Financial Constraints and Purchase Happiness

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Contribution Statement

Several findings suggest that financial constraints increase compensatory consumption. However, research is silent on whether financial constraints ultimately affect the happiness consumers derive from their purchases. The objective of the current research is to investigate whether financial constraints influence purchase happiness, and what a plausible mechanism underlying this potential effect might be. While conducting a systematic investigation of the purchase types for which this effect holds is beyond the scope of this work, we meta-analyzed our entire file drawer to examine interactions with various purchase characteristics. We further investigate potential downstream consequences, rule out alternative accounts, and examine boundary conditions.

This work has three main contributions. First, prior research on purchase happiness has largely focused on purchase categories that influence purchase happiness. The current research adds to this work by examining perceptions of consumers' financial resources—a necessary component of any purchasing decision.

Second, it addresses the open question of how financial constraints influence purchase happiness. We find that while consumers predict greater happiness with their purchases when more (vs. less) financially constrained, they actually derive less happiness from those purchases. This work is the first to our knowledge to demonstrate that financial constraints can have differential effects on outcomes across consumer decision-making stages. It also adds to the growing work on financial constraints by focusing on important post-purchase outcomes, in contrast to the majority of existing literature that has focused on earlier decision-making stages.

Finally, this work offers insights into how related factors (i.e., financial constraints, income, socio-economic status) are distinct and can make unique predictions. For instance, while financial constraints decrease purchase happiness, income does not. In addition, our results increase understanding of potential differences between financial constraints and “depleting a budget to zero”. For example, prior research shows that depleting a budget to zero increases pain of paying, which decreases purchase satisfaction (Soster, Gershoff, and Bearden 2014). However, we find that financial constraints decrease purchase happiness irrespective of budgetary status and pain of paying. Thus, this work provides initial steps in the direction of clarifying distinctions between similar conceptualizations of consumers who face resource constraints.

Word count: 348 (max 350)

Abstract

Financial constraints change attention, choice, and consumption in important ways. This work examines how financial constraints affect one important outcome at a later stage of the consumer decision-making process: purchase happiness. Eight high-powered studies ($N = 7,481$) demonstrate that financial constraints decrease the happiness consumers derive from their purchases. This, in turn, leads to a consequential outcome: less favorable consumer reviews. This effect occurs because consumers who feel more (vs. less) financially constrained are more likely to consider opportunity costs when evaluating their purchases. Furthermore, this effect is independent of consumers' objective constraints (e.g. income) and social class, is not due to a general decrease in life satisfaction or mood, and is robust across several purchase types. Consistent with our proposed mechanism, the effect attenuates when opportunity costs are made salient and when consumers consider purchases for which opportunity costs are naturally less salient (i.e., planned purchases). Moreover, although financial constraints decrease actual purchase happiness, they increase expected purchase happiness, suggesting that financial constraints can have differential effects across decision-making stages. Finally, we meta-analyze our file drawer (17,750 participants; 33 studies) to examine how the effect differs across purchase types and discuss theoretical and practical contributions for consumers and marketers.

Word count: 200 (max: 200)

Keywords: financial constraints, purchase happiness, opportunity costs, consumer reviews.

Mounting evidence suggests that money cannot “buy” happiness (e.g., Howell and Howell 2008; Kahneman and Deaton 2010). Yet, many consumers engage in compensatory consumption to signal positive attributes or offset deficiencies in their lives (Rucker and Galinsky 2008; Kim and Rucker 2012). Prior research indicates that the tendency to engage in compensatory consumption is particularly strong among consumers who feel financially constrained (Cannon, Goldsmith, and Roux 2019). This is notable given the ubiquity of financial constraints across all income brackets. For example, despite historically high levels of economic activity and wealth in the United States in 2019 (U.S. Census Bureau 2019), consumers across a wide income spectrum reported feeling financially constrained (e.g., Experian Simmons 2019; Pew Research Center 2019).

Because financially constrained consumers engage in compensatory consumption to offset the aversiveness of their state, an important but unanswered question is whether consumers who feel financially constrained actually derive more happiness from their purchases. While prior research offers several reasons why financial constraints might increase purchase happiness (Quoidbach et al. 2015; Norton, Mochon, and Ariely 2012), we find the opposite. Furthermore, we find that the negative effect of financial constraints on purchase happiness leads to a consequential behavioral outcome: less favorable customer reviews. This effect is robust across a wide range of purchase categories, emerges when financial constraints are both measured and manipulated, does not generalize to all resource constraints (e.g. time constraints), is independent of perceived social class, and is specific to consumers’ subjective perceptions of their financial situation rather than their objective constraints (e.g. income). While several potential mechanisms may explain this effect, we find that it occurs, at least in part, because financially constrained consumers are more likely to consider opportunity costs when evaluating their

purchases. Indeed, this effect occurs over and above decreases in mood or general life satisfaction and increases in pain of paying. Consistent with our proposed mechanism, the negative effect of financial constraints on purchase happiness attenuates when (1) opportunity costs are made salient and (2) consumers consider purchases for which opportunity costs are naturally less salient (i.e., planned purchases). In a meta-analysis of our entire file drawer ($N = 17,750$, $k = 33$), we examine how the effect varies across different purchase types and find that the effect holds across a wide range of purchases. In a final study, we find that despite the robust negative effect of financial constraints on purchase happiness, financial constraints increase predicted purchase happiness, suggesting that financial constraints might have different effects on consumers across different stages of the decision-making process.

The current work offers several contributions to the literature. First, the majority of research on financial constraints has focused on their effects on pre-purchase outcomes, whereas the current work investigates the role of financial constraints on meaningful post-purchase outcomes. Second, in contrast to the literature on purchase happiness that largely examines various purchase categories that enhance purchase happiness, we focus on consumers' financial resources—a necessary component of any purchase. Moreover, by demonstrating divergent effects of financial constraints on predicted versus experienced purchase happiness, the current work highlights that the effects of financial constraints may vary across different stages of the consumer decision-making process. To our knowledge, this manuscript is the first to demonstrate such divergent outcomes.

Finally, the current work provides an initial demonstration of distinctions between similar conceptualizations of consumers who have limited financial resources. For example, prior work has shown that spending a budget down to zero increases pain of paying, which in turn decreases

purchase satisfaction—the so-called “bottom-dollar effect”—but spending a budget down to a small, non-zero amount does not (Soster, Gershoff, and Bearden 2014). In contrast, we find that (a) feelings of constraints decrease purchase happiness irrespective of budgetary status, (b) this effect is specific to subjective feelings of financial constraints, rather than objective constraints, and (c) this effect is due to opportunity cost consideration, over and above pain of paying. In addition, while prior research has shown that higher (lower) SES consumers derive more happiness from experiential (material) purchases (Lee, Hall, and Wood 2018), we find that feelings of financial constraints decrease purchase happiness for both material and experiential purchases, over and above differences in social class. Thus, taken together, our findings suggest that seemingly similar conceptualizations of consumers’ financial resources might have different, and sometimes even opposing, effects on consumers.

THEORETICAL BACKGROUND

Subjective Wealth and Financial Constraints

Subjective wealth refers to consumers’ perceptions of their financial situation. Importantly, subjective perceptions of wealth do not always correspond to consumers’ objective wealth. For example, data from the General Social Survey (Smith et al. 2019), a large-scale representative survey of the American population, show that financial satisfaction was only modestly correlated with income ($r = .12$) and wealth ($r = .30$). Therefore, even consumers with relatively high levels of objective wealth may perceive their financial resources as constrained. Consistent with this assertion, a survey with millionaires in the United States found that only 28% of those with one to five million dollars in investable assets considered themselves wealthy

(UBS 2013). Thus, feeling financially flush or constrained is not purely a function of objective metrics.

In the current work, we examine the role of perceived financial constraints. Financial constraints are defined as “the extent to which people believe that their financial situation restricts desired consumption” (Tully, Hershfield, and Meyvis 2015, 60). This definition implies that financial constraints are subjective and depend on consumers’ perceptions of their desired consumption. It also suggests that financial constraints are malleable and may change across contexts. Therefore, the effects of financial constraints may vary depending on how salient they are in different situations.

Because financial constraints are commonplace, a growing body of research has examined their effects on consumers. This literature has focused primarily on how financial constraints affect consumer attention, preference, and choice (Briers et al. 2006; Briers and Laporte 2013; Nelson and Morrison 2005; Sharma and Alter 2012; Tully, Hershfield, and Meyvis 2015). A general theme in this body of work is that financial constraints increase compensatory consumption—i.e., consumption motivated by a desire to reduce a discrepancy between how one perceives oneself and how one wishes to view oneself (Mandel et al. 2017). In a review of the literature, for instance, Cannon, Goldsmith, and Roux (2019) argue that one way in which consumers cope with a scarcity of resources is by seeking to restore control. Several findings support this assertion. For example, consumers are more likely to purchase lottery tickets when they are led to perceive their income as low (Haisley, Mostafa, and Loewenstein 2008). Furthermore, consumers who feel constrained or dissatisfied with their financial situation turn to caloric food items (Briers and Laporte 2013), scarce goods (Sharma and Alter 2012), and material possessions (Tully, Hershfield, and Meyvis 2015). Given the allure of compensatory

consumption to consumers who feel financially constrained, a ripe question for investigation is whether and to what extent financial constraints affect the happiness consumers derive from their purchases.

Purchase Happiness

Over the last couple of decades, a growing literature has investigated how consumers can maximize the happiness they derive from their purchases. For instance, several studies have examined how specific purchase types affect the happiness individuals derive from consumption. Research has shown that consumers are happier when they spend their money on life experiences (Van Boven and Gilovich 2003; Nicolao, Irwin, and Goodman 2009), when they spend on others (Dunn, Aknin, and Norton 2008), when their spending fits their personality (Matz, Gladstone, and Stillwell 2016), and when they spend on time-saving services (Whillans et al. 2017). Researchers have also investigated individual differences that affect purchase happiness. For example, consumers high in materialism (Millar and Thomas 2009) and from low social class (Lee, Hall, and Wood 2018) derive more happiness from material (vs. experiential) purchases, and consumers derive more happiness from ordinary experiences as they grow older (Bhattacharjee and Mogilner 2014).

Although consumer researchers have identified several purchase types and individual differences that contribute to greater happiness from spending, less is known about how consumers' perceptions of their finances affect the happiness they derive from their purchases. The current work addresses this research gap by examining whether and how consumers' perceptions of their monetary resources—more specifically, their feelings of financial constraints—affect the happiness they derive from their purchases. Understanding this

relationship is particularly relevant given that those facing financial constraints often turn to compensatory consumption to cope with the aversiveness of their financial situation.

The Current Research

Existing research offers competing predictions about how financial constraints may influence purchase happiness. At least two streams of research suggest that financial constraints may increase purchase happiness. First, prior research has demonstrated that a sense of abundance decreases people's ability to savor pleasant stimuli (Quoidbach et al. 2015). Because savoring is closely linked to consumption enjoyment (Chun, Diehl, and MacInnis 2017), financial constraints might increase savoring and thus have a positive effect on purchase happiness. Second, financial constraints might increase the effort consumers need to exert to make a purchase. Because effort increases valuation (Norton, Mochon, and Ariely 2012) and feelings of accomplishment (Franke, Schreier, and Kaiser 2010), financial constraints might cause consumers to value their purchases more and thus derive greater happiness from them.

Contrary to these streams of research, in the current work we suggest that financial constraints decrease purchase happiness. There are a few potential explanations for this effect. It is possible that financial constraints simply dampen people's mood or cause people to be less satisfied with their lives in general, thereby making them less happy with their purchases. It is also possible that pain of paying is greater among consumers who feel financially constrained, and increased pain of paying might decrease purchase happiness. We argue for a third possibility related to opportunity cost consideration. Opportunity costs refer to the value of the best alternative a consumer does not choose. Prior work has shown that while consumers often neglect opportunity costs (Frederick et al. 2009), consumers who feel financially constrained are

more likely to spontaneously consider opportunity costs when making decisions (Spiller 2011). If so, financially constrained consumers may also be more inclined to consider opportunity costs when thinking about their purchases, which may in turn decrease purchase happiness. We present these hypotheses more formally below:

- H1:** Subjective feelings of financial constraints will decrease purchase happiness, such that consumers who feel more financially constrained will derive less happiness from their purchases.
- H2:** Opportunity cost consideration will mediate the effect of financial constraints on purchase happiness.

