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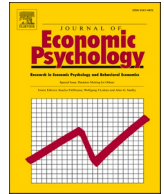
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The prospective associations between financial scarcity and financial avoidance

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ABSTRACT

The current study investigated the prospective associations between financial scarcity and financial avoidance. We hypothesized that over time, financial scarcity—the experience of lacking needed financial resources—is associated with an increase in financial avoidance—the tendency to avoid dealing with one's finances—, and vice versa. In a longitudinal panel study, including a large and representative adult sample of Dutch citizens (initial $N = 1,122$, final $N = 837$), we measured financial scarcity and financial avoidance twice over a period of 22 months. Data were analyzed using a cross-lagged panel model, which allows to test for prospective effects of one variable on the other, while controlling for autoregressive effects. Confirming our pre-registered hypotheses, results showed that financial scarcity was positively related with an increase in subsequent financial avoidance, whereas financial avoidance was positively related with an increase in subsequent financial scarcity. While these longitudinal findings are not causal, they are in line with the concept of a poverty trap, where financial scarcity and financial avoidance form a temporally dynamic and increasing relationship.

1. Introduction

When being poor or having debts, people can experience financial scarcity (Mullainathan & Shafir, 2013). Financial scarcity is characterized by the subjective experience of lacking financial resources to cope with demands (Shah, Mullainathan, & Shafir, 2012). This can be stressful and elicit a range of cognitive, affective, and behavioral responses (Blascovich, 2008; Cundiff, Boylan, & Mustell, 2020; Haushofer & Fehr, 2014; Lazarus & Folkman, 1984; Sheehy-Skeffington and Rea, 2017). When experiencing financial scarcity, pressing financial problems capture attention, while other important matters tend to be neglected (Shah et al., 2012). In addition, financial scarcity impedes cognitive function (Mani, Mullainathan, Shafir, & Zhao, 2013; but see Wicherts & Scholten, 2013), induces worry, depression, and anxiety (De Bruijn & Antonides, 2020; Ridley, Rao, Schilbach, & Patel, 2020), and increases temporal discounting (Haushofer & Fehr, 2014; Haushofer and Fehr, 2019; Hilbert et al., 2021) and risk aversion (Haushofer & Fehr, 2014; but see Dalton, Nhung, & Rüschenpöhler, 2020).

In the current study, we examine the temporal relation between financial scarcity and financial avoidance. More specific, we posit that financial scarcity is related to an increase in financial avoidance over time, which, in turn, is related to an increase in financial scarcity over time. We build this reasoning on the aforementioned research combining financial scarcity and stress. That is, we

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conceptualize financial scarcity as a psychological state in which an appraisal of threat (i.e., shortage of money) is combined with the perceived inability to adequately deal with this threat (i.e., a lack of control of one's financial situation). This state elicits ruminative thoughts and worry, as well as a short-term focus (see also, Van Dijk et al., 2021). We refer to financial avoidance as a range of different behaviors where people avoid dealing with their financial situation (cf. financial homo ignorans, Barrafreem, Västfjäll, & Tinghög, 2020). These include avoiding to learn information, decision avoidance, and failing to act according to one's goals (Anderson, 2003, 2006; Gigerenzer & Garcia-Retamero, 2017; Golman, Hagmann, & Loewenstein, 2017; Hertwig & Engel, 2016; Karlsson, Loewenstein, & Seppi, 2009; Steel, 2007).

While financial scarcity and financial avoidance have not been linked directly, several findings suggest that they should affect each other. When being in a situation of financial scarcity, it is important to approach one's financial problems and to try to solve them. Not dealing with one's problematic finances (e.g., not opening a letter, not paying a bill) may come with the risk of worsening the situation. This risk is especially high for those who lack financial resources because they do not have financial safety nets and therefore have a smaller margin for error (Bertrand, Mullainathan, & Shafir, 2006). Research in health psychology has shown that when avoidance imposes a high personal risk, people are more likely to approach the problem (Sweeny, Melnyk, Miller, & Shepperd, 2010). For example, when the perceived personal risk for breast cancer is high, women are more likely to sign up for screening mammograms (Aiken, West, Woodward, Reno, & Reynolds, 1994; McCaul, Branstetter, Schroeder, & Glasgow, 1996). In addition, research on selective exposure to information suggests that negative information is more likely to be approached if it can help to reach one's goals (Hart et al., 2009). Thus, one could expect that financial scarcity increases the likelihood to engage with one's finances, because avoidance carries the risk of higher costs.

We predict, however, that people who experience financial scarcity will avoid rather than approach their financial situation. First, threatening stimuli are generally avoided (Elliot, 2006), especially when threat-managing resources are lacking (Howell, Crosier, & Shepperd, 2014; Sweeny, Melnyk, Miller, & Shepperd, 2010). Thus, when money is scarce and dealing with one's finances becomes stressful and threatening (Shah, Mullainathan, & Shafir, 2012; Shah, Zhao, Mullainathan, & Shafir, 2018), the tendency to avoid dealing with one's financial situation might increase as well. Relatedly, research from several domains indicates that when perceived control about potential consequences of negative information is low, the tendency to avoid such information increases (Sweeny, Melnyk, Miller, & Shepperd, 2010).¹ For example, when a serious disease is described as untreatable compared to treatable (i.e., uncontrollable vs. controllable), people are less willing to be tested for it (Dawson, Savitsky, & Dunning, 2006). Likewise, people are more likely to remain passive and fail to follow up on their intentions if they experience low control (Fishbein & Ajzen, 2009; Sheeran, 2002) and are more likely to procrastinate tasks when they have low self-efficacy solving them (Steel, 2007). Relatedly, feeling financially insecure decreases the likelihood to engage in challenging tasks (Banker, Bhanot, & Deshpande, 2020). In line with these findings, we posit that when people experience low control over their financial situation, they are more likely to avoid negative financial information.

Next, information is frequently avoided when it is expected to induce negative emotions (Sweeny, Melnyk, Miller, & Shepperd, 2010). When experiencing financial scarcity, financial information reminds people of their financial problems (Shah, Zhao, Mullainathan, & Shafir, 2018). This can induce negative emotions and stress (Haushofer & Fehr, 2014), which might lead to avoidance of the financial information. For example, when financial information induces shame, people are more likely to avoid it and disengage from their finances (Gladstone, Jachimowicz, Greenberg, & Galinsky, 2021). In addition, financial scarcity frequently leads to financial rumination and worry (De Bruijn & Antonides, 2020). Both ruminative thoughts and worry concern the engagement in self-focused, repetitive, negative thoughts and can lead to the perception that one's problems are unsolvable (Lyubomirsky, Tucker, Caldwell, & Berg, 1999; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008).² This perception frequently results in passivity and failures to act upon one's intentions to solve the problem at hand (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Thus, while financial scarcity might direct attention to one's financial problems, it may do so in an obsessive but passive way, especially when financial problems are enduring (Kane, 1987).

