

Drescher, Katharina; Fessler, Pirmin; Lindner, Peter

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WORKING PAPER 231

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Katharina Drescher, Pirmin Fessler, Peter Lindner

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*Oesterreichische Nationalbank
Otto-Wagner-Platz 3, 1090 Vienna, Austria
PO Box 61, 1011 Vienna, Austria
www.oenb.at
oenb.info@oenb.at
Phone (+43-1) 40420-6666
Fax (+43-1) 40420-046698*

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Helicopter Money in Europe: New Evidence on the Marginal Propensity to Consume across European Households

Katharina Drescher¹, Pirmin Fessler², Peter Lindner³

Abstract

The recent spread of COVID-19 has led to the worst economic crisis since the 1930s. To boost demand after the crisis, direct monetary transfers to households are being discussed. Using novel microdata from the Eurosystem Household Finance and Consumption Survey (HFCS), we study how much of such a transfer households would actually spend. We do so by exploiting the unique opportunity that the new wave of the survey included an experimental question to calculate the marginal propensity to consume from hypothetical windfall gains. Our results show that households on average spend between about 33% (the Netherlands) and 57% (Lithuania) of such a transfer. In all countries, answers are clustered at spending nothing, spending 50% and spending everything. Marginal propensities to consume decrease with income but are not as clearly related to wealth.

Keywords: survey data, helicopter money, household finance, monetary policy

JEL codes: D14, D10, D31, E52

¹ Statistics Austria, Guglgasse 13, 1110 Vienna, katharina.drescher@statistik.gv.at

² Corresponding Author: Foreign Research Division, Oesterreichische Nationalbank, Otto-Wagner Platz 3, 1090 Vienna, pirmin.fessler@oenb.at.

³ Economic Analysis Division, Oesterreichische Nationalbank, Otto-Wagner Platz 3, 1090 Vienna, peter.lindner@oenb.at.

Non-Technical Summary

We use novel microdata from the the Eurosystem Household Finance and Consumption Survey (HFCS) to document Marginal Propensities to Consume (MPC) out of a (hypothetical) windfall gain. We exploit the unique opportunity to employ the first large cross-country dataset which covers a set of 17 European countries (including all euro area countries but Finland, Spain and Estonia) to do so. The analysis is based on a harmonized survey question within the main European survey to analyze household finances. The data from the survey have been recently published by the ECB.

Besides documenting average MPCs across countries, we also use methods, which allow us to analyze the distribution of MPCs beyond the mean while keeping the micro perspective alive.

We find that the MPC is lowest – at about 33% – in the Netherlands and Portugal and highest – at about 57% – in Greece and Lithuania. Austria lays in the middle of this range with close to 45%. Patterns behind average MPCs differ strongly across countries. MPCs are negatively correlated with gross income but the relationship to wealth is less clear. These results are broadly in line with what is reported in the extensive literature on the topic.

Based on the empirical evidence at hand we conclude that helicopter money – if applied equally across euro area countries – would likely have very heterogenous effects across different countries. Also, within countries the effects would be related to the spending patterns along the income distribution. Based on the results from the study, we expect a stronger impact on goods and services consumed by lower income households. Given their higher MPCs, this effect for lower income households exceeds their proportion of general spending/income. A households' position in the net wealth distribution seems to be only loosely related to the spending behavior from a windfall gain.

1. Introduction

In recent months helicopter money has been widely discussed as a potential tool to boost the economy once the COVID-19 health crisis is under control. Several blog posts and new working papers discuss the issue (see for example Buiter and Kapoor 2020, Cecchetti and Schoenholtz 2020, Cukierman 2020, and Gali 2020). Nevertheless, cross country empirical evidence is still scarce on how helicopter money is actually spent.

The literature on the marginal propensity to consume (MPC) is, theoretical as well as empirical, among the largest and oldest fields in economics. Japelli and Pistaferri (2010) provide an excellent overview. In a more recent contribution, Japelli and Pistaferri (2014) base their analysis on a hypothetical question in an Italian household survey to examine the marginal propensity to consume (MPC) out of windfall gains. Data for this study come from the Survey Household Income and Wealth (SHIW) conducted in 2010 by the Banca di Italia. As will be clear below the wording of the question is very similar to the one analyzed in the study at hand. Japelli and Pistaferri (2014) documented an average MPC of about 48% for Italy. The authors emphasize a varying MPC over net financial wealth holdings plus net income. Households with low levels of what is called “cash-on-hand” respond much more extensively to helicopter money than households higher up this distribution.

