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Working paper

What would you do with £500? (...in your own words)

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September 11, 2024

Abstract

A longstanding puzzle in macroeconomics is why individuals with similar levels of available liquidity can have very different marginal propensities to consume (MPCs). We use a new approach to better investigate differences in consumer behaviour in response to hypothetical, one-off gains and losses: using open-ended questions and text analysis to understand the motives underlying consumers decisions. high-liquidity individuals with high MPCs often cite mental accounting motives. Apparently illiquid individuals report a range of coping mechanisms in response to a loss, including labour supply responses, relying on friends and family and selling possessions. This implies greater effective liquidity than narrow financial measures indicate.

Keywords: MPC, heterogeneity, open-ended questions, text analysis

JEL codes: C82, C83, D14, E21

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1 Introduction

Marginal propensities to consume (MPCs) are important for several reasons. The MPC measures how consumers would change their spending in response to transitory income changes, and so indicates how consumers would respond to short run income losses or to fiscal stimulus policies such as tax cuts or direct stimulus payments. The MPC is also a key parameter in many macro models (Kaplan and Violante, 2022). Finally, sensitivity to transitory fluctuations in income is a marker of financial fragility: households with liquid resources should be able to smooth transitory fluctuations in income (Blundell, Pistaferri, and Preston, 2008). Thus, prevalence of high MPCs in an economy is indicative of the prevalence of households tight financial circumstances.

As a result, a large literature attempts to measure MPCs. One way to do this is with survey questions that ask respondents how they would change their spending in response to hypothetical windfalls and losses. One virtue of this approach is that it recovers an MPC for each consumer, and so is informative about the full distribution of MPCs. The striking, yet puzzling, finding of this literature is the apparent heterogeneity in MPCs. Theory suggests that most consumers should have an MPC that is either close to zero or close to one (Jappelli and Pistaferri, 2010). For consumers with liquid financial resources, the spending response to transitory income change should be approximately the annuitised value of the increase in lifetime income. For consumers with a long time horizon, this value will be near zero. In contrast, consumers who temporarily have little liquid wealth, may have MPCs close to one (Kaplan and Violante, 2014). Households with a currently binding borrowing constraint will have a high MPC out of a transitory gain (or loss). Households that are not currently constrained but would be so in the face of a loss will have high MPCs out of a transitory loss. Similarly, among consumers that are both highly impatient and prudent, models of precautionary saving predict high MPCs when consumers have less than their target ‘buffer-stock’ of liquid savings (Carroll, 1997) and low MPCs otherwise.

While past research has documented that elicited MPCs are often close to zero or one (Fuster, Kaplan, and Zafar, 2021), and mildly correlated with measures of liquid assets (Jappelli and Pistaferri (2014), Ganong et al. (2020), Fagereng, Holm, and Natvik (2021)), the puzzle lies in the substantial heterogeneity *within* groups of consumers defined by levels of liquidity. Some consumers with significant liquid wealth nevertheless report spending most or all of a transitory increase in income. Conversely, some consumers with little or no liquid assets report responses to a transitory income loss close to zero. More broadly, attempts to correlate MPCs with variables commonly observed in surveys have been “largely fruitless” (Fuster, Kaplan, and Zafar, 2021). Similarly, the quasi-experimental literature on MPCs has found that high-liquidity consumers respond to the receipt of predictable changes in their income as if they were credit constrained (the so-called “liquid hand-to-mouth”, Ólafsson and Pagel (2018), Baugh et al. (2021)).

We take a new approach to understanding heterogeneity in measured MPCs. We conducted a survey of thirty-five hundred UK adults in May 2023. We began by posing standard survey questions designed to elicit MPCs (similar to those studied by Fuster, Kaplan, and Zafar (2021) and Crossley et al. (2021)). Our innovation is that we then asked a series of open-ended follow-up questions. Respondents that indicated a positive MPC out of a transitory income increase were asked to explain, in their own words, what they would spend that windfall on; those who indicated a positive MPC less than one were also asked how they would use the unspent funds. All were then asked *why* they would use the money in the way that they did. Similarly, respondents were asked, through a series of open-ended questions, to explain their reaction to a transitory income loss.

We study the open-ended responses using a text analysis approach similar to that described in Ferrario and Stantcheva (2022). We group together lemmatized responses from “what” questions, and separately lemmatized responses from “why” questions. We then assign these responses to topics (capturing behaviours and motives) using frequently mentioned terms associated with particular spending responses or motives. For instance, we categorise those individuals who mentioned ‘rainy day’ in answers to the questions about why they would not increase their spending in response to a windfall gain under the topic ‘saving for precautionary reasons’. We then examine the frequency of different topics across groups defined by (i) scenario (gain or loss) (ii) consumer liquidity (high or low) and (iii) MPC (large or small).

This approach, which combines established quantitative survey questions, open-ended follow-ups, and textual analysis, has several advantages. It allows respondents to cite considerations that survey designers might not have thought to ask about *ex ante*, and it avoids priming respondents to give particular responses (Geer, 1991, Haaland et al., 2024). The puzzling heterogeneity in MPCs that the literature documents may reflect measurement problems (for example, respondents misunderstanding the question) and/or economic behaviour not captured by standard models (mental accounts being just one example). Our approach has the potential to reveal both.

We have four key findings. First, high-liquidity individuals who report a high MPC report that they would adjust their spending on luxuries (spending more in response to a gain and cutting back in response to a loss). In contrast, low-liquidity respondents with a high MPC would adjust essentials. Moreover, high-liquidity high MPC individuals are much more likely to mention topics that suggest that they view the payment in the gain scenario as a bonus or opportunity to treat themselves to something they would not typically buy. At the same, high-liquidity individuals who say they would cut spending in the loss scenario often report a desire to maintain their savings to recoup the loss. These responses are consistent with the behavioural life-cycle model of Shefrin and Thaler (1988), which emphasizes mental accounting. Specifically, money is not fungible. Such mental accounting consumers have a high MPC out of current income, and

particularly so when additions to current income are viewed as a windfall or bonus. We refer to such as *windfall mental accounting*. The behaviour life-cycle models also posts that mental accounters are also unwilling to spend out of their designated savings. This implies a *high* MPC (that is, spending reductions) out of small losses, as such consumers are unwilling to use savings to smooth consumption. We refer to this as *saving mental accounting*.

¹ Excluding those exhibiting mental accounting motives reduces the fraction of high-liquidity high MPC consumers in the gain scenario by 36%, and in the fraction of high MPC consumers in the loss scenario by more than half. In contrast to high-liquidity respondents, low-liquidity respondents with a high MPCs are more likely to mention topics suggesting that gains relaxed a financial constraint.

Second, low-liquidity consumers were more likely to bring up paying down debts when describing how they would use their payments, which is consistent with the explanation advanced in Koşar et al. (2023) for low MPCs among the hand-to-mouth. High interest rates associated with low income or high levels of debt incentivise saving (by paying down debt). Consistent with this, those with higher debts also tend to exhibit larger MPCs in response to losses than they report for gains. Households with high debt face a strong incentive to save out of a gain, but may not be able to smooth a loss.

Turning to measurement, individuals responded in a variety of ways to the loss scenario, with non-trivial fractions of respondents reporting they would sell belongings, borrow from friends or family, or work extra shifts or overtime to compensate for the losses. This implies that they may have greater effective liquidity than is captured by a measure of liquid financial assets. These sorts of responses are less studied in papers eliciting MPCs, which tend to focus entirely on individuals' spending, debt and saving responses.²

Finally, respondents sometimes interpreted the classification of spending and saving differently to the standard economic conception. For instance, some low-liquidity individuals report debt repayments as an item of spending when listing what they would spend more on. Thus, high measured MPCs for these consumers partly reflect debt repayment (that is, saving). At the same time, some individuals report certain spending activities when asked what they would do with unspent funds. Importantly, however, such outlay classification problems, which lead to mismeasurement of individual MPCs, are limited, and do not seem to be a major source of the puzzling MPC heterogeneity within groups defined by liquidity.

In sum, we find that some of the heterogeneity in reported MPCs is explained by measurement problems, but the main measurement issue seems to be the classification of high and low-liquidity

¹The third mental account mentioned in Shefrin and Thaler (1988) is the 'future' income account, from which consumers are predicted to have a low MPC.

²Crossley et al. (2021) and Crossley et al. (2023) also ask about whether individuals would adjust their transfers from or to other households in response to a windfall gain.

individuals, rather than mismeasurement of individual MPCs. Our findings point to behaviours and motives that are typically absent in standard models as more important explanations, particularly mental accounting and a strong debt repayment motive (perhaps because of heterogeneity in the interest rates households face). Thus, our analysis offers lessons both for the design of future surveys and the modelling of consumer behaviour. We return to these points in our concluding section. Our findings highlight the advantages of open-ended questions, which can reveal the importance of behaviours and motives that might otherwise not have occurred to data collectors.

We contribute to the literature that elicits MPCs using hypothetical scenarios. Such studies are now common and have been used to study variation in MPCs across countries (Drescher, Fessler, and Lindner (2020)), across gains and losses (Bunn et al., 2018, Christelis et al., 2019), in response to payments of different sizes (Andreolli and Surico, 2021) and across wealth and income shocks (Christelis et al., 2021). In a contemporaneous and complementary paper, Colarieti, Mei, and Stantcheva (2024) examine the motives of individuals' saving and spending decisions in response to hypothetical windfalls and losses with detailed closed format questions that also cover their general spending and saving strategies. In this paper, we demonstrate how open-ended questions can shed additional light on the motives behind individuals' responses to these questions, and on how respondents interpret and understand what they are being asked.

Text analysis in macroeconomics has largely focussed on the words of policymakers (Hansen, McMahon, and Tong, 2019) or the media (Baker, Bloom, and Davis, 2016). Here we focus on the words of consumers, and in particular self-reported explanations of their own circumstances and decision-making. Open-ended questions of the kind we use have been used elsewhere to assess attitudes and understanding of particular fiscal and redistributive policies (Stantcheva, 2020).

The remainder of this paper is structured as follows. In Section 2 we describe our survey, the open-ended questions and our analysis sample. Section 3 describes how MPCs vary across treatments and gain and loss scenarios and their distribution across consumers in our data. Section 4 describes the methods and results of our text analysis. Section 5 uses the results of Section 4 to provide an accounting for the heterogeneity documented in Section 3. Finally, Section 6 discusses lessons both for the design of future surveys and for future modelling of consumer behaviour.

2 Data

2.1 Survey Overview

Our survey was put together using Qualtrics software, and fielded online with participants recruited from the UK by a large survey company from 11th-14th May 2023. Individuals who completed the survey received a small payment as compensation for their time. We reproduce the survey in Appendix F.

Because open-ended questions have not been used to study marginal propensities to spend in

this way before, we conducted two pilots to test our questions and assess the quality of the open-ended answers before running the main survey. The first pilot ran from 23rd-27th February 2023 and had 240 complete responses. The second pilot ran from 5th-6th April and had 91 respondents. In both cases we collected respondent feedback at the end of the survey. Responses from the pilot waves are not included in the results below.

Before accessing the survey, respondents were shown a preamble that explained the nature of the survey and told that it was for academic research to “understand how individuals respond to unexpected changes in their income.” They were also told there were no right answers to the questions posed, and invited to share their own thoughts as accurately as possible.

Those choosing to continue were then asked questions about their demographics and financial situation, including whether they saved each month and how much, whether they had debts and the extent to which those debts were a burden for their household, and their available liquidity (how long they would be able to cover their living expenses if they lost their main source of income without borrowing or asking for help from friend or family).³ They were also asked questions about how often they were unable to afford essential goods such as food, clothing and heating. They were then invited to explain how they would respond to hypothetical windfalls and hypothetical losses, using open-ended text fields to describe what they would do and their reasons for doing so. Responses to these questions had to be a minimum of 12 characters, and individuals were prompted to give as much detail as they could (“The more detail you provide, the better we will be able to understand your circumstances and decisions”).

At the end of the survey, individuals were asked how clear they found the survey questions and to provide us with any feedback they had in another open text field. We found that this feedback field was particularly useful in redesigning the survey following the initial pilot waves. An example of this was the framing of questions on financial losses. Feedback from the pilot suggested this was difficult to answer for those with low levels of liquidity, particularly when asking about a one-off loss of £2,500, as several respondents pointed out that the loss exceeded their available funds. In light of this feedback, we added further detail to the question, explaining that the loss could be “a one-off reduction in the value of your savings, an increase in your debts or a one-time reduction in your income.”

2.2 Eliciting MPCs and open-ended follow-up questions

The questions on gains and losses were adapted from Fuster, Kaplan, and Zafar (2021). All respondents were asked about their responses to both hypothetical windfalls and losses. The order in which the two scenarios were presented was randomised across respondents to allow for possible question order effects. Respondents were also randomly assigned the size (either £500 or £2,500)

³This question was taken from the Financial Conduct Authority’s *Financial Lives* survey (Financial Conduct Authority, 2023).

of their gains and losses, with the same amount being used in both scenarios. Thus, we have a within-subject design for gain versus loss treatments but a between-subject design for size effects.

In the gain treatment, individuals were first asked if they would spend more, the same or less over the next three months in response to receiving a hypothetical unexpected payment. If they responded they would spend more or less, they were asked how much (allowing us to calculate their MPC). They were then invited to list - in their own words - what they would spend this money on if spending more, and what they would buy less of if they said they were spending less. Individuals who said they would not spend the entire payment were then asked how they would use the unspent funds. All respondents were then asked to give reasons why they would use the money in the ways they had stated. Those who said they would increase their spending by more than the payment were also asked specifically why they would do this in particular.

In the loss treatment, individuals were asked about “a hypothetical situation in which you unexpectedly find yourself (£500/£2,500) worse off today. This could be a one-off reduction in the value of your savings, an increase in your debts or a one-time reduction in your income. Note that this does not in any way affect your income going forward. You have simply found yourself suddenly to be (£500/£2,500) worse off than you were before.” They were again asked if they would spend more, less or the same over the next three months in response. If they responded by saying they would spend less, there were asked to describe what they would cut back on. Those not cutting back their spending by the full amount of the loss were then asked how they would cover the remaining deficit. As in the gain question, they were then asked to explain why they would respond in the way they did.

Table A1 in Appendix A shows results of tests for question order effects in reported MPCs, based on whether individuals were presented with the loss question first, or the gain question. Individuals were around 4 ppt more likely to report they would spend more in response to a windfall, or to report they would spend less in response to a loss, if this was the first question they were asked (a difference that is statistically significant). A possible explanation for this order effect is question fatigue. As we randomized the order across individuals, this should not unduly affect our results.

