Check for updates

Received: 28 June 2023 | Accepted: 8 January 2024

DOI: 10.1002/mar.21970

RESEARCH ARTICLE

Psychology & Marketing WILEY

Cut me some slack! How perceptions of financial slack influence pain of payment

Justin Pomerance[1] | Nicholas Reinholtz[2]

[1]University of New Hampshire, Peter T. Paul College of Business and Economics, Durham, New Hampshire, USA

[2]University of Colorado Boulder, Leeds School of Business, Boulder, Colorado, USA

Correspondence
Justin Pomerance, University of New Hampshire, Peter T. Paul College of Business and Economics, 10 Garrison Ave., Durham, NH 03824, USA.
Email: Justin.Pomerance@UNH.edu

Abstract

Consumers often experience pain of payment, a tug of negative affect that holds back their spending. While the literature has long viewed pain of payment as self-regulatory in nature, it has left the dynamics of self-regulation that lead to the pain of paying largely unaddressed. In self-regulation, affect arises when people move away from a goal they hold. Thus, understanding the specific goals that people consider when making a payment can help us better predict when pain of payment will arise. We propose that people have a goal to maintain financial slack, and that violating this goal contributes to pain of payment. Thus, people experience more pain of payment when the goal to maintain financial slack is stronger or when it is particularly salient that a purchase entails losing financial slack. Critically, subjective changes in financial slack are not equivalent to objective changes in wealth, altering pain of payment for economically equivalent trades. This research contributes to the existing literature by identifying a novel antecedent to the pain of payment. It additionally expands our understanding of people's preferences between payment systems. Finally, it offers guidance to practitioners who wish to minimize pain of payment among their consumers.

KEYWORDS

affect, goals, mental accounting, pain of payment, self-regulation

1 | INTRODUCTION

When people consider a purchase, a slight tug of negative emotion sometimes holds them back. For instance, imagine choosing a new smartphone, and hoping to get the top model. Even if you have budgeted for the purchase ahead of time, and know full well that you can afford it, a small, aversive feeling might ultimately guide you toward a cheaper, lower-end model. Prior research identifies this feeling as the pain of payment, defined as the negative affective reaction that people experience when parting with their money (Prelec & Loewenstein, 1998).

The pain of payment was initially described as an affective outcome of self-regulation (Prelec & Loewenstein, 1998). In self-regulation, negative affect arises when people move away from a goal they hold (Bagozzi et al., 1998; Baumgartner & Pieters, 2008; Carver & Scheier, 1990; Ellsworth & Scherer, 2003; Kopetz et al., 2012; Louro et al., 2007). Yet recent research has paid more attention to moderators and consequences of the pain of payment than to its self-regulatory underpinnings (e.g., Shah et al., 2016; Thomas et al., 2011). Thus, in this research we ask: What are the goals that, when violated, lead to the pain of payment? We investigate the goal to maintain financial slack, defined as one's perceived surplus of spare financial resources (Zauberman & Lynch, 2005). We argue that given two equivalent payments—paying the same dollar amount, using the same payment mechanism, at the same time, for the same good or service—the one that decreases perceived slack more will be more painful.

This research advances our conceptual understanding of the pain of payment by connecting the construct to the literature on self-regulation and goal pursuit (Bagozzi et al., 1998; Carver & Scheier, 1990; Van Osselaer et al., 2005). This research additionally has implications for the

 © 2024 Wiley Periodicals LLC.

consumer psychology surrounding novel digital payment applications and technologies. For instance, the payment application *Venmo* creates a new store of wealth inside the app. The competing payment application *Zelle* instead draws from pre-existing stores of wealth such as one's checking account. Our results demonstrate that app-specific balances are less associated with financial slack, and so are less painful to deplete (Study 5). Finally, this research has implications for marketing practitioners wishing to minimize pain of payment among their consumers. We address these points further in the general discussion.

2 | EXISTING LITERATURE: SELF-REGULATION AND PAIN OF PAYMENT

Since its origin, the pain of paying has been conceptualized as an affective outcome of a self-regulatory process, a conceptualization that has persisted as the literature has evolved (Prelec & Loewenstein, 1998; Shah et al., 2016; Sheehan & Van Ittersum, 2018; Thomas et al., 2011; Zellermayer, 1996). However, understanding the self-regulatory dynamics underlying the pain of paying has not been a central focus of the literature. We argue that a deeper investigation of the assumption that pain of payment is an outcome of a self-regulatory process can lead to a better understand the pain of payment theoretically and can lead to novel findings and practical contributions. In this section, we briefly review the pain of payment literature, noting that it has three main focuses: (i) how the physical form of payment influences pain of payment, (ii) the temporal dynamics of the pain of payment, and (iii) consequences of the pain of payment. While existing research clearly deals with affective outcomes, and some of it demonstrates that the pain of payment can have self-regulatory consequences (e.g., Thomas et al., 2011), it does not primarily focus on the dynamics of self-regulation that lead to the pain of payment.

Perhaps the best-known subset of the pain of paying literature describes the effects of different payment mechanisms (e.g., cash, credit cards, debit cards, gift cards) on the pain of payment (Feinberg, 1986; Hirschman, 1979; Prelec & Simester, 2001; Raghubir & Srivastava, 2008; Soman, 2001, 2003). In general, this work argues that because some payment mechanisms make the loss of one's money more salient, they make payments feel more painful. For instance, cash has been shown to highlight the loss of one's money, while credit cards enshroud the loss (Feinberg, 1986; Hirschman, 1979; Prelec & Simester, 2001; Soman, 2001, 2003. This body of research has become influential enough that researchers have begun investigating the effects of payment mechanisms on other outcomes, such as product perception and temporal discounting (Chatterjee & Rose, 2012; Duclos & Khamitov, 2019).

A second subset of literature investigates the temporal dynamics of the pain of payment. Prelec and Loewenstein (1998) argue that people are "debt averse," meaning it is particularly painful incur "debt" (when you owe money on a purchase you have already consumed), because you do not have thoughts of enjoyable consumption in the future to offset the pain of paying. This leads people to avoid payment after consumption (Quispe-Torreblanca et al., 2019). The pain of payment can additionally influence how spending evolves over the course of a shopping trip, as people experience it each time they add an item to their basket rather than just when paying at the end of a trip (Sheehan & Van Ittersum, 2018).

A third subset of the pain of payment literature describes consequences of the pain of payment. For instance, the more pain of payment people experience, the less they enjoy their purchase (Lee & Tsai, 2014; Prelec & Loewenstein, 1998; Soster et al., 2014), and the more likely they are to develop a psychological connection with their purchase in an effort to reduce cognitive dissonance (Shah et al., 2016). The pain of payment additionally has implications for whether and how much consumers choose to purchase (Lee et al., 2019; Sheehan & Van Ittersum, 2018), the number of vice purchases people make (Thomas et al., 2011), and even who people choose to marry (Rick et al., 2011). While this work demonstrates pain of payment can have self-regulatory *consequences*, such as leading people to make fewer vice purchases (Thomas et al., 2011), this work does not focus on the self-regulatory *antecedents* of the pain of payment.

While the papers reviewed here clearly deal with affective responses, and at times speculate as to why the pain of payment might arise (Prelec & Loewenstein, 1998), the connection between these affective responses and self-regulation has received relatively little attention. As reviewed in the following section, self-regulatory affect results from the violation of specific goals. Thus, in this research we ask: What are the goals that, when violated, lead to the pain of payment?

3 | THE GOAL TO MAINTAIN FINANCIAL SLACK

Pain of payment is an affective outcome of self-regulation (Prelec & Loewenstein, 1998; Reshadi & Paula Fitzgerald, 2023; Zellermayer, 1996). In self-regulation, affect results from a comparison of one's current position with one's desired position relative to a goal (Bagozzi et al., 1998; Baumgartner & Pieters, 2008; Carver & Scheier, 1990; Ellsworth & Scherer, 2003; Kopetz et al., 2012; Louro et al., 2007). When people feel that their behavior moves them away from their goal, negative affect results, acting as a signal and as a motivator (Bagozzi et al., 1998; Carver & Scheier, 1990; Louro et al., 2007). Self-regulatory affect thus involves behavior, goals, and a comparison of the two. Past research, as well as the definition of pain of payment, identifies an affective outcome (pain) and its precipitating behavior (payment). In this research, we identify one goal involved in the pain of payment.

Goals are "internal representations of desired states" (Austin & Vancouver 1996, p. 338). Financial goals are clearly important to people—a 2018 survey from the American Psychological Association reported that "money and work consistently top the list of stressors for adults" (APA, 2018). Yet identifying the specific goal most relevant to pain of payment is difficult, in part, because existing literature contains many closely constructs (e.g., financial constraints, financial deprivation, financial satisfaction, financial scarcity, financial well-being, income, poverty, financial slack, SES, subjective SES, and subjective wealth; see Tully & Sharma, 2022). These constructs differ along several dimensions: subjective versus objective, affective

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

versus cognitive, current- versus future-oriented, and inadequacy- versus adequacy-focused (Tully & Sharma, 2022). We argue that financial slack—an individual's "perceived surplus (or deficit) of spare money… at a given point in time" (Berman et al., 2016)—best fits the pain of payment. Pain of payment is subjective in nature; while financial slack is a subjective judgment, constructs like income, poverty, and SES are objective measures. Additionally, the goal pursuit literature holds that affect arises from people's cognitive judgments of their goal progress (Bagozzi et al., 1998; Carver & Scheier, 1990; Louro et al., 2007), consistent with a cognitive construct like financial slack rather than a primarily affective construct like financial wellbeing or financial satisfaction. Finally, perceived financial constraints and perceived scarcity are the conceptual *inverse* of financial slack (Paley et al., 2018, p. 2). We believe that a goal of maintaining financial slack is more conceptually fluent than an equivalent goal of avoiding financial scarcity or financial constraints, though we agree with past research suggesting that these are two sides of the same psychological coin. On the basis of this reasoning, we argue there is a relationship between financial slack and pain of payment, consistent with the goal pursuit and self-regulation literature described previously (Figure 1).

H1: Reductions in perceived financial slack (e.g., as a result of spending) will result in pain of payment.

While it is perhaps self-evident that consumers prefer to have more financial slack, we present one study in Appendix S1 demonstrating that consumers do indeed hold a goal to maintain financial slack.

4 | UNEQUAL PAIN OF PAYMENT ACROSS MENTAL ACCOUNTS

Mental accounting research demonstrates that people divide their wealth into mental accounts that have specific purposes (e.g., grocery money vs. gas money), or specific sources (e.g., money from one's paycheck vs. money received as a birthday gift; Heath & Soll, 1996; Henderson & Peterson, 1992; Shefrin & Thaler, 1988; Thaler, 1985, 1999; Zelizer, 1997; Zhang & Sussman, 2018). Critically, money is not fungible across these mental accounts and is treated differently depending on the mental accounts in which it is held (Morewedge et al., 2007). This can be observed in multiple previous findings: For instance, anticipated income influences judgments of future slack more than anticipated expenditures (Berman et al., 2016). Similarly, assets and liabilities influence judgments of personal wealth differently depending on whether one's net worth is positive or negative (Sussman & Shafir, 2012). Consumers spend more when larger stores of wealth are made cognitively accessible, they feel more pain when a payment completely depletes a given mental account (even for equivalent payments), and they exhibit different marginal propensities to consume out of different stores of wealth (Case et al., 2005; Shefrin & Thaler, 1988; Soster et al., 2014; Thaler, 1985). If people weigh their various mental differently when judging financial slack, a given payment may feel like a larger reduction in financial slack depending which account it comes from (Figure 1). In conjunction with H1, we thus hypothesize:

H2: The more strongly a mental account is weighted in judgments of financial slack, the more painful it will be to spend down.

