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Poor and wealthy hand-to-mouth households in Belgium

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Abstract

We identify the population shares of poor hand-to-mouth households, wealthy hand-to-mouth households and non hand-to-mouth households in Belgium. We apply the methodology proposed by Kaplan and Violante (2014) and Kaplan, Violante and Weidner (2014) to the Belgian component of the Household Finance and Consumption Survey. We find that the fraction of hand-to-mouth households in Belgium is substantial and predominantly consists of wealthy hand-to-mouth households. We also compare the observable characteristics and marginal propensities to consume (MPCs) of the three household types. We find that Belgian wealthy hand-to-mouth households have characteristics that resemble those of the non hand-to-mouth households, while their MPCs are often more similar to those of the poor hand-to-mouth households. This pleads for giving a unique place to each type of households when evaluating the effects of fiscal policy.

Keywords: savings, hand-to-mouth households, liquidity, marginal propensity to consume (MPC).

JEL Classifications: D12, D15, E2.

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Non-technical summary

So-called “hand-to-mouth” households are characterised by a very high marginal propensity to consume or, in other words, a consumption pattern that is more sensitive to temporary shocks and transfers affecting income. Most low-income households have meagre savings and so are obliged to pass on income fluctuations to consumption. These households are the “poor hand-to-mouth”. However, a second category of such households exists, namely the “wealthy hand-to-mouth”. These are households with substantial illiquid assets, in the form of housing or retirement accounts, but little or no liquid wealth to face a temporary, unexpected drop in income. For this type of household, securing a high return on illiquid assets rather than holding large balances of liquid assets with a low return can be optimal in the long run. Wealthy hand-to-mouth households have typically been missing from theoretical and empirical studies. Nonetheless, due to the illiquid nature of their wealth, their consumption patterns react more strongly to temporary government transfers or income fluctuations.

According to recent survey data (Household Finance and Consumption Survey), one fourth of Belgian households can be considered hand-to-mouth. A majority of these are wealthy hand-to-mouth households which resemble non-hand-to-mouth households in many respects, such as demographics, portfolio composition, liabilities and monthly payments. Consumption responses to a temporary income shock vary across hand-to-mouth status and, in that regard, wealthy and poor hand-to-mouth households are relatively similar. However, when evaluating these differences, it is crucial to account for other characteristics of the households under consideration. In particular, the age of the head of household plays an important role. These findings have far-reaching implications for the design of fiscal policies in a recession, and economic stimulus should take into account not only the income level of households but also their hand-to-mouth status.

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1 Introduction

The effectiveness of fiscal policies, such as fiscal stimulus payments to households, hinges on the joint dynamics of both income and consumption. More specifically, a crucial role is played by households' marginal propensities to consume (MPCs) out of transitory income changes. According to the standard life cycle - permanent income hypothesis (see Modigliani and Brumberg, 1954; Friedman, 1957; and Hall, 1978, for seminal contributions), younger agents, with assets that are relatively small compared with their expected future incomes, should barely react to transitory income shocks given consumption smoothing over time through saving. Permanent shocks in their incomes, on the other hand, should have an immediate, and almost one-to-one, impact on their consumption. Moreover, anticipated shocks should have no impact on the consumption level once they effectively take place. Standard consumer theory therefore predicts that temporary fiscal stimulus payments should be negligible in the aggregate, given that the bulk of the households are expected to have only small MPCs out of transitory income changes, while only a small fraction of constrained households is expected to act excessively to windfall gains.

Empirical research, though, has produced important evidence against these key features of the standard life cycle - permanent income hypothesis, and later refinements like buffer-stock models à la Deaton (1991) and Carroll (1997). Research by, for example, Johnson, Parker and Souleles (2006), Parker, Souleles, Johnson and McClelland (2013) and Misra and Surico (2014) has shown that US households spent about 25% of the fiscal stimulus payments on nondurable consumption in the quarter that they received the payments. This result, together with other evidence based on macro and micro data, is difficult to reconcile with the above mentioned theoretical predictions.

In Kaplan and Violante (2014), a novel structural model is proposed to explain the observed evidence. In their model, an explicit distinction is made between a liquid asset (e.g., cash and bank accounts) and an illiquid asset (e.g., housing and retirement accounts). The liquid asset has a low return but can be accessed easily without any substantial cost, whereas the illiquid asset obtains a higher return but involves high transaction costs to decrease the position held in that asset. The optimal life cycle portfolio choice in this model generates three types of households.

A first type of households is the above mentioned constrained households and are labeled as poor hand-to-mouth households (P-HtM). These households have almost zero liquid wealth and are associated with a high MPC out of temporary income shocks. A second type of households is the wealthy hand-to-mouth households (W-HtM). These households hold substantial amounts of illiquid wealth but have barely any liquid assets. These households also have a high MPC out of transitory income shocks. Because of their sizeable wealth position, wealthy hand-to-mouth households have typically been missed in earlier theoretical and empirical work. Interestingly, the existence of wealthy hand-to-mouth households can be theoretically explained in the sense that it might be optimal for a household to secure the high return on illiquid assets rather than holding large balances of liquid assets that have a low return to avoid the welfare loss of consumption fluctuations. As Kaplan and Violante (2014) remark, this coincides with earlier calculations by Cochrane (1989) and Browning and Crossley (2001) that in some contexts the utility loss from setting income equal to consumption is negligible. The third type of households, finally, is the non hand-to-mouth households

(N-HtM), who have a low MPC given their wealth position, and who behave in line with the standard life cycle - permanent income hypothesis.

Making use of data drawn from the 2001 Survey of Consumer Finances, Kaplan and Violante (2014) estimate that about one third of US households fit the profile of wealthy hand-to-mouth households. This substantial share can generate strong aggregate consumption responses to the fiscal stimulus payments referred to above. In a follow-up study, Kaplan, Violante and Weidner (2014) quantify this by estimating the consumption responses to transitory income shocks for the three types based on the methodology of Blundell, Pistaferri and Preston (2008). Subsequently they use this to conduct a series of policy simulations for three alternative macroeconomic models and demonstrate that ignoring wealthy hand-to-mouth households leads to a biased view on the impact of fiscal stimulus policies on aggregate consumption.

While deep and insightful, the empirical strategy of Kaplan, Violante and Weidner is very data-demanding. Particularly, they measure households' MPCs by applying Blundell, Pistaferri and Preston's structural econometric methodology to a rich US panel data set on household income and consumption (i.e. the Panel Study of Income Dynamics; PSID). Unfortunately, this strong data requirement makes it very difficult to replicate their analysis for other countries. For that reason, in the current paper we present an alternative empirical strategy that is based on Jappelli and Pistaferri (2014) and is substantially easier to implement.¹ More precisely, similar to Kaplan, Violante and Weidner, we identify poor hand-to-mouth, wealthy hand-to-mouth and non hand-to-mouth households by making use of data from the Household Finance and Consumption Survey (HFCS). This data set covers a large set of countries as it is administered by the central banks of the Eurosystem and national statistical institutes. Then, we measure households' MPCs by making use of a question that was newly added to the third (2017) wave of the HFCS. The question asks, for every household, how much of a lottery gain would be spent in the next year on goods and services, so directly eliciting the household's MPC (see also Drescher, Fessler and Lindner, 2020). This easy-to-apply empirical approach makes it feasible to redo Kaplan, Violante and Weidner's analysis for any country that is contained in the HFCS. In our opinion, this may significantly contribute to the exciting research agenda on inter-household heterogeneity in consumption responses to transitory income changes.

We focus on the particular case of Belgium in our empirical analysis.² Home ownership is the main illiquid asset in this country. According to Eurostat, in 2020 71% of Belgian

¹Jappelli and Pistaferri (2014) consider the Italian Survey of Household Income and Wealth (SHIW), while we make use of the Belgian component of the Household Finance and Consumption Survey (HFCS). Moreover, these authors do not specifically investigate differences in MPC between P-HtM, W-HtM and N-HtM households, which is a core focus of the current study.

²Two recent empirical studies that are closely related are Song (2019) and Du Caju, Périlleux, Rycx and Tojerow (2022). Song (2019) focuses on a similar research question by using South Korean data. A main methodological difference is that Song applies the structural approach of Blundell, Pistaferri and Preston (2009) to identify households' MPCs (thus following Kaplan, Violante and Weidner, 2014). As argued above, this empirical strategy is data-intensive, which restricts its applicability; we circumvent this in the current study by exploiting the specificity of the third (2017) HFCS wave. Similar to our study, Du Caju et al. (2022) also use the Belgian component of the HFCS. However, they specifically investigate the empirical relation between households' indebtedness and their consumption, which is quite different from (and complementary to) our question of focus.

households owned the home they were living in, which is slightly above the European average of 70%. However, 42% of Belgian households, meaning 60% of all home owners, have an ongoing mortgage for their home; this is among the highest rates in Europe and far above the European average of 25%. One likely explanation is the generous mortgage interest tax relief policy that was significantly reformed from 2015 onwards and even abolished in some regions thereafter (see Barrios et al., 2019).

These statistics suggest that there may well be a quite sizeable fraction of wealthy hand-to-mouth households in Belgium, which –in our opinion– makes it an interesting case in point. Our empirical objective is twofold. Firstly, we want to identify the shares of poor hand-to-mouth, wealthy hand-to-mouth and non hand-to-mouth households in Belgium. This research question is important in its own right, as motivated by the cross-country heterogeneity reported by Kaplan, Violante and Weidner (2014). Secondly, we want to analyze the MPCs out of transitory income shocks for the different household types in Belgium; this will demonstrate the practical usefulness of our easy-to-apply empirical strategy. Follow-up research may then refine our insights by using later HFCS waves for Belgium or by comparing our Belgian results with similarly obtained results for other countries.