2.3 Data Collection and Analysis Sample

In the main survey, we used quota sampling with quotas of 872 each for men aged 18-44, women aged 18-44, men aged 45 and over and women aged 45 and over. We also allowed up to 12 individuals identifying as being non-binary. In the end, this yielded a sample of 3,505 respondents.

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⁴Our sample is not a probability sample, so the well-established mathematics of population inferences do not apply. The goal of our quota sampling instead was to have a sufficiently large and diverse sample of respondents to capture the full range of behaviours in the population. All inferences refer to this sample.

We found the vast majority of respondents provided good quality and coherent responses to the open-ended questions - but not all. We took several steps to screen out low quality responses from our sample, making use of paradata collected by the survey software. In particular, we drop i) 45 individuals who reported (to our feedback section) that the survey questions were ‘very unclear’ ii) those whose time spent reading and responding to the open-ended questions put them in the bottom 5% of the distribution (175 individuals whose responses also tended to be of low quality) iii) 68 respondents who completed the survey on a phone and who spent less than 30 seconds reading and responding to the open-ended questions and were recorded making more than five clicks on the page (and so appeared to answer the questions using predictive text) iv) 8 individuals reporting implied MPCs to either gains or losses greater than 10. After these selections, we are left with an analysis sample of 3,213 respondents (92% of the obtained sample).

Table A2 in the Appendix A displays summary statistics for the analysis sample. The average respondent spent 12 minutes completing the survey. The sample remains roughly balanced by age and sex after our sample selection (52% are female and 52% are 45 and over).

2.4 Liquidity Groups

High-liquidity individuals are defined as those who say that they would be able to cover at least three months of their living expenses if they lost their main source of income. Table 1 displays summary statistics for some aspects of the personal finances of the two liquidity groups. The measure of liquidity correlates well with other measures of wealth and financial security. Those with high-liquidity are more likely to own their homes outright, to not have debts, and to have saved in the most recent month. They were also much less likely to report difficulties eating adequately, paying for goods and services related to health and hygiene, or paying bills to maintain and heat their homes. We also considered an alternative measure of individuals’ liquidity, simultaneously drawing on various questions of the survey and using latent class analysis to divide the sample into two liquidity groups. This measure turns out to have a high degree of overlap with the simpler classification (see Appendix B).

3 Heterogeneity in MPCs

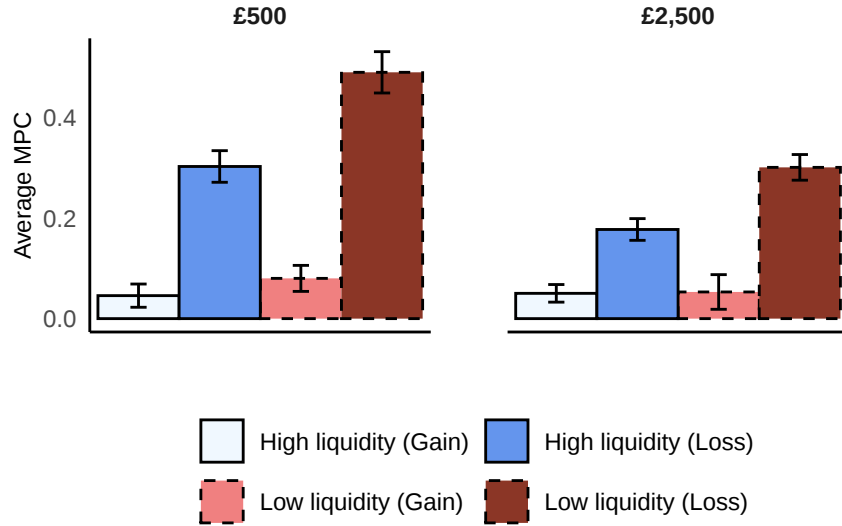
The previous literature has largely achieved consensus on three facts with regard to individuals’ MPCs (Fuster, Kaplan, and Zafar, 2021). The first is that MPCs are larger in loss scenarios than gain scenarios (Bunn et al., 2018, Christelis et al., 2019); the second is that MPCs are smaller out of larger cash amounts (Andreolli and Surico, 2021); and the third is our motivating puzzle: while average MPCs differ according to measures of liquidity, much of the variation in MPCs is not explained by observables, i.e. the R-squared of regressions of MPCs on observable demographics and cash on hand is low (Fagereng, Holm, and Natvik, 2021, Ganong et al., 2020). In this section,

Table 1: Personal finances by liquidity

	High Liquidity		Low Liquidity	
	Mean	SD	Mean	SD
<u>Home ownership</u>				
Own home outright	0.50	0.50	0.14	0.35
Own w/mortgage	0.28	0.45	0.30	0.46
Rent home	0.18	0.39	0.48	0.50
<u>Personal finances</u>				
No loans	0.62	0.49	0.41	0.49
Loans: not a burden	0.23	0.42	0.10	0.30
Loans: somewhat burden	0.13	0.34	0.31	0.46
Loans: heavy burden	0.02	0.14	0.19	0.39
Save any income	0.80	0.40	0.49	0.50
Savings amount (>0)	472.70	772.09	368.17	1,057.17
<u>Ever had problems affording...</u>				
Count food items	1.41	2.19	4.20	2.88
Count health items	0.63	1.31	1.87	1.83
Count home items	1.00	1.47	2.54	1.78
Count any item	3.04	4.46	8.61	5.73
Observations	1473		1740	

Note: High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income.

Figure 1: Average MPCs by liquidity group and gain/loss treatments



Note: Figure shows average implied MPCs across liquidity groups, gain and loss scenarios, and treatments specifying different amounts for the gains and losses (£500 and £2,500). Whiskers represent 95% confidence intervals. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income.

we document that each of these facts are reproduced in our data.

Figure 1 shows average MPCs by liquidity group, across the gain and loss scenarios, and according to the size of the gains and losses that respondents were asked about. Average MPCs are similar to those reported in previous studies using similar questions (Fuster, Kaplan, and Zafar, 2021, Crossley et al., 2021). For both individuals with high and low levels of liquidity, MPCs are greater in the loss treatment than in the gain treatment. The asymmetry across gains and losses is greater for low-liquidity individuals. As Fuster, Kaplan, and Zafar (2021) illustrate, this is consistent with a life-cycle model with precautionary saving. However, this asymmetry is apparently smaller for MPCs in the £2,500 treatment, which is not consistent with a concave consumption policy function - a point we return to in our conclusion. Average MPCs are also smaller for both gains and losses when individuals were asked about amounts of £2,500 than when they are asked about amounts of £500. Tables A3 and A4 in Appendix A present formal statistical tests of these differences.

Figure 2 shows the distribution of MPCs across liquidity groups, across gain and loss treatments, and across treatments with different amounts of money. In all cases, the modal response MPC was zero. Much of the difference in average MPCs shown in Figure 1 is on the extensive margin: individuals with three months or more of available liquidity were more likely to report an MPC of zero than those with less liquidity. Differences in the extensive margin also account for much of the difference in the spending response across gain and loss scenarios, with many more reporting positive MPCs in the loss scenario than in the gain scenario.

Figure 2 also highlights that there is considerable heterogeneity within groups defined by liquidity. While on average those with less liquidity have higher MPCs, many low-liquidity individuals have an MPC of zero. At the same time, 2% of those with high-liquidity report an MPC of 100% or more in the £2,500 gain treatment, and 4% report an MPC of 100% or more in the £500 gain treatment. The equivalent numbers in the loss treatment for high-liquidity individuals were even higher: at 6% for the £2,500 treatment and 16% for the £500 treatment.

Very little of this heterogeneity is explained by other observable characteristics. Table 2 reports regression results of MPCs on demographic characteristics, employment status and controls for individuals' financial situation. The R^2 s in these regressions are low, even when looking within high and low-liquidity groups. The R^2 is noticeably higher, though still small, in the loss scenario compared to the gain scenario. R^2 s for regressions of MPCs in the gain scenario are always under 1%, and in the loss scenario they are always under 6%. When the dependent variable is an indicator for having a positive MPC, the R^2 is always under 12% for the loss scenario and under 2% for the gain scenario.

In what follows, we seek to understand heterogeneity in MPCs through analysis of choices and motives mentioned in individuals' responses to open-ended questions.

4 Text analysis

4.1 Pre-processing

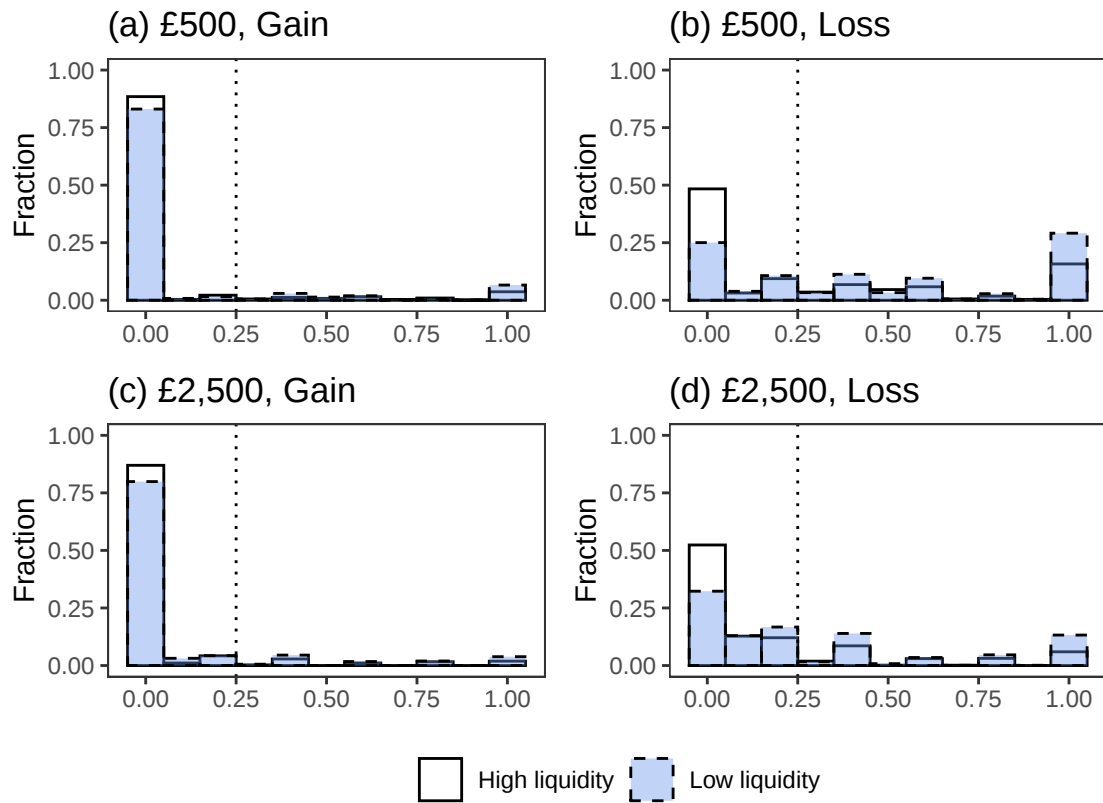
Our analysis sample contains over 3,000 responses to a range of questions covering both how individuals would use an unexpected windfall gain and how they would cover an unexpected loss.

We prepared the responses to the open-ended questions for text analysis using an approach similar to that described in Ferrario and Stantcheva (2022). We first remove punctuation, numbers, excess spaces and special characters as well as commonly used stop-words such as 'I', 'the', 'and' etc. We then lemmatize the remaining words (remove inflections, such that for example 'savings', 'saving', and 'saves' are replaced with 'save'). Thus, "*Treat myself to a few days down the pub, and nice food*" becomes "*treat day pub nice food*".

We then processed the lemmatized answers which described *what* individuals would do with the gain or to cover the loss, and then separately processed answers that explain *why* they behaved in the way they did.⁵ In the gain treatment, the 'what' responses were what they would do if they spent more, what they would do with funds they did not spend, and what they would use the funds for if they said they would spend the same. The 'why' responses were responses to

⁵We appended lemmatized answers to sets of questions, separating the answers to different questions with special characters. The special characters ensure ngrams used to assign respondents to topics did not span across answers to different questions.

Figure 2: Distributions of MPCs by liquidity group



Note: Figure shows the distribution of implied MPCs across liquidity groups, gain and loss scenarios, and treatments specifying different amounts for the gains and losses (£500 and £2,500). We trim MPCs so that they are between zero and one. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. The dashed lines indicate our cut-off for 'high' MPCs (0.25).

Table 2: Regressions of MPCs on observable characteristics

	Gain		Loss	
	MPC	MPC>0	MPC	MPC>0
<u>Panel A. Full sample</u>				
Low liquidity	0.01 (0.02)	0.04*** (0.02)	0.09*** (0.02)	0.15*** (0.02)
High debt	0.04** (0.02)	0.05*** (0.02)	0.08*** (0.02)	0.11*** (0.02)
Employed full-time	-0.02 (0.02)	-0.03* (0.01)	0.04** (0.02)	0.01 (0.02)
Own home outright	-0.01 (0.01)	-0.02 (0.02)	-0.06*** (0.02)	-0.11*** (0.02)
Observations	3058	3058	3058	3058
R^2	0.004	0.017	0.048	0.113
<u>Panel B. High liquidity</u>				
High debt	0.06** (0.03)	0.09*** (0.03)	0.13*** (0.03)	0.22*** (0.03)
Employed full-time	-0.01 (0.02)	-0.02 (0.02)	0.06*** (0.02)	0.03 (0.03)
Own home outright	-0.01 (0.02)	-0.02 (0.02)	-0.04* (0.02)	-0.10*** (0.03)
Observations	1421	1421	1421	1421
R^2	0.008	0.018	0.056	0.093
<u>Panel C. Low liquidity</u>				
High debt	0.02 (0.02)	0.04* (0.02)	0.06** (0.03)	0.06*** (0.02)
Employed full-time	-0.02 (0.03)	-0.03 (0.02)	0.02 (0.02)	-0.01 (0.02)
Own home outright	-0.01 (0.02)	-0.00 (0.03)	-0.06 (0.04)	-0.06* (0.03)
Observations	1637	1637	1637	1637
R^2	0.004	0.004	0.008	0.024

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. High debt individuals are those that declare that their debts are *somewhat of a burden* or *a heavy burden*. All regressions control for gender, being above 45 years old, being married, and having any child living in the household.

questions on why they would spend more, why they would spend the same, and why they would use unspent resources in the way they stated. In the loss treatment, the ‘what’ responses were responses to questions asking what they would spend less on following the loss, and what they would do to cover losses not covered by spending reductions. The ‘why’ responses to the loss questions were then combined with responses to questions asking why they would spend less and why they would spend the same following the unexpected loss. When assessing motives, we combine both ‘what’ and ‘why’ responses, as individuals often mentioned motives when describing what they would do (for example, by responding “I would save it for future emergencies” when asked what they would do with unspent funds from the windfall).

