Marketing Science Institute Working Paper Series 2016
Report No. 16-129

Rumination and Financial Decision Making among the Poor

Gita Venkataramani Johar, Rachel Meng, and Keith Wilcox

"Rumination and Financial Decision Making among the Poor" © 2016 Gita Venkataramani Johar, Rachel Meng, and Keith Wilcox; Report Summary © 2016 Marketing Science Institute

MSI working papers are distributed for the benefit of MSI corporate and academic members and the general public. Reports are not to be reproduced or published in any form or by any means, electronic or mechanical, without written permission.

Report Summary

The poor often make myopic financial decisions, such as overborrowing or taking on harmful loans. However, little is understood about why economically disadvantaged consumers behave myopically and how to reduce such tendencies.

In this article, Gita Johar, Rachel Meng, and Keith Wilcox identify one source of this behavior—financial rumination, or the tendency towards repetitive, persistent thoughts about a focal stressor (i.e., poverty) and its causes and consequences. Further, they test the effectiveness of two strategies for reducing ruminative thinking to improve financial decisions.

Evidence from four studies suggests that the poor (categorized as those with annual household income below $40K) chronically ruminate more on their financial concerns than the nonpoor, leading them to express greater present bias in monetary decisions and higher willingness to borrow from myopic debt sources (e.g., payday loans).

Isolating rumination as a driver of present bias enabled the researchers to derive and test interventions to reduce such behavior. Specifically, they found that diverting the poor's focus from money-related concerns to a different domain and increasing their perceptions of social support attenuated the tendency to make myopic financial decisions.

These results are of direct import for practitioners invested in improving the decision making of the poor. The repeated use of predatory financial services by this vulnerable population continues to exacerbate their position. Rather than explicitly counseling poor households to avoid the perils of dwelling on their economic situation, policymakers and financial empowerment firms may be better off incorporating "just-in-time" nudges that reduce ruminative thinking in the moment.

Gita V. Johar is the Meyer Feldberg Professor of Business, Rachel Meng is a doctoral candidate, and Keith Wilcox is the Meyer Feldberg Associate Professor of Business, Columbia Business School. Authorship order is alphabetical.

Acknowledgments
We thank the Qualtrics Behavioral Research Grant team, the Marketing Science Institute, Critical Mix, and the Columbia Business School Research Fund for generously supporting this research.

Introduction

Money is a source of great distress for many people, but the poor face financial deprivation on a persistent basis. Although they desire to improve their economic situation, these individuals often make suboptimal decisions that perpetuate their state of poverty. Specifically, the poor tend to engage in myopic financial behaviors that incur considerable costs in the future, such as overborrowing (Ananth, Karlan, and Mullainathan 2007), taking out predatory high-interest loans (Bertrand and Morse 201), and buying lottery tickets (Blalock, Just, and Simon 2007). Although liquidity constraints may explain some of these behaviors, the poor's failure to consider the longer-term consequences of their actions also plays a role. For example, a recent survey of consumers who use payday loans (Pew Charitable Trust 2013), a product often used by the poor, found that 86% of borrowers could not afford the average loan due to the exorbitant fees charged by lenders. Despite the availability of less costly sources such as family, friends, and bank loans, many borrowers do not turn to these alternatives until they are unable to pay back their unbanked loans. This behavior cannot be attributed to low credit scores alone, as many people reported having access to other (comparatively less riskier) means of funding beforehand, ultimately choosing them after experiencing frustration with lengthy indebtedness (Pew Charitable Trust 2013).

Recent research has argued that the poor's greater present bias may arise from cognitive impairment induced by resource scarcity (Mani et al. 2013; Shah, Mullainathan, and Shafir 2012). However, Carvalho, Meier, and Wang (2016) did not find evidence that a general deficit in cognitive functioning explains the poor's apparent myopia with regards to monetary outcomes. Other work has shown that the poor may even perform better than the affluent in certain contexts. For example, people from lower-income backgrounds who grew up in harsh or unpredictable environments displayed enhanced executive function (i.e., efficiently switching between different tasks) under conditions of current uncertainty (Mittal et al. 2015). While these different perspectives continue to inspire the debate on poverty and decision making, we know little about what factors affect the kinds of choices the poor make and what actions we can take to discourage them from engaging in myopic behaviors. Ascertaining why economically disadvantaged consumers are often more attracted to unfavorable loans, and hence how to reduce such inclinations, poses an important question for policymakers who seek to spur healthier financial choices.

The present research identifies rumination as one mechanism responsible for the poor's greater myopia. Rumination is defined as a mode of responding to distress that involves repetitively focusing on the source of distress, especially its causes and consequences (Nolen-Hoeksema 1991). We find that the poor are more disposed to chronically ruminate on their financial concerns than the nonpoor, making them more likely to borrow from myopic debt sources (e.g., payday loans) and display greater present bias in monetary decisions. Importantly, we demonstrate that factors shown to overcome rumination, such as distraction and increasing perceived social support, can reduce the poor's myopic preferences, including their interest in taking out harmful (high-interest) loans.

The rest of this article is organized as follows. First, we review literatures on financial scarcity and rumination as a cognitive response style. Next, we discuss the distinct role of rumination in explaining the relationship between poverty and myopic financial decision-making. We then present and test two strategies aimed at reducing ruminative thinking to improve decision making. Finally, we discuss the broader policy implications of these interventions from a consumer welfare perspective.

The Burden of Poverty

The poor are often attracted to financial means that improve their economic situation in the short run but which can (and often do) make them worse off in the future. As highlighted earlier, they are more likely to rely on predatory lending services such as payday loans, which often carry annual percentage rates exceeding 400%. The median consumer of these loans takes out an average amount of $350 but, because of repeat borrowing, pays over $450 in fees annually (Montezemolo 2013). Similarly, when low-income car owners have trouble meeting their financial obligations, they often turn to auto title loans that typically collect interest rates of over 300%, a pattern that the average borrower repeats eight times a year (Fox et al. 2013).

A burgeoning literature on the psychological consequences of poverty has challenged the view that the poor are inherently bad at financial decision-making. This line of research argues that being poor, or even feeling poor, leads to myopic preferences that reinforce poverty (Mani et al. 2013; Shah et al. 2012; Vohs 2013). For example, people who are situationally primed to feel resource-constrained are more likely to overborrow from the future, a finding posited to occur because the perception of scarcity impairs cognitive resources (Shah et al. 2012). More recently,

Carvalho and colleagues (2016) exploited a natural discontinuity in monetary resources by comparing the poor's judgments and decisions on a range of economic tasks before versus after payday. Before-payday participants appeared more present-biased for monetary rewards than those who had recently received their pay. However, unlike Mani and colleagues (2013), the authors found no differences in cognitive performance and decision-making biases before versus after payday.

While previous research has demonstrated that being (or feeling) poor can give rise to shortsighted behavior, there is little consensus on the factors that lead the poor to make myopic financial decisions. This article sheds light on a potential mechanism—financial rumination—that underlies the poor's impulsive economic decision-making. We develop this idea in the next section.

Rumination as a Cognitive Coping Strategy

Rumination

Consider the following scenario: You are driving to work and, on the way there, your car breaks down. What kinds of thoughts run through your mind? For many, taking the car to the repair shop is an inconvenience that otherwise poses little threat to one's general financial or psychological wellbeing. But for those who inhabit the cusp of poverty, doing so may mean sacrificing the next meal or being unable to pay this month's rent. The economically-strained face these and other dilemmas on a recurring basis, leaving little room for unanticipated setbacks. For this reason, relative to transitory or situationally induced states of resource deprivation, poverty constitutes a persistent source of distress.

Confronting life's demands invariably motivates efforts to cope with the cognitive and emotional strains they summon (Lazarus and Folkman 1984). One way that people cope with chronic stressors is through *rumination*, defined as "a mode of responding to distress that involves repetitively and passively focusing on symptoms of distress and on the possible causes and consequences of these symptoms" (Nolen-Hoeksema 1991). Unlike similar cognitive processes such as worry, which engages people in mental problem-solving on issues featuring uncertain outcomes, those who ruminate tend to fixate on their current problems and feelings, adopting a past- or present-oriented perspective (for a review, see Nolen-Hoeksema, Wisco, and

Lyubomirsky 2008). Prior research has distinguished between two subtypes of ruminative thinking: *reflection,* which involves a more adaptive, contemplative state, and *brooding,* characterized by a perseverative focus on self-related negative thoughts and widely regarded as a maladaptive process (Treynor, Gonzalez, and Nolen-Hoeksema 2003). In this article, we refer to the latter when discussing rumination.

Dwelling on one's concerns is not always bad (e.g., Martin and Tesser 1996), but doing so excessively can often impose harmful consequences. A large body of work implicates habitual rumination as a core risk factor for clinical depression, among other psychopathologies and emotion dysregulation disorders such as general anxiety, posttraumatic stress, binge eating and drinking, and self-harm (Nolen-Hoeksema et al. 2008). Rumination inductions have also been shown to interfere with people's executive processing and mental concentration, causing them to dwell on negative thoughts about past failures (Lyubomirsky, Kasri, and Zehm 2003; Watkins and Brown 2002). Other work suggests that memory and attentional biases predispose ruminators, particularly patients with depression, to selectively devote sustained attention to negative stimuli (Donaldson, Lam, and Mathews 2007).

We posit that the excessive aversive thoughts about money that are likely to be more accessible amongst the poor will lead them to display greater financial myopia than their more affluent counterparts. Several studies have associated rumination with greater impulsivity (e.g., Lisjak et al. 2015; Selby et al. 2016) but have not directly examined this relationship in a financial domain. Chronic ruminators are prone to negative urgency, characterized by a tendency to act rashly (i.e., engage in suicidal ideation) when experiencing negative emotions (Valderrama, Miranda, and Jeglic 2016). In particular, the aversiveness of their negative thoughts leads these individuals to take immediate action aimed at reducing their negative affect, often without thinking about longer-term consequences. Thus, if the poor chronically ruminate about their finances, they should behave more myopically when faced with options that alleviate their financial distress. Such a tendency can manifest in monetary choices that improve their immediate situation, even if these decisions leave them worse off in the future.

Reducing rumination

If indeed rumination—and its accompanying negative cognitions—partly underlies the poor's attraction and susceptibility to myopic financial behaviors, interventions that reduce this

tendency should attenuate present bias while making a focal decision. Drawing upon previous research on successful approaches to inhibit rumination, two viable strategies we subsequently explore are distraction (study 2) and social support (study 3). Specifically, shifting attention from a focal stressor has successfully increased mood among chronic ruminators such as depressed patients (Nolen-Hoeksema and Morrow 1993). By a similar token, other work in the social support literature finds that inducing the perception of a supportive network can buffer against the negative affect and stress experienced by populations who tend to ruminate more (e.g., Dunkel-Schetter and Bennett 1990; Puterman et al. 2010). Although these interventions appear to operate quite differently, both reduce the negativity of thoughts and emotions the poor experience in the moment, in turn eliminating the effects of ruminative thinking on myopia.

