writing this article, and we combine the HFCS into a single pooled cross-section. The HFCS contains information on a sample of more than 370,000 households (68,627 were surveyed in 2010, 84,611 in 2014, 91,242 in 2017, 83,162 in 2021, and 45,751 in 2023) across all the euro area countries, as well as Czech Republic, Hungary and Poland, with resulting sample sizes varying in each country. For consistency, given that wealth components are collected at the household level in the data, as is frequent in household surveys (Belloc and Molina, 2026), we construct all of the variables at the household level. For individual-level demographic variables, we attribute to each household variables associated with the household head.

2.2 Sample requirements

Turning to the sample selection of our empirical analysis, we start with a sample of household heads and mimic all of the sample restrictions made by KVV (we refer the reader to their paper for a detailed discussion of the motivation behind those restrictions). In so doing, we select household heads aged 22–79, both included, i.e., who make active consumption and saving decisions. This removes 31,318 households. We do not select our sample based on the working status of the household head or spouse (if any) to minimize sample selection biases and only exclude households who derive all their income from self-employment (i.e., about 6,515 households) to eliminate the impact of any unusual observations, as it is likely that both assets and income from these are not well measured.⁵ Finally, we retain households with complete information on key variables such as demographics, income, work status, and wealth (overall, these restrictions discard around 1.4% of observations/households). The HFCS imputes data for missing values for some variables and uses multiple imputation techniques to minimize missing observations. This consists of 5 different imputed values (‘implicates’) for selected variables. The restrictions should apply consistently to all the implicates per household.

The restrictions leave us with a final sample corresponding to 321,131 household-year observations across 5 waves (2010, 2014, 2017, 2021, and 2023) from 23 European countries, namely: Austria (AT), Belgium (BE), Cyprus (CY), Czech Republic (CZ), Germany (DE), Estonia (EE), Spain (ES), Finland (FI), France (FR), Greece (GR), Hungary (HU), Croatia (HR), Italy (IT), Ireland (IE), Lithuania (LT), Luxembourg (LU), Latvia (LV),

⁴The HFCS is the only database that currently provides the most comprehensive information on income, assets and liabilities for all the population in Europe, compared to alternative datasets such as the European Union Statistics on Income and Living Conditions (EU-SILC), which focuses on income, or the Survey of Health, Ageing and Retirement in Europe (SHARE), which targets respondents aged 50 and above.

⁵In our sample, there are no households with negative or missing income, conditional on the above restrictions.

Malta (MT), Netherlands (NL), Poland (PL), Portugal (PT), Slovenia (SI), and Slovakia (SK).⁶ Of these, 12,120 observations correspond to Austria, 8,044 to Belgium, 5,915 to Cyprus, 2,790 to Czech Republic, 18,655 to Germany, 8,986 to Estonia, 26,236 to Spain, 41,913 to Finland, 45,655 to France, 10,677 to Greece, 16,630 to Hungary, 2,400 to Croatia, 14,945 to Ireland, 34,100 to Italy, 3,045 to Lithuania, 5,922 to Luxembourg, 4,555 to Latvia, 4,477 to Malta, 7,318 to Netherlands, 8,615 to Poland, 20,027 to Portugal, 8,122 to Slovenia, and 9,984 to Slovakia.

2.3 Variable construction

The HFCS collects detailed information on household portfolios and debts. Specifically, the household head or the person most knowledgeable about the family’s finances is asked about ownership of many types of assets and liabilities in various categories (i.e., the participation rate), and about the amounts of wealth held and owed in each category (the intensive margin). Assets include: cash, savings and deposits, stocks, bonds, cash value in life insurance, home value, and other investments such as vehicles, business assets, valuables, and other real estate.⁷ On the other hand, liabilities are divided into mortgage debt and non-mortgage debt, where the former consists of mortgages on the household main residence and mortgages on other real estate properties, and the latter comprises credit line and overdraft debt, credit card debt and other non-mortgage loans.

From the information provided in the survey, we classify assets into liquid and illiquid wealth components. Our division of assets by liquidity largely follows the definitions of previous research using similar data (Kaplan et al., 2014; Slacalek et al., 2020; Cherchye et al., 2024; Aguiar et al., 2025; Cutanda and Sanchis, 2025). Specifically, we define liquid wealth as the sum of cash, balances in sight and savings accounts (i.e., current accounts), mutual fund holdings directly held, shares in publicly traded companies, and corporate or government bond holdings, whereas we measure illiquid wealth as the sum of the value of the household’s main residence and other real estate properties, plus the value of any occupational and voluntary pension plans, the cash value of life insurance policies, and certificates of deposit.⁸ In terms of debt, we consider the balance on credit cards and the balances on any credit lines or bank overdrafts as liquid debts in order to calculate net liquid wealth, and debts related to real estate acquisitions (i.e., mortgages) are considered as illiquid debt to obtain net illiquid wealth.⁹

We define a household net worth as the sum of its liquid and illiquid assets net of

⁶Note that the survey has a panel component, meaning that some of those households are followed over time.

⁷Valuables are defined as valuable jewelry, antiques or art.

⁸We do not include other nonfinancial wealth, such as antiques, artwork, and jewels, or the value of self-employment businesses in this definition, as in Kaplan et al. (2014) or Cherchye et al. (2024).

⁹Financial debts, such as overdrafts or credits tied to household consumption, are more easily liquidated relative to real debt products.

debts. These components of net worth are the key variables in order to properly define and stratify households into poor HtM, wealthy HtM and non-HtM, in terms of either net liquid and illiquid wealth or net worth according to the definitions proposed in [Kaplan et al. \(2014\)](#) and [Zeldes \(1989\)](#), respectively (see Subsection 2.4 below for a discussion on this issue).¹⁰

Furthermore, in order to categorize a given household as either poor or wealthy HtM, we also need information on household income. Our measure of income in the survey is defined as the sum of all income earned by household members over the last 12 months preceding the survey or the calendar year prior to the survey year. It includes both labor and non-labor income sources such as gross income from wages, salaries, self-employment, and pension, unemployment benefits, and regular transfers such as child support alimony and other public transfers, consistent with [Kaplan et al. \(2014\)](#), [Cherchye et al. \(2024\)](#) and [Aguiar et al. \(2025\)](#). We exclude interest, dividends, and other capital income because they are realized more infrequently. All these monetary amounts, i.e. household income and wealth, are deflated and expressed in 2021 constant euros using the Harmonised Index of Consumer Prices (HICP) from the Eurostat data (the annual average index, all items HICP).¹¹

Finally, the HFCS allows us to define a range of other household and individual demographics that may be important in explaining HtM and have been shown to be important determinants of consumption behavior. These variables include the age of the head of the household, a dummy variable indicating whether the household head is employed, variables denoting the maximum educational level achieved by the household head, primary housing tenure status, the marital status through a dummy variable denoting whether the household head is married, the number of individuals in the family unit, and the number of children under the age of 16. Education is categorized into three groups based on the maximum level of educational attainment achieved by the household head on the basis of the 1997 International Standard Classification of Education (ISCED-97) scale: primary or no education comprises heads who do not have secondary education, secondary education includes those who completed secondary education but did not graduate, and tertiary education refers to those with tertiary education. Finally, we control for the primary housing tenure status and define three dummy variables indicating households who own their primary residence without mortgage or rental payments (i.e., outright owners), households who own part of the residence and have a mortgage (homeowners with a mortgage), and households who are renters.¹²

¹⁰In order to decrease non-response rates, the HFCS uses stochastic multiple imputation techniques for all missing observations in households' income, consumption and wealth. We estimate all our results using these imputed values together, adjusting coefficients and standard errors accordingly throughout the paper (see [Trivin, 2022](#); [Du Caju et al., 2023](#); [Sala and Trivin, 2024](#)).

¹¹Available at https://ec.europa.eu/eurostat/databrowser/view/prc_hicp_aind/default/table?lang=en, accessed January 2026.

¹²Others is the reference category.