To analyse the text responses, we identified topics mentioned in both the what and why responses using keywords or ngrams (groups of words). Since the answers were in general short (at most a few sentences), we selected the keywords and ngrams ourselves, using frequently mentioned words and combinations of words and their synonyms. The list of keywords associated with each topic is described in Appendix C. We verified the topics and choice of keywords was appropriate by reading individual answers to assess the precise manner in which they were used. An alternative to manually defining topics would be to use supervised or unsupervised machine learning techniques (see for example the suggestions for topic modelling in Gentzkow, Kelly, and Taddy (2019)). We found this was not necessary given the typical length of the responses we received, which made it feasible to read many answers. We also found that the meaning of different terms tended to be highly sensitive to context and so important to check manually.

As in similar surveys (Fuster, Kaplan, and Zafar, 2021, Crossley et al., 2021), we obtained a small number of responses that imply a negative MPC. Seven percent of individuals in our sample report a negative MPC in the gain scenario, and 1.5% report a negative MPC in the loss scenario. Our main analysis in Sections 4.3 - 4.4 does not include these responses. As we discuss further in Appendix D many of these respondents appeared not to have understood that the questions were asking how their decisions would change in response to a payment, and not about their current plans. In Appendix D, we also discuss a similarly small number of responses that imply an MPC greater than one, although those responses are included in our main analysis.

4.2 Word clouds

Figures 3 and 4 show word clouds for the most frequently mentioned bigrams in the lemmatized responses. Panel (a) in Figure 3 shows what individuals would spend more on in the event of a gain, while Panel (a) in Figure 4 shows what individuals would spend less on in the event of a loss. The second panels in both figures show the most frequent bigrams mentioned by those who would spend the same following either the loss or the windfall.

[illegible][illegible]

"I would use some of the money to pay off credit cards and put some away for an emergency" –
£2,500 treatment, low-liquidity, low MPC

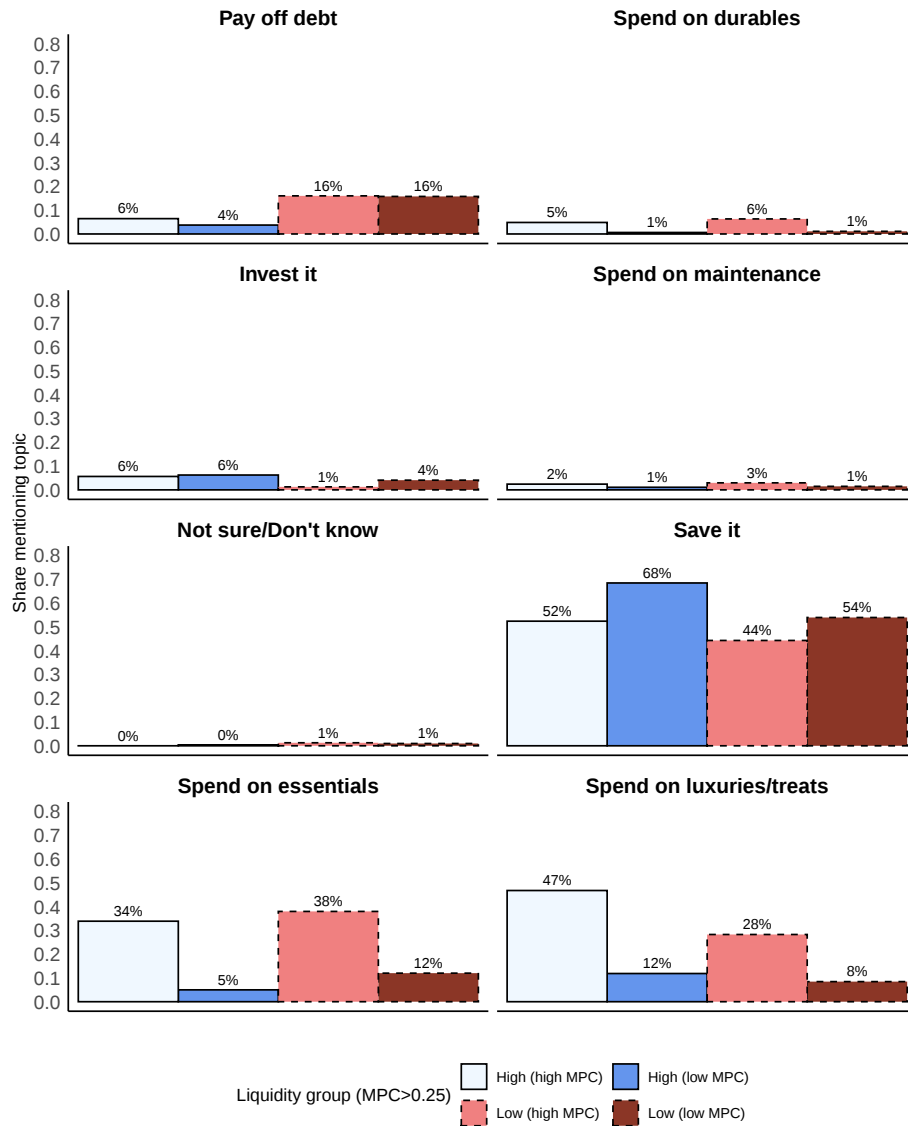
"We would have £100 each to treat ourselves as this is rare - we don't really get to go out

together much, buy new clothes etc, so it would go on this. The remaining £300 would go into our emergency fund or towards repaying a debt.” – £500 treatment, low-liquidity, high MPC

In this section, we use the open-ended responses to better understand differences in MPCs across and within liquidity groups. We start by considering responses to an unexpected gain. Figure 5 shows the shares of individuals in different liquidity groups describing topics when answering what they would do with payments. We pool responses across £500 and £2,500 treatments but separate respondents according to whether they reported a high MPC (greater than 0.25) or a low one (0.25 or below). Appendix E shows how responses differ according to the size of the payment amount (and pools responses across individuals with different MPCs).

The most commonly mentioned use of funds was increased savings. Just over two-thirds of high-liquidity individuals with low MPCs reported they would save more, compared to around half of high-liquidity individuals with larger MPCs. Low-liquidity individuals are less likely to report that they would save more than high-liquidity individuals regardless of whether they had high or low MPCs.

Figure 5: Share mentioning topics on how they would respond to a windfall, by liquidity group and MPC



Note: The figure shows the proportion of individuals, in groups defined by liquidity and their MPCs, who mentioned given topics when answering what they would do with a windfall gain. We pool responses across £500 and £2,500 treatments. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. This combines answers to what individuals would do if they spent more in response to the gain, and what they would do with any unspent funds. Topics are defined by keywords and phrases selected by the authors. See Appendix C for keywords defining each topic. Answers can contain multiple topics. We exclude responses of those saying they would spend less. N=2,992 (1,282 with low-liquidity and low MPC, 124 with low-liquidity and high MPC, 1,349 with high-liquidity and low MPC, 237 with high-liquidity and high MPC).

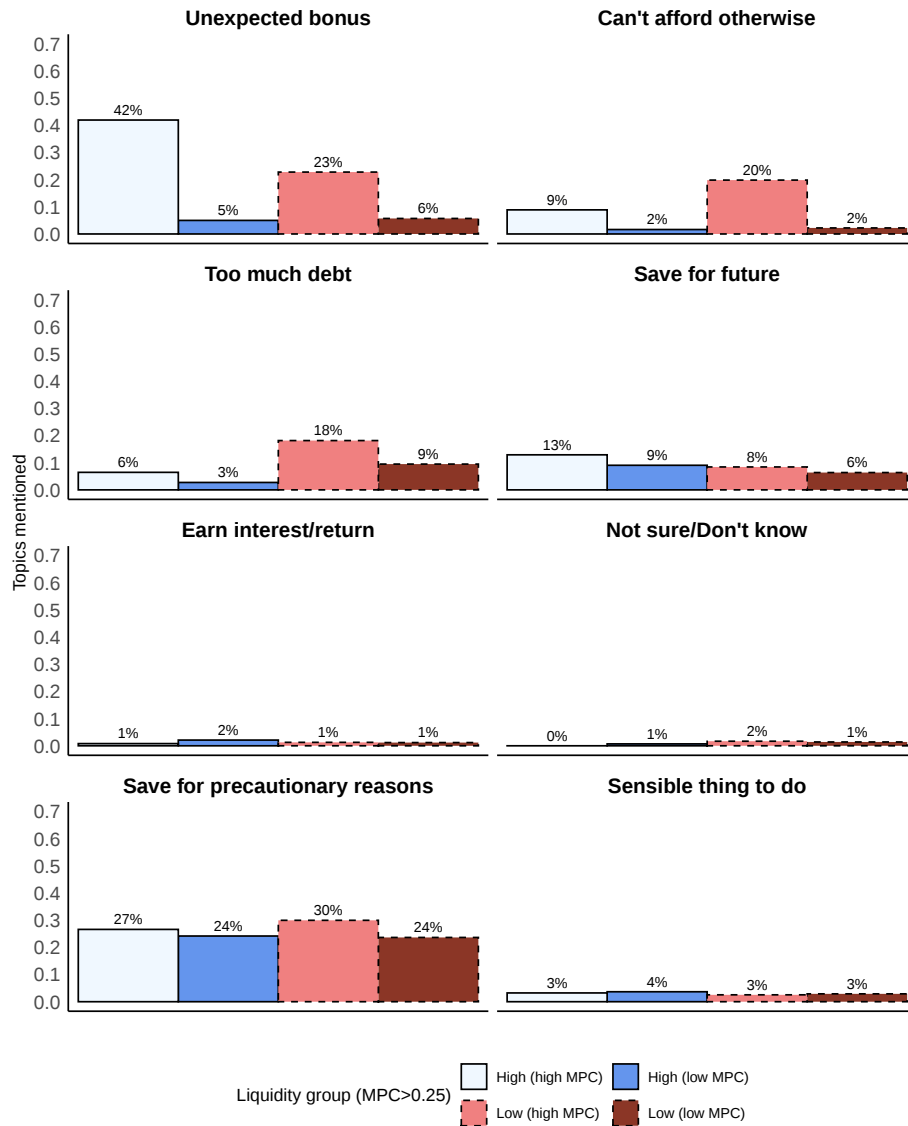
Of those that report a high MPC, low-liquidity individuals were slightly more likely to mention essentials such as food, clothing and heating. 38% of respondents mention this topic in the low-liquidity group compared to 34% in the high-liquidity group. However, high-liquidity individuals are much more likely to mention spending more on relative luxuries such as entertainment and holidays. 47% of individuals who had both high-liquidity and a high MPC mention this topic compared to just 28% of low-liquidity individuals with high MPCs.

Low-liquidity individuals are more likely to report using the windfall to pay off debt. This was true both for those reporting low MPCs, and for those reporting high MPCs. Partly, this is because some of those reporting they would spend more say they would spend the extra funds on credit card or other debts rather than consumption (see for example the third sample answer at the beginning of this section). These individuals are misclassifying saving (debt repayment) as spending, and their true MPC is lower than implied by their response. We discuss the implications of this for understanding heterogeneity in MPCs in Section 5.

Figure 6 shows the share of individuals in different liquidity and MPC groups who mention different topics corresponding to motives or explanations of their actions. This makes clear that the motives of high-liquidity spenders are quite different to low-liquidity spenders. High-liquidity spenders are much more likely to mention words related to the windfall being an “unexpected bonus”, such as ‘treat’, ‘windfall’, ‘bonus’ and ‘indulge’ than low-liquidity spenders. By contrast, those with low-liquidity are more likely to mention words or phrases implying that they would not be able to afford their purchases without the payment (such as ‘unaffordable’, ‘couldn’t afford’ or ‘afford otherwise’). This suggests that for low-liquidity spenders, the payments were more likely to relieve a financial constraint, while high-liquidity spenders saw receipt of the payment as an opportunity to treat themselves to something they would not typically buy. This latter motive - reflected in the first two sample responses to the gain question - is consistent with mental accounting models of consumer spending behaviour (Thaler and Shefrin, 1981, Milkman and Beshears, 2009).

Many respondents mention topics related to precautionary motives for saving (one of the most commonly mentioned bigrams was ‘rainy day’). However, the importance of this motive does not appear to vary greatly across liquidity, or by the size of reported MPCs.

Figure 6: Share mentioning different motives/explanations in response to windfall, by liquidity group and MPC



Note: The figure shows the proportion of individuals, in groups defined by liquidity and their MPCs, mentioning given motives or explanations when answering why they would respond in the way they did to a windfall gain. We pool responses across £500 and £2,500 treatments. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. This combines answers to what individuals would do if they spent more in response to the gain, and what they would do with any unspent funds as well as answers on why they would behave in this way (as respondents often mentioned motives when describing what they would do with the windfall). Topics are defined by keywords and phrases selected by the authors. See Appendix C for keywords defining each topic. Answers can contain multiple topics. We exclude responses of those saying they would spend less. N=2,992 (1,282 with low-liquidity and low MPC, 124 with low-liquidity and high MPC, 1,349 with high-liquidity and low MPC, 237 with high-liquidity and high MPC).

Perhaps unsurprisingly, low-liquidity individuals are also much more likely to mention existing debts in explanations of their motives than those with more liquidity. Among low-liquidity individuals, 18% with high MPCs and 9% with low MPCs mentioned words related to debt and borrowing in their answers. As before, the high proportion of low-liquidity individuals with high MPCs mentioning debt in their explanations partly reflects the misclassification of debt repay-

ments as spending. Were it not for this misclassification, many of the individuals mentioning debt as a motive would report lower MPCs.