In sum, this article tests the hypothesis that the poor exhibit more myopic financial behaviors in part because of a greater predisposition towards rumination. To the extent that ruminative thinking about finances accounts for monetary impulsivity among the poor, interventions that reduce this excessive focus on negative financial thoughts are likely to mitigate these shortsighted behaviors.

Overview of Studies

We tested our propositions in four studies that examine the decision making of the poor compared to the nonpoor. A critical question concerns the definition of who is "poor." The official poverty line in the U.S. has traditionally been designated as three times the cost of a minimum food diet in 1963; this equates to an average threshold of just over $15,000 and $24,000 for a family of two and four, respectively (U.S. Census Bureau 2014). However, limiting analyses to households that fall below the federal poverty line omits a substantial swathe of the population we are interested in studying. To encompass struggling lower-middle class individuals who are "near poor," we categorized participants in our studies as poor if they reported an annual household income below $40,000. This threshold has been adopted in previous research (e.g., Carvalho et al. 2016) and is supported by our data (pilot study). Additionally, such a threshold comports with the supplemental poverty measure (SPM) developed by the U.S. Census (2014), which incorporates a broader indicator of economic wellbeing by defining poverty in terms beyond eligibility for government programs alone. Although not severely destitute, the 40% of U.S. households who make under $40,000 per year

experience significant economic insecurity; their precarious situations are such that one setback may plunge them into poverty (Kearney et al. 2013). Moreover, these households are more likely to seek out myopic, predatory loans compared to those who make over $40,000 (Pew Charitable Trust 2013).

Four studies provide convergent evidence that implicates rumination in the poor's tendency to make more present-biased financial choices. A pilot study finds that the poor are more likely to cope with their situation by ruminating on their finances compared to other response strategies such as cognitive avoidance. This proclivity towards rumination in turn is associated with their greater propensity to take on various forms of myopic debt. Study 1 further demonstrates that the poor (vs. nonpoor) display present bias in monetary decisions due to their heightened chronic rumination both when the decisions involve gains (receiving money) and losses (repaying money) while simultaneously ruling out cognitive impairment as an alternative explanation. The next two studies test the effectiveness of interventions designed to reduce the poor's excessive focus on negative thoughts immediately before making a focal decision: one that distracts attention away from financial concerns (study 2) and one that increases perceived social support (study 3). We find that both strategies are effective at reducing the poor's myopic financial decision-making.

Pilot Study: Poverty and Financial Rumination

The evidence presented thus far suggests that the poor should be more likely to cope with their economic condition by turning to repetitive, persistent thoughts about the focal stressor (i.e., poverty). The pilot study sought to test whether the poor tend to spontaneously respond to their financial situation by ruminating, and to confirm that they more likely to use "myopic" loan products that feature excessively high interest rates (e.g., payday loans). A secondary goal was to examine whether the $40,000 income threshold for categorizing the poor versus nonpoor (as borrowed from previous literature and industry practice) is substantiated in our data.

Method

Participants and design. We recruited 207 paid U.S. respondents from Amazon Mechanical Turk (MTurk) with at least a 96% approval rating. Although in other studies we also draw from another panel, MTurk confers a suitable and reliable population pool with which to investigate

our decision-making variables of interest (e.g., Goodman, Cryder, and Cheema 2013). We excluded data from those who failed an attention check (n = 13), although the results are robust to their inclusion. The final sample consisted of 194 participants.

Procedure. Respondents first reported their annual household income (ranging from below $20,000 to $200,000 or above in increments of $20,000) among other basic demographic questions (e.g., age and gender). Then, participants completed a "personality questionnaire" that included a rumination measure, among other embedded individual differences. To capture rumination, we administered a trait measure adapted for finances (Scott and McIntosh 1999; Wade et al. 2008; see appendix 1). Participants rated their agreement (*1 = Strongly disagree*; *5 = Strongly agree*) with 12 items such as "I can't stop thinking about my finances," "Memories about my finances have limited my enjoyment of life," "I try to figure out the reasons for my financial situation," and "I often get distracted from what I'm doing by thoughts about finances" ($\alpha = .78$).

Participants next completed a "financial experiences" section that asked them about their past financial behaviors such as recent loan activity and spending patterns. We selected these measures from the Survey of Consumer Finances (Federal Reserve 2013) and the National Financial Capability Study (FINRA Investor Education Foundation 2012). Included in the section were items asking whether participants had borrowed money or purchased products within the past five years from five different sources that tend to charge high-interest rates: an auto title loan, a payday loan, a refund anticipation loan, a pawn shop, and a rent-to-own store. We recorded the use of these loan products to validate that the poor (classified as individuals whose annual household income falls below $40,000) are indeed more likely to take advantage of such services.

Results

Sample characteristics. Participants were on average 34.3 years old and 45% male. The distribution of household income was nationally representative, albeit slightly skewed towards lower-income individuals, with 42% of respondents falling below $40,000 a year. Because those earning at least $100,000 accounted for only 6% of the sample (n = 12), we collapsed the last four brackets.

Rumination by income. As noted earlier, our decision to categorize respondents as poor (below $40,000) versus nonpoor ($40,000 or above) was based on previous research, industry practice, and consumer behavior (i.e., individuals falling below the threshold being more likely to take out predatory loans). However, as figure 1a (Figures follow References throughout) illustrates, we also noticed that a pronounced discontinuity in rumination occurs between the second and third brackets (i.e., between $20,000-$39,999 and $40,000-$59,999) compared to the remaining brackets (all categories from $60,000 and above). That is, participants just below the $40,000 annual household income threshold reported a higher degree of financial rumination compared to those just above the threshold. We conducted two analyses to understand whether this discontinuity supported our decision to dichotomize income.

In the first analysis, we conducted an ANOVA using Helmert coding for planned comparisons, allowing us to test whether the mean rumination and avoidance scores of an income category significantly differed from the combined mean of subsequent categories (i.e., those higher in income). Thus, we were able to determine whether there exists a point in the data where an increase in income no longer had a significant influence on rumination and cognitive avoidance. On the financial rumination measure, the means of income category 1 (below $20,000; Wald $\chi^2(1) = 13.43$, $p < .001$) and income category 2 ($20,000 to $39,999; Wald $\chi^2(1) = 6.58$, $p = .01$) were significantly different from those of subsequent categories. No other categories were significantly different from those of subsequent ones.

Although the results of the first analysis support dichotomizing income, our second analysis explicitly tested whether a restricted model using dichotomized income (below $40k vs. $40k or above) fits our data better than a model using every income category. We separately regressed each coping strategy on income when it was dichotomized versus when it included all income categories (with each category dummy coded). We then conducted an F test to determine whether the residual sum of squares for the dichotomized model was substantially larger than the one including every income category, with the null hypothesis assuming the dichotomized model to be correct. The results confirmed the null hypothesis for rumination ($F(4, 188) = .74$, NS), lending additional support to the decision to dichotomize income.

Myopic debt usage by income. As with rumination, we observed a similar discontinuity in myopic debt usage between the second and third income brackets (i.e., $20,000-$39,999 and $40,000-$59,999) compared to the remaining ones. That is, participants just below the $40,000

threshold reported taking out more myopic debt products compared to those just above the threshold (figure 1b). An F test comparing the residual sums of squares for the dichotomized-income versus full-income model again confirmed the former to be correct ($F(4, 188) = .31$, NS). Taken together with the distribution observed for rumination, these results further validate the treatment of income in binary terms.

Rumination. Income category dichotomized at $40,000 (1 = poor, 0 = nonpoor) predicted rumination levels ($B = .46$, $SE = .12$, $t(192) = 3.92$, $p < .001$). Hence, the poor are more disposed to ruminate about their finances compared to the nonpoor.

High-interest debt usage. Compared to the nonpoor, the poor were more likely to have used at least one category of high-interest debt within the past five years (37% vs. 21%; $\chi^2(1) = 5.32$, $p = .02$). Additionally, the poor made use of more debt categories ($M = .73$) than the nonpoor ($M = .30$; $B = .44$, $SE = .12$, $t(192) = 3.56$, $p < .001$). A mediation analysis found rumination mediated the effect of income on both the likelihood of taking on high-interest debt and the number of debt categories used. However, this analysis is limited by our inability to determine causality because the measure of high-interest debt captured past behavior—namely, current financial rumination patterns could plausibly have been influenced by using high-interest debt rather than the other way around—, so we omit reporting these results.

Discussion

The results of the pilot study indicate that the poor are more likely to ruminate on their finances and have a greater propensity to engage in myopic financial behavior (i.e., taking out high-interest loans). Moreover, the distribution of both rumination and debt usage as a function of income categories support a dichotomization of the "poor" at the $40,000 threshold. We next proceeded to replicate these findings using a measure that captures momentary financial impulsivity to better address the causality concern from measuring past loan usage raised in the pilot study.

Study 1: Financial Rumination and Impulsivity

Study 1 aimed to replicate the result of the pilot study that the poor tend ruminate on their financial concerns as a coping mechanism. In addition to measuring past borrowing history, we examined whether the poor would exhibit more myopic preferences on a situational measure of

economic impulsivity. Thus, we build on the suggestive evidence from the previous study to show that financial rumination leads the poor to engage in present-biased financial behaviors. Moreover, although we anticipated the poor to perform worse than the nonpoor on a general measure of cognitive ability, we did not expect this difference to explain subsequent impatience with regards to monetary outcomes.

Method

Participants and design. Using an online panel managed by a market research firm, we recruited individuals screened to be a representative sample of the U.S. population based on income. We obtained responses from 845 people who passed an income consistency check (i.e., participants whose reports of their annual household income matched across two questions). We excluded data from 315 individuals who failed an attention check adapted from the Instructional Manipulation Check (IMC; Oppenheimer, Meyvis, and Davidenko 2009). Thus, the final sample consisted of 530 respondents. Note that 37% of our sample failed the attention check, a proportion that falls within the range (14-46%) documented by Oppenheimer and colleagues. Nevertheless, the pattern of results throughout our studies remains identical when we do not make any exclusions.

Procedure. Participants completed a study described as an aggregate of several unrelated surveys. In the first task, participants completed an intertemporal choice titrator, a general measure of economic myopia composed of a series of choices between a smaller, immediate amount of money and a larger, delayed sum (appendix 2; for a similar paradigm, see Green, Fry, and Myerson 1994). We administered, between-subjects, two versions of the titrator: one that involved receiving money (gain frame) and one that involved paying money (loss frame). In the gain frame, participants decided between receiving a reward of $500 today and each of eleven larger sums of money (between $525 and $1100) six months in the future. In the loss frame, participants decided between paying out $500 today and the same eleven larger sums of money in six months. Hence, myopic behavior was represented by a greater preference for smaller-sooner rewards in the gain scenario but a lower preference for smaller-sooner payments in the loss scenario. We recorded the number of smaller-sooner options each individual chose as our measure of myopic behavior.

