

Mental Accounting and the Marginal Propensity to Consume*



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Keywords: Randomized control trial, marginal propensity to consume, fiscal policy, mental accounting, causal forest.

JEL codes: C90, D12, D14, D15, D91.

During the Covid-19 pandemic, governments around the globe disbursed one-time payments to households to stimulate aggregate demand. Yet, it is unclear how and why households respond to such payments. In a [new paper](#), I show that the marginal propensity to consume (MPC) out of transitory income shocks varies with the payment mode and decreases with the size of the income shock. Consumption responses vary substantially across individuals. Liquidity constraints contribute to the heterogeneity in responses, though self-control problems and cognitive sophistication are relatively more important. The results are broadly in line with mental accounting theory and suggest stimulus payments can induce a strong consumption response if they are paid out in cash.

*This policy brief is based on the Bundesbank Discussion Paper No 13/2023 "[Mental Accounting and the Marginal Propensity to Consume](#)" by René Bernard. This policy brief represents the author's personal opinion and does not necessarily reflect the views of the Federal Ministry for Economic Affairs and Climate Action.

Motivation

The COVID-19 pandemic has brought renewed attention to government payments to households aimed at boosting aggregate demand. Household consumption tends to react strongly to such one-time payments, either due to liquidity constraints and precautionary motives (Deaton, 1991; Carroll, 1997), costly access to illiquid high-return assets (Kaplan and Violante, 2014), or mental accounting (Shefrin and Thaler, 1988). Yet, so far no consensus has been reached on what determines households' marginal propensity to consume (MPC) out of one-time payments. This lack of knowledge is troubling as a thorough understanding of the determinants of the MPC is crucial for an effective design of fiscal stimulus payments.

In a [new paper](#), I shed light on how and why consumers respond to one-time payments. I administer a survey experiment in the Bundesbank Online Panel Households (BOP-HH), in which I elicit marginal propensities to consume (MPCs) out of transitory income shocks in various scenarios. Using hypothetical survey questions, I ask respondents how much they would spend out of unexpected one-time payments, exogenously varying the payment mode and the size of the payments between respondents. To explore heterogeneity in consumption responses, I use causal machine learning methods.

The MPC varies with the payment mode and the size of an income shock

In the experiment, I randomly split the sample into six equally-sized treatment groups and expose each group to a different hypothetical income shock scenario. I generate exogenous variation in the size of the income shock by asking three groups about their consumption response to a one month's income shock and the remaining groups about their response to a three months income shock. Further, I randomly vary the payment mode between groups. Two of the groups receive the income shock paid out in cash, two groups receive it as a payment deposited in an instant-access savings account, and the rest receives it without any specification of the payment mode.

Figure 1: Effect of varying the payment mode on the marginal propensity to consume