Our prediction that opportunity cost consideration mediates the effect of financial constraints on purchase happiness suggests situations in which this effect might be attenuated. If consumers who feel financially constrained derive less happiness from their purchases because they are more likely to consider opportunity costs, then the effect of financial constraints on purchase happiness should be attenuated under circumstances where opportunity costs are (a) more salient for non-financially constrained consumers or (b) less salient for financially constrained consumers. Based on previous research demonstrating that planning is closely related to opportunity cost consideration, we suggest that one such circumstance is when consumers plan their purchases. Specifically, Spiller (2011) finds that while financial constraints generally increase the consideration of opportunity costs, this effect is reduced among consumers who are high in propensity to plan. Therefore, we predict that (a) the effect of financial constraints on purchase happiness will be attenuated for purchases that were planned in advance,

and (b) this attenuation will occur because financial constraints will have a smaller effect on opportunity cost consideration for planned (vs. unplanned) purchases. More formally:

H3a: The negative effect of financial constraints on purchase happiness will be attenuated for planned (vs. unplanned) purchases.

H3b: This attenuation will occur because the positive effect of financial constraints on opportunity cost consideration will be smaller for planned (vs. unplanned) purchases.

We further suggest that the effect of financial constraints on purchase happiness might vary systematically across different stages of the consumer decision-making process. Indeed, prior research has documented a temporal asymmetry in the consideration of opportunity costs (Read, Olivola, and Hardisty 2017), which offers some indication that the salience of opportunity costs might vary between past purchases and future purchases. There are at least two reasons why opportunity costs might be more salient for future (vs. past) purchases. First, thinking about purchases that one *will make* involves more uncertainty than thinking about purchases that one *has made*, which may naturally prompt opportunity cost consideration. Second, because consumers are motivated to make optimal decisions, thinking about future (but not past) purchases may naturally prompt consumers to think about alternatives. If there is an asymmetry in the consideration of opportunity costs of future and past purchases, then there should be a gap between predicted and experienced purchase happiness. Critically, because financial constraints naturally prompt consumers to consider opportunity costs, this gap in prediction should be smaller for financially constrained consumers. Thus, we hypothesize:

H4: There will be a gap between *predicted* and *experienced* purchase happiness, and this gap will be smaller among consumers who feel more (vs. less) financially constrained.

In the remainder of this manuscript, we report the results of eight studies (and four more in the Web Appendix) designed to test our hypotheses. In study 1, we find that natural variation in feelings of financial constraints—but not objective constraints—decrease purchase happiness, even after controlling for several important purchase characteristics. Two replications reported in the Web Appendix (supplemental studies 1 and 2) rule out the alternative explanation that this effect occurs because financial constraints affect consumers' general life satisfaction. We then examine an important downstream consequence that might result from lower purchase happiness: less favorable consumer reviews. We find that consumers who feel financially constrained write more negative reviews for their purchases both when asked to do so in a survey (study 2) and in a unique dataset of consumers reviews on Yelp (study 3). Next, we provide evidence for the causal effect of financial constraints by experimentally manipulating their salience (study 4). In the remaining studies, we investigate the role of opportunity cost consideration. In study 5, we show that opportunity cost consideration partially mediates the effect of financial constraints on purchase happiness. In study 6, we find that increasing the salience of opportunity costs attenuates the effect of financial constraints on purchase happiness. We also show that the effect of financial constraints on purchase happiness is reduced for planned (vs. unplanned) purchases (study 7), supporting the role of the hypothesized mechanism. We then explore how consumers' predicted purchase happiness compares to their actual

purchase happiness in study 8. We find that there is a gap between predicted and experienced purchase happiness because opportunity costs are more salient for future (vs. past) purchases. This gap is reduced for more (vs. less) financially constrained consumers, who are more likely to spontaneously consider opportunity costs. Finally, we conduct a meta-analysis of our entire file drawer ($N = 17,750$, $k = 33$) to examine how the effect varies across several purchase types. We conclude by discussing the theoretical contributions and practical insights offered by the current work.

STUDY 1: NATURAL VARIATION IN FINANCIAL CONSTRAINTS

In study 1, we tested the effect of naturally occurring variation in feelings of financial constraints on purchase happiness across a wide range of purchases. We expected consumers who felt more financially constrained to report lower happiness from their purchases (H1). We also explored the relationship between income and purchase happiness. Prior research has demonstrated that opportunity cost consideration is higher among consumers who feel financially constrained (Spiller 2011), but that lower income consumers are as likely to consider opportunity costs as are higher income consumers (Plantinga et al. 2018). Because we expected the effect to be driven in part by opportunity cost consideration (H2), we did not expect to find a relationship between income and purchase happiness.

Method

Sample and design. We pre-registered this study using AsPredicted (<http://aspredicted.org/blind.php?x=37b7sd>). To increase external validity, we recruited a sample

that was representative of the United States with respect to age, gender, and ethnicity, as calculated by the 2015 US Census. We planned to collect data from 750 participants, and 787 people signed up to participate in the study on Prolific Academic. We followed our pre-registered exclusion criteria and excluded 35 people who did not finish the survey and 4 people who provided gibberish or nonsensical responses to the open-ended question, resulting in a final sample of 748 people (50.8% female, $M_{\text{age}} = 47.06$, $SD_{\text{age}} = 15.01$).

Procedure. At the beginning of the study, participants were asked to describe the last purchase they made for themselves that cost more than \$100 and less than \$1,000. We selected this price range to ensure that the purchases were comparable and that participants wrote about meaningful purchases. On the subsequent screen, we measured purchase happiness with the following item adapted from Van Boven and Gilovich (2003): “When you think about this purchase, how happy does it make you?” (1 = extremely unhappy, 7 = extremely happy). Next, each participant indicated the price of their purchase and the time that elapsed from buying it. As indicated in our pre-registration plan, we also asked participants to report several purchase characteristics that might correlate with both financial constraints and purchase happiness. They reported each purchase characteristic on a 7-point continuous scale. For example, they reported the extent to which their purchase was material or experiential on a scale anchored by 1 = purely material and 7 = purely experiential. We report a summary of all purchase characteristics measured in this and subsequent studies in the Web Appendix. To measure financial constraints, participants answered the following four items adapted from Paley, Tully, and Sharma (2019): (1) “To what extent do you feel financially constrained?” (1 = not at all, 7 = very much), (2) “To what extent do you feel you can spend your money freely?” (1 = not at all, 7 = very much, reverse coded), (3) “How would you rate your financial situation relative to your peers?” (1 =

much worse, 7 = much better, reverse coded), and (4) “How satisfied are you with your financial situation?” (1 = not at all satisfied, 7 = extremely satisfied, reverse coded). We averaged these items to form an index of financial constraints ($\alpha = .91$), with higher scores indicating greater financial constraints. Finally, participants reported their age, gender, education, ethnicity, and their household income in the past 12 months.

Results

Purchase happiness. As specified in our pre-registration plan, we regressed purchase happiness on the financial constraints index. As expected, financial constraints were negatively correlated with purchase happiness ($b = -0.08$, $SE = 0.03$, $p = .006$), such that greater financial constraints were associated with lower purchase happiness. We further examined whether this result held controlling for demographic variables and the purchase characteristics we specified in our pre-registration plan. To do so, we conducted three linear regressions. In the first model, we entered financial constraints. In the second model, we included all of the demographic variables we collected. In the third model, we additionally included all of the purchase characteristics we collected. The results remained unchanged: financial constraints had a negative and significant effect on purchase happiness regardless of model specification (**Model 2**: $b = -0.11$, $SE = 0.04$, $p = .002$; **Model 3**: $b = -0.08$, $SE = 0.03$, $p = .017$). We report the results of the regression models in the Web Appendix.

Because financially constrained consumers prefer material (vs. experiential) purchases (Tully, Hershfield, and Meyvis 2015) and people derive less happiness from material purchases in general (Van Boven and Gilovich 2003), one alternative explanation for this effect is that financially constrained participants were more likely to describe material purchases. However,

our data are not consistent with this explanation. Specifically, financial constraints did not correlate with how material or experiential participants reported the purchases were ($b = -0.01$, $SE = 0.05$, $p = .901$), and the effect of financial constraints on purchase happiness did not change after controlling for how material or experiential participants reported the purchases were ($b = -0.08$, $SE = 0.03$, $p = .007$). Furthermore, there was no interaction between financial constraints and how material or experiential participants reported the purchases were ($b = -0.01$, $SE = 0.02$, $p = .735$). Importantly, the effect of financial constraints on purchase happiness remained negative and significant even when we restricted the sample to (1) material purchases (i.e., purchases rated below the midpoint of the material-experiential continuum, $n = 564$, $b = -0.07$, $SE = 0.03$, $p = .033$), or (2) purchases classified as “purely material” (i.e., scale value = 1; the lowest point of the material-experiential continuum, $n = 377$, $b = -0.14$, $SE = 0.04$, $p = .001$).

Income. Although financial constraints were highly correlated with income ($r = -.51$, $p < .001$), income did not affect purchase happiness ($r = .01$, $p = .768$). Furthermore, when income and financial constraints were entered into the same regression predicting purchase happiness, the effect of financial constraints on purchase happiness remained negative and significant ($b = -0.10$, $SE = 0.03$, $p = .003$), and the effect of income remained non-significant ($b = -0.04$, $SE = 0.03$, $p = .202$).

Discussion

In study 1, we found that naturally occurring variation in subjective perceptions of financial constraints was negatively correlated with purchase happiness. This effect emerged across a wide range of purchases made by a sample of participants who were representative of the United States population with respect to age, gender, and ethnicity, attesting to the

generalizability of the effect. Furthermore, the effect did not change after we controlled for important purchase characteristics such as price, time elapsed from buying the purchase, and how material or experiential the purchase was. Importantly, even though financial constraints were correlated with income, income was not correlated with purchase happiness, and the effect of financial constraints on purchase happiness did not change after we controlled for income. This suggests that purchase happiness was not affected by consumers' objective constraints, but rather by their subjective perception of financial constraints.

One alternative explanation is that financial constraints cause participants to be less satisfied with their lives in general (Ruberton, Gladstone, and Lyubomirsky 2016; Ng and Diener 2014). We investigated this possibility in two follow-up studies (see supplemental studies 1 and 2 in the Web Appendix). In supplemental study 1 ($n = 352$), we examined the relationship between financial constraints and people's happiness in two other domains: (1) spending time with their family and (2) receiving a gift. If the effect of financial constraints on purchase happiness occurs because of a general decrease in life satisfaction, we should also observe a decrease in happiness in these two other domains. While we replicated the effect of financial constraints on purchase happiness ($b = -0.17$, $SE = 0.07$, $p = .017$), we did not observe an effect of financial constraints on happiness in the other two domains (spending time with family: $b = -0.02$, $SE = 0.10$, $p = .836$; gift: $b = -0.04$, $SE = 0.06$, $p = .435$). In supplemental study 2 ($n = 301$), we directly measured and controlled for general life satisfaction. Once again, financial constraints were negatively correlated with purchase happiness, even after controlling for general life satisfaction ($b = -0.28$, $SE = 0.07$, $p < .001$). Together, these supplemental studies cast doubt on the possibility that the effect of financial constraints on purchase happiness occurs because financial constraints make consumers generally less happy or less satisfied with their lives.

STUDY 2: CONSUMER REVIEWS

We designed study 2 with three objectives in mind. First, we aimed to replicate the negative effect of financial constraints on purchase happiness found in study 1. Second, we aimed to examine a behavioral outcome that potentially results from decreased happiness with purchases: less positive (more negative) consumer reviews. Recent work shows that people who are more positive about a purchase express more positive emotions in their reviews (Rocklage and Fazio 2020). Therefore, if financially constrained consumers derive less happiness from their purchases, they should also write less positive reviews for their purchases. Finally, we examined whether the effects of financial constraints on purchase happiness are distinct from the effects of social class (Adler et al. 2000; Lee, Hall, and Wood 2018).

Method

Sample and design. We recruited 600 people on Amazon Mechanical Turk to participate in a short survey in exchange for a small payment. Six hundred forty-three people signed up to participate in the survey. We excluded 43 participants who did not finish the survey and 38 who provided nonsensical responses to the open-ended questions, resulting in a final sample of 562 people (58.4% female, $M_{\text{age}} = 36.17$, $SD_{\text{age}} = 12.33$).

Procedure. First, participants recalled and described the last purchase they made for themselves for more than \$100 and less than \$1,000. Next, we measured purchase happiness using the same item used in study 1 and asked participants to write a review for this purchase. We designed the task to mimic the experience of writing an actual consumer review.