While we expected the poor to display more myopic behavior across the two decision frame versions, we included the two variants to account for the possibility that the poor may be more sensitive to gaining compared to giving up money. Further, while the discounting literature has tended to measure myopia by eliciting sensitivity to monetary rewards (i.e., gain frame), this does not capture the long-term cost associated with taking on debt (i.e., loss frame) that motivates our research. Given our research context, we chose to include the loss frame as well.

Afterwards, participants completed the Cognitive Reflection Task (CRT; Frederick 2005) to rule out differences in cognitive performance as an alternative explanation. Consisting of three word problems whose correct answer requires suppressing an intuitive responsive (e.g., "If it takes 5 machines 5 minutes to make 5 widgets, how long does it take 100 machines to make 100 widgets?"), the CRT has been shown to be a reliable measure of general cognitive performance and impaired decision-making (Toplak, West, and Stanovich 2011). Next, in a "personality questionnaire" section, we administered the measure of chronic financial rumination used in the pilot study ($\alpha = .88$). Finally, in a "financial experiences" section, participants reported their annual household income and answered the same high-interest debt questions from the pilot study (i.e., past loan usage).

Results

Sample characteristics. Participants were on average 52.4 years old and 48% male. The distribution of household income was nationally representative and similar to that reported by the U.S. Census Bureau (2014). Thirty-nine percent of respondents reported an annual household income below $40,000. Similar to the pattern obtained for past borrowing behavior in the pilot study, the poor were more likely than the nonpoor to report that they had taken out at least one category of high-interest debt (e.g., payday loans) within the last five years (25% vs. 10%; $\chi^2(1) = 21.6$, $p < .001$), as well as more categories of these loans (B = .20, SE = .048, t(528) = 4.18, $p < .001$).

Cognitive performance. Respondents scored an average of .69 on a scale from 0 to 3 on the CRT. However, the poor (M = .44) scored considerably worse than the nonpoor (M = .83; t(528) = 4.6, $p < .001$). Consequently, to rule out cognitive impairment as an alternative explanation, we control for differences in CRT scores in subsequent analyses, although all results hold with and without CRT.

Smaller-sooner options chosen. Following common practice in research on time discounting (e.g., Ahlbrecht and Weber 1997; Hardisty et al. 2013), we excluded data from people who gave inconsistent responses on the intertemporal choice task (n = 13) because such reversals signal inattention. A response is defined as inconsistent if a respondent switched their preferences more than once over the 11 possible choices (e.g., a person who prefers receiving $500 today to $525 in 6 months, $550 in 6 months to $500 today, but $500 today to $575 in 6 months). Including these individuals does not change the results.

We analyzed the number of smaller-sooner options chosen out of the 11 choices by fitting a binary logistic function because this measure is a count of responses across a fixed number of trials. Compared to estimating implied discount rates, using a proportional score does not assume a theoretical model (e.g., a hyperbolic function) and is easier to interpret without sacrificing validity or reliability (Myerson, Baumann, and Green 2014). A generalized linear model on smaller-sooner choices with titrator frame (gain vs. loss) and income (poor vs. nonpoor) as factors revealed a significant effect of frame (Wald $\chi^2(1) = 1121$, $p < .001$) such that participants were less likely to select smaller-sooner over larger-later options when they functioned as rewards compared to payments. This pattern is consistent with previous research that has found greater discounting of delayed rewards compared to delayed costs (Murphy, Vuchinich, and Simpson 2001).

The effect of frame was qualified by a frame × income interaction (Wald $\chi^2(1) = 19.78$, $p < .001$; see figure 2). Within each titrator frame, the simple effects of income revealed that the poor exhibited greater myopia compared to the nonpoor in the gain frame ($M_{poor} = 4.64$ vs. $M_{nonpoor} = 3.84$; Wald $\chi^2(1) = 16.03$, $p < .001$; higher numbers indicate more myopic preferences) as well as in the loss frame ($M_{poor} = 9.27$ vs. $M_{nonpoor} = 9.66$; Wald $\chi^2(1) = 6.69$, $p = .01$; lower numbers indicate more myopic preferences). In other words, the poor were more willing to both receive money sooner and pay off money later. These patterns hold when we include CRT scores in the model (Wald $\chi^2(1) = 2.94$, $p = .09$).

Mediation by rumination. Following Zhao and colleagues' (2010) approach, we found financial rumination to mediate the relationship between income (1 = poor, 0 = nonpoor) and situational monetary impulsivity (number of smaller-sooner options chosen, 0-11). The index of moderated mediation from a bootstrap analysis with 5,000 samples was negative and significant (index = -.55, SE = .18, 95% CI [-.97, -.25]). In the indirect path, income affected rumination

levels: Being poor relative to nonpoor increased financial rumination by .44 units on a 1 to 5 scale (M_{poor} = 3.01 vs. $M_{nonpoor}$ = 2.57; SE = .07, 95% CI [.30, .58]). The rumination × frame interaction negatively predicted the number of smaller-sooner options (B = -1.25, SE = .34, 95% CI [-1.93, -.58]). Holding constant income, a unit increase in rumination increased the number of smaller-sooner options chosen by 1.85 units, while exposure to the loss relative to gain frame (1 = loss, 0 = gain) increased the number of smaller-sooner options by 9.03 units. Holding constant rumination, however, the effect of the income × frame interaction on smaller-sooner options chosen disappears (B = -.63, SE = .57, 95% CI [-1.76, .49]). The conditional indirect path confirms that in the gain frame, rumination positively predicted the number of smaller-sooner choices (indirect effect = .26, SE = .12, 95% CI [.047, .55]; direct effect = .61, SE = .39, 95% CI [-.15, 1.37]), while in the loss frame, rumination negatively predicted the number of smaller-sooner choices (indirect effect = -.29, SE = .11, 95% CI [-.56, -.09]; direct effect = -.024, SE = .42, 95% CI [-.86, .81]). In other words, rumination made participants both more likely to choose sooner smaller rewards and less likely to payoff more immediate, smaller amounts of debt.

Further, a model with rumination and performance on the CRT as dual mediators again found rumination to mediate the effect of income on choice of smaller-sooner options in both the gain frame (indirect effect = .25, SE = .12, 95% CI [.029, .53]) and loss frame (indirect effect = -.28, SE = .11, 95% CI [-.53, -.08]). By contrast, CRT scores mediated only in the gain frame (indirect effect = .17, SE = .09, 95% CI [.025, .39]) but not loss frame (indirect effect = -.07, SE = .06, 95% CI [-.21, .043]). So, while cognitive impairment may partly account for why the poor exhibit greater present bias, it did not dilute the role of rumination in the model, nor did it comprehensively explain myopic preferences for both rewards and payments.

Discussion

Study 1 demonstrates that the poor are more myopic than the nonpoor with respect to monetary gains and losses, a behavior that stems from a chronic tendency to ruminate on their finances. Cognitive impairment does not appear to explain this finding, as it holds when accounting for the differences in CRT scores between the poor and the nonpoor.

Note that participants reported their household income immediately before the high-interest debt measure, well before completing the intertemporal choice titrator that was administered first. Since the effects on the proportion of smaller-sooner options chosen do not appear to

depend on first making financial concerns "salient," it is likely that the poor may habitually harbor monetary concerns by default.

Having shown financial rumination to be a source of present bias among economically disadvantaged individuals, the remaining studies test interventions to curb their myopic financial decision-making by leveraging this insight and reducing rumination. In study 2, we examine whether diverting the poor's attention to a nonfinancial domain can help them ruminate less and subsequently become less attracted to unfavorable loans. Study 3 tests whether elevating perceptions of social support can similarly attenuate the appeal of harmful debt. We discuss each strategy in turn.

Study 2: Inducing Distraction

One way to inhibit ruminative thinking is by distraction, or diverting people's attention from the source of stress (Martin and Tesser 1996). Distraction inductions that shift focus away from negative thoughts have found success in attenuating many undesirable outcomes associated with chronic rumination, such as lifting mood among depressed patients (Nolen-Hoeksema and Morrow 1993). In study 2, participants were prompted to either think about their financial concerns (rumination condition) or about their limited time (distraction condition) prior to reporting their interest in taking out a series of myopic debt products. Although time constraints can often be a source of stress, a pretest indicated that time scarcity does not provoke as much negative affect or ruminative thinking as financial concerns, particularly among the poor (see web appendix 1). Thus, to the extent that distraction lowers rumination on a focal stressor (poverty), we expected that directing the poor's attention away from their financial concerns would reduce their negative thoughts, rendering them less myopic in their financial decisions.

Method

Participants and design. We recruited 389 paid U.S respondents from Amazon Mechanical Turk (MTurk) with at least a 96% approval rating. We excluded data from those (n = 50) who failed at least one of two attention checks. The final sample consisted of 339 participants randomly assigned, between-subjects, to either a rumination or distraction condition.

Procedure. Participants first reported their annual household income (corresponding to the same brackets used in previous studies), among other basic demographic questions. Everyone

then completed a "news evaluations" task described as investigating how people read the news. To encourage engagement, we told everyone to expect questions about the content afterwards. Participants read one of two articles corresponding to their condition. Those in the rumination condition read a recent article describing how most Americans are worried about their economic security (adapted from *Time Magazine*; Weisser and Renzulli 2014). By contrast, those in the distraction condition read an article describing how most Americans as worried about their limited time. With the exception of the domain, the content and format of these articles were identical (see appendix 3). Participants next evaluated a series of filler items on how readable, well written, and interesting they perceived the article to be.

Afterwards, participants rated their current level of interest (*1 = Not at all interested*; *7 = Extremely interested*; $\alpha = .85$) in taking out the same series of harmful loan products enumerated in the previous two studies, which served as our primary measure of myopic behavior. To screen for familiarity, we asked people to specify whether they recognize what a given loan type meant. We next administered the same intertemporal choice discounting task from study 2 (using only the gain frame) as a second measure of myopic preferences. Note that unlike past borrowing behavior (e.g., having taken out a payday loan), both dependent variables of interest capture momentary present focus. As such, these measures elicit responses that would not be a cause of chronic rumination.

As a manipulation check, everyone then indicated how much the article they read made them feel worried about, concerned about, as well as focused on the causes or consequences of, their financial situation (*1 = Not at all*; *7 = A great deal*; $\alpha = .96$). To validate that the time article reduced focus on negative thoughts, participants also reported the valence of their thoughts (*1 = Mostly negative*; *7 = Mostly positive*) as they were reading the article about Americans (referred to as the "News Evaluation Task"). As attention and comprehension checks, we asked participants two questions at the end of the survey pertaining to the basic topic and headline of the news article they read, followed by the Instructional Manipulation Check (Oppenheimer, Meyvis, and Davidenko 2009) used in prior studies.

