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IMF Working Paper

Financial Concerns and the Marginal Propensity to Consume in COVID Times: Evidence from UK Survey Data*

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ABSTRACT: We study how household concerns about their future financial situation may affect the marginal propensity to consume (MPC) during the COVID-19 pandemic. We use a representative survey of UK households to compute the MPC from a hypothetical transfer of £500. We find that household expectations play a key role in determining differences in MPCs across households: households concerned about not being able to make ends meet have a 20% higher MPC than other households. Our findings suggest that policies targeted to vulnerable and financially distressed households may prove more effective in stimulating demand than providing stimulus payments to all households.

JEL Classification Numbers:	D12, E21, E62, G51, H31
Keywords:	COVID-19; Marginal propensity to consume; Survey data; Household behaviour; Expectations; Financial concerns; Fiscal policy.
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1 Introduction

The COVID-19 pandemic has brought renewed interest to understanding how households' consumption and saving respond to income changes. Micro datasets, including timely household survey data and transaction-level datasets from financial budget applications, have allowed economists to estimate the marginal propensity to consume (MPC) out of income shocks quite swiftly during the pandemic (Baker and Kueng 2021, Vavra 2021). The available evidence points to households mostly saving or paying down debt when receiving a one-off payment during the pandemic (Armantier et al. 2020, 2021, Christelis et al. 2020, Coibion et al. 2020, Crossley et al. 2020, Cox et al. 2020, Baker et al. 2021). This suggests that typical untargeted direct transfers to the *average* household may not stimulate aggregate demand as much during pandemics as during other crises. In this context, understanding which household characteristics predict a higher MPC out of income windfalls is of key importance for the design of fiscal support measures.

Research during the pandemic has found that the MPC out of positive income shocks is largest for low-income and liquidity-constrained households, and for households who suffered greater income falls relative to their pre-pandemic income (Armantier et al. 2020, 2021, Coibion et al. 2020, Cox et al. 2020, Baker et al. 2021). There is, however, less empirical evidence and consensus about the link between household expectations and the propensity to consume during the pandemic. On the one hand, precautionary savings models predict that households who are more concerned about their future financial situation tend to have lower MPCs, so as to build up savings to mitigate future negative income shocks (Aiyagari 1994, Jappelli and Pistaferri 2014). For example, Baker et al. (2021) find that households who expect employment losses and benefit cuts display a smaller MPC out of US stimulus checks. Christelis et al. (2020) find similar results for a sample of six euro area countries, indicating that households who are concerned about the effects of COVID-19 on their finances tend to exhibit smaller MPCs for durable goods out of a hypothetical unexpected bonus payment. On the other hand, using a large-scale survey from the Nielsen Homescan panel, Coibion et al. (2020) find little role for individuals' macroeconomic expectations – future unemployment rate, inflation rates, and mortgage rates – in explaining differences in MPCs. And some evidence for the UK suggests that individuals who expect their financial situation to worsen or a job loss in the next three months actually report a higher MPC out of an hypothetical positive transfer (Crossley et al. 2020). We believe that the fast-changing nature of the pandemic, amid an environment of heightened economic and health uncertainty,

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warrants further study of the link between household financial concerns and their propensity to consume. This paper aims to help fill that gap in the literature.

Against this background, we use survey data for UK households to study how household expectations about their future financial situation may affect their short-term MPC out of positive income shocks. We focus on the MPCs elicited directly from a representative sample of the UK population in the COVID-19 special surveys of the Understanding Society (Institute for Social and Economic Research 2020). The MPC is extracted from a question that asks survey participants how much they would spend if they were to receive a one-off £500 payment. This is a similar question to that asked in previous surveys to US households (Fuster et al. 2021). We build a balanced panel of households that replied to the MPC question in surveys carried out in July 2020, November 2020, and March 2021. We find that the average elicited MPC across surveys stands at only 11%.

Our paper contributes to the literature on the MPC out of unexpected and transitory positive income shocks elicited from household responses to survey questions (Sahm et al. 2010, Jappelli and Pistaferri 2014, 2020, Bunn et al. 2018, Christelis et al. 2019, 2020, Armantier et al. 2020, 2021, Andreolli and Surico 2021, Fuster et al. 2021). These MPCs extacted from 'reported responses' have been shown to be reasonably similar to the 'revealed preference' approach based on actual data (Parker and Souleles 2019). Moreover, we contribute to the literature studying the link between household expectations and the willingness to consume during the pandemic (Christelis et al. 2020, Crossley et al. 2020, Baker et al. 2021).

Our main measure of household expectations, or financial concerns, is the self-reported probability of not being able to pay usual bills and expenses in the next three months. We define financially concerned households as those households whose probability of financial distress is above the median in our sample. In our empirical exercises, we first study the characteristics of households that are more concerned. We then focus our analysis on understanding the household characteristics that best explain the heterogeneity in the elicited MPC. Our main interest will be to investigate how financial concerns relate to decisions to spend out of the transfer of £500. Let us state upfront that we focus on the first moment of expectations, i.e. how households' perception of their ability to meet their spending commitments in the short term affects their MPC. Unlike Coibion et al. (2021), our survey does not allow us to comment on the second moment of expectations, i.e. the role of uncertainty around their responses.

Our main findings are as follows. First, we find that households who are concerned about not

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being able to pay their bills in the short term are more likely to be: already concerned about their current financial situation; liquidity constrained; belong to low-income groups; renters or mortgagors; younger, male, and ethnic minorities; furloughed; on benefits or employed in high-contact industries. We also find a positive correlation between financial concerns and health-related concerns due to COVID-19, in that a higher perception of being infected in the next month is associated with higher financial concerns.

Second, using panel regressions with the elicited MPC as the dependent variable, our main empirical finding suggests that financial concerns over the short term play a key role in explaining differences in MPCs across households during the pandemic. Our novel result shows that financially concerned households have an MPC out of a transfer that is more than 20% higher than households who are not concerned about their ability to pay their usual bills in three months. This result remains robust to adding several household-specific characteristics, and to controlling for current financial difficulties, so as to tease out the role of expectations about future financial difficulties. In addition, we explore qualitative questions from the survey which asked individuals what they would do with the amount they would not spend. We show that concerned households are more likely to rebuild their balance sheets by paying off more debt, but they are less likely to save, and receive less financial help.

Third, we show which other household characteristics are also associated with larger MPCs: being a mortgagor, which underscores the role of illiquid assets for MPCs out of transitory income gains (Kaplan et al. 2014, Cloyne and Surico 2017); younger age groups relative to older groups (Jappelli and Pistaferri 2014, Fagereng et al. 2021); self-employed relative to non-working households; and households with more children. By contrast, we find no evidence that liquidity constraints, once we control for financial concerns and other covariates, are important in explaining differences in MPCs across households. Although we cannot rule out that some households characteristics are correlated, a possible reason why the relationship between liquidity and MPCs might have broken down during the pandemic may be linked to the massive build up in household savings across the population. This provides further evidence that it is the expectation of financial stress rather than liquidity constraints that may be driving our main result that financially concerned households display a larger MPC.

Fourth, we run alternative specifications to shed more light on the reasons why households who are more concerned about not meeting their future spending commitments are associated with a larger MPC. However, we do not find evidence that potential drivers including past

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spending cuts, negative income shocks, borrowing constraints, or the labour market situation explain why financially concerned households have larger MPCs. We could only find some tentative evidence that part of our result may be driven by different shares of discretionary spending and a general reliance on benefits, but this is unlikely to play a large role.

Fifth, we explore non-linearities in our financial concerns variable by making use of the fact that it is a probability bounded between 0% and 100%. Among those households who report having a non-zero probability of being in financial distress, we find that households who are moderately concerned and appear uncertain, in the 1%-50% range, are driving our main results. This goes against the precautionary savings literature and suggests that, as long as the subjective probability of being in financial distress in the future is not that large, households will tend to spend a larger fraction of the income windfall than all other households. By contrast, households who are certain they will not be able to pay they bills (100% probability) display the smallest MPC; these households save a larger fraction of the transfer to prepare for more challenging times ahead.

We subject our baseline results to a battery of robustness checks. We find that our main finding that financially concerned households are associated with a higher MPC is robust to: (i) alternative measures of financial concerns; (ii) controlling for health-related concerns; (iii) controlling for several specific shocks at the regional, local, and industry level; (iv) Tobit and Probit models; (v) and to small changes to the design of the MPC question.

We offer several alternative explanations for our novel result. One possibility is that financial concerns reflect households' perceptions of the nature of the COVID shock. Alternatively, our results might be better rationalised through behavioural models of consumption, by placing a focus on prospect theory and mental accounting (Duxbury et al. 2005, Milkman and Beshears 2009, Kahneman and Tversky 2013). For instance, households that expect to be in financial difficulty in the near future may choose to overconsume now because they are less sensitive to news about future consumption than to news about current consumption. Mental accounting may also play a role in determining MPCs. People compartmentalise income and spending into different mental 'accounts', such as 'current income', 'current assets' and 'future income' (Shefrin and Thaler 1988, Duxbury et al. 2005, Milkman and Beshears 2009, Baugh et al. 2021). Households may use budgets within these accounts to facilitate making trade-offs between competing uses for funds and to act as a self-control device. Financially concerned households might be more likely to 'budget' and treat funds within each tagged mental account as distinct and

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imperfectly substitutable. That might explain why they are more likely to increase their spending in response to small windfalls. Relatedly, it is also possible that preference heterogeneity across households, self-control issues and low financial sophistication, which tend to correlate with low liquid assets, low savings and a higher probability of becoming financially distressed, may lead more concerned households towards over-consumption (Laibson 1998, Aguiar et al. 2020, Jørring 2020, Vihriälä 2021). We also cannot rule out that there may have been some ambiguity in the interpretation of the MPC question, particularly that some households may have had trouble in distinguishing what constituted 'spending' and 'paying off debt' (Sahm et al. 2010).

Our results also tentatively support findings that households who expect not to be able to make ends meet have larger consumption responses to negative income shocks. Although we cannot compute an MPC from a scenario of negative income shocks – and thus not compare it with the elicited MPC from a hypothetical transfer – our findings highlight the role that household expectations play in determining the responsiveness of consumption to both hypothetical expansionary and contractionary fiscal policies.

The rest of the paper is organised as follows. In Section 2 we describe the survey data and show descriptive statistics. In Section 3 we run probit panel regressions to study the characteristics that predict which households are more financially concerned. Section 4 presents our main results where we uncover the relationship between the elicited MPCs and financial concerns. In Section 5 we test whether financially concerned households are more likely to cut consumption in the face of negative shocks relative to unconcerned households. Section 6 concludes the paper.

2 The Understanding Society COVID-19 survey

2.1 Background on survey and elicited MPC

In this paper we exploit granular data collected in the Understanding Society COVID-19 Study, henceforth COVID survey (Institute for Social and Economic Research 2020). The COVID-19 survey is a new component of Understanding Society: the UK Household Longitudinal Study, henceforth Main survey.[1] Understanding Society is the UK's main longitudinal Household

[1]Understanding Society is built on the British Household Panel Survey (BHPS) which ran from 1991-2008 and included around 10,000 households. Understanding Society includes around 8,000 of the original BHPS households.

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Survey. From April 2020 participants from the Main survey were asked to complete the more frequent COVID-19 survey to capture experiences during the pandemic.

The participants in the COVID survey are a subset of those in the Main survey which enables us to link data across the two surveys on the same respondent. This is useful because the Main survey includes important background information on participants and their households, such as their balance sheet positions on the eve of the pandemic. Table A.1 in Appendix A contains the full list of variables used in this paper.

The COVID survey was conducted at an individual level, whereas the Main survey followed both individuals and households. We conduct the analysis at an individual level and treat household variables as attributes of individuals. For the sake of simplicity, and for comparability with other studies, we will refer to households as a loose definition for individuals. To create our dataset we merge the individual and household Main surveys from Waves 8, 9 and 10 and then link this to the COVID survey. Most of our pre-COVID covariates are from the most recent responses to either Wave 9 or 10. We exclude the year 2020 to avoid that our pre-COVID variables are polluted with information from the pandemic.

We use weights in our data to adjust for unequal selection probabilities, differential non-response, and potential sampling error Institute for Social and Economic Research (2020). Specifically, we use the inverse-probability weights provided with the COVID survey, which correct Main survey weights for non-response. Of the eight available waves of the COVID survey (from April 2020 to March 2021) we focus on the fourth, sixth and eight waves conducted in July 2020, November 2020, and March 2021 as these included questions on MPCs.[2] Over 13,000 individuals have responded to at least one of the COVID surveys. Our sample is smaller as we must drop some households from the dataset. First, we drop all households who were not present in at least one of the two most recent Main survey Waves (Waves 9 or 10), so that we can extract important pre-COVID information. This effectively means that we only keep households with non-zero survey weights. Second, we drop all households who did not respond to all three of the aforementioned COVID surveys. Our final sample is comprised of a balanced panel of 7,313 individuals, totalling 21,939 observations for the three surveys.

Our variable of interest, the MPC, is extracted from a series of questions asking households what they would do over the next three months if they were to receive a one-time hypothetical

[2]The July survey was carried out between 24-31 July, the November 2020 survey between 24 November and 1 December, and the March 2021 survey between 24-31 March.