In Section 2 we describe our data and the various definitions used. Section 3 discusses the identified shares of poor hand-to-mouth, wealthy hand-to-mouth and non hand-to-mouth households in Belgium. Section 4 elaborates on this discussion by documenting the observed heterogeneity across these types of households. Section 5 focuses on the MPCs out of a transitory income shock. Section 6 summarizes our results and provides some further discussion.

2 Data and definitions

Data set. We base our analysis on the Belgian component of the Household Finance and Consumption Survey (HFCS). The HFCS is a cross-sectional survey that collects information on the assets, liabilities, income and consumption of households in twenty countries, mostly from the euro area. In this study, we make use of the first three waves, which were gathered in 2010, 2014 and 2017.³

To make our results directly comparable, we follow the sample selection rules of Kaplan, Violante and Weidner (2014). More specifically, we dropped all households with a household head who is younger than 22 years old or above 79 years old. We further drop all households that have a negative income or whose income is entirely originating from self-employment. Following these sample selection rules we retain 5945 observations out of the original 6894 observations across the 3 waves.⁴

Definitions. The main distinction between hand-to-mouth and non hand-to-mouth households is that the former hold little or no liquid wealth, while the latter have quite substantial investments in liquid assets. Within the first category, poor and wealthy hand-to-mouth

³A fourth wave of the HFCS was collected in 2020, but the data were not yet publicly available at the time of the current study. Moreover, we fear that the COVID pandemic that started in 2020 may have substantially impacted the patterns in these data, making it difficult to compare this fourth wave to the earlier waves.

⁴A more detailed description of the dataset cleaning procedure can be found at <https://gregkaplan.me>.

households differ from each other in terms of their investments in illiquid assets: while the former have no or only a low amount of illiquid assets, the latter may have significant amounts of illiquid assets on their balance sheets.

These simple definitions hide a somewhat challenging identification issue. Consider a prime age hand-to-mouth household that gets most of its income from market work. When the wage earners in the household receive their salaries at the end of the month, the household sits on relatively substantial liquid assets. If that income is spent continuously between this payment and the payment in the next period, this potential hand-to-mouth household will be characterized by positive balances of liquid wealth. This mismatch between discrete income payments and continuous spending will be reflected by the observed savings patterns in the data.

Following the identification strategy of Kaplan and Violante (2014), we will define hand-to-mouth households as those households whose average liquid wealth is positive but less than half their income per pay period. Households with an average liquid wealth that exceeds half of their income will be considered as non hand-to-mouth households. One should be aware though that the identification of the share of hand-to-mouth households could still be refined by accounting of precommitted expenditures, such as expenses on rent, mortgage or utility bills. Next, to distinguish poor from wealthy hand-to-mouth households, we look at the amount of net illiquid wealth. If this value is positive, the hand-to-mouth household is considered wealthy, while we give the label poor if the net amount of illiquid wealth is negative.⁵

We end this section by listing the exact definitions of the various financial concepts mentioned above.

Income: Household income consists of gross earned income such as wages, salaries, income from self-employment, pension income, and unearned income from unemployment benefits, and regular transfers like alimony, child benefits and other public transfers. Following Kaplan, Violante and Weidner (2014), income from interest and dividends is excluded because of their infrequent realizations.

Liquid assets: Liquid assets contained in the HCFS are cash, current accounts, mutual fund holdings, shares and company or government bonds. The values we use are reported directly in the HCFS.

Net illiquid wealth: Net illiquid wealth is the sum of the value of the household’s main residence and other properties net of mortgages or other loans used to acquire these properties, the value of any occupational or voluntary pension plan, the cash value of life insurance policies, certificates of deposit, and saving bonds.⁶ Note that all these asset categories are faced with important transaction costs associated with portfolio position changes.

⁵We follow Kaplan and Violante (2014) by qualifying a hand-to-mouth household as “wealthy” as soon as it has any positive illiquid wealth. At this point, it is worth highlighting that these households are not necessarily rich.

⁶Properties stand for house, flat, apartment building, industrial building and warehouse, building plot, field, garden, woodland, farmland, garage, shop, office, hotel, and farm.

Monthly consumption flow: The monthly consumption flow of a household is defined as the sum of the monthly amounts spent on food at home and outside home, rent, mortgages and other loans.

3 Hand-to-mouth households in Belgium

We first present some descriptive statistics for our data set. Subsequently, we discuss our identified shares of hand-to-mouth households and provide some further insights about what determines them. We end with some robustness checks about our definition of hand-to-mouth households.

Income and wealth. Table 1 gives some descriptive statistics on the financial concepts for the HFCS Belgian households pooled across the three waves. The first row reports the total income of the household whose head is between 22 and 79 years old. The rest of the table applied to prime-age households (defined as having a head of household between 22 and 59 years old). Note that all monetary variables are deflated using the consumption price index with base year 2005 and sample weights are used to obtain representative statistics.⁷ The average yearly gross income turns out to be equal to EUR 51 428, whereas 50% of households have an income larger than EUR 43 014. To account for differences in household size and age structure across households, we also calculated equivalized incomes, by dividing households' incomes by their OECD modified equivalence scale.⁸ We observe a skewed distribution with an average equivalized income of EUR 27 843 and a median equivalized income of EUR 23 613.

Table 1 further demonstrates that households have on average a net worth that is equal to more than six times their gross yearly income. On average, households have a net worth that equals EUR 311 868. We have a distribution that is skewed to the right, which is reflected by the fact that the median of EUR 207 814 is below this average. The bulk of this net worth comes from net illiquid wealth, which equals on average EUR 273 182. As expected, the biggest component in the net illiquid wealth is net housing (EUR 214 464). Net liquid wealth, on the other hand, is much smaller and equals EUR 38 686.

The shares of poor and wealthy hand-to-mouth households. The fraction of hand-to-mouth households (HtM) in Belgium is shown in Figure 1. The left-hand panel of the figure shows the fractions of poor hand-to-mouth households and wealthy hand-to-mouth households for the three waves of our survey. The fraction of hand-to-mouth households is about 25% for the three waves, with 25.5%, 27 %, and 24% for the first, second and third wave respectively. The bulk of these are wealthy hand-to-mouth households (about 20% of the population), while the remaining are poor hand-to-mouth households (4.8%, 6.7%, and 5.7% of the population for the first, second and third wave respectively). The split between

⁷Except for the regression results in Table 6 and 7, we have used population weights in our tables and figures. More precisely we use the variable HW0010 as household weight.

⁸The OECD modified equivalence scale attaches a value of 1 to the first adult in the household, a value of 0.5 to any other household member aged 14 or more and a value of 0.3 to household members aged 13 and below.

	Mean	Median	Fraction of positive values
Total income (age 22-79)	55 134	39 643	0.992
Labor income (age 22-59)	51 428	43 014	0.990
Labor income equivalized (age 22-59)	27 843	23 613	0.990
Net Worth	311 868	207 814	0.977
Net liquid wealth	38 686	2 111	0.945
Cash, checking, saving accounts	5 033	1 385	0.970
Directly held stocks	6 873	0	0.118
Directly held bonds	7 092	0	0.056
Net illiquid wealth	273 182	200 428	0.933
Housing net of mortgages	214 464	160 730	0.821
Retirement accounts	8 472	0	0.452
Life insurance	14 673	0	0.473

Table 1: Descriptive statistics on household income, liquid and illiquid wealth holdings. HFCS 2010-2017, pooled.

poor and wealthy hand-to-mouth households remains stable over the period 2010-2017. With a fraction of about 25% of hand-to-mouth households, Belgium is situated somewhere within the ranges observed for the countries that are analyzed by Kaplan, Violante and Weidner (2014). At the high end of the distribution, they observed slightly less than 35% of hand-to-mouth households in the US and the UK in 2010. At the low end were countries like Australia, France and Spain, with about 20% of hand-to-mouth households (see their Figure 9).

The right hand panel of Figure 1 shows that most of the wealthy hand-to-mouth households have both housing wealth and other forms of illiquid wealth. Only a small fraction of the wealthy hand-to-mouth households have only housing wealth and a somewhat larger fraction of households only have other illiquid wealth. Not surprisingly given the Belgian context, this means that slightly more than 75% of the wealthy hand-to-mouth households have housing wealth.

Let us next have a closer look at some descriptive statistics for the different types of households based on their hand-to-mouth status. Table 2 presents descriptive statistics for the same variables as in Table 1 but now separately for the poor, wealthy and non hand-to-mouth households. Interestingly, the highest income is observed for the wealthy hand-to-mouth households. As for the poor hand-to-mouth household (equivalized) income is substantially lower than for the other two groups. The latter is in line with our expectations and definitions. Next, poor hand-to-mouth households have negative liquid and illiquid wealth, while the wealthy hand-to-mouth households have a low net liquid wealth and a substantial positive net illiquid wealth. Finally, the non hand-to-mouth households have both substantially more liquid and illiquid wealth than the wealthy hand-to-mouth households.