2.4 Identifying HtM households in Europe

We identify HtM households following the criteria of [Kaplan et al. \(2014\)](#) and split households between HtM and non-HtM based on their holdings of net liquid and illiquid wealth. Specifically, households whose balances of liquid wealth are positive but equal to or less than half their earnings per pay period are classified as HtM.¹³ In addition, we also incorporate the household’s credit limit, and count as HtM any household whose balances of liquid wealth are negative and for whom the sum of their liquid wealth and credit limit (assumed at 0.185 times of annual earnings ([Kaplan et al., 2014](#); [Aguiar et al., 2025](#))) is less than half their earnings per pay period. Next, to distinguish between poor and wealthy HtM among households who do not hold liquid assets (i.e., conditional on being HtM), we rely on their holdings of net illiquid wealth, if any. Specifically, households who hold *any* amount of illiquid wealth are labeled as wealthy HtM, whereas those who hold negative or zero amounts of illiquid wealth are labeled as poor HtM.

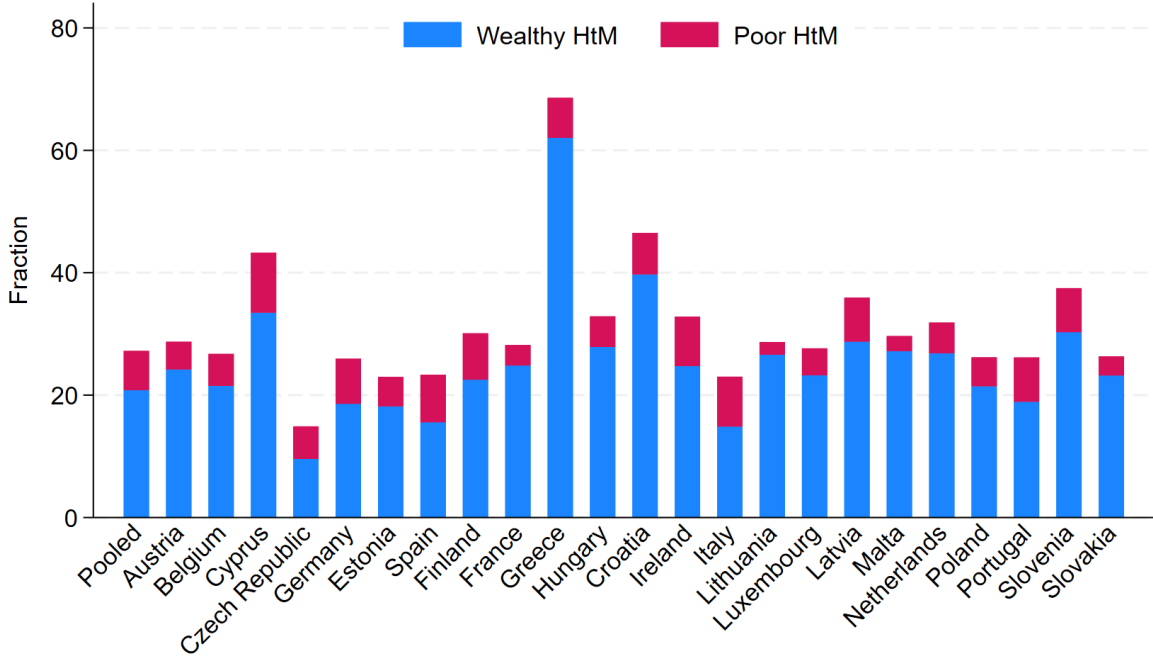
We present summary statistics on HtM households across countries and over time, given the extended time span covered by the dataset. [Figure 1](#) shows the fraction of HtM households in our sample of European countries, distinguishing between wealthy, poor, and total HtM households, using the pooled cross-sectional HFCS dataset over the 2010–2023 period. Across our entire sample, we label 27.2% of households as HtM. The fraction of wealthy HtM is, on average, larger than the share of poor HtM, with 20.8% denoted as wealthy HtM and the remaining 6.4% as poor HtM.

Across all countries, HtM households constitute a quantitatively important share of the population, with HtM shares ranging from roughly 15% in Czechia to nearly 70% of households in Greece. Apart from these countries, other countries such as Estonia, Spain and Italy have low levels under 25%, and others have values around 45%, such as Cyprus and Croatia. Moreover, in every country the majority (i.e., well over 65%) of HtM households are wealthy rather than poor, indicating that these households hold substantial wealth in illiquid assets, a common finding in the existing literature. In particular, the share of wealthy HtM households among all HtM households varies between 64% in Czechia and Italy and 90% in France, Greece, Lithuania, Malta, and Slovakia.

As expected, the variation across countries is significant. Among Western European countries, the fraction of HtM households ranges from 26% in Germany to 33% in Ireland. In Eastern European countries, HtM shares lie between 15% in Czech Republic and 46.5% in Croatia. Southern European countries display the greatest cross-sectional variance, largely driven by Greece and Cyprus, with HtM shares oscillating between 23% in Spain and Italy and 68.6% in Greece.

¹³As in KVV, we set the pay frequency to two weeks.

Figure 1: Shares of total, wealthy, and poor HtM households, HFCS 2010–2023



Notes: The figure shows percentages across HtM households for the different countries. Percentages over *total* households. Data come from the Household Finance and Consumption Survey, 2010–2023. Figures refer to sample averages, calculated using population weights and bootstrapped replicated weights.

Alternatively, Table 1 documents the evolution of the share of HtM households over time for all countries in the sample.¹⁴ Overall, the share of HtM households experiences a decline in our sample over 2010–2023, from 28.5% in 2010 to 21.3% in 2023, especially concentrated during the last two waves of the survey and due to the lower presence of wealthy HtM households. In contrast, the share of poor HtM households is relatively stable over time. Most countries exhibit a decline in the prevalence of HtM households over the sample period, including Austria, Cyprus, Germany, Estonia, Spain, Finland, Hungary, Croatia, Ireland, Italy, Lithuania, Latvia, Malta, the Netherlands, Slovenia, and Slovakia. By contrast, other countries, such as Belgium, France, Greece, Luxembourg, and Portugal, display an increase in these shares over time. Finally, the fraction of HtM households has stayed stable in Poland throughout the observation period.

2.5 Descriptive statistics

Table 2 presents summary statistics for five household groups: the full sample after applying the selection criteria, non-HtM households, HtM households, wealthy HtM households, and poor HtM households. We first compare HtM households with their non-HtM

¹⁴The patterns in some subsets of countries, such as Belgium, Spain, and Portugal, match with recent research at the country level using part of the HFCS (Kaplan et al., 2014; Slacalek et al., 2020; Duarte and Pereira, 2023; Cherchye et al., 2024; Cutanda and Sanchis, 2025).