More recently, the contributions of van Rooij and de Haan (2019) utilize data from the Netherlands. A representative sample of persons answer specific questions of a transfer from either the ECB or the national government of 500€ or 2,000€ in March 2016. The analysis reports an MPC of about 30% for the Netherlands. There seems to be no fundamental difference between the institution paying out helicopter money and the two amounts under consideration. Furthermore, Djuric and Neugart (2019) use a set of different but similar survey questions that were filed in the spring of 2016 for a representative sample in Germany. The specific questions also separate the institution handing out the money (national government vs. ECB vs. lottery win) but also allow to look at differences between a one-shot sum of 1,200€ or twelve monthly installments of a 100€ each. Overall, the authors report an MPC of about 40% for Germany. Additionally, to essentially the same response of households with respect to the institution of handing out the money, the results are similar to the lottery win formulation that underlies the investigation we conduct (more on the question wording of the HFCS below). Thus, we are confident that our information also extends to a more realistic payment from the ECB or a national institution when it comes to helicopter money.

Moreover, Christelis et al. (2019a) look specifically at the symmetry of a positive versus a negative income shock reporting an overall MPC of about 25% for Dutch households. The authors argue that negative shocks have larger reaction of households than a positive income shock. Data for this investigation come from special module of a representative internet panel for households in the Netherlands. The field period, i.e. the time respondents answered this model, was in spring and autumn 2016. With regard to wealth, Christelis et al. (2019b) are examining shocks to the home value and their effects on consumption. They find that more than 90% of households have no consumption response but the relationship to cash on hand of those who have one (sum of income plus financial wealth) is negative. Finally, another strand of the literature investigates the effect of income shocks on neighbors' behavior as for example in Kuhn et al. (2011) who find a positive effect on car consumption of neighbors of households winning a car. Again, the information is based on the Dutch population. Here data come from lottery wins together with a paper-based survey from 2003 to 2006.

However, the MPC resulting from windfall gains has to the best of our knowledge not been examined on the basis of internationally comparable microdata for a large set of countries including the whole balance sheet of households. Note, that using a question on hypothetical windfall gains instead of actual gains allows to include all households (represented by the sample) in the analysis, while analyses of actual gains are often restricted to small subsets of the population. We contribute to the literature by examining the MPC out of a windfall gain for a set of 17 European countries (including all euro area countries but Finland, Spain and Estonia) based on a harmonized survey question within the main European survey to analyze household finances. We estimate the average MPC across countries and the full distribution of income and wealth. We find heterogeneity across country means as well as strong differences in distributional patterns with regard to extreme saving or spending behavior. While the average MPC clearly decreases with income, it shows no correlation with wealth. We conclude that a standardized monetary intervention via helicopter money in the euro area would lead to very heterogenous effects across different countries, but also within countries across households.

We structure the paper as follows. First, we introduce the data in section 2. A short summarizing of the method in section 3 precedes the discussion of the results in section 4, which is the center of our analysis. Section 5 concludes.

2. Data

The data come from the third wave of the Eurosystem HFCS and was published in April 2020.⁴ While the survey was conducted in 22 countries, only 17 countries included the question on a windfall gain. This question is ideal for analyzing the topical issue of helicopter money. We use individual household-level data for Austria (AT), Belgium (BE), Cyprus (CY), Germany (DE), France (FR), Greece (GR), Croatia (HR), Ireland (IE), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), Malta (MT), the Netherlands (NL), Portugal (PT), Slovakia (SK) and Slovenia (SI), altogether comprising 58,515 observations without any missing information.⁵ The unique feature of this survey we use is the experimental question on helicopter money, which was implemented as a hypothetical windfall gain from a lottery win of an amount equal to the net income a household receives in one month. The data also contain standard socioeconomic demographic characteristics as well as detailed information on the balance sheets of households.

Similar to Jappelli and Pistaferri (2014), our main variable of interest is the hypothetical question on the windfall gain a household receives. The question posed to households 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?

Following the existing literature, we estimate the marginal propensity to consume out of such a windfall gain. In particular, we are interested in its distribution across household incomes as well as across countries, because both are crucial to designing a potential helicopter money policy and evaluating its potential impact. On top of that, our survey allows for an assessment of the MPC across the distribution of net wealth as well. Table 1 shows descriptions of all variables we use in the analysis. Summary statistics of the surveys and main variables used in our empirical analysis are presented in table 2.

⁴ Detailed information about the survey can be found at https://www.ecb.europa.eu/pub/economic-research/research-networks/html/researcher_hfcn.en.html.