Results

Sample characteristics. Participants were on average 35.9 years old and 55% male. The distribution of household income was nationally representative, albeit slightly skewed towards lower-income individuals, with 41% of respondents falling below $40,000 a year.

Manipulation check. An ANOVA with income and condition found only a main effect of condition on the manipulation check of distraction induced by the article (figure 3; $F(1, 335) = 80.8$, $p < .001$). Regardless of their income, participants in the rumination condition who read the money article ($M = 4.71$) reported that doing so made them more worried about, concerned about, and focused on the causes and consequences of their finances compared to those in the distraction condition who read the time article ($M = 2.86$).

As expected, the distraction induction decreased the negativity of thoughts and feelings evoked while reading the new article. Regardless of income, participants in the distraction condition who read the time article ($M = 3.40$) reported feeling less negative in the moment compared to those in the rumination condition who read the money article ($M = 2.87$; $F(1,335) = 15.5$, $p < .001$).

Interest in myopic debt. We excluded data from participants who were unfamiliar with one or more of the high-interest debt options presented (n = 12) and, to normalize the data, whose responses exceeded three standard deviations below or above the sample mean (n = 7). Including these participants did not change the results.

Using an indexed measure of interest in myopic debt averaged across the different loan types, an ANOVA revealed main effects of distraction ($M_{rumination} = 1.94$ vs. $M_{distraction} = 1.60$; $F(1, 316) = 8.32$, $p = .004$) and income ($M_{poor} = 1.98$ vs. $M_{nonpoor} = 1.56$; $F(1, 316) = 12.7$, $p < .001$), qualified by a distraction × income interaction ($F(1, 316) = 5.39$, $p = .02$; see figure 4a).

Decomposing this interaction, an analysis of the simple effects of income on the two groups found that the poor ($M = 2.28$) expressed greater interest in taking on the harmful loans than the nonpoor ($M = 1.59$) immediately after they read the money article ($F(1, 316) = 16.4$, $p < .001$). However, there was no difference between the poor ($M = 1.67$) and the nonpoor ($M = 1.52$) after they were distracted by the time article ($F(1, 316) = .83$, NS). Additionally, the poor expressed less interest in taking on myopic debt when they read the time article compared to the money article ($F(1, 316) = 11.6$, $p = .001$). Thus, our distraction manipulation was effective at reducing the poor's loan intentions. No equivalent difference emerged among the nonpoor ($F(1, 316) = .19$, NS).

Smaller-sooner options chosen. We fit a binary logistic function to the number of smaller-sooner rewards chosen (out of 11 trials) in the intertemporal choice titrator (see figure 4b). A generalized linear model on this measure with article (time vs. money) and income (poor vs. nonpoor) as factors found an article × income interaction (Wald $\chi^2(1) = 3.77$, $p = .05$) and no main effects of either factor. An analysis of the simple effects of income across the two articles found that the poor (M = 4.41) chose a greater number of smaller-sooner rewards on the titrator than the nonpoor (M = 3.84) immediately after exposure to the money article (Wald $\chi^2(1) = 4.89$, $p = .027$). However, no difference in smaller-sooner rewards chosen by the poor (M = 4.01) compared to the nonpoor (M = 4.13) emerged upon exposure to the time article (Wald $\chi^2(1) = .23$, NS). The simple effects of condition by income level found a nonsignificant effect of reading the time article compared to the money article on the number of smaller-sooner rewards chosen by the poor (Wald $\chi^2(1) = 2.12$, NS). This nonsignificance may be a result of the manipulation being weaker at the point of time that this task was completed (after the interest in myopic debt measure). The nonpoor did not display any difference in their preference for smaller-sooner options across conditions (Wald $\chi^2(1) = 1.65$, NS).

Discussion

Study 2 found that distracting the poor from ruminating on financial concerns decreases the negativity of their thoughts and reduced subsequent myopic tendencies, as evidenced by both (a) an attenuated expressed interest in using harmful loan products and (b) less impulsivity on a monetary intertemporal choice task. Distraction, by contrast, did not lead to any behavior changes among the nonpoor. In study 3, we examined whether a different intervention—one that directly counters the negative affective thoughts which characterize rumination—may similarly attenuate the poor's myopic propensity. Further, to account for the possibility that reading the money article may have artificially inflated financial concerns for the poor, study 3 used a control condition that did not heighten such concerns beyond their natural baseline.

Study 3: Increasing Perceived Social Support

The maladaptive form of rumination involves, by definition, a cognitive preoccupation with the source of one's distress. However, an equally central facet concerns accompanying negative affective thoughts about the stressor. To this effect, one coping resource that has often mitigated

such feelings of negative emotions is social support—the instrumental, informational, and/or emotional assistance provided by significant others in an individual's life, including family members, friends, and coworkers (House et al. 1985). Previous research has found that social support is an effective coping mechanism against stressful events and their accompanying negative affect. Moreover, even the *perception* of available social support, induced by experimental manipulations, can help people improve mental health and overcome negative emotions in response to stress (Dunkel-Schetter and Bennett 1990).

Many studies identify social support as a predictor of mental health among populations who tend to chronically ruminate more, such as depressed patients or those who have suffered trauma (e.g., Kuehner and Buerger 2005; Nolen-Hoeksema and Davis 1999). Consistent with this perspective, research has shown that perceiving a supportive network can act as a buffer against rumination by reducing negative affective thoughts (Puterman et al. 2010). One simple and powerful measure of support is whether an individual has an intimate, confiding relationship. The perceived availability of confidants can often ease the effects of stressful experiences on a number of physiological and psychological outcomes, including anxiety and depression (for review, see Thoits 1995).

Study 3 sought to test whether experimentally varying perceived social support can reduce the negative thoughts and shield the poor from making myopic financial decisions. Prior to reporting their debt preferences, participants either did or did not think about confiding relationships in their social support network. To the extent that a stronger perceived support network buffers the spontaneous negative affect associated with ruminative thinking, the poor should become less myopic.

Method

Participants and design. We recruited 457 participants paid online respondents from MTurk using the same screening criteria as in study 2. We excluded data from those who failed an attention check (n = 20). The final sample consisted of 437 participants randomly assigned, between-subjects, to a control or social support treatment group.

Procedure. Participants first reported their household income and other baseline demographics. Those in the control group proceeded directly to the same dependent measure

used in study 2 which elicited their interest in taking on a series of myopic debt products (*1 = Not at all interested*; *7 = Extremely interested*; α = .80).

Before indicating their debt preferences, those in the social support condition first read the following prompt:

> Please think about people in your life with whom you currently have a confiding relationship.
>
> By *confiding,* we mean people you are very close to whom you would feel comfortable discussing personal matters with, including your **financial concerns and issues.**

Participants in this group then wrote down the initials of three people in their lives who currently fulfilled these criteria. To further reinforce feelings of perceived social support, we informed people that because they were able to list three people with whom they can discuss financial concerns with, they are likely to have a strong support network. Participants then indicated their willingness to take out each of the myopic debt products.

Afterwards, respondents completed a manipulation check where they rated their agreement on four items (*1 = Strongly disagree*; *7 = Strongly agree*; α = .87) pertaining to the strength of their social support networks (adapted from Zimet et al. 1988): "I have a strong social support network," "I have several people I can talk to about my problems," "I feel that there is no one I can share my most private worries and fears with," and "There are people who are around when I am in need." Unlike in study 3, we did not administer an intertemporal choice titrator. Finally, participants reported the valence of their thoughts (*1 = Mostly negative*; *7 = Mostly positive*) as they were completing the myopic debt measure (labeled as the "Preferences Task").

Results

Sample characteristics. Respondents were an average age of 35.4 years and 51% male. Forty-two percent of respondents reported a household income below $40,000.

Manipulation check. An ANOVA on the indexed measure of perceived social support revealed a main effect of condition ($M_{control}$ = 5.10 vs. $M_{support}$ = 5.42; F(1, 433) = 6.52, p = .01) and income (M_{poor} = 5.05 vs. $M_{nonpoor}$ = 5.48; F(1, 433) = 11.4, p = .001), but no interaction (F(1, 433) = 1.04, NS). Hence, although lower-income participants reported a comparatively weaker social support network overall, both the poor and nonpoor perceived a boost in support after completing the name-generation task compared to those in the control.

Additionally, analogous to the valence results of study 3, the social support manipulation induced greater positivity of thoughts: Those reminded of their confiding relationships (M =

4.22) reported feeling less negative while making their loan decisions compared to those who proceeded immediately to the primary task (M = 3.93; F(1, 433) = 3.37, p = .07).

Interest in myopic debt. As in study 2, we excluded participants who were unfamiliar with options presented on the debt measure (n = 17) and whose responses exceeded three standard deviations below or above the sample mean (n = 4). Figure 5 shows participants' interest in taking on a series of myopic loan products as a function of condition. An ANOVA on debt preferences revealed a main effect of income (M_{poor} = 2.30 vs. $M_{nonpoor}$ = 1.94; F(1, 412) = 9.50, p = .002), qualified by a marginally significant condition × income interaction (F(1, 412) = 2.83, p =.09).

The simple effects of income across the two conditions reveal that, in the control group, the poor (M = 2.48) expressed higher interest in taking on myopic debt than the nonpoor (M = 1.93; F(1,412) = 11.8, p = .001), a difference that disappears in the social support group (M_{poor} = 2.12 vs. $M_{nonpoor}$ = 1.96; F(1, 412) = .95, NS). As we did in study 2, it is appropriate to understand whether the social support treatment reduced the poor's debt preferences. An analysis of the simple effects of condition at each income level found that the poor indeed expressed less interest in taking on myopic debt when first reminded of their support network compared to the control (F(1, 412) = 4.07, p = .04). By contrast, the nonpoor remained relatively insensitive to the treatment with respect to their loan preferences (F(1, 412) = .05, NS).

Discussion

Study 3 found that increasing perceived social support reduced participants' focus on negative thoughts and decreased the poor's willingness to take on various forms of myopic debt. While the rumination condition in study 2 may have elevated financial concerns among the poor, thus provoking an increased interest in high-interest loans, we replicated these effects using a baseline where finances are not highlighted in advance. Analogous to the findings obtained in the previous study, the social support intervention did not change preferences among the nonpoor. These patterns are consistent with previous research establishing that supportive networks can combat the negative affective experiences associated with ruminative thinking (Puterman et al. 2010).

It is worth considering whether the initial-generation task we used in study 3 caused participants to think of their friends and family as a financial cushion or to feel more accountable

to others in their network, both of which may have similarly reduced the poor's attraction to myopic debt. To rule out this alternative explanation, we conducted a follow-up study on a separate sample from the same population ($N = 280$). Specifically, we gave participants the same social support manipulation used in study 3. Respondents then completed measures capturing perceived financial support (e.g., "I have people who can help me financially") and perceived accountability to others (e.g., "I feel the need to explain or justify my choices to others"). The results found that the social support manipulation indeed increased perceived social support but did not impact perceived financial support or accountability (see web appendix 2 for details).