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transfer of £500. These questions were adapted from a survey conducted by the Federal Reserve Bank of New York (Fuster et al. 2021). More specifically, survey participants were asked the following:

> *Now consider a hypothetical situation where you unexpectedly receive a one-time payment of £500 today. We would like to know whether this extra income would cause you to change your spending, borrowing and saving behaviour in any way over the next 3 months.*
>
> *1. Over the next 3 months, I would spend more than if I hadn't received the £500*
>
> *2. Over the next 3 months, I would spend the same as if I hadn't received the £500*
>
> *3. Over the next 3 months, I would spend less than if I hadn't received the £500*

A follow-up question was then asked to those that replied that they would increase or decrease spending:

> *You indicated that you would [increase/decrease] your spending/donations over the next 3 months following the receipt of the £500 payment. How much [more/less] would you spend than if you hadn't received the £500?*
> *[Numeric textbox] Pounds*

If the quantitative questions indicate that the respondent would not spend all of the £500, respondents would answer a follow-up question about what they would do with the amount they would not spend:

> *You have indicated that you would not spend all of the £500 payment. What would you do with the amount that you do not spend?*
> *Please select all that apply.*
>
> *1. Over the next 3 months, I would pay off more debt (or borrow less) than if I hadn't received the £500*
>
> *2. Over the next 3 months, I would save more than if I hadn't received the £500*
>
> *3. Over the next 3 months, I would receive less financial help from friends or family than if I hadn't received the £500*
>
> *4. Over the next 3 months, I would give more financial help to friends or family than if I hadn't received the the £500*

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5. Other

In the November 2020 and March 2021 waves respondents were split randomly into two groups. The first group were asked the July 2020 question and the second group were asked a very similar question, but where the wording is altered slightly so that the *government* unexpectedly gives *everyone* a one-time payment of £500. The same follow-up questions were asked.

The elicited MPCs from the above hypothetical questions, also known as the direct survey approach, has some advantages over other techniques in computing the MPC (Jappelli and Pistaferri 2014, Bunn et al. 2018, Fuster et al. 2021). For example, under the assumption that there is no systematic discrepancy between the intention to spend and actual spending, it overcomes the usual econometric identification problems by isolating an exogenous temporary shock to income without the need of distributional assumptions.[3] And, as it provides the MPC for each household, it also allows for a more detailed analysis of population sub-groups. The COVID survey also has an advantage to other surveys which only provide qualitative responses about their willingness to spend (Shapiro and Slemrod 2003, 2009).

2.2 Descriptive statistics

Figure 1 combines the responses to both the personal and public windfall question to show the fraction of households who would spend more, spend the same or spend less upon receiving the £500 transfer. We find that around 78% of households would not change their spending at all in response to a one-time payment of £500. Around 18% would spend more, whereas roughly 4% would spend less. The responses are relatively stable across the three surveys.

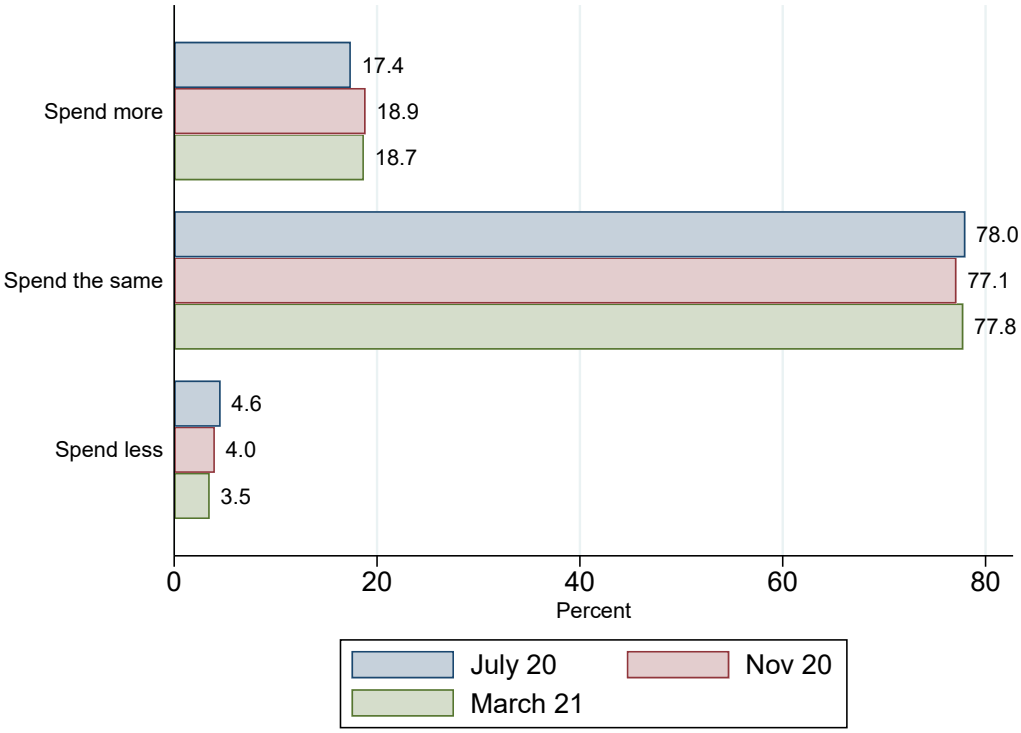
We now extract the implicit MPC for all households following the £500 payment. More specifically, we compute the individual's MPC as the reported pound consumption change divided by £500. The MPCs vary between zero and one, so that households who reported they would spend less or the same are re-coded as having an MPC of zero. We can see that the average MPC across our balanced sample is 0.11, with very small differences across waves (Table 1). This is in line with Crossley et al. (2020) but low even in comparison to other estimates from the pandemic. For instance, the average MPC out of stimuls payments made as part of the CARES ACT in the United States is estimated to range between 25% and 40% (Armantier

[3]While stated responses may differ from actual spending responses, Parker and Souleles (2019) compare self-reported spending responses with revealed-preference estimates and find the former is highly predictive of the latter. They also find that the two measures imply similar average MPCs.

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et al. 2020, Chetty et al. 2020, Coibion et al. 2020, Baker et al. 2021). This falls in the lower range of previous empirical evidence on the MPCs out of government transfers in 2001 and 2008 (Shapiro and Slemrod 2003, 2009, Parker et al. 2013). Moreover, Armantier et al. (2021) find that MPCs averaged 29% in April 2020, decreasing slightly over time with additional policy support measures.[4] For euro area households, Christelis et al. (2020) point to an average MPC of 18% out of a hypothetical unexpected bonus of €3,000.

Figure 1: Households' response to a hypothetical payment of £500



The low MPC reflects to a large extent the fact that roughly 85% of the respondents would save the full £500 transfer. This implies that for an additional £1 of income, households would, on average, increase their spending by only £0.11. The table also shows the distribution of MPCs based on the percentage of households who fall into each MPC group. Two additional results stand out. First, the second most common reported MPC is one, at around 7-8%. Second, there is limited variability in the distribution of MPCs across time. At face value, this is somewhat surprising given that the surveys capture distinct phases of the pandemic, especially the stringency of the restrictions on spending and social activities.[5] The low MPCs today may

[4]The average MPC from the three rounds of stimulus checks declines from 29% in April 2020, to 26% in December 2020, and to 25% in March 2021.

[5]In July 2020, the UK had come out of a national lockdown, many social-distancing restrictions had been eased, and the number of COVID-19 cases and deaths had fallen substantially. In November 2020, the sharp rise in the number of cases and deaths led to a second national lockdown, with non-essential stores closed, and

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therefore not be fully accounted for by the constraints faced by households in allocating resources to discretionary spending, such as restaurants, travel, and accommodation, in a context of social-distancing and restriction measures.

Table 1: Summary statistics for MPCs

	N	**Mean**	**SD**	**Zero**	**(0-0.25)**	**[0.25-0.5)**	**[0.5-0.75)**	**[0.75-1)**	**One**
Jul-20	7,313	0.11	0.28	84.82	1.57	2.02	3.60	0.74	7.25
Nov-20	7,313	0.11	0.29	84.70	1.73	1.76	2.97	0.99	7.86
Mar-21	7,313	0.12	0.30	84.50	1.58	1.65	3.08	1.03	8.15
Full sample	21,939	0.11	0.29	84.67	1.63	1.81	3.21	0.92	7.76

Notes: Shares calculated as percentages of total MPC sample.

Households who had an MPC smaller than one were asked a follow-up question about what they would do with the £500 that would not be spent. Table 2 shows that the majority of households would save more. Saving seems to have become more popular over time, increasing to 75% in the March 2021 survey, from 69% in July 2020. Roughly 20% of individuals would pay off more debt, a share that remained relatively stable across surveys. Finally, around 9% of individuals who would not spend all of the £500 would give more financial help.

Table 2: Use of amount not spent

	Pay off more debt	Save more	Receive less fin. help	Give more fin. help
Jul-20	20.55	68.64	1.94	9.15
Nov-20	22.44	67.51	1.57	8.49
Mar-21	20.14	74.49	1.49	8.65
Full sample	21.05	70.18	1.67	8.76

Notes: Shares sum to over 100% as respondents could give more than one response.

In the remainder of this section we look at univariate correlations between the elicited MPC and population subgroups. We first link the COVID surveys to the Main survey to extract pre-crisis balance sheet information, such as mortgage debt, and cash-on-hand, which play an important role in life-cycle models. We follow Jappelli and Pistaferri (2014) and measure cash-on-hand with the sum of household disposable income and liquid savings net of unsecured debt, all taken from the Main survey. Table A.2 in Appendix A shows that households in the first two quintiles of cash-on-hand tend to have a slightly higher MPC, in line with the literature that finds a negative relation between MPC and liquidity (Parker et al. 2013, Jappelli and Pistaferri 2014, Kaplan et al. 2014, Bunn et al. 2018, Christelis et al. 2020, Coibion et al. 2020, Baker et al. 2021, Fagereng et al. 2021).

discretionary spending restricted. The last available survey in March 2021 marked a period of a gradual easing in restrictions, with children returning to school, alongside a substantial fall in the number of infections and deaths.

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On housing tenure, we show that mortgagors are associated with a larger MPC than renters or outright owners, highlighting the role of illiquid assets for MPCs out of transitory income gains (Kaplan et al. 2014, Cloyne and Surico 2017). For instance, Cloyne and Surico (2017) show that households with mortgage debt exhibit large and significant consumption responses to tax changes in the UK, whereas homeowners without a mortgage do not adjust their expenditure. We also show that mortgagors are more likely to report an MPC of one. When we condition on the level of mortgage debt, we find that individuals who fall in the top quintile of the loan-to-income (LTI) ratio distribution are associated with larger MPCs, compared to the first quintile (Kaplan et al. 2014, Misra and Surico 2014, Baker and Yannelis 2017, Cloyne and Surico 2017, Bunn et al. 2018, Kovacs et al. 2018).

MPCs also differ across labour market sub-groups. Both employees and the self-employed tend to have higher MPCs than households who are not working, such as those who are retired. Moreover, we also find that younger age groups are associated with higher MPCs relative to older groups (Jappelli and Pistaferri 2014, Fagereng et al. 2021).

Households who had experienced a fall in spending over the previous four weeks compared to the same period the year before exhibited larger MPCs than households who had not, hinting at some spending normalisation. Conversely, households whose earnings had fallen by 25% or more since the start of the pandemic had smaller MPCs.

Finally, we check how the MPC varies according to COVID-19 health-related concerns:

In your view, how likely is it that you will contract COVID-19 in the next month?

1. *Very likely*
2. *Likely*
3. *Unlikely*
4. *Very unlikely*

When we transform this question into a binary variable – very likely plus likely, against very unlikely plus unlikely – we find that both groups are very similar, suggesting that health concerns do not directly affect willingness to spend. It is possible that households concerned that they would contract COVID in the near future might have had an incentive to spend more on some goods and services, such as taxis, supermarket supplies, and medical supplies. But, on the other hand, the precautionary saving motive would work in the opposite direction, with concerned households saving more as a buffer.

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2.3 Financial concerns during the pandemic

In this section we shift our analysis to the MPC across several measures of household expectations. These expectations relate to households' financial situation in the next three months, which aligns with the same time horizon as the MPC question. Our first measure of financial concerns deals with the subjective perception of being able to pay bills:

> *On a scale of 0-100% how likely do you think it is that you will have difficulty paying your usual bills and expenses in the next three months?*
> *[Numeric textbox] %*

The second measure looks at the individual' subjective financial situation:

> *Looking ahead, how do you think you will be financially 3 months from now, will you be...*[6]
>
> *1. Better off*
>
> *2. Worse off than you are now*
>
> *3. Or about the same?*

The third measure was only asked to those who were working at the time of the survey:

> *On a scale of 0-100% how likely do you think it is that you will lose your job or shut your business in the next three months?*
> *[Numeric textbox] %*

Table A.2 in Appendix A shows that financially concerned households are associated with a larger MPC than unconcerned households, regardless of the survey question we use. For instance, our main baseline measure in this paper – the probability of not being able to pay bills in the next three months – indicates that those individuals who assign a non-zero probability to this event occurring have an unconditional MPC of 0.15, compared with 0.10 for the unconcerned individuals. In Table A.3 we inspect some of the characteristics of these households in an univariate setting. Concerned households are more likely to be finding their current situation difficult and to expect their financial situation to be worse in the short-term. They also assign a much higher probability to losing their jobs in three months. Balance sheet positions of

[6] The July 2020 survey focused on *a month from now*, instead of three months.