Specifically, participants gave a star rating for their purchase, entered a title for their review, and then wrote the review. We randomized the order of the review and purchase happiness questions. Because order did not impact our measures of interest, we do not discuss it further.

Next, participants answered the same questions about their purchase's characteristics and completed the same 4-item measure of financial constraints used in study 1. To examine whether the effects of financial constraints on purchase happiness are distinct from the effects of perceived social class, we also asked participants to complete the MacArthur Scale of subjective social status (Adler et al. 2000). Finally, participants indicated their age, gender, and income.

Results

In study 2, we were interested in investigating the effect of financial constraints on three key measures: (a) the same measure of purchase happiness used in study 1, (b) the star rating for consumers' purchases, and (c) the content of the reviews. Two research assistants blind to the hypotheses independently coded the content of each review into one of the following five categories: extremely negative (-2), negative (-1), neutral (0), positive (1), and extremely positive (2). The two research assistants agreed on the coding of 72.8% of the reviews, and the codings were highly correlated ($r = .80, p < .001$). We therefore averaged the codings to form an index of how positive the reviews were. To estimate the effect of financial constraints on each of these three measures, we ran linear regressions controlling for age, gender, income, social class, and the same set of purchase characteristics we controlled for in study 1. We report the full results of the regression models in the Web Appendix.

Purchase happiness. Financial constraints had a significant negative effect on purchase happiness ($b = -0.16, SE = 0.05, p = .001$), and income was not associated with purchase

happiness ($b = 0.00$, $SE = 0.03$, $p = .928$), replicating the results from study 1. Furthermore, there was no relationship between social class and purchase happiness ($b = -0.04$, $SE = 0.04$, $p = .278$).

Star rating. Neither financial constraints ($b = -0.04$, $SE = 0.03$, $p = .143$), income ($b = 0.03$, $SE = 0.02$, $p = .138$), nor social class ($b = -0.02$, $SE = 0.02$, $p = .299$) were correlated with the star rating of the reviews.

Content of the reviews. Financial constraints were significantly associated with the content of the reviews ($b = -0.6$, $SE = 0.03$, $p = .055$), such that consumers who felt more financially constrained wrote more negative reviews. Neither income ($b = 0.03$, $SE = 0.02$, $p = .170$) nor social class ($b = -0.02$, $SE = 0.02$, $p = .489$) were associated with the review content.

Serial mediation. We tested the serial effect of financial constraints on the content of the reviews through purchase happiness and the star rating of the reviews. Precisely, we estimated the indirect effect *financial constraints* $\rightarrow$ *purchase happiness* $\rightarrow$ *star rating* $\rightarrow$ *content of the review*. As in the previous analyses, we controlled for age, gender, income, social class, and the same purchase characteristics we controlled for in study 1. We estimated the standard errors with 5,000 bootstrapped samples. The results indicate that the serial effect of financial constraints on the content of the review through purchase happiness and the star rating of the review was negative and significant ($b = -0.03$, $SE = 0.01$, $p < .001$, 95% CI: -0.05 to -0.01). The serial effect was not significant for income ($b = 0.00$, $SE = 0.01$, $p = .935$, 95% CI: -0.01 to 0.02) nor social class ($b = -0.01$, $SE = 0.01$, $p = .353$, 95% CI: -0.02 to 0.01).

Discussion

In study 2, we found a significant relationship between financial constraints and the content of consumer reviews. The more financially constrained participants felt, the more

negative were their reviews. Neither income nor social class affected the content of the reviews, further suggesting that the effect of financial constraints on purchase happiness is independent of objective levels of wealth and perceptions of social class.

While we observed an effect of financial constraints on participants' reviews, we did not observe an effect of financial constraints on the star ratings. One possibility is that we were unable to identify an effect on the star ratings because the vast majority of the reviews were positive (i.e., only 3.9% of the reviews received a star rating below the midpoint of the scale), thereby reducing our power. We addressed this possibility, while extending our findings to a real consumer setting, by looking at a unique dataset of consumer reviews on Yelp in study 3.

STUDY 3: YELP REVIEW DATA

In study 3, we aimed to conceptually replicate the results of study 2 with a dataset of actual consumer reviews. We compiled a unique dataset by merging (1) a database of consumer reviews scraped from Yelp, (2) consumer data from Experian Simmons (Experian Simmons 2019), and (3) demographic information from the US Census (US Census 2019). Our goal was to compare reviews from consumers with varying levels of financial constraints. Because of the observational nature of the data, it was important to ensure that the reviews written by consumers with different levels of financial constraints referred to purchases that were as similar as possible. For this reason, we decided to focus on reviews written for different units of popular restaurant chains. We did not observe individual-level financial constraints in this study. Thus, to examine the relationship between financial constraints and consumer reviews, we correlated the average ratings of a given restaurant unit with the average financial constraints of individuals

living in the corresponding geographic area. We expected to find a negative effect of financial constraints on the star ratings of the reviews.

Method

Yelp review data. We obtained our first dataset from Yelp, one of the largest review websites in the United States, containing millions of reviews for a variety of businesses (e.g., restaurants, barbershops, dry cleaning). When determining the business category on which to focus our analysis, we had four main goals in mind. First, to increase the generalizability of the results, we sought businesses that were located in several regions in the United States. Second, we wanted a business category that was patronized by consumers with varying levels of financial constraints. Third, to ensure that comparisons were not affected by local trends, we needed a business category that was somewhat similar across different locations. Fourth, because businesses sometimes write fake reviews for themselves or their competitors (Luca and Zervas 2016), it was important to focus on a category for which fake reviews were less prevalent. For those reasons, we decided to focus on chain restaurants. Chain restaurants are present nationwide, highly similar across different locations, patronized by consumers with varying levels of financial constraints, and less likely to commit review fraud (Luca and Zervas 2016). We collected reviews written for all units of the 15 largest restaurant chains in the 15 largest US cities. To scrape the data, we searched for a particular chain in a given city, and scraped the data for all of the restaurants that came up in the search. Because Yelp also returns restaurants in locations that surround each target city, this procedure resulted in a few additional restaurant units that were located in cities that were proximal to our target cities. We retained these units in our dataset. This resulted in 903 restaurant units. On average, each unit received 234.0 reviews

(median: 148, range: 1 – 5,468, $SD = 330.9$). We collected the average star rating of each unit as of January 2020. On the Yelp website, consumers write a review and assign a star rating for their reviews by choosing one to five stars. The average star rating was 2.73 (median: 2.74, range: 1 – 4.5, $SD = 0.52$). We also collected the zip code associated with each unit, which was used to merge these data with the two other datasets that provided our (1) proxy for consumers' financial constraints and (2) demographic information.

Financial constraints. Since we do not observe individual-level financial constraints of the consumers who wrote each of the reviews on Yelp, we used a proxy for financial constraints at the zip code level. We used *Simply Analytics* to retrieve data on consumers' levels of financial security. This dataset provides estimates of how financially secure consumers in each zip code in the US feel, on average. These estimates are based on Experian Simmons' nationally representative survey of about 30,000 consumers aged 18 or more (Experian Simmons 2019). In the survey, consumers indicate their agreement with the following statement: "I feel financially secure" (1 = disagree a lot, 2 = disagree a little, 3 = neither agree nor disagree, 4 = agree a little, 5 = agree a lot). We reverse coded this item so that higher scores represented higher financial constraints. We collected the latest available data (2019), retrieved in January 2020.

Demographic information. We also used *Simply Analytics* to retrieve data from the US Census on important demographic characteristics that served as control variables in this study. As with the other two datasets, this dataset was at the zip code level. We collected data on age (median age), gender (percentage of the population that is female), ethnicity (percentage of the population that is white), education (proportion of the population aged 25 or more that has at least a bachelor degree), and income (median household income). We collected the latest available data (2019).

Final dataset. We used zip codes to merge the three datasets. Of the 903 restaurant units for which we collected the average reviews on Yelp, we were not able to retrieve data on financial security for the zip code associated with 51 restaurants. This left us with a final dataset comprising 852 restaurants.

Results

We were interested in testing whether restaurants in zip codes where consumers felt more financially constrained received lower star ratings than similar restaurants in zip codes where consumers felt less financially constrained. To account for differences across restaurants and locations, we controlled for chain fixed effects and city fixed effects. To account for differences across zip codes, we controlled for a set of demographic variables (age, gender, education, ethnicity, and income). We estimated four linear regressions. In the first model, we entered our proxy for financial constraints. In the second model, we included chain fixed effects. In the third model, we included city fixed effects. In the fourth model, we included our control variables. Table 1 displays the results.

Table 1. Effect of financial constraints on star rating (Study 3)

Variables	DV: Star Rating			
	Model 1	Model 2	Model 3	Model 4
Financial constraints	-0.43*** (0.10)	-0.21** (0.07)	-0.25*** (0.07)	-0.15* (0.08)
Chain fixed effects	No	Yes	Yes	Yes
City fixed effects	No	No	Yes	Yes
Control variables	No	No	No	Yes
Observations	852	852	852	852
R-squared	0.02	0.54	0.60	0.61

Standard errors in parentheses

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Note. Control variables: age (median age), gender (proportion of female population), education (proportion of the population aged 25 or more with at least bachelor degree), and ethnicity (proportion of white population), and median household income.

The results show that financial constraints were negatively correlated with the star ratings the restaurants received. That is, restaurants in zip codes where consumers felt more financially constrained received lower ratings than did similar restaurants in zip codes where consumers felt less financially constrained. This effect was robust to controlling for chain fixed effects, city fixed effects, and demographic differences across zip codes. As in our previous studies, income was not correlated with the star ratings in model 4 ($p = .407$). This result is consistent with the results from studies 1 and 2 showing that while subjective perceptions of financial constraints affect purchase happiness, objective constraints do not. Because some of the star ratings on Yelp might be affected by fake reviews (Luca and Zervas 2016), we assessed the robustness of the results by excluding from the sample restaurant units that were more likely to have received fake reviews (i.e., those with extremely positive or negative ratings). The results remained unchanged (see the Web Appendix for more details).

Discussion

In study 3, we found that financial constraints negatively affected the average star ratings of restaurants on Yelp, conceptually replicating the results of study 2. As in studies 1 and 2, income did not play a role, and the effect of financial constraints was independent of income. Building on study 2, study 3 provides further evidence for an important downstream consequence of the effect of financial constraints on purchase happiness in a real consumer setting.

STUDY 4: MANIPULATING FINANCIAL CONSTRAINTS

Thus far, all of our studies have relied on naturally occurring variation in financial constraints. While this approach provides greater ecological validity, it precludes us from making inferences about the causal effect of financial constraints. Thus, in study 4, we manipulated perceived financial constraints and measured their effect on purchase happiness.

Method

Sample and design. Our pre-tests indicated that manipulations of financial constraints produce small effects on participants' feelings of financial constraints. Therefore, we decided to collect enough data to have 80% power to detect a small effect. A power analysis using G*Power (Faul et al. 2007) indicated that 788 participants were needed for us to have 80% power to detect an effect of $d = 0.20$ in a 2-cell between-subjects design with conventional alpha levels ($p = .05$). To account for exclusions, we recruited 800 participants on MTurk. Eight hundred and thirty-six

people signed up to participate in the study. We pre-registered our hypothesis, measures, design, analysis, target sample size, and exclusion criteria using AsPredicted (link: <https://aspredicted.org/blind.php?x=9ys9wb>). Following our pre-registration plan, we excluded 34 people who did not finish the study and 52 people who provided nonsensical responses to the open-ended questions, leaving a final sample of 750 participants (55.1% female, $M_{\text{age}} = 34.31$, $SD_{\text{age}} = 12.25$). Participants were randomly assigned to one of two conditions of a 2-cell between-subjects design (financial constraints vs. control).

Procedure. First, participants were asked to recall and describe a purchase they made for themselves for more than \$100 and less than \$1,000. Asking participants to describe this purchase in advance of the financial constraints manipulation mitigated the possibility that financial constraints systematically varied the nature of the purchases participants described. Next, we manipulated the salience of financial constraints by randomly assigning participants to one of two conditions. In the financial constraints condition, participants wrote about factors that contribute to their financial constraints (adapted from Tully, Hershfield, and Meyvis, 2015). Specifically, they read the following prompt:

“Everyone has **financial constraints** in their lives, but the factors that contribute to these constraints tend to vary. What are the factors that require you to be careful with how you spend your money? What limits your monthly discretionary income? Include the aspects of your current situation that most contribute to your financial constraints (e.g., mortgage or rent, family expenses, uncertainty of future income, health care costs, student loans, lack of income, limited savings, bills that need to be paid, expensiveness of entertainment...). Please be as detailed as possible, and write at least a couple of sentences.”