Given the importance of housing wealth, we further analyze the heterogeneity in the shares of households owning their main residence by hand-to-mouth status in Table 3. Every

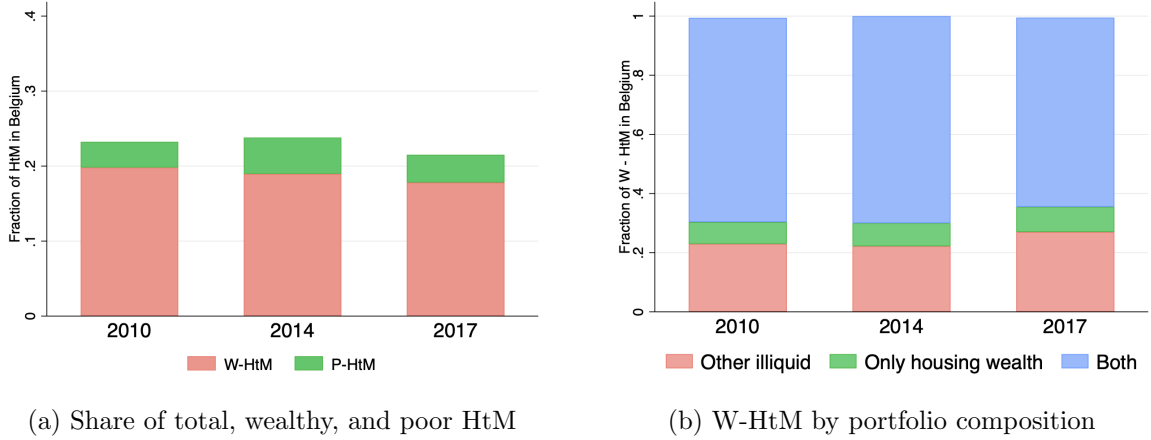


Figure 1: Fraction of HtM households in Belgium and portfolio composition of wealthy hand-to-mouth households. HFCS 2010-2017, pooled.

panel of the table shows the ownership rates in each of the three categories based on hand-to-mouth status, while conditioning on their position in the income distribution and the age of the household head. Evidently, we should note that the number of households in some of the cells can be quite small and, therefore, less reliable from a statistical point of view. Nevertheless, the table clearly demonstrates that ownership is basically absent in the category of poor hand-to-mouth households, which should not come as too big of a surprise. Interestingly, the ownership status across income and age is quite similar for wealthy hand-to-mouth households and non hand-to-mouth households, except for the young households in the first income quintile. Roughly speaking, for both categories, the homeownership rate increases, not unexpectedly, with age and income.

Finally, Figure 2 presents the share of hand-to-mouth households among homeowners by their leverage ratio (i.e. the ratio between housing debt and housing value).⁹ We observe that there is some heterogeneity in the shares of wealthy hand-to-mouth households across leverage ratios. These shares vary between 18% and 35% across the different leverage ratios in the figure. Finally, for the very few poor hand-to-mouth households that are home owners, we observe a very different pattern. These households only appear among the homeowners with a very high leverage ratio, which naturally falls in line with having negative net illiquid wealth.

Sensitivity analysis. As is clear from our above discussion, the computed shares of poor and wealthy hand-to-mouth households may well be subject to some measurement error. To account for this, we proceed by conducting a number of sensitivity analyses. Our results are reported in Figure 3 and Table 4. Panel (a) of Figure 3 plots the shares of poor and wealthy hand-to-mouth households, weighted by income. According to this measure, the share of hand-to-mouth households has been reduced over time, from about 30% in 2010 to about 22% in 2017. Interestingly, this result deviates somewhat from the analysis in

⁹More precisely, housing value is defined as the sum of the current price of the household main residence, other properties current value and additional properties current value at the time of the interview. The debt is defined as the sum of all mortgages with the home equity line of credit subtracted.

	Mean	Median	Fraction of positive values
P-HtM			
Total income (age 22-79)	23 590	19 259	0.998
Labor income (age 22-59)	20 617	16 968	0.961
Labor income equivalized (age 22-59)	12 996	9 369	0.961
Net Worth	-1 608	40	0.670
Net liquid wealth	-237	55	0.696
Cash, checking, saving accounts	241	64	0.715
Directly held stocks	5	0	0.011
Directly held bonds	0	0	0
Net illiquid wealth	-1 371	0	0
Housing net of mortgages	-1 788	0	0
Retirement accounts	14	0	0.003
Life insurance	120	0	0.012
W-HtM			
Total income (age 22-79)	56 990	46 555	1
Labor income (age 22-59)	57 494	48 295	0.999
Labor income equivalized (age 22-59)	32 716	25 274	0.999
Net Worth	211 267	166 411	1
Net liquid wealth	903	624	0.968
Cash, checking, saving accounts	930	611	0.968
Directly held stocks	23	0	0.026
Directly held bonds	10	0	0.003
Net illiquid wealth	210 364	165 852	1
Housing net of mortgages	166 144	131 286	0.755
Retirement accounts	10 376	0	0.308
Life insurance	14 373	1 349	0.523
N-HtM			
Total income (age 22-79)	51 455	40 875	0.992
Labor income (age 22-59)	51 298	43 772	0.989
Labor income equivalized (age 22-59)	24 883	20 909	0.989
Net Worth	390 668	258 557	0.975
Net liquid wealth	56 809	5 491	0.908
Cash, checking, saving accounts	8 081	2 529	0.965
Directly held stocks	10 984	0	0.174
Directly held bonds	11 338	0	0.087
Net illiquid wealth	333 859	234 131	0.939
Housing net of mortgages	250 979	192 555	0.787
Retirement accounts	25 880	0	0.308
Life insurance	16 318	0	0.495

Table 2: Descriptive statistics on household income, liquid and illiquid wealth holdings for the three types of households. HFCS 2010-2017, pooled.

Kaplan, Violante and Weidner (2014), who find a lower share of hand-to-mouth households when they are weighted by their income. This lower share obtained by these authors can be explained by the fact that hand-to-mouth households in the US have an average income

W-HtM					
age of HH head	Income quintile				
	I	II	III	IV	V
up to 34	.29	.39	.55	.74	.64
35-54	.44	.61	.66	.87	.86
55-64	.48	.58	.72	.89	.84
64+	.68	.67	.81	.96	.98
P-HtM					
age of HH head	Income quintile				
	I	II	III	IV	V
up to 34	.031	0	.21	0	.18
35-54	.0051	0	0	.15	.52
55-64	0	0	0	0	0
64+	0	0	0	0	0
N-HtM					
age of HH head	Income quintile				
	I	II	III	IV	V
up to 34	.07	.32	.47	.78	.83
35-54	.29	.52	.74	.85	.91
55-64	.58	.75	.77	.88	.92
64+	.60	.78	.86	.87	.93

Table 3: Share of households owning their main residence by HtM status, age of household head and income quintile. HFCS 2010-2017, pooled.

that is below the average income across all households. As our figure shows, this is not the case in Belgium, at least not for the year 2010. For 2014, on the other hand, the same result as in the US can be found for Belgium. The difference across the years is mainly due to a decreasing share of wealthy hand-to-mouth households in Belgium.

Panel (b) of Figure 3 has a similar interpretation as panel (a), but now pertains to the labor income that is equivalized by means of the modified OECD equivalence scale. Also this analysis results in a lower share of hand-to-mouth households: across the three waves, the share of hand-to-mouth households hovers around 20%. This result implies that the average equivalent income of hand-to-mouth households is below that of all households. Panel (c) plots the hand-to-mouth shares when the pay period is set to a month instead of two weeks. This sensitivity analysis results in an increase with a few percentage points of the share of hand-to-mouth households compared with the baseline situation outlined above. In panel (d), the shares of poor and wealthy hand-to-mouth households are plotted when the income credit limit is set to one year. Also this analysis results in a decrease of the percentage of hand-to-mouth households with a few percentage points. Finally, panel (e) shows that the

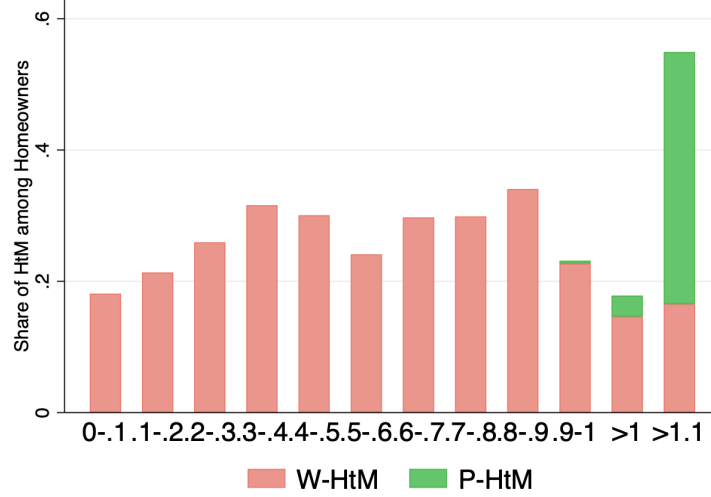


Figure 2: Share of HtM households among homeowners by leverage ratio. HFCS 2010-2017, pooled.

fraction of wealthy hand-to-mouth households increased by 2.5% when vehicles are included as illiquid wealth, while the overall percentage of hand-to-mouth households remains stable.