Last, the experience of financial scarcity increases short-term focus (Haushofer & Fehr, 2014; Haushofer and Fehr, 2019; Hilbert et al., 2021). A short-term focus may further increase financial avoidance. Dealing with problematic household finances is often an aversive task that has to be done first, before potential positive consequences of taking action can be realized later (Golman, Hagmann, & Loewenstein, 2017). Thus, a stronger short-term focus puts a heavier weight on the immediate disutility derived from dealing with one's financial problems, while the delayed utility derived from the positive consequences of taking action is more strongly discounted (Zhang & Feng, 2020). This is corroborated by findings that procrastination is more likely for aversive tasks (Steel, 2007), and that people delay making decisions when they have to decide between options with negative consequences (Dhar & Nowlis, 1999).

Taken together, we propose that when experiencing financial scarcity, the decision whether to engage or avoid with one's finances is based on a utility judgement. On the one hand, engaging with one's finances can help to reduce the personal risks that one's financial situation deteriorates even further. In addition, engaging with one's finances might help to reach personal goals in the long term. On the other hand, doing so causes negative emotions in the short term. Moreover, to feel able to reduce risks and reach goals, one needs to perceive that one is in control of one's financial situation and that one is able to cope with the demands the engagement with one's

¹ We note that lack of control might also lead to approach motivation in the short-term (Greenaway et al., 2015). However, as these authors state, this does only apply when lack of control is not chronic and taking action has a realistic chance to restore control. The longer the experience of low control, the more likely people become avoidant and end up in a state of learned helplessness (Kane, 1987).

² Rumination and worry are closely related concepts with similar effects on cognition, motivation, and emotion. For a detailed comparison between the two concepts, see Nolen-Hoeksema et al. (2008).

finances might pose. Yet, these crucial prerequisites are frequently lacking when experiencing financial scarcity. Last, potential long-term benefits of taking action might be discounted. Therefore, we propose that financial scarcity will be associated with an increase in subsequent financial avoidance.

In turn, while avoiding to deal with one's problematic financial situation can be a coping mechanism to relieve stress in the short term, it might increase financial scarcity. For instance, when in financial arrears, avoiding to deal with one's finances can lead to an accumulation of interest or late payment fees, for which there is little economic buffer (Bertrand, Mullainathan, & Shafir, 2006). Thus, financial avoidance might increase the experience of financial scarcity by directly exacerbating a problematic financial situation.

Moreover, financial avoidance might increase feelings of lack of control over one's financial situation. After not having dealt effectively with a financial problem, people might perceive their situation to have become even more difficult to manage. This is supported by literature on inaction inertia, that shows that people become more avoidant after having missed an initial opportunity to act (van Putten, Zeelenberg, van Dijk, & Tykocinski, 2013). After avoiding to engage with their finances for a longer time and thereby failing to effectively deal with their financial problems, people might also develop a state of learned helplessness regarding their financial situation (see for an overview, Mikulincer, 2013). Thus, avoiding to deal with one's finances might also increase financial scarcity by changing the appraisal of one's financial situation.

2. The present research

In the current study, we examine the prospective associations between financial scarcity and financial avoidance. We hypothesize that the experience of financial scarcity is related to an increase in subsequent financial avoidance (Hypothesis 1). In addition, we hypothesize that financial avoidance is related to an increase in subsequent experienced financial scarcity (Hypothesis 2). To test these hypotheses, we conducted a longitudinal study that included a large, representative sample of adult Dutch citizens. We measured financial scarcity and financial avoidance in two waves and used a cross-lagged panel model to analyze the data—a technique that allows testing the prospective effects between two variables, while controlling for their autoregressive effects (Kearney, 2017). Thus, building on the existing literature, the present research contributes to theories on financial scarcity and financial avoidance by investigating their temporal associations over time in a representative sample of the Dutch population. We preregistered our longitudinal hypotheses and analysis plan after analyzing data for wave 1, but before collecting data for wave 2 (<https://osf.io/9yjm6>). We report all measures, analyses, and exclusion criteria. Data, analyses codes, and materials are openly available (<https://osf.io/zmh5n/>).

3. Method

3.1. Participants and design

Participants were recruited from the LISS panel (Longitudinal Internet studies for the Social Sciences), which is administered by CentERdata of Tilburg University (the Netherlands). The LISS panel consists of approximately 7,500 members from 5,000 different households. Households included in the panel are a true probability sample of Dutch households drawn from the population register. The panel provider assures that its samples are representative of the Dutch population by various measures, for example by providing households with an internet connection or a computer if they would not have one themselves (for more information, see <https://www.lissdata.nl/about-panel>). The LISS Panel has received the Data Seal of Approval (DSA) by the International Science Council.

Data was collected in April 2018 (wave 1; $t_1 = 0$ months) and February 2020 (wave 2; $t_2 = 22$ months). At t_1 , 1,497 panel members were selected for participation by the panel provider to form a representative sample of the Dutch population, whereof 1,122 members responded. With 8 incomplete responses this led to a sample of $N = 1,114$ for the first wave. At t_2 , 993 respondents of the first wave were still active panel members, and these members were invited for the second wave. This resulted in 837 panel members completing both questionnaires at t_2 .³ This final sample consisted of 450 females and 387 males, with a mean age of 54.4 years ($SD = 16.9$) and a mean monthly net income of €1785 ($SD = €906$). Participants who remained in the sample did not differ from participants that dropped out, with regards to their gender and income. Also, they did not differ in their scores on the financial scarcity and financial avoidance measures (see online supplement for full analyses). However, participants remaining in the sample were significantly older ($M = 54.4$ years) than participants who dropped out ($M = 48.6$ years), $t(427) = 4.49$, $p < .001$. This increased the average age of the remaining sample by 1.4 years. Yet, we assume that overall, our final sample is representative of the adult Dutch population and that our results are generalizable. The panel provider compensates participants based on a rate of €15 per hour.