Why are there differences in how much weight mental accounts receive in slack judgments? First, some mental accounts are likely to be called to mind more quickly when people are judging their financial slack. Mental accounts are categories and are members of broader categories (Heath & Soll, 1996; Henderson & Peterson, 1992; Medin & Schaffer, 1978; Reinholtz et al., 2015; Rosch et al., 1976; Thaler, 1985, 1999; Zhang & Sussman, 2018). Someone may have a mental account labeled *dining out money*, which itself is a member of a broader mental account labeled *discretionary spending*. Categories more typical of a broader category are called to mind more quickly (Medin & Schaffer, 1978; Rosch et al., 1976). For instance, when asked whether birds can fly, people are more likely to consider a pigeon than a penguin, as pigeons are more typical birds. Because they are called to mind more quickly, pigeons will more strongly

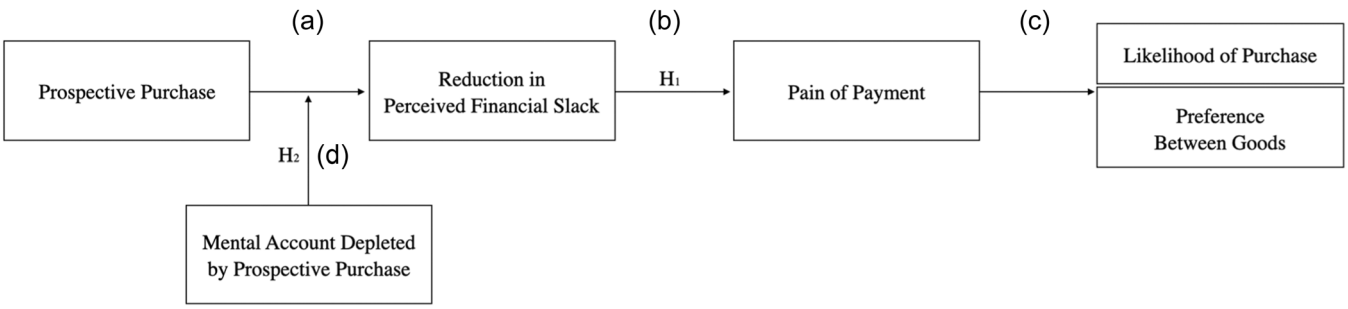


FIGURE 1 Overview of conceptual model. We hypothesize that reductions in perceived financial slack predict pain of payment (path b; H_1). Purchases may deplete mental accounts to a greater or lesser extent, depending on how strongly the mental account depleted is associated with judgments of financial slack (path d; H_2). Pain of payment influences downstream consequences (path c), reducing the likelihood of making a purchase, and leading to a preference for the alternative that carries less pain of payment. Studies 1 and 2 address H_1; studies 2, 4, and 5 address H_2; studies 3 and 5 address downstream consequences.

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

influence people's answer than penguins (and they will say that birds can fly). When judging their financial slack, mental accounts that best typify financial slack—for example, checking accounts—will come to mind most quickly. If those mental accounts are full, people will feel more slack; if those mental accounts are empty, people will feel less slack. While they may not fully *ignore* other accounts, other mental accounts should have less influence on perceptions of slack (and, per H2, carry less pain of payment). Of course, which mental accounts come to mind most quickly will vary across consumers; but across consumers, the mental accounts that come to mind more quickly when judging financial slack should be more painful to deplete.

Some mental accounts may additionally influence slack judgments more than others because they can be used more broadly. For instance, SNAP benefits can be spent exclusively on food. While SNAP benefits objectively improve financial welfare by freeing up unrestricted resources such as US dollars, they may contribute to perceptions of financial slack less than unrestricted resources, making them less painful to spend. Self-imposed restrictions on a mental account may operate similarly; for instance, people may feel that their "dining out" money can only be spent at restaurants, reducing its contribution to financial slack and its pain of payment (Webb & Spiller, 2014). Similarly, if people use payment apps such as Venmo or the Cash app for specific purposes (e.g., paying repairmen), the money stored in a payment app may factor less into slack judgments, even though it can be easily transferred into one's checking account.

In summary, we argue (i) people hold a goal to maintain financial slack, (ii) changes in perceived financial slack are one antecedent of the pain of payment, and (iii) a given payment may be more or less painful depending on the account from which it comes (see Figure 1 for an overview). Previous research investigates who is most likely to experience pain of payment, as well as how pain of payment influences spending, post-purchase connection to products, and even romantic behavior (Quispe-Torreblanca et al., 2019; Rick et al., 2008, 2011; Shah et al., 2016). In this research, we contribute one psychological antecedent to the pain of payment—the goal to maintain financial slack.

5 | OVERVIEW OF STUDIES

We present an ovierview of our conceptual framework, as well as how each study relates to it, in Figure 1. In studies 1 and 2, we measure and manipulate the goal to maintain financial slack, demonstrating that the more strongly people hold this goal, or the more salient the goal is, the more pain of payment they experience. In studies 3 and 4, we demonstrate that accounts that are more strongly associated with financial slack are more painful to deplete. In study 3 we measure the association between different accounts and slack using a conjoint-type design at an individual level. We show that, controlling for the monetary value of an account, paying from accounts more associated with financial slack corresponds to greater pain of payment. In study 4, we manipulate the extent to which a given account is associated with financial slack by restricting its use, influencing both slack judgments and pain of payment. In study 5, we demonstrate that a given purchase (e.g., $85 for a North Face Backpack) is more painful with Zelle than with Venmo, consistent with our prediction that the former has greater implications for financial slack than the latter. Throughout our studies, we investigate whether pain of payment additionally has downstream implications for preferences, bolstering our confidence that the effects we identify will have real-world implications. We additionally present one study in Appendix S1 demonstrating that consumers hold a goal to maintain financial slack.

Throughout our studies, we use Amazon Mechanical Turk (MTurk) as our main source of data. Online platforms like MTurk have become increasingly popular for sourcing research participants due to their convenience, speed, access to broader demographic samples, and cost-effectiveness (Aguinis et al., 2021; Goodman & Paolacci, 2017; Hauser et al., 2019). However, there are several limitations of online platforms like MTurk. For instance, the demographics of online samples are unlikely to be representative of the general population, participants on MTurk often take many surveys and so may develop atypical response patterns, participants may put forth little effort/pay little attention to the surveys they take, and researchers have little insight into the environment in which participants sit to take a survey. Notwithstanding these potential drawbacks, MTurk samples have been utilized extensively, and their use continues to grow (Aguinis et al., 2021; Goodman & Paolacci, 2017; Hauser et al., 2019). While there are inherent limitations of MTurk samples—as there are with any sample—its widespread use and acceptance in diverse academic fields underscore its value. In study 5, we transition to using a student sample of participants. This offers two advantages. First, we observe our hypothesized effects in a non-MTurk sample, bolstering the generalizability of the findings across studies. Second, because undergraduate students are a more homogeneous group, we can be more confident that the choices we present them with (e.g., between two pairs of headphones) are relevant.

All anonymized survey materials are available in an OSF folder[1]; data and code will be made available upon publication in the same folder.

6 | STUDY 1: IMPORTANCE OF FINANCIAL SLACK PREDICTS PAIN OF PAYMENT

Our aim in study 1 is to demonstrate that the more strongly people hold a goal to maintain financial slack, the more pain of payment they experience (H1). We pre-registered analyses and predictions for this study through AsPredicted.org (see Appendix S1 for the pre-registration).

6.1 | Method

We recruited 305 participants from MTurk. We removed four responses with duplicated MTurk IDs, leaving a final sample size of 301 (107 female,

[1]https://osf.io/sf65h/?view_only=a093346a6f81449b80783383485af9d8.

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

193 male, 1 not reporting; M_{age} = 35.28). Twenty-eight participants failed an attention check; results include these participants, and do not change when excluding them. As we did not have a clear way to estimate an effect size a priori, we chose a sample size of 300, affording 94% power to detect a correlation of size $r = 0.20$.

Participants first read a short description of financial slack (available in Appendix S1), and answered two comprehension questions. After reading the description of financial slack, participants answered five personality questions, intended to clear working memory and reduce hypothesis guessing. Participants then answered two blocks of questions which we counterbalanced and separated with a series of distractor questions.

One block of questions asked about the importance of three different goals: maintaining financial slack, long-term financial goals, and eating healthily. For each goal, participants responded to four questions: (i) "____ is important to me," (ii) "I prioritize ____," (iii) "I think a lot about my ____," and (iv) "I carefully monitor my ____" (blank lines read "maintaining [financial slack]," "eating healthily," and "long term financial goals").

The other block of questions included three items measuring pain of payment: (i) "Spending (or thinking about spending) my money sometimes causes me stress," (ii) "Spending (or thinking about spending) my money is sometimes emotionally painful for me," and (iii) "I sometimes spend less because of the negative emotions that spending causes"; all questions used 11-point scales coded from −5 to 5, anchored at *Disagree* and *Agree* with *Neither disagree nor agree* marking the midpoint).

In Appendix S1, we present a pre-registered factor analysis confirming that the items measuring the importance of the maintaining slack, eating healthily, long-term financial health, and pain of payment, loaded on four distinct factors. This ensures that our independent and dependent variables were distinct. Participants indicated their age, sex, household income (16 bins from under $10,000 to $150,000+ in $10,000 increments), and country of residence before finishing the study.

6.2 | Results and discussion

6.2.1 | Results

Consistent with H1, the stronger an individual's goal to maintain financial slack, the more pain of payment they experienced ($r = 0.36$, $t(299) = 6.74$, $p < 0.001$; Table 1; Figure 2). The importance of financial slack remained a significant predictor of pain of payment when controlling for long-term financial goals and healthy eating in an OLS regression model ($\beta = 0.36$, $t(297) = 4.65$, partial $\eta^2 = 0.068$, $p < 0.001$). Longer-term financial goals also correlated positively with pain of payment ($\beta = 0.20$, $t(297) = 1.98$, partial $\eta^2 = 0.011$, $p = 0.049$). Notably, the importance of healthy eating did not influence pain of payment ($\beta = 0.10$, $t(297) = 1.25$, partial $\eta^2 = 0.005$, $p = 0.211$), which is inconsistent with the possibility that the observed relationship between financial slack and pain of payment was an experimental artifact. We ran one additional regression model adding household income as a covariate to the model just described. Again, financial slack predicted of pain of payment ($\beta = 0.37$, $t(292) = 4.81$, partial $\eta^2 = 0.073$, $p < 0.001$). This suggests our results are not due to people with lower income feeling it is more important to maintain slack, and feeling more pain of payment due to objective financial constraints. We note that household income had a negative effect on pain of payment ($\beta = -0.17$, $t(292) = 3.85$, partial $\eta^2 = 0.048$, $p < 0.001$).

TABLE 1 Summary statistics, reliabilities, and correlations for variables in study 1.

	M	SD	α	Correlations (1)	(2)	(3)	(4)
(1) Slack goal	2.31	2.08	0.89	–			
(2) Long term financial goals	3.09	1.73	0.87	0.41	–		
(3) Healthy eating goal	2.35	2.27	0.91	0.40	0.50	–	
(4) Pain of payment	1.48	2.70	0.88	0.36	0.28	0.25	–
(5) Household income	6.01[a]	3.24	–	0.02	0.15	0.03	−0.17

[a]A six on the income scale most closely matches the bin for $50,000–$59,999.

6.2.2 | Discussion

Study 1 provides initial evidence for the relationship between financial slack and pain of payment. While prior literature suggests that pain of payment is self-regulatory (Prelec & Loewenstein, 1998), and demonstrates the self-regulatory consequences of pain of payment (e.g., Thomas et al., 2011), they do not investigate the self-regulatory goals underlying the pain of payment, as we do in study 1. Notably, long-term financial goals and household income do not explain this relationship, inconsistent with the possibility that broader perceptions of financial scarcity instead drive pain of payment (Tully & Sharma, 2022). Additionally, the importance of an unrelated goal (healthy eating) did not predict pain of payment; this suggests that the effects of financial slack are not simply an experimental artifact (e.g., participants mindlessly reporting agreement to all items).

The correlational nature of study 1 prevents us from making causal conclusions regarding the relationship between financial slack and pain of payment. In study 2 we manipulate the salience of financial slack, seeking evidence for a causal relationship between financial slack and pain of payment.