4.4 Topic analysis: how a loss would be covered

"The loss is heavy. £500 is just under half my monthly wage. Amenities, food, rent, TV, phones etc. would all be affected. Food would have to be cut. No extras. Less use of electricity and gas (heating) less use on car (fuel) direct debits for the tops [sic] bills would have to go out or we would be homeless. " – **£500 treatment, low-liquidity, high MPC**

"Owing money makes me completely anxious. This sets off my eating disorder and I won't eat or go anywhere ... I would cut back everything to feel secure." – **£2,500 treatment, low-liquidity, low MPC**

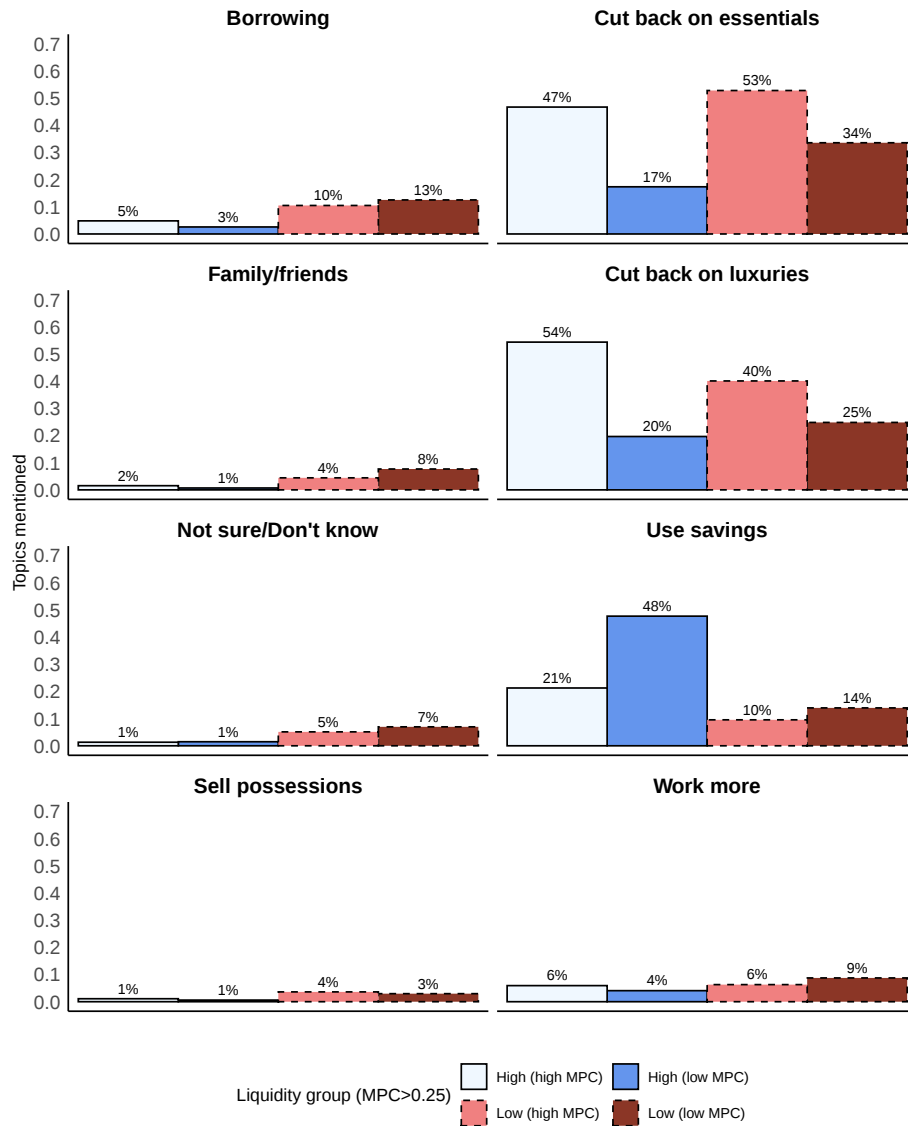
"... I would still have plenty of emergency savings left to cover the 3 months. I also live with 2 other adults who also have income and savings, and we all chip in together to make sure all the essentials are paid off leaving us all with extra money to save, so I wouldn't feel like I would need to change the way I spend." – **£2,500 treatment, high-liquidity, low MPC**

We now turn to considering differences across individuals in terms of their responses to a loss in their available resources. Figure 7 shows the share of individuals mentioning given topics when asked how they would cope with a given loss, again separated across groups defined by available liquidity and MPCs.

As we saw in Figure 1, spending responses to the loss were much larger than responses to equivalently sized gains. Figure 7 shows the areas of spending where respondents would cut spending. As one might expect, low-liquidity individuals who cut back their spending are more likely than high-liquidity individuals to report they would cut back on essentials such as food and fuel. Among high MPC responses, that is individuals who reduce their spending by more than 25% of the amount of the loss, 53% of low-liquidity individuals mention cutting back on essentials compared to 47% of high-liquidity individuals. On the other hand, high-liquidity individuals are more likely than low-liquidity individuals to report they would reduce non-essential spending such as restaurant meals, streaming services and travel.

Figure 7 also shows that there is rich set of non-spending responses individuals mention when explaining how they would cope with a loss. Alongside cutting back spending and dipping into savings, non-trivial fractions of respondents report they would borrow from friends and family, sell possessions or work extra shifts to cover the loss. For these individuals, their *effective* liquidity might be greater than narrow financial measures of liquidity might suggest. Labour supply responses are rarely mentioned in response to the gains scenario (besides a handful of individuals who mention it would help them to retire earlier). Between 10 and 13% of low-liquidity individuals also mention they would cover the loss with greater borrowing.

Figure 7: Share mentioning topics on how they would respond to a loss, by liquidity group and MPC



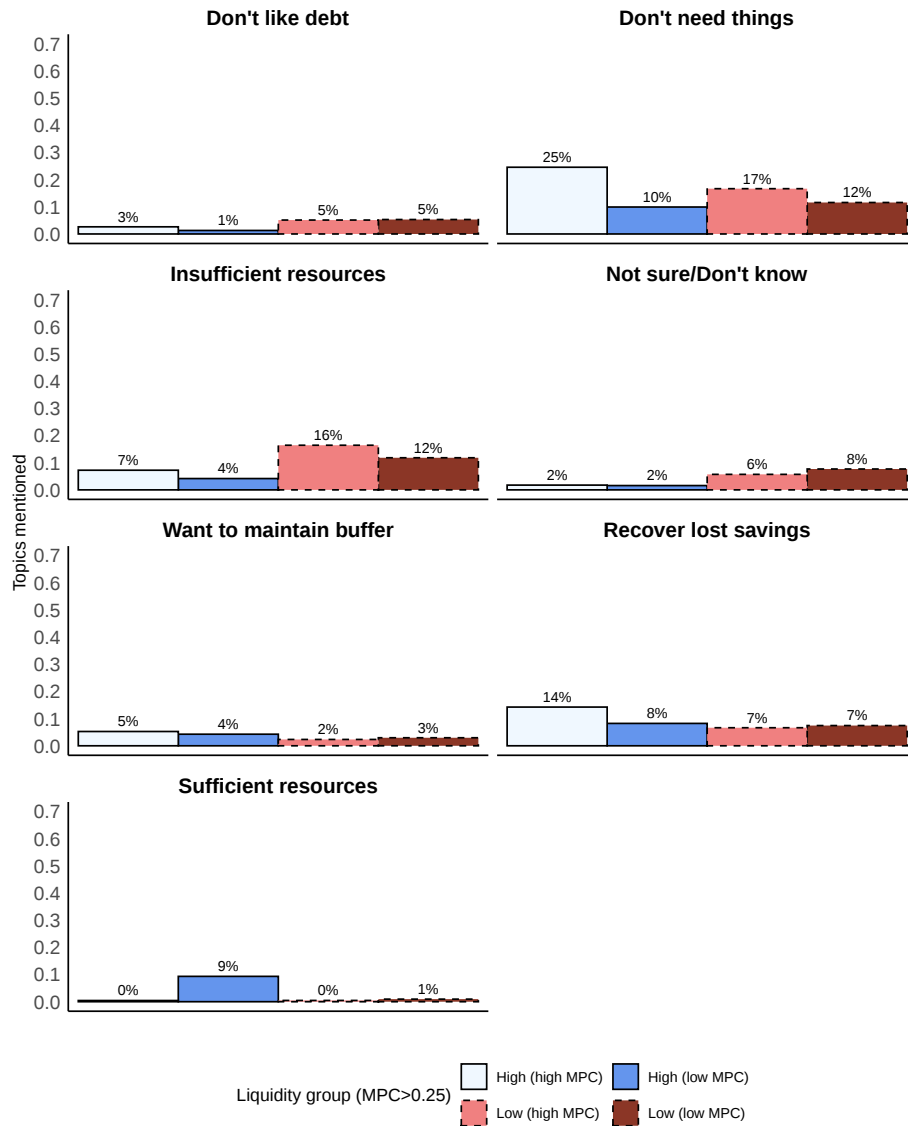
Note: The figure shows the proportion of individuals, in groups defined by liquidity and their MPCs, who mentioned given topics when answering what they would do in response to a loss. We pool responses across £500 and £2,500 treatments. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. This combines answers to what individuals would do if they spent less in response to the loss, how they would cover remaining losses, and what individuals would do if they spent the same after the loss. Topics are defined by keywords and phrases selected by the authors. See Appendix C for keywords defining each topic. Answers can contain multiple topics. We exclude responses of those saying they would spend more in response to the loss. N= 3,168 (1,008 with low-liquidity and low MPC, 456 with low-liquidity and high MPC, 846 with high-liquidity and low MPC, 858 with high-liquidity and high MPC).

Figure 8 shows motives that individuals mention when explaining why they would act in the way they described. High-liquidity individuals are more likely to mention that some of their spending was unnecessary than low-liquidity individuals. Among high-liquidity individuals with a high MPC out of a loss, 25% mention words such as “unnecessary”, or “non-essential” compared to 17% of low-liquidity/high MPC individuals. Low-liquidity individuals are much more likely to report difficulty being able to cover the loss because of insufficient resources, and this was still

more common among those low-liquidity individuals with high MPCs. High-liquidity individuals with low MPCs are essentially the only group to mention words or phrases that implied they had sufficient resources to absorb the loss (and thus that they did not need to cut back spending).

Compared to the gain scenario, more individuals report being unsure what they would do in response to a loss. This was particularly the case among those with low-liquidity. Figure E4 in the Appendix shows that this was more common among those in treatment with the £2,500 loss, than in the treatment where the loss was £500. This likely reflects the fact that for some of these individuals, a loss of this magnitude made up a large fraction of their available resources, making the scenario - and how they would respond to it - difficult to envisage. This was mentioned in some of the answers and feedback we received. To give an example, when asked why they would spend the same as they would otherwise in response to a £500 loss, one low-liquidity individual responded 'I am already spending the bare minimum. I simply would not know how to cope'.

Figure 8: Share mentioning different motives/explanations in response to loss, by liquidity group and MPC



Note: The figure shows the proportion of individuals, in groups defined by liquidity and their MPCs, who mentioned given topics when answering what they would do in response to a loss. We pool responses across £500 and £2,500 treatments. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. This combines answers to why individuals would spend less in the event of a loss with what they would do if their spending was unchanged. Topics are defined by keywords and phrases selected by the authors. See Appendix C for keywords defining each topic. Answers can contain multiple topics. We exclude responses of those saying they would spend more in response to the loss. N= 3,168 (1,008 with low-liquidity and low MPC, 456 with low-liquidity and high MPC, 846 with high-liquidity and low MPC, 858 with high-liquidity and high MPC).

Those with high MPCs in response to a loss are also more likely to mention topics associated with recovering lost savings or maintaining their buffer of precautionary savings. This is consistent with *saving* mental accounting behaviour (particularly for those with initially high levels of liquidity). In the behavioural life-cycle theory set out in Shefrin and Thaler (1988), mental-accounters face a self-imposed cost to accessing funds in their 'current assets' account, preventing them from using their savings to cover temporary losses.

Since we observe consumers motives in both loss and gain domains, we are able to examine whether the same individuals mention topics consistent with both windfall mental accounting and saving mental accounting. Table cross-tabulates the proportions with those mentioning mental accounting motives in the gain domain (that payments would be bonuses that they would be inclined to spend) against the proportions mentioning these in the loss domain (a desire to maintaining their stocks of savings). Interestingly, the correlation in these motives across the two domains is low. Only 1% of respondents mentioned a mental accounting behaviour in both loss and gain scenarios. Overall, 8% mentioned a windfall mental accounting motive in the gain scenario, and 11% in the loss scenario, and in total 18 % of respondents mention a topic consistent with a mental accounting motive.

Table 3: Cross-tab mental accounting motives

		Mental accouter (saving)	
		No	Yes
Mental accouter (windfall)	No	0.81	0.10
	Yes	0.07	0.01

Note: Table shows the proportions of respondents with non-negative MPCs in both loss and gain scenarios who mention keywords or bigrams associated payments being an “unexpected bonus” when explaining their response to a gain (mental accouter (windfall)) or keywords or bigrams related to ‘recover lost savings’ or ‘want to maintain buffer’ in the loss scenario (mental accouter (saving)).

5 Understanding MPC ‘puzzles’

In this section, we draw on our analysis of respondents’ open-ended responses to discuss possible explanations for the within-liquidity group heterogeneity in MPCs, and also to explore gain-loss asymmetries in MPCs.

5.1 Accounting for MPC Heterogeneity

Table 4 shows the proportion high-liquidity respondents with a high MPCs in the gain domain. Standard life-cycle consumption models predict that these individuals should instead smooth a windfall, consuming something like the annuitized value. The first row shows these proportion of such individuals in the complete analysis sample. In subsequent rows, we either reclassify individuals or exclude them according to their open-ended responses, to show how particular classification errors, misreporting or behaviours contribute to resolving this ‘liquidity puzzle’.

Table 4: *Understanding High-Liquidity - High Gain MPC Respondents*

	% high-liquidity with gain MPC >0.25	Share explained
Baseline	8.8%	
Reclassifying 'low-liquidity'	8.8%	0%
Excluding those over-reporting spending change	8.5%	4%
Excluding 'windfall mental accountants'	5.6%	36.6%

Note: In the first row, we show the share of high-liquidity respondents with high MPCs in the gain scenario. There are 1,406 high-liquidity respondents who gave valid responses to the loss question. In the second row, we show these proportions after reclassifying 136 individuals who specify non-financial coping mechanisms in response to loss questions, and who have low MPCs in the loss scenario, as high-liquidity. In the third row we exclude 6 individuals who misclassified non-spending (e.g paying down debts) as spending. In the final, row we exclude 124 individuals who reported mental accounting reasons for spending in their response to the gain scenario.

As a first step towards understanding the high MPCs among liquid consumers, we reclassify individuals whose open-ended answers implied their effective liquidity might differ from their *financial* liquidity. There are 136 low-liquidity individuals, who specify other coping mechanisms (working more, borrowing from friends and family or selling possessions) in the loss scenario, and who also have low MPCs in the loss scenario. Reclassifying these as high (effective) liquidity does not account for any of the puzzle. Comparing the first and second rows of Table 4, the proportion of those with high-liquidity and high MPCs in the gain scenario remains at 8.8% of high-liquidity individuals when we do this.