⁵ All HFCS data is multiply imputed five times. However, not all countries included the experimental question into their list of variables to be imputed. That is why for calculations of the MPC we can only use 58,515 observations out of the total 60,114 for all countries (see table 1). We use Rubin's Rule for all calculations.

Table 1 Description of Variables

<i>Name</i>	<i>Explanation</i>	<i>Definition</i>
hiz0400a	spending	How much of an lottery gain of one month households income is spend over the next 12 months on goods and services
dn3001	net wealth	Total household assets excluding public and occupational pension wealth minus total outstanding household's liabilities (excluding public pensions)
di2000	gross income	Total gross annual household income aggregate
dh0001	household size	Number of household members, all household members included
dhageh1b	age brackets	Age of the RP (UN/Canberra definition used in the ECB-HFCS statistical output) in brackets: 16-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85 and older
dhaged65plus	old age	Household members aged 65 or more

Source: HFCS 2017

Table 2 Descriptive statistics

Country	Non-missing obs.	All observations	% of missing MPC	Average MPC (%)	Net wealth		Gross income	
					Mean	Median	Mean	Median
Austria	3,072	3,072	0.0	46.6 (0.8)	250.3 (22.3)	82.6 (3.9)	50.4 (1.4)	41.2 (0.5)
Belgium	2,275	2,329	2.3	42.0 (1.1)	366.2 (21.4)	212.2 (9.4)	56.4 (1.2)	43.5 (1.0)
Cyprus	1,303	1,303	0.0	43.7 (1.6)	499.7 (58.6)	195.4 (15.4)	32.9 (0.9)	25.3 (1.1)
Germany	4,940	4,942	0.0	51.3 (0.8)	232.8 (8.7)	70.7 (3.4)	53.1 (0.9)	40.1 (0.7)
France	13,685	13,685	0.0	41.8 (0.5)	242.0 (5.3)	117.6 (5.4)	40.5 (0.4)	32.3 (0.5)
Greece	2,964	3,007	1.4	56.8 (1.0)	93.9 (3.8)	60.0 (2.5)	22.5 (0.4)	19.0 (0.4)
Croatia	1,335	1,357	1.6	55.7 (1.2)	106.6 (8.5)	61.4 (3.3)	12.2 (0.5)	8.4 (0.4)
Ireland	4,517	4,793	5.8	52.8 (0.9)	367.8 (11.3)	184.9 (6.1)	65.2 (1.5)	48.0 (0.7)
Italy	7,420	7,420	0.0	48.1 (0.7)	214.3 (5.0)	132.1 (3.0)	33.8 (0.5)	24.6 (0.3)
Lithuania	1,444	1,664	13.2	57.3 (1.7)	84.3 (5.8)	45.8 (2.0)	10.8 (0.6)	7.1 (0.3)
Luxembourg	1,616	1,616	0.0	37.1 (1.0)	897.9 (45.4)	498.0 (23.2)	93.1 (1.9)	71.0 (1.9)
Latvia	1,196	1,249	4.2	51.3 (1.8)	43.0 (2.7)	20.5 (1.5)	14.3 (0.3)	10.2 (0.3)
Malta	1,004	1,004	0.0	48.8 (0.9)	400.7 (29.3)	236.0 (6.4)	31.2 (1.0)	25.4 (0.9)
Netherlands	1,735	2,556	32.1	32.9 (0.7)	186.0 (9.9)	67.3 (4.1)	54.8 (1.0)	44.8 (0.8)
Portugal	5,816	5,924	1.8	33.2 (0.7)	162.3 (7.2)	74.8 (2.2)	24.6 (0.6)	17.6 (0.3)
Slovenia	2,014	2,014	0.0	48.7 (1.2)	144.3 (7.4)	91.5 (3.1)	22.3 (0.5)	16.4 (0.5)
Slovakia	2,179	2,179	0.0	54.0 (1.1)	103.5 (5.0)	70.3 (2.7)	20.3 (0.8)	16.0 (0.4)
All	58,515	60,114	2.7	46.9	224.5	94.7	43.0	31.6

Note: Wealth and yearly household income shown in EUR thousands based on all observations. Standard errors are shown in parentheses. Standard errors are based on 500 replicate weights taking into account the complex survey design and multiple imputations. Multiple imputations are available for all countries in the case of income and wealth. Missing MPCs are excluded for those countries which do not impute them.