7 | STUDY 2 MANIPULATING SALIENCE OF FINANCIAL SLACK HEIGHTENS PAIN OF PAYMENT

In study 2, we replicate the relationship between slack and pain of payment observed in study 1, providing further evidence for H1. Study 2 additionally extends study 1 in two key ways. First, study 2 uses an experimental manipulation to establish a causal relationship between financial slack and pain of payment. By manipulating salience, we can alter

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

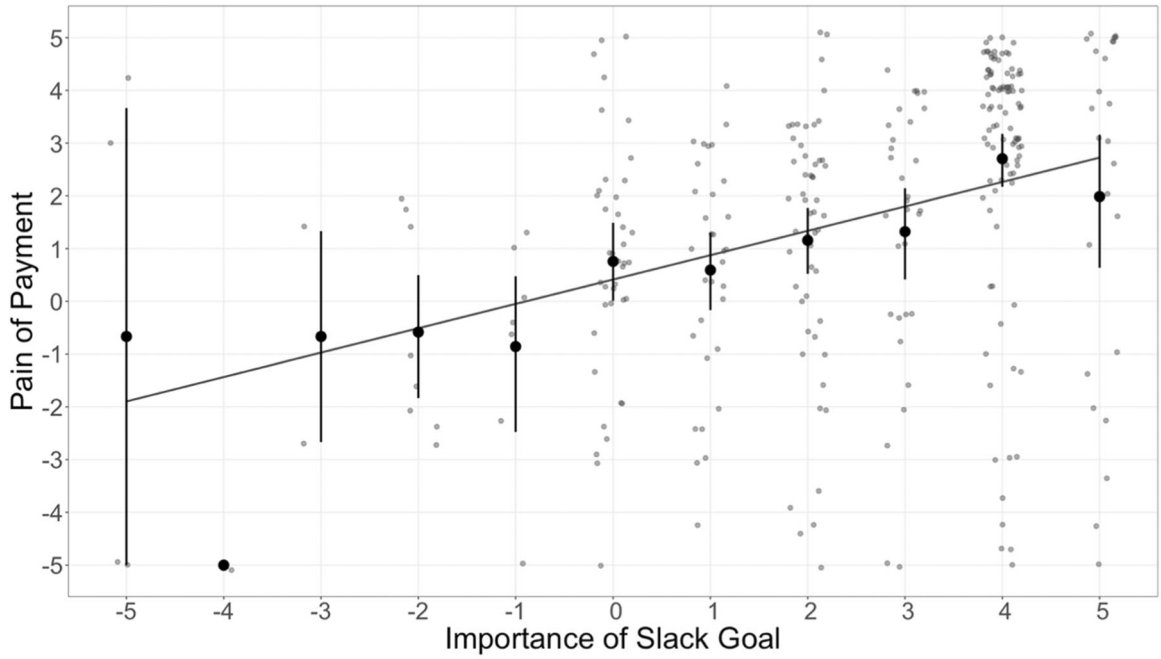


FIGURE 2 As pre-registered, we observe a positive relationship between importance of maintaining financial slack and pain of payment. Faint points are the individual datapoints, slightly jittered for visibility; bold points and bars are means and bootstrapped 95% confidence intervals. Line is a bivariate OLS regression line.

the sway of a financial slack goal without altering other potentially relevant factors (e.g., payment methods) that could influence other unmeasured psychological processes. Second, in study 2 we measure pain of payment for specific purchases, rather than at a trait-level. This helps to generalize our findings, as people's experience of negative affect in the moment can differ from their memory or perception of their affect (Kahneman & Riis, 2005). In study 2, we additionally demonstrate one downstream implication of our research: We examine whether pain of payment, as manipulated by the salience of one's financial slack goal, influences preferences between a more expensive branded alternative and a cheaper non-branded alternative. We pre-registered analyses and predictions for this study through AsPredicted.org; the pre-registration is available in Appendix S1.

7.1 | Method

We recruited 501 participants from MTurk; we removed 4 responses with duplicate MTurk IDs, leaving a final sample size of 497 (186 female, 310 male, 1 not reporting; $M_{age} = 36.64$). Five hundred participants afforded 99% power to detect an effect of size $d = 0.30$.

Participants saw the description of financial slack and comprehension questions from study 1, followed by a bank of questions including four items about how important two different goals were to them. The four items for each goal mirrored study 1: (i) "____ is important to me," (ii) "I prioritize ____," (iii) "I think a lot about my ____," and (iv) "I carefully monitor my ____" (11-point scales coded from −5 to 5, anchored at *Disagree* and *Agree* with *Neither disagree nor agree* marking the midpoint). All participants first saw these four items pertaining to the goal of spending time with friends and family, which we included to reduce hypothesis guessing. Critically, half of participants then saw four items on financial slack, and half saw four items on healthy eating. This constituted our manipulation—by directing some participants' attention toward their financial slack *prior* to pain of payment (which came next, and is described in the next paragraph), we attempted to heighten the salience of the goal to maintain slack, thereby heightening pain of payment.

We next presented participants with three products, one after another, randomly drawn from a set of seven stimulus replicates (an Amazon Echo Dot for $59.99, a Ring Video Doorbell for $99.99, an Instant Pot Duo Nova for $99.99, a Nespresso machine for $159.99, a Nest learning thermostat for $249.99, a Roomba Robot Vacuum for $249.99, and a Yeti Tundra Cooler for $249.99; we drew product prices, images and abbreviated descriptions from Amazon.com). For each item, participants answered three pain of payment questions that paralleled the questions asked in study 1: "Spending $__ on ____ …" (i) "…would cause me stress," (ii) "…would be emotionally painful for me," and (iii) "…would make me spend less on other things because of the negative emotions that it caused" (11-point scales coded from −5 to 5, anchored at *Disagree* and *Agree* with *Neither disagree nor agree* marking the midpoint). On the following screen, participants read "If you were deciding between the ____, which cost $__, and a cheaper non-branded option that cost $__ less [coded to cost 15% less than the branded option], which do you think you would choose" (7-point scale coded from −3 to 3 anchored at *Definitely choose the* ____ and *Definitely choose the cheaper non-branded option*, with *Not sure* marking the midpoint). Participants indicated their age, sex, household income, and country before

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

finishing the survey. Participants in the control condition additionally answered the four items on the importance of maintaining financial slack with these demographics. This allowed us to control for these scores without making financial slack salient for participants in this condition.

7.2 | Results and discussion

7.2.1 | Results

We pre-registered all predictions through AsPredicted.org. As in study 1, we averaged the three pain of payment items (α's for the three items were above 0.90 for all seven product replicates), leaving three pain of payment scores for each participant—one for each of the three items that they saw. We averaged these to form one pain of payment composite for each participant ($M = 1.61$, SD = 2.70, $\alpha = 0.92$). We repeated this process for each participant's preference between pricier and cheaper alternatives—each participant had three responses for preference between a less and more expensive option (one for each of the three items that they saw), which we averaged together to form one overall preference measure for each participant ($M = 0.73$, SD = 1.93, $\alpha = 0.93$). Finally, we averaged the items measuring the importance of maintaining financial slack ($M = 2.76$, SD = 1.63, $\alpha = 0.85$).

As predicted, participants primed to consider their financial slack reported more pain of payment ($M = 1.90$, SD = 2.29) than participants primed to consider healthy eating ($M = 1.33$, SD = 2.63, $t(490) = 2.56$, $d = 0.23$, $p = 0.011$; Figure 3, top). This result held when controlling for participants' ratings of how strongly they held the goal to maintain financial slack in an OLS regression ($\beta = 0.53$, $t(494) = 2.57$, partial $\eta^2 = 0.013$, $p = 0.011$). We additionally note that controlling for experimental condition, participants who were more concerned about financial slack experienced greater pain of payment, replicating the result from study 1 ($\beta = 0.55$, $t(494) = 8.63$, partial $\eta^2 = 0.131$, $p < 0.001$). Notably, order of elicitation did not influence the importance of financial slack ($M_{slackFirst} = 2.24$, SD = 2.00, $M_{painFirst} = 2.40$, SD = 2.16; $t(292.17) = 0.66$, $d = 0.08$, $p = 0.508$), consistent with the notion that merely making this goal more salient—even without changing its importance—can increase pain of payment.

Finally, we conduct a mediation analysis to test one downstream consequence of our research: whether priming financial slack influenced preference between more and less expensive alternatives via its influence on pain of payment. As shown in Figure 3, (i) participants primed with financial slack reported more pain of payment (statistics reported above; Figure 3 top), (ii) pain of payment increased preference for a cheaper non-branded alternative (statistics reported above; Figure 3 top), and (iii) priming slack had the predicted indirect influence on preferences (95% BCCI: [0.04, 0.34]; residual direct effect: $\beta = 0.33$, $t(494) = 12.38$, partial $\eta^2 = 0.24$, $p < 0.001$; total effect: $\beta = 0.24$, $t(495) = 1.59$, partial $\eta^2 = 0.01$, $p = 0.113$; Figure 3 bottom).

7.2.2 | Discussion

Study 2 extends study 1 by providing causal evidence that activating a goal to maintain financial slack increases pain of payment. Taken together, studies 1 and 2 show that people experience more pain of payment when the goal to maintain financial slack is activated. Again, while prior literature suggests that pain of payment is a self-regulatory phenomenon (Prelec & Loewenstein, 1998), it does not identify a specific goal at play in this process. Studies 1 and 2 provide evidence that violating a goal to maintain financial slack results in pain of payment.

In the following studies, we examine how perceptions of financial slack can deviate from objective calculations of wealth. While the goal to maintain slack may vary in strength or salience, a given payment may also feel like a larger or smaller decrease in slack. In studies 3–5, we explore how different mental accounts are more or less linked to judgments of financial slack, and demonstrate the consequences for pain of payment.

8 | STUDY 3: ACCOUNTS MORE ASSOCIATED WITH SLACK ARE MORE PAINFUL TO DEPLETE

Imagine a consumer whose judgments of financial slack depend almost entirely on how much cash they have on hand, and very little on how much money is in their checking account. For this person, spending cash will feel like a large decrease in slack, and so will be more painful than spending out of their checking account. However, for someone whose judgments of financial slack depend almost entirely on how much money is in their checking account, and very little on how much cash they have, this pattern might reverse. Controlling for how much money someone has total, we argue that pain of payment depends on the mental accounts consumers weigh most heavily when judging their financial slack (H2). In study 3, we use a conjoint analysis to measure the degree to which each participant weighs four different accounts in judging financial slack. We then test whether these weights predicts pain of payment. Study 3 extends previous studies by investigating the relationship between specific mental accounts, financial slack, and pain of payment, without any assumptions about how each participant views each account. This highlights a novel source of variance in the pain of payment—the degree to which the store of wealth being depleted is incorporated into judgments of financial slack for a given consumer.

8.1 | Method

We recruited 197 participants from MTurk (91 female, 106 male, $M_{age} = 37.92$). Participants read the description of financial slack and answered comprehension questions from study 1. Participants then completed the survey in two blocks: one measuring the degree to which they weighted four different accounts—checking, savings,

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

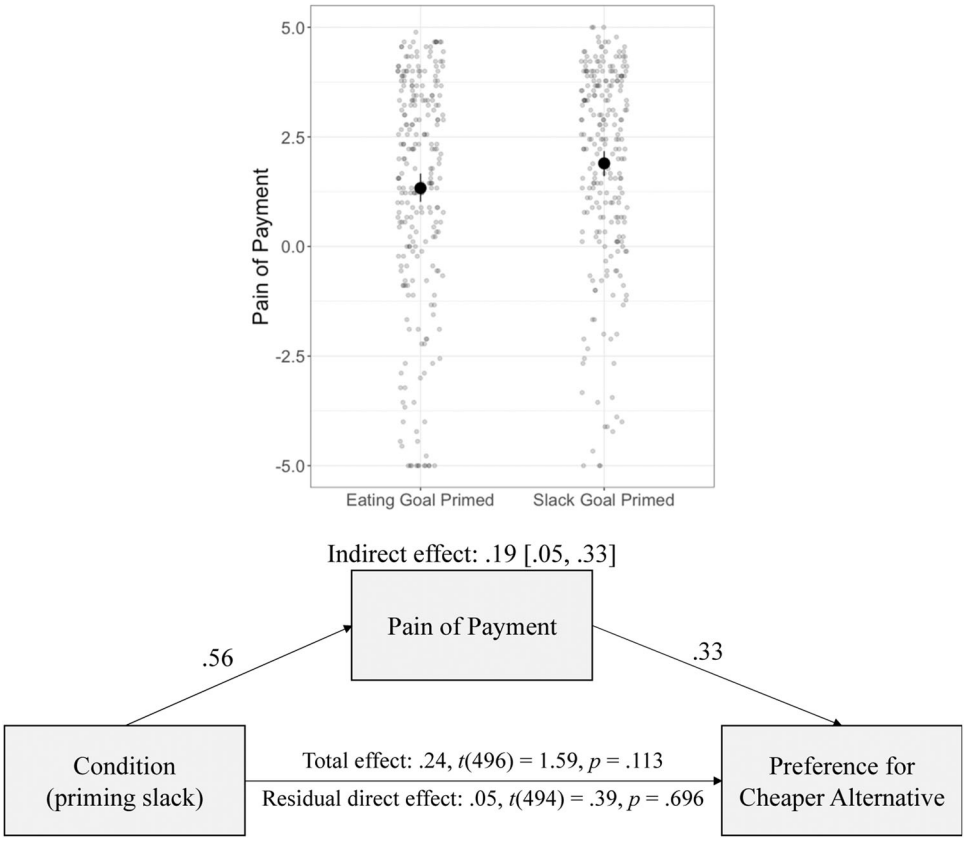


FIGURE 3 Top panel: thick dots represent means, error bars represent 95% confidence intervals, and faint dots represent individual data points jittered for visibility. Participants primed on slack reported higher pain of payment (top panel and leftmost arrow of bottom panel). Pain of payment had downstream implications for preferences (rightmost arrow of bottom panel). Activating the goal to maintain financial slack increased pain of payment, leading to an increased preference for cheaper alternatives (bottom panel).

physical cash, and credit card debt—with financial slack, and one measuring how much pain of payment the participant would experience paying from each account. We counterbalanced the order of these two blocks (order had no effect, and so we do not discuss it further).