Table 1: Trends in shares of HtM households

	2010			2014			2017			2021			2023			2010–2023		
	Wealthy	Poor	Total	Wealthy	Poor	Total	Wealthy	Poor	Total	Wealthy	Poor	Total	Wealthy	Poor	Total	Wealthy	Poor	Total
Austria	29.7	4.9	34.5	26.1	5.2	31.3	21.9	3.9	25.8	22.4	4	26.4	21.3	4.7	26	24.2	4.5	28.7
Belgium	22.2	4	26.2	21.5	6.4	27.9	19.7	5.3	25	22.7	5.2	27.9	—	—	—	21.5	5.2	26.7
Cyprus	37.7	5.1	42.8	33.3	10.6	43.9	37.8	11.5	49.4	34.3	11.6	45.9	25.8	10.1	35.9	33.5	9.8	43.3
Czech Republic	—	—	—	—	—	—	—	—	—	9.6	5.3	14.9	—	—	—	9.6	5.3	14.9
Germany	22.7	7.3	30	20.9	8	28.9	19.3	8.1	27.5	15.3	6.1	21.4	14.8	7.2	22	18.6	7.4	25.9
Estonia	—	—	—	21.1	7.3	28.4	18	6.3	24.3	16.8	3.5	20.2	17	2.4	19.4	18.2	4.8	23
Spain	18	5.9	23.8	17	7.6	24.6	14.7	7.8	22.5	15	9.5	24.5	13.4	8	21.4	15.6	7.8	23.3
Finland	27.5	8.9	36.3	21	6.8	27.8	21.6	7.2	28.8	21.9	7.3	29.2	23	8.3	31.3	22.5	7.6	30.1
France	23.4	3.1	26.5	25.7	3.1	28.8	25.8	3.9	29.7	24.4	3.3	27.7	—	—	—	24.8	3.4	28.2
Greece	26.9	9.5	36.5	68.1	10.3	78.4	76.8	5.2	82	74.4	1.3	75.8	—	—	—	62	6.5	68.6
Hungary	—	—	—	29.7	5.3	35	33	6.5	39.5	20.8	3.2	24	—	—	—	27.9	5	32.9
Croatia	—	—	—	—	—	—	44.4	5.9	50.3	35.1	7.7	42.8	—	—	—	39.7	6.8	46.5
Ireland	—	—	—	23.7	12.9	36.5	23.3	8.9	32.2	27.1	3	30.1	—	—	—	24.7	8.1	32.8
Italy	17.8	8.5	26.2	16.3	10.5	26.8	15	9.6	24.6	14.3	5.8	20.1	11.1	6.3	17.4	14.9	8.1	23
Lithuania	—	—	—	—	—	—	26.7	3	29.7	26.5	1.1	27.6	—	—	—	26.6	2.1	28.7
Luxembourg	19	5.7	24.7	23.7	5.5	29.3	23.7	4.4	28.1	25.3	2.7	28	—	—	—	23.2	4.4	27.7
Latvia	—	—	—	39.8	11.3	51.1	36.1	9.7	46.8	20.3	3.5	23.8	18.7	4.1	22.8	28.7	7.2	35.9
Malta	34.9	3	37.9	33.8	2	35.8	36.8	1.4	38.3	22.3	3.8	26.1	14.8	2	16.7	27.2	2.4	29.6
Netherlands	34.7	4.8	39.5	33.2	5	38.2	17.5	5.5	22.9	22.4	4.8	27.1	—	—	—	26.8	5	31.9
Poland	—	—	—	20.7	5.6	26.4	22.2	3.8	26	—	—	—	—	—	—	21.4	4.7	26.2
Portugal	18.4	5.7	24.1	19.6	8.2	27.8	19	8	27	18.7	7.1	25.7	—	—	—	18.9	7.2	26.2
Slovenia	35.4	6.5	41.8	35	8.1	43.1	26.6	8.4	35	29.9	7.9	37.8	24.6	5.2	29.8	30.3	7.2	37.5
Slovakia	22.7	2.3	25	25.1	4.9	30	26.7	3.4	30.1	20.7	2.3	23.1	20.7	2.7	23.4	23.2	3.1	26.3
Pooled	22.4	6.1	28.5	23	7	30.1	21.8	6.7	28.5	20	5.5	25.4	14.4	6.9	21.3	20.8	6.4	27.2

Notes: Data come from the Household Finance and Consumption Survey, 2010–2023. Figures refer to sample averages, calculated using population weights and bootstrapped replicated weights.

counterparts. On average, HtM households are approximately three years younger and display lower household income and labor earnings, consistent with [Aguiar et al. \(2025\)](#). They are also characterized by negative net liquid wealth and substantially lower holdings of illiquid assets, resulting in lower overall net worth. In demographic terms, HtM households tend to be slightly larger, display a more balanced gender distribution among household heads and have lower levels of education, whereas they are less likely to be employed or married. Housing tenure also differs sharply across groups; while around 42% of HtM households are renters, approximately 44% of non-HtM households are outright owners.

Further insights emerge when comparing wealthy and poor HtM households. Specifically, heads of wealthy HtM households are, on average, about three years older and earn nearly twice as much in terms of both household income and labor earnings. Although wealthy HtM households hold substantial illiquid assets (about €157,216 in net illiquid wealth), their net liquid wealth remains negative and is even lower than that of poor HtM households. Notably, wealthy HtM households exhibit the lowest average in net liquid wealth among all groups, highlighting the liquidity constraints that also characterize this group despite their sizable illiquid asset position. Alongside other demographics, wealthy HtM households show the highest employment rates and larger family sizes, whereas poor HtM households have the lowest levels of educational attainment. As expected, poor HtM households tend to be renters (about 78.5% state they are renters), whereas about 65% of wealthy HtM households are home-owners (41% are outright owners and 24% mortgagors).

In [Table 3](#) we look at additional characteristics among those groups of the population and analyze their level of indebtedness, the debt-to-income ratios, and the debt-payments-to-income ratio ([Johnson and Li, 2010](#); [Albuquerque, 2019](#); [Toussaint-Comeau, 2021](#); [Du Caju et al., 2023](#); [Cherchye et al., 2024](#); [Sala and Trivin, 2024](#); [Bartscher et al., 2025](#); [Belloc et al., 2025](#)), along with the presence of binding credit constraints. The debt-payments-to-income is the ratio between the household’s total debt payments and disposable income. We also display the average ratio of total homeowners’ mortgage balances and household income (i.e., the housing debt-to-income ratio). To control for binding financial constraints due to credit constraints, we consider whether the household experienced credit refusal within the last years or did not apply for credit within the last years as it expected to be turned down. (Note that we exclude 31,059 households who have missing values on debt payments or report zero amounts for family income to properly define the debt-payments-to-income and the debt-to-income ratios).¹⁵

The main difference across household groups arises from the composition and burden of debt, particularly in liquid liabilities unrelated to real estate. HtM households hold

¹⁵The survey question about the presence of credit constraints is not available in the HFCS for Italy in 2010 and 2014, for instance.

substantially larger amounts of liquid debt than non-HtM households and the population as a whole. In addition, HtM households also display higher debt payments related to income, as expected, and show a higher probability, more than double, of being credit constrained compared to their non-HtM counterparts. Within the HtM group, important heterogeneity also emerges. Wealthy HtM households hold the largest amounts of both mortgages and liquid debts. However, despite their higher indebtedness, they face a considerably lower debt burden relative to income and a substantially lower probability of being credit constrained than poor HtM households.

Finally, Table 4 reports the transition probabilities across the HtM categories, allowing us to assess the persistence of household types by comparing households observed over two and three consecutive waves. Looking at the diagonal elements, we find the highest persistence among non-HtM households, as indicated by the first element of the main diagonal. In particular, households classified as non-HtM in a given year (Non-HtM_{*t*}, column) have an 86% probability of remaining in that status in the following period and an 87% probability two periods later. In contrast, households classified as wealthy or poor HtM in a given year exhibit only a 38.8–39.6% probability of remaining in the same category in the following observation period. After two periods, persistence in HtM status declines slightly, reflecting a higher chance of transitioning to the non-HtM category. Overall, these findings regarding the persistence of household types are consistent with [Aguiar et al. \(2025\)](#).

Table 2: Summary statistics among household groups

	All	Non-HtM	HtM	Wealthy HtM	Poor HtM
<i>Income and wealth</i>					
Income	46,222.360	49,119.280	38,480.080	42,973.860	23,870.760
Labor income (age 22–65)	37,878.770	41,012.730	30,211.500	34,658.930	16,357.770
Net liquid wealth	18,457	29,890.190	-12,098.990	-13,864.700	-6,358.933
Net illiquid wealth	207,516.200	240,563.100	119,196.400	157,216	-4,387.432
Net worth	225,973.200	270,453.300	107,097.400	143,351.300	-10,746.360
<i>Demographics</i>					
Male	0.558	0.571	0.523	0.527	0.511
Age	51.921	52.778	49.629	50.317	47.393
Primary education	0.120	0.108	0.154	0.141	0.196
Secondary education	0.586	0.567	0.636	0.624	0.676
Tertiary education	0.294	0.325	0.210	0.235	0.128
Employed	0.598	0.602	0.587	0.618	0.486
Married	0.532	0.546	0.494	0.532	0.371
Household size	2.384	2.355	2.460	2.519	2.269
Number of children	0.414	0.382	0.497	0.495	0.505
Outright owner	0.406	0.440	0.313	0.409	0.002
Mortgagor	0.213	0.218	0.201	0.243	0.064
Renter	0.328	0.292	0.423	0.312	0.785

Notes: Data come from the Household Finance and Consumption Survey, 2010–2023. Figures refer to sample averages, calculated using population weights and bootstrapped replicated weights. All monetary figures are expressed in 2021 euros.