Together with the patterns observed in study 2, these findings lend further support for a rumination-based account of the kinds of financial decisions the poor tend to make. Studies 2 and 3 impart additional insight into different interventions that may successfully reduce myopic decisions among this vulnerable population.

General Discussion

Recent decades have seen a resurgence of consumer financial decision-making research within the marketing community (e.g., Amar et al. 2011; Lynch 2011; Reinholtz, Bartels, and Parker 2015; Spiller 2011). This article contributes in particular to a nascent but accelerating literature on the effects of scarcity on judgment and decision making (e.g., Carvalho et al. 2016; Fernbach, Kan, and Lynch 2015; Gneezy and Imas 2015; Haushofer and Fehr 2014; Jachimowicz et al. 2016; Lynch, Spiller, and Zauberman 2015; Mani et al. 2013; Shah et al. 2012; Sharma et al. 2014). While several studies have examined countless consequences of subjective financial wellbeing (e.g., Sharma and Alter 2012), we focus on poverty as an objective, persistent state of deprivation. Recent work by Haushofer and Fehr (2014) integrates patterns across an array of sources that hint at a causal effect of poverty on psychological wellbeing (e.g., negative affect and stress), and of negative affect and stress on economic choices (e.g., impulsivity). As the authors attest, however, such links—especially the latter—are far from fully understood. We develop and refine these connections by furnishing causal evidence for one mechanism through which poverty may perpetuate itself.

Taken together, our findings suggest that the poor chronically ruminate on their financial concerns (pilot study), leading them to prefer myopic options in their financial decisions (studies 1 and 2). Isolating rumination as a driver of present bias enables us to derive and test

interventions that can reduce such behavior. Specifically, diverting the poor's focus from money-related concerns to a different domain (study 2) and increasing their perceptions of social support (study 3) attenuated myopic preferences such as taking out harmful (excessively high-interest) loans. These results are of direct import for practitioners invested in improving the decision making of the poor.

Rumination in the field

Several policy implications of the interventions we tested merit discussion. Notably, both distraction and social support are relatively subtle strategies intended to shift ruminative thinking just enough to alter preferences on an immediately upcoming task. The chronic nature of rumination limits the effectiveness of interventions that attempt to train the poor to cope differently with their financial distress over time. This observation echoes research in the financial education sector, which has found weak and short-lived effects of programs targeting financial literacy on redressing errors, particularly when directed at low-income population samples (Fernandes, Lynch, and Netemeyer 2014). Incorporating "just-in-time" nudges that reduce rumination in the moment, by contrast, is likely to hold promise. For example, rather than explicitly counseling poor households to avoid the perils of rumination, policymakers and financial empowerment firms may be better off implementing a system that sends a reminder (e.g., a text message that highlights social capital) immediately before an important financial decision. Programs that leverage text messaging as a platform have successfully aided people (particularly low-income groups) in repaying loans, improving creditworthiness, and saving more (Bracha and Meier 2014; Karlan, Morten, and Zinman 2016; Kast, Meier, and Pomeranz 2016). Future work is needed to better quantify and compare the effectiveness of scalable strategies to help the poor cope with their ruminative thinking.

Another feature of the interventions introduced in this article pertains to the domain-specific quality of rumination. Recall that the distraction treatment in study 2 asked participants not to suppress ruminating altogether but rather to channel their focus towards time-related (and away from money-related) considerations. Despite the potential for the time article to cue adverse self-relevant thoughts, the poor nevertheless displayed less myopic preferences upon exposure to the distraction induction. In other words, ruminating on a negatively valenced subject by itself is not sufficient to incite greater impulsivity. Instead, myopic financial behaviors among the poor

appear to be the product of ruminating on the particular stressor responsible for generating sustained, negative cognitions (i.e., poverty). That triggering concerns about limited time did not provoke successive concerns about money invites further scrutiny on the boundaries of cross-domain spillovers regarding resource scarcity.

Furthermore, it is useful to distinguish distraction from active suppression. If the poor focus too much on their financial concerns, an immediately obvious solution is simply to encourage them not to. Both prior research and common sense, however, cast doubt on the usefulness of such a strategy. Literature on the "ironic" processes of mental control has cautioned that inhibiting attention on a target thought often backfires, triggering the very cognitions we wish to suppress (in other words, if I tell you not to think about a white bear, you will invariably think about a white bear; Wegner 1994). The potential counterproductive effect of suppression suggests that policies which endeavor to constructively manage, rather than eliminate, ruminative thinking may be particularly fruitful.

Finally, although we label the decisions in our studies *myopic*, we do not style them as necessarily nonnormative in all circumstances. As Carvalho and colleagues (2016) argue, comparing the poor's implied discount rates with those of *homo economicus* (or even that of the average person) is not quite fair, as less affluent individuals may rightly experience a higher marginal utility of $1 today than $1 in the future. For a comparably more illiquid population, taking on unbanked loans carrying high interest rates may be appropriate if the alternative is worse, as may well be the case with the dilemmas faced by the destitute (e.g., taking out a predatory loan vs. not starving). Nevertheless, for many of the financial decisions encountered by those who face economically strained but less severely impoverished circumstances, opting for the first "solution" that bestows immediate benefits can be detrimental in the future, exacerbating their situation. Any program that seeks to alleviate long-run financial outcomes for the poor cannot be effective without taking into account the alternative solutions and opportunity costs they confront.

The adaptive side of rumination

While the studies described in this article demonstrate that greater financial rumination induces greater present bias and hurts the poor's ability to resist the appeal of harmful loans, whether rumination always hinders decision making is a different question. As outlined in the

introduction, ruminative thinking comprises two subtypes, of which one—*brooding*, or a passive dwelling on self-related negative thoughts—has been the focus in this article. Although rumination is generally regarded as a maladaptive coping strategy, evidence suggests that its *reflection* component—characterized by an active attempt to understand one's feelings—does not share the same predictive links to negative affect and depressive symptoms as its brooding counterpart (e.g., Treynor et al. 2003).

Given its multidimensional nature, we can imagine contexts under which rumination—or rather, the right kind of rumination—can lead to "good" decisions. If the poor's greater myopia stems from a tendency to perseveratively focus on the causes and consequences of their financial situation, then it is possible that interventions which encourage active examination of emotions and problem solving may reduce present bias. Inducing greater reflective (vs. brooding) rumination may spur people to take healthier financial actions they may otherwise not have considered, such as seeking guidance and advice after a negative income shock. Testing this proposition is a worthy direction for future research. Under what contexts rumination should be mitigated or reinforced poses an important balancing problem that researchers and policymakers must address.

Conclusions

We do not understand how the poor make decisions nearly as well as we should. Addressing this knowledge gap is especially timely as the segment of individuals who inhabit the stressful zone just above poverty has grown more numerous and concentrated than previously imagined. Despite a wealth of social welfare programs that endeavor to enact change and alleviate the chronic burdens of the economically disadvantaged, the cycle of poverty remains as entrenched as ever. The repeated use of predatory financial services by the poor continues to exacerbate their position. Insofar as financial rumination is one culprit behind such behaviors, research would benefit from a closer examination of remedies to manage this complex cognitive response style. Channeling focused initiatives to combat the psychological processes that reinforce poverty presents both a challenge and an opportunity if we are to improve prospects, however modestly, for the poor.

Appendix 1: Financial Rumination

Please indicate how much you agree or disagree with each of the statements below **in general**.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I can't stop thinking about my finances.	○	○	○	○	○
Memories about my finances have limited my enjoyment of life.	○	○	○	○	○
I have a hard time getting thoughts of my finances out of my head.	○	○	○	○	○
I try to figure out the reasons for my financial situation.	○	○	○	○	○
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
My finances are never far from my mind.	○	○	○	○	○
I find myself replaying events related to my finances over and over in my mind.	○	○	○	○	○
I often get distracted from what I'm doing by thoughts about finances.	○	○	○	○	○
I seldomly have difficulty concentrating on a current task due to finances.	○	○	○	○	○
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I rarely become "lost in thought" about my finances.	○	○	○	○	○
When I think about my finances, it makes me feel sad.	○	○	○	○	○
I become angry when I think about my finances.	○	○	○	○	○
I rarely get upset with myself about my finances.	○	○	○	○	○

NOTE.—Items 8, 9, and 12 are reverse-coded.

Appendix 2: Intertemporal Choice Titrator

Gain frame:

Imagine you are deciding between receiving **$500 today** OR **some amount** of money **6 months from today** (between $525 and $1100).

For **EACH** row, please indicate whether you prefer to receive the amount today (by clicking on the choice bubble to the left) or another amount in 6 months (by clicking on the choice bubble to the right).

Receive $500 today	○ ○	Receive $525 in 6 months
Receive $500 today	○ ○	Receive $550 in 6 months
Receive $500 today	○ ○	Receive $600 in 6 months
Receive $500 today	○ ○	Receive $650 in 6 months
Receive $500 today	○ ○	Receive $700 in 6 months
Receive $500 today	○ ○	Receive $750 in 6 months
Receive $500 today	○ ○	Receive $800 in 6 months
Receive $500 today	○ ○	Receive $850 in 6 months
Receive $500 today	○ ○	Receive $900 in 6 months
Receive $500 today	○ ○	Receive $1000 in 6 months
Receive $500 today	○ ○	Receive $1100 in 6 months

Loss frame:

Imagine you have just incurred a $500 expense and are deciding between paying **$500 today** OR **some amount** of money **6 months from today** (between $525 and $1100).

For **EACH** row, please indicate whether you prefer to pay the amount today (by clicking on the choice bubble to the left) or another amount in 6 months (by clicking on the choice bubble to the right).

Pay $500 today	○ ○	Pay $525 in 6 months
Pay $500 today	○ ○	Pay $550 in 6 months
Pay $500 today	○ ○	Pay $600 in 6 months
Pay $500 today	○ ○	Pay $650 in 6 months
Pay $500 today	○ ○	Pay $700 in 6 months
Pay $500 today	○ ○	Pay $750 in 6 months
Pay $500 today	○ ○	Pay $800 in 6 months
Pay $500 today	○ ○	Pay $850 in 6 months
Pay $500 today	○ ○	Pay $900 in 6 months
Pay $500 today	○ ○	Pay $1000 in 6 months
Pay $500 today	○ ○	Pay $1100 in 6 months

Appendix 3: "News Evaluation" Articles

*Money article [*Time article*]:*

Americans Worried About Their Personal Finances [Time]

It is clear that Americans remain deeply worried about their finances [*time*].

Consider: In a recent survey, nearly 66% of Americans said they were worried about their family's economic security [*how much time they have to get things done*]; roughly six in 10 Americans were anxious about how they would pay their health care costs [*how much free time they have*].