8.1.1 | Measuring each account's influence on financial slack

We first measure the degree to which each of four accounts—checking account, savings account, physical cash, and credit card debt—were weighted in each participant's judgment of financial slack. We measured these values without explicitly asking participants for them via a conjoint analysis. Participants reviewed nine financial profiles, each of which listed the balance an individual had in all four accounts (see Figure 4).[2] For each financial profile (presented in random order), participants indicated how much financial slack they felt a person with that financial profile had (7-point scale anchored at *No financial [slack] at all* and *A large amount of financial [slack]*[3]). We constructed the conjoint profiles in accordance with a pre-set configuration that allows for statistically efficient calculation of main effects (Rao, 2014, p. 49; see Appendix S1 for the values of each account for each profile).

To estimate the degree to which each account was weighted in a participant's judgment of financial slack, we ran a regression for each participant using the nine slack ratings as the dependent variable, and the balances of each account in the profiles as the independent variables. This yielded four coefficients for each participant—one for each account. These coefficients measured the extent to which participants' slack judgments depended on the monetary value of each account. Conceptually, these represented the extent to which each account was weighted in financial slack judgments for each participant (Table 2).

[2]One account was credit card debt. While we presented this account at the same levels as the other accounts ($200, $800, $1400), participants read that it represented, for example, $200 worth of debt (i.e., it had a negative value).

[3]We used the term "leeway" in our survey materials to avoid jargon.

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

8.1.2 | Measuring pain of payment from each account

To assess how painful it would be to make payments from each account, we asked participants to consider different purchases made from each of the four accounts. We used three purchase replicates to increase power: a $20 book, a $50 gift for a friend, and $85 for car repairs. For each account, participants rated how painful it would be to make each of the three purchases (7-point scale anchored at *Not painful at all* and *Very painful*) from each account. We randomized the order in which the accounts appeared. We average the three pain ratings for each account for each person ($\alpha_{savings} = 0.90$, $\alpha_{checking} = 0.88$, $\alpha_{cash} = 0.90$, $\alpha_{debt} = 0.91$), yielding one pain of payment measure for each account for each person (Table 2).

8.1.3 | Additional measures

Before finishing, participants responded to demographic questions (gender, age, household income, employment status) and exploratory financial questions (how much financial slack do you have currently, how much would a windfall into the four accounts shown in the conjoint exercise influence your slack, how often do you check your bank account balance online, how much cash do you typically carry).

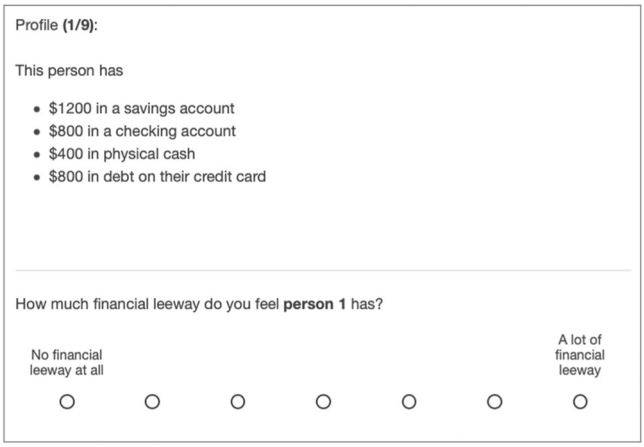


FIGURE 4 A sample conjoint profile seen by participants in study 3 (configuration of all nine profiles is displayed in Appendix S1).

8.2 | Results and discussion

8.2.1 | Results

We predicted that it would be more painful to spend from accounts that participants weighted more heavily in judgments of financial slack (H2). To test this prediction, we constructed a data set with four rows per participant, one row each for savings, checking, cash, and credit card debt. We have a measure of each account's mean pain of payment (averaged from the three pain of payment questions), and its weight in financial slack judgments (extracted from the participant-level regressions predicting slack from each account across the nine financial profiles). We conducted a mixed effects model, predicting pain of payment from an intercept term, and weight in financial slack judgments, including random intercepts and slopes by participant and account. As predicted, accounts that were more strongly associated with financial slack carried greater pain of payment ($\beta = 1.01$, $t(107.62) = 1.99$, $p = 0.049$).

8.2.2 | Discussion

In study 3, we measured the weighting of four different mental accounts in financial slack judgments. We show it is more painful to spend from accounts that are weighted more heavily in financial slack judgments for a given individual (H2). The conjoint analysis allowed us to avoid explicitly asking participants to consider the degree to which they weight each account with financial slack, reducing the possibility for demand effects or hypothesis guessing. Prior literature on pain of payment documents differences in pain of payment across people, based on whether or not they use a shopping list at the store (Sheehan & Van Ittersum, 2018). Study 3 provides a novel way in which pain of payment varies across people. Specifically, because different people weight different mental accounts more or less strongly in financial slack judgments, and different accounts are more or less painful to spend down.

9 | STUDY 4: RESTRICTED USE RESOURCES ARE LESS PAINFUL TO SPEND

In study 4, we restrict the uses of a resource that consumers use to make a purchase. As discussed previously, restricting the possible uses of a resource should lower its association with financial slack,

TABLE 2 Descriptive statistics for pain of payment and weighting in slack judgments for each account in study 3.

	Pain				Weight in slack judgment			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Savings	4.01	1.88	1	7	0.111	0.10	−0.417	0.375
Checking	3.53	1.73	1	7	0.107	0.09	−0.167	0.417
Cash	3.81	1.79	1	7	0.105	0.11	−0.208	0.458
Credit card debt	3.47	1.86	1	7	0.109	0.14	−0.333	0.542

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

reducing pain of payment. As we discuss later, we speculate that this pattern should replicate with other restricted-use resources, such as food supplements, store credit, airline miles, or rewards points.

9.1 | Method

We recruited 199 participants from MTurk (79 females, 119 males, 1 not reporting; $M_{age} = 39.47$), affording 85% power to detect an effect of size $d = 0.30$. Participants read the description of financial slack and answered the comprehension questions from study 1. Participants then imagined that they had "a gift card to Amazon.com for $100" that was intended for the books section of the website. To manipulate the degree to which this resource influences financial slack, subjects then read that the gift card either could or could not be used make *any* purchase on Amazon. We predicted that participants would feel the restricted resource (books only) contributed less to their financial slack than the unrestricted resource (all of Amazon).

On the next screen, participants answered "To what extent would you feel that the gift card increases your financial flexibility?" (7-point scale from *Not at all* to *Very much*), measuring the account's association with financial slack. Following this measure, participants chose a course from a drop-down menu of online course offerings. This set up the following screen's purchase scenario: "This course requires a textbook, which costs $80. The book is available on Amazon.com, and you plan to purchase it there because of your gift card." Participants then answered: "How painful would it be to purchase the textbook for $80 using the gift card?" (7-point scale from *Not at all painful* to *Very painful*). In reality, Amazon offers unrestricted gift cards, but not books-only gift cards. As such, we asked participants how realistic they found the scenario to be. While participants found the unrestricted scenario to be more realistic ($M_{restricted} = 4.24$, SD = 2.03, $M_{unrestricted} = 5.53$, SD = 1.46; $t(136.37) = 4.49$, $d = 0.73$, $p < 0.001$), perceived realism did not interact with any of the effects we examined (all p's ≥ 0.478); as such, we do not discuss perceived realism further. Participants responded to demographic questions (frequency of shopping on Amazon, age, household income, gender, employment status) before the survey concluded.

9.2 | Results and discussion

9.2.1 | Results

The manipulation was successful: participants in the less restricted condition believed the gift card contributed to their financial slack ($M = 4.32$, SD = 1.82) more than participants in the more restricted condition ($M = 2.63$, SD = 1.69; $t(196.65) = 6.78$, $d = 0.96$, $p < 0.001$). As predicted, participants in the less restricted condition felt the purchase was more painful ($M = 3.73$, SD = 1.93) than those in the more restricted condition ($M = 2.57$, SD = 1.97; $t(196.49) = 4.19$, $d = 0.59$, $p < 0.001$).

Mediation analysis was consistent with the conceptual model: participants in the less restricted condition believed the gift card contributed more to their slack (as just reported), and ratings of the extent to which the gift card contributed to financial slack positively predicted pain of payment ($\beta = 0.42$, $t(197) = 6.16$; $p < 0.001$). The indirect effect was positive, as predicted (95% BCCI [0.31, 0.92]; residual direct effect: estimate = 0.56, $t(197) = 0.1.91$, $p = 0.057$).

9.2.2 | Discussion

In study 4, we demonstrated that restricted-use resources are less associated with financial slack than nonrestricted resources, making them less painful to spend. This provides additional evidence that purchases that reduce slack less are less painful. We additionally note that restricted use resources are common in the real world: people often receive them (e.g., when they receive gift cards or airline points) or actively create them (e.g., when they save up for vacation or use health savings accounts). Prior literature shows that physical differences in how money is stored can alter pain of payment by making it feel more or less like money (Raghubir & Srivastava, 2008). We show that analogous mental differences in how money is perceived—as more or less restricted—can similarly alter pain of payment.

10 | STUDY 5: DIFFERENT PAYMENT APPS ALTER PAIN AND INDUCES PREFERENCES REVERSALS

In study 5, we tested one direct implication of the present research for two commonly used peer to peer payment apps: Venmo and Zelle. Venmo and Zelle are similar in most respects; however, Venmo allows users to store the money they receive in a balance within the app, while Zelle draws on money stored in a bank account. When users receive a payment, it goes into this balance rather than directly into one's bank account (as with Zelle). We suggest that Venmo balances may be less associated with financial slack than bank account balances (which Zelle draws on) because Venmo balances are relatively novel (giving consumers less time to internalize that they can be a source of financial slack) and because Venmo balances are restricted (many retailers do not accept payment from Venmo). Thus, we predict that consumers will find it less painful to spend with Venmo than with Zelle.

In study 5, we tested this idea by asking participants to rate pain of payment and make four choices between similar alternatives, varying which alternative would be purchased with Venmo and Zelle. Critically, we find significant differences in pain of payment between the two apps. We even find that these apps can induce preference reversals between alternatives, suggesting that people's preferences between payment apps may at times be more impactful as their preferences between goods.

Study 5 additionally contributes by offering a novel sample—university students instead of participants recruited from MTurk. This offers two main advantages. First, we demonstrate that we are able to generalize our hypothesized effects beyond participants recruited from MTurk. Second, because undergraduate students are a better

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

known and more homogeneous group, we can be more confident that the choices we present (e.g., between two pairs of headphones) are relevant to our participants.

10.1 | Method

We recruited 187 participants from the behavioral lab of a major state university (M_{age} = 20.04, 96 females, 91 males, 5 not reporting). We maximized our sample size subject to subject pool constraints; 187 participants allowed 82% power to detect an effect of size $d = 0.30$. Participants first indicated how familiar they were with Venmo and Zelle (5-point scale anchored at *Not familiar at all* and *Extremely familiar*), and whether they had an account with Venmo and Zelle. While participants were more familiar with Venmo ($M = 4.51$, SD = 0.89) than Zelle ($M = 1.82$, SD = 1.03; $t(186) = 27.96$, $d = 2.79$, $p < 0.001$), our effects were robust across levels of familiarity with the two apps (see Appendix S1 for a discussion of the effect of familiarity). Participants then read a brief article describing the differences between Venmo and Zelle (Bowman, 2022), and answered two comprehension questions.

Participants next made four choices between two similar alternatives in four categories relevant to students: speakers (Bose Soundlink Color II vs. JBL Flip 5), backpacks (Herschel Little America vs. North Face Borealis), coffee makers (Nespresso Essenza Mini vs. Keurig K-Slim), and headphones (Apple AirPod Pros vs. Beats PowerBeats Pro). Each choice appeared on its own screen. We introduced each of the four choices by telling participants to imagine they were shopping for a new speaker/backpack/coffee maker/pair of headphones, and that they had found two options on Facebook Marketplace that they could pick up from someone nearby (Figure 5). Critically, one alternative in each choice would be paid using Venmo, and the other would be paid using Zelle (randomized).