Source: HFCS 2017

3. Methods

We use straightforward tools to describe the empirical results of the question at hand. Note, however, that we use both complex survey population weights and multiple imputations for all statistics shown. While the multiple imputations would not be very important for the experimental question alone, they are crucial for obtaining the correct correlations with income and wealth. We show the full distribution of answers to the experimental question using a detailed histogram. We calculate the average marginal propensity to consume across all countries. And we use two tools to describe large datasets while keeping the micro perspective alive:

First, we use locally weighted non-parametric linear regressions (loess) to estimate the share of households providing an answer at the end of the spectrum by saying that they spend nothing ($MPC=0$) or all ($MPC=1$) across the full distribution of gross income⁶ (using the cumulative distribution function).

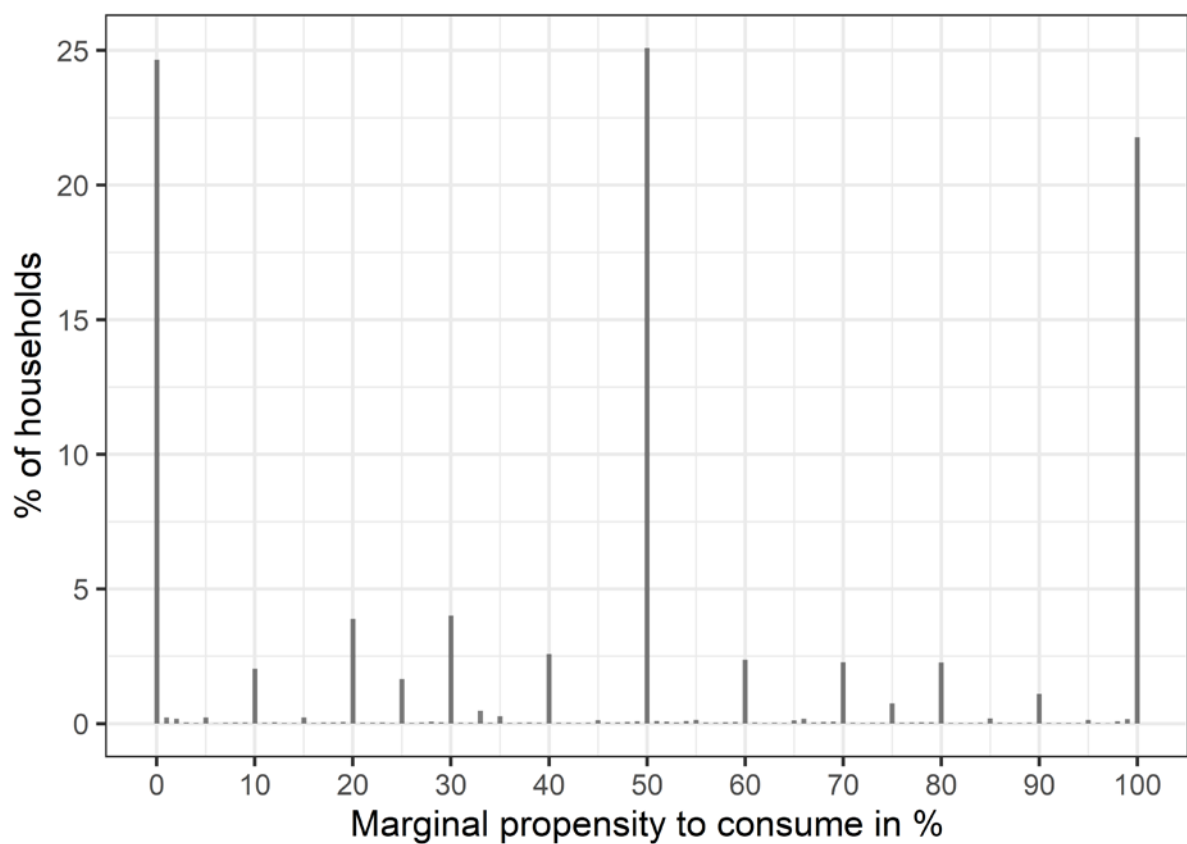
Second, we use binned scatter plots where average MPCs of bins including an equal number of households (weighted observations) are calculated across gross income and net wealth. In a second step we also use binned scatter plots of the same variables, but residualized. Thus, by using linear regression and the Frisch-Waugh-Lovell theorem variation explainable by a set of control variables is filtered out before plotting.

⁶ We use the cdf of gross income for several reasons: First, net income is not available in the HFCS. Second, because of potential measurement error we only use the ranking of households and not their actual income values. The ranking should also be highly correlated with the ranking according to net income.

