‘Paper Or Plastic’:

*How We Pay Influences Post-Transaction Connection*

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CONTRIBUTION STATEMENT

Much prior work concludes that less painful forms of payment result in positive outcomes during consumer deliberation and purchase (e.g., increased willingness to pay or purchase, greater point-of-purchase satisfaction). However, this research remains largely silent on the important question of implications for post-purchase outcomes. Across three studies employing a multi-method approach, we demonstrate that individuals who pay using a relatively more painful form of payment (cash or check) value and increase their emotional attachment to an object, decrease their commitment to non-chosen alternatives, are more likely to publicly signal their commitment, and are more likely to make a repeat transaction in comparison to those who pay by less painful forms of payment (e.g., debit or credit card). Hence, while prior work generally shows greater consumer choice following from lower pain of payment, our focus on post-purchase effects actually shows more positive consumer connections to chosen alternatives after incurring higher pain of payment. Our work also suggests pain of payment as a potential new source of intervention for managers or policy makers seeking to increase long-term connections between consumers and organizations.
ABSTRACT

Can the way that individuals pay for a good or service influence the amount of connection they feel after the purchase has occurred? Across three studies employing a multi-method approach, we find that individuals who pay using a relatively more painful form of payment (e.g., cash or check) increase their post-transaction connection in comparison to those who pay by less painful forms of payment (e.g., debit or credit card). More specifically, individuals who pay using more painful forms of payment value and increase their emotional attachment to a product, decrease their commitment to non-chosen alternatives, are more likely to publicly signal their commitment, and increase their loyalty and likelihood to make a repeat transaction in comparison to those who pay by less painful forms of payment. Moreover, the psychological pain of payment influences post-transaction connection even when the objective monetary cost remains constant and when the psychological cost is indirectly experienced (i.e., donating someone else’s money). Overall, paying with more painful forms of payment may have beneficial consequences with respect to increasing downstream product and brand connection.

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When you pay for something, does the way you pay (e.g., whether by cash, credit card, or debit card) change how much you value the product that you buy or how committed you feel to the brand? From a consumer research, managerial, and consumer welfare perspective, this question is at the junction of two fundamental shifts in consumer culture—first, the increasing use of non-cash for payment transactions and second, declining brand loyalty and product retention. In this paper, we show that whether the type of payment used to make a purchase can influence the amount of connection individuals experience after the purchase has occurred, subsequently increasing how much they value their purchase and their brand/organizational commitment.

According to the 2010 United States Survey of Consumer Payment Choice (Foster, Schuh, and Zhang 2013), debit cards and cash accounted for the two largest shares of consumer payment (31.1% and 28.6%, respectively). In 1999, paper payments (i.e., cash and checks) accounted for nearly 60% of in-store payments. By 2010, that number shrank to a little over 40%, as plastic cards (i.e., debit, credit, and gift cards) became the preferred form of payment for a majority of in-store payments (Foster, Schuh, and Zhang 2013). The trend away from paper seems to be furthering, with mobile and online transactions also gaining momentum.

At the same time, on the firm side, product life cycles have shortened dramatically, a trend that will continue due to rapidly changing technological innovation (Bayus 1994, 1998; Khessina and Carroll 2008; Klepper 2006). Consumers have many brands and products to choose among in any given product category. Consequently, it is not shocking that the product turnover rate has increased and brand loyalty has decreased over the last thirty years (Van Belleghem 2013). This ‘out with the old, in with the new’ mentality has led to a more competitive marketplace, giving nascent brands an opportunity to succeed, but also making brand
commitment and loyalty much harder to come by. In this paper, we examine whether using more painful forms of payment increases post-transaction connection. For instance, does paying by cash or check in comparison to paying by a debit/credit card increase how much the consumer will value her purchase or increase the likelihood of her publicly supporting her commitment to a cause? Alternatively, imagine an individual who donates to charity using a less painful form of payment. Will this consumer be less likely to make a repeat donation in the following year, in comparison to if she had made the initial donation using a more painful form of payment?