Participants next indicated their preference on a 6-point scale (e.g., *Strongly prefer Airpods*, *Prefer Airpods*, *Weakly prefer Airpods*, *Weakly prefer PowerBeats*, *Prefer PowerBeats*, and *Strongly prefer PowerBeats* (Figure 5). On a separate screen, participants indicated how painful it would be to pay for each alternative using the prescribed payment mechanism (7-points scale anchored at *Not painful at all* and *Very painful* with *Somewhat painful* marking the midpoint). Participants then indicated their age, gender identity, and whether they had recently taken any similar surveys in the lab.

10.2 | Results and discussion

10.2.1 | Results

As predicted, payment app had a large impact on both preferences and pain of payment. First, 65.51% of participants preferred the product they could purchase using Venmo, generating a preference

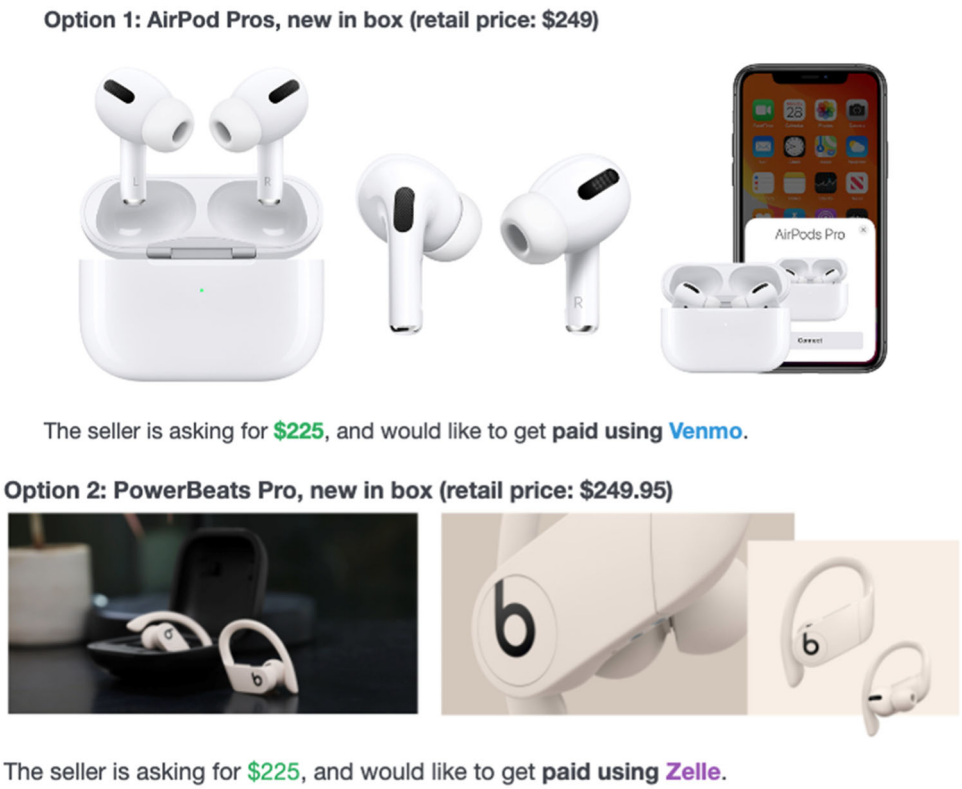


FIGURE 5 Sample stimuli that participants viewed in study 5. We randomized the pairings of alternatives (e.g., AirPods vs. PowerBeats) and payment apps (Venmo vs. Zelle).

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

reversal pictured in Figure 6 (left). Additionally, averaging across the stimuli, participants reported less pain of payment with Venmo ($a = 0.85$, $M = 2.93$, SD = 1.62) than with Zelle ($a = 0.89$, $M = 3.70$, SD = 1.68; paired $t(747) = 11.57$, $d = 0.47$, $p < 0.001$). Because of repeated measures within participants and within stimuli, we replicated our analysis with a mixed-effects model. We predicted pain of payment (1–7) from payment app (0.5 for Venmo and −0.5 for Zelle), including random intercepts for participants and stimuli, and a random slope of payment mechanism by participant and stimulus. Again, participants found it more painful to pay using Zelle than using Venmo ($b = -0.77$, $t(27.91) = 7.10$, $p < 0.001$).

Pain of payment additionally influenced preferences, demonstrating one consequence of this research for downstream behavior. For each choice participants made, we have two pain of payment measures, but only one preference measure. As such, we subtract pain of payment with Venmo from pain of payment with Zelle to create a single pain of payment score. As predicted, the difference in pain between Venmo and Zelle was strongly associated with preference for the Venmo-paid alternative ($r = 0.59$, $t(185) = 10.04$, $p < 0.001$; Figure 6, right).

10.2.2 | Discussion

In study 5, we demonstrate that highly similar payment apps can induce differences in pain of payment, resulting in preference reversals. This is a critical finding, as Venmo and Zelle are similar in so many respects as peer-to-peer payment apps. This study demonstrates the implications of the present research for retailers considering whether to accept payments from novel payment apps. We note that because we conducted this study in a university lab, and the sample was relatively young, we believe that these results would best generalize to similarly young populations. Further, it is probable that older populations view these payment apps differently than younger populations (Jargon, 2019). Nonetheless, it is instructive to note that, at times, consumers' preference for a payment app can outweigh their preference between brands.

11 | GENERAL DISCUSSION

In this research, we demonstrate that violating a goal to maintain financial slack is one antecedent to the pain of payment. In studies 1 and 2, we measure and manipulate the goal to maintain financial slack, demonstrating that this goal influences pain of payment. In studies 3 and 4, we demonstrate that mental accounts more associated with financial slack produce more pain of payment. This suggests that a given payment can feel like a greater decrease in slack, and so can feel more painful, depending on the mental account it depletes. Finally, in study 5, we demonstrate that different payment mechanisms can actually induce preference reversals—because of the consequences for financial slack and the pain of payment, payment mechanisms can have a greater influence on decisions than products themselves.

This research makes a number of contributions for researchers and practitioners alike. First, while the main focus of prior research is on downstream consequences (e.g., Shah et al., 2016) and moderators (e.g., Soster et al., 2014) of the pain of payment, we identify one psychological antecedent to the pain of payment—perceived losses in financial slack. We additionally build on prior literature by strengthening the conceptual bridge between the pain of payment and the literature on self-regulation, goal pursuit, and negative affect (Prelec & Loewenstein, 1998; Zellermayer, 1996). Finally, our work contributes by identifying novel moderators of the pain of payment. For instance, restrictions on a resource—whether externally imposed via

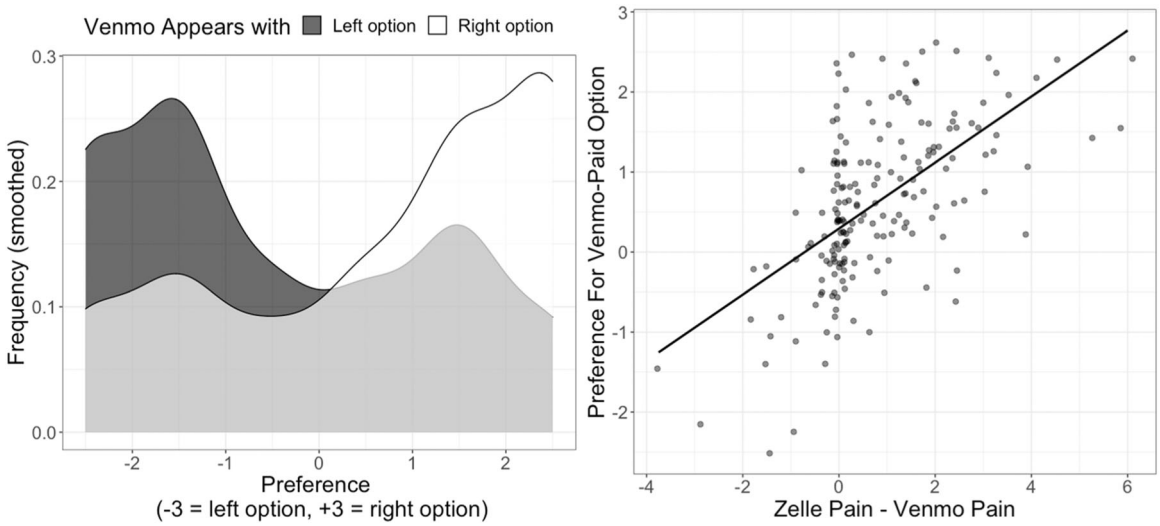


FIGURE 6 Left: Participants preferred the alternative they could purchase using Venmo. Distributions depict participants' preferences for the left- or right-side option when the right-side option was paired with Venmo (white distribution) and Zelle (black distribution). Right: The more painful Zelle was relative to Venmo (*x*-axis); the more people preferred the Venmo-paid alternative (*y*-axis).

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

a gift card (study 4) or perhaps internally imposed via the norms surrounding how an account is used (study 5)—can decrease pain of payment.

The notion that some resources are more associated with financial slack than others has important implications for current and novel financial technologies (e.g., credit cards, Venmo, Zelle, or crypto currencies). It is important for regulators to be aware that different stores of wealth may be psychologically easier or more difficult for consumers to spend based on consumers' perceptions of their wealth. For instance, many consumers clearly have a difficult time controlling their credit card spending. The present research suggests one reason why this may be the case—consumers might see their credit card as a way to spend without cutting into their financial slack, reducing the pain of payment (and its break on spending).

Relatedly, while money stored in Venmo might be more convenient and secure than physical cash, it is also psychologically easier to spend (study 5). This is important for retailers—while airlines have long been aware that it is easier for their customers to part with their miles than to part with their dollars, other retailers are only now beginning to take notice (Berthene, 2018). One wonders whether Venmo balances and airlines miles are as easy to put toward saving money as they are to spend, suggesting a possible application of this research to boost savings rates.

11.1 | Future research

The goal to maintain financial slack likely varies in any population. The extent to which people feel this goal and the subjective process by which people judge changes in their financial slack, merit further investigation. Our data suggest that there is variance across the population in how slack judgments are formed, as does prior literature (e.g., Sheehan & Van Ittersum 2018). For instance, some people may feel abundant slack if their checking account is relatively full, while others may feel abundant slack if they have a greater amount of cash on hand. To date, relatively little work has investigated what drives perceptions of financial slack—or its conceptual equivalent, financial scarcity (Paley et al., 2018). Far more research has focused on measurement of and outcomes of perceived scarcity (Lastovicka et al., 1999; Netemeyer et al., 2017; Paley et al., 2018; Rick et al., 2008, 2011; Shah et al., 2012; Sharma & Alter, 2012; Sharma et al., 2014; Tully et al., 2015). Understanding judgments of financial slack or scarcity is critical, as these judgments influence a myriad of behaviors, and are decoupled from one's objective financial situation (Tully & Sharma, 2022). Thus, future research should ask what are the main drivers of perceived financial slack/perceived financial scarcity. Why do some objectively wealthy people feel financially constrained? Do liquidity constraints play a larger role on perceived financial slack than objective wealth? And, critically, how do these variables influence consumption behavior and the pain of payment?

There is additionally a broad set of goals beyond maintaining financial slack that might influence pain of payment. For instance, pain of payment might arise when people purchase something made with poor labor practices (violating a prosocial goal; Ehrich & Irwin, 2005), or something that is too expensive (violating a goal to be a market maven; Feick & Price, 1987; Thaler, 1985). People want to be able to justify their choices sufficiently to others and to the self (Shafir, 1993). Thus, perhaps the perception that a purchase is not sufficiently justifiable is in part responsible for pain of payment (consider that it is more painful to make hedonic than utilitarian purchases, which seems consistent with this supposition; Rick et al., 2008). It seems possible that what we term pain of payment is in fact a constellation of negative emotions that accompany any given payment. Future research should aim to identify additional specific goals that, when violated, result in pain of payment. Aside from financial slack, what other goals are widely shared by consumers, and are violated by day-to-day purchases? Are certain goals more important for certain consumers? For instance, do self-identified environmentalists feel more pain of payment when purchasing something with a worse carbon footprint? Do self-identified market mavens feel more pain of payment when purchasing something at full price (vs. on sale), or when purchasing something at a high price (e.g., purchasing gasoline when prices are high)? These questions have important implications for marketing practice, as academic researchers could provide practitioners with a "checklist" of the different goals that a purchase might threaten, allowing them to strategically structure their offerings to minimize consumers' pain.

