Decisions under financial scarcity

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Chapter 6

General discussion

Decisions under Financial Scarcity

Having too little financial resources to meet demands can induce a scarcity mindset (Mullainathan & Shafir, 2013). Such a scarcity mindset draws attention towards the scarce resources (Shah et al., 2012), impairs cognitive functioning (Mani et al., 2013), induces negative emotions (De Bruijn & Antonides, 2020), and affects how people make decisions (Haushofer & Fehr, 2014). Across four empirical chapters, this thesis contributes to the growing literature on financial scarcity. We studied the impact of financial scarcity in the context of temporal discounting decisions for gains and losses (Chapter 2), financial avoidance (Chapters 3 and 4), and perceived control (Chapter 5). Below, I first give a short summary of the findings from each empirical chapter and then end with a conclusion.

Chapter 2: Financial Scarcity Increases Discounting of Gains and Losses: Experimental Evidence from a Household Task

In Chapter 2, we addressed the question whether financial scarcity increases temporal discounting, which is the tendency to devaluate future outcomes (Frederick et al., 2002). We studied this effect both in the gain domain (receiving money now versus later) and loss domain (paying money now versus later), and when an induced scarcity mindset was accompanied by an objective lack of resources and when a scarcity mindset was induced while objective resources were not lacking.

To do so, we developed an incentivized task where participants over multiple rounds manage the finances of a household by earning income and paying expenses. Between conditions, we varied whether participants accumulated debts, kept a neutral balance, or accumulated savings. The debts condition proved to be effective in inducing a scarcity mindset (Pilot). Next, we found that participants with debts discounted future gains more than participants with savings and with a neutral balance (Experiment 1). We then replicated this finding and extended it to the domain of losses (Experiment 2). That is, compared to participants with savings, participants with debts showed higher discounting for both future gains and losses. We did not find support for the interaction hypothesis that participants with debts disproportionally discount losses relative to gains. Experiments 1 and 2 thus show that a scarcity mindset increases discounting when available financial resources are lacking. Experiments 3–5 were conducted to test whether a scarcity mindset would also increase discounting when controlling for available financial resources. Here, we manipulated between conditions whether participants were losing or gaining money each round, while keeping constant the balance at the end of the task when the discounting decisions were made. An additional pilot study confirmed that such a manipulation induced a similar scarcity mindset as the manipulation from Experiments 1 and 2. Yet, results did not show support for the hypothesis that when controlling for available resources, a scarcity mindset increases discounting (Experiments 3 and 4). Last, we found that when participants experienced financial scarcity and could expect that available resources would be lacking in the future, discounting increased even when available resources were controlled for (Experiments 5).

Taken together, Chapter 2 shows that financial scarcity increases temporal discounting of gains and losses, but only when financial resources are (predictably) lacking. These findings are in line with

the contention that financial scarcity leads to an attentional shift towards the problem at hand (Shah et al., 2012). Moreover, they first show that financial scarcity increases discounting of losses, with no evidence suggesting that losses are discounted differently from gains. Last, in line with recent work (Fenneman & Frankenhuis, 2020; Ruggeri et al., 2022), the findings suggest that financial scarcity might only lead to increased discounting as a (rational) response to pressing financial concerns.

Chapter 3: The Prospective Associations between Financial Scarcity and Financial Avoidance

In Chapter 3, we addressed the question whether financial scarcity is associated with an increase in financial avoidance (i.e., information avoidance and decision avoidance) over time, and in turn, whether financial avoidance is associated with an increase in financial scarcity over time. Here, we conceptualized financial avoidance as a general motivation to avoid dealing with one's finances (see also Tinghög et al., 2023), which can manifest in the tendency to avoid financial information (Gigerenzer & Garcia-Retamero, 2017; Golman et al., 2017; Hertwig & Engel, 2016; Sweeny et al., 2010) and to avoid making financial decisions (Anderson, 2003, 2006). We measured financial scarcity and financial avoidance with self-report questionnaires in a longitudinal panel study with a representative sample of the Dutch population. We analyzed the data with a Cross-Lagged-Panel-Model (CLPM), which allows to test for the effect of each construct at timepoint one (t1) on the change at the other construct at timepoint two (t2), while controlling for autoregressive effects. We found that financial scarcity at t1 was associated with an increase of financial avoidance at t2, and vice versa. Moreover, in a robustness check, we found that the prospective associations were not only present in the representative sample of the Dutch population (which generally scores rather low on financial scarcity and financial avoidance), but also in weighted-bootstrap subsamples with higher levels of scarcity and avoidance.