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concerned households also appear to differ from those who are not concerned. For instance, they tend to have substantially lower cash-on-hand, a sign of liquidity constraints, and are more likely to be mortgagors. The average concerned household also tends to be about ten years younger than unconcerned households.

In the following sections we investigate more formally, in a multi-variate setting, the characteristics of financially concerned households, and how financial concerns may affect the reported propensity to consume.

3 What determines financial concerns?

We turn to the analysis of the characteristics that correlate with financial concerns by running several probit panel regressions across the three surveys, July 2020, November 2020, and March 2021. We transform our financial concerns variable – the probability of not being able to pay bills in the next three months – into a binary variable, assuming the value of one if the household's expected probability of financial distress is above the median in the sample, and zero otherwise. Given that the median value is zero, we are in effect comparing those that assign a non-zero probability to this event occurring to those that assign a zero probability.[7] Figure 2 shows the probability distribution for financially concerned households i.e. those who assign a non-zero probability. We can see that the distribution is skewed to the left, with the mean at around 27% and the median at 20%. Most of the responses fall between 0-30%, with then a slight increase in the frequency at around 50%.

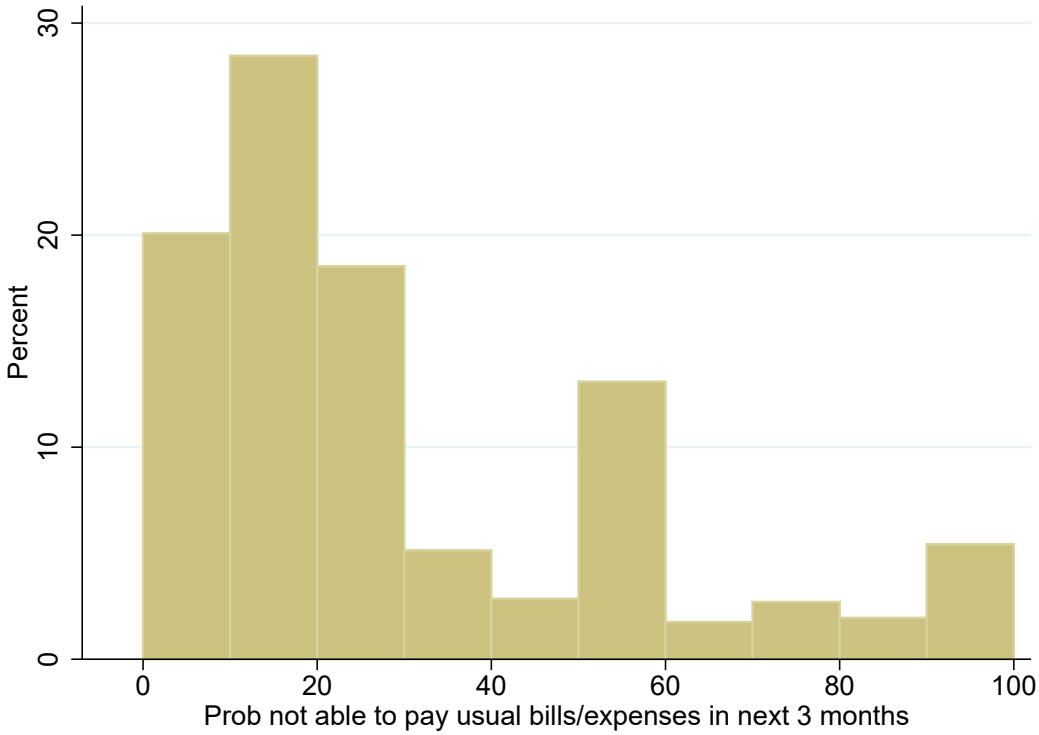
We use a large set of household characteristics in our probit model. The socio-demographic variables refer to: binary variables for households belonging to the age groups 18-39 and to 40-64 (65 and older is the omitted group), whether the individual is male, the number of children, the household size, and whether the individual identifies as being from the White ethnic group. The financial characteristics of households are captured by: the housing tenure status, i.e. mortgagor or renter (outright owner is the omitted category), the logarithm of pre-crisis household income and quintiles of the cash-on-hand ratio, both from the Main survey. We capture current and future perceived financial subjectivity with the two variables on financial situation described in the previous section ('Finances now', and 'Finance future'). We transform them into binary variables that assume the value of one for households who report finding it difficult or very

[7] Our headline results are robust to using the mean sample value of 8.74, instead of the median, as the threshold for the financial concerns variable.

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difficult to manage financially *these days* ('Finances now'), and the value of one for households who believe they will be worse off financially in three months' time ('Finance future').

Figure 2: Distribution of financial concerns



We also add the individual's employment situation with a binary variable for being an employee or self-employed (relative to not working), a dummy indicating whether an individual has been furloughed,[8] two dummies indicating whether an individual started receiving Universal Credit prior to the pandemic (including those who continued to receive it during the pandemic) or only applied for and started receiving Universal Credit since the pandemic began,[9] and another dummy that captures whether the individual works in a high-contact industry (accommodation and food service activities, administrative and support service activities, and arts, entertainment and recreation).[10] Finally, we add two variables that proxy health concerns related to COVID-19: a dummy variable that assigns the value of one to individuals who think

[8]Our furloughed dummy is equal to one if someone is currently furloughed or has been furloughed at some point in the past.

[9]Universal Credit (UC) is a means-tested benefit which is available to those who are in work but on low incomes, as well as to those who are unemployed or whose capability for work is limited by sickness or disability. In the early stages of the pandemic there was a sharp increase in UC claims. The total number of people on Universal Credit in Great Britain surged from 3 million in March 2020 to 5.2 million in May, gradually increasing to 5.8 million as of November 2020.

[10]We define high-contact industries as the three industries that reported the largest impact on sales/employment between 2020Q2 and 2021Q1 relative to what would have otherwise happened. These statistics come from responses to the Decision Maker Panel (DMP), one of the main representative surveys of businesses in the UK.

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it is likely or very likely that they will get infected in the next month ('Risk of infection'), and a dummy variable with the value of one for households who are sure, or think that it is very likely they have had COVID-19 ('Had Covid-19').

We report the Probit results in Table 3.[11] In column (1) we find that individuals who are having difficulties in managing their finances, and who believe they will be worse off in three months' time, are more likely to be concerned about their ability to pay their bills in the next three months. Liquidity constraints are a strong predictor of households' financial concerns: being in the bottom quintile of the cash-on-hand ratio increases the conditional probability of becoming financially concerned about the future by 11 p.p. relative to the top quintile. Along the same lines, income is negatively associated with the probability of being financially concerned, pointing to the important role that liquidity and income play in determining financial expectations. Our findings align well with those in Christelis et al. (2020), who study euro area households' concerns about the impact of COVID-19 on their financial situation.

Renters and mortgagors are more likely to be financially concerned relative to outright owners. We rationalise this result with the fact that renters tend to be more financially vulnerable and liquidity constrained. For mortgagors, the reason may be related to the large share that mortgage payments typically play in mortgagors' spending commitments, implying less financial flexibility when hit by a negative income shock (e.g. unemployment).

Of the socio-demographic variables, individuals identifying as male, and those belonging to the 18-39 age group tend to be more financially concerned, with those 65 and above being the least concerned. Ethnicity also plays a role; being White reduces the likelihood of being financially concerned. This is in line with evidence that the UK's minority ethnic groups have been disproportionately affected by COVID (Platt and Warwick 2020). It is also worth noting that individuals perceived higher levels of financial distress in July 2020. This is somewhat surprising, as several restrictions had been eased around that time, while the UK was under a second national lockdown in November 2020. One of the explanations could be related to the prevailing uncertainty about the continuation of income support schemes into the Autumn 2020. In addition, uncertainty about how the pandemic would evolve, and the absence of vaccines at that time could have arguably made people more uncertain about their short-term financial situation.

[11] We apply the delta method in the Probit model to convert the coefficients into marginal effects of a given variable on the conditional probability of changing the dependent variable.

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Table 3: Probit model: determinants of expected financial concerns

	(1)	(2)	(3)	(4)	(5)	(6)
Finances now	0.361***	0.361***	0.357***	0.347***	0.345***	0.371***
	(0.034)	(0.032)	(0.032)	(0.046)	(0.033)	(0.040)
Finance future	0.225***	0.219***	0.218***	0.255***	0.218***	0.245***
	(0.014)	(0.014)	(0.014)	(0.021)	(0.014)	(0.020)
Cash-on-hand Q1	0.106***	0.103***	0.108***	0.068*	0.100***	0.112***
	(0.024)	(0.024)	(0.024)	(0.040)	(0.024)	(0.030)
Cash-on-hand Q2	0.079***	0.078***	0.080***	0.037	0.076***	0.086***
	(0.024)	(0.024)	(0.023)	(0.042)	(0.024)	(0.032)
Cash-on-hand Q3	0.052**	0.047**	0.051**	0.006	0.047**	0.055*
	(0.023)	(0.023)	(0.023)	(0.041)	(0.023)	(0.030)
Cash-on-hand Q4	0.058***	0.058**	0.059***	0.042	0.058***	0.076**
	(0.022)	(0.022)	(0.022)	(0.041)	(0.022)	(0.031)
Mortgagor	0.094***	0.095***	0.100***	0.092***	0.098***	0.086***
	(0.016)	(0.015)	(0.016)	(0.022)	(0.015)	(0.020)
Renter	0.150***	0.150***	0.152***	0.138***	0.141***	0.122***
	(0.020)	(0.020)	(0.019)	(0.030)	(0.020)	(0.027)
Log HH income	-0.030**	-0.031***	-0.027**	-0.010	-0.026**	-0.020
	(0.012)	(0.011)	(0.011)	(0.017)	(0.011)	(0.016)
Age 18-39	0.133***	0.125***	0.143***	0.098**	0.117***	0.084**
	(0.021)	(0.020)	(0.023)	(0.040)	(0.020)	(0.035)
Age 40-64	0.080***	0.075***	0.090***	0.047	0.067***	0.031
	(0.016)	(0.016)	(0.019)	(0.037)	(0.015)	(0.031)
Male	0.030**	0.030**	0.030**	0.041**	0.030**	0.037**
	(0.012)	(0.012)	(0.012)	(0.018)	(0.012)	(0.016)
No. children	0.008	0.007	0.008	0.028*	0.006	0.021
	(0.011)	(0.011)	(0.011)	(0.015)	(0.011)	(0.014)
Household size	0.014*	0.015*	0.014*	0.002	0.016*	0.011
	(0.008)	(0.008)	(0.008)	(0.011)	(0.008)	(0.010)
White	-0.091***	-0.093***	-0.089***	-0.112***	-0.089***	-0.114***
	(0.024)	(0.024)	(0.024)	(0.033)	(0.024)	(0.030)
Jul20 survey	0.047***	0.048***	0.048***	0.038***	0.050***	0.057***
	(0.008)	(0.007)	(0.007)	(0.012)	(0.007)	(0.010)
Nov20 survey	-0.003	-0.007	-0.007	-0.001	-0.006	0.013
	(0.008)	(0.008)	(0.008)	(0.012)	(0.008)	(0.011)
Risk of infection		0.097***	0.102***	0.133***	0.098***	0.128***
		(0.022)	(0.022)	(0.030)	(0.022)	(0.028)
Had Covid-19		-0.091	-0.088	-0.247*	-0.094	-0.219**
		(0.097)	(0.093)	(0.129)	(0.096)	(0.107)
Employee			-0.033*			-0.023
			(0.017)			(0.022)
Self-employed			0.000			
			(0.022)			
Furloughed				0.077***		
				(0.021)		
UC pre-Covid					0.128***	
					(0.046)	
UC post-Covid					0.093**	
					(0.043)	
High-contact						0.063***
						(0.024)
Observations	21,932	21,801	21,801	9,679	21,801	11,391

Notes: Marginal effects of probit estimates at the individual level computed with the delta method. The dependent variable is the financial concerns dummy, taking the value of one if households' concerns about not being able to pay their bills in three months is above the median sample value, and zero otherwise. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

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Health concerns also play an important role in the perception of households about being able to meet their financial commitments. In column (2) we find that the perception of contracting COVID-19 in the next month is associated with an increase of 10 p.p. in the probability of being more concerned about not being able to make ends meet. But there is some indication that individuals become less financially concerned once they think that they have had COVID-19, suggesting a link between health and financial concerns (columns 4 and 5).