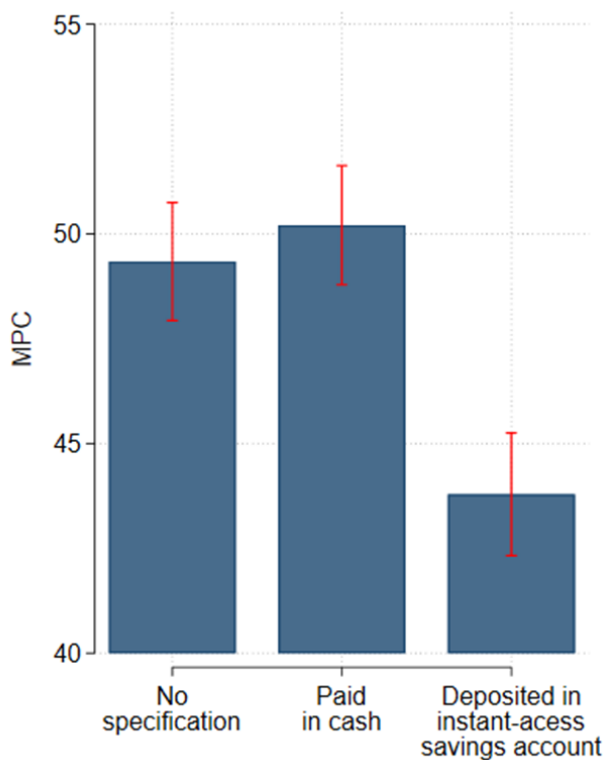


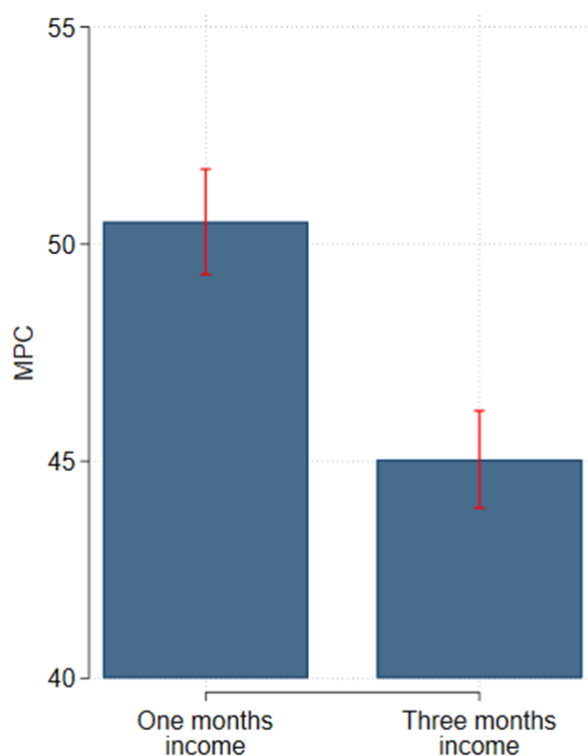
Figure 1 shows that the MPC varies with the payment mode of the income shock. Individuals who receive an income shock paid out in cash and without any specification of the payment mode exhibit a 16% and 14% higher MPC, respectively, than those receiving an income shock deposited in an instant-access savings account. The effect is statistically significant and large in economic terms.

Source: Bundesbank Online Panel Households (BOP-HH), December 2020 and June 2021.

Notes: This figure shows the effect of varying the payment mode of an income shock on individuals' marginal propensity to consume (MPC). The bars indicate the average MPC for respondents receiving an income shock without any specification of the payment mode, paid out in cash, and deposited in an instant-access savings account, respectively. Solid lines indicate 95% confidence intervals.

Figure 2 illustrates that the MPC falls with the size of the income shock. Tripling the shock size from one month to three months of household income, individuals reduce their MPC by 10%. This negative shock size effect is statistically and economically significant.

Figure 2: Effect of varying the shock size on the marginal propensity to consume



Source: BOP-HH, December 2020 and June 2021.

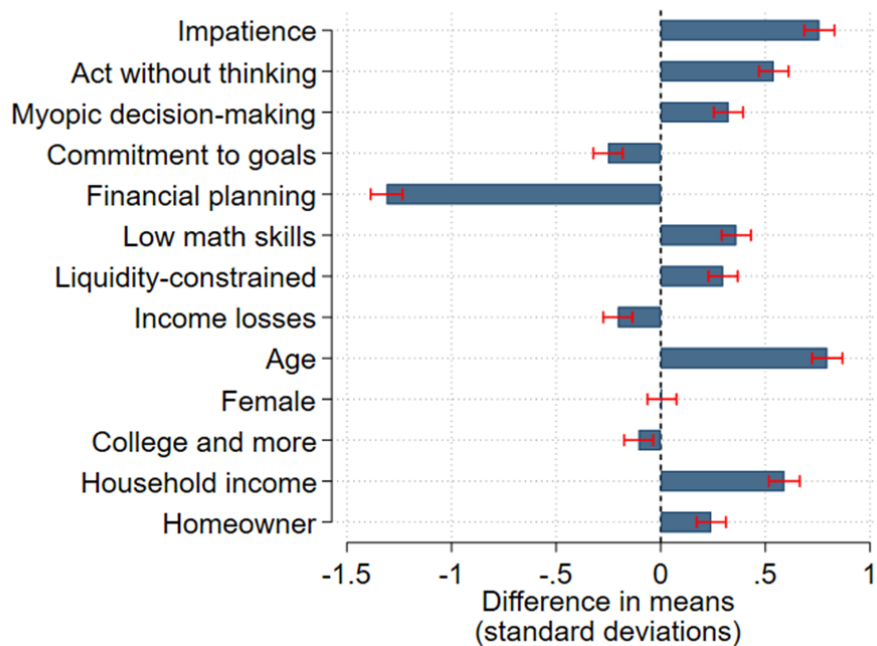
Notes: This figure shows the effect of varying the size of an income shock on individuals' marginal propensity to consume (MPC). The bars indicate the average MPC for respondents receiving a one month's income shock and a three months' income shock, respectively. Solid lines indicate 95% confidence intervals.