The majority fell behind on their savings [*outstanding work*] and almost three out of four were concerned that their money wouldn't last through retirement [*about their time management skills*]. Other recent studies have found similar concerns: New research from the Consumer Federation of America, for instance, found that only a third of Americans feel prepared for their long-term financial future [*to manage their weekly schedules*].

Speech pathologist Janel Butera, 47, is one who isn't counting on anything. "The economy [*My time management skills*] as a whole — I don't put a lot of faith in it," she says. "I'm not counting on getting any retirement help [*help*]."

Half of the respondents in the poll confessed to living paycheck to paycheck [*hour to hour*]; roughly six in 10 felt they didn't have enough money [*time*] set aside for emergencies [*free time*] and didn't think that they would find it easy to get another job if laid off [*time off*].

And almost all people, it seemed, felt like they'd need a higher income than they now earn to really be financially secure [*more free time than they now have to feel secure*]. No wonder that anxiety about how we'd cope with a real financial emergency [*an unexpected event*] tied with concerns about outliving retirement savings [*being too busy*] as the most prevalent money [*time*] worry.

In fact, money [*time*] has gotten tighter for many lately. Household income [*The number of hours worked*] has dipped 4.7% since the recession [*increased 4.7% in recent years*].

Web Appendix 1: Study 2 Pretest

Method

Participants and design. We recruited 195 paid online respondents from Amazon Mechanical Turk (MTurk) with at least a 96% approval rating that were located in the U.S. We excluded data from 11 people who failed an attention check. The final sample consisted of 184 respondents who completed a "personality questionnaire."

Procedure. Participants first reported their annual household income (corresponding to the same brackets used in previous studies), among other basic demographic questions. We then asked a series of questions related to their beliefs and attitudes towards time versus money: how scarce they perceive each resource (time vs. money) to be (*1 = Not at all scarce*; *7 = Very scarce*); how worried or anxious they generally feel about their finances versus time (*1 = Not at all worried*; *7 = Extremely worried*); and how positive or negative they feel when thinking about their financial versus time-related concerns (*1 = Very negative*; *7 = Very positive*). Afterwards, participants completed the same trait measure of financial rumination developed in study 2 (α = .93) as well as an analogous rumination measure adapted for time management (α = .90). Presentation order was counterbalanced across the two rumination scales.

Results and discussion

Sample characteristics. Participants were on average 33.6 years old and 59% male. Thirty-nine percent of respondents reported a household income below $40,000 a year.

Perceived scarcity. A mixed ANOVA on perceived scarcity with resource type (time vs. money) as a repeated measures factor and income (poor vs. nonpoor) as a between-subjects factor found a main effect of resource type ($F(1, 182) = 33.99$, $p < .001$) qualified by a resource × income interaction ($F(1, 182) = 16.11$, $p < .001$). An analysis of the simple effects of resource type within each level of income revealed that the poor perceived money ($M = 5.42$) to be more scarce compared to time ($M = 3.72$; $F(1, 182) = 39.80$, $p < .001$), whereas the nonpoor perceived both resources to be equivalently scarce ($M_{money} = 4.65$ vs. $M_{time} = 4.34$; $F(1, 182) = 2.11$, NS).

Worry and anxiety. A mixed ANOVA on generalized feelings of worry or anxiety with resource type (time vs. money) as a repeated measures factor and income (poor vs. nonpoor) as a between-subjects factor found a main effect of resource type ($F(1, 182) = 68.09$, $p < .001$)

qualified by a resource × income interaction ($F(1, 182) = 8.66$, $p = .004$). The simple effects of resource type within each level of income revealed that the poor reported feeling greater levels of worry and anxiety about their finances ($M = 5.19$) compared to their time ($M = 3.50$; $F(1, 182) = 51.47$, $p < .001$), as did the nonpoor ($M_{money} = 4.72$ vs. $M_{time} = 3.92$; $F(1, 182) = 18.01$, $p < .001$). However, the simple effects of income across resource types found that while the poor felt more worried than the nonpoor when it comes to financial matters ($F(1, 182) = 4.01$, $p = .047$), a weaker difference by income emerged for time-related matters ($F(1, 182) = 2.64$, $p = .11$).

Valence of mental content. Finally, a mixed ANOVA on positivity of mental content with resource type (time vs. money) as a repeated measures factor and income (poor vs. nonpoor) as a between-subjects factor found a main effect of resource type ($F(1, 182) = 40.45$, $p < .001$) qualified by a resource × income interaction ($F(1, 182) = 8.53$, $p < .001$). Analogous to the results obtained for worry and anxiety, the simple effects of resource type within each level of income revealed that the poor reported feeling less positively about their finances ($M = 2.64$) compared to their time ($M = 3.82$; $F(1, 182) = 35.38$, $p < .001$), as did the nonpoor ($M_{money} = 3.26$ vs. $M_{time} = 3.70$; $F(1, 182) = 7.56$, $p = .007$). However, the simple effects of income across resource types found that while the poor felt less positively than the nonpoor when it comes to financial matters ($F(1, 182) = 7.41$, $p = .007$), no such difference by income emerged for time-related matters ($F(1, 182) = .28$, NS).

Taken together, these results demonstrate that compared to the nonpoor, the poor are more likely to view their money (but not their time) as more scarce, feel greater levels of worry and anxiety about their money as opposed to their time, and harbor more negative thoughts and feelings in general toward their financial (vs. time-related) concerns.

Web Appendix 2: Study 3 Posttest

Method

Participants and design. We recruited 280 paid online respondents from Amazon Mechanical Turk (MTurk) with at least a 96% approval rating that were located in the U.S.

Procedure. Participants indicated their income and demographic information, followed by the same social support manipulation used in study 3 (i.e., generating three initials of people whom they have confiding relationships with).

Respondents then completed a series of manipulation checks corresponding to each explanation: (a) the same perceived social support trait measure introduced in study 3 (e.g., "I have several people I can talk to about my problems"), (b) a 3-item measure capturing the extent to which participants believe they can rely on others for financial support (e.g., "I have people who can help me financially"), and (c) a 3-item measure capturing the extent to which participants feel they are accountable to others in their social network (e.g., "I feel the need to explain or justify my choices to others"). Participants rated their agreement with statements for each measure on a 7-point Likert scale (*1 = Strongly disagree*; *7 = Strongly agree*).

Results and discussion

Income was positively correlated with each of the three candidate explanations (social support: r = .23, $p < .001$; financial support: r = .22, $p < .001$; accountability: r = .16, $p = .007$), indicating that the poor were overall less likely to engage in these coping mechanisms than the nonpoor. The three measures were additionally correlated with each other ($r_{ab} = .42$, $p < .001$; $r_{ac} = .13$, $p = .025$, $r_{bc} = .19$, $p = .002$).

A univariate ANOVA on the primary social support measure found a main effect of condition ($M_{control} = 4.87$ vs. $M_{support} = 5.58$; $F(1, 276) = 21.9$, $p < .001$) and income ($M_{<\$40k} = 4.88$ vs. $M_{\geq\$40k} = 5.57$; $F(1, 276) = 20.3$, $p < .001$), qualified by a condition × income interaction ($F(1, 276) = 9.96$, $p = .002$). Specifically, the simple effects of income across the two conditions reveal that the poor reported a lower level of social support than the nonpoor in the control group ($M_{<\$40k} = 4.29$ vs. $M_{\geq\$40k} = 5.45$; $F(1, 276) = 30.3$, $p < .001$), but this difference disappears in the social support group ($M_{<\$40k} = 5.48$ vs. $M_{\geq\$40k} = 5.69$; $F(1, 276) = .88$, NS). The initial-generation task indeed increased the poor's perceived social support ($F(1, 276) = 25.1$, $p < .001$),

whereas the nonpoor remained relatively insensitive to the manipulation ($F(1, 276) = 1.50$, NS). By comparison, income did not interact with the social support manipulation for either the financial support or accountability measures (financial support: $F(1, 276) = 1.0$, NS; accountability: $F(1, 276) = .73$, NS).

Therefore, insofar as social support decreases the poor's attraction toward high-interest loans, it appears to do so through an emotional reliance component rather than financial reliance or accountability. By providing an outlet with which to channel concerns and distress, an awareness of one's social capital may result in a substitution effect away from (the negative consequences of) rumination.

References

Ahlbrecht, Martin and Martin Weber (1997), "An Empirical Study on Intertemporal Decision Making Under Risk," *Management Science*, 43(6), 813-26.

Amar, Moty, Dan Ariely, Shahar Ayal, Cynthia E. Cryder, and Scott I. Rick (2011), "Winning the Battle but Losing the War: The Psychology of Debt Management," *Journal of Marketing Research*, 48(SPL), S38-S50.

Ananth, Bindu, Dean Karlan, and Sendhil Mullainathan (2007), "Microentrepreneurs and Their Money: Three Anomalies," http://karlan.yale.edu/sites/default/files/anomaliesdraft.v7.pdf.

Bertrand, Marianne, and Adair Morse (2011), "Information Disclosure, Cognitive Biases, and Payday Borrowing," *The Journal of Finance*, 66 (6), 1865–1893.

Blalock, Garrick, David R. Just, and Daniel H. Simon (2007), "Hitting the Jackpot or Hitting the Skids: Entertainment, Poverty, and the Demand for State Lotteries." *American Journal of Economics and Sociology*, 66 (3), 545–570.

Bracha, Anat and Stephan Meier (2014), "Nudging Credit Scores in the Field: The Effect of Text Reminders on Creditworthiness in the United States," Working Paper, Federal Reserve Bank of Boston.

Carvalho, Leandro S., Stephan Meier, and Stephanie W. Wang (2016), "Poverty and Economic Decision-Making: Evidence from Changes in Financial Resources at Payday," *American Economic Review,* 106(2), 260-84.

Donaldson, Catherine, Dominic Lam, and Andrew Matthews (2007), "Rumination and Attention in Major Depression," *Behaviour Research and Therapy,* 45 (11) 2664-78.

Dunkel-Schetter, Christine and Tracy L. Bennett (1990), "Differentiating the Cognitive and Behavioral Aspects of Social Support," in *Social Support: An Interactional View*, ed. Barbara R. Sarason, Irwin G. Sarason, and Gregory R. Pierce, Oxford, England: John Wiley & Sons, 267-96.

Federal Reserve (2013), *Survey of Consumer Finances*, http://www.federalreserve.gov/econresdata/scf/scfindex.htm.

Fernandes, Daniel, John G. Lynch, and Richard G. Netemeyer (2014), "Financial Literacy, Financial Education, and Downstream Financial Behaviors," *Management Science,* 60(8), 1861-83.

Fernbach, Philip M., Christina Kan, and John G. Lynch, Jr. (2015), "Squeezed: Coping with Constraint Through Efficiency and Prioritization," *Journal of Consumer Research*, 41(5), 1204-27.

FINRA Investor Education Foundation (2012), *National Financial Capability Study*, http://www.usfinancialcapability.org/.