In column (3) we find that employees are less likely to be financially concerned than individuals who are not working. In column (4) we note that furloughed individuals are much more likely to be financially concerned. The sample, however, drops by around half since the furloughed dummy can only be computed for employed individuals. In column (5) individuals who have received Universal Credit, either before or during the pandemic, are also shown to be more likely to be financially concerned. Finally, the last column focuses only on individuals who are working. We find that individuals who work in high-contact industries are more likely to be financially concerned. This result points to the disproportionate effect that the pandemic has had on industries that rely mostly on face-to-face contact.

4 Financial concerns and the MPC: Panel regressions

This section constitutes the centre stage of our analysis. We use the probability of not being able to pay bills in the next three months as the main measure of financial concerns. We shed light on which household characteristics best explain the heterogeneity in the elicited MPC, focusing on how financial concerns relate to decisions to spend out of the transfer of £500.

4.1 Main results

We run several panel regressions to uncover the heterogeneity in MPCs during the pandemic across a representative sample of UK individuals. Our dependent variable is the elicited MPC from the survey questions explored in previous sections. The MPC varies between zero (not spend anything) and one (spend the full £500 over the next three months).

We model the unobserved heterogeneity with random effects rather than with fixed effects for the following reasons. First, several important covariates are only available in the Main (pre-COVID) survey. This means that the fixed-effects model would not be able to estimate how time-invariant variables, such as cash-on-hand, and household income, correlate with the

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MPCs.[12] In addition, the same would happen with other variables, such as gender, race, and the number of children. Second, there is little time variation within households in some of the key variables, particularly the financial concerns variable. This makes the (within) fixed-effect estimator inefficient in estimating the effect of variables that have very little within variation. In addition, demeaning can be problematic for estimating fixed effects when the number of time periods is small.

We report our main specifications in Table 4. In column (1) we find that our financial concerns variable is positively associated with the elicited MPC, and highly statistically significant. Individuals who are more concerned than the the median individual in the sample about not being able to meet their financial commitments are associated with a larger MPC of 3.2 p.p over the next three months. In our preferred specification, in column (2), we include the same set of household characteristics as in Table 3. We also control for current financial difficulties – finding it difficult or very difficult to manage financially – so as to tease out the role of expectations about future financial difficulties. Our coefficient of interest declines a bit to 0.023, but remains highly statistically significant. This suggests that financial concerns matter for explaining the heterogeneity in the MPC across individuals beyond the effect of their current financial situation, and of other household-specific characteristics. While the economic magnitude seems small at face value, we note that the average MPC is only 11%. This means that financially concerned households have an MPC that is more than 20% higher than the sample average.[13]

In column (3) we do not find any evidence that individuals who are finding their current situation difficult and are more financially concerned have larger MPCs. This contrasts with Crossley et al. (2020) who, using data from the first COVID survey in July 2020, find evidence that the highest MPCs, when nothing else is controlled for, are for those who are currently finding it difficult and expect things to deteriorate further. In column (4) we test the robustness of our findings to controlling for the expectation that the government will be supporting private sector wages in eight months' time.[14] Our previous results remain qualitatively unchanged.

Moreover, we use two alternative measures of financial expectations that we have explored in

[12] While the COVID surveys asked about household income and earnings, they are unfortunately not well populated in every COVID wave.

[13] In Table B.1 in Appendix B we run two probit models of this specification with the dependent variable taking the value of one when the elicited MPC is zero (column 1), and taking the value on one when the elicited MPC is one (column 2). We find that more concerned households tend to be less likely to report an MPC of zero, while being more likely to report an MPC of one (fully spending the £500 income transfer.)

[14] The question on the probability of wage support was not asked in the July 2020 survey. Individuals were asked the following: '*On a scale of 0-100%, what is the chance that the government will be supporting wages of private sector workers, either directly or through payments to employers, in 8 months' time (i.e. at the end of November 2021)?(...)* '.

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Section 2.3. The first asks individuals about the probability of losing their job or shutting their business in the next three months (*Job security*). To be in line with our main measure of financial concerns, we construct a dummy equal to one if individuals' expected probability of losing their job is above the sample median. The sample size decreases by one-third as this question is only asked to those currently in paid work or self-employed. The second indicator takes the value of one for individuals who believe they will be worse off financially in three months' time (*Finances future*).[15] Columns (5) and (6) indicate that our main finding – households who are more financially concerned over the short term tend to have a larger MPC – is not driven by the choice of the expectation variable.

In the rest of this section we look at the other household-specific covariates. Starting with the cash-on-hand quintiles, we do not find that individuals with more limited household liquid assets are associated with different MPCs relative to the top quintile. We actually find some evidence that the individuals in the top cash-on-hand quintile tend to have larger MPCs than individuals who fall in the third quintile. Along the same lines, we do not find that pre-COVID household income is a statistically significant determinant of MPCs during the pandemic. In models with rational (or near-rational) expectations, individuals who are close to their liquidity constraint exhibit a significantly higher MPC out of income increases because these individuals are unable to smooth consumption before they receive the income by borrowing or using savings (Parker et al. 2013, Jappelli and Pistaferri 2014, Kaplan et al. 2014, Bunn et al. 2018, Christelis et al. 2020, Coibion et al. 2020, Baker et al. 2021, Fagereng et al. 2021). But, on the other hand, there is a strand of the literature that has found high MPCs for high-liquidity households (Sahm et al. 2010, Kueng 2018, Olafsson and Pagel 2018, Baugh et al. 2021).[16] The break in the relationship between cash-on-hand and MPC during the pandemic may be linked to the massive build up in household savings due to forced consumption cuts. In addition, a number of policy measures, such as income support schemes, and the extension of universal credit, were targeted at those more financially vulnerable. These measures may have alleviated the negative income shock experienced by individuals at the bottom of the liquid asset distribution.

Across all specifications we find that mortgagors have larger MPCs than outright owners, underscoring the role that illiquid assets have played in determining differences across households in MPCs out of transitory income gains (Kaplan et al. 2014, Cloyne and Surico 2017).

[15] The July survey had a shorter window of '*a month from now*', instead of three months.

[16] In behavioural models agents have a self-control problem (Laibson 1998) or consume according to a rule-of-thumb or mental accounting (Campbell and Mankiw 1989, Duxbury et al. 2005, Milkman and Beshears 2009). Ilut and Valchev (2020) argue that bounded rationality may explain this behaviour.

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Table 4: Baseline Random Effects regression

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Financial concerns	0.032***	0.023***	0.023***	0.032***			0.024***
	(0.005)	(0.005)	(0.005)	(0.006)			(0.005)
Finances now		-0.013	-0.009	0.016	-0.032**	-0.009	-0.013
		(0.011)	(0.024)	(0.014)	(0.015)	(0.011)	(0.011)
Fin. conc.×Fin. now			-0.005				
			(0.026)				
Job security					0.017***		
					(0.006)		
Finances future						0.015**	
						(0.007)	
Cash-on-hand Q1		0.000	0.000	-0.008	-0.005	0.002	0.000
		(0.010)	(0.010)	(0.012)	(0.016)	(0.010)	(0.010)
Cash-on-hand Q2		-0.005	-0.005	-0.020*	-0.012	-0.004	-0.007
		(0.010)	(0.010)	(0.012)	(0.017)	(0.010)	(0.010)
Cash-on-hand Q3		-0.019*	-0.019*	-0.031***	-0.034**	-0.019*	-0.019*
		(0.010)	(0.010)	(0.011)	(0.016)	(0.010)	(0.010)
Cash-on-hand Q4		0.001	0.001	-0.005	0.001	0.001	0.001
		(0.010)	(0.010)	(0.011)	(0.016)	(0.010)	(0.010)
Mortgagor		0.031***	0.031***	0.037***	0.034***	0.033***	0.032***
		(0.008)	(0.008)	(0.009)	(0.010)	(0.008)	(0.008)
Renter		0.006	0.006	-0.005	0.004	0.010	0.005
		(0.008)	(0.008)	(0.010)	(0.012)	(0.008)	(0.008)
Log HH income		-0.002	-0.002	-0.008	0.010	-0.002	-0.002
		(0.005)	(0.005)	(0.006)	(0.008)	(0.005)	(0.005)
Age 18-39		0.061***	0.061***	0.057***	0.052***	0.064***	0.062***
		(0.009)	(0.009)	(0.011)	(0.016)	(0.009)	(0.009)
Age 40-64		0.046***	0.046***	0.046***	0.031**	0.048***	0.046***
		(0.007)	(0.007)	(0.008)	(0.015)	(0.007)	(0.007)
Male		0.021***	0.021***	0.019***	0.025***	0.022***	0.021***
		(0.006)	(0.006)	(0.006)	(0.008)	(0.006)	(0.006)
No. children		0.021***	0.021***	0.017***	0.025***	0.022***	0.022***
		(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)
Household size		-0.008***	-0.008***	-0.006*	-0.007*	-0.008***	-0.009***
		(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
White		0.022*	0.022*	0.023*	0.007	0.020*	0.023**
		(0.012)	(0.012)	(0.013)	(0.015)	(0.012)	(0.012)
Jul20 survey	-0.009**	-0.009**	-0.009**		-0.006	-0.007*	-0.009**
	(0.004)	(0.004)	(0.004)		(0.005)	(0.004)	(0.004)
Nov20 survey	-0.004	-0.004	-0.004	-0.006	-0.005	-0.004	-0.003
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)
Expect wage support				-0.005			
				(0.005)			
Risk of infection							-0.010
							(0.009)
Had Covid-19							0.006
							(0.021)
N	21,939	21,939	21,939	14,251	11,732	21,932	21,808

Notes: Estimates from a random-effects model at the individual level, where the dependent variable is the elicited MPC. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

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As for age, our results are in line with empirical findings pointing to older age groups being associated with smaller MPCs, particularly after retirement (Jappelli and Pistaferri 2014, Fagereng et al. 2021).[17] We find those in the youngest age group (18-39) display the largest MPCs compared to those aged 65 and over. This is also in line with health concerns during the pandemic, which may have led older consumers to accumulate precautionary savings (Eichenbaum et al. 2020). We also find that males, those of White ethnicity, and living in households with more children are associated with higher MPCs.

In the last column, we investigate whether our main findings are driven by a possible omitted variable bias related to COVID-19 health concerns. Column (7) shows that all of our baseline findings remain intact after controlling for the likelihood of contracting COVID-19 in the next month, and also to taking into account the possibility that households may already have had COVID-19. This is in line with Christelis et al. (2020), who find that the effect of households' concerns on MPCs operates mainly via financial, rather than COVID-19 health-related concerns.

We check the robustness of our results by controlling for several fixed effects in our preferred specification from column (2) in Table 4: region-specific (the 12 regions in the UK), regional time-varying shocks, shocks specific to the industry where the household works, and time-varying industry shocks. Finally, we run a Tobit Random-Effects model. Table B.2 in Appendix B shows that our key findings are strongly robust to these alternative specifications. In particular, financial concerns, mortgagors, younger age groups, males, and the number of children within households, are positively associated with a larger MPC.

We also replicate the main results of our preferred specification in column (2) of Table 4 by running cross-sectional regressions for each survey in July 2020, November 2020, and March 2021. We also run another specification which adds the health-related variables of column (7). We are interested in checking whether the link between financial concerns and the willingness to spend displays any time variation, conditional on the time the survey was carried out. Table B.3 in Appendix B shows little variation in the coefficients of interest over time, particularly on financial concerns. Although there is some indication that the coefficient on financial concerns is smaller in July 2020, it is not statistically different from those in November 2020 and March 2021. These results align with what we have seen in Table A.2 in Appendix B: the average MPC remained roughly unchanged across the three waves. This offers some evidence that the

[17] For instance, Fagereng et al. (2021) show that the age-earnings profile leads young households to consume more out of windfall gains to smooth consumption over life, while the bequest motive induces old households to save a larger share for their offspring.

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willingness to spend for the same household may remain constant over a short period of time, even under fast-changing economic conditions.[18] This result is also in line with the notion that households did not change much their expectations about their own short-term financial situation across surveys.

4.2 Do spending cuts, income shocks, and borrowing constraints explain the link between financial concerns and the MPCs?

We explore several conjectures trying to understand why UK individuals who are more financially concerned exhibit a larger MPC: (i) reversion to the mean effects in consumption as large negative income shocks may have made concerned households consume less during the pandemic; (ii) a smaller share of discretionary spending implies a larger MPC as more concerned households increase consumption on essential goods; (iii) employment and industry effects; and (iv) borrowing constraints.

First, individuals who expect financial stress might have experienced larger consumption cuts, as suggested by probit estimates in columns (1) to (3) of Table B.4 in Appendix B. More concerned households would then spend a larger fraction of a one-off transfer to restore their consumption. Along the same lines, more concerned households may have also suffered larger income shocks and thus it seems realistic that they had to cut back more on spending. These two hypothesis hint at a possible reversion to the mean effect, as concerned households seek to close the gap between actual spending and desired spending.