11.2 | Conclusion

In this research, we argue that violations of the goal to maintain financial slack are one psychological antecedent to the pain of payment. We demonstrate that because different mental accounts contribute to perceptions of financial slack differently, they may be more or less painful to deplete, and they may even drive preference reversals. This has important implications for our existing understanding of the pain of payment, and the psychology of consumer payments. We believe that future work exploring other goals, and how they interact, will prove fruitful in further developing our understanding of the psychology of payments and purchases.

ACKNOWLEDGMENTS

The authors thank Stephen Spiller, Phil Fernbach, John Lynch, Lawrence Williams, Laura Kornish, Pauline Flores, Adam LeBlanc, Nick Light, Sharaya Jones, Madeline Brooks, and members of the University of Colorado Boulder's Consumer Financial Decision Making Lab. This research is based on the lead author's dissertation.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available in the supplementary material of this article.

ORCID

Justin Pomerance http://orcid.org/0000-0003-1374-5450

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

REFERENCES

Aguinis, H., Villamor, I., & Ramani, R. S. (2021). MTurk research: Review and recommendations. *Journal of Management*, *47*(4), 823–837.

APA. (2018). *Stress in America, generation Z*. https://www.apa.org/news/press/releases/stress/2018/stress-gen-z.pdf

Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological bulletin*, *120*(3), 338.

Bagozzi, R. P., Baumgartner, H., & Pieters, R. (1998). Goal-directed emotions. *Cognition & Emotion*, *12*(1), 1–26.

Baumgartner, H., & Pieters, R. (2008). Goal-directed consumer behavior: Motivation, volition, and affect. *Handbook of Consumer Psychology*, *1*, 367–392.

Berman, J. Z., Tran, A. T. K., Lynch, J. G., & Zauberman, G. (2016). Expense neglect in forecasting personal finances. *Journal of Marketing Research*, *53*(4), 535–550.

Berthene, A. (2018). *Why more retailers are letting shoppers pay via Venmo*. DigitalCommerce360. https://www.digitalcommerce360.com/2018/12/05/why-more-retailers-are-letting-shoppers-pay-via-venmo/

Bowman, C. (2022). *Zelle vs. Venmo: What's the difference and which is better*? GoBankingRates.com, https://www.gobankingrates.com/banking/mobile/zelle-vs-venmo/

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review*, *97*(1), 19–35.

Case, K. E., Quigley, J. M., & Shiller, R. J. (2005). *Comparing wealth effects: The stock market versus the housing market*. http://www.escholarship.org/uc/item/28d3s92s

Chatterjee, P., & Rose, R. L. (2012). Do payment mechanisms change the way consumers perceive products? *Journal of Consumer Research*, *38*(6), 1129–1139.

Duclos, R., & Khamitov, M. (2019). Compared to dematerialized money, cash increases impatience in intertemporal choice. *Journal of Consumer Psychology*, *29*(3), 445–454.

Ehrich, K. R., & Irwin, J. R. (2005). Willful ignorance in the request for product attribute information. *Journal of Marketing Research*, *42*(3), 266–277.

Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. *Handbook of Affective Sciences*, 572–595.

Feick, L. F., & Price, L. L. (1987). The market maven: A diffuser of marketplace information. *Journal of Marketing*, *51*(1), 83–97.

Feinberg, R. A. (1986). Credit cards as spending facilitating stimuli: A conditioning interpretation. *Journal of Consumer Research*, *13*(3), 348.

Goodman, J. K., & Paolacci, G. (2017). Crowdsourcing consumer research. *Journal of Consumer Research*, *44*(1), 196–210.

Hauser, D., Paolacci, G., & Chandler, J. (2019). Common concerns with MTurk as a participant pool: Evidence and solutions. In F. Kardes, P. M. Herr, & N. Schwarz (Eds.), *Handbook of research methods in consumer psychology* (pp. 319–337). Routledge.

Heath, C., & Soll, J. B. (1996). Mental budgeting and consumer decisions. *Journal of Consumer Research*, *23*(1), 40.

Henderson, P. W., & Peterson, R. A. (1992). Mental accounting and categorization. *Organizational Behavior and Human Decision Processes*, *51*, 92–117.

Hirschman, E. C. (1979). Differences in consumer purchase behavior by credit card payment system. *Journal of Consumer Research*, *6*(1), 58.

Jargon, J. (2019). Need to pay the babysitter? Don't even think about using cash. *Wall Street Journal*. https://www.wsj.com/articles/need-to-pay-the-babysitter-dont-even-think-about-using-cash-11575369020

Kahneman, D., & Riis, J. (2005). Living, and thinking about it: Two perspectives on life. *The Science of Well-Being*, *1*, 285–304.

Kopetz, C. E., Kruglanski, A. W., Arens, Z. G., Etkin, J., & Johnson, H. M. (2012). The dynamics of consumer behavior: A goal systemic perspective. *Journal of Consumer Psychology*, *22*(2), 208–223.

Lastovicka, J. L., Bettencourt, L. A., Hughner, R. S., & Kuntze, R. J. (1999). Lifestyle of the tight and frugal: Theory and measurement. *Journal of Consumer Research*, *26*(1), 85–98.

Lee, L., & Tsai, C. I. (2014). How price promotions influence postpurchase consumption experience over time. *Journal of Consumer Research*, *40*(5), 943–959.

Lee, C.-Y., Morewedge, C. K., Hochman, G., & Ariely, D. (2019). Small probabilistic discounts stimulate spending: Pain of paying in price promotions. *Journal of the Association for Consumer Research*, *4*(2), 160–171.

Louro, M. J., Pieters, R., & Zeelenberg, M. (2007). Dynamics of multiple-goal pursuit. *Journal of Personality and Social Psychology*, *93*(2), 174–193.

Medin, D. L., & Schaffer, M. M. (1978). Context theory of classification learning. *Psychological Review*, *85*(3), 207–238.

Morewedge, C. K., Holtzman, L., & Epley, N. (2007). Unfixed resources: Perceived costs, consumption, and the accessible account effect. *Journal of Consumer Research*, *34*(4), 459–467.

Netemeyer, R. G., Warmath, D., Fernandes, D., & Lynch, Jr. J. G. (2017). How am I doing? perceived financial well-being, its potential antecedents, and its relation to overall well-being. *Journal of Consumer Research*, *45*(1), 68–89.

Van Osselaer, S. M. J., Ramanathan, S., Campbell, M. C., Cohen, J. B., Dale, J. K., Herr, P. M., Janiszewski, C., Kruglanski, A. W., Lee, A. Y., Read, S. J., Russo, J. E., & Tavassoli, N. T. (2005). Choice based on goals. *Marketing Letters*, *16*(3), 335–346.

Paley, A., Tully, S. M., & Sharma, E. (2018). Too constrained to converse: The effect of financial constraints on word-of-mouth. *Journal of Consumer Research*, *45*(5), 889–905.

Prelec, D., & Simester, D. (2001). Always leave home without it: A further investigation of the credit-card effect on willingness to pay. *Marketing letters*, *12*(1), 5–12.

Prelec, D., & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing Science*, *17*(1), 4–28.

Quispe-Torreblanca, E. G., Stewart, N., Gathergood, J., & Loewenstein, G. (2019). The red, the black, and the plastic: Paying down credit card debt for hotels, not sofas. *Management Science*, *65*(no. 11), 5392–5410.

Raghubir, P., & Srivastava, J. (2008). Monopoly money: The effect of payment coupling and form on spending behavior. *Journal of experimental psychology: Applied*, *14*(3), 213.

Rao, V. R. (2014). Theory and design of conjoint studies (ratings based methods). In V. R. Rao (Ed.), *Applied conjoint analysis* (pp. 37–78). Berlin, Heidelberg: Springer Berlin Heidelberg.

Reinholtz, N., Bartels, D. M., & Parker, J. R. (2015). On the mental accounting of restricted-use funds: How gift cards change what people purchase. *Journal of Consumer Research*, *42*(4), ucv045.

Reshadi, F., & Paula Fitzgerald, M. (2023). The pain of payment: A review and research agenda. *Psychology & Marketing*, *40*, 1672–1688.

Rick, S. I., Cryder, C. E., & Loewenstein, G. (2008). Tightwads and spendthrifts. *Journal of Consumer Research*, *34*(6), 767–782.

Rick, S. I., Small, D. A., & Finkel, E. J. (2011). Fatal (fiscal) attraction: Spendthrifts and tightwads in marriage. *Journal of Marketing Research*, *48*(2), 228–237.

Rosch, E., Simpson, C., & Scott Miller, R. (1976). Structural bases of typicality effects. *Journal of Experimental Psychology: Human Perception and Performance*, *2*(4), 491.

Shafir, E. (1993). Reason-based choice. *Cognition*, *49*(1–2), 11–36.

Shah, A. K., Mullainathan, S., & Shafir, E. (2012). Some consequences of having too little. *Science*, *338*(6107), 682–685.

Shah, A. M., Eisenkraft, N., Bettman, J. R., & Chartrand, T. L. (2016). Paper or plastic?": How we pay influences post-transaction connection. *Journal of Consumer Research*, *42*(5), 688–708.

Sharma, E., & Alter, A. L. (2012). Financial deprivation prompts consumers to seek scarce goods. *Journal of Consumer Research*, *39*(3), 545–560.

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Sharma, E., Mazar, N., Alter, A. L., & Ariely, D. (2014). Financial deprivation selectively shifts moral standards and compromises moral decisions. *Organizational Behavior and Human Decision Processes*, *123*(2), 90–100.

Sheehan, D., & Van Ittersum, K. (2018). In-store spending dynamics: How budgets invert relative-spending patterns. *Journal of Consumer Research*, *45*(1), 49–67.

Shefrin, H. M., & Thaler, R. H. (1988). The behavioral life-cycle hypothesis. *Economic Inquiry*, *26*(4), 609–643.

Soman, D. (2001). Effects of payment mechanism on spending behavior: The role of rehearsal and immediacy of payments. *Journal of Consumer Research*, *27*(4), 460–474.

Soman, D. (2003). The effect of payment transparency on consumption: Quasi-experiments from the Field. *Marketing Letters*, *14*(3), 173–183.

Soster, R. L., Gershoff, A. D.and Bearden, W. O. (2014). The bottom dollar effect: The influence of spending to zero on pain of payment and satisfaction. *Journal of Consumer Research*, *41*(3), 656–677.

Sussman, A. B., & Shafir, E. (2012). On assets and debt in the psychology of perceived wealth. *Psychological Science*, *23*(1), 101–108.

Thaler, R. (1985). Mental accounting and consumer choice. *Marketing science*, *4*(3), 199–214.

Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, *12*(3), 183–206.

Thomas, M., Desai, K. K., & Seenivasan, S. (2011). How credit card payments increase unhealthy food purchases: Visceral regulation of vices. *Journal of Consumer Research*, *38*(1), 126–139.

Tully, S. M., Hershfield, H. E., & Meyvis, T. (2015). Seeking lasting enjoyment with limited money: Financial constraints increase preference for material goods over experiences. *Journal of Consumer Research*, *42*(1), 59–75.

Tully, S. M., & Sharma, E. (2022). Consumer wealth. *Consumer Psychology Review*, *5*(1), 125–143.

Webb, E. C., & Spiller, S. (2014). *As good as spent: Earmarking money leads to a sense of spending*. Proceedings of the Society for Consumer Psychology, Miami.

Zauberman, G., & Lynch, J. G. (2005). Resource slack and propensity to discount delayed investments of time versus money. *Journal of Experimental Psychology: General*, *134*(1), 23–37.

Zelizer, V. A. (1997). *The social meaning of money*. Princeton University Press.

Zellermayer, O. (1996). *The pain of paying*. PhD Thesis. Carnegie Mellon University.

Zhang, C. Y., & Sussman, A. B. (2018). The role of mental accounting in household spending and investing decisions. In C. Chaffin (Ed.), *Client psychology* (pp. 65–96). Wiley.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Pomerance, J., & Reinholtz, N. (2024). Cut me some slack! How perceptions of financial slack influence pain of payment. *Psychology & Marketing*, *41*, 1100–1114. https://doi.org/10.1002/mar.21970

15206793, 2024, 5, Downloaded from https://onlinelibrary.wiley.com/doi/10.1002/mar.21970 by University Of Colorado Librari, Wiley Online Library on [03/04/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Supplementary Study: People Have a Goal to Maintain Financial Slack

The aim of this supplementary study is to investigate whether consumers do in fact hold a goal to maintain financial slack, as it is critical to our conceptualization that they do. In order to mitigate the possibility for demand effects responding, we asked participants to indicate how important they believed a wide variety of goals were to other people. These goals fell into one of three domains: financial goals, health goals, and personal goals. This "projection technique"—asking people about how others feel—mitigates socially desirable responding, while still allowing an assessment of people's own beliefs (Fisher 1993). In addition, we asked participants both how much they thought others *should be* focused on each goal, and how much people actually *were* focused on each goal. This allows us to distinguish whether people think it is normative to consider financial slack, and whether it is common to consider financial slack, independently.