Folkman, Susan and Richard S. Lazarus (1985), "If it Changes it Must be a Process: A Study of Emotion and Coping During Three Stages of a College Examination," *Journal of Personality and Social Psychology*, 48, 150-70.

Fox, Jean Ann, Tom Feltner, Delvin Davis, and Uriah King (2013), "Driven to Disaster: Car-Lending and Its Impact on Consumers," *Center for Responsible Lending*, http://dx.doi.org/10.2139/ssrn.2227162.

Frederick, Shane (2005), "Cognitive Reflection and Decision Making," *Journal of Economic Perspectives*, 19(4), 25-42.

Gneezy, Ayelet and Alex Imas (2015), "Poverty as Helplessness: How Loss of Control Affects Impulsivity and Risk-Taking," in *NA – Advances in Consumer Research*, 43, eds. Kristin Diehl and Carolyn Yoon, Duluth, MN: Association for Consumer Research, 208-11.

Goodman, Joseph K., Cynthia E. Cryder, and Amar Cheema (2013), "Data Collection in a Flat World: The Strengths and Weaknesses of Mechanical Turk Samples," *Journal of Behavioral Decision Making*, 26(3), 213-24.

Green, Leonard, Astrid F. Fry, and Joel Myerson (1994), "Discounting of Delayed Rewards: A Life-span Comparison," *Psychological Science,* 5(1), 33-6.

Hardisty, David J., Katherine F. Thompson, David H. Krantz, and Elke U. Weber (2013), "How to Measure Time Preferences: An Experimental Comparison of Three Methods," *Judgment and Decision Making,* 8(3), 236-49.

Haushofer, Johnannes and Ernst Fehr (2014), "On the Psychology of Poverty," *Science*, 344(6184), 862-7.

House, James S., Robert L. Kahn, Jane D. McLeod, and David Williams (1985), "Measures and Concepts of Social Support," in *Social Support and Health*, ed. Sheldon Cohen and S. Leonard Syme, Orlando, FL: Academic, 83-108.

Jachimowicz, Jon M., Salah Chafik, Sabeth Munrat, Elke U. Weber, and Jaideep Prabhu (2016), "Materially Poor and Socially Rich: How Community Trust Protects Low-Income Groups from Myopic Decisions," Working Paper, Columbia Business School.

Karlan, Dean, Melanie Morten, and Jonathan Zinman (2016), "A Personal Touch: Text Messaging for Loan Repayment," *Behavioral Science and Policy*, forthcoming.

Kast, Felipe, Stephan Meier, and Dina Pomeranz (2016), "Saving More in Groups: Field Experimental Evidence from Chile," Working Paper, Harvard Business School.

Kearney, Melissa, Benjamin Harris, Elisa Jáconne, and Lucie Parker (2013), "A Dozen Facts about America's Struggling Lower-Middle Class," *Policy Memo, The Hamilton Project,* Washington, DC: *Brookings Institution*.

Kuehner, Christine and Christin Buerger (2005), "Determinants of Subjective Quality of Life in Depressed Patients: The Role of Self-Esteem, Response Styles, and Social Support," *Journal of Affective Disorders*, 86, 205-13.

Lazarus, Richard S., and Susan Folkman (1984), *Stress, Appraisal, and Coping*, New York, NY: Springer.

Lisjak, Monika, Andrea Bonezzi, Soo Kim, and Derek D. Rucker (2015), "Perils of Compensatory Consumption: Within-Domain Compensation Undermines Subsequent Self-Regulation," *Journal of Consumer Research,* 41(5), 1186-1203.

Lynch, John G., Jr. (2011), "Introduction to the *Journal of Marketing Research* Special Interdisciplinary Issue on Consumer Financial Decision Making," 48(SPL), Siv-Sviii.

Lynch, John G., Jr., Stephen Spiller, and Gal Zauberman (2015), "Resource Slack: A Theory of Perceived Supply and Demand," in *NA - Advances in Consumer Research*, 43, eds. Kristin Diehl and Carolyn Yoon, Duluth, MN: Association for Consumer Research, 74-9.

Lyubomirsky, Sonja, Fazilet Kasri, and Keri Zehm (2009), "Dysphoric Rumination Impairs Concentration on Academic Tasks," *Cognitive Therapy and Research,* 27 (3), 309-330.

Mani, Anandi, Sendhil Mullainathan, Eldar Shafir, and Jiaying Zhao (2013), "Poverty Impedes Cognitive Function," *Science*, 341(6149), 976-80.

Martin, Leonard L., and Abraham Tesser (1996), *Ruminative Thoughts,* Mahwah, NJ: Lawrence Erlbaum.

Mittal, Chiraag, Vladas Griskevicius, Jeffry A. Simpson, Sooyeon Sung, and Ethan S. Young (2015), "Cognitive Adaptations to Stressful Environments: When Childhood Adversity Enhances Adult Executive Function," *Journal of Personality and Social Psychology*, 109(4), 604-21.

Montezemolo, Susanna (2013), "Payday Lending Abuses and Predatory Practices," *The State of Lending in America & Its Impact on U.S. Households, Center for Responsible Lending*, http://ssrn.com/abstract=2391403.

Moos, R. H. (1988). *Coping Responses Inventory Manual*, Palo Alto, CA: Stanford University and Department of Veterans Affairs Medical Centers.

Murphy, James G., Rudy E. Vuchinich, and Cathy A. Simpson (2001), "Delayed Reward and Cost Discounting," *Psychological Record*, 51, 571-88.

Myerson, Joel, Ana A. Baumann, and Leonard Green (2014), "Discounting of Delayed Rewards: (A)theoretical Interpretation of the Kirby Questionnaire," *Behavioural Processes*, 107, 99-105.

Nolen-Hoeksema, Susan (1991), "Responses to Depression and Their Effects on the Duration of Depressive Episodes," *Journal of Abnormal Psychology,* 100(4), 569-82.

Nolen-Hoeksema, Susan and Christopher G. Davis (1999), "'Thanks for Sharing That': Ruminators and Their Social Support Networks," *Journal of Personality and Social Psychology*, 77(4), 801-14.

Nolen-Hoeksema, Susan and Jannay Morrow (1993), "Effects of Rumination and Distraction on Naturally Occurring Depressed Mood," *Cognition and Emotion,* 7(6), 561-70.

Nolen-Hoeksema, Susan, Blair E. Wisco, and Sonja Lyubomirsky (2008), "Rethinking Rumination," *Perspectives on Psychological Science,* 3(5), 400-24.

Oppenheimer, Daniel M., Tom Meyvis, and Nicolas Davidenko (2009), "Instructional Manipulation Checks: Detecting Satisficing to Increase Statistical Power," *Journal of Experimental Social Psychology,* 45(4), 867-72.

Pew Charitable Trusts (2013), "Payday Lending in America Report 2: How Borrowers Choose and Repay Payday Loans," February, available at: http://www.pewtrusts.org/en/research-and-analysis/reports/2013/02/19/how-borrowers-choose-and-repay-payday-loans.

Puterman, Eli, Anita Delongis, and Georgia Pomaki (2010), "Protecting Us From Ourselves: Social Support as a Buffer of Trait and State Rumination," *Journal of Social and Clinical Psychology*, 29(7), 797-820.

Reinholtz, Nicholas, Daniel M. Bartels, and Jeffrey R. Parker (2015), "On the Mental Accounting of Restricted-Use Funds: How Gift Cards Change What People Purchase," *Journal of Consumer Research*, 42(4), 596-614.

Selby, Edward A., Amy Kranzler, Emily Panza, and Kara B. Fehling (2015), "Bidirectional-Compounding Effects of Rumination and Negative Emotion in Predicting Impulsive Behavior: Implications for Emotional Cascades," *Journal of Personality,* 84(2), 139-53.

Scott, V. B. Jr, and William D. McIntosh (1999), "The Development of a Trait Measure of Ruminative Thought," *Personality and Individual Differences,* 26, 1045-56.

Shah, Anuj K., Sendhil Mullainathan, and Eldar Shafir (2012), "Some Consequences of Having Too Little," *Science*, 338(6107), 682-85.

Sharma, Eesha, and Adam L. Alter (2012), "Financial Deprivation Prompts Consumers to Seek Scarce Goods," *Journal of Consumer Research,* 39 (3), 545-60.

Sharma, Eesha, Nina Mazar, Adam L. Alter, and Dan Ariely (2014), "Financial Deprivation Selectively Shifts Moral Standards and Compromises Moral Decisions," *Organizational Behavior and Human Decision Processes*, 123(2), 90-100.

Spiller, Stephen A. (2011), "Opportunity Cost Consideration," *Journal of Consumer Research*, 38(4), 595-610.

Thoits, Peggy A. (1995), "Stress, Coping, and Social Support Processes: Where Are We? What Next?" *Journal of Health and Social Behavior*, 35, 53-79.

Toplak, Maggie E., Richard F. West, and Keith E. Stanovich (2011), "The Cognitive Reflection Test as a Predictor of Performance on Heuristics-and-Biases Tasks," *Memory & Cognition,* 39(7), 1275-89.

Treynor, Wendy, Richard Gonzalez, and Susan Nolen-Hoeksema (2003), "Rumination Reconsidered: A Psychometric Analysis," *Cognitive Therapy and Research,* 27 (3), 247-59.

U.S. Census Bureau (2014), *Income and Poverty in the United States*, Washington, DC: Governing Printing Office.

Valderrama, Jorge, Regina Miranda, and Elizabeth Jeglic (2016), "Ruminative Subtypes and Impulsivity in Risk for Suicidal Behavior," *Psychiatry Research,* 236, 15-21.

Vohs, Kathleen D. (2013), "The Poor's Poor Mental Power," *Science,* 341, 969-70.

Wade, Nathaniel G., David L. Vogel, Kelly Yu-Hsin Liao, and Daniel B. Goldman (2008), "Measuring State-Specific Rumination: Development of the Rumination About an Interpersonal Offense Scale," *Journal of Counseling Psychology*, 55(3), 419-26.

Watkins, Edward and R. G. Brown (2002), "Rumination and Executive Function in Depression: An Experimental Study," *Journal of Neurology, Neurosurgery, and Psychiatry,* 72, 400-2.

Wegner, Daniel M. (1994), "Ironic Processes of Mental Control," *Psychological Review*, 101(1), 34-52.