We make use of a survey question on actual spending changes compared to pre-COVID spending patterns. Participants were asked to report how much they had changed their spending during the current pandemic, compared to the same period in the previous year. The answers are reported in ranges: increased over 25%, increased up to 25%, stayed the same, decreased up to 25%, decreased over 25%.[19] Unfortunately, the question on actual spending is not available in the March 2021 wave, which leads the overall sample to fall by one-third. We expand our

[18] In a different exercise, we find that our main results are not sensitive to changes in the survey design. Specifically, half of individuals were randomly assigned in November 2020 and March 2021 to answer the same MPC question, but with a qualification that the transfer would come from the government. The survey asked *'(...) hypothetical situation where the government unexpectedly gives everyone a one-time payment of £500 today (...)'*. We find that the MPC is not sensitive to this small change in the way the question is framed, in line with Sahm et al. (2010), who show that small changes in survey design do not affect survey responses.

[19] The question is: *'Thinking about your household spending (e.g. on food and household goods, products and services, on commuting, bills, etc.) but excluding housing costs (e.g. mortgage payments, rent). Over the last 4 weeks, has your household spending increased, decreased, or stayed the same relative to the same four week period last year?'*

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preferred specification in column (2) from Table 4 by adding different dummy variables for actual spending decreases. Column (1) in Table 5 shows that households whose actual spending had decreased over the last four weeks have a larger MPC. This is in line with the view that households would spend a larger fraction of a hypothetical transfer to restore their consumption levels. But the interaction term cancels out the average effect on spending decreases, telling us that more concerned households are associated with the same MPC regardless of changes in actual spending. When we split the spending decreases into large (over 25%) and moderate (up to 25%) in column (2), we find that households who are not financially concerned tend to display a larger MPC if they had to cut actual spending by a large amount. But we do not find that households who are concerned and who experienced large consumption falls behave differently than concerned households who did not suffer a negative income shock, or who actually managed to increase consumption.[20]

We also control for income changes to investigate whether higher MPCs just reflect the need to smooth consumption due to negative income shocks. In column (3) of Table 5 we include a dummy reflecting any loss in household earnings between January/February 2020 and the time of the survey. Note that the sample size decreases as only households where at least one person is working and who answered both the baseline and current household earnings question are included. There is some evidence that households that had income losses have a lower MPC, probably due to precautionary reasons. In column (4) we split the earnings loss variable into two – a dummy for a loss of less than 25% and a loss of more than 25% – and also interact these with the financial concerns variable. We find it is the larger loss that is driving the result, while there is no evidence that more concerned households who experienced an income loss had a different MPC than those that did not have an income loss.[21]

Overall, we find that households who had decreased spending in the recent past have a larger MPC relative to those that did not cut consumption during the pandemic – a spending normalisation effect. But past spending decreases *cannot* explain why more concerned households have a higher MPC than other households. Along the same lines, we find that negative income

[20] When we use the binary variable for actual consumption decreases as the dependent variable, we find that more concerned households are more likely to have experienced consumption cuts in the past four weeks relative to the same period last year (columns 1 to 3 in Table B.4 in Appendix B). But as we have seen in Table 5, this has no bearing on our main result that more concerned households have a larger MPC regardless of the changes in actual spending.

[21] We find that more concerned households are more likely to have experienced earning losses during the pandemic, particularly for income falls larger than 25% (last three columns in Table B.4 in Appendix B). But our results in Table 5 indicate that, conditional on having income losses, more concerned households are not more likely to have different MPCs relative to other households.

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shocks during the pandemic explain precautionary behaviour in the presence of a temporary windfall gain for the average household. But income shocks during the pandemic also *cannot* explain the differential MPCs between financially concerned and all other households.

Table 5: Controlling for past spending changes and income shocks

	(1)	(2)	(3)	(4)
Financial concerns	0.037***	0.037***	0.027***	0.027***
	(0.007)	(0.007)	(0.009)	(0.009)
Spending decrease	0.021**			
	(0.009)			
Fin. conc.×Spend. decrease	-0.020			
	(0.015)			
Spending decrease< 25%		0.016		
		(0.010)		
Spending decrease> 25%		0.049**		
		(0.020)		
Fin. conc.×Spend. decrease< 25%		-0.011		
		(0.016)		
Fin. conc.×Spend. decrease> 25%		-0.057*		
		(0.031)		
Income loss			-0.013*	
			(0.008)	
Fin. conc.×Income loss			0.008	
			(0.012)	
Income loss< 25%				-0.004
				(0.009)
Income loss> 25%				-0.025**
				(0.010)
Fin. conc.×Income loss< 25%				0.010
				(0.015)
Fin. conc.×Income loss> 25%				0.009
				(0.015)
Controls	✓	✓	✓	✓
N	13,305	13,305	10,889	10,889

Notes: Estimates from a random effects model at the individual level, where the dependent variable is the elicited MPC. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

Next we investigate whether our result might be driven by failing to control for the share of discretionary spending pre-pandemic. Individuals who spent less on discretionary items pre-pandemic, such as food expenditure away from home, travel, and other leisure activities, might be expected to spend a larger fraction of the one-off transfer on essential goods. The consumption of these goods was less restricted during the pandemic than discretionary spending, which was curbed by restrictions on social interaction. We might expect individuals that spend more on essential goods, who are also more likely to be more concerned households, to have a larger MPC than individuals where non-essential items are a far stronger driver of expenditure.

Similarly to Andreolli and Surico (2021), we use the pre-pandemic share of food consumption away from home in total income as the proxy for discretionary spending. Our results offer some

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statistical evidence that more concerned households who spent less on discretionary spending pre-pandemic tend to have larger MPCs (column (1) in Table 6). In a second exercise we control for the size of the transfer, which could serve as an alternative proxy for the share of discretionary spending. Andreolli and Surico (2021) find evidence from Italian survey data that MPCs vary with the size of the transfer, and that this relationship is indeed related to spending on non-essential items. We divide the £500 transfer by pre-COVID household income, and then construct a dummy equal to one if the size of the transfer is above the sample median. In line with Fagereng et al. (2021), who find that households with larger lottery prizes have lower MPCs, we find that the size of the transfer is negatively associated with MPCs, but only for unconcerned households (column 2).

Table 6: Relative size of the transfer

	(1)	(2)
Financial concerns	0.030***	0.026***
	(0.007)	(0.007)
Share eating out	0.105	
	(0.090)	
Fin. conc.×Share eating out	-0.230*	
	(0.136)	
Size transfer		-0.019**
		(0.010)
Fin. conc.×Size transfer		-0.007
		(0.010)
Controls	✓	✓
N	20,079	21,939

Notes: Estimates from a random effects model at the individual level, where the dependent variable is the elicited MPC. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

Could employment and industry effects drive our headline result that financially concerned households are associated with larger MPCs? It is possible that self-employed individuals or those that are furloughed have higher MPCs and are also more likely to expect financial stress – we have shown in Table 3 this to be the case. In column (1) of Table 7 we include dummies for the self-employed and employed, with those not working as the baseline group. Individuals who are self-employed have a significantly larger MPC than those who are not working. But we do not find any statistically significant difference in the MPCs between those financially concerned and other households, conditional on being self-employed.

In column (2) we zoom in on the sub-sample of individuals who are employed by including

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a dummy indicating whether an individual has been furloughed. We find no evidence that employees who have been furloughed, relative to those who remain working, tend to have a smaller MPC if they are financially concerned.[22] The fact that furloughed employees have similar MPCs to employees that continued to work throughout the pandemic may reflect the wide coverage of the government's Coronavirus job retention scheme. In addition, the prevalence of employers 'topping-up' furloughed employees' pay to 100% may have also played a role. It also suggests that our headline result is not being driven by concerned households' reliance on exceptional government programmes, the extent and duration of which was uncertain for a long period of time, but rather is structural in some sense. For instance, the financial concerns question may pick out elements of the population who are more impatient and or less financially sophisticated. Alternatively it could pick out households who are more risk averse but where a small payment can help compensate for this.

In column (3) we include dummies reflecting whether an individual had started receiving Universal Credit prior to the pandemic or only since the start of the pandemic, as well as interaction terms with financial concerns. We do not find any statistical evidence that individuals who only received Universal Credit since the start of the pandemic have different MPCs compared to other individuals. But we find some evidence that individuals who were reliant on Universal Credit pre-Covid and who are more concerned tend to have larger MPCs than concerned individuals who were not on benefits prior to March 2020. This suggests that our main result is not specific to increased reliance on government support during the pandemic, but may be structural in some sense. It then follows that the effectiveness of stimulus measures may be increased if targeted to a subset of the population who had entered the pandemic with greater financial vulnerabilities.

In column (4) we use a dummy to capture high-contact industries to control for households working in these sectors having a higher probability of job or income loss in the near future. We do not find any evidence that individuals that work in high-contact industries have a different MPC to the rest of the population, nor do individuals who are concerned and who work in these industries. Controlling for the ability to work from home is an alternative way of capturing those who work in a high-contact industry. In column (5) we include a dummy equal to one if the individual said she can never work from home. The coefficient is negative and statistically significant at the 1% level, suggesting a precautionary motive for individuals

[22] Our results remain qualitatively similar when we proxy those currently furloughed using a question on why hours have changed.

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who can never work at home. In addition, the MPC declines further if these individuals are also financially concerned. This suggests that conditional on working from home, financially concerned households tend to have a larger MPC than those who are not financially concerned.

Table 7: Controlling for the employment situation and UC benefits

	(1)	(2)	(3)	(4)	(5)
Financial concerns	0.027***	0.030	0.021***	0.021***	0.034***
	(0.008)	(0.008)	(0.005)	(0.007)	(0.009)
Employee	0.003				
	(0.008)				
Self-employed	0.028**				
	(0.012)				
Fin. conc.×Employee	-0.003				
	(0.010)				
Fin. conc.×Self-employed	-0.023				
	(0.017)				
Furloughed		0.005			
		(0.011)			
Fin. conc.×Furloughed		-0.020			
		(0.015)			
UC pre-Covid			-0.033		
			(0.025)		
UC post-Covid			-0.033		
			(0.027)		
Fin. conc.×UC pre-Covid			0.045*		
			(0.027)		
Fin. conc. ×UC post-Covid			0.005		
			(0.031)		
High-contact				0.020	
				(0.016)	
Fin. conc.×High-contact				0.003	
				(0.021)	
Never WFM					-0.024***
					(0.008)
Fin. conc.×Never WFM					-0.025**
					(0.012)
Controls	✓	✓	✓	✓	
N	21,938	9,756	21,939	11,477	11,762

Notes: Estimates from a random effects model at the individual level, where the dependent variable is the elicited MPC. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

Finally, in Table 8, we restrict the sample to mortgagors to investigate the role of borrowing constraints. The literature has found that highly indebted households tend to exhibit larger consumption responses to transitory income shocks (Kaplan et al. 2014, Misra and Surico 2014, Baker and Yannelis 2017, Cloyne and Surico 2017, Bunn et al. 2018, Kovacs et al. 2018). We are thus interested in studying whether households who expect financial stress and who are also highly indebted are associated with a larger MPC. If this is true, then higher MPCs reported by more financially concerned households may actually reflect their underlying level of indebtedness, rather than a direct channel between financial concerns and MPCs. Table 8

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shows that our main result remains strongly robust to restricting the sample to mortgagors.

In column (3) we find some evidence that more highly indebted mortgagors, as measured by a high LTI, have larger MPCs. However, we do not find any supporting evidence that borrowing constraints – measured with the DSR, LTI, or LTV – explain why financially concerned households are associated with a larger MPC.[23]

Table 8: Mortgagors sample

	(1)	(2)	(3)	(4)	(5)	(6)
Financial concerns	0.018*	0.025**	0.024*	0.027**	0.027**	0.029**
	(0.010)	(0.012)	(0.013)	(0.013)	(0.011)	(0.012)
Payment holiday	-0.049**	-0.046*	-0.064**	-0.062**	-0.046*	-0.064**
	(0.022)	(0.024)	(0.025)	(0.025)	(0.024)	(0.025)
Fin. conc.×Payment holiday	0.049*	0.054*	0.058*	0.056*	0.055*	0.061*
	(0.028)	(0.031)	(0.032)	(0.032)	(0.031)	(0.032)
High DSR		0.006				
		(0.019)				
Fin. conc.×High DSR		0.007				
		(0.024)				
High LTI			0.037*			
			(0.019)			
Fin. conc.×High LTI			0.003			
			(0.024)			
High LTV				0.013		
				(0.019)		
Fin. conc.×High LTV				-0.007		
				(0.024)		
DSR>= 40%					0.018	
					(0.053)	
Fin. conc.×DSR>= 40%					0.023	
					(0.073)	
LTI>= 5						0.044
						(0.039)
Fin. conc.×LTI>= 5						-0.065
						(0.048)
Controls	✓	✓	✓	✓	✓	✓
N	6,863	5,964	5,644	5,575	5,964	5,644

Notes: Estimates from a random effects model at the individual level, where the dependent variable is the elicited MPC. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

It is also worth noting that mortgagors who have been granted a payment deferral, also known as payment holiday in the UK, are associated with smaller MPCs relative to other mortgagors.[24] This suggests that additional income transfers would be mostly saved and not

[23] We define high DSR, LTI, and LTV, as dummy variables that take the value of one if the household belongs to the top quintile of the respective pre-crisis distribution. In the last two columns we include groups for DSRs and LTIs that are generally thought to be important: DSRs greater than 40%, and LTIs above 5.