In follow-up analyses, we explored whether the strength of these effects differed for the dimensions of our financial scarcity measure. We found that particularly the dimensions for perceived lack of money as well as financial worry and rumination were associated with a subsequent increase in financial avoidance. This might suggest that predominantly after experiencing negative emotions about a difficult financial situation, people avoided dealing with their finances as a coping response. In addition, we found that financial avoidance was associated particularly with a subsequent increase in financial worry and rumination, increased lack of control, and increased short-term focus, while it was not associated with an increase in perceived lack of money. This might suggest that after avoiding their finances, people might feel that their situation became more problematic, even though they do not perceive a change in how much money they had available.

Taken together, Chapter 3 shows that, both in a representative sample of the Dutch population and in subsamples that experience higher levels of financial deprivation, financial scarcity and financial avoidance increase alongside each other over time. Although the findings do not provide causal evidence, they were in line with mechanisms of a psychological poverty trap (e.g., Haushofer, 2019), suggesting that financial scarcity and financial avoidance might mutually reinforce each other.

Chapter 4: Financial Scarcity and Financial Avoidance: An Eye-Tracking Experiment

In Chapter 4, we addressed the question whether financial scarcity is also causally related to financial avoidance, with regards to physiological and behavioral responses to problematic household finances. To do so, we conducted an experiment with the Household Task and manipulated whether over multiple rounds participants accumulated debs or savings (see Chapter 2). At the end of each round, participants were presented with two letters for a fixed amount of time. One letter concerned an expense that had to be paid and the other letter was a control stimulus.

During the presentation of the two letters, we assessed participants' gaze patterns with an eye-tracker. Based on prior research (Borozan et al., 2022; Carrasco, 2011; Findlay & Gilchrist, 2003; Wedel & Pieters, 2008), we used two measures to test whether participants with debts attentionally disengaged from the expense: First, we assessed the time it took participants to fixate on the area of the expense that stated the amount of money that had to be paid. Second, we assessed the total duration of all fixations on the whole expense letter. Results did not provide evidence for the hypothesis that, compared to participants in the savings condition, participants in the debts condition are more likely to direct their attention away from the expense. A potential reason for the null findings might be that participants had the option to delay paying expenses at no cost (see below). This might have given participants with debts an effective way to deal with their financial problem. In such a setting, the expenses might not have constituted a threat to participants' perception of control over their financial situation and thus not induced the need to attentionally disengage from the expenses (see also Howell et al., 2014).

In addition to the physiological responses, we also assessed behavioral responses of participants. That is, after presentation of the two letters, we measured whether they avoided to deal with their finances. Participants had to decide whether to pay the expense right away or whether to delay paying the expense until the end of the experiment at no additional cost. The behavioral data showed that, compared to participants in the savings condition, participants in the debts condition were more likely to delay paying their expenses until the end of the experiment.

Taken together, Chapter 4 shows that financial scarcity can increase the tendency to delay paying one's bills, a form of behavioral avoidance from one's finances. This finding suggests that financial scarcity can lead to an increase in avoidance behavior and is in line with the proposition from Chapter 3, stating that a causal mechanism might underlie the prospective association between financial scarcity and financial avoidance. In addition, this finding is in line with the observation that financial scarcity the increases discounting of losses in Chapter 2. Yet, there was no evidence suggesting that, in the context of the current study, such behavioral avoidance might be accompanied by attentional disengagement from negative financial information.

Chapter 5: Financial Scarcity and Perceived Control across Societies

In Chapter 5, we addressed the question whether financial scarcity is associated with lower perceived control, and whether this association differs systematically across societies. We theorized that

financial scarcity is a threat to one's sense of personal control (see also Van Dijk et al., 2022), which might generalize to the perception of having reduced control over one's life. To test this, we conducted a survey study in 51 societies across the globe where we measured financial scarcity and perceived control with self-report questionnaires.