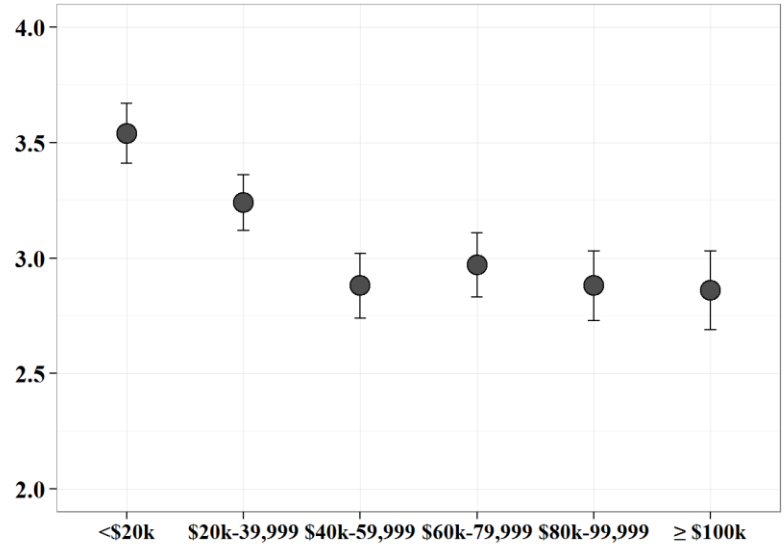
Weisser, Cybele and Kerri A. Renzulli (2014), "Americans Still Worried About Their Financial Future," http://time.com/money/833/americans-still-worried-about-their-financial-future/.

Zhao, Xinshu, John G. Lynch Jr., and Qimei Chen (2010), "Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis," *Journal of Consumer Research*, 37(2), 197-206.

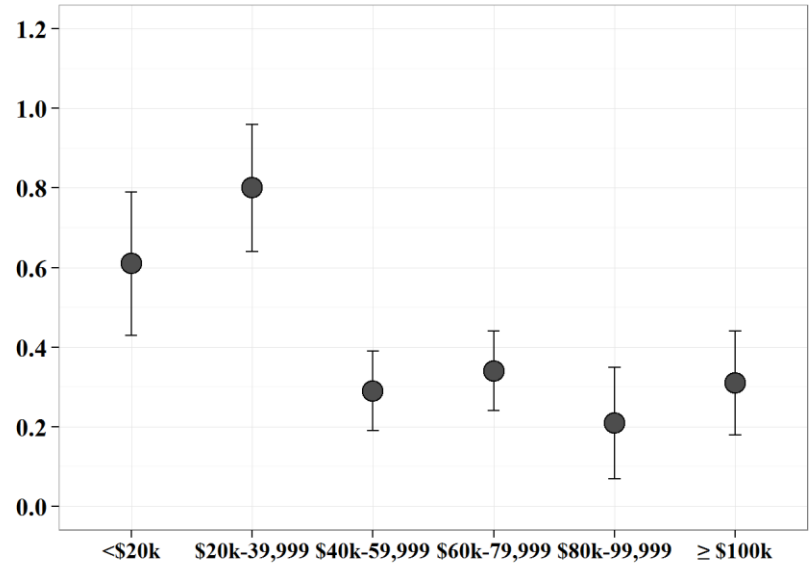
Zimet, Gregory D., Nandy W. Dahlem, Sara G. Zimet, and Gordon K. Farley (1998), "The Multidimensional Scale of Perceived Social Support," *Journal of Personality Assessment*, 52(1), 30-41.

Figure 1

1a: Rumination by income distribution

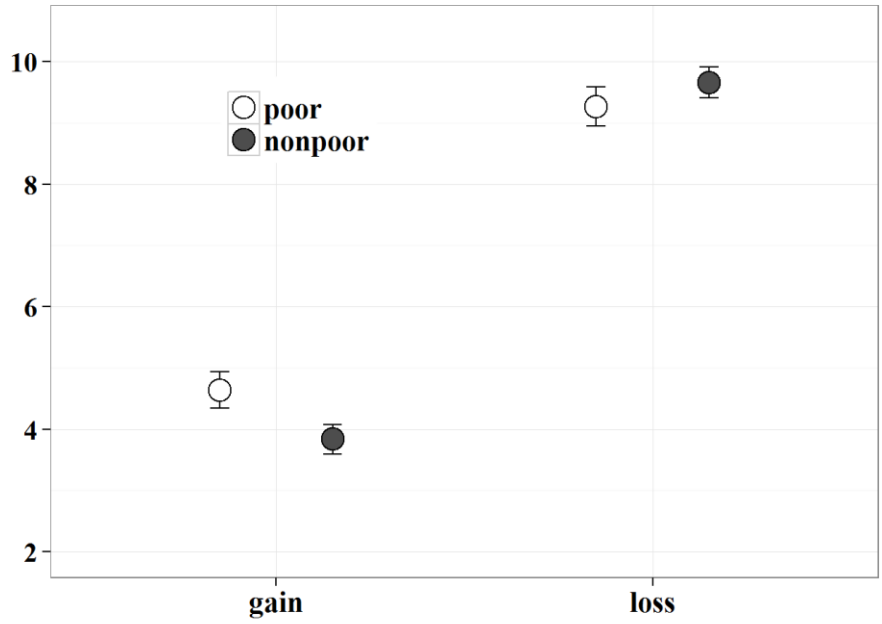


1b: Myopic debt usage by income distribution



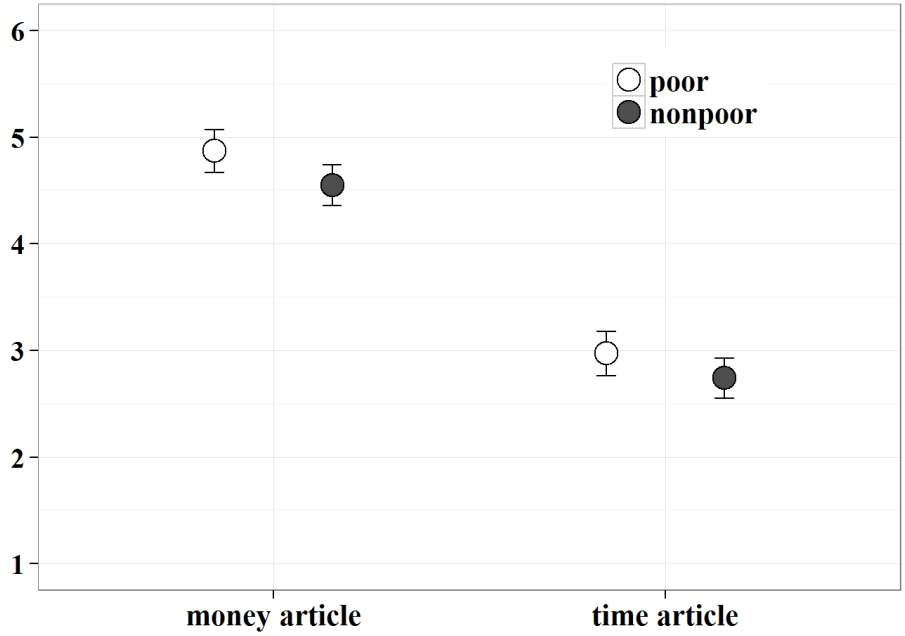
NOTE—Figure 1a (*top*) displays financial rumination (indexed on a scale of 1 to 5) as a function of income category. Figure 1b (*bottom*) displays the mean number of myopic debt products used (0-5) by income. Error bars are standard errors (+/- SE).

Figure 2: Number of Smaller-Sooner Options Chosen



NOTE.—Figure 3 shows the mean number of smaller-sooner options (0-11) chosen by titrator frame. Error bars are standard errors (+/- SE).

Figure 3: Rumination About Finances After Reading Article

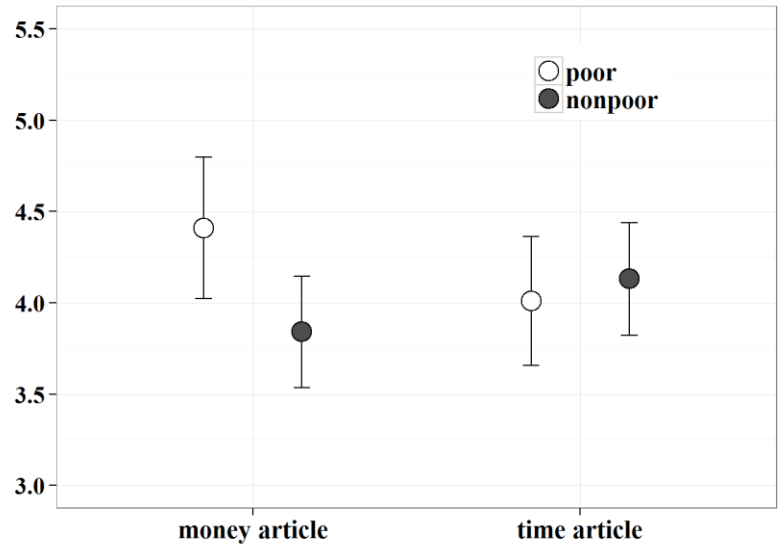


NOTE.—Error bars are standard errors (+/- SE).

Figure 4

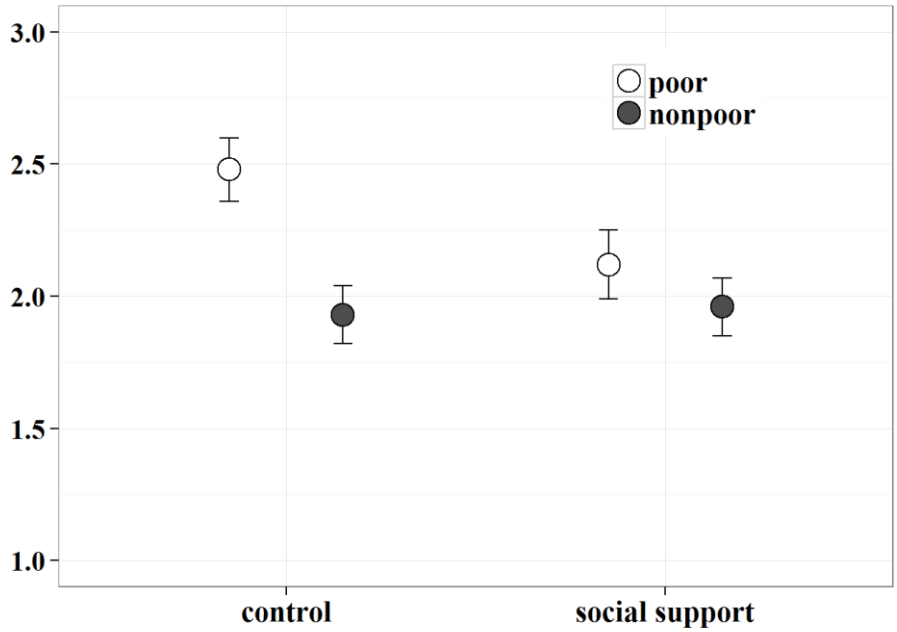
Figure 4a: Interest in taking out myopic debt

Figure 4b: Number of smaller-sooner options chosen



NOTE.—Figure 4a (*top*) displays reported interest in taking out (indexed on a scale of 1 to 7). Figure 4b (*bottom*) displays the total number of smaller-sooner options chosen on the intertemporal choice task (out of a possible 11 trials). Error bars are standard errors (+/- SE).

Figure 5: Interest in Myopic Debt



NOTE.— Error bars are standard errors (+/- SE).