[24] The FCA guidance introduced on 20 March 2020 encouraged lenders to grant mortgage payment deferrals to their clients in order to mitigate the effects of the COVID-19 shock on mortgagors. The FCA guidance, later updated in June 2020, involved a full suspension of mortgage payments, both principal and interest, for a maximum period of six months. Our payment holiday dummy takes the value of one when an individual with mortgage debt had been granted a payment deferral at some point in the past or at the time of the survey.

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consumed, given that payment holidays have already provided important liquidity relief for households to smooth consumption, especially those with low savings and low income (Albuquerque and Varadi 2022). But the interaction term with financial concerns cancels out the average coefficient on payment holidays. This provides further evidence that it is financial concerns rather than policy support, or borrowing constraints, that drive our main result of financially concerned households displaying a larger MPC.

4.3 Non-linearities in financial concerns

We have found that household expectations related to financial concerns over the short term play a key role in explaining differences in MPCs across households during the pandemic. We have found that our results hold irrespective of the way we measure financial concerns, whether it is the likelihood of not being able to pay bills and expenses, the likelihood of losing a job, or the expectation of generally being in a worse financial situation. Our results consistently point to more concerned households having a larger MPC out of a one-off income transfer. We have also shown that our results remain robust to including a large set of household-specific covariates, including health concerns from COVID-19. The previous section showed that past spending cuts, negative income shocks, and borrowing constraints cannot explain why financially concerned households have larger MPCs. We did show some tentative evidence that this may be driven by different shares of discretionary spending and reliance on benefits, but this is unlikely to play a large role.

At face value, this is a surprising result. We might expect that households who are concerned about being in financial distress in the future would tend to have a lower MPC, i.e. spend less than other households in order to build up savings to mitigate potentially unfavourable income shocks (Aiyagari 1994, Jappelli and Pistaferri 2014). However, the empirical evidence on the role of expectations during the pandemic is not conclusive. Using the July 2020 wave of the COVID Understanding Society survey, Crossley et al. (2020) find that UK individuals who expect their financial situation to worsen or a job loss in the next three months have a higher MPC. On the other hand, Baker et al. (2021) find that households who expect employment losses and benefit cuts display a smaller MPC out of US stimulus checks. Using survey data from a sample of six European countries, Christelis et al. (2020) also find supporting evidence for a precautionary saving effect: households that are more concerned about the effects of COVID-19 are associated with smaller MPCs out of a positive income shock, but only for durable goods. Using US survey

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data, Coibion et al. (2020) find little role for individuals' macroeconomic expectations – future unemployment rate, inflation rates, and mortgage rates – in explaining differences in MPCs.

Our analysis has focused on the first moment of expectations – each household provides a single value reflecting concerns about their ability to pay future bills. The literature that also looks at the second moment of expectations – the uncertainty surrounding these expectations – tends to find that uncertainty is a more important driver (Itzhak et al. 2020, Dietrich et al. 2020, Coibion et al. 2021). Using a new survey of European households during the pandemic, Coibion et al. (2021) do not find any statistical association between household spending and households' concerns about the expected path of the economy – the first moment of expectations. They find that it is the second moment of expectations – the uncertainty about the economic outlook as measured by the disagreement across professional forecasters – that leads households to reduce their spending on non-durable goods and services in subsequent months. Using a representative survey of US households in which respondents are asked about the economic consequences of COVID-19, Dietrich et al. (2020) also find that expected GDP loss has no significant effect on reported behaviour. But, unlike Coibion et al. (2021), they find that higher uncertainty is associated with more COVID-related spending, while also being correlated with higher savings.

Unfortunately, households were not asked about their uncertainty around their responses in the Understanding Society survey. In addition, there is little time variation within households in the expectations variables to be able to build a proxy for household-specific uncertainty. In this section we instead investigate non-linearities in financial concerns, which may shed some light on the role of uncertainty. For instance, households who assign either a 0% or 100% probability to not being able to pay their bills in the future may be the most certain, whereas those who assign a probability in between are likely to be more uncertain.

Column (1) of Table 9 includes our preferred specification from column (2) of Table 4. In column (2) we estimate separate coefficients for individuals who assigned either a 0% or a 100% probability of experiencing financial difficulties over the short-term. The omitted category is all individuals who reported values between 1%-99%. The coefficients are all negative and statistically significant, suggesting that our headline result is being driven by households who assign a non-zero probability to being unable to pay their bills, but excluding those that are 100% certain. In particular, the latter households have the smallest MPC: 6p.p. smaller than those that assign a non-zero probability. In column (3) we split further the financial concerns variable. We find that households who are moderately concerned, in the range of 1%-50%, have

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a larger MPC than households who are not concerned (the omitted category). Although the coefficient is also positive for those that are more concerned, in the range of 51%-99%, it is not statistically significant at conventional levels.

Overall, we find that households who are moderately concerned and those who appear to be uncertain are driving our main results, rather than those who appear to be certain about their financial situation in the near future (0% or 100% probability). While this results stands somewhat in contrast with the literature linking higher uncertainty to lower MPCs and higher precautionary savings (Itzhak et al. 2020, Coibion et al. 2021), we note that we do not focus on a measure of uncertainty typically used elsewhere; we have just interpreted the extreme responses as proxies of certainty. For instance, those that replied they were not concerned may already be consuming optimally, so they are more likely to save the transfer. In turn, those that are certain they will not be able to pay their bills tend to spend a smaller fraction so as to prepare for tougher times ahead.

Table 9: Non-linearities in financial concerns

	(1)	(2)	(3)
Financial concerns	0.023***		
	(0.005)		
Financial concerns = 0%		-0.025***	
		(0.005)	
Financial concerns = 100%		-0.060***	-0.037*
		(0.019)	(0.019)
Financial concerns [1 − 50%]			0.025***
			(0.005)
Financial concerns [51 − 99%]			0.019
			(0.013)
Controls	✓	✓	✓
N	21,939	21,939	21,939

Notes: Estimates from a random effects model at the individual level, where the dependent variable is the elicited MPC. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

4.4 Alternative explanations

Our results underscore the role of expectations in determining the MPC during the pandemic. For instance, some households may perceive the nature of the COVID shock as more permanent, implying, for instance, that they expect to have lower earnings for longer, or to remain unemployed. These households may thus be certain that they will not be able to pay their bills, so they save a larger fraction of the windfall. In turn, households who perceive the pandemic

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shock to be transitory may be more willing to spend, even if they find themselves moderately concerned about not being able to make ends meet. Against this background, our results are reminiscent of the model developed by Carroll et al. (2021), who highlight the role of household expectations in determining the MPC from the US CARES ACT. Carroll et al. (2021) have three types of households. The first type of households do not lose their jobs but are associated with a low MPC. They are expected to increase their savings during the pandemic because of the inability to consume in some sectors (discretionary spending). These resemble our unconcerned households. The second type of households, the 'normal unemployed', are associated with a high MPC because they expect to be employed again once the economy starts operating normally. These resemble our moderately concerned households. Finally, the 'deeply unemployed' are associated with a low MPC since they perceive their unemployment to last longer. These households resemble the households in our survey who report being 100% certain they will not be able to make ends meet.

We can draw alternative explanations from behavioural approaches to consumption, such as prospect theory, and mental accounting. In prospect theory the value function is defined over gains and losses relative to some reference point (Kőszegi and Rabin 2009, Kahneman and Tversky 2013). Households that expect to be in financial difficulty in the near future may choose to overconsume now because they are less sensitive to news about future consumption than to news about current consumption. Mental accounting may also play a role in determining MPCs. People compartmentalise income and spending into different mental 'accounts', such as 'current income', 'current assets' and 'future income' (Shefrin and Thaler 1988, Duxbury et al. 2005, Milkman and Beshears 2009, Baugh et al. 2021). Households may use budgets within these accounts to facilitate making trade-offs between competing uses for funds and to act as a self-control device. There is evidence of non-fungibility of funds between accounts and budgets (Baugh et al. 2021, Shapiro 2013). Financially concerned households might be more likely to 'budget' and treat funds within each tagged mental account as imperfectly substitutable. That might explain why they are more likely to increase their spending in response to small windfalls.

A related possibility is that our results reflect preference heterogeneity across households, self-control issues or financial sophistication. For instance, for a given level of wealth, more impatient consumers may consume a larger fraction of income – higher APC – leaving them more vulnerable to future shocks, and also consume more of any added income – higher MPC (Aguiar et al. 2020). Similarly, self-control issues may also explain a tendency towards over-

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consumption (Laibson 1998, Vihriälä 2021). And financial sophistication may also explain why financially concerned households display higher MPCs: unsophisticated households tend to save less and hold fewer liquid assets, leaving them more vulnerable to income shocks (Jørring 2020).

We also cannot rule out that there may have been some ambiguity in the interpretation of the MPC question, particularly that some households may have had trouble in distinguishing what constituted 'spending' and 'paying off debt' (Sahm et al. 2010). For instance, if financially concerned households would have had to cut back on their spending to pay their usual bills and expenses in the absence of the transfer, then they might have responded that it led them to spend more. Similarly, some concerned households may have responded spending more out of the transfer because they interpreted paying off bills as spending rather than paying off debt. Some of this ambiguity may have resulted in higher MPCs for more concerned households. We indeed find that these households were more likely to report paying off more debt with the amount they would not spend (Table B.5 in Appendix B).[25]

5 Actual spending and negative income shocks

The analysis in this paper has centred exclusively on inferring the MPC out of an unexpected windfall of £500. But there is an important strand of the literature that has focused on the asymmetric response of consumption to positive and negative transitory income shocks. Research has found, in particular, that households' consumption is more responsive to negative income shocks, in line with the theoretical prediction of models with liquidity constraints, income risk, and precautionary savings. For instance, Christelis et al. (2019) use the responses of a representative sample of Dutch households to survey questions and find that consumers react more to negative income changes than to positive changes. Bunn et al. (2018) use a set of questions in the Bank of England/NMG Consulting Survey from 2011 to 2014 and find that British households also tend to change their consumption by significantly more in reaction to temporary and unanticipated falls in income than to increases in income of a similar magnitude. In turn, Fuster et al. (2021) use data from the Federal Reserve Bank of New York's Survey of Consumer Expectations for US households, in which respondents report how they would adjust

[25] We run Probit regressions in Table B.5, with the binary dependent variable being one of the possible answers. We show that concerned households are more likely to rebuild their balance sheets by paying off more debt, but they are less likely to save and receive less financial help. The rest of column (1) of the table indicates that households more likely to pay off more debt tend to be more liquidity-constrained households (indicated by the first quintile of the cash-on-hand ratio relative to the top quintile), who are currently finding it difficult or very difficult to manage financially ('Finances now'), and tend to be mortgagors or renters, in line with the evidence from the US on the uses of the stimulus checks (Coibion et al. 2020).

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their spending over the next quarter in response to receiving or losing a specific dollar amount ranging from $500 to $5,000. They find that responses to unanticipated losses are much larger and more widespread than responses to gains. In addition, using US aggregate data, Barnichon et al. (2021) find that fiscal multipliers tend to be larger for contractionary fiscal policy shocks.

We have shown consistently in this paper that financially concerned households are associated with larger MPCs out of positive income shocks than unconcerned households. An open question is whether this finding can be extended to a scenario of negative income shocks. The evidence from the literature above points to households having larger MPCs out of negative income shocks, especially if they are liquidity constrained. But there is relatively scarce research on the role of expectations, or financial concerns, in the asymmetric response of consumption to income shocks. One of the exceptions is Bunn et al. (2018), who find that British households who were concerned about a fall in income over the next year (a proxy for income risk) had significantly higher MPCs out of a negative income shock relative to unconcerned households.

In our survey, households were unfortunately not asked about a possible scenario of an income fall. This prevents us from computing the MPC, not allowing us to compare the size of the consumption response for a given household across positive and negative shocks. We can, however, test if financially concerned households are more likely to cut consumption in the face of negative shocks relative to unconcerned households, once we control for their liquidity position and for a set of other household-specific characteristics. For this purpose, we use a question that asked households about their spending change over the previous four weeks relative to the same period in the previous year, and to another question on income changes relative to Jan/Feb 2020.[26] Specifically, we run probit regressions where the dependent variable – binary variable capturing whether households cut their consumption expenditures over the previous four weeks – is regressed on a dummy variable capturing whether households experienced a fall in their earnings relative to Jan/Feb 2020. We interact this variable with the financial concerns dummy, and include the same set of controls used throughout the paper. One final caveat: the sample size is much smaller as the spending question was not asked in the March 2021 survey, and the question on income was only asked to households who were working.

Our main result from the Probit model in Table 10 offers strong statistical evidence to the view that concerned households who had negative income shocks were 12 p.p. more likely to have cut spending than unconcerned households who also experienced negative income shocks

[26] We have used these questions before in Table 5.

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(column 1).[27] This a relatively large difference when placed in the context of the 17% of all households in the sample who reported spending cuts. Note also that financially concerned households were more likely to report spending cuts than unconcerned households, even if they did not experience a negative income shock, in line with findings in Table B.4 in Appendix B.