Participants in the control condition were asked to write about their time constraints. Asking participants in the control condition to write about their time constraints allowed us to maintain the feeling of constraint constant across conditions, ruling out the possibility that the

results are caused by general feelings of constraints and thus providing a conservative test of the effect of financial constraints in particular. Precisely, they read the following prompt:

“Everyone has **time constraints** in their lives, but the factors that contribute to these constraints tend to vary. What are the factors that require you to be careful with how you spend your time? What limits your free time? Include the aspects of your current situation that most contribute to your time constraints (e.g., working, studying, taking care of yourself and/or others, household management...). Please be as detailed as possible, and write at least a couple of sentences.”

Next, we measured purchase happiness with the same item used in studies 1 and 2. Participants also completed the same questions about their purchase’s characteristics as described in studies 1 and 2. As a manipulation check, participants indicated how financially constrained they felt by answering the following item: “To what extent do you feel financially constrained?” (1 = not at all, 7 = very much). Finally, participants indicated their age, gender, education, ethnicity, and income.

Results

Manipulation check. Participants in the financial constraints condition reported greater financial constraints ($M = 4.99$, $SD = 1.53$) than did participants in the control condition ($M = 4.60$, $SD = 1.65$, $t(748) = -3.30$, $p = .001$, $d = 0.24$), indicating that the manipulation was successful.

Purchase happiness. Participants in the financial constraints condition reported lower purchase happiness ($M = 5.75$, $SD = 1.22$) than did participants in the control condition ($M = 5.93$, $SD = 1.14$, $t(748) = 2.15$, $p = .032$, $d = 0.16$). This result does not change when controlling for purchase characteristics, demographic information, and income.

Discussion

In study 4, participants who felt more financially constrained reported lower purchase happiness. By manipulating perceptions of financial constraints, this study provides evidence for the causal effect of financial constraints, thereby ruling out the possibility that the effect is driven by (a) unobserved differences between people who feel financially constrained (vs. not) or (b) differences in the purchases recalled by consumers with different levels of financial constraints.

One alternative explanation for this result is that the effect is driven by mood. That is, it is possible that writing about financial constraints put participants in the financial constraints condition in a worse mood than those in the control condition. To examine this possibility, we replicated study 4 with a separate sample of 260 participants drawn from the same population (see supplemental study 3 in the Web Appendix). In this replication, we measured mood by asking participants to rate the extent to which they felt happy, sad (reverse-coded), in a bad mood (reverse-coded), and in a good mood ($\alpha = .85$). Once again, those in the financial constraints condition reported lower purchase happiness than did those in the control condition ($M_{\text{financial constraints}} = 5.46$ vs. $M_{\text{control}} = 5.95$, $t(258) = 3.23$, $p = .001$, $d = 0.40$). Even though mood was positively correlated with purchase happiness ($r = .26$, $p < .001$), the effect of condition on purchase happiness remained significant after we controlled for mood in a linear regression ($b = -0.40$, $SE = 0.15$, $p = .008$).

STUDY 5: MEASURING OPPORTUNITY COST CONSIDERATION

Thus far, we have shown that financial constraints decrease purchase happiness and further affect consumer reviews. In the remaining studies in this manuscript, we provide evidence that opportunity cost consideration is a mechanism explaining this effect. In study 5, we aimed to provide initial evidence for the role of opportunity cost consideration by directly measuring it.

Method

Sample and design. We recruited 500 people on MTurk to answer a short survey. Five hundred thirty-two individuals signed up to participate in the study. Twenty-nine participants did not finish the survey and were excluded, leaving a final sample of 503 people (53.7% female, $M_{\text{age}} = 41.61$, $SD_{\text{age}} = 13.97$).

Procedure. Participants first described a purchase they made for themselves for more than \$100 and less than \$1,000 and indicated their purchase happiness using the same item used in studies 1. On the subsequent screen, we measured opportunity cost consideration with the following two items: “When I indicated my happiness with the purchase I wrote about, I thought about ways in which I could've spent my money other than the purchase I described” (1 = strongly disagree, 7 = strongly agree), and “When you indicated your happiness with the purchase you wrote about, to what extent did you think about other ways in which you could've spent your money?” (1 = not at all, 7 = very much). These two items were highly correlated ($r = .86$, $p < .001$), so we averaged them to form an index of opportunity cost consideration, with higher scores indicating greater consideration of opportunity costs. Participants then indicated the price of their purchase and the time elapsed since buying it (1 = less than a week ago, 13 = more than 5 years ago).

We then measured financial constraints with the same 4 items used in study 1 ($\alpha = .90$), with higher scores indicating greater financial constraints. Finally, participants reported their age, gender, and income.

Results

Purchase happiness. As in our previous studies, financial constraints were negatively correlated with purchase happiness ($b = -0.08$, $SE = 0.03$, $p = .003$), and there was no relationship between income and purchase happiness ($b = -0.03$, $SE = 0.02$, $p = .136$). These results do not change if we control the covariates we collected.

Opportunity cost consideration. Financial constraints were positively associated with opportunity cost consideration ($b = 0.11$, $SE = 0.05$, $p = .042$), and income was not ($b = 0.01$, $SE = 0.04$, $p = .821$). This result does not change if we control for covariates.

Mediation. We examined whether opportunity cost consideration mediated the effect of financial constraints on purchase happiness. To do so, we estimated the indirect effect *financial constraints* $\rightarrow$ *opportunity cost consideration* $\rightarrow$ *purchase happiness*, with the standard errors estimated with 5,000 bootstrapped samples. We controlled for all demographic variables (age, gender, and income) and all purchase characteristics (time elapsed from buying the purchase and price of the purchase) collected in this study. The results indicate that the indirect effect of financial constraints on purchase happiness through opportunity cost consideration was significant ($b = -0.02$, $p = .037$, 95% CI = -0.036 to -0.001). The direct effect of financial constraints on purchase happiness was also significant ($b = -0.10$, $p = .001$, 95% CI = -0.163 to -0.040), suggesting partial mediation. We also tested whether the path *income* $\rightarrow$ *opportunity cost*

consideration → *purchase happiness* was significant and did not find supporting evidence ($b = -0.01, p = .296, 95\% \text{ CI} = -0.016 \text{ to } 0.005$).

Discussion

In study 5, we found that financially constrained individuals reported lower purchase happiness because opportunity costs were more salient in their minds. This provides initial support for the role of opportunity cost consideration as an underlying mechanism that explains the effect of financial constraints on purchase happiness.

STUDY 6: MANIPULATING OPORTUNITY COST CONSIDERATION

In study 6, we aimed to provide further evidence for the role of opportunity cost consideration as a mechanism linking financial constraints to lower purchase happiness by directly manipulating the proposed mediating process (Spencer, Zanna, and Fong 2005). To do so, we prompted some participants to consider the opportunity costs of their purchases before rating purchase happiness. If financial constraints affect purchase happiness because financially constrained consumers are more likely to spontaneously consider the opportunity costs of their purchases, then prompting consumers to consider opportunity costs should reduce the effect of financial constraints on purchase happiness. Study 6 tested this prediction.

Method

Sample and design. We recruited 1,500 people to participate in this study on MTurk. We pre-registered this study using AsPredicted (<http://aspredicted.org/blind.php?x=8vn8vm>). One

thousand five hundred and one people signed up to participate in the study. After applying our pre-registered exclusion criteria, 1,489 people were left in the sample (56.6% female, $M_{\text{age}} = 38.73$, $SD_{\text{age}} = 13.26$). This study adopted a 2 (opportunity cost consideration: high vs. control) x continuous (financial constraints, measured) between-subjects design.

Procedure. First, participants were asked to describe something they purchased for themselves for more than \$100 and less than \$1,000. Next, they were randomly assigned to one of two conditions (opportunity cost consideration: high vs. control). In the ‘high opportunity cost consideration’ condition, participants were asked to write about the opportunity costs of their purchases. Precisely, they saw the following prompt:

“Having bought this purchase means that **you cannot spend this money on other purchases**. Sometimes people imagine things that they might have spent their money on instead of their purchases. What are some of the items that you were not able to buy because you made this purchase? Or, what are some of the things you could've spent this money on?”

In the control condition, participants were asked to describe the benefits they received or expected to receive from the purchase they described. Precisely, they saw the prompt below:

“Having bought this purchase means that you can benefit from **having, using, remembering, or consuming it**. Sometimes people imagine the benefits they have received from their purchases, even after they have used or consumed them. What are some of the benefits you've gotten from this purchase? Or, what are some of the benefits you expect to get from this purchase?”

On the next screen, participants indicated their purchase happiness using the same item from study 1 and indicated their financial constraints by answering the same four items used in study 1 ($\alpha = .90$), with higher scores indicating greater financial constraints. Finally, participants reported their age and gender.

Opportunity cost manipulation pre-test. We pre-tested the opportunity cost consideration manipulation using a separate sample drawn from the same population ($n = 145$). In the pre-test, participants described a purchase and were assigned to one of three conditions: either one of the two experimental conditions described in the main study or a baseline condition with no writing task. They then rated their purchase happiness and completed the same measures of opportunity cost consideration used in study 5 ($r = .84, p < .001$). The results confirmed that the opportunity cost consideration manipulation was successful. Specifically, participants in the ‘high opportunity cost consideration’ condition reported higher opportunity cost consideration than did participants in the control ($M_{\text{high}} = 3.94, SD_{\text{high}} = 1.80; M_{\text{control}} = 2.59, SD_{\text{control}} = 1.54, F(1, 142) = 14.80, p < .001$) and in the baseline condition ($M_{\text{baseline}} = 3.11, SD_{\text{baseline}} = 1.78, F(1, 142) = 5.72, p = .018$). The difference in opportunity cost consideration between participants in the control condition and in the baseline condition was not significant ($F(1,142) = 2.28, p = .133$).

Results

As specified in our pre-registration plan, we regressed purchase happiness on the opportunity cost consideration condition (1 = high, 0 = control), financial constraints (continuous), and their interaction. There was a marginally significant interaction between condition and financial constraints ($b = 0.06, SE = .04, p = .091$). In the ‘high opportunity cost consideration’ condition, there was no effect of financial constraints on purchase happiness ($b = -0.03, SE = 0.03, p = .198$). That is, when all participants were prompted to consider opportunity costs, financial constraints did not affect purchase happiness. In contrast, in the control condition, there was a significant negative effect of financial constraints on purchase happiness

($b = -0.09$, $SE = 0.02$, $p < .001$), replicating the results of our previous studies. Figure 1 illustrates this interaction.

Figure 1. Interaction between financial constraints and opportunity cost consideration manipulation (Study 6)

Another way to probe this interaction is to examine the effect of the opportunity cost consideration manipulation across participants with higher and lower financial constraints. Among more financially constrained participants (1 SD above the mean), there was no effect of the opportunity cost consideration manipulation on purchase happiness ($M_{\text{high}} = 5.97$, $SE_{\text{high}} = 0.07$; $M_{\text{control}} = 6.03$, $SE_{\text{control}} = 0.05$, $p = .410$). In contrast, among participants who felt less financially constrained (1 SD below the mean), purchase happiness was lower in the ‘high opportunity cost consideration’ condition than in the control condition ($M_{\text{high}} = 6.06$, $SE_{\text{high}} = 0.05$; $M_{\text{control}} = 6.29$, $SE_{\text{control}} = 0.05$, $p = .001$). A floodlight analysis (Spiller et al. 2013)

indicated that the effect of the manipulation was significant among participants whose financial constraints were lower than 4.89.

Discussion

In study 6, we found that when all consumers were prompted to consider opportunity costs, financial constraints did not affect purchase happiness. In contrast, when participants were not prompted to consider opportunity costs, financial constraints had a negative effect on purchase happiness. This result provides further evidence that opportunity cost consideration is an underlying mechanism of the effect of financial constraints on purchase happiness (H2).

STUDY 7: THE ROLE OF PLANNING

We designed study 7 with two main objectives in mind. First, we sought to replicate the results of study 5 showing that opportunity cost consideration mediates the effect of financial constraints on purchase happiness. Second, and more critically, we sought to examine the role of planning as a moderator of the effect of financial constraints on purchase happiness. We hypothesized that the effect of financial constraints on purchase happiness is attenuated for planned (vs. unplanned) purchases (H3a), and that this attenuation occurs because the positive effect of financial constraints on opportunity cost consideration is weaker for planned (vs. unplanned) purchases (H3b). Study 7 tested these predictions.