The results showed that across societies, there was an overall negative association between financial scarcity and perceived control. Thus, the more people experience to lack needed financial resources, the less they feel in control of their life. Yet, between societies there was considerable variation in the strength of this association. While financial scarcity and perceived control were negatively associated in almost 75% of societies included in the study, in approximately 20% of societies there was no evidence for an association, while in two societies, the association was even positive.

To test whether this variation could be explained by institutional, economic, or cultural differences between societies, we combined our dataset with openly available cross-societal indicators. Compensatory control theory suggests that one type of control threat (here: lack of needed money as a threat to personal control) can be compensated by reliance on other sources of control (Landau et al., 2015). Therefore, in line with prior research (Attah et al., 2016; Chong & Calderon, 2000; Hruschka et al., 2014; Hruschka & Henrich, 2013; Israel, 2016; Kay et al., 2008, 2010; Muntaner et al., 2010), we hypothesized that certain societal qualities might buffer against the personal control threat of financial scarcity. That is, we predicted that—in societies with higher welfare provisions, better quality of institutions, and better labor conditions—experiencing financial scarcity might be less strongly associated with the perception of lower control over one's life. However, contrary to our hypotheses, we found that in societies with lower—not higher—welfare provisions, quality of institutions, and labor conditions, the association between financial scarcity and control was weaker. Here, it is important to note that these findings were correlational, and that other (unobserved) variables might cause this pattern of results. Therefore, we conducted additional exploratory analyses to test whether other societal qualities might potentially function as compensatory control sources. We found that also in societies with lower economic development, as well as more collectivistic and traditional values, the negative association between financial scarcity and control was weaker.

Taken together, Chapter 5 shows that financial scarcity is associated with a perceived lack of control over one's life. Yet, this finding is not ubiquitous across the globe, highlighting the relevance of cross-cultural research for financial scarcity theory.

Conclusion

Across four empirical chapters, the research in this thesis shows that financial scarcity increases temporal discounting and financial avoidance, and is associated with lower perceived control over one's life. To study this, we employed a wide variety of methods: We experimentally induced financial scarcity and measured its behavioral and physiological effects. Next, we combined this with longitudinal survey data of a representative sample of the Dutch population, measuring correlates of real-life financial scarcity over time. Finally, we collected survey data from across the globe to study whether the

experience of financial scarcity and its correlates vary across societies. This multi-method approach allows us to draw conclusions for psychological and behavioral mechanisms under rigorous experimental control, paired with cross-sectional and longitudinal findings on real-life financial scarcity from representative and culturally diverse samples.

As an experimental paradigm, the Household Task (Chapters 2 and 4) forms a valuable contribution to the literature on financial scarcity. It can be used to induce a scarcity mindset in a laboratory or an online experiment. This is not a trivial task. A recent empirical audit and review of experimental research on financial scarcity showed that many studies with scarcity manipulations fail to replicate (O'Donnell et al. 2021; but see Shah et al., 2023 for a response). To reliably study effects of an induced financial scarcity mindset in the laboratory or online, a scarcity manipulation needs to be sufficiently strong that the psychological reality of participants mirrors the threatening real-life experience of having insufficient financial resources to meet demands. The Household Task achieves this by having participants work for their income, and over time, repeatedly experience that they are not able to earn enough to pay their expenses. This stressful experience is further intensified by the incentivized payoffs for participants, leading to a reliable induction of a scarcity mindset that consistently influences behavior (Chapters 2 and 4). Importantly, the Household Task is versatile and can be used to study related concepts of financial scarcity in the future. For example, with relatively small adaptations, it could be used to study the effects of precarious working conditions and job insecurity, income volatility, or the effectiveness of social security interventions. Moreover, it can be used to study a broad variety of outcomes, like work performance during the task, depletion of cognitive resources, or emotional effects. The openly available Household Task (implemented in Qualtics and E-Prime, see Chapters 2 and 4) can thus be a valuable tool for other researchers aiming to study a broad range of causal effects of financial scarcity and related concepts.