3.2. Measures

For both waves, participants were asked to complete a set of questionnaires on financial scarcity and financial avoidance (see

³ Originally, we had planned and pre-registered to collect three waves of data for this project. However, the COVID-19 pandemic with its psychological and economic consequences hit the Netherlands after the second wave of data collection. Therefore, we decided to exclude the third wave of data collected in August 2020 from the analyses in the present research. We will report the results including the third wave together with additional data in a forthcoming paper specifically focusing on the impact of the COVID-19 pandemic on financial scarcity. Yet, preliminary analyses suggest that the results generally replicate for the time interval between wave 2 and 3 and also hold when constraining the model parameters to be equal across time intervals (see open data and analysis code).

Table 1 for a list of all items).⁴

3.2.1. Financial scarcity

To assess their experienced financial scarcity, participants first completed the Psychological Inventory of Financial Scarcity (PIFS; Van Dijk et al., 2021). The PIFS is a self-rating scale that captures financial scarcity through self-assessments of subjective perceptions of one's financial situation and affective and cognitive responses to these appraisals. The PIFS is based on a conceptualization of financial scarcity that combines a psychological stress framework (e.g., Cundiff, Boylan, & Muscatell, 2020) with the 'attentional focus and neglect' theory of scarcity (Mullainathan & Shafir, 2013). Financial scarcity is regarded as a situation in which pressing financial concerns are appraised as exceeding available resources, that, in turn, evoke affective and cognitive responses that typify attentional narrowing and neglect.

On the basis of this conceptualization, the PIFS includes four subcomponents measured with three items each on 7-point Likert scales (1 = *completely disagree*; 7 = *completely agree*). All items are displayed in Table 1. The first subcomponent concerns an appraisal of shortage of money, which is perceived as a threat (items FS_{SoM1}, FS_{SoM2}, FS_{SoM3}). The second subcomponent concerns an appraisal of lack of control over one's financial situation, which is the perceived inability to adequately deal with that threat (items FS_{LoC1}, FS_{LoC2}, FS_{LoC3}). The other two subcomponents of the PIFS concern responses to the two included appraisals. Financial rumination and worrying is included as an affective response (items FS_{FRW1}, FS_{FRW2}, FS_{FRW3}), whereas a short-term focus is included as a cognitive response (items FS_{STF1}, FS_{STF2}, FS_{STF3}).

For both waves, the PIFS showed high internal consistency ($\alpha_{t1} = 0.93$, $\alpha_{t2} = 0.94$). To provide a validation of the PIFS for the present research, we conducted an Exploratory Factor Analysis (EFA) with direct oblimin rotation. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO = 0.94) and Bartlett's test of sphericity, $\chi^2(66) = 8514$, $p < .001$, suggested that the correlation structure was factorable. Results of the EFA indicated a one-factor solution, which explained 56.9% of the total variance.

As a next step in the examination of the underlying structure of the PIFS, we conducted a Confirmatory Factor Analysis (CFA). We compared two different models; a one-factor model encompassing all 12 items (FS_{total}) and a four-factor model that differentiated between each of the four subcomponents of the PIFS (Factor 1: Shortage of Money, FS_{SoM1-3}; Factor 2: Lack of Control, FS_{LoC1-3}; Factor 3: Financial Rumination and Worry, FS_{FRW1-3}; Factor 4: Short-Term Focus, FS_{STF1-3}). Results showed that the one-factor model had good absolute fit, $\chi^2(54) = 858$, $p < .001$. Comparative fit indices indicated that a single factor solution was adequate, CFI = 0.91, TLI = 0.88, RMSEA = 0.12, 95% CI [0.11, 0.12]. The four-factor model showed even better fit, $\chi^2(6) = 507.5$, $p < .001$, CFI = 0.96, TLI = 0.95, RMSEA = 0.08, 95% CI [0.07, 0.08].

Based on these results, we decided to conduct all relevant analyses for both the total scale (FS_{total}) and its four subcomponents (FS_{SoM}, FS_{LoC}, FS_{FRW}, FS_{STF}). In our pre-registration, we only addressed analyses with the total scale, so the added analyses are exploratory.

3.2.2. Financial avoidance

Next, participants completed our measure of financial avoidance (FA), consisting of eight items on 7-point Likert scales (1 = *completely disagree*; 7 = *completely agree*). In line with the concept of the financial homo ignorans (Barraffrem et al., 2020), financial avoidance is conceptualized as an underlying motivation to avoid dealing with one's finances. This motivation can manifest in various avoidant behaviors. Here, financial avoidance is captured by two subcomponents assessed with four items each. The first subcomponent concerns the delay of making financial decisions (items FA_{DFD1}, FA_{DFD2}, FA_{DFD3}, FA_{DFD4}) and is based on a conceptualization of decision avoidance and choice deferral theories (Anderson, 2003, 2006; Dhar & Nowlis, 1999). The second subcomponent concerns the avoidance of financial information (items FA_{AFI1}, FA_{AFI2}, FA_{AFI3}, FA_{AFI4}) and is based on a conceptualization of information avoidance theories (Gigerenzer & Garcia-Retamero, 2017; Golman, Hagmann, & Loewenstein, 2017; Hertwig & Engel, 2016; Sweeny, Melnyk, Miller, & Shepperd, 2010).

For both waves, the financial avoidance measure showed high internal consistency ($\alpha_{T1} = 0.90$, $\alpha_{T2} = 0.91$). To provide further validation of our 8-item Financial Avoidance (FA) scale, we conducted an EFA with direct oblimin rotation. The Kaiser-Meyer Olkin measure of sampling adequacy (KMO = 0.91) and Bartlett's test of sphericity, $\chi^2(28) = 5193$, $p < .001$, suggested that the correlation structure was factorable. Results of the EFA indicated a one-factor solution, which explained 59.8% of the total variance.

As a next step in the examination of the underlying structure of the financial avoidance measure, we conducted a Confirmatory Factor Analysis (CFA). We compared two different models; a one-factor model encompassing all eight FA items (FA_{total}) and a two-factor model that differentiated between the two sub-components of the FA scale (Factor 1: Delaying Financial Decisions, FA_{DFD1-4}; Factor 2: Avoiding Financial Information, FA_{AFI1-4}). Results showed that the one-factor model had good absolute fit, $\chi^2(20) = 738$, $p < .001$. Comparative fit indices, however, indicated that a single factor solution was not adequate, CFI = 0.86, TLI = 0.81, RMSEA = 0.18, 95% CI [0.17, 0.19]. These indices missed conventional cut-offs for appropriate model fit (Bentler & Bonett, 1980; Hu & Bentler, 1999), but we note that reliance on cut-off criteria for fit indices is generally debated (Marsh, Hau, & Wen, 2004). In the present research, the non-normality of the data might increase the likelihood of false negative indication of the model fit (Yu, 2002). The two-

⁴ The current study was combined with a study on financial scarcity and social exclusion (Doolaard et al., 2021). For reasons of efficiency and transparency, both studies were pre-registered jointly.