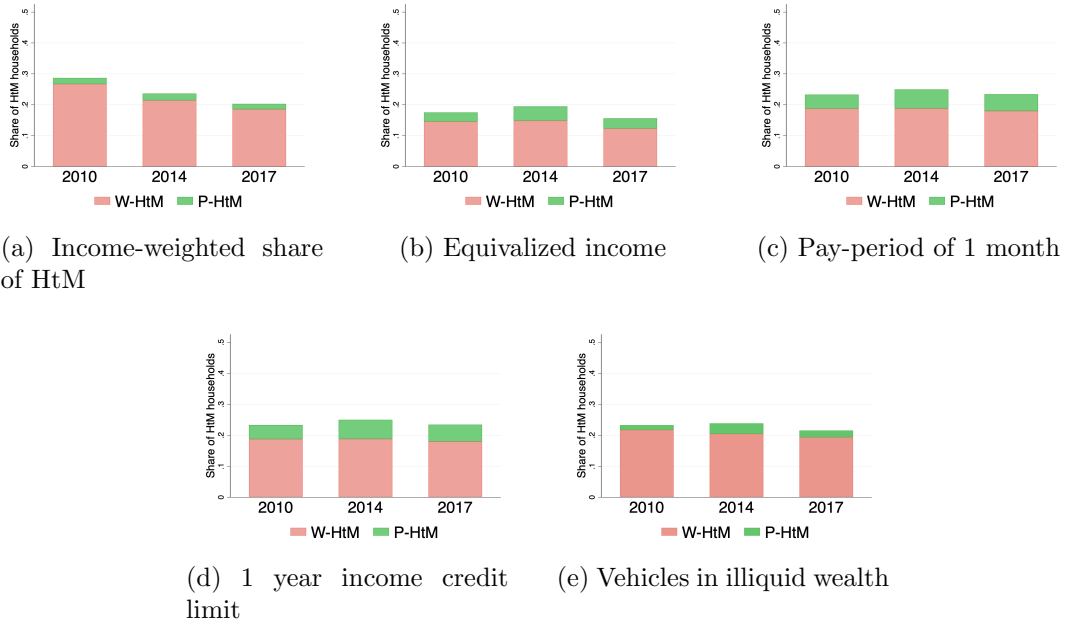


Figure 3: Time series of fraction of HtM households in Belgium, alternative definitions. HFCS 2010-2017.

As a final robustness check, we pooled all Belgian households across the three waves of the HFCS, and recalculated the shares of poor hand-to-mouth households, wealthy hand-to-mouth households and non hand-to-mouth households. Our findings are summarized in Table 4. For our baseline classification of household types, the summary results when

aggregating all households reveal similar patterns as our per-wave results that we discussed above. On average, 25.6% of the households are hand-to-mouth households, of which about 5.8% poor hand-to-mouth households and 19.8% wealthy hand-to-mouth households. Next, when the share of hand-to-mouth households is calculated on the basis of net worth, it turns out that about 7% of the households are in a hand-to-mouth status. This figure once again demonstrates the importance of distinguishing between liquid and illiquid wealth in the identification of hand-to-mouth households.

Using the same set-up, we subsequently consider different definitions of the poor and wealthy hand-to-mouth households. From Table 4, we learn that the share of poor hand-to-mouth households is relatively stable across the different definitions, and hovers around 6%. The biggest impact can be observed when classifying a household as poor hand-to-mouth if its spending exceeded its income in the past year or if the measure is based on financial fragility.¹⁰ We find that the fraction of poor hand-to-mouth households equals 7.6% according to the former definition, while it amounts to 9.3% when using the latter definition. Next, we observe greater volatility for the share of wealthy hand-to-mouth households. While the share of wealthy hand-to-mouth households equals about 20% in the baseline situation, this number varies between 11.7% and 45.9% depending on the specific definition that is used. The lowest share is obtained when a weekly pay period is used, while the highest share is obtained when based on financial fragility. This variation is more pronounced than in Kaplan, Violante and Weidner (2014) but, at the same time, the general patterns are largely similar. It indicates once more that it is difficult to exactly identify the wealthy hand-to-mouth households.

4 Observed heterogeneity for hand-to-mouth households

We first present differences in the observed characteristics of the different types of hand-to-mouth households. Subsequently, we do the same for their portfolio composition. To focus our discussion and to obtain more robust results, we have pooled our data for the three waves for the analysis in this section. In this respect, we recall from the previous section that the main data patterns show little variation over time.

How does hand-to-mouth status vary across household types? Figure 4 shows how the shares of poor, wealthy and non hand-to-mouth households vary with the age of the head of household.¹¹ The figure shows different and non-linear patterns for the three types of households. More precisely, the fraction of poor hand-to-mouth households drops before the age of 30, after which it remains relatively stable. The fraction of wealthy hand-to-mouth households, on the contrary, is associated with a steady decline over the age distribution: it equals about 30% for the youngest households, while it equals about 8% for the oldest

¹⁰Based on Lusardi, Schneider, and Tufano (2011), a household is considered financially fragile if it has liquid balances lower than the threshold of EUR 2 000.

¹¹Throughout this paper we present smoothed graphs. For smoothing the `lpolys` function of Stata was used that performs a kernel-weighted local polynomial regression.

	P-HtM	W-HtM	N-HtM	HtM
Baseline	0.058	0.198	0.744	0.256
In the past year, $c > y$	0.076	0.409	0.515	0.485
Financially fragile households	0.093	0.459	0.448	0.552
1 year income credit limit	0.054	0.185	0.761	0.239
Weekly pay period	0.047	0.117	0.836	0.164
Monthly pay period	0.069	0.329	0.602	0.398
Retirement accounts as liquid for 60+	0.058	0.195	0.747	0.253
Businesses as illiquid assets	0.056	0.202	0.741	0.259
Direct as illiquid assets	0.058	0.254	0.688	0.312
Other valuables as illiquid assets	0.056	0.201	0.744	0.256
HELOCs as liquid debt	0.058	0.188	0.754	0.246
Committed consumption - beg. of period	0.064	0.364	0.572	0.428
Committed consumption - end of period	0.051	0.209	0.740	0.260

Table 4: Robustness results for fraction P-HtM and W-HtM in each category. “In the past year, $c > y$ ” stands for spending exceeding income. “Financially fragile households” stands for liquid balances lower than the threshold of EUR 2 000. “Retirement accounts as the liquid for 60+” puts retirement accounts into liquid wealth for households above age 60. “Businesses as illiquid assets” incorporates business assets related to illiquid wealth, and business-derived income to (total) income. “Committed consumption - beginning of period”: the household’s committed consumption is incurred at the beginning of the period. “Committed consumption - end of period”: the household incurs it at the end of the period. HFCS 2010-2017, pooled.

households. This decreasing trend in the share of wealthy hand-to-mouth households is reflected in the increasing trend in the share of non hand-to-mouth households over the life cycle.

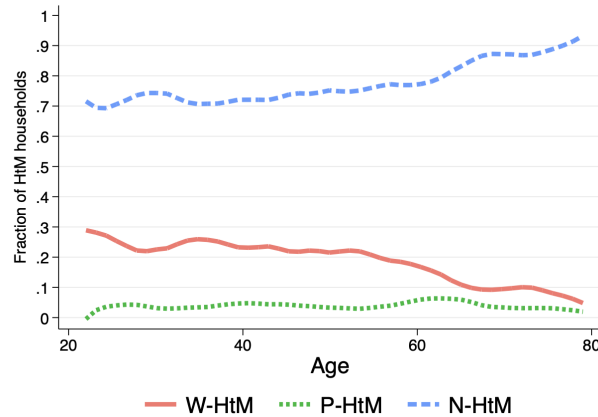


Figure 4: Age profile of fraction of HtM households in Belgium. HFCS 2010-2017, pooled.

To further explore what drives this age pattern, we focus in Figure 5 at some other demographic characteristics of the different types of households. Panel (a) shows the fractions of the different types of households that have a head of household with a university degree. There is a clear ranking across the types of households. Across all ages, there are more non hand-to-mouth households than wealthy hand-to-mouth households that have a head of household with a university degree. The same conclusion holds for the wealthy hand-to-mouth households when compared to the poor hand-to-mouth households. This suggests that education may be an important explaining factor for the differences across household types, which is not surprising given that education typically correlates with income.

Panel (b) shows the fractions of the different household types that are married, which includes both legally married and cohabitating couples. In this case, the fractions of non hand-to-mouth and wealthy hand-to-mouth households do not differ much across the age distribution. The fraction of married households is again somewhat lower for the poor hand-to-mouth households. In panel (c), we present the average number of children for the three household types, conditional on their age. It turns out that the numbers are very similar across the three household types. Both panels seem to suggest that marital status and number of children is not the driving factor for explaining the differences across the household types.

Panel (d) shows the median income per age of the head of household for the three different household types. Panel (e) does the same on the basis of median equivalized income. As the panels show, non and wealthy hand-to-mouth households are once again relatively similar in terms of their income profile, whereas poor hand-to-mouth households have a substantially lower (equivalized) income. Panel (d) also shows that the median income profile of the former two groups is hump shaped with a peak around the age of 40, which differs from the profile of poor hand-to-mouth households. Interestingly, panel (e) suggests that this conclusion is mainly driven by the household composition, as the hump shape largely disappears when we use equivalized income. Finally, for older ages the median incomes converge due to the fact that most of the income of the three groups then comes from retirement benefits, which explains the converging trend in both panels.