Economically, choosing to pay by cash or pay by debit card often may be identical for the customer. However, recent research has demonstrated that parting with money is not only an economic activity. Consumers experience psychological pain in paying for goods that goes above and beyond the economic cost (Prelec and Loewenstein 1998), and different forms of payment can evoke more or less pain (Soman 2001; Prelec and Simester 2001). More specifically, paying by cash, a psychologically more proximal form of money, is associated with more pain of payment than paying by debit card, a more psychologically distant form of money (Raghubir and Srivastava 2008; Soman 2001, 2003). Previous literature on the effects of payment mode suggests that consumers will have a higher willingness to pay prior to purchase and will spend more at the time of purchase when they use a more psychologically distant form of payment (Feinberg 1986; Hirschman 1979; Raghubir and Srivastava 2008). In addition, Chatterjee and Rose (2012) find that people evaluate products more favorably and have greater recall of positive attributes when they are primed with a more psychologically distant form of payment. Although such past research has demonstrated that attenuating the pain of payment can increase spending, purchasing, and positive evaluations during the consumer deliberation and purchase process, this research remains largely silent on the important question of implications
for post-purchase outcomes. Is there a potential downside in the long run if individuals pay with a more psychologically distant form of payment? We argue there is such a downside; specifically, increasing the pain of payment can actually have beneficial post-transaction effects.

Research in psychology and consumer behavior has shown that experiencing more pain increases value and commitment. People who experience physical or emotional pain to obtain a particular goal or outcome tend to justify the pain they experienced by valuing the outcome more (Gross 1998). Classic work in dissonance (e.g. Festinger 1957, 1969) and self-perception theory (e.g., Bem 1967) demonstrates the positive relationship between pain and commitment. Individuals who undergo more painful and severe initiations to join a group or who exert more effort to obtain a product increase how much they value the group and how favorably they rate the product (Aronson and Mills 1959; Cardozo 1965; Norton, Mochon and Ariely 2012). However, although prior studies have examined the effects of physical and emotional pain and effort costs, it remains unclear whether how a consumer pays will influence how connected consumers are to their products or brands after the transaction has occurred.

The main hypothesis of this article is that more psychologically painful forms of payment will increase post-transaction value and commitment for chosen alternatives. Even when the objective cost remains constant, we argue that when individuals pay using a more painful method of payment, they compensate for and justify the psychological pain they experience by showing more commitment to their chosen alternatives, both psychologically and behaviorally. As a result, consumers will imbue their chosen alternative with more value, feel more committed to their chosen alternative, and feel less committed to their non-chosen alternative. We also argue that the pain of payment is driving the effect of payment form on post-transaction connection, such that increasing the pain associated with paying increases product value and commitment over
time. This article contributes to both the pain of payment and commitment literatures by finding that psychological pain, via the pain of paying, can affect downstream value and commitment, even when the objective cost remains constant and the psychological pain is not directly tied to the individual (i.e., donating someone else’s money).

CONCEPTUAL FRAMEWORK

Payment Form and Pain of Payment

Classic economic theory states that the utility of a consumption experience is defined by the experience’s benefits and associated costs (e.g., Deaton 1992; Hicks 1939; Marshall 1920; von Neumann and Morgenstern 1944). One way to increase utility is to lower the price of an item or experience (e.g., Doob et al. 1969; Hicks 1939). However, the literature on the pain of paying suggests that there are more subtle details of the payment experience that may make a consumption experience more or less attractive.

When consumers make purchases, they typically experience an immediate pain of paying, which refers to the affective reaction that consumers experience when parting with their money (Zellermayer 1996). The pain of paying can weaken the pleasure derived from consumption. In seminal research on the pain of paying, Prelec and Loewenstein (1998) argue that the net utility of an experience is influenced not only by how much consumers pay for an experience, but also by when they pay. Paying later for an experience and avoiding debt both tend to feel less painful than paying at the time of the experience or before the experience has occurred (Prelec and Loewenstein 1998). Decreasing the temporal association between the purchase decision and the actual parting of money (e.g., credit card payments) dulls the pain of payment at the time of purchase, subsequently affecting the amount of money individuals spend and what they choose to purchase (Feinberg 1986; Hirschman 1979; Kivetz and Simonson 2002b; Prelec and Simester...
Increasing the temporal association between purchase and payment (e.g., cash payment) accentuates the pain of payment by more tightly coupling the positive utility experienced from the purchase to the disutility experienced when making a payment. However, if this were the only mechanism underlying how much pain consumers feel when paying, then consumers paying with cash should show no difference from those paying by debit card; this is not the case (Raghubir and Srivastava 2008).