Table 1
Items of the financial scarcity and financial avoidance measures.

Financial Scarcity	Label	Item
	FS _{SOM1}	I often don't have enough money.
	FS _{SOM2}	I am often not able to pay my bills on time.
	FS _{SOM3}	I often don't have money to pay for the things that I really need.
	FS _{FWR1}	I am constantly wondering whether I have enough money.
	FS _{FWR2}	I have a hard time thinking about things other than my financial situation.
	FS _{FWR3}	I worry about money a lot.
	FS _{STF1}	I am only focusing on what I have to pay at this moment rather than my future expenses.
	FS _{STF2}	Because of my financial situation, I live from day to day.
	FS _{STF3}	I don't take future expenses into account.
	FS _{LOC1}	I experience little control over my financial situation.
	FS _{LOC2}	I am not able to manage my finances properly.
	FS _{LOC3}	When I think about my financial situation, I feel powerless.
Financial Avoidance	Label	Item
	FA _{DFD1}	I sometimes delay making financial decisions until it is too late.
	FA _{DFD2}	I waste a lot of time on other matters before making important financial decisions.
	FA _{DFD3}	Even financial decisions that require little else except sitting down and doing them, I find that they seldom get done for days (e.g., paying a bill, transferring money).
	FA _{DFD4}	Putting financial decisions off till the last minute has cost me money in the past.
	FA _{AFI1}	I would avoid learning how high my expenses will be next month.
	FA _{AFI2}	Sometimes it feels unpleasant to think about my financial situation.
	FA _{AFI3}	I can think of situations in which I would rather not know the exact state of my finances.
	FA _{AFI4}	I would rather not know about the consequences of financial setbacks.

factor model showed better fit, $\chi^2(1) = 681.6, p < .001$, CFI = 0.99, TLI = 0.99, RMSEA = 0.04, 95% CI [0.03, 0.06].

Based on these results, we decided to conduct all relevant analyses for both the total scale (FA_{total}) and its two subcomponents (FA_{DFD}, FA_{AFI}). In our pre-registration, we only addressed analyses with the total scale, so the added analyses are exploratory.⁵

4. Results

4.1. Statistical analyses

To test how financial scarcity (FS) and financial avoidance (FA) relate to each other over time, we analyzed the data using a Cross Lagged Panel Model (CLPM). The CLPM is a specific structural equation model (SEM) suitable for longitudinal panel research (Kearney, 2017). It is used to test the structural relations between latent variables that are measured repeatedly and allows to test temporally dynamic associations (Selig & Little, 2012). Fig. 1 depicts our cross-lagged panel model with the two latent variables (FS and FA) measured at two points in time (denoted with subscript 1 and 2).

The model allows to obtain estimates for the cross-lagged effects of FS₁ on FA₂ (β) and FA₁ on FS₂ (γ), while controlling for temporal stability of the constructs (FS₁ on FS₂, α ; and FA₁ on FA₂, δ). Thus, the model allows to test whether financial scarcity at t1 (FS₁) can predict financial avoidance at t2 (FA₂), while controlling for the autoregressive effect of financial avoidance at t1 (FA₁). Likewise, the model allows to test whether financial avoidance at t1 (FA₁) can predict variable financial scarcity at t2 (FS₂), while controlling for the autoregressive effect of financial scarcity at t1 (FS₁).

As a specific type of SEM, the CLPM is based on the assumption of causal effects, even if it is not used to make causal claims. That is, by specifying the paths of the CLPM (straight arrows), we formulate weak causal assumptions that both FA and FS at t1 have linear, non-zero effects on both FA and FS at t2. In addition, we specify that at both time points, FS and FA have a covariance that is non-zero (curved double-arrows). In stating these causal assumptions, we follow recent developments of the methodological debate on causal inferences in non-experimental research (Grosz, Rohrer, & Thoemmes, 2020). Although our analysis cannot provide direct evidence for our causal model, if the data were not to fit the model, this could be interpreted as evidence against our specified causal model of linear effects.

Several additional assumptions underlie the cross-lagged panel model (see Selig & Little, 2012). First, factorial invariance is assumed, meaning that the psychometric properties of the items are expected to be stable over time. This should not be an issue for the present research, given that the measurement period of 22 months is not long enough to change the meaning of how the items are interpreted. Relatedly, we assume that the measurement error is stable over our measurement period and that there are no re-test effects. Next, we use a representative sample and check for selective attrition, to ensure that drop-outs are missing at random (MAR). Last, as for any statistical model based on observational data, we assume that our model is specified properly and that there are no confounding variables outside our model that might explain our cross-lagged effects. This is a challenging assumption to check (for a discussion of this issue, see Selig & Little, 2012) but based on the theoretical framework introduced above, we posit that our effects

⁵ In the first wave, we had also included the behavioral inhibition and behavioral activation questionnaire (BIS BAS; Carver & White, 1994). We decided not to include this questionnaire in subsequent waves, because it does not focus specifically on a financial context, and was therefore less relevant for our research interests.

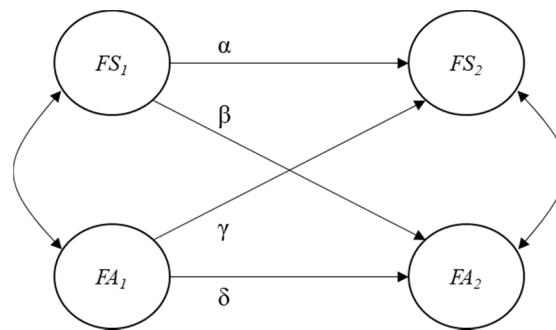


Fig. 1. Conceptual CLPM with Financial Scarcity (FS) and Financial Avoidance (FA) Measured at two Time Points.

are not driven by unobserved confounds.