At the same time, it is essential to corroborate whether the psychological mechanisms we study in the laboratory are also present in people who experience financial scarcity in daily life. Next to field experiments, longitudinal studies such as conducted in Chapter 3 can help to get closer to understanding the mechanisms how real-life financial scarcity influences decisions and behavior. Last, it is crucial to address the point that the experience of financial scarcity and its effects might differ considerably across cultures. A strength of the scarcity literature is that it includes a variety of field studies that were conducted in non-WEIRD samples (e.g., Dalton et al., 2020; Haushofer & Shapiro, 2016; Mani et al., 2013; Ong et al., 2019). More recently, cross-cultural studies have also started to investigate the potential cultural diversity in the effects of financial scarcity (e.g., Ruggeri et al., 2022, 2023; To et al., 2023; Sommet & Spini, 2022). Chapter 5 contributes to this growing literature by showing that the association between financial scarcity and perceived control varies considerably across societies.

The thesis highlights the role of perceived control for decision-making under financial scarcity. It shows that the experience of lacking needed resources is accompanied by lowered perceived control over one's finances (Chapters 2-5), which might explain why people tend to avoid dealing with their

finances altogether (Chapters 3 and 4), and that might generalize to an increased perception that life as a whole is out of control (Chapter 5; see also Van Dijk et al., 2022). While the relevance of control for financial scarcity has been noted before (e.g., Sheehy-Skeffington & Haushofer, 2014), current theorizing on financial scarcity mainly describes two different mechanisms through which a scarcity mindset affects decisions, namely the shift in attentional focus and the impairment of cognitive resources (De Bruijn & Antonides, 2022). Yet, in line with other recent work (To et al., 2023), the thesis points towards a more prominent role of perceived control for decision-making under financial scarcity.

The thesis also adds to the question whether financial scarcity leads to more biased and dysfunctional decisions or more rational and adaptive decisions (Frankenhuis & Nettle, 2019; Sheehy-Skeffington, 2020). Early work was mostly concerned with potential negative consequences of financial scarcity on decision-making (e.g., Haushofer & Fehr, 2014; Shah et al., 2012). For example, the tendency to prioritize present outcomes over future outcomes (i.e., temporal discounting) was initially studied in the context of overborrowing, showing that scarcity might lead to depletion of future resources (Shah et al., 2012). Also, some work showed that financial scarcity might lead to present bias (Carvalho et al., 2016; Haushofer & Fehr, 2019), which describes a focus on the present while also displaying irrational choice patterns (i.e., inconsistent time preferences). Yet, other work did not find support for an effect of financial scarcity on irrational choice patterns in temporal decisions (Ruggeri et al., 2022) or decision-making in general (Plantinga et al., 2018; Ruggeri et al., 2023), or even found evidence for reduced bias under financial scarcity (Shah et al. 2015). In Chapter 2, we found that a scarcity mindset increased temporal discounting only in situations where current or predicted resources were lacking, but not when sufficient resources were available. These findings suggest that financial scarcity only increases discounting when it indeed could be optimal but not when it would be clearly suboptimal. In line with this, evolutionary work argued that a focus on the present might be an adaptive response to a harsh environment (Fennemann & Frankenhuis, 2020). When people have too little resources to meet current demands, prioritizing to gain money as well as not to lose money at present can make sense, even if it comes with high interest in the future. Also for the finding that financial scarcity increases financial avoidance (Chapters 3 and 4), one could argue that it is an a adaptive response to a problematic situation. Without control over one's finances, one might feel unable to improve one's financial situation by taking action. While avoiding one's financial problems usually also does not help to improve the situation, it might at least be a way to emotionally cope with it.

Taken together, financial scarcity might lead to decisions that at the same time can be adaptive in the current financial situation of the decision-maker and yet negatively affect the attainment of future goals (Sheehy-Skeffington, 2020). As such, financial scarcity might lead to decisions that make sense from the perspective of the decision-maker, but at the same time exacerbate existing financial problems. The findings of the current thesis contribute to understanding these mechanisms, describing how decision-making under financial scarcity can constitute a psychological poverty trap.

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