Method

We recruited 200 participants from Amazon's Mechanical Turk (hereafter MTurk; M_{age} = 38.54, 76 female, 122 male, two other or not reporting), affording 85% power to detect an effect of size d = .30. We first told participants that we were going to ask them a few questions about what they thought was important to people. We informed them that they would answer open-ended questions, and rate how important twelve different things might be to others. On the following screen, participants viewed 3 open-ended text boxes asking "Day to day, what do you think are the most common concerns that people think about with respect to…" (*i*) "their finances," (*ii*) "their health," and (*iii*) "their personal life."

On the following screen, participants read "to what extent do you think people should be focused on each of the following goals day-to-day?" This prompt was followed by 12 goals grouped into three sections: financial goals (saving for retirement, starting an emergency fund, trying to have enough spare money available [measuring slack], supporting local shops and businesses), health goals (eating healthy food, getting enough exercise, spending time on mental health, keeping up with doctors appointments), and personal goals (spending time with friends and family, participating in local community, increasing their education, understanding current events). For the same set of goals, participants then indicated "to what extent do you think people are actually focused on each of the following goals day-to-day?" All responses were on scales running 1 to 11, anchored at *Not at all* and *Very much* with *Somewhat* marking the midpoints. Participants completed a post-test for an unrelated project before completing the Spendthrift-Tightwad scale (Rick et al. 2008), and answering demographic questions (political identity, household income, people in their household, age, education, gender identity, and race).

Results and Discussion

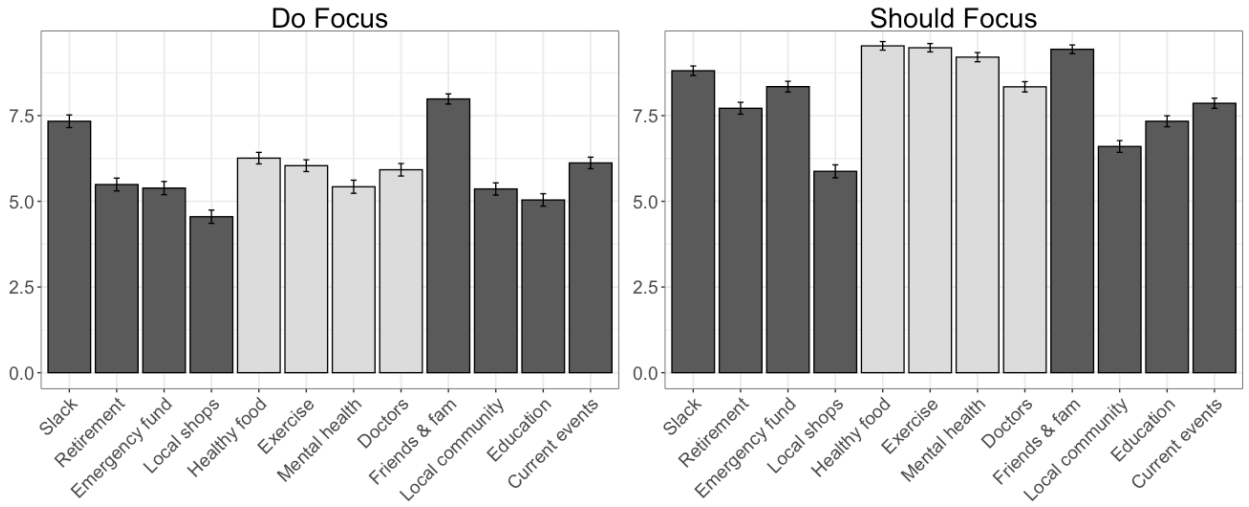
Results. Participants indicated people focus more on maintaining financial slack (M = 7.34, SD = 2.62; see figure for all means) than on any other financial goal, including saving for retirement (M = 5.49, SD = 2.65, $t(199) = 8.65$, $d = 0.70$, $p < .001$), starting an emergency fund (M = 5.38, SD = 2.73; $t(199) = 9.07$, $d = 0.73$, $p < .001$), or shopping local (M = 4.55, SD = 2.73; $t(199) = 11.21$, $d = 1.04$, $p < .001$). Participants additionally believed that people focused more on financial slack than on the average of the health goals (M = 5.91, SD = 2.54; $t(998) = 7.05$, d

= 0.56, $p < .001$) or the average of the personal goals ($M = 6.13$, $SD = 2.66$; $t(998) = 5.77$, $d = 0.46$, $p < .001$).

Beyond believing that people *do* focus more on financial slack, participants thought that people *should* focus more on financial slack ($M = 8.81$, $SD = 1.96$) than on retirement ($M = 7.72$, $SD = 2.44$; $t(199) = 6.17$, $d = 0.50$, $p < .001$), emergency funds ($M = 8.35$, $SD = 2.21$; $t(199) = 3.08$, $d = 0.22$, $p = 0.002$), or shopping local ($M = 5.88$, $SD = 2.67$; $t(199) = 13.75$, $d = 1.25$, $p < .001$). These results suggest that people consider their financial slack more than many other goals, and they believe they should be doing this.

Discussion. This study demonstrates that people believe others focus more on maintaining financial slack then on other common financial goals, health goals, and personal goals. Given that social projection often reflects personally held beliefs (Fisher 1993), this indicates that people focus a relatively large amount of their attention on maintaining financial slack. Furthermore, people think that others should focus on slack, suggesting that people do not believe this focus to be an error.

Figure. Mean ratings of the extent to which participants believed others do focus, and should focus, on maintaining financial slack, as well as other goals. Colored groupings indicate financial goals, health goals, and personal goals. As predicted, participants believed that others do focus, and should focus, on financial slack, more than other financial goals.


Do Focus
Should Focus
0.0
2.5
5.0
7.5
Slack
Retirement
Emergency fund
Local shops
Healthy food
Exercise
Mental health
Doctors
Friends & fam
Local community
Education
Current events

Study 1 Pre-registration

Description of financial slack, and comprehension questions. Participants read the following description of financial slack (termed financial leeway to use less jargon), and answered the comprehension questions below:

> In this study we're going to ask about your short term financial leeway:
>
> Short term financial leeway is your short term financial cushion, or the degree to which you feel like you can comfortably meet short term financial goals. For instance, you may feel that you have a lot of short term financial leeway right after payday or right after receiving a bonus. You might consider your short term financial leeway when thinking about...
>
> - ...whether you feel you're able to pay a parking ticket,
> - ...whether you feel you're able to eat out for dinner, or
> - ...whether you feel you're able to splurge on something that catches your eye when shopping online.
>
> Note that your short term financial leeway is not equivalent to your wealth. For instance, someone could be wealthy, but feel like they have little short term financial leeway.
>
> Comprehension questions:
>
> 1. True or false: Short term financial leeway is your financial cushion, or your perceived ability to meet short term financial goals.
> 2. True or false: Short term financial leeway is the same as your wealth.

Factor analysis. As pre-registered, a factor analysis confirmed that the items measuring the importance of the maintaining slack, eating healthily, long-term financial health, and pain of payment, loaded on four distinct factors. Parallel analysis suggested four factors; all within-factor loadings were above .69, and all cross-factor loadings fell below .14 (see web appendix for full results). All four scales had acceptable reliabilities (all $\alpha > .87$). As such, we averaged the relevant items for each goal, and for pain of payment, into four composites (see table 1 for means, SDs, reliabilities, and correlations).

ASPREDICTED

Wharton CREDIBILITY LAB
UNIVERSITY of PENNSYLVANIA

CONFIDENTIAL - FOR PEER-REVIEW ONLY

STUDY 1: MEASURED IMPORTANCE OF SLACK-GOAL PREDICTS PAIN OF PAYMENT (#44586)

Created: 07/14/2020 01:48 PM (PT)

This is an anonymized copy (without author names) of the pre-registration. It was created by the author(s) to use during peer-review.
A non-anonymized version (containing author names) should be made available by the authors when the work it supports is made public.

---

1) Have any data been collected for this study already?
No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?
The main hypothesis is that the importance of maintaining financial slack will be a positive predictor of pain of paying.

3) Describe the key dependent variable(s) specifying how they will be measured.
The dependent measure is a 3-item measure of pain of paying that is created for this survey. The intention and hope is that the three items will have a high alpha, justifying their combination to use as a DV.

4) How many and which conditions will participants be assigned to?
No conditions—we are exploiting natural variance. We do counterbalance the order of the pain of paying and slack goal questions, anticipating that this will have no influence on the results.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
There are a number of analyses that we need to run.

FACTOR ANALYSES
1) EFA/CFA will test whether the 4 items for long term financial goals, and the 4 items for short term financial goals load onto distinct factors.
2) EFA/CFA will test whether the 4 items for short term financial goals and the 3 items for slack load onto two distinct factors.
3) Chronbach's alpha will be used to determine whether the 3 items for pain of paying are appropriate to average together.

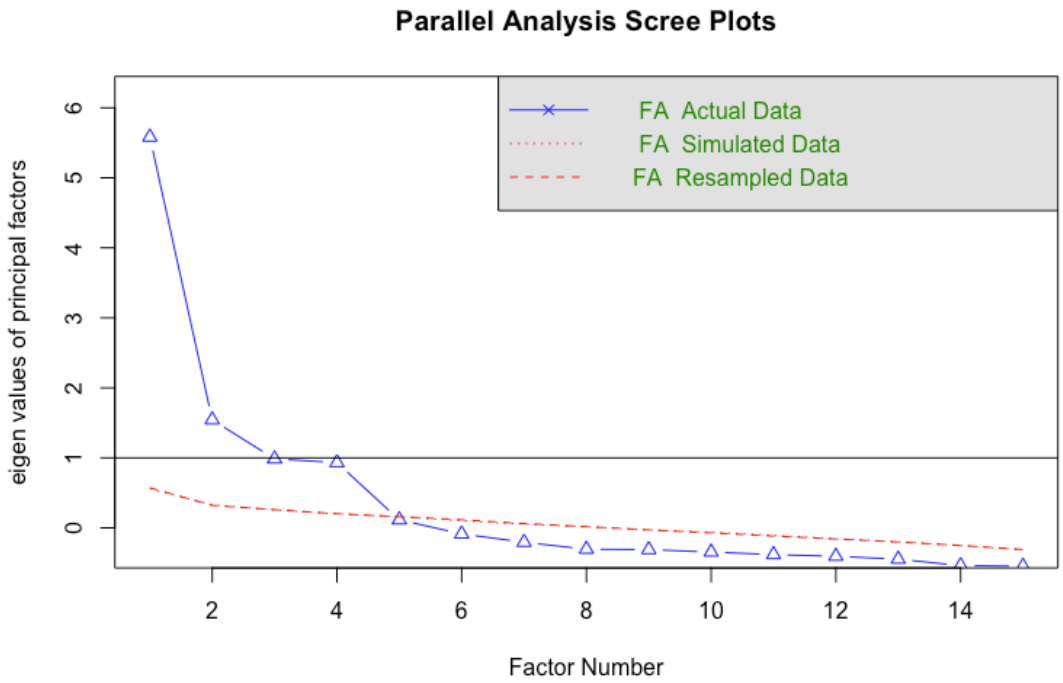
MAIN ANALYSIS
The main analysis will predict pain of paying from the average of the four short-term financial goal questions AND the average of the four long-term financial goal questions. This is because of past studies, which suggested that these might have separate (and opposite) effects, which could mask either one. Additionally, it is of theoretical interest whether the two constructs have different effects on pain of paying, even though the manusucript focuses on short term financial goals.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
We do not plan to exclude any outliers; we plan to report results with and without participants who fail an attention check that is built into one of the distractor questions (it just asks participants to choose a specific answer for one item). We'll remove any observations that have duplicated worker IDs.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.
300 (MTurk)

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)
We will probe whether HH income influences results. The big5 items are intended only as a distractor task, and will not be analyzed.