Method

Sample and design. We recruited 1,000 people on MTurk to participate in a short survey. 1,018 people signed up to participate in the study. We excluded 18 participants who provided nonsensical responses to an open-ended question, leaving a final sample of 1,000 people (54.4% female, $M_{\text{age}} = 38.3$, $SD_{\text{age}} = 12.7$). This study adopted a 3 (purchase type: planned vs. unplanned vs. control) x continuous (financial constraints, measured) between-subjects design.

Procedure. At the start of the study, all participants were asked to describe a purchase they made for themselves that cost more than \$50 and less than \$1,000. However, the exact wording of this prompt randomly varied by experimental condition. Some participants were instructed to describe a planned purchase (planned condition), some were instructed to describe an unplanned purchase (unplanned condition), and others received no further instructions (control condition). After participants described their respective purchases, they rated their purchase happiness with the same item used in study 1. We then measured opportunity cost consideration with the following item: “When you indicated your happiness with the purchase you wrote about, to what extent did you think about other ways in which you could've spent your money?” (1 = not at all, 7 = very much). Participants then indicated the price of the purchase they described and the time elapsed from buying it. Next, they completed a manipulation check for the purchase type manipulation (“How much in advance did you plan to make the purchase you described?” 1 = not in advance at all, 7 = extremely in advance). Finally, participants completed the same 4-item measure of financial constraints used in study 1 ($\alpha = .89$), with higher scores indicating greater financial constraints, and indicated their age, gender, and income.

Results

Manipulation check. A one-way ANOVA indicated that the manipulation successfully affected the extent to which the purchases were planned in advance ($F(2, 997) = 570.04, p < .001, \eta^2 = .53$). As intended, participants in the planned purchase condition describe purchases that were more planned in advance ($M = 5.16, SD = 1.23$) than did participants in the unplanned purchase condition ($M = 1.65, SD = 1.16, F(1, 997) = 1057.19, p < .001$) and in the control condition ($M = 4.28, SD = 1.68, F(1, 997) = 69.42, p < .001$).

Purchase happiness. We estimated a two-way ANOVA with purchase happiness as the dependent variable and financial constraints (continuous), purchase type (unplanned, planned, control), and their interaction as independent variables. The results revealed a significant main effect of financial constraints ($F(1, 994) = 24.00, p < .001, \eta^2 = .02$), no main effect of purchase type ($F(2, 994) = 0.12, p = .887$), and a marginally significant interaction ($F(2, 994) = 2.70, p = .068, \eta^2 = .003$). Financial constraints had a significant negative effect on purchase happiness in the control condition ($b = -0.10, SE = .04, p = .028$), a significant negative effect on purchase happiness in the unplanned purchases condition ($b = -0.21, SE = .05, p < .001$), and no effect on purchase happiness in the planned purchases condition ($b = -0.07, SE = .04, p = .105$).

Opportunity cost consideration. We estimated a two-way ANOVA with opportunity cost consideration as the dependent variable and financial constraints (continuous), purchase type (unplanned, planned, control), and their interaction as independent variables. The results revealed a significant main effect of financial constraints ($F(1, 994) = 17.81, p < .001, \eta^2 = .02$) a significant main effect of purchase type ($F(2, 994) = 2.94, p = .053, \eta^2 = 0.01$), and, critically, a significant two-way interaction ($F(2, 994) = 4.28, p = .014, \eta^2 = .01$). Financial constraints had a significant positive effect on opportunity cost consideration in the control condition ($b = 0.32,$

SE = .08, $p < .001$), a significant positive effect in the unplanned purchases condition ($b = 0.23$, SE = .08, $p = .004$), and no effect in the planned purchases condition ($b = .01$, SE = .08, $p = .856$).

Moderated mediation. We tested whether the effect of financial constraints on purchase happiness was mediated by opportunity cost consideration and, critically, whether this indirect effect depended on the type of purchase participants recalled. That is, we tested whether the indirect path *financial constraints* → *opportunity cost consideration* → *purchase happiness* was stronger for unplanned purchases than for planned purchases, with purchase type moderating the a-path. Figure 2 illustrates this model. We estimated the standard errors for the indirect effects with 5,000 bootstrapped samples. The results indicated that for unplanned purchases, the indirect effect of financial constraints on purchase happiness through opportunity cost consideration was negative and significant ($b = -0.03$, $p = .018$, 95% CI: [-0.050 to -0.005]). In contrast, for planned purchases, the indirect effect of financial constraints on purchase happiness through opportunity cost consideration was not significant ($b = -0.00$, $p = .870$, 95% CI: [-0.021 to 0.017]).

Figure 2. Moderated mediation model (Study 7)

Discussion

In study 7, we provided further support for the role of opportunity cost as a mechanism explaining the effect of financial constraints on purchase happiness (H2). Furthermore, consistent with this mechanism, we demonstrated the role of planning as a boundary condition for the effect (H3a and H3b). Specifically, we found that the effect of financial constraints on purchase happiness was reduced for planned (vs. unplanned) purchases, because financial constraints have a smaller effect on opportunity cost consideration for planned purchases. We conceptually replicated these results in a supplemental study with a separate sample drawn from the same population ($n = 1,705$) in which we manipulated financial constraints and controlled for several factors that may systematically vary between planned and unplanned purchases (see supplemental study 4 in the Web Appendix).

STUDY 8: PREDICTED VS. ACTUAL PURCHASE HAPPINESS

Thus far, we have demonstrated that financial constraints decrease the happiness consumers derive from their purchases, and that this effect is mediated by opportunity cost consideration. We have further suggested that opportunity cost consideration might differ systematically between past and future purchases. If so, there might be a gap between consumers' predicted versus actual purchase happiness. Importantly, however, this gap should be reduced among financially constrained consumers because they are more likely to spontaneously consider opportunity costs (H4). We tested this prediction in study 8.

Method

Sample and design. We pre-registered this study using AsPredicted (<https://aspredicted.org/blind.php?x=y2cd5y>). We planned to collect data from 1,600 people, and 1,649 people answered the survey on MTurk. After applying our pre-registered exclusion criterial, we had a final sample of 1,577 people (57.8% female, $M_{\text{age}} = 36.08$, $SD_{\text{age}} = 12.20$). This study adopted a 2 (purchase type: past vs. future) x continuous (financial constraints, measured) between-subjects design.

Pre-test. We tested the assumption that future purchases were associated with higher consideration of opportunity costs in a pre-test with a separate sample drawn from the same population ($n = 180$). In the pre-test, people described either a purchase they wanted to make or a purchase that they had made, rated their happiness with it, and answered the following measure of opportunity cost consideration: “When I indicated how much this purchase contributed to my happiness in life [will contribute to my happiness in life], I thought about ways in which I could've spent [can spend] my money other than the purchase I described” (1 = strongly disagree, 7 = strongly agree). As expected, opportunity cost consideration was higher for future purchases ($M = 4.18$, $SD = 1.89$) than for past purchases ($M = 3.47$, $SD = 1.80$, $t(178) = 2.60$, $p = .010$, $d = 0.39$).

Procedure. In the beginning of the survey, participants were asked to describe a purchase they made (past purchase condition) or wanted to make (future purchase condition) for themselves for more than \$100 and less than \$1,000. Next, participants rated purchase happiness with one item adapted from Van Boven and Gilovich (2003). In the past purchase condition, they answered the following question: “How much does this purchase contribute to your happiness in life?” In the future purchase condition, they answered the following question: “How much do

you think this purchase will contribute to your happiness in life?” Participants in both conditions indicated their answer on a 7-point scale anchored by 1 = not at all, 4 = moderately, 7 = very much. Participants then indicated the price of their purchase, and on the following screens, indicated their perceived financial constraints with the same 4 item scale used in study 1 ($\alpha = .89$), with higher scores indicating greater financial constraints. Finally, participants reported their age, gender, and household income in the past 12 months.

Results

Purchase happiness. As specified in our pre-registration plan, we regressed purchase happiness on purchase type (past = 1 vs. future = 0, manipulated), financial constraints (continuous, measured), and their interaction. The results revealed a significant interaction ($b = -0.16$, $SE = 0.05$, $p = .001$). As expected, among consumers who did not feel financially constrained (1 SD below the mean), predicted purchase happiness was lower than actual purchase happiness ($M_{\text{predicted}} = 4.93$, $M_{\text{actual}} = 5.23$, $p = .001$), consistent with opportunity costs being more salient for future purchases than for past purchases. In contrast, among financially constrained consumers (1 SD above the mean), the difference between predicted and actual purchase happiness was not significant ($M_{\text{predicted}} = 5.18$, $M_{\text{actual}} = 5.04$, $p = .154$). That is, because financially constrained consumers are naturally more inclined to consider opportunity costs, they exhibited a smaller gap between predicted and actual purchase happiness. Figure 3 below illustrates the results.

Figure 3. Effect of financial constraints on predicted and actual purchase happiness
(Study 8)

Another way to probe this interaction is to examine the effect of financial constraints on *predicted* purchase happiness and *actual* purchase happiness. In the actual purchase happiness condition, there was a significant negative effect of financial constraints ($b = -0.07$, $SE = 0.03$, $p = .052$), replicating the results reported in our previous studies. Unexpectedly, in the predicted purchase happiness condition, there was a significant positive effect of financial constraints ($b = 0.09$, $SE = 0.03$, $p = .008$).¹

¹ Because of the correlational nature of the data, one alternative explanation for this interaction is that financially constrained consumers describe different purchases than non-financially constrained consumers. However, our data is not consistent with this explanation. If the interaction between financial constraints and purchase type (past vs. future) on purchase happiness is due to financially constrained consumers describing different purchases, one would also expect purchase happiness to be affected by (1) the interaction between income and purchase type and by (2) the interaction between the price of the purchase and purchase type. However, purchase happiness was neither affected by the interaction between income and purchase type ($b = 0.01$, $SE = 0.04$, $p = .720$) nor by the interaction between price and purchase type ($b = -0.00$, $SE = 0.00$, $p = .548$).

Discussion

In study 8, we provided further evidence for the mediating role of opportunity cost consideration by examining systematic differences in the gap between predicted and actual purchase happiness. Consistent with our assertion that opportunity cost consideration is greater for future (vs. past) purchases, we found that, on average, *actual* purchase happiness was greater than *predicted* purchase happiness. Importantly, we found that this gap between predicted and actual purchase happiness was reduced among financially constrained consumers, as they are more likely to spontaneously consider opportunity costs. This result offers further support for the role of opportunity cost consideration as a mechanism underlying the effect of financial constraints on purchase happiness.

Unexpectedly, we found that financial constraints had a positive effect on *predicted* purchase happiness. It is possible that this reversal occurred because of other unobserved psychological differences between past and future purchase. For instance, it is possible that financially constrained consumers anticipated their purchases more (Quoidbach et al. 2015), resulting in higher predictions of purchase happiness. Regardless of the precise mechanism, this reversal suggests that financial constraints may have opposing effects on consumers across different stages of the consumer decision making process.

META ANALYSIS

We aggregated all of the data we collected for this project, resulting in a dataset with 17,750 observations across 33 studies. All of the data were collected online from December 2019 to October 2020. In each study, financial constraints were either measured ($k = 23$) or

manipulated ($k = 10$), and purchase happiness was measured. Consistent with the results reported throughout the manuscript, financial constraints had a significant negative effect on purchase happiness ($r = -0.13$, 95% CI: $[-0.148$ to $-0.119]$, $p < .001$). To our surprise, the magnitude of the effect was not significantly different for studies where financial constraints was measured or manipulated (difference = 0.01 , 95% CI: $[-0.02$ to $0.04]$, $p = .715$).

Our primary goal in meta-analyzing every study we ran was to investigate how the effect of financial constraints on purchase happiness might differ across different purchase types. In our studies, participants rated several characteristics of the purchases they described, either using continuous scales (e.g., “How would you classify this purchase?” 1 = something common or usual, 7 = something rare or unusual) or open-ended responses (“What is the price of the purchase you described?”). To estimate how the effect varied across purchase types, we fit a linear regression on the pooled data². Financial constraints³, all of the purchase characteristics we collected, and the two-way interactions between financial constraints and each purchase characteristic were entered as predictors of purchase happiness, and we controlled for study fixed effects⁴. This analysis contained only data from studies in which all purchase characteristics were collected ($k = 18$, $N = 10,458$). The results revealed some interesting patterns. Despite the large sample size, only four purchase characteristics (of the 10 we collected) significantly interacted with financial constraints to affect purchase happiness. First, the effect of financial

² Performing analyses on the pooled data provides many advantages over standard meta-analytic techniques that rely on analyzing summary statistics from a set of studies (Curran and Hussong 2009). For example, it increases statistical power, allows for a more heterogeneous pooled sample, and increases the frequency of low base-rate observations (Curran and Hussong 2009).