As a last exercise, panel (f) shows the fractions of households that receive most of their income from government benefits. The latter is defined as regular social transfers divided by labor income, where the regular social transfers (except pensions) are defined as unemployment plus other social transfers.¹² In line with the results before, the profiles of both non and wealthy hand-to-mouth households are similar. Only a small fraction of the wealthy hand-to-mouth (about 14%) and non hand-to-mouth (about 11%) households receive income mainly from transfers. On the other hand, on average more than 40% of the poor hand-to-mouth households receive their income from government transfers.

Summarizing, panels (d)-(f) of Figure 5 suggest that income and government benefits help to explain differences between the poor hand-to-mouth households and the other two types. However, these factors appear much less informative to distinguish non and wealthy hand-to-mouth households. Once more, it seems that income alone is not sufficient as a

¹²Other social transfer (HG0100): Did (you/your household) receive any government scholarships or income from public assistance or other welfare payments in (the last 12 months / the last calendar year)? Please do not include unemployment benefits, public pensions or special one-time payments.

proxy to capture the identified heterogeneity across households.

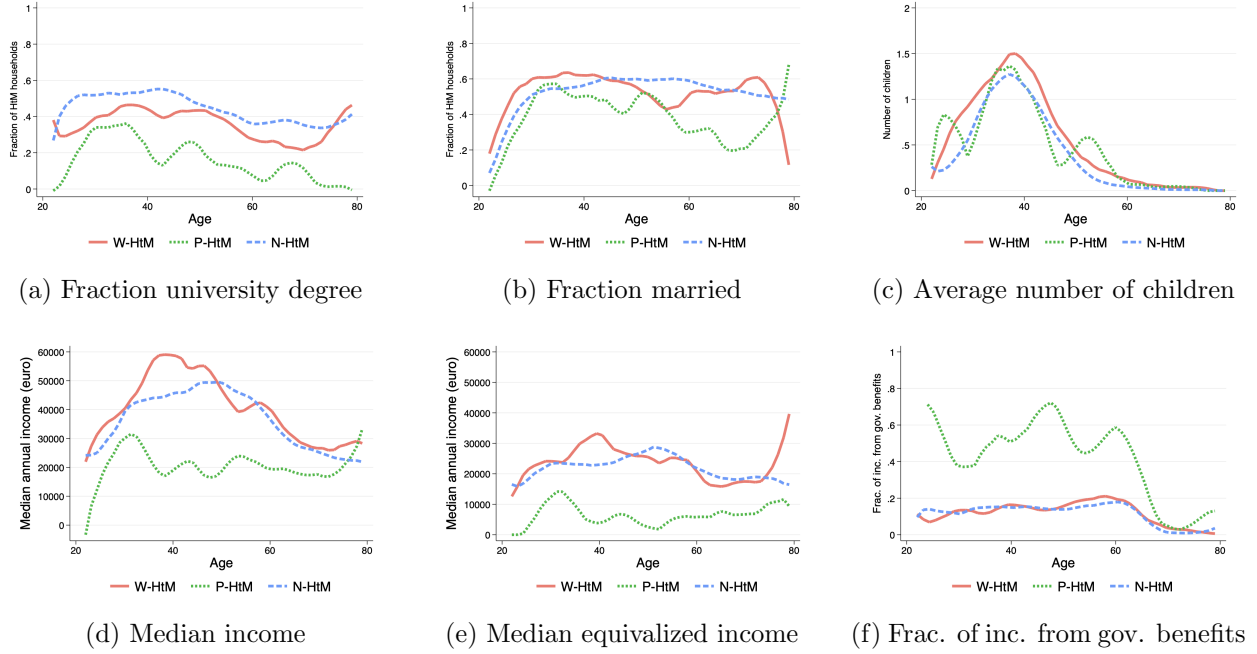
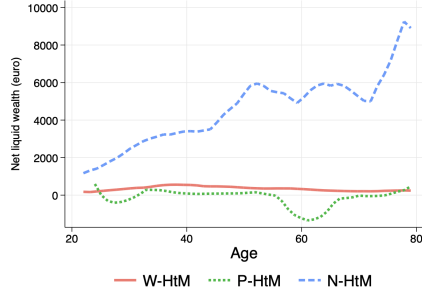


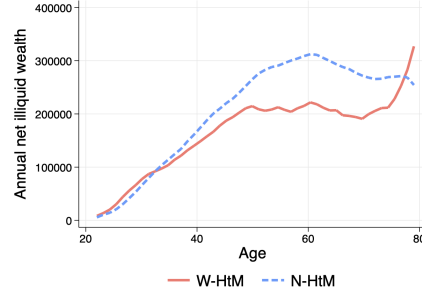
Figure 5: Age profile of demographic characteristics of the HtM in Belgium. HFCS 2010-2017, pooled.

Hand-to-mouth status and portfolio composition. In order to obtain some further insights into the financial characteristics of poor, wealthy and non hand-to-mouth households, we present in Figure 6 the balance sheet of the three types of households for different ages of the head of household. To reduce the sensitivity to outliers, we have trimmed the top and bottom 0.1% of our dataset for the different the different indicators under study. Panel (a) shows the median net liquid wealth as a function of age per hand-to-mouth household type. It should come as no surprise that the median net liquid wealth is close to zero for virtually every age for both poor and wealthy hand-to-mouth households. The median net liquid wealth for non hand-to-mouth households, on the other hand, grows steadily over the life cycle, at least based on this cross-sectional evidence. Somewhat surprising is that median net liquid wealth keeps on growing after retirement. This may be due to pension funds, or other illiquid wealth, becoming available.

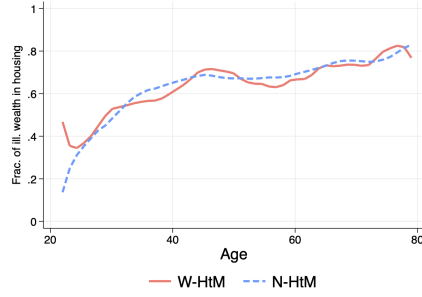
By definition, in the remaining panels only two types can be shown. Panel (b) shows the financial profile in terms of the median net illiquid wealth. The overall profiles of wealthy and non hand-to-mouth households are again somewhat similar, though the latter group turns out to have quite a higher amount of illiquid wealth in the years before the retirement age. In Panels (c) and (d), the fractions of housing and retirement accounts are shown for the two household types that are holding illiquid wealth. It is clear from both panels that it is practically impossible to distinguish wealthy and non hand-to-mouth households from each other according to the composition of their illiquid wealth portfolio.



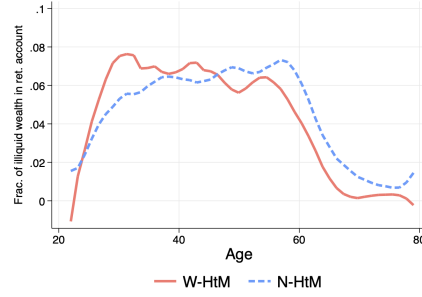
(a) Median net liquid wealth



(b) Median net illiquid wealth



(c) Mean frac. of ill. wealth in housing



(d) Mean frac. of illiquid wealth in ret. account

Figure 6: Age profile of the portfolio composition of the HtM in Belgium. HFCS 2010-2017, pooled.

In Figure 7, we have a closer look at the monthly payments for household debt and the outstanding liabilities for the households in our sample according to their hand-to-mouth status. Panel (a) shows the monthly payments for total debt, which include interest and repayment of mortgages and other loans (such as car loans or consumer loans), but exclude any required payments for taxes, insurance, and other fees. The profiles for wealthy and non hand-to-mouth households are again very similar. The average monthly payments peak at the age of 37 and taper off afterwards.¹³ The profile of poor hand-to-mouth households is very different from that of the other two types. The average monthly payments of poor hand-to-mouth households equal about 500 euros when the head of household is between 25 and 40, while they become substantially lower afterwards. As expected, the average monthly payments of poor hand-to-mouth households are much lower than those of the other two groups, which is mostly due to the fact that poor hand-to-mouth households do not usually own housing as shown above in Table 3 and therefore hold fewer mortgages. The total outstanding balance of households' liabilities is shown in Panel (b). For all three groups, the liabilities are highest between the age of 30 and 40. However, the liabilities of wealthy and non hand-to-mouth households are substantially larger, especially after the age of 40.

Finally, Figure 8 shows that the income sources are very different for our three types of households. More precisely, “investment income” is defined as gross income from financial investments, and “rental income” is as gross rental income from real estate property. “Other

¹³We assigned zeros to those who do not have any payment.