Study 1 Factor Analysis Results




```
Standardized loadings (pattern matrix) based upon correlation matrix
                  MR1   MR3   MR4   MR2   h2   u2 com
stress          -0.06  0.04  0.08  0.81 0.70 0.30 1.0
pain             0.04  0.01 -0.06  0.87 0.75 0.25 1.0
spendLess        0.03 -0.03  0.04  0.82 0.69 0.31 1.0
longTermImport1 -0.03  0.01  0.78 -0.07 0.57 0.43 1.0
longTermImport2  0.06 -0.02  0.81 -0.01 0.69 0.31 1.0
longTermImport3 -0.01  0.04  0.81  0.08 0.70 0.30 1.0
longTermImport4  0.10  0.03  0.69  0.06 0.61 0.39 1.1
eatImport1       0.77  0.01  0.12 -0.11 0.67 0.33 1.1
eatImport2       0.91 -0.01  0.00 -0.04 0.80 0.20 1.0
eatImport3       0.78  0.12 -0.06  0.08 0.69 0.31 1.1
eatImport4       0.85 -0.04  0.03  0.09 0.76 0.24 1.0
slackImport1    -0.05  0.76  0.14 -0.07 0.61 0.39 1.1
slackImport2     0.08  0.85 -0.05 -0.03 0.73 0.27 1.0
slackImport3    -0.07  0.80  0.05  0.09 0.70 0.30 1.1
slackImport4     0.05  0.83 -0.05  0.02 0.71 0.29 1.0

                       MR1  MR3  MR4  MR2
SS loadings           2.87 2.74 2.57 2.19
Proportion Var        0.19 0.18 0.17 0.15
Cumulative Var        0.19 0.37 0.55 0.69
Proportion Explained  0.28 0.26 0.25 0.21
Cumulative Proportion 0.28 0.54 0.79 1.00
```

```
 With factor correlations of
     MR1  MR3  MR4  MR2
MR1 1.00 0.40 0.51 0.24
MR3 0.40 1.00 0.41 0.38
MR4 0.51 0.41 1.00 0.27
MR2 0.24 0.38 0.27 1.00

Mean item complexity =  1
Test of the hypothesis that 4 factors are sufficient.

The degrees of freedom for the null model are  105  and the objective
function was  10.69 with Chi Square of  3144.93
The degrees of freedom for the model are 51  and the objective
function was  1.21

The root mean square of the residuals (RMSR) is  0.04
The df corrected root mean square of the residuals is  0.05

The harmonic number of observations is  301 with the empirical chi
square  83.65  with prob <  0.0027
The total number of observations was  301  with Likelihood Chi Square
=  352.93  with prob <  9.6e-47

Tucker Lewis Index of factoring reliability =  0.794
RMSEA index =  0.14  and the 90 % confidence intervals are  0.127
0.155
BIC =  61.86
Fit based upon off diagonal values = 0.99
Measures of factor score adequacy
                                                   MR1  MR3  MR4  MR2
Correlation of (regression) scores with factors   0.96 0.95 0.94 0.94
Multiple R square of scores with factors          0.92 0.90 0.88 0.89
Minimum correlation of possible factor scores     0.84 0.80 0.77 0.77
```

Study 2 Pre-registration

ASPREDICTED

Wharton CREDIBILITY LAB
UNIVERSITY of PENNSYLVANIA

CONFIDENTIAL - FOR PEER-REVIEW ONLY

STUDY 2: MANIPULATING SALIENCE OF SLACK GOAL HEIGHTENS PAIN OF PAYMENT (#45172)

Created: 07/24/2020 11:26 AM (PT)

This is an anonymized copy (without author names) of the pre-registration. It was created by the author(s) to use during peer-review.
A non-anonymized version (containing author names) should be made available by the authors when the work it supports is made public.

---

1) Have any data been collected for this study already?
No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?
The hypothesis in this study is that priming a goal to maintain financial slack will increase pain of paying (relative to priming a healthy eating goal), and that an increase in pain of paying will lead to an increase in choice of cheaper alternatives.

3) Describe the key dependent variable(s) specifying how they will be measured.
There are two dependent measures in this study. First, there is a 3-item measure of pain of paying. Second, there is a 7-point scale on which participants will indicate whether they prefer to purchase a more expensive branded option, or a less expensive (by 15%) generic option.

4) How many and which conditions will participants be assigned to?
There are only two conditions: we prime either a slack-goal, or a healthy eating goal.

There are 7 stimulus replicates, and each participant will see 3.

All participants rate how important spending time with family is to them. This is intended as a distractor/filler. Half then rate how important eating well is, and half rate how important maintaining slack is. This is the manipulation of salience of slack goal. They then see 3 products, rate pain of paying, and answer the choice question. Finally, for Ss who didn't rate slack importance before, they rate it when they indicate demographics.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
I will run two analyses.

WIDE FORM:
In wide-form, I will average each participant's pain ratings (each participant will have 9 items, 3 items for each of 3 product replicates that they see), and predict pain ratings from condition. I will then repeat this process with choice, averaging together their three choices between a more and less expensive alternative. Finally, I will run a mediation analysis from condition to composite pain of paying to composite choice.

LONG FORM:
Analogous analyses will be run using mixed effects models in long form, i.e. one row for each subject-product. First, I will predict pain of paying at the person-item level from condition, including random intercepts by person and stimulus replicate. Second, I will predict choice from pain of paying, controlling for condition and including random intercepts by person and stimulus.

Finally, I will re-run all of these analyses INCLUDING participants' score on the slack importance question (note this question is counterbalanced to come before or after the pain/choice questions, constituting the manipulation). This will increase statistical power by controlling for baseline differences in slack importance, allowing us to better isolate the unique effect of *priming* a slack goal for people. I plan to report analyses including and excluding this variable, though I reserve the right to report one set of results in the online appendix for brevity in the main text.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
We do not plan to exclude any outliers. We will remove participants who take the survey in under 60 seconds, which is an unrealistically short period of time for this study (we anticipate the mean study duration to be about 4 minutes).

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.
500

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)
We'll likely do some exploring of whether things differ across stimulus replicates.

Study 3 Conjoint Profiles

	Savings	Checking	Cash	Credit Card Debt
Profile 1	$400	$400	$400	$400
Profile 2	$400	$800	$800	$1200
Profile 3	$400	$1200	$1200	$800
Profile 4	$800	$400	$800	$800
Profile 5	$800	$800	$1200	$400
Profile 6	$800	$1200	$400	$1200
Profile 7	$1200	$400	$1200	$1200
Profile 8	$1200	$800	$400	$800
Profile 9	$1200	$1200	$800	$400

Study 5 Robustness Check on Familiarity

While participants were more familiar with Venmo ($M = 4.51$, $SD = 0.89$) than Zelle ($M = 1.82$, $SD = 1.03$; $t(186) = 27.96$, $d = 2.79$, $p < .001$), our effects were robust across levels of familiarity with the two apps. In the main text, we report that:

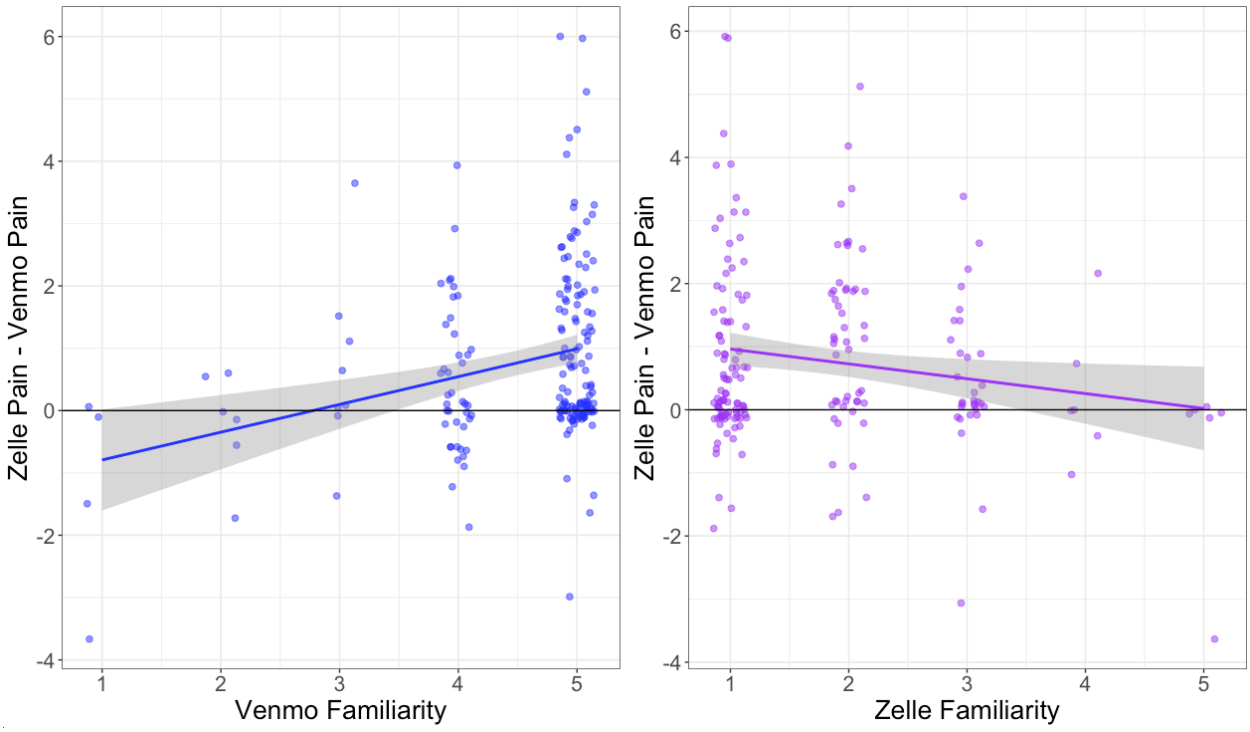
> *Averaging across the stimuli, participants reported less pain of payment with Venmo (a = .85, M = 2.93, SD = 1.62) than with Zelle (a = .89, M = 3.70, SD = 1.68; paired t(747) = 11.57, d = 0.47, p < .001)*

Here, we assess whether that difference is influenced by participants' familiarity with Venmo and Zelle. Because familiarity with the two apps was not strongly correlated ($r = .07$), we investigate whether the difference in pain was moderated by familiarity with both apps. To do so, we subtract pain with Zelle from pain with Venmo, giving us a pain difference score. We then conduct an OLS regression, predicting this difference score from an intercept term and subjects' familiarity with Venmo and Zelle (in separate regressions). The intercept term indicates whether, at the average level of familiarity (we mean-center familiarity), we observe a difference in pain of payment. The coefficient terms indicate whether this difference in pain of payment depends on familiarity. As shown in these two regressions, familiarity with the apps did influence the difference in pain of payment between them (see the two coefficients `famil.venmo.c` and `famil.zelle.c`). Notably, the intercept term was positive and significant in both cases as well.

```
              Estimate Std. Error t value Pr(>|t|)
(Intercept)     0.7701     0.1004   7.669 9.53e-13 ***
famil.venmo.c   0.4453     0.1133   3.929  0.00012 ***

              Estimate Std. Error t value Pr(>|t|)
(Intercept)     0.7701     0.1030   7.477 2.94e-12 ***
famil.zelle.c  -0.2354     0.1001  -2.351   0.0198 *
```

Although our effect emerged at the average sample level of familiarity, given that familiarity did influence the difference in pain between Venmo and Zelle, we wished to better understand the relationship. Below, we plot the influence of familiarity with Venmo (left) and Zelle (right) on the difference in pain between Venmo and Zelle. We predict that this difference should be above 0—people find it more painful to pay with Zelle than with Venmo. First, these charts show that the overwhelming majority of participants found it more painful to pay with Zelle than with Venmo, even for participants not highly familiar with Venmo (5) or highly unfamiliar with Zelle (1). Second, as shown by the 95% confidence shading, at no point in the graphs does the effect reverse—regardless of the level of familiarity, participants (albeit a small number of them) never expressed more pain with Venmo than with Zelle. Third, most participants were familiar with Venmo, and unfamiliar with Zelle; this meant that we had a small sample of people unfamiliar with Venmo or familiar with Zelle, giving the few participants in those areas high leverage in our regressions. This reduces the reliability of the regressions (Judd, McClelland and Ryan 2009), and makes us hesitant to read too much into the relationships between familiarity and pain. This also meant that our finding was strongest where the majority of participants lay, giving us confidence that this finding is not a statistical artifact.



In brief, while familiarity did influence the difference in pain of payment between Venmo and Zelle, we have no reason to believe that it is a strong enough effect to realistically negate the difference.