³ Across all our studies, financial constraints were measured with all (or a subset of) the questions used in study 1. Because the effect of financial constraints did not differ between studies in which they were measured (vs. manipulated), in the studies where we manipulated financial constraints, we used participants’ responses to the manipulation checks as a measure of their financial constraints.

⁴ We use fixed (instead of random) effects because (1) we are interested in controlling for, rather than estimating, between-study heterogeneity, and (2) our studies are relatively homogenous with respect to sampling, design, and measurement.

constraints was stronger for unplanned ($b = -0.15$, $SE = 0.01$, 95% $CI = [-0.175 \text{ to } 0.130]$) than for planned purchases ($b = -0.08$, $SE = 0.01$, 95% $CI = [-0.106 \text{ to } -0.063]$; interaction: $b = 0.02$, $SE = 0.00$, $p < .001$), corroborating the results reported in study 7. Second, to our surprise, the effect of financial constraints on purchase happiness was stronger for purchases classified as necessities ($b = -0.15$, $SE = 0.01$, 95% $CI = [-0.177 \text{ to } -0.129]$) than for purchases classified as discretionary ($b = -0.08$, $SE = 0.01$, 95% $CI = [-0.105 \text{ to } -0.056]$; interaction: $b = 0.02$, $SE = 0.00$, $p < .001$). Third, financial constraints had a stronger negative effect on purchases bought with the intention to be used or consumed alone ($b = -0.14$, $SE = 0.01$, 95% $CI = [-0.159 \text{ to } -0.113]$) than purchases bought with the intention to be used or consumed with others ($b = -0.10$, $SE = 0.01$, 95% $CI = [-0.121 \text{ to } -0.0745]$; interaction: $b = -0.05$, $SE = 0.00$, $p < .001$). Finally, the effect of financial constraints was weaker among purchases that could be used many times ($b = -0.09$, $SE = 0.01$, 95% $CI = [-0.112 \text{ to } -0.064]$) than those that could be used only once ($b = -0.15$, $SE = 0.01$, 95% $CI = [-0.170 \text{ to } -0.121]$; interaction: $b = 0.02$, $SE = 0.01$, $p = .002$). Table 2 summarizes these results.

Table 2. Effect of financial constraints on purchase happiness across several purchase types

Purchase Type	<i>b</i>	<i>t</i>	<i>p</i>	95% CI	
				Lower bound	
Interaction: Price	0.00	-1.07	.286	0.000	0.000
Low (\$100)	-0.12	-13.86	< .001	-0.131	-0.099
High (\$1,000)	-0.12	-13.97	< .001	-0.135	-0.102
Interaction: Time elapsed from purchase	0.00	0.36	0.722	-0.004	0.006
Low (-1 SD)	-0.12	-10.61	< .001	-0.142	-0.098
High (+1 SD)	-0.11	-9.68	< .001	-0.137	-0.091
Interaction: Planned-Unplanned	0.02	4.39	< .001	0.010	0.026
Unplanned (-1 SD)	-0.15	-13.14	< .001	-0.175	-0.130
Planned (+1 SD)	-0.08	-7.69	< .001	-0.106	-0.063
Interaction: Material-Experiential	0.00	0.04	.968	-0.009	0.009
Material (-1 SD)	-0.12	-9.42	< .001	-0.142	-0.093
Experiential (+1 SD)	-0.12	-9.44	< .001	-0.141	-0.092
Interaction: Utilitarian-Hedonic	0.01	1.54	.123	-0.002	0.016
Utilitarian (1- SD)	-0.13	-10.5	< .001	-0.156	-0.107
Hedonic (+1 SD)	-0.10	-8.37	< .001	-0.127	-0.079
Interaction: Necessity-Discretionary	0.02	3.93	< .001	0.008	0.025
Necessity (-1 SD)	-0.15	-12.44	< .001	-0.177	-0.129
Discretionary (+1 SD)	-0.08	-6.43	< .001	-0.105	-0.056
Interaction: Alone-Others	0.01	2.27	.023	0.001	0.018
To be used/consumed alone (-1 SD)	-0.14	-11.69	< .001	-0.159	-0.113
To be used/consumed with others (+1 SD)	-0.10	-8.21	< .001	-0.121	-0.075
Interaction: Public-Private	0.00	0.32	.750	-0.006	0.009
Public (-1 SD)	-0.12	-10.37	< .001	-0.142	-0.097
Private (+1 SD)	-0.11	-10.26	< .001	-0.136	-0.093
Interaction: Common-Rare	0.00	0.54	.590	-0.005	0.009
Common (-1 SD)	-0.12	-10.54	< .001	-0.144	-0.099
Rare (+1 SD)	-0.11	-9.88	< .001	-0.135	-0.090
Interaction: Frequency	0.02	3.06	.002	0.006	0.028
Frequency of use: Low (-1 SD)	-0.15	-11.52	< .001	-0.170	-0.121
Frequency of use: High (+1 SD)	-0.09	-7.14	< .001	-0.112	-0.064

Note. This table displays the results of a linear regression model where purchase happiness is predicted by financial constraints, each purchase characteristic, and the interaction between each purchase characteristics and financial constraints. The rows labeled “interaction” display the interaction coefficient for the corresponding purchase characteristic, and the other rows report marginal effect of financial constraints at selected values. The model was estimated on the data of the 18 studies (N = 10,458) where all the purchase characteristics were collected. The model controls for study fixed effects (omitted for parsimony).

It is worth mentioning a few null effects that emerged in the analysis. As we reported in study 1, the effect of financial constraints on purchase happiness was the same for material ($b = -$

0.12, SE = 0.01, 95% CI = [-0.142 to -0.093]) and experiential purchases ($b = -0.12$, SE = 0.01, 95% CI = [-0.141 to -0.092]; interaction: $b = 0.00$, SE = 0.00, $p = .968$). Furthermore, the effect of financial constraints on purchase happiness did not depend on price (interaction: $b = 0.00$, SE = 0.00, $p = .286$), or on the time elapsed from buying the purchase (interaction: $b = -0.01$, SE = 0.01, $p = .549$). Finally, contrary to our expectations, the effect was the same for ordinary ($b = -0.12$, SE = 0.01, 95% CI = [-0.144 to -0.099]) and extraordinary purchases ($b = -0.11$, SE = 0.01, 95% CI = [-0.135 to -0.090]; interaction: $b = 0.00$, SE = 0.00, $p = .590$). Both the significant and null interaction effects revealed in this meta-analysis provide potentially interesting opportunities for future research.

GENERAL DISCUSSION

Feelings of financial constraints are ubiquitous among consumers with varying levels of wealth, and prior research suggests that they may contribute to compensatory consumption (Cannon, Goldsmith, and Roux 2019). Given that compensatory consumption is meant to offset an undesirable state, in this manuscript we investigated whether and why financial constraints influence the happiness consumers derive from their purchases. To do so, we reported eight highly powered studies in the main manuscript, an additional four studies in the Web Appendix, and a meta-analysis including an additional 21 studies (in sum, 33 studies, $N = 17,750$).

Our data revealed four main findings. First, we found that financial constraints decrease the happiness consumers derive from their purchases. This effect is a function of perceived financial constraints, rather than objective constraints. Second, we found that opportunity cost consideration is a mechanism underlying financial constraints' negative effect on purchase

happiness. That is, consumers who feel financially constrained—irrespective of their actual income level—are more likely to consider the opportunity costs of their purchases, which in turn decreases purchase happiness. We provide evidence for the role of opportunity cost consideration both by manipulating (study 6) and measuring it (studies 5 and 7), while ruling out several competing alternative explanations. Third, we found that the effect of financial constraints on purchase happiness results in less favorable reviews (studies 2 and 3). Fourth, consistent with our proposed mechanism, we found that the effect is attenuated for planned purchases (study 7).

Theoretical Contributions

The current work offers important contributions to the growing literature on consumers' subjective wealth and, more specifically, financial constraints. While most of this literature has focused on the effects of financial constraints on consumer attention, preference, and choice, less is known about their effects at later stages of the decision process (for an exception, see Paley, Tully, and Sharma 2019). Understanding the effects of financial constraints on purchase happiness is particularly important because prior research has shown that financially constrained consumers often turn to compensatory consumption (e.g., Sharma and Alter 2012; Tully, Hershfield, and Meyvis 2015; Briers and Laporte 2013; Haisley, Mostafa, and Loewenstein 2008). Our results suggest that, even though financial constraints increase consumers' predicted happiness with their purchases, they decrease the happiness consumers actually derive from their purchases. More broadly, our findings raise the provocative notion that financial constraints may have different (or even divergent) effects on outcomes, depending on the stage of the consumer

decision making process. To our knowledge, our work is the first to provide initial evidence of such a divergence.

In addition, the current work provides an initial step in the direction of clarifying potential differences among different conceptualizations of consumers who have limited resources. Our findings speak directly to prior work by Lee, Hall, and Wood (2018). Specifically, they find that while high SES consumers class derive greater happiness from experiences (vs. material goods), low SES consumers derive greater happiness from material goods (vs. experiences). In contrast, our findings demonstrate that financial constraints cause consumers to derive less happiness from both material and experiential purchases, and that this effect is independent of the effect of social class. While there may be correlations between financially constrained individuals and those in a lower social class, our results suggest that the two may be meaningfully different and lead to divergent outcomes. Thus, the current manuscript highlights the need for additional research investigating potentially systematic differences between concepts (e.g., social class, financial constraints) that may be correlated but conceptually distinct.

Furthermore, our research contributes to existing understanding of how budgetary status and financial constraints affect consumer evaluations. For example, one might assume that spending any portion of one's budget may increase perceptions of financial constraints and decrease evaluations. However, Soster, Gershoff, and Bearden (2014) demonstrate that *only* spending that exhausts a budget to zero increases pain of paying, which in turn reduces purchase satisfaction—the so-called “bottom-dollar effect.” In contrast, we demonstrate that subjective perceptions of financial constraints affect evaluations irrespective of budgetary status and objective constraints. Furthermore, unlike the effect of spending to zero on purchase satisfaction,

we demonstrate that the effect of financial constraints on purchase happiness occurs because of opportunity cost consideration, irrespective of differences in pain of paying. Thus, our work highlights conceptual differences between spending parts of one's budget and feeling financially constrained. Finally, we provide evidence that an important downstream consequence—less favorable consumer reviews—results from the effect of financial constraints on purchase happiness.

Our work also contributes to the growing literature on consumer happiness—specifically, factors that may increase or decrease happiness from purchases. Prior research has identified several ways in which consumers can maximize their happiness from their purchases. This body of work has largely focused on purchase types (Van Boven and Gilovich 2003; Nicolao, Irwin, and Goodman 2009; Dunn, Aknin, and Norton 2008; Whillans et al. 2017) and individual differences (Bhattacharjee and Mogilner 2014; Lee, Hall, and Wood 2018) that contribute to purchase happiness. Less work has systematically investigated how psychological states—in particular, subjective wealth perceptions—contribute to purchase happiness. By showing that subjective perceptions of financial constraints are a key driver of purchase happiness, the current work demonstrate that consumers' psychological states may be an important obstacle for “buying happiness.”

Practical Implications

The current work also offers practical implications for consumer welfare and marketers. First, our findings suggest that consumers may not derive as much happiness from consumption when they feel financially constrained. This finding is considerable given (1) the ubiquity of financial constraints and (2) that financially constrained consumers are precisely those who

expect to experience greater happiness from their purchases. Our work offers a simple recommendation to mitigate this negative effect: planning. When consumers considered purchases that were planned in advance, the detrimental effect of financial constraints was significantly reduced, although it was not completely eliminated. Therefore, our findings suggest that planning may not only allow consumers to better allocate their resources, but also allow them to partially counteract the negative effect of financial constraints on purchase happiness.

Our work also offers insights for marketing managers. For instance, we found that consumers who were not financially constrained were less likely to spontaneously consider opportunity costs; however, they experienced lower purchase happiness when they were prompted to do so (study 6). This finding suggests that marketers interested in enhancing consumers' purchase happiness are better served by highlighting the benefits consumers may get from their purchases rather than highlighting competing products (which may increase opportunity cost consideration). Our work also offers insights for marketers interested in managing consumer reviews. Although marketers often encourage consumers to write reviews for their purchases, our work suggests that they should be conscious about when to encourage their customers to write reviews. Reviews may be particularly negative during times when consumers are more likely to feel constrained—for example, right before payday (Carvalho, Meier, and Wang 2016).