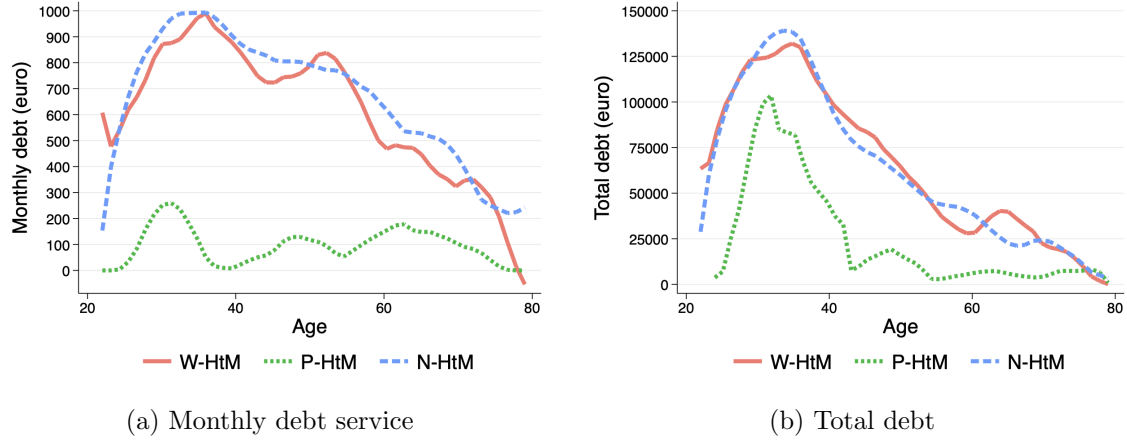


Figure 7: Age profile of the amount of debt of the HtM in Belgium. HFCS 2010-2017, pooled.

income” sources are any other income that is not included in the sources already recorded. As expected, there are stark differences for both the total income level and the income composition. Notably, we also find clearly different patterns between wealthy and non hand-to-mouth households. The main differences relate to the income that is derived from labor, pensions and investments.

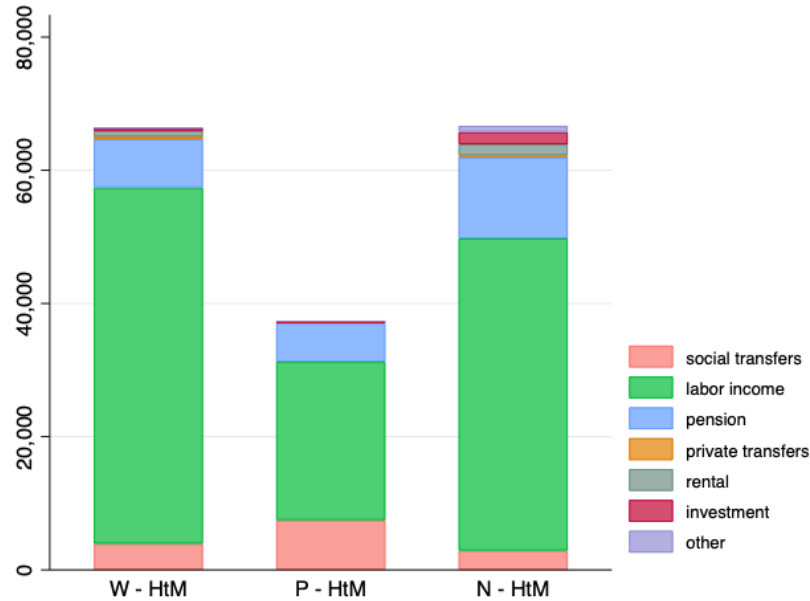


Figure 8: Source of income by HtM status. HFCS 2010-2017, pooled.

5 Marginal propensities to consume out of transitory income shocks

As mentioned in the Introduction, both poor and wealthy hand-to-mouth households are expected to have a high marginal propensity to consume (MPC) out of temporary income shocks. To avoid the strong data requirements of the structural methodology of Blundell, Pistaferri and Preston (2008) that was originally used by Kaplan, Violante and Weidner (2014), we choose to measure households' MPCs out of temporary income shocks by making use of a novel question that was added in the third (2017) wave of the HFCS. The question asks the respondents how much of a lottery gain they would spend in the next year on goods and services.¹⁴ Dresscher, Fessler and Lindner (2020) analyzed this question for a set of 17 countries and found that the resulting MPC from hypothetical windfall gains varies between 33% in the Netherlands to 57% in Lithuania. For Belgium, they found an average MPC from hypothetical windfall gains that is equal to 42%. Although they analyzed some correlations with income and wealth, they did not estimate the MPCs of poor, wealthy and non hand-to-mouth households.

Differences in MPC. Figure 9 shows the full range of answers to the question on how much of the above windfall gain would be spent on consumption for our sample. Panel (a) focuses on the wealthy hand-to-mouth households and indicates that about 27% of the wealthy hand-to-mouth households respondents reported that they would spend nothing out of this windfall gain, which implies that they would have an MPC that equals 0. On the other extreme are the respondents who report that they would spend the entire windfall gain, which implies that their MPC equals 100 (about 20% of the respondents). About 29% of the respondents claim that they would spend half of the windfall gain, which implies that they have an MPC that equals 50. Panel (b) shows the results for poor hand-to-mouth households with approximately 38% of the household having a MPC equal to 0 and about 12% would spend 100% out of all windfall gain. Panel (c) shows the results for the non hand-to-mouth households which are similar to the answers of wealthy hand-to-mouth.

The three panels show that the respondents' answers are clearly clustered at three points: saving all of the windfall gain, saving half of it or spending all of it. A few questions can be asked at this point. A first issue is that stated preferences do not necessarily correspond to revealed preferences. One open question here is whether the respondents' answers would be in line to the actual savings behavior of households if they were confronted with the above described windfall gain. A second issue is that answers to hypothetical questions like the above one are prone to biases coming from focal points or rounding (see, e.g., Kleijnans and van Soest, 2013). Unfortunately, the current data set does not allow us to investigate this issue any further, but this will be different if the fourth wave of the HFCS contains the same question, as this information will allow us to use the panel dimension. As –unfortunately– the results of this fourth wave are not yet available, we will take the respondents' answers at face value in what follows.

¹⁴The exact question is: *Imagine you unexpectedly receive money from a lottery, equal to the amount of income your household receives in a month. What percent 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?*

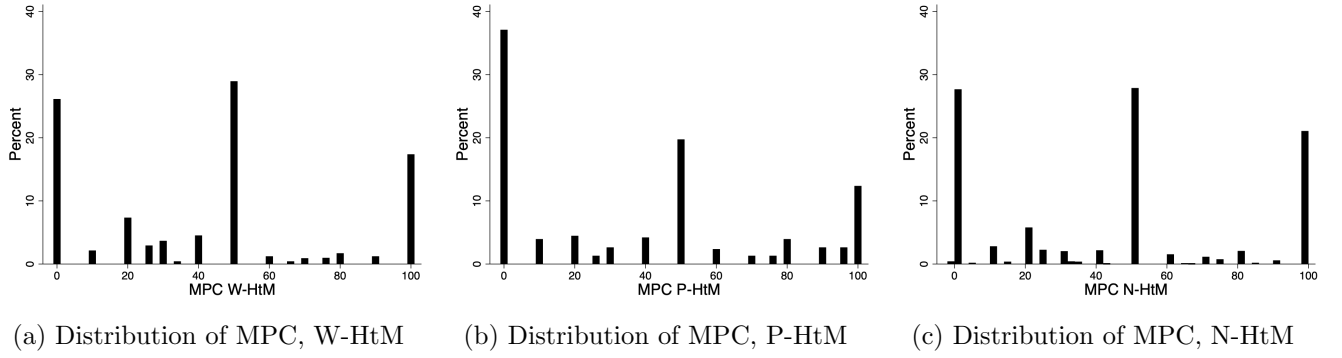


Figure 9: Distribution of marginal propensity to consume. HFCS, only wave 2017.

In Figure 10, we investigate the correlation between households' net illiquid wealth, labor income and net liquid wealth, and their MPC out of transitory shocks. The figure shows binned scatter plots for prime age households, as captured by the age range from 22 to 59 years old. As expected, we observe a slightly negative trend in all three panels, with a more hump shaped pattern for net liquid wealth.

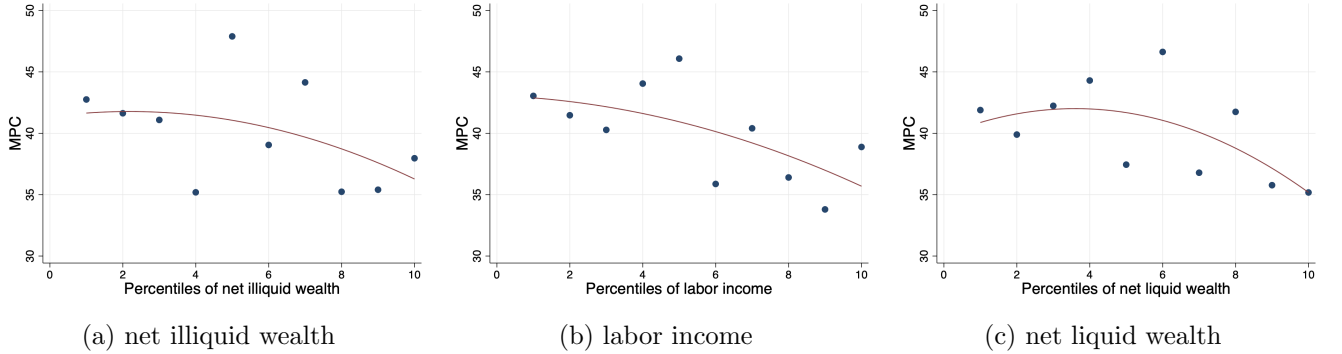


Figure 10: Average marginal propensity to consume across net illiquid wealth, labor income, and net liquid wealth. HFCS, age 22 - 59, only wave 2017.