Table 3: Indebtedness among household groups

	All	Non-HtM	HtM	Wealthy HtM	Poor HtM
Mortgage debt	31,846.820	32,888.280	29,056.120	31,958.470	18,984.930
Liquid debt	4,764.390	1,430.075	13,699.260	15,562.170	7,235.236
Total debt-to-income ratio	1.568	0.929	3.283	2.554	5.784
Housing debt-to-income ratio	1.376	0.896	2.663	1.960	5.075
Debt-payments-to-income	0.011	0.007	0.023	0.019	0.035
Credit constraints	0.077	0.056	0.131	0.110	0.204

Notes: Data come from the Household Finance and Consumption Survey, 2010–2023. Figures refer to sample averages, calculated using population weights and bootstrapped replicated weights. Debt figures, in levels, are expressed in 2021 euros.

Table 4: Transition rates for HtM households

	Non-HtM _t	Wealthy HtM _t	Poor HtM _t
<i>Panel A: 51,608 households</i>			
Non-HtM _{t+1}	0.861	0.576	0.426
Wealthy HtM _{t+1}	0.120	0.388	0.178
Poor HtM _{t+1}	0.019	0.036	0.396
<i>Panel B: 15,300 households</i>			
Non-HtM _{t+2}	0.870	0.640	0.467
Wealthy HtM _{t+2}	0.109	0.316	0.168
Poor HtM _{t+2}	0.021	0.044	0.365

Notes: Data come from the Household Finance and Consumption Survey, 2010–2023.

2.6 Robustness checks about the definition of HtM

We run many robustness checks on our results for HtM households in Europe. For comparison, we also stratify HtM households in net worth based on [Zeldes \(1989\)](#), and consider that a household is HtM in net worth when their net worth is positive but equal to or less than half their earnings per pay period, or negative with absolute value greater than half their earnings per paid period plus the credit limit ([Kaplan et al., 2014](#); [Aguiar et al., 2025](#)). This highlights the importance of distinguishing between liquid and illiquid asset positions. We also focus on a sample of 246,610 household heads aged 22-65 and use labor earnings as the reference measure for income ([Aguiar et al., 2025](#); [Cutanda and Sanchis, 2025](#)). The percentages, shown in [Table A.1](#) in [Appendix A](#), are significantly lower than those using the definition of KVW. Furthermore, we also change the payment frequency of income payments from two weeks to one month, which increases the fraction of HtM households. Symmetrically, shortening the paid period and setting it to one week decreases the fraction of HtM households. Finally, our main definition of HtM omits other real assets such as the value of self-employment business ([Slacalek et al., 2020](#)) or other assets such as vehicles, jewelry, antiques or artwork, meaning that our baseline shares for wealthy HtM households outlined above may provide a lower bound. As a result, we explore an alternative specification of illiquid asset categories and incorporate those

into the definition of net illiquid wealth, together with 6,396 households whose income is entirely from self-employment (Kaplan et al., 2014). This increases the fraction of wealthy HtM households, while the overall percentage of HtM households remains stable, as in KVV. All these results are included in Table A.2.

3 Econometric strategy

Since the 2017 survey wave, the HFCS collects information on the MPC per household. Specifically, the survey asks the following question: “*Imagine that you unexpectedly receive money from a lottery, equal to the amount of income your household receives in a month. What percentage would you spend over the next 12 months on goods and services, as opposed to any amount you would save for later or use to repay loans?*”, with the potential answers ranging from 0 (not spend anything) to 100 percent (spend the full windfall over the next 12 months), both included. This question does not target a specific category of consumption and refers to both durable and non-durable consumption spending. An additional question is available to measure the marginal propensity to save (MPS), analogous to the previous one (the sum of these two hypothetical choices must add up to 100 percent).¹⁶

This survey question directly elicits the MPC and captures the percentage by which households would raise their consumption upon receiving an unexpected, transitory and positive, income change within a year. A number of recent studies have used survey data and responses to scenarios involving changes to the households’ economic environment to elicit the MPC (see, e.g., Jappelli and Pistaferri, 2014, 2020; Bunn et al., 2018; Christelis et al., 2019, 2021; Fuster et al., 2021; Jappelli et al., 2026) or labor supply responses (Georgarakos et al., 2025).

In contrast to other approaches taken in the literature based on quasi-experimental events that mimic unexpected changes in household budgets (due, for example, to lottery wins, see Fagereng et al., 2021; Golosov et al., 2024) and semistructural methods based on a statistical decomposition of income processes and consumption (Blundell et al., 2008; Ghosh and Theloudis, 2025), this method uses a “reported preference” approach (Fuster et al., 2021) and measures directly how households would modify their expenses in response to a scenario involving an unexpected windfall gain equal to their average monthly income.¹⁷

¹⁶This question is nearly identical to a hypothetical question for spending responses available in the Italian Survey of Household Income and Wealth (SHIW) (Jappelli and Pistaferri, 2014, 2020) and does not refer to a fixed sum of money across households (Crossley et al., 2021; Albuquerque and Green, 2023). A difference with the SHIW is that the question in the HFCS refers to an explicit time frame for the spending response. Similar data also exist for the Netherlands (Christelis et al., 2019).

¹⁷Crawley and Theloudis (2024) and Trivin (2024) survey the advantages and underlying assumptions of this method to infer MPCs, whereas Colarieti et al. (2024) and Ueda (2025) compare self-reported and actual spending behavior.

We go beyond the previous descriptive evidence and further analyze this unique survey question available in the HFCS using formal regression analysis considering a set of household characteristics.¹⁸ Specifically, we estimate the following baseline linear regression model for the MPC by pooled Ordinary Least Squares (OLS):

$$MPC_{ijt} = \alpha_0 + \beta_1 Poor\ HtM_{ijt} + \beta_2 Wealthy\ HtM_{ijt} + \mathbf{X}'_{ijt}\boldsymbol{\gamma} + \mu_j + \tau_t + \varepsilon_{ijt}, \quad (1)$$

where subscript i refers to the household i , subscript j denotes the country of residence j , and subscript t represents the survey year t . The dependent variable, MPC_{ijt} , is the MPC reported by household i residing in country j in period t , whereas $Poor\ HtM_{ijt}$ and $Wealthy\ HtM_{ijt}$, our two key explanatory variables in Equation (1), are two dummy variables each taking value 1 for households who are either poor or wealthy HtM at time t , respectively, and value 0 otherwise. The β_k coefficients, for $k = 1, 2$, are the main parameters of interest from Eq. (1) and measure the percentage point differences in the MPC across poor and wealthy HtM households, relative to their non-HtM household counterparts.

On the other hand, X_{ijt} is a vector of household-level control characteristics, which includes households' heterogeneous demographic characteristics such as the head of household's age, indicators for household heads who are males, their education levels and employment status, the family structure (e.g., marital status, household size and number of children), and the specific housing tenure status through three dummy variables denoting outright owners, mortgagors and renters.¹⁹ Finally, the terms τ_t and μ_j indicate wave and country fixed effects, and ε_{ijt} is an error term.²⁰

4 Results

Table 5 presents the results of estimating Equation (1). In Column (1) we find that HtM households do not display higher MPCs, according to the definition in KVV. In

¹⁸The mean value of the MPC in our sample equals to 44.5 percent, which is close to the average percentages reported in Drescher et al. (2020) and Albacete et al. (2025) using the third wave of the HFCS. Across countries, MPCs range from 29.34 in Portugal to 57.19 in Lithuania. The estimate for Italy is also close to those reported in previous studies (Jappelli and Pistaferri, 2014, 2020). As is frequently the case with subjective perceptions and expectations data (Manski, 2018; Bruine de Bruin et al., 2022; Koşar and O'Dea, 2023; Arellano et al., 2024), our variable concerning the MPC is clustered around specific rounded values like 0 percent (saving all), 50 percent (saving/spending half), and 100 percent (spending all), similar to Albacete et al. (2025). The features are displayed in Table B.1 and Figure B.1 in Appendix B.

¹⁹We control for age using 5-year intervals to capture potential non-linearities in consumption (Kaplan et al., 2014). Our results are robust to the inclusion of log family income and a set of country-year fixed effects.