In addition to payment coupling, recent work has demonstrated that different forms of payment vary in terms of pain of payment due to how psychologically associated with money they are (Raghubir and Srivastava 2008; Soman 2001, 2003). The most psychologically proximal and painful form of payment is paying by cash (Raghubir and Srivastava 2008; Soman 2003). Pain of payment then decreases as the payment form becomes more abstract, i.e., more psychologically distant. Paying by check or voucher is less painful and more psychologically distant than paying by cash because, although checks and vouchers show the value of a transaction, no actual money ever changes hands (Raghubir and Srivastava 2008; Soman 2001). Credit cards, debit cards, and other forms of plastic money are even less painful and more psychologically distant; the ritual of swiping a card obscures the cash value of the transaction, divorcing people further from its economic reality (e.g., Feinberg 1986; Raghubir and Srivastava 2008; Soman 2001). Thus, the form of payment can influence the disutility or psychological aversion to parting with money, even when the timing of the payment is held constant.

The insight that different payment forms are associated with different levels of pain and psychological distance has implications for understanding and predicting real-world consumer behavior. Scholars have shown that using less painful and psychologically distant forms of
money reduces the barrier to spending and increases the probability of purchasing from a consideration set (Raghubir and Srivastava 2008; Shah, Bettman, and Payne 2014). Soman (2001) showed that consumers who used relatively low-pain credit cards were more willing to incur an expense than those who used relatively high-pain checks to make their purchases. Furthermore, Chatterjee and Rose (2012) suggest that using cash leads people to focus on a product’s costs and negative attributes, whereas using debit/credit cards leads to a focus on the product’s benefits and positive attributes. Research has also demonstrated that feeling more pain of payment can decrease immediate satisfaction with a product (Shah, Bettman, and Payne 2014; Soster, Gershoff, and Bearden 2014). Considered together, these results suggest that people who pay via a less painful and more psychologically distant form of payment may choose to pursue more consumption opportunities and even may purchase more of the same type of good, because payment form influences the balance of the experience’s pleasure and pain by affecting the pain of payment (Shah, Bettman, and Payne 2014). However, these results, along with other prior work in the pain of payment literature, lead to the conclusion that less painful forms of payment result in positive outcomes during consumer deliberation and purchase (e.g., increased willingness to pay or purchase, greater point-of-purchase satisfaction). What remains unclear is what happens after the purchase has occurred. Can the pain associated with paying influence post-transaction connection, both with a product or brand or organizational loyalty?

Pain and Value

The idea that painful experiences promote value and commitment is supported by theory and research in multiple disciplines. Several branches of literature in psychology have examined the effects of increased effort and pain on motivation and behavior (e.g., Bem 1967; Brehm and Self 1989; Festinger 1969; Kivetz and Simonson 2002a; Mischel, Cantor, and Feldman 1996).
Regarding value, Gross (1998) argues that people who experience physical or emotional pain to obtain a particular goal or outcome tend to justify the pain of their experience by seeing more value in the outcome they achieve. Cardozo (1965), for example, demonstrated that consumers tended to rate a product—in this case, a ballpoint pen—more favorably when they expended more effort to obtain the product. Research on effort justification and dissonance reduction posits a tendency to justify prior investment by valuing the chosen outcome more and persisting with the same course of action (Arkes and Ayton 1999; Arkes and Blumer 1985; Aronson 1997; Aronson and Mills 1959; Cooper and Fazio 1984; Festinger 1957; Kahneman, Knetch, and Thaler 1991). Koo and Fishbach (2010) demonstrate that even queuing in line for a product, a signal of the effort required to reach a product, can increase consumer expectations and enjoyment.

Interestingly, there is evidence that painful experiences tend to change how people value both their chosen option and their non-chosen alternatives. Individuals who make a difficult or painful decision will evaluate the chosen alternative more positively and the rejected alternative(s) more negatively than individuals for whom the decision was easy (Harmon-Jones and Harmon-Jones 2007; Harmon-Jones and Mills 1999). Harmon-Jones and Harmon-Jones (2007) argue that the impact on pain and valuation for non-chosen alternatives also occurs when individuals are in a relationship, subsequently increasing relationship satisfaction and commitment.

The evidence of a positive relationship between pain and commitment is similarly robust. Aronson and Mills (1959) found that participants who underwent a more painful and severe initiation to join a group expressed more liking and affiliation for the group than those who had a milder initiation or no initiation at all. Similar effects have also been noted in consumer research.
(Sheth 1968). Doob and colleagues (1969) demonstrated how introducing a product at a promotional price could drive initial sales—i.e., the lower price reduced the pain of payment—but ultimately led to decreased sales over the long term. Kivetz and Simonson (2002a) demonstrate that consumers who felt that they expended more objective effort in order to obtain a loyalty program reward believed that the reward was more attractive. Effectively, if individuals feel more pain, they compensate by believing that they are more committed to the group (or organization/cause). This in turn justifies the experienced pain associated with the painful decision.