Self-control problems and cognitive sophistication matter for consumption responses

To explore the underlying mechanisms, I analyze how the shock size effect varies across individuals. Employing the causal forest algorithm of Athey et al. (2019), I predict how each individual adjusts their MPC in response to changes in the size of the income shock. I find substantial heterogeneity in the treatment effect across individuals. I then study how those adjusting their MPC most strongly in response to changes in the shock size differ along observable characteristics from those who hardly react. To do so, I plot differences in means of observables between respondents in the bottom and the top quartile of the predicted treatment effect distribution.

Figure 3 shows that individuals who strongly reduce their MPC in response to an increase in the shock size are more likely to be impatient, act without thinking, and take myopic decisions, and are less likely to commit to pre-set goals, than those who hardly react. The former also have a lower propensity to plan their finances and exhibit lower self-reported mathematical skills. Further, the share of liquidity-constrained individuals is higher among those who strongly react. However, further analysis reveals that respondents without liquidity constraints also react to changes in the shock size, albeit less strongly, i.e. individuals who are able to smooth consumption choose to do so only if the shock size is large.

Figure 3: Bottom vs. top quartile of predicted shock size treatment effect



Source: BOP-HH, December 2020 and June 2021.

Notes: This figure compares observable characteristics between those adjusting their MPC most strongly in response to changes in the shock size and those who hardly react. The figure reports differences in means of characteristics between respondents located in the bottom and the top quartile of the shock size effect distribution. Units are standard deviations of the respective characteristic. Error bars (in red) indicate 95% confidence intervals. Behavioral and household balance sheet characteristics are elicited with the following statements to which respondents can disagree or agree with on a 7-point Likert scale: impatience – "I am generally a very patient person" (inverted scale); act without thinking – "I rarely do anything without thinking about it thoroughly" (inverted scale); myopic decision-making – "I live in the here and now and don't really think about the future"; commitment to goals – "I actively follow through with the plans I make" (inverted scale); financial planning – "I plan major spending and investment decisions more than one year ahead"; low mathematical skills – "I have a lot of confidence in my mathematical skills" (inverted scale); liquidity-constrained – "I have put aside money for a possible emergency so that I can cover expenses for at least three months with no income" (inverted scale).

The results are broadly in line with mental accounting theory

The preferred interpretation of the results is that consumption responses to one-time payments can best be understood through the lens of a model of mental accounting in which consumers categorize their resources into a system of broad mental accounts and use resources differently once they are categorized (Shefrin and Thaler, 1988): The finding that the MPC falls with the size of the shock is consistent with the model's prediction that large windfalls are labeled as *current assets* and saved, while smaller windfalls are labeled as *current income* and spent more easily. The relatively low MPC out of a windfall deposited in an instant-access savings account as compared to the higher MPC out of a windfall paid out in cash is consistent with consumers labeling a windfall as belonging to a specific mental account and using the money accordingly if it shares a salient attribute with a reference object of that mental account. Further, the finding that impatience, impulsiveness, and a lack of cognitive sophistication account for heterogeneity in MPCs across different types of income shocks is in line with mental accounting being used to solve self-control problems and to simplify decision-making.

In contrast, low liquidity – as predicted by the buffer-stock model or lifecycle/permanent-income model with borrowing constraints (Carroll, 1997; Deaton, 1991) – can account for some heterogeneity in the shock size effect, while it cannot explain the differences in MPCs across payment modes.

Conclusions and policy implications

The study demonstrates that the MPC out of transitory income shocks varies with the payment mode. Consumers respond more strongly to an income shock paid out in cash compared to an income shock deposited in an instant-access savings account. Further, the MPC decreases with the size of the income shock. Consumption responses vary substantially across consumers. Liquidity constraints contribute to the heterogeneity in responses, though self-control problems and cognitive sophistication are relatively more important. Overall, the findings are consistent with a model of mental accounting in which consumers label income shocks as belonging to different mental accounts depending on the income shocks' attributes and spend them differently once they are labeled.

The results have important implications for the design of stimulus programs. Consumers seem to spend one-time payments differently depending on the payment mode. Policymakers should therefore take care of how stimulus payments are delivered. For example, one-off payments in the form of cash can be successful in inducing consumers to label and use them for consumption purposes. ■

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