As noted in Section 4, we observe some individuals who report debt repayments as spending in their responses to how they would use a windfall gain. This misclassification of saving as spending spuriously inflates the elicited MPC, but the number of such individuals is small, and the third row of Table 4 shows they explain very little of this puzzle. In total, correcting or removing these misclassification errors reduces the fraction of the sample classified as high-liquidity and high MPC from 8.8% to 8.5%. We therefore conclude that the puzzle of high gain MPCs among the liquid is not primarily a measurement problem. These MPCs appear to be genuine.⁶

Finally, we can examine how the distribution of MPCs among liquid respondents changes when we further exclude individuals who show evidence of mental accounting behaviour in the gain treatment (most of them with high MPCs). These are 124 individuals who mention that the windfall would be an unexpected bonus when discussing their motives for their behaviour. As shown in the final row of Table 4, this reduces the number of high-liquidity individuals with high MPCs to 5.6%, the largest adjustment that we find. Mental accounting motives appear to be an important explanation for high MPCs among the high-liquidity group. The cumulative effect of these adjustments is to reduce the share of individuals exhibiting puzzling behaviour by 36.6%.

⁶Some individuals reported spending activities when listing what they would do with funds they did not spend (and so likely unreported their MPCs). However, none of these individuals are left once we have made the sample changes in Table 4.

The second puzzling aspect of within-liquidity group heterogeneity in MPCs is the significant number of low-liquidity respondents with low MPCs in the loss domain. In principle, these individuals should struggle to smooth a loss, and being forced to cut spending, should have high MPCs in the loss domain. However, the first row of Table 5 shows that, in the full analysis sample, 49.6% of low-liquidity respondents report they would cut spending by less than 25% of a loss.

Table 5: *Understanding Low-Liquidity - Low Loss MPC Respondents*

	% low-liquidity with loss MPC <0.25	Share explained
Baseline	49.6%	
Reclassifying 'low-liquidity'	44.6%	10.1%
Excluding those under-reporting spending change	44.6%	10.2%

Note: In the first row, we show share of low-liquidity consumers with low MPCs in the loss scenario. There are 1,704 low-liquidity respondents with valid responses in the loss scenario. In the second row, we show these proportions after reclassifying 154 individuals who specify non-financial coping mechanisms in response to loss questions, and who have low MPCs in the loss scenario, as high-liquidity. In the third row we exclude 2 individuals who misclassified spending as non-spending.

As noted above, some low-liquidity individuals with low loss-domain MPCs explicitly specify other coping mechanisms (working more, borrowing from friends and family or selling possessions). The second row of Table 5 shows that reclassifying these as high (effective) liquidity accounts for about 10% of this puzzle.

In the third row of Table 5 we exclude individuals, whose open text responses indicate that they under-reported their spending cut in the loss domain. For example, some individuals initially reported no change in spending, but in subsequent open-format probes revealed that they would cut spending. However, there are only a very small number of such individuals, and so these individuals explain a very small proportion of this second liquidity puzzle. Ultimately, for most of this low-liquidity/low loss MPC group, it remains uncertain how they would (as they claim) smooth a loss, or if indeed they would.⁷

A final group whose behaviour is puzzling are high-liquidity individuals who show excess sensitivity to a loss. Table 6 shows that 31.1% of individuals exhibited this behaviour in the full sample. When we exclude those reporting motives that relate to saving mental accounting, particularly a reluctance to access savings to smooth a loss, this falls to 14.8%, accounting for 52.4% of the puzzle in this case.

5.2 Gain-Loss Asymmetries in MPCs

As a final exercise, we exploit the within-subject gain-loss variation to study how gain-loss asymmetries differ across respondents. Standard life-cycle models of consumption are consistent with

⁷We identified these individuals as those who report they would not change their spending but who mentioned the key words or bigrams "cut down", "cheap", "buy less" or "cut luxury". There were only 4 individuals who did this.

Table 6: *Understanding High-Liquidity - High Loss MPC Respondents*

	%high-liquidity with loss MPC > 0.25	Share explained
Baseline	31.1%	
Excluding 'saving mental accountants'	14.8%	52.4%

Note: In the first row, we show share of high-liquidity consumers with high MPCs in the loss scenario. There are 1,464 high-liquidity respondents with valid responses in the loss scenario. In the second row, we show these proportions after excluding 205 individuals who report mental accounting motives (a desire to maintain savings) in the loss scenario.

negative gain-loss asymmetries (that is, a low gain MPC paired with a higher loss MPC) among low-liquidity respondents. Such respondents do not have the resources to smooth a loss, and so are likely to have a high MPC in the loss domain. However, they will have a high MPC in the gain domain only if they are currently constrained in their current consumption, given current resources, preferences and expectations over future income streams. In a standard life-cycle model, desired current consumption will be greater where households are impatient, expect income growth, or face lower interest rates. Low-liquidity households are less likely to be constrained if they do not expect income growth, or face high interest rates. In particular, low-liquidity households holding debt effectively face the borrowing rate (rather than saving rate) and save by debt repayment. Moreover, they may face particularly high borrowing rates which give them a strong incentive to save through debt repayment, rather spend out a windfall, a point emphasized by Koşar et al. (2023). To summarize, we expect low-liquidity respondents to have negative gain-loss asymmetries, particularly if they hold debt.

Among high-liquidity individuals, mental accounting, or the non-fungibility of money can generate MPC asymmetries in multiple ways. As discussed above, windfall mental accounting generates a higher MPC in the gain dimension, while saving mental accounting leads to a higher MPC in the loss dimension (Mijakovic, 2023).

We test these ideas in Table 7, in which we regress MPCs in the gain scenario, MPCs loss scenario, and the within-individual difference between the two on a set of (overlapping) group indicators. These include: a dummy for whether consumers mention windfall mental accounting motives in the gain scenario, a dummy for whether consumers mention saving mental accounting motives in the loss scenario, a dummy for low-liquidity, a dummy for the being presented with the larger gain/loss size (£2500), an interaction between the amount size and whether they are low-liquidity, and an indicator for whether the respondents reported their debts as somewhat of a burden or a heavy burden.

Table 7 shows that those with lower liquidity, or higher debts, have greater MPCs in both the gain and loss scenarios. Because the impacts of low-liquidity and high debts on MPCs in the loss scenario are larger than for MPCs in the gain scenario, the impact on the gain-loss asymmetry are

indeed negative as predicted by a standard model in which those with higher debts face higher borrowing costs.

Mental accounting motives also appear to contribute to gain-loss asymmetries. We find that those who mention topics consistent with windfall mental accounting also have greater MPCs in the loss scenario, indicating that this behaviour carries over from one setting to the other. However, the increase in loss MPCs is smaller than the increase in mental accountant's gain MPCs - and so it contributes to the gain-loss asymmetry. By contrast, the impact of mentioning mental accounting motives in the loss scenario on gain MPCs is negligible.

Table 7: Regression analysis of MPC asymmetries

	<i>Dependent variable:</i>		
	Gain MPC	Loss MPC	Gain - Loss MPC
	(1)	(2)	(3)
Low-liquidity	0.049*** (0.015)	0.201*** (0.024)	-0.152*** (0.028)
High Debt	0.043*** (0.012)	0.109*** (0.019)	-0.066*** (0.022)
Mental Accounter (windfall)	0.251*** (0.019)	0.136*** (0.030)	0.115*** (0.034)
Mental Accounter (saving)	-0.021 (0.016)	0.016 (0.026)	-0.037 (0.029)
Amount = 2500	-0.007 (0.015)	-0.121*** (0.024)	0.114*** (0.027)
Low-liquidity x Amount = 2500	-0.016 (0.021)	-0.098*** (0.033)	0.082** (0.038)
Constant	0.049*** (0.011)	0.271*** (0.018)	-0.222*** (0.020)
Observations	2,830	2,830	2,830
R ²	0.074	0.096	0.049

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, ***. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. High debt individuals are those that declare that their debts are *somewhat of a burden* or *a heavy burden*.

6 Discussion

The literature on elicited MPCs has found puzzling heterogeneity in MPCs within liquidity groups. Our analysis identified two measurement issues, and two behaviours, which may help resolve this puzzle.

Some high reported MPCs represent a misclassification of saving (particularly debt repayment) as spending. We also found that respondents cited a variety of ways in which they would finance a loss. This means that typical measures of liquidity (or “hand to mouth” status) are crude, and there is substantial variation in effective liquidity within groups defined by such measures. However, these misclassification problems appear too infrequent to explain the puzzle.

Turning to behaviour, we find a evidence of debt repayment motive, with high debt consumers unwilling to increase spending in the gain scenario and more likely to cut spending in the loss scenario.

The most important explanation for MPC heterogeneity that we find is significant evidence of mental accounting. High MPCs among high-liquidity individuals are associated with an opportunity to “treat oneself”, suggesting that individuals would treat a windfall differently than other income or wealth. Similarly, some individuals with high liquidity indicate a desire to cut down spending to avoid dipping into their assets. Browning and Crossley (2001) argue that failing to smooth irregular transitory windfalls and losses may have small welfare costs, and so timing luxurious expenditures to the arrival of a windfall, or treating savings as illiquid, may be reasonable heuristics.

What do these findings imply for the existing body of evidence on elicited MPCs? It seems that estimates of average MPCs may be slightly upward biased by the misclassification of debt repayment as spending. Still, most high MPCs appear to be genuine, and mental accounting seems to be an important source of higher MPCs. This is important because the heuristic may be abandoned for very large windfalls, or for payments that are expected to be repeated. Allowing for some mental accounting behaviour would also help models to fit the data, but such models should then be extrapolated to other situations with care.

Our findings also suggest that future modelling of consumption behaviour should consider debt repayment motives (as in Koşar et al. (2023)). In addition, while we find that MPCs are larger for losses than for gains, as standard consumer theory would predict, these asymmetries tend to be *smaller* for larger payment amounts and this size effect is greater for those with low-liquidity. Alternative coping mechanisms that are triggered in the event of large losses, and a high marginal utility of consumption for essential spending, can help explain this behaviour, and are both consistent with the responses we received. However, this aspect of behavior remains puzzling and could be studied further in future work.

Turning to data collection, respondents' misclassification of debt-repayment as spending is a problem that might be remedied with careful wording of questions, help-screens or appropriate follow-up questions.

We also found that some respondents found it difficult to respond to questions about losses that were large relative to their available liquidity. For such cases, it might be advisable to provide respondents with a 'don't know' option so that these difficulties will at least be apparent in the survey results. Alternatively, loss (and gain) sizes might be proportional to the usual incomes of respondents, rather than fixed amounts.

Finally, we found question order effects to be significant, with individuals more likely to report positive MPCs in both gain and loss scenarios if these were the first questions to be asked. With within-subject designs, it is good practice to randomize the order in which scenarios are presented (as we did) in order to minimize the impact of question order effects.

Overall, our analysis demonstrates the value of combining open format questions with text analysis to understand both measurement issues and economic behaviour.

Acknowledgements

This research was funded by the Nuffield Foundation under the grant "Saving, Spending and financial resilience in the wake of the pandemic" (WEL/FR-000023226). The Nuffield Foundation is an independent charitable trust with a mission to advance social wellbeing. The Foundation has funded this project, but the views expressed are those of the authors and not necessarily the Foundation. Visit www.nuffieldfoundation.org. Levell also acknowledges Co-funding from the ESRC-funded Centre for the Microeconomic Analysis of Public Policy at IFS (grant number ES/T014334/1).

Ethics

Ethics clearance was obtained from the Ethics Committee of the European University Institute (20221012_CROSSLEY) with final clearance (after amendments) on 11 May 2023.

References

- Andreolli, Michele and Paolo Surico. 2021. "Less is More: Consumer Spending and the Size of Economic Stimulus Payments." Discussion Paper DP15918, Centre for Economic Policy Research (CEPR). URL <https://ssrn.com/abstract=3805341>.
- Baker, Scott R., Nicholas Bloom, and Steven J. Davis. 2016. "Measuring Economic Policy Uncertainty." The Quarterly Journal of Economics 131 (4):1593–1636.

- Baugh, Brian, Itzhak Ben-David, Hoonsuk Park, and Jonathan A. Parker. 2021. "Asymmetric Consumption Smoothing." American Economic Review 111 (1):192–230. URL <https://www.aeaweb.org/articles?id=10.1257/aer.20181735>.
- Blundell, Richard, Luigi Pistaferri, and Ian Preston. 2008. "Consumption Inequality and Partial Insurance." American Economic Review 98 (5):1887–1921. URL <https://www.aeaweb.org/articles?id=10.1257/aer.98.5.1887>.
- Browning, Martin and Thomas F Crossley. 2001. "The life-cycle model of consumption and saving." Journal of Economic Perspectives 15 (3):3–22.
- Bunn, Philip, Jeanne Le Roux, Kate Reinold, and Paolo Surico. 2018. "The consumption response to positive and negative income shocks." Journal of Monetary Economics 96 (C):1–15. URL <https://ideas.repec.org/a/eee/moneco/v96y2018icp1-15.html>.
- Carroll, Christopher D. 1997. "Buffer-Stock Saving and the Life Cycle/Permanent Income Hypothesis." The Quarterly Journal of Economics 112 (1):1–55.
- Christelis, Dimitris, Dimitris Georgarakos, Tullio Jappelli, Luigi Pistaferri, and Maarten van Rooij. 2019. "Asymmetric Consumption Effects of Transitory Income Shocks." Economic Journal 129 (622):2322–2341. URL <https://ideas.repec.org/a/oup/econjl/v129y2019i622p2322-2341..html>.
- . 2021. "Heterogeneous wealth effects." European Economic Review 137:103805. URL <https://www.sciencedirect.com/science/article/pii/S0014292121001525>.
- Colarieti, Roberto, Pierfrancesco Mei, and Stefanie Stantcheva. 2024. "The How and Why of Household Reactions to Income Shocks." Working Paper 32191, National Bureau of Economic Research.
- Crossley, Thomas F., Paul Fisher, Peter Levell, and Hamish Low. 2021. "MPCs in an economic crisis: Spending, saving and private transfers." Journal of Public Economics Plus 2:100005. URL <https://www.sciencedirect.com/science/article/pii/S2666551421000024>.
- . 2023. "Stimulus payments and private transfers." Economics Letters 222:110944. URL <https://www.sciencedirect.com/science/article/pii/S0165176522004189>.
- Drescher, Katharina, Pirmin Fessler, and Peter Lindner. 2020. "Helicopter money in Europe: New evidence on the marginal propensity to consume across European households." Economics Letters 195:109416. URL <https://www.sciencedirect.com/science/article/pii/S0165176520302603>.