Taken together, these results imply that individuals will feel more connected and committed to decisions when they experience more pain, even if this pain is merely psychological. Drawing on research on cognitive dissonance and self-perception theory (e.g., Festinger 1969; Bem 1967) we argue that the psychological pain associated with payment will increase value, loyalty, and commitment for the chosen alternative and will decrease value for non-chosen alternatives. We contribute to the pain of payment literature by exploring the post-transaction consequences of using different forms of payment. As discussed above, the extant literature on pain of payment has traditionally focused on how pain of payment influences decision-making and evaluation processes during the pre-purchase stage. Looking beyond the boundaries of the transaction, we argue that pain of payment may also affect consumers after the transaction is completed. We hypothesize that a more psychologically proximal form of payment will increase the psychological pain of paying. Increasing the psychological pain of paying will increase post-transaction connection, both in terms of how much consumers value their experiences and how committed they will feel toward the entity they supported with their purchase. We argue that paying by a more painful and psychologically proximal form of
payment (while keeping the objective payment value constant) will increase how much consumers value their choice; in addition, the pain of paying will mediate the effect of payment method on how much individuals value their chosen alternative. We also predict that increasing the pain of payment will result in increased post-transaction connection by increasing psychological connection for a chosen option, decreasing psychological connection to non-chosen alternatives, and increasing the likelihood that purchasers will publicly express their connection.

OVERVIEW OF EXPERIMENTS

We conducted three studies to investigate how the psychological pain associated with different payment forms affects post-transaction connection following an economic transaction. In Study 1, we use a controlled field experiment where we manipulate the form of payment used for purchase. We examine whether paying for a mug using their own cash increases post-transaction connection via the perceived value of the mug (i.e., an endowment effect) and emotional attachment to the item in comparison to those who pay using ‘plastic’ (i.e., debit/credit or student card). Study 1 also demonstrates that the effect of payment method on post-transaction connection is mediated by pain of payment. Next, in Study 2, we use a laboratory experiment to rule out the potential alternative explanations that income effects, transaction costs, or halo effects drive the results. Study 2 examines whether the pain of paying effect can influence post-transaction connection even when the individual is spending someone else’s money. We again find that paying by a more painful form of money, even when holding the objective amount constant, increases psychological connection to the chosen alternative. We also demonstrate that paying by a more painful form alters the psychological connection for non-chosen alternatives, with individuals decreasing psychological connection to the non-chosen alternatives in
comparison to paying by a less painful and more psychologically distant form of payment. Study 2 also demonstrates that experiencing more pain of payment increases the likelihood of participants publicly signaling their connection by wearing a ribbon lapel pin for their chosen charity. Finally, in Study 3 we use archival donation data to determine whether the pain of payment influences loyalty and repeat donation likelihood as a proxy for post-transaction connection in a real-world setting using a longer time horizon. Specifically, we demonstrate that paying in year $t$ by check, a more painful form of payment than credit or debit card, increases the likelihood of donating in year $t + 1$. Thus, we demonstrate that the pain of paying effect is both robust over time and occurs with real, consequential decisions.

STUDY 1: MUG FIELD EXPERIMENT

Study 1 investigates whether paying with a more painful form of money increases how much consumers value a product after the transaction is completed. To establish that there is a causal relationship between payment form and post-transaction value, we manipulate whether consumers pay for a mug using cash or plastic card. More specifically, we examine whether paying by a more painful form of money increases the value of the mug as measured by the willingness to accept amount for the purchased mug (i.e., the endowment effect) and by purchasers’ rated commitment toward the mug. We also examine whether the psychological pain associated with payment mediates the effect of payment form on value.

Method

Procedure and design. The study experimenter approached ninety-eight employees of a private Southeastern university, asking each if they would like to purchase a mug. The mug was navy blue in color and contained a university logo. Individuals were informed that the mug normally sold for $6.95, but that as part of a promotion the mugs were discounted to $2.
Individuals were randomly assigned to one of two experimental conditions. In the ‘Pay by Cash’ condition, individuals were told that they could only purchase the mug with cash. In the ‘Pay by Plastic’ condition, individuals were told that they could only purchase the mug with a credit card, debit card, or university card commonly used on campus. Sixty-three people purchased a mug, 32 in the Pay by Card condition, 31 in the Pay by Plastic condition. As expected due to the discounted price (Shah, Bettman and Payne 2014), payment method did not significantly affect purchase likelihood across the two payment conditions, $t(94)=-.786$, $p = .434$, $M_{\text{Cash}}=59\%$, $M_{\text{Plastic}} = 67\%$. Approximately two hours after the transaction, the experimenter approached everybody who purchased a mug and asked them to complete a follow-up survey measuring psychological commitment and willingness to accept (WTA).