There are different types of CLPMs that can be analyzed to test various types of hypotheses. Here, our hypotheses concern between-participant effects of financial scarcity and financial avoidance. We test whether, compared to participants who experience less financial scarcity at t1, participants who experience more financial scarcity at t1 have a stronger increase in financial avoidance at t2 (Hypothesis 1). Also, we test whether, compared to participants who experience less financial avoidance at t1, participants who experience more financial avoidance at t1 have a stronger increase in financial scarcity at t2 (Hypothesis 2). To test these between-participants hypotheses, a standard CLPM is most appropriate to use (Orth, Clark, Donnellan, & Robins, 2020).⁶

4.2. Descriptives

Descriptives of the variables included in the model are displayed in Table 2. The data were skewed, meaning that many participants did not experience intense financial scarcity or showed much financial avoidance. Therefore, we report Spearman rank correlations in the descriptives and use bootstrapped standard errors with 10,000 samples in the CLPM to avoid biased estimates⁷.

Table 3 shows the correlations between financial scarcity and financial avoidance as measured at the two time points. Notably, financial scarcity and financial avoidance show strong positive correlations in both waves. In addition, both measures also correlate highly with themselves at the two different points in time. This indicates that both measures were relatively stable, yet there was still sufficient variance to be explained by other factors.

4.3. Cross-lagged panel model

To test our hypotheses, we analyzed the data with a CLPM with 10,000 bootstrapped resamples (Table 4). The CLPM shows that financial scarcity at t1 was associated with an increase in financial avoidance at t2, $\beta = 0.13$, $p = .023$. This effect was present while controlling for the autoregressive effect of financial avoidance at t1, $\beta = 0.57$, $p < .001$. Thus, as hypothesized, participants who initially experienced more financial scarcity subsequently were more avoidant in dealing with their financial situation than participants who initially experienced less financial scarcity.

Moreover, financial avoidance at t1 was associated with an increase in financial scarcity at t2, $\beta = 0.19$, $p < .001$. Again, this effect was present while controlling for the autoregressive effect of financial scarcity at t1, $\beta = 0.57$, $p < .001$. Thus, as hypothesized, participants who initially were more avoidant in dealing with their finances subsequently experienced more financial scarcity than participants who initially were less avoidant in dealing with their financial situation.

Taken together, these findings support both our hypotheses and show that financial scarcity and financial avoidance have a positive, temporally dynamic relation with each other. This indicates that people who score high on either of the two variables at present will show a relatively stronger increase on the other variable in the future. Given that the confidence intervals of both cross-lagged effects have substantial overlap, there is no clear indication that one direction of the temporal relationship is stronger than the other. Thus, our results suggest that over time, financial scarcity and financial avoidance increase alongside each other.

⁶ Some researchers have suggested that adding random intercepts to a CLPM generally improves interpretability of cross-lagged effects (RI-CLPM; Hamaker, Kuiper, & Grasman, 2015). In the RI-CLPM, individual differences between participants are controlled for, including only within-person changes from the person mean in the model parameters. Thus, a RI-CLPM would be suitable to test within-person hypotheses. However, given that our hypotheses concern between-person effects and our waves are measured at large time intervals, using the standard CLPM is a better fit (Orth et al., 2020).

⁷ This is a post-hoc deviation from our preregistered analysis plan we consider necessary. Running the model without bootstrapped standard errors as pre-registered yields similar results (see open materials).

Table 2

Descriptives for Financial Scarcity (FS) and Financial Avoidance (FA) at two Waves (1, 2).

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Skewness</i>	<i>Kurtosis</i>
FS ₁	1,115	1.96	1.12	1	7	1.41	1.65
FS ₂	842	1.93	1.13	1	7	1.52	2.17
FA ₁	1,114	1.96	1.15	1	6.75	1.30	1.10
FA ₂	841	1.84	1.09	1	6.38	1.56	2.18

Table 3

Spearman Rank Correlations of Financial Scarcity (FS) and Financial Avoidance (FA) at two Waves (1, 2).

	FS ₁	FS ₂	FA ₁
FS ₂	0.67		
FA ₁	0.75	0.61	
FA ₂	0.58	0.71	0.66

Note. All correlations are significant with $p < .001$.**Table 4**

Cross-lagged and Autoregressive Parameters for a CLPM with 10,000 Bootstrapped Resamples.

DV	Predictor	β	<i>SE</i>	<i>z</i>	<i>p</i>	95% CI
FS ₂	FS ₁	0.57	0.05	10.60	< 0.001	[0.46, 0.67]
	FA ₁	0.19	0.05	3.53	< 0.001	[0.09, 0.30]
FA ₂	FS ₁	0.13	0.06	2.27	0.023	[0.02, 0.24]
	FA ₁	0.57	0.06	9.35	< 0.001	[0.45, 0.69]

Note. Confidence intervals are based on bootstrapped standard errors using 10,000 resamples.