To put our results in a somewhat broader perspective, we report the average MPC out of a transitory shock by hand-to-mouth status based on the last wave of the HFCS data for Belgium (i.e. 2017), as well as the results obtained in a few other studies. A result that may seem surprising at first sight is that the MPCs do not differ much across hand-to-mouth status in Belgium. Although the average MPC is a notch higher for poor hand-to-mouth households, and that of wealthy hand-to-mouth households a bit higher than that of non hand-to-mouth households, the differences across hand-to-mouth status are small. This contrasts quite sharply with the findings of the other studies for other countries in Table 5, which report more substantial differences. As these other studies identify households' MPCs from their actual choice behavior, the differences in Table 5 might be due to the issues with the hypothetical choice question that we mentioned above. In this respect, however, it is also worth emphasizing that these other studies focus on different populations, which may also

–at least partly– explain the different findings. Finally, the average MPC values in Table 5 may hide substantial heterogeneity in other characteristics across the non, poor and wealthy hand-to-mouth households. This is what we analyze next.

	HFCS Belgium	Kaplan et al. (2014)	Fagereng et al. (2017)
P-HtM	0.436	0.243	0.428
W-HtM	0.424	0.301	0.462
N-HtM	0.412	0.127	0.314

Table 5: MPCs by hand-to-mouth status. For HFCS, age 22 - 59, only wave 2017.

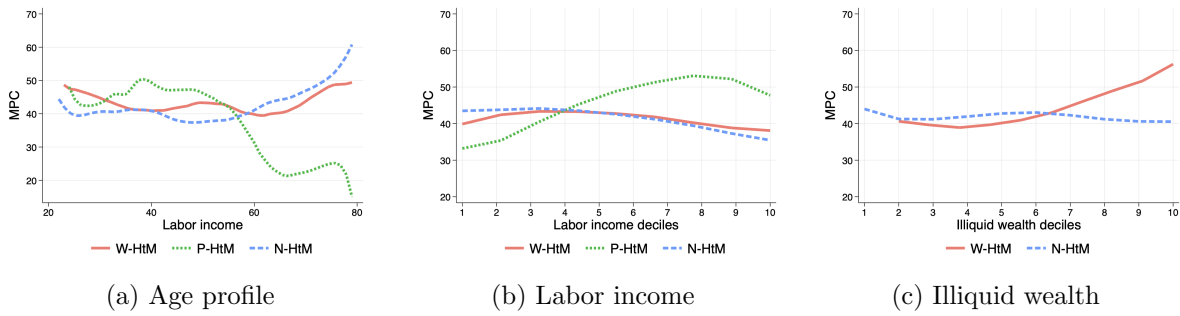


Figure 11: Marginal propensity to consume by hand-to-mouth status based on age, labor income and illiquid wealth. HFCS, only wave 2017.

Panel (a) of Figure 11 shows the MPC of the three household types as a function of the age of the household head. Interestingly, the MPC values of both poor and wealthy hand-to-mouth households are very similar to each other (and quite high) for the younger age groups. For middle age groups, the MPCs do not differ a lot across hand-to-mouth status. Close to the retirement age, though, the MPCs of wealthy and non hand-to-mouth households are similar to each other, and considerably higher than those of poor hand-to-mouth households. Panel (b) shows the MPCs of the three hand-to-mouth groups by income deciles. The MPCs of wealthy and non hand-to-mouth households show a remarkably similar pattern. The MPCs of poor hand-to-mouth households turn out to be substantially higher for the higher labor income deciles. Finally, Panel (c) shows the MPCs by hand-to-mouth status and net illiquid wealth deciles. By definition, only two types can be shown. For higher illiquid wealth deciles, the MPCs of wealthy hand-to-mouth households are much higher than those of the non hand-to-mouth households.

Regression analysis. The preceding results clearly demonstrate that there is a lot of heterogeneity in the MPC for our three household types. To obtain some further insight, Table 6 reports the results for a variety of regressions of the MPC (in percentage points) on other variables.¹⁵ In panel (a), the MPC is regressed on only two dummy variables that capture whether a household is a poor hand-to-mouth household or a wealthy hand-to-mouth

¹⁵Table 4 shows that the share of HtM agents may be very sensitive to changes in the definitions of HtM status. It therefore seems useful to repeat our regression exercise for those alternative definitions of

household. The constant term thus captures the average MPC of non hand-to-mouth households, whereas the coefficients associated with the dummy variables capture the percentage point deviations from this average for the two other groups of households. Remarkably, these estimated deviations have a negative sign, which may seem counter intuitive. However, as panel (a) shows, they are not significantly different from zero at any reasonable significance level. It seems fair to argue that the regression in panel (a) is seriously misspecified.

The other two panels of Table 6 underscore this argument. In panel (b), we add other regressors on the basis of the evidence that we reported in the beginning of this section. More specifically, in Panel (b) we additionally control for the age of the head of household, whether the head of household has a university degree, family size, if the household is renting and the logarithm of the household’s income. Not unexpectedly, the MPC is smaller for households that have a higher income, *ceteris paribus*. Further, renters have a smaller MPC than house owners, which could be due to a saving effect (i.e. renters are on average younger households). Both coefficients are significantly different from zero at a five percent significance level. The same applies to the age of the head of household, which has a positive effect on the MPC. Finally, education is not significant, which is in line with our conjecture before that this variable is correlated with income.

Next, looking back at Figure 11, we observe that age has a different impact on households with a different hand-to-mouth status. Therefore, in panel (c) we add interaction effects between hand-to-mouth status and age. The impact of home ownership and income remains stable between panels (b) and (c), both in economic and statistical terms. More importantly, we can now observe intuitive results with respect to the relation of MPC, hand-to-mouth status and age. Roughly speaking, we obtain that young hand-to-mouth households have a higher MPC than non hand-to-mouth households, *ceteris paribus*. Moreover, this difference is bigger for poor hand-to-mouth households than for wealthy hand-to-mouth households. All this implies that the linear effect of the hand-to-mouth status becomes smaller, and can even disappear, for older household heads.

In summary, we conclude from Table 6 that there are statistically and economically significant differences in MPC across hand-to-mouth status. However, when evaluating these differences it is crucial to account for the other characteristics of the households under study. In this respect, the age of the household head plays a subtle but important role, as reflected by the negative interaction effects that are reported in panel (c). We illustrate this in Table 7. Specifically, we first estimate the MPC per household in our sample on the basis of the regression results in panel (c) of Table 6, and we subsequently average these estimated MPCs for nine different groups of households defined on the basis of their hand-to-mouth status and age category. The results clearly reveal the significance of the age gradient: the ordering of MPC values across hand-to-mouth status strongly depends on the specific age category

HtM status which yield a much higher shares of HtM households than in the baseline, i.e. “financially fragile households”, “in the past year, $c > y$ ”, “committed consumption” and “monthly pay period”. We report these results in Tables 8-12 in the Appendix. Interestingly, our main qualitative conclusions remain intact. The most notable changes pertain to the regressions that use “committed consumption” to define HtM status; see Table 10 (for committed consumption beginning of period) and Table 11 (for committed consumption end of period). These changes mostly relate to the statistical significance (and not so much sign or magnitude) of some regression coefficients.

under consideration.¹⁶ In fact, these outcomes reproduce the general patterns in Panel (a) of Figure 11, which are based on the raw data. In our opinion, this provides empirical support for the regression specification that we use in panel (c) of Table 6; it does a good job in capturing the particular age effect that is at play for the Belgian household data that we study.

VARIABLES	(a) HtM dummies only	(b) HtM and controls	(c) Interaction effect
Poor hand-to-mouth (Phtm)	-5.813 (3.962)	-1.847 (4.247)	37.36** (15.06)
Wealthy hand-to-mouth (Whtm)	-1.208 (2.151)	0.888 (2.199)	17.46** (8.144)
Age	-	0.149** (0.0653)	0.238*** (0.0725)
Phtm age	-	-	-0.746*** (0.277)
Whtm age	-	-	-0.325** (0.160)
University degree	-	2.690 (1.751)	2.816 (1.746)
Family size	-	-1.244* (0.701)	-1.191* (0.700)
Renters	-	-6.109*** (2.012)	-5.797*** (2.019)
Log income	-	-2.250** (1.135)	-2.172* (1.136)
Constant	43.76*** (0.939)	62.08*** (12.00)	56.04*** (12.16)
Observations	1,961	1,961	1,961
R-squared	0.001	0.017	0.022

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6: MPC regressions on age and hand-to-mouth status. HFCS, age 22-79, only wave 2017.

6 Conclusion

Making use of the Belgian component of the Household Finance and Consumption Survey (HFCS), we have applied the methodology proposed by Kaplan and Violante (2014) and

¹⁶At this point, an important caveat is that this is not a ceteris paribus exercise. For example, the income of the youngest people is substantially below that of the prime age category.

	W-HtM	P-HtM	N-HtM
Age below 40	42.61	49.14	37.34
CI	[41.86 43.36]	[47.31 50.96]	[36.84 37.83]
Age 40 - 59	42.27	38.59	41.71
CI	[41.75 42.79]	[37.26 39.93]	[41.40 42.02]
Age 60 and above	43.08	30.65	48.08
CI	[42.43 43.63]	[29.26 32.05]	[47.82 48.34]

Table 7: Predicted MPC by the age group and HtM status. CI stands for the 95% confidence intervals based on the empirical distribution of MPC's for the respective subgroups. HFCS, age 22-79, wave 2017.

Kaplan, Violante and Weidner (2014) to identify poor hand-to-mouth, wealthy hand-to-mouth and non hand-to-mouth households in Belgium. Subsequently, we have empirically analyzed the marginal propensities to consume (MPCs) of these three household types. Contrary to Kaplan, Violante and Weidner (2014), our empirical strategy makes use of a question that was newly added to the third (2017) wave of the HFCS to measure households' MPCs out of transitory shocks. This strategy is substantially less data-intensive than the one originally used by Kaplan, Violante and Weidner (2014), so considerably enhancing the scope of empirical applications.