²⁰An alternative estimator would be a Tobit model (Jappelli and Pistaferri, 2014; Bunn et al., 2018; Christelis et al., 2021, 2025; Albuquerque and Green, 2023; Albacete et al., 2025), as MPCs are constrained to vary from 0 to 100. However, this estimator is not compatible with bootstrapped replicates used in the HFCS.

contrast, HtM households in net worth ([Zeldes, 1989](#)) show higher MPCs, relative to their non-HtM counterparts. Quantitatively, a HtM household in net worth displays 3 more percentage points in the MPC than non-HtM households.

Turning to our main estimates from Eq. (1) shown in Column (3), we find a positive association between the MPC and poor HtM status, and a negative relationship with wealthy HtM households. In particular, we find that poor HtM households display the highest MPC, and being a poor HtM household correlates to an increase by about 6.373 percentage points in the MPC, relative to non-HtM households. That is, these types of households consume the majority of the extra liquidity they receive and display the highest MPC, in line with theoretical predictions of heterogeneous MPCs when people face binding liquidity constraints that prevent them from smoothing consumption fluctuations in response to income changes. On the other hand, wealthy HtM households have MPCs that are 1.238 percentage points lower than those of non-HtM households, a magnitude which is statistically significant at the 5% level. This result implies that the shock is not large enough to relax the financial constraint, which may be a reasonable assumption given the survey question we exploit, and that these households would use part of the income shock to increase their liquid savings due to a precautionary motive, pay off their debts or adjust their balance sheets, rather than spending. Unfortunately, the survey question does not allow us to distinguish among these channels and households who repay debt, similar to [Jappelli and Pistaferri \(2014, 2020\)](#) and [Jappelli et al. \(2026\)](#).

As a result, despite their limited holdings of liquid assets, wealthy HtM households display lower MPCs than the non-HtM. This underscores the composition of household resources for spending responses, as spending is more responsive to liquid assets rather than total wealth ([Kaplan et al., 2014](#)), and adds a new result in the related literature that finds a negative correlation between MPC and liquid wealth or cash-on-hand ([Jappelli and Pistaferri, 2014, 2020](#); [Bunn et al., 2018](#); [Christelis et al., 2019, 2021](#); [Fuster et al., 2021](#); [Albacete et al., 2025](#)). A potential explanation for the above result arises from the significant holdings of illiquid assets across the wealthy HtM that cannot be used immediately to smooth consumption in the event of shocks, meaning that they may differ in their spending purposes from those who do not hold neither liquid nor illiquid assets (i.e., poor HtM households).

Overall, both subsets of households fail to smooth consumption in response to transitory increases in income. This result is contrary to the theory that suggests that the MPC out of a transitory and small income shock will either be relatively small or very close to zero (i.e., a transitory change in disposable income should not trigger meaningful responses in current consumption, whereas the response should be smaller for small shocks in comparison to large ones), and aligns with life-cycle models that incorporate liquidity constraints and precautionary saving purposes to explain the lack of consumption smoothing of agents and high MPCs.

Turning to the rest of our estimates in Table 5, we find that other observable characteristics are associated with MPC heterogeneity. Specifically, we find that older individuals tend to have higher MPCs relative to younger groups, meaning that the MPC increases with age, particularly for the oldest group. Specifically, those in the oldest age group (75 and over) exhibit the largest MPCs compared to the youngest group (less than 25 years old, the reference category). These households have relatively short horizons over which they can smooth their consumption after the shock, so this is a congruent result with the predictions of standard life-cycle models with finite horizons and no bequest motives. We also find that the education level attainment correlates with the MPC, and secondary educated households appear to display a significantly larger MPC than those with primary or no education. Specifically, secondary educated household heads have an MPC 1.7–1.9 percentage points higher than primary educated household heads. On the other hand, we find lower MPCs for employed household heads and mortgagors, possibly due to the tighter liquidity constraints faced by these latter group. Numerically, households headed by someone employed have MPCs that are about 4.4–4.8 percentage points lower than households who are not working, whereas those who do not own their homes outright and have a mortgage declare MPCs which are lower by about 1.8–2.7 percentage points than households in other primary tenure status. Most of these relationships have been reported in previous works ([Jappelli and Pistaferri, 2014, 2020](#); [Bunn et al., 2018](#); [Christelis et al., 2019, 2021](#); [Albuquerque and Green, 2023](#); [Sokolova, 2023](#); [Albacete et al., 2025](#)).

Table 5: Pooled OLS regression results

	(1)	(2)	(3)
HtM	0.549 (0.521)	—	—
HtM in net worth	—	3.034*** (0.959)	—
Poor HtM	—	—	6.373*** (1.055)
Wealthy HtM	—	—	-1.238** (0.596)
Male	0.138 (0.456)	0.111 (0.457)	0.067 (0.459)
25 – 29 years	0.651 (2.427)	0.529 (2.413)	0.439 (2.408)
30 – 34 years	0.755 (2.175)	0.665 (2.152)	0.536 (2.130)
35 – 39 years	2.560 (2.108)	2.527 (2.098)	2.450 (2.095)
40 – 44 years	3.658* (2.054)	3.586* (2.038)	3.397* (2.031)
45 – 49 years	5.427*** (1.997)	5.380*** (1.980)	5.203*** (1.973)
50 – 54 years	4.723** (2.127)	4.673** (2.109)	4.447** (2.089)
55 – 59 years	5.252** (2.099)	5.211** (2.084)	4.952** (2.074)
60 – 64 years	4.191** (2.087)	4.197** (2.069)	4.009* (2.055)
65 – 69 years	4.549** (2.087)	4.600** (2.076)	4.428** (2.060)
70 – 74 years	3.406 (2.174)	3.504 (2.162)	3.383 (2.153)
75 – 79 years	6.061*** (2.200)	6.183*** (2.193)	6.050*** (2.184)
Secondary education	1.709** (0.722)	1.806** (0.730)	1.869** (0.728)
Tertiary education	1.001 (0.777)	1.178 (0.785)	1.208 (0.778)
Employed	-4.785*** (0.655)	-4.647*** (0.651)	-4.415*** (0.643)
Married	0.664 (0.524)	0.687 (0.526)	0.691 (0.523)
Household size	0.025 (0.254)	0.025 (0.257)	0.037 (0.255)
Number of children	0.337 (0.446)	0.297 (0.446)	0.278 (0.444)
Outright owner	0.200 (0.947)	0.742 (0.981)	1.243 (0.988)
Mortgagor	-2.711*** (1.037)	-2.266** (1.053)	-1.825* (1.060)
Renter	-0.513 (1.018)	-0.539 (1.020)	-0.460 (1.018)
Constant	51.201*** (2.324)	50.671*** (2.335)	50.486*** (2.325)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	142,065	142,065	142,065

Notes: OLS estimates. Standard errors in parentheses. Data come from the Household Finance and Consumption Survey, 2017–2023. Sample is restricted to households whose head is between 22 and 79 years old, have no negative family income and whose income is not entirely derived from self-employment. Estimates are weighted using sampling and bootstrapped replicated weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Given that the HFCS has a panel component over the period 2017–2023, we also employ a panel data regression model and rerun Equation (1) further incorporating household fixed effects (e.g. a α_i term in Eq. (1)) that initially remain in the error term and account for household unobserved heterogeneity that is fixed over time, such as risk aversion or discount rates. These features might affect both HtM behavior and consumption decisions simultaneously (Aguiar et al., 2025), thus introducing a potential bias in the OLS estimates of β_1 and β_2 in Eq. (1), which exploits variation both between and within households. (Hausman test results support the validity of the fixed effects specification).

This approach is similar to that taken by Jappelli and Pistaferri (2020), who also have panel data on a sample of Italian households over two years in 2010 and 2016.²¹ An alternative would be a first-difference specification of Equation (1), but we lack enough longitudinal variation within our panel sample since we observe a given household for a maximum of three points over a period comprising seven years (2017, 2021, and 2023), so household fixed effects seem promising in this regard (see Millimet and Bellemare (2026) for a detailed discussion about the choice of panel data models according to the dimension of the panel dataset).

To properly include household fixed effects, we need households to be observed at least twice to identify coefficients. To do so, we use the panel information of the HFCS over 2017–2023 and focus on a sample of household heads observed for at least two periods, which restricts our analysis to an unbalanced panel sample of 56,846 household-year observations from 25,542 households.²² These households refer to stable households (Blundell et al., 2008; Jappelli and Pistaferri, 2020), meaning that they do not experience significant compositional changes over time.