4. Results

Figure 1 shows the full range of answers to the question on how much of the windfall gain would be spent. One can clearly see that the answers are clustered at three points: saving all ($MPC=0$), saving/spending half ($MPC=0.5$) and spending all ($MPC=1$). This finding holds also at the country level for all countries, however in varying degrees. It also ties in with the findings of the literature discussed.

Figure 1 Distribution of Marginal Propensity to Consume

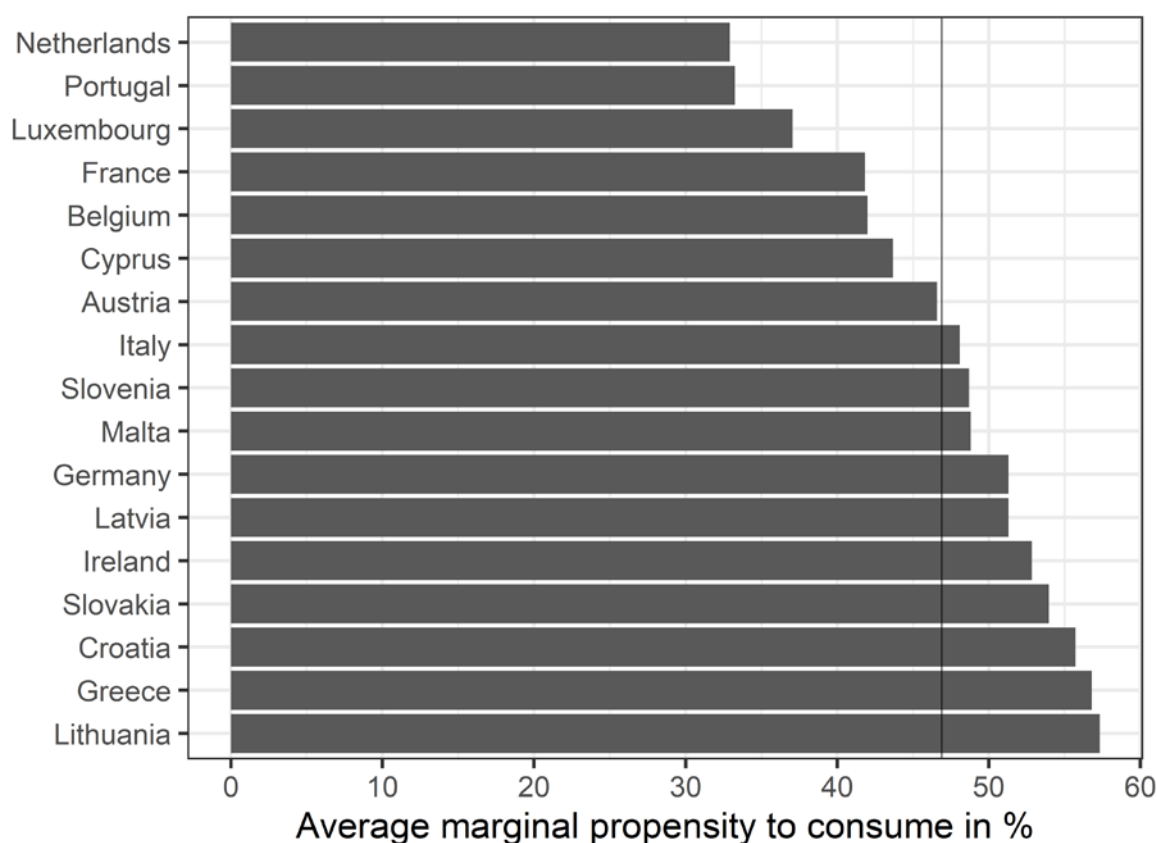


Note: Pooled data.

Source: HFCS 2017

Figure 2 shows the average MPC across all countries. The results of Japelli and Pistaferri (2014) for Italy and Rooij and de Haan (2019) for the Netherlands are almost replicated. Only compared to Djuric and Neugart (2919), who found an average MPC of about 40% for Germany, do we find a much higher MPC (of about 51%).