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Web Appendix

Financial Constraints and Purchase Happiness

This version: December 21, 2020

In this Web Appendix, we report (a) additional analyses for the studies reported in the manuscript and (b) four additional studies designed to address several alternative explanations. Supplemental studies 1 and 2 investigate whether the effect of financial constraints on purchase happiness occurs because financial constraints decrease consumers' general satisfaction with life. In supplemental study 1, we replicate the effect of financial constraints on purchase happiness, but do not find an effect of financial constraints in two other domains (spending time with one's family and receiving a gift). In supplemental study 2, we replicate the effect of financial constraints on purchase happiness after explicitly controlling for life satisfaction. Together, these additional studies cast doubt on the alternative explanation that the effect of financial constraints on purchase happiness is driven by a decrease in general life satisfaction.

In supplemental study 3, we rule out the alternative explanation that the effect of financial constraint on purchase happiness is due to mood. To do so, we replicated study 4 and added a measure of mood. The results did not change after we control for mood in a linear regression. In supplemental study 4, we conceptually replicate the results of study 7 in the manuscript while manipulating (instead of measuring) financial constraints, and rule out pain of paying as an alternative explanation.

ADDITIONAL ANALYSIS FOR THE STUDIES REPORTED IN THE MANUSCRIPT

Table 1. Summary of the purchases described by participants in each study

Variables	Study 1	Study 2	Study 4	Study 5	Study 6	Study 7	Study 8
Time elapsed from purchase, median	3-4 months	3-4 months	3-4 months	3-4 months	3-4 months	3-4 weeks	-
Price, mean (SD)	328.1 (370.1)	296.6 (221.1)	317.5 (234.2)	359.1 (233.1)	380.5 (983.5)	231.4 (432.16)	412.5 (254.10)
Planned, mean (SD)	4.7 (1.76)	4.7 (1.76)	4.8 (1.76)	-	-	3.7 (2.02)	-
Material-Experiential	2.4 (1.9)	2.6 (2.03)	2.71 (2.05)	-	-	-	-
Utilitarian-Hedonic	3.7 (1.99)	4.0 (2.01)	4.0 (1.99)	-	-	-	-
Necessity-Discretionary	4.6 (2.15)	4.9 (2.07)	5.0 (2.02)	-	-	-	-
Alone-Others	2.5 (1.88)	2.9 (1.96)	2.8 (1.90)	-	-	-	-
Public-Private	4.8 (2.05)	4.5 (2.09)	4.6 (1.98)	-	-	-	-
Frequency	6.4 (1.59)	6.25 (1.63)	6.1 (1.73)	-	-	-	-
Common-Rare	3.4 (2.10)	3.7 (2.11)	3.8 (2.11)	-	-	-	-

Note. Time elapsed from purchase: “When did you make this purchase?” (1 = 1 = less than 1 week ago, 13 = more than 5 years ago); Price: “What was the price of the purchase you described? If you are not sure, please provide your best estimate.” (open-ended); Planned: “How much in advance did you plan to make the purchase you described?” (1 = not in advance at all, 7 = extremely in advance); Material-Experiential: “How would you classify the purchase you described?” (1 = purely material, 7 = purely experiential); Utilitarian-Hedonic: “How would you classify the purchase you described?” (1 = purely utilitarian, 7 = purely hedonic); Necessity-discretionary: “How would you classify the purchase you described?” (1 = a necessity, 7 = discretionary); Alone-Others (“This purchase was made with the intention to use, have, or consume...” 1 = entirely alone, 7 = entirely with others); Public-Private: (“This purchase was made with the intention to use, have, or consume...” 1 = entirely in public, 7 = entirely in private); Frequency (“This purchase is something I can use/do/consume...” 1 = only once, 7 = many times); Common-Rare: “How would you classify the purchase you described?” (1 = something common or usual for me, 7 = something rare or unusual for me).

Table 2. Effect of financial constraints on purchase happiness (Study 1)

Variables	DV: Purchase Happiness		
	Model 1	Model 2	Model 3
Financial constraints	-0.08** (0.03)	-0.11** (0.04)	-0.08* (0.03)
Age		-0.00 (0.00)	-0.00 (0.00)
Gender (1 = male)		-0.03 (0.09)	-0.11 (0.09)
Ethnicity (1 = White)		0.38*** (0.11)	0.31** (0.10)
Education (1 = college or more)		-0.07 (0.09)	-0.05 (0.09)
Income		-0.04 (0.03)	-0.05 (0.03)
Planned			0.12*** (0.02)
Time elapsed from purchase			-0.03 (0.01)
Price			0.00* (0.00)
Material-Experiential			0.08** (0.03)
Utilitarian-Hedonic			0.11*** (0.03)
Necessity-Discretionary			-0.00 (0.02)
Alone-Others			0.00 (0.02)
Public-Private			-0.03 (0.02)
Frequency			0.17*** (0.03)
Common-Rare			-0.05* (0.02)
Observations	748	748	748
R-squared	0.01	0.03	0.13

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

Table 3. Effect of financial constraints on purchase happiness, star rating, and content of the review (Study 2)

Variables	Purchase Happiness	Star Rating	Content of the Review
Financial constraints	-0.16*** (0.05)	-0.04 (0.03)	-0.06* (0.03)
Income	0.00 (0.03)	0.03 (0.02)	0.03 (0.02)
Social Class	-0.04 (0.04)	-0.02 (0.02)	-0.02 (0.02)
Age	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Gender (1 = male)	-0.25** (0.11)	-0.02 (0.06)	-0.00 (0.06)
Planned	0.08*** (0.03)	0.05*** (0.02)	0.04** (0.02)
Time elapsed from purchase	-0.01 (0.02)	-0.01 (0.01)	-0.01 (0.01)
Price	-0.00 (0.00)	-0.00 (0.00)	-0.00** (0.00)
Material-Experiential	0.00 (0.03)	-0.02 (0.02)	-0.02 (0.02)
Utilitarian-Hedonic	0.10*** (0.03)	0.04** (0.02)	0.03* (0.02)
Necessity-Discretionary	0.01 (0.03)	0.04** (0.02)	0.02 (0.02)
Alone-Others	-0.00 (0.03)	0.00 (0.02)	-0.00 (0.02)
Public-Private	0.01 (0.03)	-0.03* (0.01)	-0.03** (0.02)
Frequency	0.11*** (0.04)	0.09*** (0.02)	0.09*** (0.02)
Common-Rare	-0.00 (0.03)	0.01 (0.01)	-0.00 (0.02)
Observations	562	562	562
R-squared	0.09	0.11	0.10

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. Effect of financial constraints on star rating after excluding restaurant units with ratings

higher or lower than 1.5 SD from the mean (Study 3)

Variables	DV: Star Rating			
	Model 1	Model 2	Model 3	Model 4
Financial constraints	-0.33*** (0.08)	-0.19** (0.06)	-0.23*** (0.06)	-0.17* (0.07)
Chain fixed effects	No	Yes	Yes	Yes
City fixed effects	No	No	Yes	Yes
Control variables	No	No	No	Yes
Observations	749	749	749	749
R-squared	0.02	0.46	0.53	0.54

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

Table 5. Effect of financial constraints on star rating after excluding restaurant units with ratings

higher or lower than 2 SD from the mean (Study 3)

Variables	DV: Star Rating			
	Model 1	Model 2	Model 3	Model 4
Financial constraints	-0.44*** (0.09)	-0.24*** (0.07)	-0.28*** (0.06)	-0.19** (0.07)
Chain fixed effects	No	Yes	Yes	Yes
City fixed effects	No	No	Yes	Yes
Control variables	No	No	No	Yes
Observations	827	827	827	827
R-squared	0.03	0.52	0.59	0.60

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

SUPPLEMENTAL STUDY 1: EFFECT OF FINANCIAL CONSTRAINT IN OTHER DOMAINS

In study 1 reported in the manuscript, we found that financial constraints decreased purchase happiness. In supplemental study 1, we investigated the possibility that this result occurs because financial constraints make people less happy in general. If this alternative explanation is true, then financial constraints should also affect people's happiness in other domains. To test this possibility, we examined the effect of financial constraint on happiness in two other domains: spending time with one's family and receiving a gift.

Method

Sample and design. We recruited 377 people on Amazon Mechanical Turk. We excluded 19 people who did not finish the survey and six who provided non-sensical responses to the open-ended questions, leaving a final sample of 352 people (57.1% female, $M_{\text{age}} = 37.2$). Participants were randomly assigned to one of three between-subjects condition (domain: purchase vs. gift vs. family).

Procedure. First, participants were asked to recall and describe either the last purchase they made for themselves for more than \$100 (purchase condition), the last time they received a gift (gift condition), or the last time they spent time with their family (family condition). Next, they were asked about their happiness with the same item used in study 1 ("When you think about this purchase/gift/occasion, how happy does it make you?" 1 = extremely unhappy, 7 = extremely happy). We then measured financial constraint with the same four items used in study 1: (1) "To what extent do you feel financially constrained?" (1 = not at all, 7 = very much), (2)

“To what extent do you feel you can spend your money freely?” (1 = not at all, 7 = very much, reverse coded), (3) “How would you rate your financial situation relative to your peers?” (1 = much worse, 7 = much better, reverse coded), and (4) “How satisfied are you with your financial situation?” (1 = not at all satisfied, 7 = extremely satisfied, reverse coded). As in study 1, we averaged these items to form an index of financial constraint ($\alpha = .88$), with higher scores indicating greater feelings of financial constraints. Finally, participants reported their age, gender, education, ethnicity, income, social class, political views, religion, religious attendance, marital status, whether or not they live in the capital of their state, and the number of people living in their household.

Results

We were interested in estimating the effect of financial constraint in each of these three domains. To do so, we regressed financial constraint on happiness among participants in each of the three conditions. Replicating the results of study 1, financial constraint had a negative, significant correlation with purchase happiness ($b = -0.17$, $SE = 0.07$, $p = .017$). However, financial constraint was not significantly correlated with happiness with the last gift people received ($b = -0.04$, $SE = 0.06$, $p = .435$) or with the last occasion they spent time with their family ($b = -0.02$, $SE = 0.10$, $p = .836$). These results do not change if we control for all demographic variables we controlled for in this study.

Discussion

In supplemental study 1, we explored whether financial constraints affected happiness in two domains in addition to purchases: receiving a gift and spending time with one's family.

While we replicated the negative effect of financial constraints on purchase happiness, we did not find evidence that financial constraint affects happiness in these two other domains. This result casts doubt on the possibility that financial constraints makes people less happy in general.

SUPPLEMENTAL STUDY 2: CONTROLLING FOR LIFE SATISFACTION

In supplemental study 2, we tested whether the effect of financial constraints on purchase happiness holds after controlling for general life satisfaction. To do so, we asked people to complete the Cantril's ladder (Cantril 1965), a measure of life satisfaction commonly used in prior research (Ng and Diener 2014; Kahneman and Deaton 2010).

Method

Sample and design. We recruited 306 people on Prolific Academic. We followed the same exclusion criteria used in our pre-registered studies and excluded 2 participants who did not finish the study and 3 who provided non-sensical responses to the open-ended questions, resulting in a sample of 301 people (53.2% female, $M_{\text{age}} = 31.1$, $SD_{\text{age}} = 11.9$).

Procedure. First, participants indicated their life satisfaction using the Cantril's ladder (Cantril 1965). Precisely, they were told to imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top, with the top of the ladder representing the best possible life and the bottom of the ladder representing the worst possible life. They then indicated the step of the ladder they thought they stood at the time. Next, participants reported their age, gender, and income.

Participants were then asked to describe a purchase they made for themselves for more than \$100 and less than \$1,000. On the subsequent screen, they indicated their purchase happiness with the following item adapted from Van Boven and Gilovich (2003): “When you think about this purchase, how happy does it make you?” (1 = extremely unhappy, 7 = extremely happy). Participants then indicated the price of the purchase and the time elapsed from buying it. On the subsequent screen, they indicated their feelings of financial constraints with the same 4-item scale used in study 1: (1) “To what extent do you feel financially constrained?”, 1 = not at all, 7 = very much), (2) “To what extent do you feel you can spend your money freely?” (1 = not at all, 7 = very much, reverse coded), (3) “How would you rate your financial situation relative to your peers?” (1 = much worse, 7 = much better, reverse coded), and (4) “How satisfied are you with your financial situation?” (1 = not at all satisfied, 7 = extremely satisfied, reverse coded). These items were averaged to form an index of financial constraints ($\alpha = .87$), with higher scores indicating greater financial constraints.