Table 6 shows the results of estimating Equation (1) after incorporating household fixed effects.²³ These estimates are comparable to those in Jappelli and Pistaferri (2020). We find that controlling for household unobserved heterogeneity significantly changes the main results, and previous pooled OLS estimates attenuate the negative relationship between wealthy HtM and MPC, whereas they significantly exaggerate the positive relationship with poor HtM. Specifically, the coefficient estimated for poor HtM households is no longer statistically significant after controlling for unobserved heterogeneity, whereas the estimate for wealthy HtM household remains statistically significant (at the 1% level), negative, and is slightly larger in absolute terms. The comparison between pooled OLS

²¹As argued in Jappelli and Pistaferri (2020), in contrast to Bunn et al. (2018), Christelis et al. (2019), Fuster et al. (2021) and Jappelli et al. (2026), we have data for the same households at (at least) two different points in time, rather than on a different set of MPC questions asked at the same point. For further details on this matter, we refer to footnote 9 in their paper.

²²In principle, the analysis requires at least two observations per household, either consecutive or non-consecutive. However, we focus on households observed for at least two *consecutive* waves due to the HFCS design of the longitudinal household identifier.

²³In principle, household time-invariant variables such as gender or educational level attainment should be excluded. However, the identity of the household head could change between interviews in the HFCS. Household fixed effects subsume country fixed effects.

and household fixed effects results for poor HtM households fits the patterns displayed by [Jappelli and Pistaferri \(2020\)](#) focusing on the negative relationship between the cash-on-hand distribution and MPC ([Jappelli and Pistaferri, 2020](#)), meaning that unobserved factors also account for the observed relationship in the cross-section. The other variable that remains statistically significant is the dummy variable for employed household heads, which indicates that households whose head is employed exhibit MPCs that are 2–2.1 percentage points lower than among households whose head is not employed.

Table 6: Fixed effects regression results

	(1)	(2)	(3)
HtM	-1.749*** (0.561)	—	—
HtM in net worth	—	0.634 (1.327)	—
Poor HtM	—	—	1.055 (1.390)
Wealthy HtM	—	—	-2.208*** (0.605)
Male	1.566* (0.906)	1.540* (0.906)	1.549* (0.906)
25 – 29 years	2.893 (3.312)	2.911 (3.326)	2.928 (3.308)
30 – 34 years	4.693 (3.489)	4.727 (3.502)	4.719 (3.482)
35 – 39 years	3.601 (3.545)	3.644 (3.557)	3.673 (3.539)
40 – 44 years	2.382 (3.595)	2.458 (3.606)	2.467 (3.588)
45 – 49 years	2.703 (3.607)	2.723 (3.619)	2.749 (3.600)
50 – 54 years	1.796 (3.635)	1.788 (3.647)	1.801 (3.628)
55 – 59 years	1.736 (3.686)	1.704 (3.699)	1.749 (3.679)
60 – 64 years	1.413 (3.762)	1.394 (3.777)	1.434 (3.755)
65 – 69 years	2.284 (3.859)	2.298 (3.876)	2.313 (3.852)
70 – 74 years	2.189 (3.984)	2.212 (4.003)	2.213 (3.977)
75 – 79 years	3.713 (4.126)	3.718 (4.142)	3.722 (4.118)
Secondary education	0.109 (1.337)	0.114 (1.336)	0.109 (1.335)
Tertiary education	-0.564 (1.661)	-0.561 (1.661)	-0.566 (1.660)
Employed	-2.120*** (0.720)	-2.075*** (0.719)	-2.082*** (0.719)
Married	0.440 (1.052)	0.435 (1.052)	0.454 (1.051)
Household size	-0.457 (0.445)	-0.435 (0.445)	-0.463 (0.445)
Number of children	0.908 (0.612)	0.883 (0.612)	0.893 (0.611)
Outright owner	0.252 (1.413)	0.441 (1.431)	0.720 (1.426)
Mortgagor	-1.514 (1.553)	-1.281 (1.567)	-1.111 (1.562)
Renter	-1.787 (1.708)	-1.636 (1.708)	-1.585 (1.708)
Constant	43.366*** (4.167)	42.778*** (4.198)	42.932*** (4.169)
Year fixed effects	Yes	Yes	Yes
Observations	56,846	56,846	56,846
Households	25,542	25,542	25,542

Notes: FE estimates. Robust standard errors clustered at the household level in parentheses. Data come from the Household Finance and Consumption Survey, 2017–2023. Sample is restricted to households whose head is between 22 and 79 years old, have no negative family income and whose income is not entirely derived from self-employment, observed for at least two periods. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In Table 7 we show that our main results are robust to different robustness checks involving alternative subsamples or model specifications. Mimicking Jappelli and Pistaferri (2014, 2020), in Column (1), we rerun our Eq. (1) after excluding those who declare MPCs equal to the 50 value, which may indicate respondent indecisiveness and measurement error, whereas in Column (2) we only keep those households who declare that their spending during the year was similar to what they would do in a “normal” year (Castaldo and Tirelli, 2025).²⁴ The reported MPC could depend on the macroeconomic context (Jappelli and Pistaferri, 2014). In our unbalanced panel, the sample includes the year immediately following the pandemic, which may bias the estimates and limit the external validity of our findings. In Column (3) we include an indicator for those who declare a loan rejection or were discouraged from applying for credit in the past 12 months, an important control according to previous estimates on MPCs (Bunn et al., 2018; Jappelli and Pistaferri, 2020), along with total non-durable consumption (in logarithmic terms) as our proxy for permanent income (Jappelli and Pistaferri, 2020; Boehm et al., 2025). Fourth, in Column (4), we restrict the sample to household heads aged 25–64 (Aguar et al., 2025) to minimize the influence of major life-cycle decisions, such as retirement. Finally, respondents were asked to allocate hypothetical lottery wins of different magnitudes between consumption and saving, meaning that the survey design does not allow for alternative uses such as debt repayment. Because some individuals may interpret debt repayment as a form of consumption rather than saving, we assess the robustness of our results by excluding indebted households (Jappelli et al., 2026). The corresponding estimates are reported in Column (5). For the sake of simplicity, we only report the significant coefficients estimated in Table 7, which are robust and very similar.

Table 7: Robustness checks, fixed effects regression results

	No MPCs equal to 50	“Normal” consumption reported	Additional controls	Heads aged 25–64	No households with debt
Poor HtM	2.234 (1.896)	1.170 (1.968)	0.638 (1.410)	1.134 (1.548)	2.789 (2.374)
Wealthy HtM	-2.333*** (0.892)	-2.040** (0.900)	-2.240*** (0.612)	-1.937*** (0.698)	-2.540** (1.229)
Employed	-2.124** (1.058)	-2.725*** (1.051)	-2.107*** (0.728)	-1.974** (0.879)	-2.750*** (1.048)
Credit constraints	—	—	0.671 (0.945)	—	—
Permanent income	—	—	0.783* (0.414)	—	—
Rest of controls from Eq. (1)	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	34,062	26,318	56,088	36,333	24,151
Households	15,770	12,180	25,319	16,547	10,947

Notes: FE estimates. Robust standard errors clustered at the household level in parentheses. Data come from the Household Finance and Consumption Survey, 2017–2023. Sample is restricted to households whose head is between 22 and 79 years old, have no negative family income and whose income is not entirely derived from self-employment, observed for at least two periods. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

²⁴The question is: “*Aside from any purchases of assets, would you say that your household’s regular expenses over the last 12 months were higher than normal, lower than normal, or were they about normal?*”. We keep households who report that their consumption was “*just about normal*”.

Given the harmonized cross-country design of the survey, in Table 8 we analyze the relationship between HtM and MPC behavior across country groups. Specifically, we group countries into Western (Belgium, Germany, France, Ireland, Netherlands), Southern (Cyprus, Spain, Italy, Malta), and Eastern (Estonia, Lithuania, Latvia, Slovakia) European countries.²⁵ We find consistent results across all these country groups.