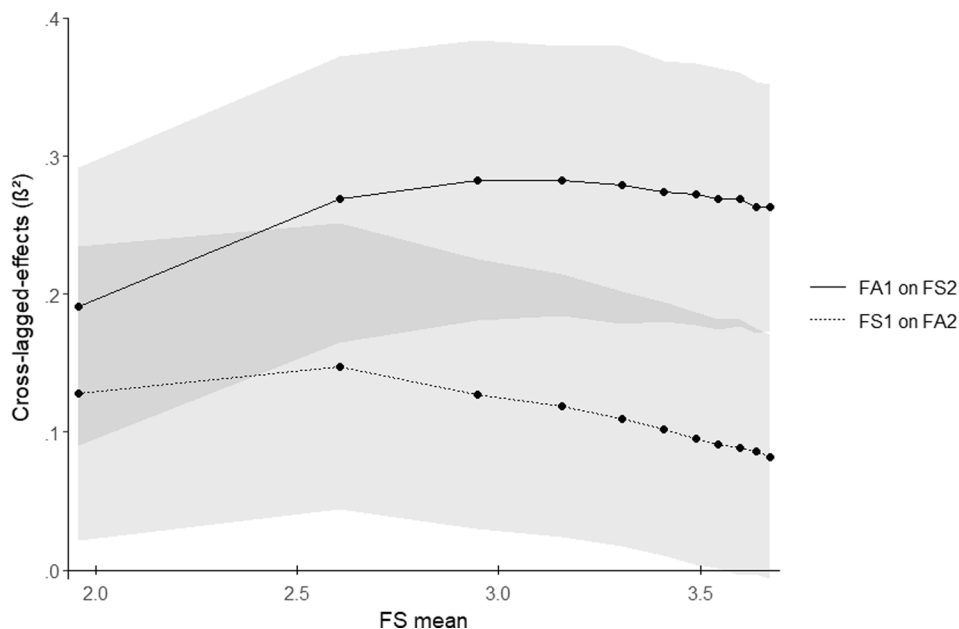


Fig. 2. Average cross-lagged effects for a range of 1,000 bootstrapped samples with weighted sampling probabilities. The x-axis shows bootstrapped sample means of FS.1 for each weight. The sampling probability (p) at weight (k) for each case (i) was $p_{k,i} = 1 + k \cdot \text{FS.1}_i \cdot \text{FS.2}_i \cdot \text{FA.1}_i \cdot \text{FA.2}_i$, with $k = \{0, 0.01, 0.02, 0.03, 0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.1\}$. Other methods of calculating the sampling weights yielded similar results (for details, see open data and analysis code). Sampling weights increase from left to right, with the leftmost dot ($k = 0$) representing equal sampling weights for each participant (i.e., standard bootstrap of original sample). Grey areas indicate the bootstrapped 95 %CI for the cross-lagged effects.

4.4. Robustness checks

4.4.1. Weighted bootstrap re-sampling

While the representativeness of our sample allows to draw valid inferences from the results for the Dutch population, participants' scores on financial scarcity and financial avoidance were relatively low. This might limit the inferences that can be drawn for scarcity and avoidance theory. To address this issue, we conducted a robustness check in which we ran our main analysis on a range of bootstrapped re-samples, where the sampling probability for each participant was weighted based on their score on the variables included in the model. That is, participants scoring higher on financial scarcity and financial avoidance were more likely to be re-sampled. Fig. 2 shows the average cross-lagged effects in 1,000 bootstrapped resamples with varying sampling weights. The results show that the cross-lagged effects are robust across a wide range of weighted bootstrapped samples, including samples scoring above the midpoint of the financial scarcity and financial avoidance scale. The cross-lagged effect of financial avoidance at t1 on the increase of financial scarcity at t2 increases slightly with stronger sampling weights. At the same time, the cross-lagged effect of financial scarcity at t1 on the increase of financial avoidance at t2 decreases slightly with stronger sampling weights, with the 95% CI including 0 for the last three sampling weights. In addition, the 95% CIs of the two cross-lagged effects do not overlap for the strongest sampling weight.

Taken together, in our view, these results support the notion that our findings are not only generalizable to the Dutch population, but also to populations of people experiencing more financial hardship. In addition, for populations scoring higher on financial scarcity and avoidance, the effect of financial avoidance on an increase in financial scarcity over time might be stronger than the other way around.

4.4.2. Relationship between measures

Next, we ensured that our results were not biased by conceptual overlap of the scales. Therefore, we conducted an exploratory factor analysis (EFA) with all 20 items included in the main model (FS and FA items). Then, we excluded those items that showed the strongest overlap with the other scale and re-ran our main analysis.

We conducted an EFA with direct oblimin rotation on the 12 items of the financial scarcity measure and the 8 items of the financial avoidance items. The Kaiser-Meyer-Olkin measure of sampling adequacy ($KMO = 0.96$) and Bartlett's test of sphericity, $\chi^2(190) = 15173$, $p < .001$, suggested that the correlation structure was factorable. Results of the EFA indicated a two-factor solution, which explained 59.2% of the total variance. The first component represented the financial scarcity measure and explained 36.2% of the total variance. The second component represented the financial avoidance measure and explained 23.0% of the total variance. The components were correlated with $r = 0.62$.⁸ Two items loaded stronger on the component that represented the other measure. Namely, item FS_{Loc2} ("I am not able to manage my finances properly.") of the financial scarcity measure loaded stronger on the financial avoidance component and item FA_{AFI2} ("Sometimes it feels unpleasant to think about my financial situation.") of the avoidance measure loaded stronger on the scarcity component (for a Table with all item loadings, see online supplement).

When excluding these items from the main analyses, the cross-lagged effects for the association of financial avoidance at t1 with an increase in financial scarcity at t2, $\beta = 0.15$, $SE = 0.06$, $z = 2.80$, $p = .005$, 95 %CI [0.05, 0.26], and the association of financial scarcity at t1 with an increase in financial avoidance at t2, $\beta = 0.12$, $SE = 0.05$, $z = 2.49$, $p = .013$, 95 %CI [0.03, 0.22], remained unchanged. We therefore conclude that our findings were not confounded by overlapping scales.

Last, we conducted a set of nested CFAs on all 20 items included in the main analyses. Table 5 shows an overview of comparative fit indices for the nested models with increasing number of factors. The single factor solution did not show a good fit. The two-factor solution with the financial scarcity measure (FS_{Total}) and the financial avoidance (FA_{Total}) measure specified on separate factors showed better fit, but the comparative fit indices missed conventional cut-offs.⁹ The three-factor solution with the financial avoidance measure specified based on its subscales (FA_{DFD} and FA_{AFI} with FS_{Total}) and the five-factor solution with the financial scarcity measure specified based on its subscales (FS_{SoM}, FS_{Loc}, FS_{FRW}, FS_{STF} with FA_{Total}) showed good fit. The six-factor solution with both measures specified based on their subscales showed very good fit.

On the basis of these results, we think that our pre-registered analysis is robust. In additional exploratory analyses, we further verified the robustness of our main results by running separate CLPMs for each of the subscales of the financial scarcity and the financial avoidance measure.

4.5. Exploratory analyses

To further explore the prospective associations between financial scarcity and financial avoidance, we ran several cross-lagged panel models with each of the subscales of the two constructs separately.

The cross-lagged effects for each of the financial avoidance subscales delay of financial decisions (FA_{DFD}) and avoidance of financial information (FA_{AFI}) did not differ from the main analysis with the total financial avoidance scale (FA_{Total}). Financial scarcity (FS_{Total}) at t1 was associated with an increase in delay of financial decisions (FA_{DFD}) at t2, $\beta = 0.15$, $SE = 0.05$, $z = 3.30$, $p = .001$, 95 %CI [0.07, 0.25]. In addition, delay of financial decisions (FA_{DFD}) at t1 was associated with an increase of financial scarcity (FS_{Total}) at t2, $\beta = 0.11$, $SE = 0.05$, $z = 2.10$, $p = .036$, 95 %CI [0.01, .21]. Likewise, financial scarcity (FS_{Total}) at t1 was associated with an increase of

⁸ Note, however, that the correlation between the two scales is controlled for in the cross-lagged panel model.