Table 10: Spending cuts and negative income shocks

	(1)	(2)	(3)	(4)	(5)	(6)
	$< 0\%$		$[-25\% - 0\%]$		$< -25\%$	
Financial concerns	0.060***	0.059***	0.046***	0.046***	0.014**	0.013**
	(0.014)	(0.014)	(0.013)	(0.013)	(0.006)	(0.006)
Income loss	0.044***		0.038***		0.006	
	(0.058)		(0.011)		(0.005)	
Fin. conc.×Income loss	0.061**		0.044*		0.016*	
	(0.026)		(0.025)		(0.009)	
Income loss< 25%		0.033**		0.036***		-0.005
		(0.071)		(0.013)		(0.006)
Income loss> 25%		0.056***		0.041***		0.014**
		(0.016)		(0.015)		(0.006)
Fin. conc.×Income loss< 25%		0.067**		0.056*		0.012
		(0.031)		(0.029)		(0.012)
Fin. conc.×Income loss> 25%		0.052		0.030		0.017
		(0.033)		(0.033)		(0.011)
Controls	✓	✓	✓	✓	✓	✓
N	6,787	6,787	6,787	6,787	6,787	6,787

Notes: Marginal effects of probit estimates at the individual level computed with the delta method. The dependent variables are binary variables capturing whether the individual has experienced spending falls. Standard errors in parentheses clustered at the individual level. Constant and controls are not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

In column (2) we break down the income loss by ranges: smaller or larger than 25%. We show that concerned and unconcerned households display a statistically different likelihood of cutting spending only when income fell up to 25% (concerned households were ten p.p. more likely to cut spending in this event). This is not surprising as a large negative shock to income may imply that even households who are not concerned about making ends meet may also be 'forced' to adjust their expenditures downwards given the large size of the income shock. The remaining columns explore whether the results change when we split the consumption dummy variable by spending cuts up to or larger than 25%. We find that our main result generally holds: financially concerned households are more likely to cut spending than unconcerned households, particularly so when we condition on negative shocks to income.

Overall, our results suggest that larger consumption responses to income shocks of households who expect not to be able to make ends meet may not be exclusive to scenarios of positive income shocks. Although we cannot compute an MPC from a scenario of negative income shocks

[27] For households who had an income loss, the conditional probability of cutting spending for concerned households relative to unconcerned households is obtained by 100x(0.060+0.061).

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– and thus not compare it with the elicited MPC from a hypothetical transfer – our findings highlight the role that household expectations play in determining the responsiveness of consumption to both hypothetical expansionary and contractionary fiscal policies.

6 Conclusion

Research carried out during the pandemic has shown that households mostly save or pay down debt when receiving a one-off payment (Armantier et al. 2020, 2021, Christelis et al. 2020, Coibion et al. 2020, Crossley et al. 2020, Cox et al. 2020, Baker et al. 2021). This suggests that untargeted direct transfers to households may not stimulate aggregate demand as much during pandemics as during other crises. This poses several challenges to policy makers in search of appropriate policies to stimulate demand.

In this paper we have shown the average MPC out of a hypothetical unexpected one-time payment of £500 to be 11%, implying an increase of £0.11 for each £1 of fiscal stimulus. This is relatively low compared to previous empirical estimates. We have, however, made the case that financially concerned households are associated with higher MPCs. In this context, policy makers can potentially increase the effectiveness of future fiscal stimulus by targeting these high-MPC households. The financial concerns variable is not directly observable – the survey is anonymised – and even if it were, it would come with a lag of a couple of months. Nevertheless, we have shown that more financially concerned households are more likely to belong to low-income groups, tend to be renters or mortgagors, younger, male, and belong to ethnic minorities. They are also more likely to have been furloughed, reliant on benefits, or to work in high-contact industries. Most of these variables can be observed by policy makers, thus facilitating the design of policies.

Overall, assessing the response of consumption to income changes is of key importance for the design of fiscal and monetary policies. This is particularly relevant in a fast-changing environment where household expectations play a crucial role in determining how consumption reacts to shocks. In this context, our research suggests that policies that provide support to households who are low income and more vulnerable to becoming financially distressed may prove more effective than providing untargeted stimulus payments to all households.

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Appendix A: Descriptive statistics

Table A.1: Variable definitions

Variable	Code	Description
Covid survey		
Financial concerns	finsec	On a scale of 0-100% how likely do you think it is that you will have difficulty paying your usual bills and expenses in the next three months?
Job security	jobsec	On a scale of 0-100% how likely do you think it is that you will lose your job / shut your business in the next three months?
Financial situation: future	finfut_cv3	Looking ahead, how do you think you will be financially 3 months from now? (Better off; Worse off; or about the same)
Financial situation: current	finnow	How well would you say you yourself are managing financially these days? (Living comfortably; doing alright; just about getting by; finding it quite difficult; or finding it very difficult)
Weight	betaindin_xw	Cross-sectional individual web survey weight.
Age	age	
Sex	sex_cv	
Household size	hhnum	Number of children and adults in household.
Ethnicity	racel_dv	
Risk of contracting Covid	riskcv19	In your view, how likely is it that you will contract COVID-19 in the next month? (Very likely; likely; unlikely; very unlikely).
Likelihood of having Covid	hadcovid	In your view, how likely is it that you have had COVID-19? (Definitely had it; very likely; likely; unlikely; very unlikely; don't know/can't tell).
Change in spending	spend	Thinking about your household spending (e.g. on food and household goods, products and services, on commuting, bills, etc.) but excluding housing costs (e.g. mortgage payments, rent). Over the last 4 weeks, has your household spending increased, decreased, or stayed the same relative to the same four week period last year? (Increased by more than a quarter; increased by up to a quarter; stayed the same; decreased by up to a quarter; decreased by more than a quarter; don't know; prefer not to answer).
Change in household earnings	blhhearn_amount, blhhearn_period, hhearn_amount, hhearn_period	Change in household take-home pay/earnings (after tax, National Insurance and pension contributions have been deducted) between January/February 2020 and the month of the Covid-19 survey.
Employee or self-employed	sempderived	

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Table A.1: Variable definitions (cont.)

Variable	Code	Description
Able to work from home	blwah	During January and February how often did you work at home? (Always; Often: Sometimes; Never)
Furlough	furlough, ff_furlough, newfurlough	An indicator for whether an individual has received a written letter or email from their employer confirming they had been furloughed under the Coronavirus Job Retention Scheme at some point.
Universal Credit pre-Covid	blbenefits1, blbenefitsb651	Was receiving Universal Credit in January/February 2020 (including those who continued to receive payments during the pandemic).
Universal Credit post-Covid	ff_ucredit, ucredit2b65	Applied for and received Universal Credit since the start of the pandemic.
Mortgage payment holiday	morhol, morhol2, ff_morhol	An indicator for whether a household has been granted a mortgage payment holiday at some point.
Main survey		
No. children	nkids_dv	Number of children in household.
Cash-on-hand	svamt, svsj, svsk, svpn, debty, debtsj, detsk, fihhmnnet1_dv	Total household liquid assets net of total unsecured debt plus household net income. The household liquid assets and unsecured debt totals are calculated by aggregating individual savings and unsecured debt responses within the household, accounting for shared accounts. Both variables are from Wave 8 of the Main survey as respondents were not asked about the stock of their savings and unsecured debt in Wave 9 or 10.
Housing tenure	tenure_dv	Housing tenure. (Owned outright; Owned with mortgage; Local Authority rented; Housing Association rented; Rented from employer, Rented private (unfurnished); Rented private (furnished); Other rented; Missing).
HH income	fihhmnnet1_dv	Total net monthly household income from the Main survey. This is the sum of net monthly incomes from all household members. It includes net labour income, miscellaneous income, private benefit income, investment income, pension income and social benefit income.
DSR	xpmg, fihhyr	The last total monthly installment on all mortgages or loans on their property divided by total monthly gross household income. Top and bottom coded at the 1st/99th percentiles.
LTI	mgtot, fihhyr	The outstanding sum of all mortgage debt divided by total annual gross household income. Top and bottom coded at the 1st/99th percentiles.
LTV	mgtot, hsval	The outstanding sum of all mortgage debt divided by the expected current value of the property. Top and bottom coded at the 1st/99th percentiles.

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Table A.1: Variable definitions (cont.)

Variable	**Code**	**Description**
Food outside of home	xpfdout_g3, fihhmnet1_dv	About how much have you and other members of your household spent in total on meals, snacks or non-alcoholic drinks purchased outside the home in the last four weeks? Please include items bought from takeaways, restaurants, sandwich shops, work or school canteens but do not include alcohol.
Industry type	jbiindb_dv	Industrial classification, two digits.

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Table A.2: Summary statistics for MPCs

	N	Mean	SD	Zero	(0-0.25)	[0.25-0.5)	[0.5-0.75)	[0.75-1)	One
Wave									
Jul-20	7,313	0.11	0.28	84.82	1.57	2.02	3.60	0.74	7.25
Nov-20	7,313	0.11	0.29	84.77	1.63	1.80	3.00	0.95	7.85
Mar-21	7,313	0.12	0.30	84.51	1.60	1.65	3.04	1.01	8.19
Pay bills in 3m									
Unconcerned	16,760	0.10	0.27	87.29	1.25	1.27	2.61	0.75	6.83
Concerned	5,179	0.15	0.32	78.47	2.44	3.15	4.67	1.26	10.01
Current situation									
Not difficult	21,213	0.11	0.29	84.80	1.60	1.83	3.31	0.85	7.60
Difficult	726	0.14	0.34	82.53	1.63	1.62	1.18	1.86	11.17
Fin.situation in 3m									
Same or better	19,944	0.11	0.28	85.22	1.62	1.80	3.03	0.90	7.43
Worse	1,988	0.15	0.33	80.13	1.42	2.08	4.86	0.76	10.75
Job security									
Unconcerned	7,439	0.12	0.30	85.00	1.28	1.36	2.82	0.86	8.67
Concerned	4,293	0.16	0.33	78.23	2.15	2.79	5.13	1.25	10.45
Cash-on-hand									
Q1	3,571	0.13	0.31	82.11	1.40	2.40	4.18	0.91	9.01
Q2	3,540	0.13	0.31	82.43	2.46	1.87	3.13	0.94	9.17
Q3	4,314	0.10	0.28	85.67	1.80	1.35	3.13	1.17	6.88
Q4	4,571	0.10	0.28	86.16	1.20	1.85	3.14	0.89	6.76
Q5	5,943	0.10	0.27	87.03	1.15	1.67	2.51	0.60	7.04
Housing tenure									
Outright owner	12,020	0.08	0.25	88.75	1.09	1.21	3.02	0.59	5.34
Mortgagor	6,863	0.15	0.33	81.05	1.56	1.77	3.38	1.23	11.02
Renter	3,056	0.12	0.23	82.43	2.51	2.93	3.34	1.02	7.77
Mortgage debt									
High LTI (Q5)	1,374	0.17	0.36	78.53	2.05	2.01	2.95	0.71	13.75
Low LTI (Q1)	1,377	0.13	0.31	82.46	1.43	1.69	4.04	1.49	8.89
Baseline HH income									
Below median	10,971	0.10	0.28	85.30	1.75	1.94	3.36	0.98	6.67
Above median	10,968	0.12	0.30	84.05	1.43	1.70	3.06	0.82	8.94
Labour market									
Employee	9,756	0.13	0.31	82.50	1.64	1.98	3.79	1.02	9.08
Self-employed	2,009	0.14	0.32	82.24	1.42	1.50	3.19	0.97	10.69
Not working	10,173	0.08	0.25	87.96	1.59	1.71	2.51	0.74	5.49
Age									
18-39	2,989	0.15	0.32	79.52	2.69	2.66	4.05	1.13	9.95
40-64	10,362	0.13	0.31	83.22	1.33	1.82	3.49	1.01	9.13
65+	8,019	0.06	0.22	90.89	1.15	1.24	2.17	0.51	4.04
Sex									
Female	12,497	0.11	0.28	85.40	1.61	1.83	3.33	0.88	6.96
Male	9,442	0.12	0.30	83.95	1.59	1.82	3.09	0.93	8.63
Ethnicity									
White	20,283	0.11	0.29	84.75	1.56	1.85	3.17	0.86	7.81
Ethnic minority	1,656	0.11	0.29	83.95	2.20	1.41	3.77	1.49	7.18
Change in spending									
Increase or no change	11,205	0.11	0.28	85.28	1.64	1.70	3.25	0.70	7.43
Decreased 0-25%	1,742	0.14	0.31	81.40	1.40	2.31	4.57	1.65	8.67
Decreased 25%+	358	0.15	0.33	80.77	1.21	2.76	3.04	1.80	10.42
Change in HH earnings									
Increase or no change	6,125	0.14	0.32	80.82	2.01	1.88	4.15	1.16	9.98
Decreased 0-25%	2,354	0.13	0.31	82.60	1.39	2.15	3.51	1.02	9.32
Decreased 25%+	2,410	0.11	0.28	84.84	1.91	2.23	2.79	0.66	7.58
Risk of Covid-19									
(Very) likely	1,011	0.11	0.28	83.77	3.69	1.40	2.98	0.41	7.74
(Very) unlikely	20,899	0.11	0.29	84.78	1.48	1.85	3.23	0.93	7.73
Uc pre-Covid									
No	21,612	0.11	0.29	84.77	1.59	1.81	3.24	0.90	7.69
Yes	327	0.14	0.32	82.56	1.83	2.14	2.37	0.87	10.23
UC post-Covid									
No	21,640	0.11	0.29	84.63	1.60	1.82	3.25	0.89	7.81
Yes	299	0.08	0.25	88.31	1.55	1.84	1.29	1.45	5.56

Notes: Shares calculated as percentages of total MPC sample.