Finally, we examine the fraction of households reporting MPCs of 0, 50, and 100 percent in Table 9. To do so, we estimate linear probability models with household fixed effects for three separate binary outcomes, each taking the value 1 when the reported MPC equals 0, 50, and 100 percent, respectively. We find that wealthy HtM households are 3.1 percentage points more likely to save the additional income. In contrast, poor HtM households are less likely to report an MPC of 50 percent. This latter finding may reflect either behavioral differences or a lower degree of uncertainty in the interpretation of the survey question (Jappelli and Pistaferri, 2020).

²⁵Limited sample sizes within countries prevent a detailed analysis at the country level. Table B.2 reports the country-level sample composition of the unbalanced panel.

Table 8: Fixed effects regression results across country groups

	Western	Southern	Eastern
Poor HtM	0.654 (2.118)	0.895 (1.887)	6.249 (5.608)
Wealthy HtM	-2.147** (0.863)	-1.861** (0.929)	-4.147** (1.867)
Male	-0.128 (1.564)	2.273* (1.223)	3.105 (2.717)
25 – 29 years	1.899 (4.081)	0.801 (6.617)	11.285 (9.628)
30 – 34 years	4.965 (4.459)	6.181 (6.559)	3.424 (9.989)
35 – 39 years	5.232 (4.655)	3.248 (6.549)	1.893 (10.107)
40 – 44 years	4.032 (4.795)	1.435 (6.535)	2.650 (10.225)
45 – 49 years	4.184 (4.889)	0.992 (6.479)	5.842 (10.160)
50 – 54 years	2.092 (4.955)	1.005 (6.487)	4.619 (10.203)
55 – 59 years	1.190 (5.122)	1.205 (6.492)	7.202 (10.366)
60 – 64 years	1.972 (5.330)	0.066 (6.549)	5.567 (10.617)
65 – 69 years	2.677 (5.587)	1.129 (6.637)	6.134 (10.896)
70 – 74 years	1.408 (5.899)	2.312 (6.739)	4.971 (11.256)
75 – 79 years	4.601 (6.260)	2.840 (6.894)	2.811 (11.799)
Secondary education	6.415** (3.000)	-1.424 (1.504)	-17.818** (8.391)
Tertiary education	4.313 (3.300)	-0.386 (2.127)	-19.791** (8.522)
Employed	-2.830** (1.204)	-2.142** (0.996)	0.438 (2.101)
Married	2.198 (1.665)	-0.152 (1.537)	-3.366 (3.067)
Household size	-0.866 (0.768)	0.088 (0.605)	-1.225 (1.354)
Number of children	1.492* (0.876)	-0.105 (0.953)	2.537 (1.944)
Outright owner	-3.363 (3.250)	1.340 (1.675)	5.713 (4.638)
Mortgagor	-4.424 (3.299)	-1.062 (1.976)	1.992 (5.324)
Renter	-6.288* (3.319)	0.994 (2.265)	-0.004 (6.425)
Constant	42.098*** (6.839)	41.976*** (6.843)	58.033*** (14.049)
Year fixed effects	Yes	Yes	Yes
Observations	25,852	24,868	6,126
Households	12,127	10,352	3,063

Notes: FE estimates. Robust standard errors clustered at the household level in parentheses. Data come from the Household Finance and Consumption Survey, 2017–2023. Sample is restricted to households whose head is between 22 and 79 years old, have no negative family income and whose income is not entirely derived from self-employment, observed for at least two periods. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 9: Linear probability model results

	MPC equal to 0	MPC equal to 50	MPC equal to 100
Poor HtM	0.022 (0.016)	-0.034** (0.016)	0.002 (0.006)
Wealthy HtM	0.031*** (0.007)	-0.002 (0.008)	0.001 (0.003)
Employed	0.024*** (0.009)	-0.014 (0.009)	0.003 (0.003)
Rest of controls from Eq. (1)	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	56,846	56,846	56,846
Households	25,542	25,542	25,542

Notes: Linear probability model with FE estimates. Robust standard errors clustered at the household level in parentheses. Data come from the Household Finance and Consumption Survey, 2017–2023. Sample is restricted to households whose head is between 22 and 79 years old, have no negative family income and whose income is not entirely derived from self-employment, observed for at least two periods. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5 Conclusions

A key parameter driving the excess sensitivity of consumption to income changes is liquidity constraints. This paper studies the prevalence and characteristics of HtM households in Europe employing the methodology developed in [Kaplan et al. \(2014\)](#). To do so, it uses harmonized cross-country data from a total of 23 countries of the HFCS over 2010–2023 and groups households into wealthy HtM, poor HtM, and non-HtM based on their holdings of liquid and illiquid wealth. Contrary to other datasets, the HFCS provides the most comprehensive information on household balance sheets in Europe. We contribute to the literature by adding new harmonized evidence on this fraction of the population across countries in Europe. In addition, we explore whether MPCs of these household groups differ in comparison to non-HtM households, using a hypothetical survey question that captures how households believe they would modify their consumption in response to a transitory, unexpected, income gain. Related literature has typically used semistructural methods based on statistical decomposition and covariance restrictions on the joint distribution of income and consumption growth, which requires very long panels along with information on all the components of the budget constraint rarely available.

We find wide cross-country heterogeneity and that the shares of HtM households oscillate from 14.9% in Czech Republic to 68.6% in Greece. In addition, the vast majority of HtM households are wealthy in Europe, over 60% in all countries analyzed, indicating that most of those households hold positive, and sometimes substantial, amounts of illiquid wealth. This result is consistent with previous works in either developed or developing economies. Specifically, the percentage of HtM that are considered wealthy HtM ranges from 64% in Czech Republic and Italy to 92.8% in Lithuania. Concerning

MPCs, poor HtM households exhibit the highest MPC, as expected due to their limited access to both liquid and illiquid assets, whereas wealthy HtM households have lower MPCs compared to their non-HtM counterparts.

The dataset further enables us to analyze potential biases arising from cross-sectional regressions on the MPC, as it follows a subset of households over time which allows to use within-household variation. Interestingly, we show that pooled OLS estimates exaggerate the estimates for poor HtM, as the initial positive association reported between these two variables is no longer statistically significant once household unobserved heterogeneity is accounted for. Nevertheless, the estimated relationship for wealthy HtM households remains negative and is even higher in absolute terms after controlling for cofounders and household unobserved heterogeneity. The patterns we find align with life-cycle models that incorporate liquidity constraints and precautionary savings.

Overall, these MPC results highlight the joint analysis of liquid and illiquid assets in the household balance sheets to identify constrained households and study the excess sensitivity in consumption to temporary changes in income. As expected, the fraction of poor HtM households correlates positively with the MPC. However, the heterogeneity shown within HtM households suggests that liquid wealth may be an imperfect proxy to define constrained status across households.

This paper offers new results on the fraction of HtM households and their consumption behavior using harmonized cross-country data in Europe. Despite the important findings, we are aware of several limitations arising from this work that may motivate future works. On the one hand, the variable concerning the MPC only considers hypothetical windfall gains and consumption/saving choices on the short-run. The sign of income shocks is an important determinant of the MPC, whereas the windfall gain may induce debt repayments or portfolio allocation, in addition to spending or saving. On the other, similar to other methodological alternatives, limitations concerning this reported approach to estimating MPCs include its external validity and quality of data, despite recent work pointing to the validity of this approach.

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Appendix

A Additional results HtM

Table A.1: Comparison between HtM definitions

Country	Baseline	Zeldes in net worth	Zeldes in labor income
Austria	28.72	7.15	27.03
Belgium	26.74	7.33	27.50
Cyprus	43.28	11.22	43.93
Czech Republic	14.90	6.54	14.12
Germany	25.95	11.69	27.57
Estonia	22.99	6.53	23.18
Spain	23.33	10.13	26.15
Finland	30.10	11.64	33.96
France	28.19	8.90	28.96
Greece	68.58	11.47	67.34
Hungary	32.87	6.07	29.34
Croatia	46.51	7.69	46.53
Ireland	32.83	13.62	36.64
Italy	23.01	8.80	24.31
Lithuania	28.67	2.77	25
Luxembourg	27.65	6.98	30.43
Latvia	35.93	9.41	34.44
Malta	29.64	3.41	30.11
Netherlands	31.86	12.91	34.54
Poland	26.18	5.84	24.06
Portugal	26.16	9.04	25.85
Slovenia	37.48	8.06	36.56
Slovakia	26.33	3.70	23.24
Pooled	27.23	9.41	28.38

Notes: Data come from the Household Finance and Consumption Survey, 2010–2023. Figures refer to sample averages, calculated using population weights and bootstrapped replicated weights. Column (3) focuses on 246,610 households with heads aged 22–65 years.