Results

We regressed purchase happiness on financial constraints, controlling for life satisfaction, age, gender, income, price of the purchase, and time elapsed from buying the purchase. Consistent with the results reported in the manuscript, financial constraints were negatively associated with purchase happiness ($b = -0.28$, $SE = 0.07$, $p < .001$). Life satisfaction was not correlated with purchase happiness ($b = 0.03$, $SE = 0.05$, $p = .523$).

Discussion

The results of supplemental study 2 suggest that the effect of financial constraints on purchase happiness did not change after we controlled for life satisfaction. Together, supplemental studies 1 and 2 cast doubt on the alternative explanation that the effect of financial constraints on purchase happiness occurs because of a general decrease in life satisfaction.

SUPPLEMENTAL STUDY 3: RULING OUT MOOD AS ALTERNATIVE EXPLANATION

In study 4 reported in the manuscript, we found that participants reported lower purchase happiness when financial constraints were salient. The primary goal of supplemental study 3 is to replicate this result while ruling out mood as an alternative explanation. That is, it is possible that writing about their financial constraints put participants in a worse mood than writing about their time constraints, which in turn may have driven the results. To account for this alternative explanation, we asked participants to rate their mood. To further assess the robustness of the findings, we made two other changes to the procedure. First, to make sure that the results of study 4 were not due to demand effects, in supplemental study 3 we first manipulated the salience of financial constraints, and then asked participants to a purchase. To make sure that the manipulation did not affect the purchase participants recalled, we asked them to recall the last purchase they made. Second, while in study 4 we asked participants to describe a purchase that cost between \$100 and \$1,000, in supplemental study 3 we did not provide an upper boundary.

Method

Sample and design. We recruited 349 people on MTurk to answer a short survey about consumption. 64 participants who did not finish the survey and twenty-five who did not follow the instructions were excluded, leaving a final sample of 260 participants (44.6% female, $M_{\text{age}} = 37.12$). We randomly assigned participants to one of two between-subject conditions (financial constraints vs. control).

Procedure. First, we randomly assigned participants to the financial constraints or control condition. The manipulation was the same we used in study 4. That is, participants in the financial constraints condition wrote about the factors that contributed to their financial constraints, and participants in the control condition wrote about the factors that contributed to their time constraints. Next, we asked participants to describe the last purchase they made for themselves for more than \$100. Participants then rated their purchase happiness on the same item used in study 4 (“When you think about this purchase, how happy does it make you?”, 1 = extremely unhappy, 7 = extremely happy, see Van Boven and Gilovich 2003) and answered the same questions about the purchase they described as those used in study 4. To measure mood, we asked participants to rate the extent to which they (a) felt happy, (b) were in a good mood, (c) felt sad, and (d) were in a bad mood on a 7-point scale anchored by 1 = not at all, 7 = very. We reverse coded the last two items and averaged the four items to create an index of mood ($\alpha = .85$), such that higher scores indicate a more positive mood. As a manipulation check of the financial constraint manipulation, we asked participants to indicate the extent to which they felt financially constrained (“To what extent do you feel financially constrained?”, 1 = not at all, 7 = very much).

Results

Manipulation check. Participants in the financial constraint condition felt more financially constrained ($M = 5.03$) than participants in the control condition ($M = 4.57$, $t(258) = 2.21$, $p = .028$), indicating that the manipulation was successful.

Purchase happiness. Replicating the results of study 4, participants in the financial constraints condition reported lower purchase happiness ($M = 5.46$) than did participants in the control condition ($M = 5.95$, $t(258) = 3.23$, $p = .001$, $d = 0.40$). Controlling for purchase characteristics in a linear regression does not change this result ($b = -0.40$, $SE = 0.15$, $p = .008$).

Mood. Those in the financial constraints condition reported a more negative mood ($M = 5.08$) than those in the control condition ($M = 5.47$, $t(258) = 2.44$, $p = .015$, $d = 0.30$). To test if mood explained the effect of the manipulation on happiness, we estimated a regression with happiness as the dependent variable, a dummy indication for condition (1 = financial constraints, 0 = control), and mood as the independent variables. The effect of condition remained significant ($b = -0.40$, $SE = 0.15$, $p = .008$), suggesting that the effect of financial constraints on purchase happiness is not due to mood.

Discussion

In this study, we replicated the results of study 4 while addressing the alternative explanation that the effect of financial constraints on purchase happiness is due to mood. The data did not support this alternative explanation. Even though mood was correlated with purchase happiness, the effect of financial constraints on purchase happiness did not change after we controlled for mood.

SUPPLEMENTAL STUDY 4: PLANNED VS. UNPLANNED PURCHASES

In this study, we conceptually replicated study 7 reported in the manuscript with a few differences. First, while in the study reported in the manuscript we measured financial constraints, in this study we manipulate them. Second, we measured and controlled for several purchase characteristics that might differ systematically between planned and unplanned purchases. Third, we tested whether pain of paying explains the results by explicitly measuring it.

Method

Sample and design. We recruited 1,800 participants on Mechanical Turk to participate in a short survey. 2,023 participants signed up for the study. We followed the exclusion criteria used in our other studies and excluded 217 participants who did not finish the study and 101 participants who provided nonsensical responses to the open-ended questions, leaving a final sample of 1,705 participants (58.4% female, $M_{\text{age}} = 36.55$, $SD_{\text{age}} = 12.38$). This study adopted a 2 (condition: financial constraints vs. control) x 2 (purchase type: planned vs. unplanned) between-subjects design.

Procedure. At the beginning of the study, we manipulated the salience of financial constraints by randomly assigning participants to one of two conditions. In the financial constraints condition, we made financial constraints salient by asking people to write about the factors that contribute to their financial constraints using the same prompt used in study 4. In the control condition, we asked participants to write about one of their hobbies. We selected a

control condition that was unlikely to induce thoughts about constraints to test the robustness of the financial constraints manipulation.

Next, participants recalled and described a purchase that they made for themselves for more than \$50 and less than \$1,000. We randomly assigned them to describe either a planned or an unplanned purchase. To make sure that the financial constraints manipulation did not affect the purchase participants recalled, we asked them to describe the *most recent* planned [vs. unplanned] purchase they made for themselves. Specifically, they read the following prompt:

“Think about the most recent purchase that you made for yourself for more than \$50 and less than \$1,000 that was **planned in advance** [**not planned in advance**]. By **planned in advance** [**not planned in advance**] we mean that you decided to make this purchase **beforehand** [**at the moment/spontaneously**], rather than **at the moment/spontaneously** [**beforehand**]. Please describe this “**planned**” [“**unplanned**”] purchase that you made for yourself below. Provide as much details as possible.”

After describing their purchases, participants rated their purchase happiness with the same item adapted from Van Boven and Gilovich (Van Boven and Gilovich 2003) we used in studies 1 (“When you think about this purchase, how happy does it make you?”, 1 = extremely unhappy, 7 = extremely happy) and answered the same set of questions about their purchases used in study 1. To rule out the alternative explanation that the effect is driven by pain of paying, participants indicated their pain of paying for their purchase (“How painful was it to pay for this purchase?”, 1 = not at all painful, 7 = very painful).

Finally, to ensure that the financial constraints manipulation worked as intended, participants completed the same 4-item measure of financial constraints used in studies 1. To ensure that the purchase type manipulation worked as intended, participants completed the

following item: “How much in advance did you plan to make the purchase you described?” (1 = not in advance at all, 7 = extremely in advance).

Results

Manipulation checks. To examine whether the financial constraints manipulation was successful, we conducted a two-way ANOVA on people’s self-reported financial constraints with condition (financial constraints vs. control), purchase type (planned vs. unplanned), and their interaction as independent variables. The main effect of condition was significant, such that participants in the financial constraints condition reported higher financial constraints ($M = 4.98$, $SD = 1.35$) than did participants in the control condition ($M = 4.51$, $SD = 1.37$, $F(1, 1701) = 50.28$, $p < .001$, $\eta^2 = .03$), indicating that the manipulation was successful. Neither the main effect of purchase type ($p = .591$) nor the interaction between the two factors was significant ($p = .887$).

To examine whether the purchase type manipulation was successful, we conducted a two-way ANOVA on participants’ ratings of how much in advance they planned to make the purchase they described with condition (financial constraints vs. control), purchase type (planned vs. unplanned), and their interaction as independent variables. There was a significant main effect of purchase type, such that the purchases described by the participants in the planned purchase condition were more planned in advance ($M = 4.99$, $SD = 1.35$) than the purchases described by participants in the unplanned purchase condition ($M = 2.07$, $SD = 1.47$, $F(1, 1701) = 1818.27$, $p < .001$, $\eta^2 = .52$), indicating that the purchase type manipulation was successful. Neither the main effect of the financial constraints manipulation ($p = .613$) nor the interaction between the two factors were significant ($p = .431$).

Purchase happiness. We predicted that the effect of financial constraints on purchase happiness would be attenuated for planned purchases. In other words, we expected a two-way interaction between the financial constraints manipulation and the purchase type manipulation on purchase happiness. We conducted a two-way ANOVA with the two experimental factors and their interaction as independent variables and purchase happiness as the dependent variable. There was a significant main effect of the financial constraints manipulation, such that participants in the financial constraints condition reported lower purchase happiness ($M = 5.26$, $SD = 1.63$) than did participants in the control condition ($M = 5.78$, $SD = 1.24$, $F(1, 1701) = 59.33$, $p < .001$, $\eta^2 = .032$). There was also a significant main effect of purchase type, such that purchase happiness was higher for planned ($M = 5.87$, $SD = 1.19$) than unplanned purchases ($M = 5.19$, $SD = 1.62$, $F(1, 1701) = 103.78$, $p < .001$, $\eta^2 = .056$). Crucially, the two-way interaction between condition (financial constraints vs. control) and purchase type (planned vs. unplanned) was significant ($F(1, 1701) = 16.12$, $p = .004$, $\eta^2 = .004$). Pairwise comparisons indicated that the effect of financial constraints on purchase happiness was stronger for unplanned purchases ($M_{\text{financial constraints}} = 4.81$, $SD_{\text{financial constraints}} = 1.78$, $M_{\text{control}} = 5.53$, $SD_{\text{control}} = 1.38$, $p < .001$) than for planned purchases ($M_{\text{financial constraints}} = 5.70$, $SD_{\text{financial constraints}} = 1.32$, $M_{\text{control}} = 6.02$, $SD_{\text{control}} = 1.03$, $p = .001$). Figure 1 illustrates these results.

Figure 1. Effect of financial constraints and purchase type on purchase happiness (supplemental study 4)

Because planned and unplanned purchases may vary systematically along several dimensions, we examined whether this effect was robust after we controlled for the purchase characteristics we measured. The results indicate that the two-way interaction between the two experimental factors remained significant ($F(1, 1692) = 7.59, p = .006, \eta^2 = .004$).

Pain of paying. We also examined whether the results occurred because of differences in pain of paying. We conducted a two-way ANOVA with pain of paying as the dependent variable and condition (financial constraints vs. control), purchase type (planned vs. unplanned), and their interaction as independent variables. There were significant main effects of condition ($F(1, 1701) = 61.95, p < .001, \eta^2 = .034$) and purchase type ($F(1, 1701) = 24.11, p < .001, \eta^2 = .013$), such that pain of paying was greater in the financial constraints condition ($M = 3.78, SD = 1.86$) than in the control condition ($M = 3.11, SD = 1.73$), and greater for unplanned purchases ($M = 3.64, SD = 1.84$) than for planned purchases ($M = 3.22, SD = 1.79$). However, the interaction between

condition and purchase type was not significant ($F(1, 1701) = 0.46, p = .500$), suggesting that the effect is not due to differences in pain of paying. Furthermore, the interaction between condition (financial constraints vs. control) and purchase type (planned vs. unplanned) on purchase happiness does not change in an ANCOVA with pain of paying as a continuous covariate ($F(1, 1700) = 7.83, p = .005, \eta^2 = .003$). These results suggest that pain of paying does not explain the interaction between financial constraints and purchase type on purchase happiness.

Discussion

In supplemental study 4, we provided further evidence for the role of opportunity cost consideration in explaining the effect of financial constraints on purchase happiness by comparing two types of purchases for which opportunity cost consideration varies systematically: planned and unplanned purchases. We found that the effect of financial constraints on purchase happiness was attenuated for planned purchases. This replicates the results reported in study 7 in the manuscript.

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