Figure 2 Average marginal propensity to consume across countries

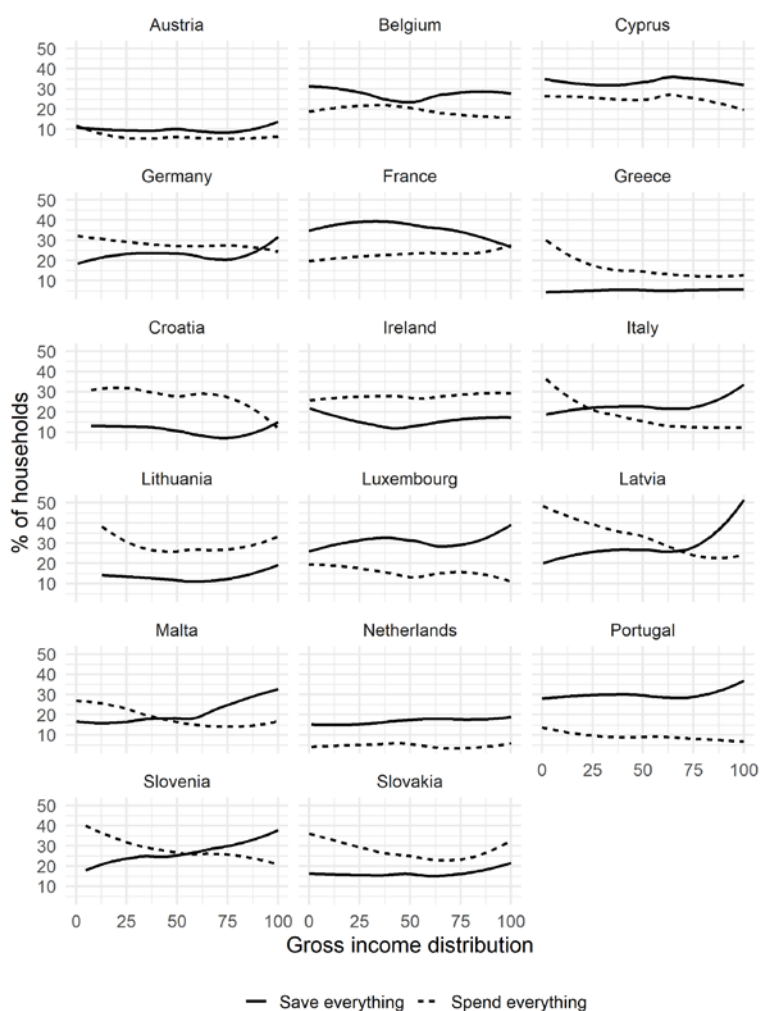


Note: Line shows the average marginal propensity to consume for the pooled data.

Source: HFCS 2017

Figure 3 shows the results of locally weighted linear regressions (loess) to smooth the share of answers at the end of the spectrum – spending all and saving all – across the gross income distributions of all countries. It illustrates that behind the average MPC there exists a lot of cross-country heterogeneity in terms of MPCs across the gross income distributions. In some countries the share of those who save everything is higher across the full distribution of gross income. In others the share of those who spend everything dominates. In some countries the correlation with income is much stronger than in others. All these patterns illustrate that overall the effects of euro area-wide helicopter money might be rather heterogenous not only on average across countries but also in terms of different patterns across and within countries.

Figure 3 Share of households saving or spending everything (MPC=0 and MPC=1)



Note: Gross Income distributions are constructed via cdfs at the country level.