Table A.2: HtM households, alternative definitions

Country	Main criteria			Pay period of 1 week			Pay period of 1 month			Other illiquid		
	Wealthy	Poor	Total	Wealthy	Poor	Total	Wealthy	Poor	Total	Wealthy	Poor	Total
Austria	24.20	4.52	28.72	15.26	3.50	18.76	39.29	5.97	45.26	26.06	2.52	28.59
Belgium	21.52	5.22	26.74	14.85	4.28	19.13	33.10	6.37	39.47	23.95	2.71	26.66
Cyprus	33.48	9.80	43.28	30.73	9.17	39.90	38.58	10.57	49.15	40.46	2.74	43.20
Czech Republic	9.58	5.32	14.90	7.72	4.67	12.39	14.26	6.56	20.82	12.41	2.50	14.90
Germany	18.58	7.37	25.95	14.17	6.36	20.53	28.26	8.74	37	21.43	4.47	25.89
Estonia	18.17	4.82	22.99	14.67	4.25	18.92	24.31	5.61	29.92	19.36	3.61	22.97
Spain	15.56	7.77	23.33	13.37	7.06	20.43	20.22	9.54	29.76	19.58	3.74	23.32
Finland	22.52	7.58	30.10	20.39	6.75	27.14	26.85	9.15	35.99	26.14	3.78	29.93
France	24.84	3.35	28.18	18.07	2.34	20.40	40.18	4.85	45.03	28.09	0.14	28.23
Greece	62.04	6.54	68.58	60.61	6.12	66.73	64.80	7.24	72.05	64.34	3.25	67.60
Hungary	27.86	5.01	32.87	23.32	4.51	27.83	35.68	6.01	41.69	29.12	3.74	32.87
Croatia	39.73	6.78	46.51	34.68	6.19	40.86	47.95	7.99	55.94	43.97	2.54	46.52
Ireland	24.74	8.09	32.83	20.35	7.11	27.47	31.76	9.70	41.46	29.71	3.07	32.77
Italy	14.86	8.15	23.01	13.60	7.65	21.25	17.83	9.34	27.17	21.57	1.47	23.04
Lithuania	26.60	2.08	28.67	20.28	1.63	21.91	38.09	2.90	40.99	27.21	1.45	28.67
Luxembourg	23.23	4.42	27.65	19.11	3.85	22.96	30.87	5.73	36.60	26.08	1.50	27.58
Latvia	28.74	7.18	35.93	23.10	6.25	29.35	36.93	8.98	45.91	30.61	5.41	36.02
Malta	27.20	2.45	29.64	25.23	2.14	27.36	31.13	2.82	33.94	29.08	0.76	29.84
Netherlands	26.84	5.02	31.86	20.67	4.24	24.91	37.85	6.46	44.31	29.21	2.62	31.83
Poland	21.45	4.73	26.18	17.50	4.24	21.73	30.91	5.48	36.39	22.80	3.38	26.18
Portugal	18.92	7.24	26.16	14.53	6.10	20.63	28.78	9.12	37.89	22.10	3.98	26.08
Slovenia	30.28	7.20	37.48	25.94	6.05	31.99	37.84	8.43	46.28	34.92	2.46	37.38
Slovakia	23.21	3.12	26.33	18.33	2.51	20.84	32.28	3.81	36.09	24.53	1.76	26.28
Pooled	20.82	6.41	27.23	16.71	5.59	22.30	29.50	7.77	37.27	24.42	2.80	27.22

Notes: Data come from the Household Finance and Consumption Survey, 2010–2023. Figures refer to sample averages, calculated using population weights and bootstrapped replicated weights.

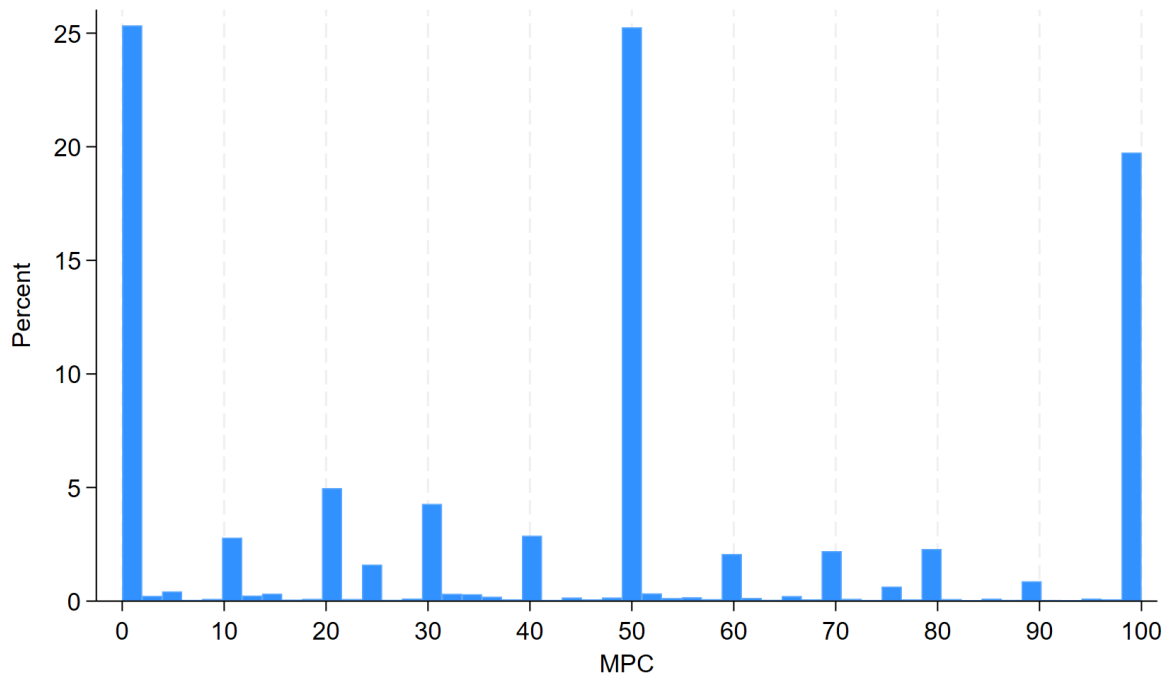
B Additional results MPC

Table B.1: Average values for the MPC

Country	MPC
Austria	47.22
Belgium	40.36
Cyprus	43.78
Germany	47.95
Estonia	37.93
Spain	39.91
France	39.30
Greece	53.41
Croatia	54.97
Ireland	48.88
Italy	47.29
Lithuania	57.19
Luxembourg	35.49
Latvia	49.62
Malta	51.14
Netherlands	33.32
Portugal	29.34
Slovenia	47.93
Slovakia	54.29
Pooled	44.50

Notes: Data come from the Household Finance and Consumption Survey, 2017–2023.

Figure B.1: Histogram of the distribution on reported MPC



Notes: The figure shows the distribution of the responses to the survey question eliciting the MPC. Sample size is 142,065. Data come from the Household Finance and Consumption Survey, 2017–2023. MPC in percent on horizontal axis. Response frequency in percent on vertical axis.

Table B.2: Sample composition by country, unbalanced panel sample

Country	# households	# observations
Belgium	834	1,668
Cyprus	901	2,310
Germany	2,823	7,244
Estonia	1,243	2,486
Spain	4,621	11,052
France	5,173	10,346
Ireland	2,305	4,610
Italy	4,385	10,616
Lithuania	205	410
Latvia	299	598
Malta	445	890
Netherlands	992	1,984
Slovakia	1,316	2,632
Pooled	25,542	56,846

Notes: Data come from the Household Finance and Consumption Survey, 2017–2023. Sample is restricted to households whose head is between 22 and 79 years old, have no negative family income and whose income is not entirely derived from self-employment, observed for at least two periods.