- Fagereng, Andreas, Martin B. Holm, and Gisle J. Natvik. 2021. "MPC Heterogeneity and Household Balance Sheets." American Economic Journal: Macroeconomics 13 (4):1–54. URL <https://www.aeaweb.org/articles?id=10.1257/mac.20190211>.
- Ferrario, Beatrice and Stefanie Stantcheva. 2022. "Eliciting People's First-Order Concerns: Text Analysis of Open-Ended Survey Questions." AEA Papers and Proceedings 112:163–69. URL <https://www.aeaweb.org/articles?id=10.1257/pandp.20221071>.
- Financial Conduct Authority. 2023. "Financial Lives 2022: Key findings from the FCA's Financial Lives May 2022 survey." Tech. rep., Financial Conduct Authority. URL <https://www.fca.org.uk/publication/financial-lives/financial-lives-survey-2022-key-findings.pdf>.
- Fuster, Andreas, Greg Kaplan, and Basit Zafar. 2021. "What Would You Do with \$500? Spending Responses to Gains, Losses, News, and Loans." The Review of Economic Studies URL <https://doi.org/10.1093/restud/rdaa076>.
- Ganong, Peter, Damon Jones, Pascal Noel, Diana Farrell, Fiona Greig, and Chris Wheat. 2020. "Wealth, Race, and Consumption Smoothing of Typical Income Shocks." Working Papers 2020-49, Becker Friedman Institute for Research In Economics. URL <https://ideas.repec.org/p/bfi/wpaper/2020-49.html>.
- Geer, John G. 1991. "Do open-ended questions measure "salient" issues?" Public Opinion Quarterly 55 (3):360–370.
- Gentzkow, Matthew, Bryan Kelly, and Matt Taddy. 2019. "Text as Data." Journal of Economic Literature 57 (3):535–74. URL <https://www.aeaweb.org/articles?id=10.1257/jel.20181020>.
- Haaland, Ingar, Christopher Roth, Johannes Wohlfart, and Stefanie Stantcheva. 2024. "Measuring What Is Top of Mind." Social Economics Lab Working paper .
- Hansen, Stephen, Michael McMahon, and Matthew Tong. 2019. "The long-run information effect of central bank communication." Journal of Monetary Economics 108:185–202. URL <https://www.sciencedirect.com/science/article/pii/S0304393219301606>. "Central Bank Communications: From Mystery to Transparency" May 23-24, 2019 Annual Research Conference of the National Bank of Ukraine Organized in cooperation with Narodowy Bank Polski.
- Jappelli, Tullio and Luigi Pistaferri. 2010. "The Consumption Response to Income Changes." Annual Review of Economics 2 (1):479–506. URL <https://doi.org/10.1146/annurev.economics.050708.142933>.
- . 2014. "Fiscal Policy and MPC Heterogeneity." American Economic Journal: Macroeconomics 6 (4):107–36. URL <https://www.aeaweb.org/articles?id=10.1257/mac.6.4.107>.

- Kaplan, Greg and Giovanni L. Violante. 2014. "A Model of the Consumption Response to Fiscal Stimulus Payments." Econometrica 82 (4):1199–1239. URL <https://onlinelibrary.wiley.com/doi/abs/10.3982/ECTA10528>.
- . 2022. "The Marginal Propensity to Consume in Heterogeneous Agent Models." NBER Working Papers 30013, National Bureau of Economic Research, Inc. URL <https://ideas.repec.org/p/nbr/nberwo/30013.html>.
- Koşar, Gizem, Davide Melcangi, Laura Pilossoph, and David G. Wiczer. 2023. "Stimulus Through Insurance: The Marginal Propensity to Repay Debt." CESifo Working Paper (10498). URL <https://ssrn.com/abstract=4477986>.
- Mijakovic, Andrej. 2023. "Marginal Propensities to Consume with Behavioural Agents." URL <https://ssrn.com/abstract=4603292>.
- Milkman, Katherine L. and John Beshears. 2009. "Mental accounting and small windfalls: Evidence from an online grocer." Journal of Economic Behavior Organization 71 (2):384–394. URL <https://www.sciencedirect.com/science/article/pii/S0167268109001188>.
- Ólafsson, Árna and Michaela Pagel. 2018. "The Liquid Hand-to-Mouth: Evidence from Personal Finance Management Software." The Review of Financial Studies 31 (11):4398–4446.
- Shefrin, H.M. and R.H. Thaler. 1988. "The Behavioural Life-Cycle Hypothesis." Economic Inquiry 26 (4):609–643. URL <https://doi.org/10.1111/j.1465-7295.1988.tb01520.x>.
- Stantcheva, Stefanie. 2020. "Understanding Economic Policies: What Do People Know and How Can They Learn?" Working paper, Harvard University.
- Thaler, Richard H. and H. M. Shefrin. 1981. "An Economic Theory of Self-Control." Journal of Political Economy 89 (2):392–406. URL <http://www.jstor.org/stable/1833317>.

A Additional tables

Table A1: Question ordering effect

	MPC	MPC>0	MPC MPC>0
<u>Panel A. Gain questions</u>			
First question	0.03** (0.01)	0.04*** (0.01)	0.01 (0.04)
Observations	3213	3213	531
<u>Panel B. Loss questions</u>			
First question	0.01 (0.02)	0.04*** (0.02)	-0.02 (0.02)
Observations	3213	3213	2164

Table A2: Summary Statistics

	Mean	SD	Min	Max	N
<u>General survey questions</u>					
Duration survey (in mins)	12	45	2	1,248	3213
Amount=2500	0.50	0.50	0	1	3213
Gain question first	0.51	0.50	0	1	3213
<u>Age</u>					
Age 18-24	0.09	0.28	0	1	3213
Age 25-34	0.17	0.37	0	1	3213
Age 35-44	0.22	0.41	0	1	3213
Age 45-54	0.18	0.39	0	1	3213
Age 55-64	0.18	0.39	0	1	3213
Age 65+	0.16	0.37	0	1	3213
<u>Marital Status</u>					
Married	0.44	0.50	0	1	3213
Living w/partner	0.17	0.37	0	1	3213
Relation not living together	0.04	0.21	0	1	3213
Widowed	0.02	0.15	0	1	3213
Divorced	0.08	0.27	0	1	3213
Single	0.25	0.43	0	1	3213
<u>Employment Status</u>					
Employed full-time	0.47	0.50	0	1	3213
Employed part-time	0.17	0.37	0	1	3213
Unemployed	0.05	0.22	0	1	3213
Stay at home	0.07	0.25	0	1	3213
Student	0.03	0.17	0	1	3213
Retired	0.17	0.38	0	1	3213
<u>Other demographic questions</u>					
Female	0.51	0.50	0	1	3213
Race: white	0.86	0.35	0	1	3213
Race: black	0.06	0.23	0	1	3213
Race: asian	0.08	0.26	0	1	3213
N. children HH	0.59	0.95	0	7	3213
N. adults HH	1.16	1.04	0	8	3213
Total HH members	2.75	1.49	1	10	3213

Table A3: t-test MPCs Gain vs Loss

	MPC	MPC>0	MPC MPC>0
Gain	0.17 (0.01)	0.06 (0.01)	0.55 (0.02)
Loss	0.67 (0.01)	0.32 (0.01)	0.50 (0.01)
Diff. (Gain-Loss)	-0.51	-0.27	0.06
p-value (Diff.)			
Observations	3213	3213	2297

Table A4: Differences in MPCs by size of the windfall/loss

	MPC	MPC>0	MPC MPC>0
<u>Panel A. Gain questions</u>			
Amount=2500	-0.01 (0.01)	0.03** (0.01)	-0.21*** (0.04)
Constant	0.06*** (0.01)	0.15*** (0.01)	0.67*** (0.03)
Observations	3213	3213	531
<u>Panel B. Loss questions</u>			
Amount=2500	-0.16*** (0.02)	0.03* (0.02)	-0.26*** (0.02)
Constant	0.40*** (0.01)	0.66*** (0.01)	0.63*** (0.02)
Observations	3213	3213	2164

Table A5: MPCs by liquidity

	High Liq.	Low Liq.	Diff.(High-Low)	p-value	Obs.
<u>Gain questions</u>					
MPC	0.05	0.07	-0.02	0.17	3213
MPC>0	0.13	0.20	-0.07	0.00	3213
MPC MPC>0	0.54	0.56	-0.02	0.67	531
<u>Loss questions</u>					
MPC	0.24	0.40	-0.16	0.00	3213
MPC>0	0.54	0.78	-0.24	0.00	3213
MPC MPC>0	0.45	0.52	-0.07	0.00	2164

B Alternative definitions of liquidity

In addition to the liquidity measure used in the paper, we also used latent class analysis to identify high and low-liquidity individuals taking advantage of the wider set of variables collected about their financial situation. More specifically, and besides the information on the ability to finance their living expenses if they lost their main source of income, we use the information about the individuals' employment status, home ownership, savings behavior, debt level, and essential consumption capabilities. Using these items to fit a latent class model with two unobserved liquidity classes we get that 41% of the sample belongs to the low-liquidity group. The table below shows how this classification relates to the main liquidity measure used in the paper and the estimated mean for each item included in the latent class model by liquidity group.

Table B6: Means for each item by alternative liquidity group

	High Liquidity		Low Liquidity	
	Mean	SD	Mean	SD
Low liquidity (main measure)	0.35	0.48	0.82	0.39
<u>Finance living expenses for...</u>				
< 1 week	0.03	0.16	0.24	0.43
1 week to 1 month	0.09	0.29	0.32	0.47
1 to 3 months	0.23	0.42	0.25	0.43
3 to 6 months	0.20	0.40	0.11	0.32
≥ 6 months	0.45	0.50	0.07	0.26
<u>Employment status</u>				
Employed full-time	0.43	0.50	0.53	0.50
Employed part-time	0.17	0.37	0.17	0.37
Unemployed	0.04	0.19	0.07	0.25
Stay at home	0.06	0.23	0.08	0.27
Student	0.02	0.12	0.05	0.21
Retired	0.26	0.44	0.05	0.21
<u>Home ownership</u>				
Own home outright	0.42	0.49	0.14	0.34
Own w/ mortgage	0.31	0.46	0.27	0.44
Rent home	0.23	0.42	0.51	0.50
<u>Personal finances</u>				
No loans	0.58	0.49	0.40	0.49
Loans: not a burden	0.23	0.42	0.05	0.23
Loans: somewhat burden	0.17	0.38	0.30	0.46
Loans: heavy burden	0.02	0.14	0.24	0.43
Save any income	0.74	0.44	0.47	0.50
Savings amount (>0)	384.40	612.13	528.99	1,338.99
<u>Ever had problems affording...</u>				
Count food items	0.84	1.24	5.92	1.88
Count health items	0.25	0.59	2.82	1.69
Count home items	0.67	0.97	3.51	1.39
Count any item	1.75	2.05	12.25	3.66
Observations	1895		1318	

C Topic keywords

C.1 Gain what

Spend on essentials: food, clothe, essential, shoe, heat, gas, electricity, utility, petrol, rent, warm, grocery, toiletries, medicine, everyday essential, everyday expense, home essential, fill fridge, fill freezer

Spend on luxurues: treat, holiday, restaurant, luxury, takeaway, travel, entertainment, vacation, gadget, decorate, garden, renovation, hobbies, toys, refurbish, eat out, night out, home improvement, weekend away

Spend on durables: new appliance, new tv, new dishwasher, wash machine, new fridge, new furniture, tumble dry, new car, white goods, new sofa, new bed, carpet

Spend on maintenance: repair, maintenance

Pay off debt: debt, overdraft, arrears, credit card, pay off, outstanding bill, outstanding balance, reduce mortgage, pay mortgage, pay bills off

Not sure/Don't know: unsure, idk, dont know, not sure, cant say, not applicable, no idea

Save it: save, isa, bank, aside, later, put away, current account, straight saving, put saving, put money saving, go saving, just keep, add saving, rainy day, keep emergency

Invest it: gold, bitcoin, crypto, invest, premium bond, stock market, stock share, invest money

C.2 Gain why

Bonus keywords: windfall, bonus, treat, luxury, splurge, splash, indulge, enjoy, guilt free

Can't afford keywords: unaffordable, spare, cant afford, able afford, couldnt afford, afford otherwise, cannot afford, cannot currently, dont enough, dont money, without extra, without payment

Precautionary reasons: emergency, backup, buffer, unforeseen, security, contingency, incase, safe, caution, uncertain, rainy day, safety net, prepare anything, prepare future, prepare financial, unexpected bill, unexpected spend, unexpected circumstance, unexpected outgoing, unexpected event, unexpected situation, unexpected cost, unexpected occurance, unexpected thing, unexpected expense, fall back, bad time, just case, wiggle room, peace mind, piece mind, financial cushion, never know, may need, need future, anything happen, case something, case anything, case need

Not sure/Don't know: unsure, idk, dont know, not sure, cant say, not applicable, no idea

Too much debt: overdraft, arrears, bailiff, credit card, pay off, outstanding bill, outstanding balance, pay loan, owe money, owe lot, pay much interest

Earn interest/return: accrue, get interest, gain interest, earn interest, maximise interest, interest rate, make money

Sensible thing to do: sensible, sensibly, responsible, wise, wisely, prudent, smart, intelligent, not waste, right thing, right decision, fritter away

C.3 Loss what

Borrowing: borrow, overdraft, credit card, take loan, loan money, go debt, available credit

Use savings: saving, pension, emergency fund, rainy day fund, withdraw money, withdraw, current account, save less

Sell possessions: sell

Work more: hour, overtime, work, survey, extra shift, part time, work hard

Family/friends: borrow family, borrow mum, borrow friend, borrow someone, ask family, friend family, family help, money family, help family, lend mum, lend family, loan family, parents

Not sure/Don't know: unsure, idk, dont know, not sure, cant say, not applicable, no idea

Cut back on essentials: food, clothe, essentials, shoes, heat, gas, electric, utility, grocery, petrol, snacks, fuel, haircuts, cigarette, energy, shower, toiletries, essential spend, skip meal, phone bill, phone contract

Cut back on luxuries: luxury, luxuries, takeaway, restaurant, cinema, subscription, frivolous, entertainment, holiday, alcohol, beauty, beer, wine, travel, treat, coffee, event, trips, leisure, unnecessary, netflix, furniture, garden, brand, _ gym, stream service, non essential, eat out

C.4 Loss why

Don't like debt: debt, overdrawn, overdraft,

Want to maintain buffer: emergency, cushion, buffer, contingency, security, cautious, rainy day, unexpected bill, unexpected spend, unexpected circumstance, unexpected outgoing, unexpected event, unexpected situation, unexpected cost, feel insecure, would worry, worry lose

Sufficient resources: fortunate, fortunately, sufficient saving, sufficient resource, sufficient income, sufficient fund, sufficient money, enough reserve, enough set aside, adequate saving, enough save, enough saving, not make difference, got enough, plenty saving, plenty money, not problem, saving absorb loss, reserve absorb loss, can absorb loss, can manage, not big

Insufficient resources: barely, struggle, struggling, poor, difficult, dont enough, not enough money, bare minimum, already cut, cant afford, couldnt manage, not able, unable afford, cant cut, bare essential, dont spare, tight budget, hand mouth, huge loss, lot money, wouldnt able, wouldnt money, no money

Not sure/Don't know: unsure, idk, dont know, not sure, cant say, not applicable, no idea

Recover lost savings: recoup, recover, rebuild, regain, offset, repay, compensate, build back, claw back, compensate loss, make loss, gain back, replace loss

Don't need things: nonessential, luxury, unnecessary, not need, not necessary, not essential, non essential, can without, can live without, not important, easy cut

D Respondents with MPCs outside the unit interval

“With the extra £2,500 I would save more money for the future rather than living paycheck to paycheck. I would become better with spending less” – **£2,500 treatment, low-liquidity, negative MPC, gain scenario**

“I could pay off a loan to save a monthly payment going forward” – **£2,500 treatment, low-liquidity, negative MPC, gain scenario**

“We’re currently saving and this would accelerate our purchase” – **£2,500 treatment, high-liquidity, MPC greater than one, gain scenario**

“It would scare me into making sure we had other money saved” – **£500 treatment, low-liquidity, MPC greater than one, loss scenario**

“If I had unexpectedly lost £500 I would want to have a larger buffer” – **£500 treatment, low-liquidity, MPC greater than one, loss scenario**

The questions we asked about gains allowed for the possibility that individuals would spend less than if they had not received the payment. Similarly, the questions about a loss gave individuals the option to say they would spend more than if they had not received the payment. 7% of individuals in our sample report a negative MPC in the gain scenario, and 1.5% report a negative MPC in the loss scenario. This is not unusual: these numbers are similar to those found in Fuster, Kaplan, and Zafar (2021) and Crossley et al. (2021).