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Table A.3: Descriptive statistics by financial concerns

	N	Mean	SD	p10	p50	p90
MPC						
Unconcerned	16,760	0.10	0.27	0.00	0.00	0.50
Concerned	5,179	0.15	0.32	0.00	0.00	0.90
Current situation difficult						
Unconcerned	16,760	0.01	0.09	0.00	0.00	0.00
Concerned	5,179	0.14	0.34	0.00	0.00	1.00
Worse fin. situation in 3m						
Unconcerned	16,756	0.05	0.22	0.00	0.00	0.00
Concerned	5,176	0.21	0.41	0.00	0.00	1.00
More likely to lose job						
Unconcerned	8,235	0.19	0.40	0.00	0.00	1.00
Concerned	3,497	0.76	0.42	0.00	1.00	1.00
Cash-on-hand						
Unconcerned	16,760	46,005	99,520	-9,311	7,715	142,487
Concerned	5,179	14,187	57,741	-16,300	2,083	46,310
Mortgagor						
Unconcerned	16,760	0.30	0.46	0.00	0.00	1.00
Concerned	5,179	0.38	0.49	0.00	0.00	1.00
Baseline log HH income						
Unconcerned	16,760	8.04	0.61	7.26	8.09	8.78
Concerned	5,179	7.96	0.63	7.16	8.03	8.70
Age						
Unconcerned	16,760	56.31	16.37	32.00	58.00	76.00
Concerned	5,179	46.44	15.57	25.00	46.00	68.00
Male						
Unconcerned	16,760	0.48	0.50	0.00	0.00	1.00
Concerned	5,179	0.49	0.50	0.00	0.00	1.00
Universal Credit pre-Covid						
Unconcerned	16,760	0.01	0.12	0.00	0.00	0.00
Concerned	5,179	0.07	0.26	0.00	0.00	0.00
Universal Credit post-Covid						
Unconcerned	16,760	0.01	0.10	0.00	0.00	0.00
Concerned	5,179	0.04	0.19	0.00	0.00	0.00

Notes: Concerned households assign a non-zero probability to having difficulties paying usual bills and expenses in the next three months.

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Appendix B: Additional tables

Table B.1: Probit model: MPC equal to 0 and equal to 1

	(1) MPC=0	(2) MPC=1
Financial concerns	-0.065***	0.017**
	(0.010)	(0.007)
Controls	✓	✓
N	21,939	21,939

Notes: Marginal effects of probit estimates at the individual level computed with the delta method. The dependent variables are binary variables taking the value of one when the elicited MPC is zero (column 1), and when the MPC is equal to one (column 2). Standard errors in parentheses clustered at the individual level. Constant and controls are not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

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Table B.2: Robustness checks

	(1) Baseline	(2) Region	(3) Region-time	(4) Industry	(5) Industry-time	(6) Tobit
Financial concerns	0.023***	0.023***	0.023***	0.023***	0.023***	0.345***
	(0.005)	(0.005)	(0.005)	(0.007)	(0.007)	(0.062)
Finances now	-0.013	-0.013	-0.013	-0.039***	-0.039**	-0.196
	(0.011)	(0.011)	(0.011)	(0.015)	(0.015)	(0.132)
Cash-on-hand Q1	0.000	0.000	0.000	-0.005	-0.005	0.018
	(0.010)	(0.010)	(0.010)	(0.016)	(0.016)	(0.132)
Cash-on-hand Q2	-0.005	-0.006	-0.006	-0.005	-0.005	-0.060
	(0.010)	(0.010)	(0.010)	(0.017)	(0.017)	(0.135)
Cash-on-hand Q3	-0.019*	-0.020*	-0.020*	-0.030*	-0.031*	-0.248*
	(0.010)	(0.010)	(0.010)	(0.016)	(0.016)	(0.133)
Cash-on-hand Q4	0.001	0.001	0.001	0.002	0.002	0.050
	(0.010)	(0.010)	(0.010)	(0.017)	(0.017)	(0.131)
Mortgagor	0.031***	0.031***	0.031***	0.031***	0.031***	0.382***
	(0.008)	(0.008)	(0.008)	(0.011)	(0.011)	(0.100)
Renter	0.006	0.007	0.007	0.003	0.002	0.188*
	(0.008)	(0.008)	(0.008)	(0.012)	(0.012)	(0.106)
Log HH income	-0.002	-0.001	-0.001	0.011	0.011	-0.081
	(0.005)	(0.005)	(0.005)	(0.008)	(0.008)	(0.067)
Age 18-39	0.061***	0.061***	0.061***	0.049***	0.048***	0.870***
	(0.009)	(0.009)	(0.009)	(0.016)	(0.016)	(0.119)
Age 40-64	0.046***	0.046***	0.046***	0.032**	0.030**	0.664***
	(0.007)	(0.007)	(0.007)	(0.015)	(0.015)	(0.099)
Male	0.021***	0.020***	0.020***	0.030***	0.031***	0.216***
	(0.006)	(0.006)	(0.006)	(0.009)	(0.009)	(0.072)
No. children	0.021***	0.021***	0.021***	0.024***	0.024***	0.252***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.056)
Household size	-0.008***	-0.008***	-0.008***	-0.007*	-0.007*	-0.093**
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.037)
White	0.022*	0.020*	0.020*	0.020	0.020	0.362**
	(0.012)	(0.012)	(0.012)	(0.016)	(0.016)	(0.147)
Jul20 survey	-0.009**	-0.009**	-0.010	-0.006	-0.004	-0.085*
	(0.004)	(0.004)	(0.029)	(0.005)	(0.078)	(0.049)
Nov20 survey	-0.004	-0.004	0.011	-0.007	-0.008	-0.039
	(0.004)	(0.004)	(0.026)	(0.005)	(0.069)	(0.049)
Controls	✓	✓	✓	✓	✓	✓
Region FE		✓				
Region×Time FE			✓			
Industry FE				✓		
Industry×Time FE					✓	
N	21,939	21,930	21,930	11,861	11,861	21,939

Notes: Estimates from a random effects model at the individual level, where the dependent variable is the elicited MPC. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

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Table B.3: Cross-sectional regressions

	(1) Jul20	(2) Nov20	(3) Mar21	(4) Jul20	(5) Nov20	(6) Mar21
Financial concerns	0.029**	0.049***	0.049***	0.033**	0.052***	0.050***
	(0.013)	(0.014)	(0.013)	(0.013)	(0.014)	(0.013)
Finances now	0.000	-0.011	0.022	0.005	-0.010	0.020
	(0.043)	(0.041)	(0.054)	(0.044)	(0.042)	(0.054)
Cash-on-hand Q1	0.011	-0.003	-0.018	0.011	-0.001	-0.022
	(0.016)	(0.017)	(0.016)	(0.016)	(0.017)	(0.016)
Cash-on-hand Q2	0.021	-0.032*	-0.011	0.015	-0.031*	-0.014
	(0.016)	(0.017)	(0.016)	(0.015)	(0.017)	(0.016)
Cash-on-hand Q3	0.000	-0.024	-0.034**	-0.000	-0.023	-0.031**
	(0.013)	(0.015)	(0.013)	(0.013)	(0.015)	(0.013)
Cash-on-hand Q4	0.013	-0.010	-0.004	0.013	-0.010	-0.004
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Mortgagor	0.019	0.032**	0.034***	0.022*	0.032**	0.037***
	(0.013)	(0.014)	(0.013)	(0.013)	(0.014)	(0.012)
Renter	0.021	-0.008	-0.006	0.018	-0.009	-0.005
	(0.016)	(0.015)	(0.014)	(0.015)	(0.015)	(0.014)
Log HH income	0.016	-0.012	-0.001	0.012	-0.010	-0.000
	(0.011)	(0.012)	(0.010)	(0.010)	(0.012)	(0.010)
Age 18-39	0.084***	0.046**	0.058***	0.077***	0.050**	0.061***
	(0.021)	(0.022)	(0.021)	(0.020)	(0.022)	(0.021)
Age 40-64	0.051***	0.035**	0.056***	0.050***	0.038***	0.058***
	(0.010)	(0.015)	(0.011)	(0.010)	(0.015)	(0.011)
Male	0.022**	0.016	0.022**	0.019*	0.015	0.025**
	(0.011)	(0.011)	(0.010)	(0.010)	(0.011)	(0.010)
No. children	0.032***	0.016	0.020**	0.031***	0.018*	0.022**
	(0.010)	(0.010)	(0.009)	(0.010)	(0.010)	(0.009)
Household size	-0.019***	-0.007	-0.009	-0.017***	-0.008	-0.013**
	(0.006)	(0.008)	(0.006)	(0.006)	(0.007)	(0.006)
White	0.037	0.008	0.035	0.056***	0.008	0.030
	(0.026)	(0.031)	(0.024)	(0.020)	(0.030)	(0.024)
Risk of infection				0.011	-0.047***	-0.029
				(0.039)	(0.017)	(0.023)
Had Covid-19				-0.077***	0.072	0.038
				(0.024)	(0.101)	(0.044)
Observations	7,313	7,313	7,313	7,298	7,288	7,222

Notes: OLS estimates at the individual level for each survey, where the dependent variable is the elicited MPC. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

Table B.4: Probit model: spending and income losses

	(1)	(2) Spending	(3)	(4)	(5) Income	(6)
	$< 0\%$	$[-25\% - 0\%]$	$< -25\%$	$< 0\%$	$[-25\% - 0\%]$	$< -25\%$
Financial concerns	0.051***	0.062***	0.052***	0.011**	0.036*	0.051***
	(0.015)	(0.013)	(0.012)	(0.005)	(0.019)	(0.015)
Controls	✓	✓	✓	✓	✓	✓
N	13,305	13,305	13,305	10,889	10,889	10,889

Notes: Marginal effects of probit estimates at the individual level computed with the delta method. The dependent variables are binary variables capturing whether the individual has experienced spending falls (columns 1 to 3) or income/earning losses (columns 4 to 6). Standard errors in parentheses clustered at the individual level. Constant and controls are not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

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Table B.5: Probit regressions: uses of the unspent £500

	(1) Pay debt	(2) Save	(3) Receive less help	(4) Give more help
Financial concerns	0.092***	-0.084***	0.015***	0.000
	(0.011)	(0.014)	(0.005)	(0.008)
Finances now	0.207***	-0.283***	0.019***	-0.025
	(0.021)	(0.027)	(0.005)	(0.019)
Cash-on-hand Q1	0.201***	-0.167***	0.012	-0.016
	(0.019)	(0.020)	(0.008)	(0.010)
Cash-on-hand Q2	0.145***	-0.110***	0.007	-0.007
	(0.019)	(0.018)	(0.007)	(0.010)
Cash-on-hand Q3	0.103***	-0.076***	0.013*	0.001
	(0.021)	(0.019)	(0.008)	(0.010)
Cash-on-hand Q4	0.024	0.014	0.000	-0.007
	(0.019)	(0.016)	(0.008)	(0.008)
Mortgagor	0.129***	-0.065***	0.000	-0.043***
	(0.015)	(0.015)	(0.004)	(0.009)
Renter	0.139***	-0.110***	0.013***	-0.016*
	(0.017)	(0.019)	(0.005)	(0.010)
Log HH income	0.015	-0.012	-0.012***	0.011*
	(0.010)	(0.010)	(0.004)	(0.006)
Age 18-39	-0.009	0.143***	0.010*	-0.081***
	(0.020)	(0.022)	(0.005)	(0.013)
Age 40-64	0.027*	0.053***	0.012**	-0.042***
	(0.015)	(0.015)	(0.005)	(0.007)
Male	0.009	0.022*	-0.001	-0.038***
	(0.011)	(0.012)	(0.004)	(0.007)
No. children	0.023**	-0.034***	0.002	-0.001
	(0.009)	(0.010)	(0.003)	(0.006)
Household size	0.002	0.004	-0.001	-0.010**
	(0.007)	(0.008)	(0.002)	(0.004)
White	0.036*	-0.014	-0.007	-0.040***
	(0.021)	(0.024)	(0.005)	(0.014)
Jul20 survey	-0.004	-0.054***	0.002	0.007
	(0.009)	(0.010)	(0.004)	(0.006)
Nov20 survey	0.014*	-0.064***	-0.000	0.003
	(0.008)	(0.009)	(0.004)	(0.005)
N	19,521	19,521	19,521	19,521

Notes: Marginal effects of probit estimates at the individual level computed with the delta method. The dependent variables are given at the top of each column. Standard errors in parentheses clustered at the individual level. Constant is not reported. Asterisks, *, **, and ***, denote statistical significance at the 10%, 5%, and 1% levels.

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