⁹ For a discussion on the reliance on cut-off criteria for the present research, see section 3.2.2.

Table 5

Overview of Model Fits for CFA with a Different Number of Factors on all Items from Wave 1.

Model	CFI	TLI	RMSEA	95% CI	AIC	BIC
Single factor	0.81	0.78	0.13	[0.12, 0.13]	68,592	68,893
Two factors (FS _{Total} and FA _{Total})	0.87	0.85	0.10	[0.10, 0.11]	67,644	67,950
Three factors (FS _{Total} , FA _{DFD} , and FA _{AFI})	0.91	0.90	0.08	[0.08, 0.09]	66,977	67,293
Five factors (FS _{SoM} , FS _{LoC} , FS _{FRW} , FS _{STF} and FA _{Total})	0.90	0.88	0.09	[0.09, 0.09]	67,132	67,483
Six factors (FS _{SoM} , FS _{LoC} , FS _{FRW} , FS _{STF} , FA _{DFD} , and FA _{AFI})	0.95	0.94	0.07	[0.06, 0.07]	66,453	66,829

avoidance of financial information (FA_{AFI}) at t2, $\beta = 0.28$, $SE = 0.07$, $z = 3.86$, $p < .001$, 95% [0.14, 0.43]. In addition, avoidance of financial information at t1 was associated with an increase of financial scarcity (FS_{Total}) at t2, $\beta = 0.14$, $SE = 0.04$, $z = 3.21$, $p = .001$, 95% [0.05, 0.22]. Taken together, the prospective association between financial scarcity and financial avoidance was similar for the tendency to delay making financial decisions and the tendency to avoid learning financial information. This indicates financial scarcity might be associated with a general motivation to avoid dealing with one's finances, which can manifest in various avoidant behaviors.

The cross-lagged effects did differ for the subscales of the financial scarcity measure (Table 6). Financial scarcity at t1 was only associated with an increase of financial avoidance (FA_{Total}) at t2 for the subscales shortage of money (FS_{SoM}) and financial rumination and worry (FS_{FRW}). The cross-lagged effects for lack of control (FS_{LoC}) and short-term focus (FS_{STF}) at t1 on financial avoidance (FA_{Total}) at t2 were not significant. This might suggest that people engage in financial avoidance as a coping response especially after experiencing negative emotions (such as worry) from dealing with their finances.

In turn, financial avoidance (FA_{Total}) at t1 was associated with an increase of financial scarcity at t2 for all subscales of the financial scarcity measure. Interestingly, financial avoidance (FA_{Total}) at t1 was associated with a very strong increase in lack of control (FS_{LoC}), financial rumination and worry (FS_{FRW}), and short-term focus (FS_{STF}) at t2, while the association with increased appraisal of a shortage of money (FS_{SoM}) was less strong. This might indicate that avoiding to deal with one's finances especially relates to subsequent increases in how problematic one's financial situation is perceived. While the appraised lack of money only increases slightly, one feels more strongly that one's financial situation gets out of control, one ruminates and worries more strongly about it, and one feels more strongly obliged to make short-sighted financial decisions.

5. Discussion

Financial scarcity is a stressful experience in which pressing financial concerns exceed available resources (Haushofer & Fehr, 2014; Shah, Mullainathan, & Shafir, 2012). This experience often entails a perceived shortage of financial resources, financial rumination and worry, lack of control over one's financial situation, and a short-term focus (Van Dijk et al., 2021). Results of a longitudinal panel study spanning 22 months showed that financial scarcity was positively associated with an increase in subsequent financial avoidance, which is the tendency to avoid dealing with one's finances. Financial avoidance can manifest in various behaviors, such as information avoidance, decision avoidance, inaction, and procrastination (Anderson, 2003, 2006; Gigerenzer & Garcia-Retamero, 2017; Golman, Hagmann, & Loewenstein, 2017; Hertwig & Engel, 2016; Steel, 2007). It can be triggered by financial cues, like letters or bills, perceived as threats that cannot be adequately dealt with (i.e., a lack of control of one's financial situation). In such situations, avoiding the threatening cues (e.g., not opening letters or placing bills out of sight) might seem the only viable way to cope with the situation. Moreover, financial avoidance was positively associated with an increase in subsequent experienced financial scarcity. This indicates that after disengaging from their finances, people feel that their financial situation further deteriorated. These findings suggest that financial scarcity and financial avoidance might reinforce each other, with potentially dire consequences. When financial resources are scarce and people feel that their financial problems are beyond their control, they might avoid dealing with their financial problems. Neglecting their financial problems, in turn, might worsen an already problematic situation.

Our finding that financial scarcity and financial avoidance have prospective associations with each other adds to theories on financial scarcity. Previous studies on financial scarcity have mainly focused on cognitive and affective effects (e.g., Haushofer & Fehr, 2014; Mani, Mullainathan, Shafir, & Zhao, 2013) or investigated how financial scarcity changes the way people make decisions (Haushofer & Fehr, 2019; Shah, Shafir, & Mullainathan, 2015). Here, we show that people who experience financial scarcity are more likely to avoid dealing with their finances altogether. This is important in context of one of the main positions of financial scarcity

Table 6

Cross-lagged Parameters for Separate CLPMs per Financial Scarcity Subscale with 10,000 Bootstrapped Resamples.

DV	Predictor	β	SE	z	p	95% CI
FS _{SoM.2}	FA _{Total.1}	0.15	0.05	2.87	0.004	[0.05, 0.25]
FA _{Total.2}	FS _{SoM.1}	0.09	0.04	2.14	0.033	[0.01, 0.17]
FS _{FRW.2}	FA _{Total.1}	0.32	0.06	5.24	< 0.001	[0.20, 0.44]
FA _{Total.2}	FS _{FRW.1}	0.08	0.04	2.19	0.028	[0.01, 0.15]
FS _{STF.2}	FA _{Total.1}	0.28	0.05	5.88	< 0.001	[0.19, 0.37]
FA _{Total.2}	FS _{STF.1}	0.06	0.04	1.58	0.115	[-0.01, 0.13]
FS _{LoC.2}	FA _{Total.1}	0.41	0.06	7.37	< 0.001	[0.30, 0.53]
FA _{Total.2}	FS _{LoC.1}	0.05	0.05	1.10	0.270	[-0.04, 0.14]

Note. Confidence intervals are based on bootstrapped standard errors using 10,000 resamples.

theory, namely that financial scarcity directs attention towards financial problems (Shah, Mullainathan, & Shafir, 2012; Shah, Shafir, & Mullainathan, 2015; Shah, Zhao, Mullainathan, & Shafir, 2018). Our findings suggest that while financial scarcity might draw attention towards one's financial problems, this might nevertheless manifest in behavioral disengagement.