We asked those reporting they would spend less in response to the gain “Why would you make fewer expenditures than without the payment? That is, why would the [£500 £2,500] payment lead you to spend £X less?” (where £X referred to how much less they said they would spend). We asked a similar question to those who said they would respond more in response to a loss. The open-ended responses to these answers help give some insight into the thoughts of these individuals. A common theme among those responding they would spend less in response to the gain treatment was a general desire to budget better, deal with other debts. Many respondents appear to have misinterpreted the question, which was intended to ask them what they would do differently if they received the payment rather than their plans for the future (e.g. “I’m trying to save, so I would have spent less with or without the [£500] payment”). Other answers were frivolous or suggested their previous choices were made in error. A few answers - for example the sample answers quoted above - did however suggest other explanations, for example that by enabling them to pay off debts or bills, the payment would reduce their future living costs and allow them to spend less. However, these sorts of reasons were rare.⁸

⁸The small number of individuals responding they would spend more in the event of a loss did not provide particularly enlightening responses.

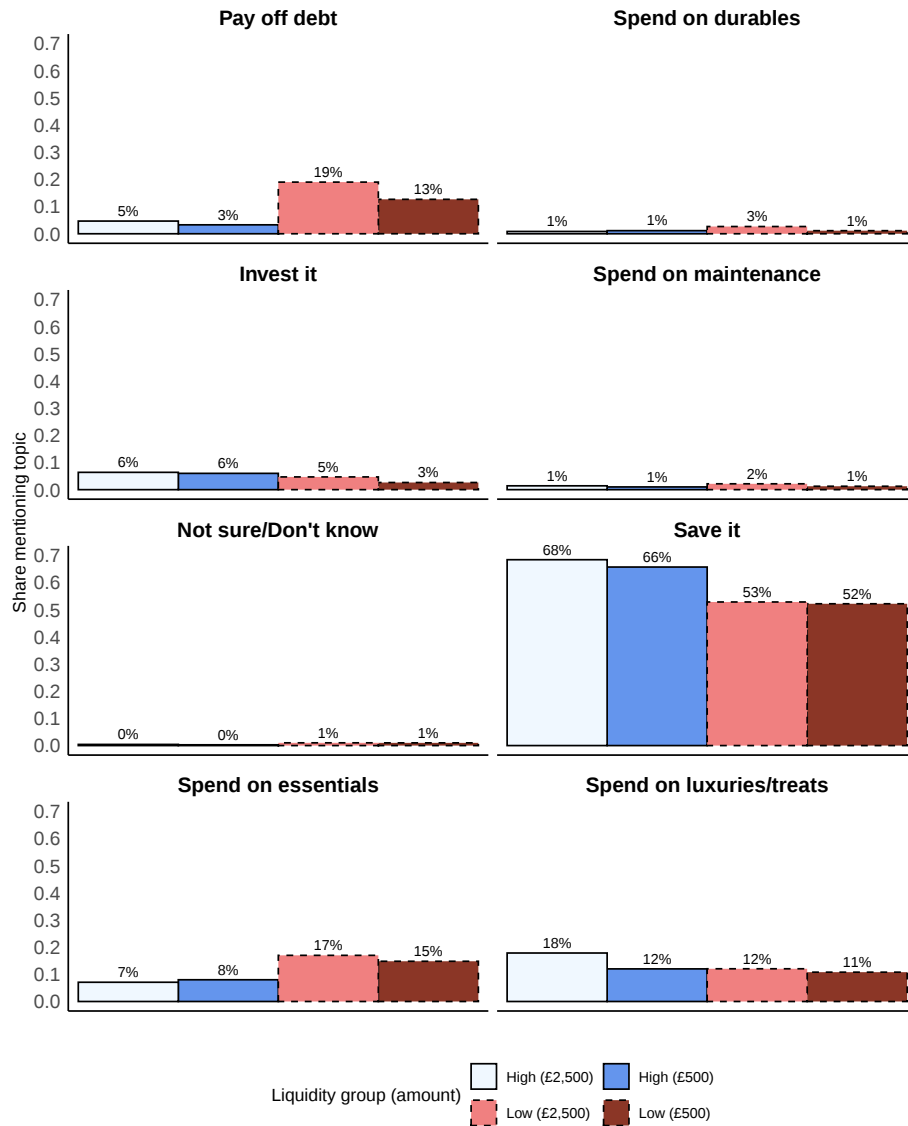
0.7% of individuals in our gain scenario report they would increase their spending by more than the windfall in the next three months (that is an MPC greater than one). Around 1% report they would reduce their spending by more than the loss.

Similar to what we found for negative MPCs, many of those who responded they would spend more than the size of the windfall gain indicated a desire or need to increase spending that was independent of the payments (e.g. “because everything has [become] expensive”). In the loss scenario, those reporting MPCs greater than one also tended to say they felt the need to reduce their spending from current levels. A few respondents highlighted more interesting reasons. In the case of the gains, one respondent (quoted above) indicated that the windfalls would accelerate their plans to make a large purchase. In the loss scenario, a handful of individuals report that the unexpected nature of the loss would cause them to reevaluate the amount of precautionary savings they needed, prompting them to reduce their spending further.⁹

⁹In addition to the sample answers quoted above, another low-liquidity respondent similarly said “I want to be so cautious in case anything sudden and stressful appears in conjunction.”

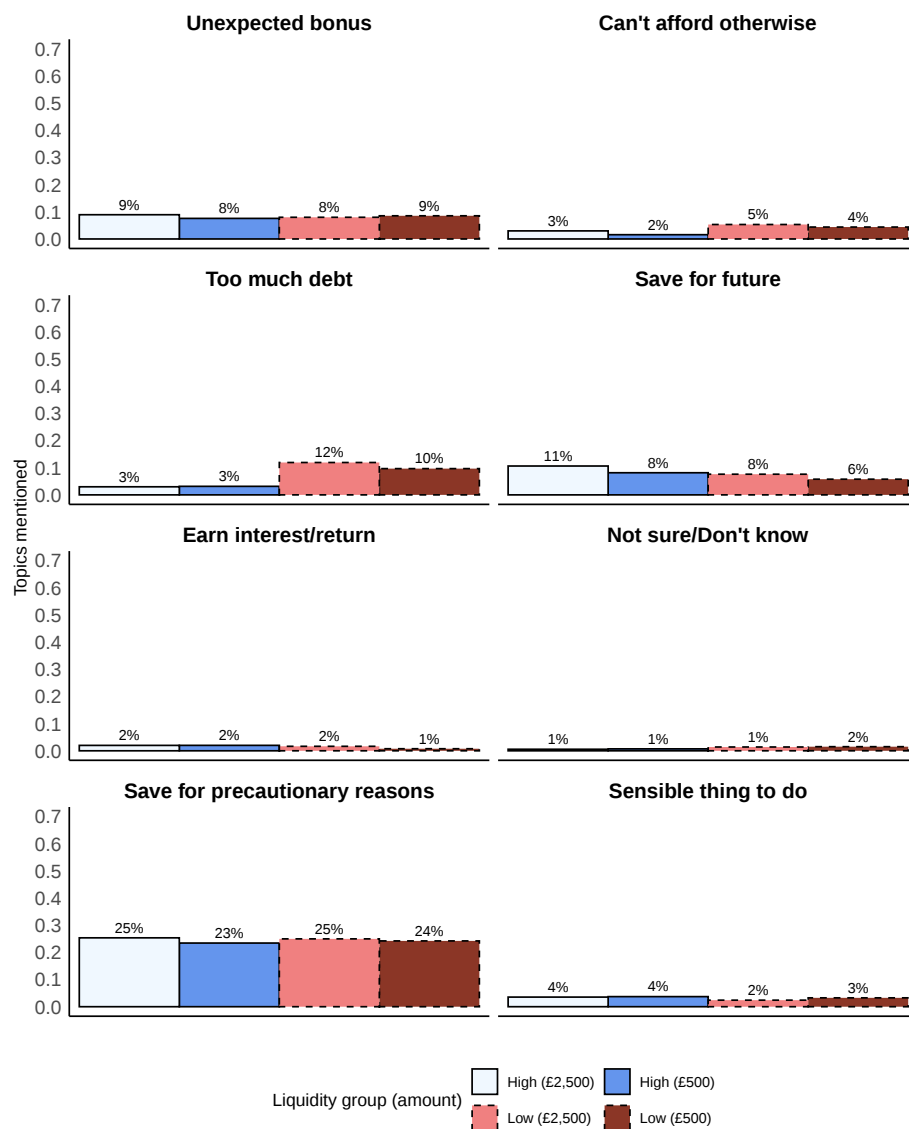
E Additional figures

Figure E1: Share mentioning topics on how they would respond to a windfall, by liquidity group and amount size



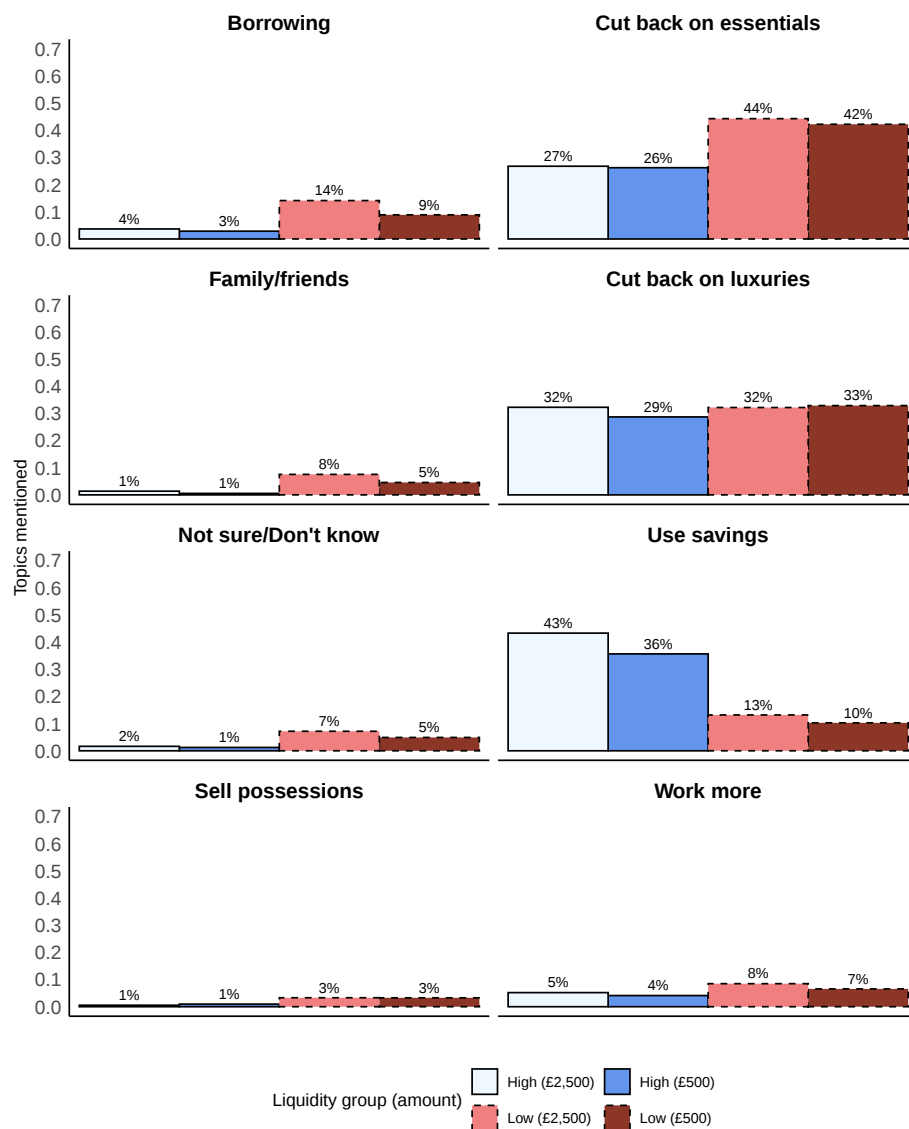
Note: The figure shows the proportion of individuals, in groups defined by liquidity and payment/loss sizes, who mentioned given topics when answering what they would do with a windfall gain. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. This combines answers to what individuals would do if they spent more in response to the gain, and what they would do with any unspent funds. Topics are defined by keywords and phrases selected by the authors. See Appendix C for keywords defining each topic. Answers can contain multiple topics. We exclude responses of those saying they would spend less. N=2,992.