We find that the fraction of hand-to-mouth households in Belgium is substantial (about 25%) and predominantly consists of wealthy hand-to-mouth households (about 20%). Also in economic terms the fraction of hand-to-mouth households is highly important; they represent an income mass of 23.34% of the aggregate income. Similar to the findings of Kaplan, Violante and Weidner (2014), Belgian wealthy hand-to-mouth households have demographic characteristics, portfolio compositions, liabilities and monthly payments that resemble those of the non hand-to-mouth households. Still, their consumption responses (measured as MPC) are often more similar to those of the poor hand-to-mouth households.

Our empirical evidence confirms once more that the early New Keynesian DSGE models that built on the assumption of a representative household (RANK), and thus rule out income and wealth heterogeneity, are at odds with the data. To introduce some heterogeneity, primarily along the dimensions of wealth endowment, as in Galí, López-Salido and Vallés (2007), and Iacoviello (2005) the Two-Agent New Keynesian model (TANK) was developed. In the latter models, the households sector is represented by two categories with the difference in future discount factors, highlighting different borrowing limits for two categories. However, this paper is pleading once more for the most recent models featuring a full spectrum of heterogeneous agents (HANK), see, e.g., Kaplan, Moll, and Violante (2018). Opposed to RANK or TANK models that consider only aggregate shocks, HANK models include idiosyncratic shocks to individuals' income in incomplete markets and borrowing constraints. These models yield empirically realistic distributions of wealth and marginal

propensities to consume because of two features: uninsurable income shocks and multiple assets with different degrees of liquidity and different returns. In turn this leads to differences in household balance sheets, allowing to better grasp the transmission mechanisms of the policies and shocks.

All this is essential to evaluate the effect of fiscal and monetary policy on household consumption. The recent macro literature points out that low-assets household responds more strongly to fiscal policies (see, e.g., Farhi and Werning, 2016, McKay and Reis, 2016, and Carroll et al., 2019). Therefore, constrained hand-to-mouth households are often expected to have a more pronounced response to the transfers and taxes implemented to boost consumption, with the preference heterogeneity being an important source of the differences in MPCs (see, e.g., Aguiar, Bils and Boar, 2020). Our paper hints that a fiscal policy stimulus would have a different effect on the consumption of a household depending on the combination of the hand-to-mouth status and other characteristics, such as age. Therefore, policies addressed to such constrained households could have a greater effect on aggregate demand, as they tend to be associated with a stronger leverage on aggregate consumption. Symmetrically, an unexpected drop in income or a price increase in some categories of goods affecting all types of hand-to-mouth consumers (and, notably, the young ones) is likely to have a proportionally greater impact on aggregate consumption since their MPC is higher. Wealthy hand-to-mouth households could also be more exposed to (negative) changes in prices of illiquid assets, such as real estate, and debt burden. To reduce a recessionary and systemic risk, a particular attention should be paid to this group of households, by monitoring their leverage ex-ante and shielding their purchasing power ex-post.

As to monetary policies, the classical model suggests that the hand-to-mouth households have a dampened response to the change in interest rate. The recent finding of the HANK models is in stark contrast to RANK economies because of their ability to feature both direct and indirect transmission effects. According to the heterogeneous models, the presence of hand-to-mouth households would strengthen the effects of contractionary monetary policy as resources may be redistributed from high MPC households to low MPC households (see, e.g., Eskelinen, 2021). By finding a sizable group of hand-to-mouth households in Belgium with higher marginal propensity to consume, this paper suggests that the reaction to euro area monetary policy changes could be significant in terms of macroeconomic effects, mainly on consumption.

Declaration of interests

The authors formally declare that they have no relevant or material financial interests that relates to the research described in this paper.

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Appendix

VARIABLES	(a) HtM dummies only	(b) HtM and controls	(c) Interaction effect
Poor hand-to-mouth (Phtm)	-6.530** (3.254)	-3.750 (3.432)	25.41* (13.37)
Wealthy hand-to-mouth (Whtm)	-2.221 (1.844)	0.0951 (1.902)	23.01*** (7.191)
Age		0.151** (0.0658)	0.313*** (0.0783)
Phtm age	-	-	-0.532** (0.238)
Whtm age	-	-	-0.440*** (0.138)
University degree	-	2.957* (1.779)	2.890 (1.773)
Family size	-	-0.967 (0.701)	-0.877 (0.697)
Renters	-	-6.193*** (2.012)	-5.987*** (2.009)
Log income		-3.317*** (1.245)	-3.213*** (1.237)
Constant	44.38*** (1.032)	72.70*** (13.09)	62.28*** (13.30)
Observations	1,961	1,961	1,961
R-squared	0.002	0.019	0.026

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8: MPC regressions on age and hand-to-mouth status. HFCS, age 22-79, only wave 2017. Monthly pay period.

VARIABLES	(a) HtM dummies only	(b) HtM and controls	(c) Interaction effect
Poor hand-to-mouth (Phtm)	-6.209** (2.855)	-3.601 (3.203)	22.37* (11.69)
Wealthy hand-to-mouth (Whtm)	-3.164* (1.737)	-1.912 (1.855)	16.60** (7.221)
Age	-	0.135** (0.0666)	0.349*** (0.100)
Phtm age	-	-	-0.465** (0.206)
Whtm age	-	-	-0.333** (0.130)
University degree	-	2.703 (1.792)	2.733 (1.786)
Family size	-	-0.969 (0.703)	-0.840 (0.700)
Renters	-	-5.965*** (2.065)	-5.967*** (2.066)
Log income	-	-3.516*** (1.254)	-3.185** (1.254)
Constant Constant	45.30*** (1.234)	76.66*** (13.59)	60.49*** (14.67)
Observations	1,961	1,961	1,961
R-squared	0.002	0.019	0.025

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 9: MPC regressions on age and hand-to-mouth status. HFCS, age 22-79, only wave 2017. Financially fragile households.

VARIABLES	(a) HtM dummies only	(b) HtM and controls	(c) Interaction effect
Poor hand-to-mouth (Phtm)	-7.457** (3.439)	-3.152 (3.769)	14.25 (15.03)
Wealthy hand-to-mouth (Whtm)	-5.451** (2.273)	-3.788 (2.309)	13.92 (11.18)
Age	-	0.130** (0.0657)	0.393** (0.177)
Phtm age	-	-	-0.293 (0.261)
Whtm age	-	-	-0.301 (0.188)
University degree	-	2.738 (1.781)	2.673 (1.780)
Family size	-	-0.937 (0.702)	-0.918 (0.703)
Renters		-6.809*** (2.068)	-6.882*** (2.085)
Log income	-	-3.297*** (1.245)	-3.204*** (1.237)
Constant	48.02*** (2.064)	77.12*** (13.52)	60.57*** (17.31)
Observations	1,961	1,961	1,961
R-squared	0.004	0.020	0.021

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 10: MPC regressions on age and hand-to-mouth status. HFCS, age 22-79, only wave 2017. Committed consumption beginning of the period.

VARIABLES	(a) HtM dummies only	(b) HtM and controls	(c) Interaction effect
Poor hand-to-mouth (Phtm)	-3.832 (7.576)	-3.129 (7.344)	10.11 (16.10)
Wealthy hand-to-mouth (Whtm)	5.730 (3.497)	7.009** (3.472)	-6.327 (16.10)
Age	-	0.147** (0.0647)	0.139** (0.0662)
Phtm age	-	-	-0.243 (0.503)
Whtm age	-	-	0.253 (0.302)
University degree		3.028* (1.764)	3.046* (1.768)
Family size		-1.032 (0.696)	-1.011 (0.696)
Renters		-6.908*** (1.949)	-6.889*** (1.951)
Log income		-3.382*** (1.241)	-3.414*** (1.241)
Constant	43.00*** (0.857)	73.28*** (13.12)	73.99*** (13.17)
Observations	1,961	1,961	1,961
R-squared	0.002	0.021	0.021

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 11: MPC regressions on age and hand-to-mouth status. HFCS, age 22-79, only wave 2017. Committed consumption end of the period.

VARIABLES	(a) HtM dummies only	(b) HtM and controls	(c) Interaction effect
Poor hand-to-mouth (Phtm)	-10.74** (5.170)	-10.05* (5.157)	41.42** (20.66)
Wealthy hand-to-mouth (Whtm)	-2.217 (1.671)	-1.351 (1.735)	16.74** (7.243)
Age	-	0.138** (0.0669)	0.347*** (0.101)
Phtm age	-	-	-0.925** (0.362)
Whtm age	-	-	-0.334** (0.130)
University degree	-	2.830 (1.783)	3.004 (1.839)
Family size	-	-0.995 (0.702)	-0.725 (0.730)
Renters	-	-6.901*** (1.954)	-6.613*** (2.106)
Log income	-	-3.269*** (1.248)	-3.622*** (1.290)
Constant	44.46*** (1.139)	73.80*** (13.48)	64.93*** (15.08)
Observations	1,961	1,961	1,961
R-squared	0.002	0.020	0.028

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 12: MPC regressions on age and hand-to-mouth status. HFCS, age 22-79, only wave 2017. In the past year $c > y$.

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