Moreover, the temporal dimension of our findings suggest that this relationship becomes stronger over time. Participants who initially experienced more financial scarcity showed a stronger increase in subsequent financial avoidance. This suggests that the longer people experience financial scarcity, the more they disengage from their financial problems. Likewise, participants avoiding to deal with their finances showed a stronger increase in financial scarcity over time. This also suggests that the longer people avoid dealing with their finances, the more their experience of financial scarcity increases.

In addition, our findings add to theories on avoidance by showing that financial avoidance forms a temporally dynamic association with financial scarcity. Previous findings from health psychology indicate that people should be more likely to engage with potential problems when avoidance would impose great personal risks (e.g., Aiken et al., 1994), but only if they feel that taking action has the chance of improving the situation (Dawson et al., 2006; see also: Sweeny, Melnyk, Miller, & Shepperd, 2010). We extend these findings to the area of financial decision-making. That is, when perceived control is low and one feels like one does not have the (financial) resources to cope with one's (financial) problems, engaging with one's financial problems might not be seen as an effective way to reach one's goals and avoidance increases over time. Then, the negative emotions associated with approaching one's financial problems outweigh and people avoid dealing with their finances altogether. Last our findings also point towards potential consequences of avoidance in the area of household finances. After avoiding to engage with their finances, people subsequently experienced more financial scarcity, even when controlling for initial levels of financial scarcity.

Next, our exploratory analyses revealed some interesting findings. First, the results were similar for the two subscales of financial avoidance, which are the tendency to delay financial decisions and the tendency to avoid financial information. This suggests that financial scarcity might be associated with a general underlying motivation to avoid dealing with one's finances, which might manifest similarly in various behavioral avoidance strategies.

Second, the results were different for the four subscales of financial scarcity. Regarding the effect of initial levels of financial scarcity on an increase of financial avoidance over time, there was only an effect for initial appraisals of shortage of money and financial rumination and worry, but not for initial lack of control and short-term focus. This might indicate that financial avoidance is a coping response especially employed when the experience of a shortage of money is accompanied by negative emotions, such as worry. Regarding the effect of initial levels of financial avoidance on an increase of financial scarcity over time, there was an association for all subscales of financial scarcity. However, the effect of initial financial avoidance was stronger for subsequent increases in the appraisal of lack of control, financial worry and rumination, and short-term focus. This might indicate that people who initially avoid dealing with their finances might not necessarily perceive that they are losing a lot of money over time. Yet, they might perceive that over time, they lose the grip on their finances. Then, they might become more worried and show stronger temporal discounting. Future confirmatory studies could test the robustness of these findings and investigate to what extent they point towards potentially underlying mechanisms.

A strength of the current study is the repeated assessment of our key variables in a large, representative sample of adult Dutch citizens. These aspects add importantly to the ecological validity of our findings. In our view, this is valuable for the field of financial scarcity, where researchers have to balance concerns of internal and external validity. Systematically manipulating financial scarcity in laboratory experiments (e.g., with vignettes, scenarios, or economic games; see Hilbert et al., 2021) has great internal validity and allows for the investigation of causal effects, which is a less strong point in many observational studies. Yet, laboratory experiments often suffer from problems of generalizability, which can be better studied with observational designs. This is especially relevant for research on financial scarcity. For example, take the psychological state of a participant in an experiment who is presented with a hypothetical scenario in which they lost their job and received an unexpectedly large bill. Now, they are asked whether they would decide to open the bill or not. While this study allows to make inferences about the causality of financial scarcity on avoidance, it is an entirely different question whether it would translate to a context outside the laboratory. Compare this with the psychological state of a potential participant in our study, who might have too little money to pay their health insurance and over time, decides they should stop opening letters from their insurance company. While this study does not allow to make inferences about the causality between scarcity and avoidance, it gives valuable insights in the associations between these variables in the real world. We think that both types of studies are important for the theory of financial scarcity, and the combination of both can provide converging evidence for relevant insights in the psychology of financial hardship.

At the same time, a limitation of the present study is that our data are observational and that the CLPM is not a causal model (Selig & Little, 2012). Thus, even though we think that a causal model of bidirectional effects between financial scarcity and financial avoidance is most likely, it is possible that third variables not included in the model might be causally responsible for the temporal associations. Building on our findings, experimental follow-up studies could further investigate the causality of the associations between financial scarcity and financial avoidance.

If the effect between financial scarcity is indeed causal and bidirectional, financial avoidance would contribute to a "poverty trap", a situation so problematic that it is difficult to escape it without outside help (Azariadis & Stachurski, 2005).¹⁰ The existence of such effects is corroborated by the bidirectional causal effects between poverty and mental health (Ridley et al., 2020). That is, poverty increases the likelihood of suffering from anxiety and depression—for example, by decreasing physical health and social status, and

¹⁰ While we focus on psychological mechanisms, there are also economic or societal mechanisms that function as a poverty trap (Azariadis & Stachurski, 2005; Bowles, Durlauf, & Hoff, 2016).

increasing worry and stress. Anxiety and depression, in turn, increase poverty—for example, by reducing productivity and the ability to generate income, as well as by affecting preferences, beliefs, and lowering the quality of decision-making (Ridley et al., 2020). Likewise, financial scarcity has been found to be associated with financial shame, which in turn might lead to disengagement and thereby increase financial hardship (Gladstone et al., 2021). Thus, dealing with financial problems might have psychological consequences that reinforce financial problems (but see, Frankenhuys & Nettle, 2019).

6. Conclusion

Having trouble to make ends meet induces a psychological state of financial scarcity. In a longitudinal study that included a large, representative sample of adult Dutch citizens, we show that financial scarcity is associated with a subsequent increase in financial avoidance. In addition, financial avoidance is associated with a subsequent increase in experienced financial scarcity. This shows that when experiencing financial scarcity, people are more likely to act in line with the concept of the financial homo ignorans (Barrafreem et al., 2020). Moreover, these findings point towards a downward spiral of increasing disengagement from mounting financial problems. To tackle such a psychological poverty trap, researchers, practitioners, and policy makers might further address the psychological dimensions of financial scarcity and their relations with financial avoidance.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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