Figure E2: Share mentioning different motives/explanations in response to windfall, by liquidity group and amount size



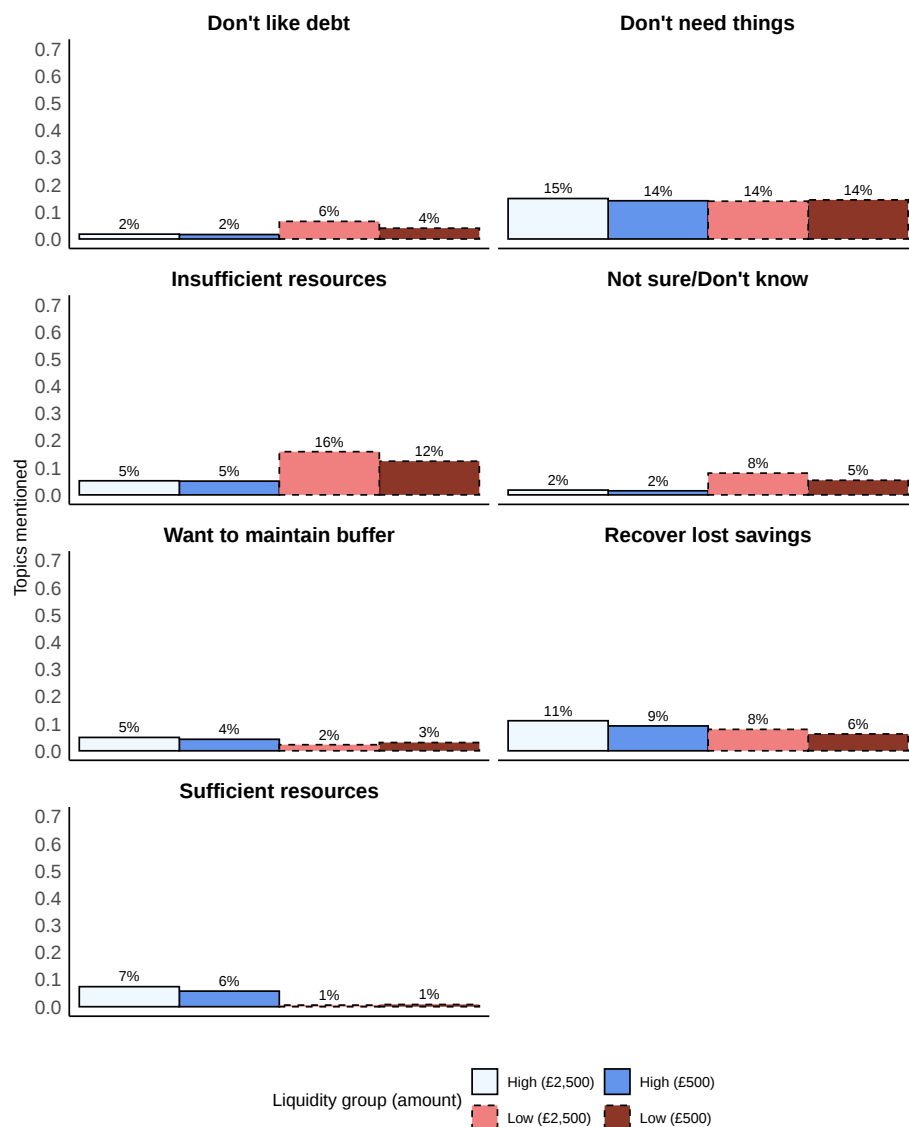
Note: The figure shows the proportion of individuals, in groups defined by liquidity and payment/loss amount sizes, who mentioned given topics when answering what they would do with a windfall gain. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. This combines answers to what individuals would do if they spent more in response to the gain, and what they would do with any unspent funds. Topics are defined by keywords and phrases selected by the authors. See Appendix C for keywords defining each topic. Answers can contain multiple topics. We exclude responses of those saying they would spend less. N=2,992.

Figure E3: Share mentioning topics on how they would respond to a loss, by liquidity group and amount size



Note: The figure shows the proportion of individuals, in groups defined by liquidity and payment/loss amount sizes, who mentioned given topics when answering what they would do in response to a loss. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. This combines answers to what individuals would do if they spent more in response to the gain, and what they would do with any unspent funds. Topics are defined by keywords and phrases selected by the authors. See Appendix C for keywords defining each topic. Answers can contain multiple topics. We exclude responses of those saying they would spend more in response to the loss. N=3,168.

Figure E4: Share mentioning different motives/explanations in response to loss, by liquidity group and amount size



Note: The figure shows the proportion of individuals, in groups defined by liquidity and payment/loss amount sizes, who mentioned given topics when answering what they would do in response to a loss. High-liquidity individuals are defined as those who would be able to cover their living expenses for at least three months if they lost their main source of income. This combines answers to what individuals would do if they spent more in response to the gain, and what they would do with any unspent funds. Topics are defined by keywords and phrases selected by the authors. See Appendix C for keywords defining each topic. Answers can contain multiple topics. We exclude responses of those saying they would spend more in response to the loss. N=3,168.

F Questionnaire

The survey was put together using Qualtrics XM Platform. The survey is reproduced below.

By clicking the button below, you accept to take part in this survey.

Basic Demographic questions

First, we would like to ask you some basic questions about yourself.

How old are you?

- ☐ Under 18
- ☐ 18-24 years old
- ☐ 25-34 years old
- ☐ 35-44 years old
- ☐ 45-54 years old
- ☐ 55-64 years old
- ☐ 65+ years old

How do you describe yourself?

- ☐ Male
- ☐ Female
- ☐ Non-binary / Third gender
- ☐ Prefere to self-describe as...
- ☐ Prefer not to say

What best describes your ethnic origin? You can choose up to two options.

- ☐ White
- ☐ Black/African/Caribbean
- ☐ Asian (Indian, Pakistani, Bangladeshi, Chinese, any other Asian background)
- ☐ Other (Arab or any others)
- ☐ Prefer not to say

salute non-eligible

Thank you for your interest in taking part in this survey. Unfortunately, you are not

eligible to participate in it. Please click next to complete the survey.

salute quota full

Thank you for your participation. Unfortunately, we have already reached the maximum number of responses for this survey. Please click next to complete the survey.

More Demographic questions

What is your current marital status?

- ☐ Married
- ☐ Living with a partner
- ☐ In a relation but not living together
- ☐ Widowed
- ☐ Divorced/Separated
- ☐ Single

How many children (under 18) live with you?

- ☐ None
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ More than 4. How many?

How many adults (18 or over) live with you?

- ☐ None
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ More than 4. How many?

What best describes your employment status?

- ☐ Working full-time
- ☐ Working part-time
- ☐ Unemployed and looking for work
- ☐ A homemaker or stay at home parent
- ☐ Student
- ☐ Retired
- ☐ Other

Do you (or your household) own or rent your current accommodation?

- ☐ Own with mortgage
- ☐ Own outright
- ☐ Part-own and part-rent (shared ownership)
- ☐ Rent
- ☐ Live here rent free
- ☐ Other

Personal finance questions

Now we are interested in the financial situation of your household.

If you lost your main source of household income, how long could your household continue to cover living expenses, without having to borrow any money or ask for help from friends or family?

- ☐ Less than a week
- ☐ 1 week to less than 1 month
- ☐ 1 month to less than 3 months
- ☐ 3 months to less than 6 months
- ☐ 6 months or longer

Do you save any amount of your income? For example by putting some money away now and then in a bank, building society, or Post Office account, other than to meet regular bills.

- ☐ Yes
- ☐ No

About how much on average (in pounds) do you personally manage to save a month? If you are not sure or cannot remember, please enter an approximate amount.

Do you or anyone in your household currently have to make repayments on credit cards, hire purchases or other personal loans? Please do not include mortgage loans.

- ☐ Yes
- ☐ No
- ☐ Don't know
- ☐ Rather not say

To what extent is the repayment of such debts (and their interests) a financial burden on your household?

- ☐ A heavy burden
- ☐ Somewhat of a burden
- ☐ Not a problem

Consumption capabilities questions

The next questions are about availability of food in your household, and whether you were able to afford the food you needed. Keep in mind that these statements only refer to the lack of money, and not to any particular diet or religious reason.

In the last **12 months**, did a **lack of money** mean that you or any other members of your household ever

	Often true	Sometimes true	Never true	Rather not say
worry that food would run out before getting money to buy more	☐	☐	☐	☐
felt that food just didn't last	☐	☐	☐	☐

	Often true	Sometimes true	Never true	Rather not say
couldn't afford to eat balanced meals	☐	☐	☐	☐
had to cut down the size of meals or skip meals	☐	☐	☐	☐
had to eat less than you felt you should	☐	☐	☐	☐
felt hungry but didn't eat	☐	☐	☐	☐
lose weight	☐	☐	☐	☐
not eat for a whole day	☐	☐	☐	☐

The next questions are about availability of other essentials in your household, and whether you were able to afford them.

In the last **12 months**, did a lack of money mean that you or any other members of your household ever have problems affording

	Often true	Sometimes true	Never true	Not applicable
taking a shower or a bath	☐	☐	☐	☐
basic toiletries like soap, shampoo, toothbrush or sanitary items	☐	☐	☐	☐
dressing appropriately for the weather (with suitable clothes or shoes)	☐	☐	☐	☐
essential medical or dental care	☐	☐	☐	☐
prescription, pain relief or over the counter medication	☐	☐	☐	☐

In the last **12 months**, did a lack of money mean that your household ever have problems

	Often true	Sometimes true	Never true	Not applicable
keeping your home at an adequate temperature	☐	☐	☐	☐
adequately furnishing your home	☐	☐	☐	☐

	Often true	Sometimes true	Never true	Not applicable
replacing or repairing major electrical goods like a refrigerator, TV, washing machine when they were broken	☐	☐	☐	☐
paying bills (electricity, gas, water)	☐	☐	☐	☐
paying rent/mortgage	☐	☐	☐	☐

Wind1

Now consider a hypothetical situation where you unexpectedly receive a one-time payment of WINDFALL today.

We would like to know whether this extra income would cause you to change your spending and financial decisions in any way over the next 3 months.

Windfall_all

If you received WINDFALL today, how would you change your spending?

- ☐ Over the next 3 months, I would spend **more** than if I hadn't received the WINDFALL
- ☐ Over the next 3 months, I would spend **the same** as if I hadn't received the WINDFALL
- ☐ Over the next 3 months, I would spend **less** than if I hadn't received the WINDFALL

You indicated that you would **increase** your spending over the next 3 months following the receipt of the WINDFALL payment. How much more (in pounds) would you spend than if you hadn't received the WINDFALL?

You indicated that you would **decrease** your spending over the next 3 months following the receipt of the WINDFALL payment. How much less (in pounds) would you spend than if you hadn't received the WINDFALL?

Windfall_more

We are interested in understanding **why** these extra resources would change your spending. The more **detail** you provide, the **better** we will be able to understand your

circumstances and decisions.

Can you please tell us what you would spend those MORE on? If you would spend it on multiple things, please list as many as you can.

Why would the payment lead you to spend more on these things? That is, why wouldn't you make those extra expenditures without the payment?

Why would you increase your spending **more** than the WINDFALL payment? That is, why would you the WINDFALL payment lead you to spend an additional DIFFERENCE?

What would you do with the DIFFERENCE that you **did not spend**? If you use this money in different ways, please list as many as you can.

Can you please tell us why you would use these DIFFERENCE in this way/these ways?

Windfall_same

We are interested in understanding **why** these extra resources would not change your spending. The more **detail** you provide, the **better** we will be able to understand your circumstances and decisions.

You indicated that you would **not change** your spending over the next 3 months following the receipt of the WINDFALL payment. What would you do with these funds instead? If you use this money in different ways, please list as many as you can.

Can you please tell us why you would use the money in this way/these ways?

Windfall_less

We are interested in understanding **why** these extra resources would change your spending. For the following questions, we would like to ask you to provide **as many details as possible**.

Why would you make fewer expenditures than without the payment? That is, why would the WINDFALL payment lead you to spend LESS **less**?

Loss2

Now consider the opposite hypothetical situation in which you unexpectedly find yourself WINDFALL worse off today. This could be a one-off reduction in the value of your savings, an increase in your debts or a one-time reduction in your

income. Note that this does not in any way affect your income going forward. You have simply found yourself suddenly to be WINDFALL worse off than you were before.

We would like to know whether this one-time loss would cause you to change your spending behaviour in any way over the next 3 months.

Loss_all

If you lost WINDFALL today, how would you change your spending?

- ☐ Over the next 3 months, I would spend **less** than if I hadn't lost WINDFALL
- ☐ Over the next 3 months, I would spend **the same** as if I hadn't lost WINDFALL
- ☐ Over the next 3 months, I would spend **more** than if I hadn't lost WINDFALL

You indicated that you would **increase** your spending over the next 3 months following the loss of WINDFALL. How much more (in pounds) would you spend than if you hadn't lost WINDFALL?

You indicated that you would **decrease** your spending over the next 3 months following the loss of WINDFALL. How much less (in pounds) would you spend than if you hadn't lost WINDFALL?

Loss_more

We are interested in understanding **why** this reduction in resources would change your spending. The more **detail** you provide, the **better** we will be able to understand your circumstances and decisions.

Can you please tell us what you would spend those MORE on? If you would spend it on multiple things, please list as many as you can.

Why would this loss in resources lead you to increase your spending? That is, why wouldn't you make those extra expenditures had you not lost WINDFALL?

Loss_same

We are interested in understanding **why** this loss in resources would not make you change your spending. The more **detail** you provide, the **better** we will be able to understand your circumstances and decisions.

You indicated that you would **not change** your spending over the next 3 months following the unexpected loss of WINDFALL. How would you cover this WINDFALL loss?

Loss_less

We are interested in understanding **why** this loss of resources would change your spending. For the following questions, we would like to ask you to provide **as many details as possible**.

Can you please tell us what spending you would cut back on? If you would reduce your expenditure on multiple things, please list as many as you can.

Why would the loss of WINDFALL lead you to spend less on these things? That is, why wouldn't you cut down those expenditures without the one-time loss of WINDFALL?

Why would you reduce your spending **more** than the lost WINDFALL? That is, why would this one-time unexpected loss lead you to cut down your spending by an extra DIFFERENCE?

You indicated that you would reduce your spending by AMOUNT, which is less than the WINDFALL loss. How would you cover the AMOUNT difference?

Loss1

Now consider a hypothetical situation in which you unexpectedly find yourself WINDFALL worse off today. This could be a one-off reduction in the value of your savings, an increase in your debts or a one-time reduction in your income. Note that this does not in any way affect your income going forward. You have simply found yourself suddenly to be WINDFALL worse off than you were before.

We would like to know whether this one-time loss would cause you to change your spending behaviour in any way over the next 3 months.

Wind2

Now consider the opposite hypothetical situation where you unexpectedly receive a one-time payment of WINDFALL today.

We would like to know whether this extra income would cause you to change your spending and financial decisions in any way over the next 3 months.

Feedback

How clear do you find the questions asked in this survey?

- ☐ Very clear
- ☐ Quite clear
- ☐ Quite unclear
- ☐ Very unclear
- ☐ I don't know

If you have any comments for us, please leave them here.

salute end survey

Thank you for your participation on our study. To record your answers and get the your participation fee, please press the "**Submit**" button below.

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