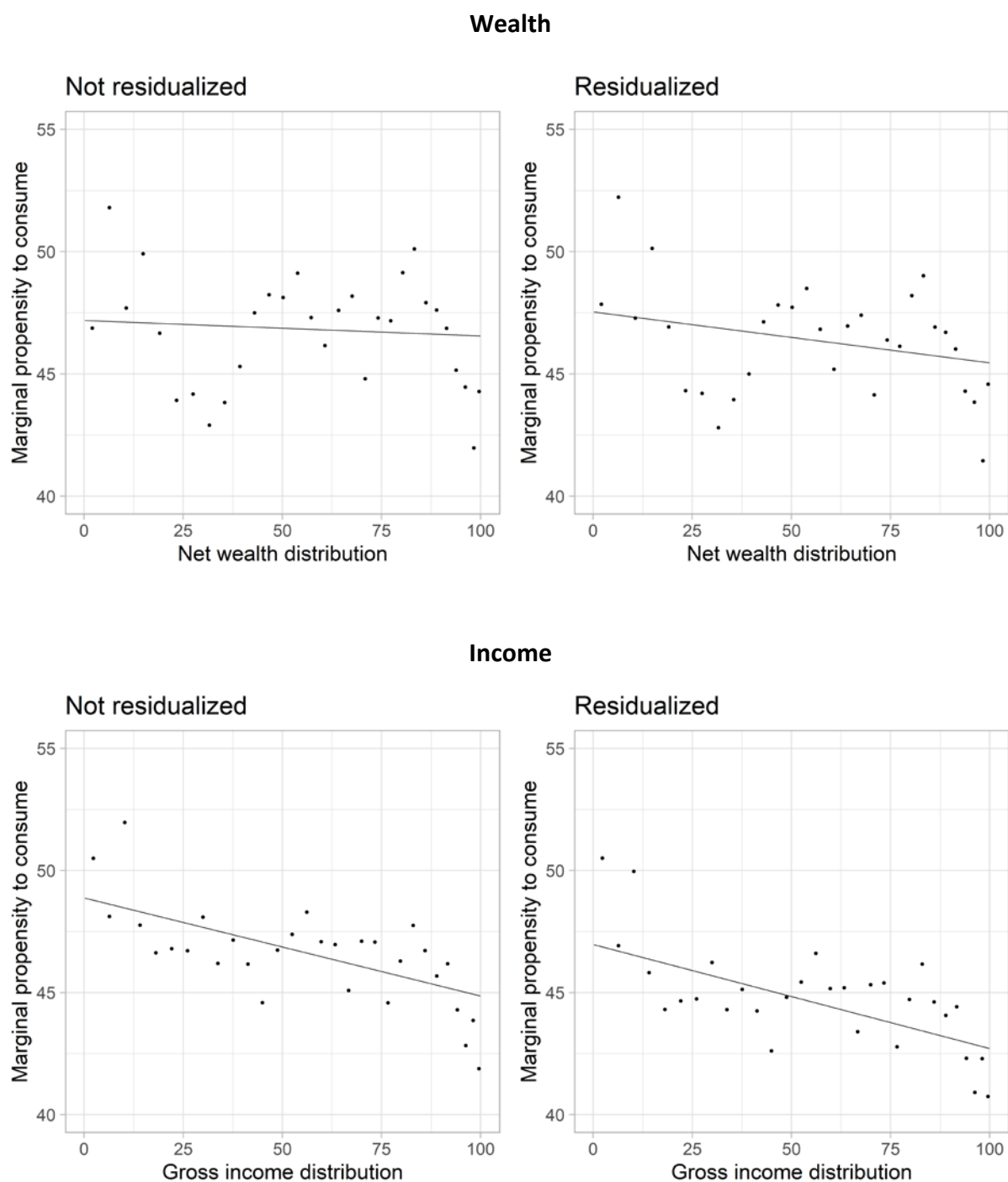
Source: HFCS 2017

Figure 4 shows four binned scatter plots. In all of them each dot represents about 4.2 million households and is calculated based on about 1,930 observations (on average). All figures show average MPCs across the income and wealth distributions of the pooled data. The residualized plots control for country dummies⁷, households size, age of the reference person based on 15 categories and a dummy variable indicating that at least one person living in the household is 65 years or older, and wealth (in the case of income) or income (in the case of wealth). The data offer the unique opportunity to analyze average MPC together with wealth. One can clearly see that there is hardly any correlation between households' net wealth and their MPC. By contrast, there is clearly a negative correlation between MPC and income. One reason for this difference might be that income is immediately available for spending. Conversely, a large part of household wealth such as housing, cars or other real assets but also part of the financial assets is not directly available for spending but would need to be liquidated or used as a collateral first.

To illustrate that the results based on our flexible binned scatter plots are confirmed by standard regression analysis we also show standard regression results in table 3. We regress the MPC on the CDF of income as well as the CDF of wealth. Results confirm what can be seen in Figure 4. Over the full income distribution, the MPC changes by 4 percentage points while over the wealth distribution it does by only 0.6 and 2 (in the case with controls) percentage points. Comparing figure 4 and table 3 also illustrates why binned scatter plots are preferable for this analysis. While the main result, that the relationship is clearly negative for income and much less clear for wealth can be confirmed with linear regression it masks the stronger differences between the upper and lower parts of the distributions.

⁷ Country-level fixed effects should control for differences in the levels of income or wealth due to institutional differences or differences in national price levels.

Figure 4 Average marginal propensity to consume across income and wealth



Note: The figures show binned scatter plots of the pooled data. Each dot represents about 4.2 million households and is calculated based on about 1,930 observations (on average). The net wealth and gross income distributions are cdfs constructed on the pooled data. Residualized plots control for country dummies, household size, age of the reference person based on 15 categories and a dummy variable indicating that at least one person living in the household is 65 years or older, as well as income in the case of wealth and wealth in the case of income.

Source: HFCS 2017

We also investigated the relationships at the country level using CDFs of wealth and income within countries. The results (not shown) confirm the clear negative relationship between the MPC and income for all countries but France. They show that the less clear relationship to wealth is not only due to mixed results for different countries but also to less strong correlations within countries. While Belgium, France, Ireland, Lithuania, and Slovakia show a positive slope, the negative slopes in most other countries are less steep. For a detailed analysis how and why these countries differ with regard to the correlations between the MPC and wealth as well as the distribution of the MPC within countries more detailed country-level analyses including differences between household portfolios are necessary. Using cash on hand as Christelis et al. (2019b) instead of net wealth might be an interesting extension at the country level – but is beyond the scope of this paper.

Table 3 Linear Regression results

Dependent Variable: Marginal Propensity to Consume				
CDF of gross income	-4.019 (0.526)	-4.263 (0.611)		
CDF of wealth			-0.631 (0.527)	-2.082 (0.598)
Country Fixed Effects		YES		YES
Age and household size controls		YES		YES
Wealth control		Yes		
Income control				YES
Observations	58,515	58,515	58,515	58,515

Note: The table shows linear regression results on the pooled data based on the first imputation impute of the HFCS. Missing MPCs are excluded for those countries which do not impute them. Controls include country fixed effects, household size, age of the reference person based on 15 categories and a dummy variable indicating that at least one person living in the household is 65 years or older, as well as income in the case of wealth and wealth in the case of income.

Source: HFCS 2017

5. Concluding remarks

Using microdata comparable across 17 European countries, we find that the average marginal propensities to consume (MPCs) vary considerably across countries. The MPC is lowest – at about 33% – in the Netherlands and Portugal and highest – at about 57% – in Greece and Lithuania. Patterns behind average MPCs differ strongly across countries. MPCs are negatively correlated with gross income but the relationship to wealth is less clear.

Based on the empirical evidence at hand we conclude that helicopter money – if applied equally across euro area countries – would likely have very heterogeneous effects across different countries. But also within countries, the effects would be related to the spending patterns along the income distribution, with a relatively stronger impact on goods and services consumed by lower income households exceeding their proportion of general spending/income.

Given the higher MPC in lower income groups, one policy conclusion could be that a lump sum transfer is preferable to an inequality-preserving amount proportional to net income.

Our paper was a first attempt to document the differences between average MPCs in euro area countries based on comparable microdata as well as a documentation of their heterogeneity across and within countries and their correlation to income and wealth. However, further research is needed to document the different patterns of MPC distributions across countries beyond the mean and to better understand the relationship to socioeconomic characteristics as well as income and wealth.

References

- Buiter, W. & Kapoor, S. (2020). To fight the Covid pandemic, policymakers must move fast and break taboos, <https://voxeu.org/article/fight-covid-pandemic-policymakers-must-move-fast-and-break-taboos> [accessed June 2020]
- Cecchetti, S. G. & Schoenholtz, K. L. (2020). Helicopters to the Rescue?, <https://www.moneyandbanking.com/commentary/2020/5/10/helicopters-to-the-rescue> [accessed June 2020]
- Christelis, D., Georgarakos, D., Jappelli, T., Pistaferri, L. & van Rooij, M. (2019a). Asymmetric Consumption Effects of Transitory Income Shocks, *The Economic Journal*, 129 (622), 2322–2341.
- Christelis, D., D. Georgarakos, T. Jappelli, L. Pistaferri and M. van Rooij (2019b). Wealth shocks and MPC heterogeneity. DNB Working Paper No. 645.
- Cukierman, A. (2020). Helicopter Money & the Fiscal-Monetary Nexus, CEPR discussion paper, https://cepr.org/active/publications/discussion_papers/dp.php?dpno=14734
- De Haan, J., & van Rooij, M. (2019). Would helicopter money be spent? New Evidence for the Netherlands, *Applied Economics*, 51:58, 6171-6189.
- Djuric, U. & Neugart, M. (2019). Helicopter Money: Survey evidence on expectation formation and consumption behavior, *Oxford Economic Papers*, gpz062, <https://doi.org/10.1093/oep/gpz062>
- Gali, J. (2020). Helicopter money: The time is now, <https://voxeu.org/article/helicopter-money-time-now> [accessed June 2020]
- Japelli, T. & Pistaferri, L. (2010). The Consumption Response to Income Changes, *Annual Review of Economics*, 2(1), 479-506.
- Japelli, T. & Pistaferri, L. (2014). Fiscal Policy and MPC heterogeneity, *American Economic Journal: Macroeconomics*, 6(4):107-136.
- Kuhn, P., Kooreman, P., Soetevent, A. & Kapteyn, A. (2011). The Effects of Lottery Prizes on Winners and Their Neighbors: Evidence from the Dutch Postcode Lottery, *American Economic Review*, 101(5), 2226-2247.

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