*Measures.* The independent variable in our analysis is *Paid by Cash*, a dummy variable that indicates whether the participants used cash ($\text{Paid by Cash} = 1$) or a form of plastic ($\text{Paid by Cash} = 0$) to pay for their purchase. As described above, participants were randomly assigned to pay by cash or by plastic; they did *not* choose their form of payment.

The dependent and mediating variables were all measured on the post-transaction questionnaire. We measured two dependent variables. First, we measured the participants’ *Psychological Commitment* with a single item question: “How emotionally attached are you to the mug (1-7 Likert scale, 1=Not at all, 7=Very Attached)?” Second, we measured how much the participants valued the mug by asking the participants about the minimum price that they would demand to give up their mug. This *Willingness to Accept (WTA)* measure was used to indicate post-transaction valuation.

The mediating variable is *Pain of Payment*. We assessed the participants’ pain of payment by asking: “How painful was paying for the mug when you originally bought it (1-7
Likert scale, 1=Not at all, 7=Very Painful)?” Although it would have been ideal to ask this question when they decided to purchase the mug, at the time of the decision, the participants did not yet know that they were participating in a research study at that time.

Results

We analyze the data in two stages. We first investigate whether the experimental manipulation had the predicted effect on the dependent variables, Post-transaction Commitment and Willingness to Accept. We then test whether the manipulation affected Pain of Payment and whether Pain of Payment mediates the experimental manipulation’s effect on the dependent variables.

*Effects of Payment Method.* Payment method significantly influenced both dependent variables. Regarding post-transaction valuation, individuals who paid with cash exhibited a significantly higher Willingness to Accept in comparison to those who paid with plastic ($M_{\text{Cash}} = 6.71, M_{\text{Plastic}} = 3.83, t = 6.68, p < .001$). Regarding post-transaction connection, individuals who paid by cash also exhibited significantly more Post-transaction Connection than participants who paid with plastic ($M_{\text{Cash}} = 3.28, M_{\text{Plastic}} = 2.45, t = 2.41, p = .019$). These effects are consistent with our hypothesis.

*Pain of Payment.* Before testing our hypotheses, we assessed whether the experimental manipulation influenced the participant’s subjective Pain of Payment ratings. As expected, participants who paid by cash self-reported more pain that individuals who paid by plastic ($M_{\text{Cash}} = 4.09, M_{\text{Plastic}} = 2.10, t = 5.44, p < .001$).

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Mediation Analysis. We assess whether Pain of Payment mediates the relationships between payment form—the experimental manipulation—and the two dependent variables: Willingness to Accept and Post-transaction Connection. We used bootstrapping methods and SEM to test the significance of the mediation (Zhao, Lynch, and Chen, 2010). A 1,000-draw bootstrap analysis suggested that Pain of Payment significantly mediates both the effect of paying by cash on Post-transaction Connection (Indirect effect of paying by cash = 0.40, SE = 0.19, z = 2.05, p = .041; Direct effect = 0.43, SE = .39, z = 1.10, p = .272) and the effect of paying by cash on Willingness to Accept (Indirect effect of paying by cash = 0.770, SE = 0.352, z = 2.187, p = .029; Direct effect = 2.11, SE = 0.39, z = 3.49, p < .001). Using the language of Zhao, Lynch, and Chen (2010), these patterns of results suggest that is evidence of “indirect-only mediation” for Post-transaction Connection and “complementary mediation” for Willingness to Accept.

Discussion of Study 1

Study 1 suggests that payment form influences the level of value (as measured by willingness to accept) and the commitment individuals feel towards their chosen option. Individuals expressed a higher willingness to accept and were more emotionally attached when paying by cash than by plastic. The pain associated with paying mediated both of these pain of payment effects. Thus, even when holding the price of the item constant, the psychological pain of payment increases the amount that an individual values the product as measured by willingness to accept and the commitment the individual feels toward the product.

Study 1 also has limitations. First, we used self-report measures of psychological commitment and valuation. It would be preferable to observe both behavioral consequences of payment form as well. Second, the participants had to spend their own money. Although $2 may
be too small to create wealth and income effects, we do not know whether having people pay for the mugs created a biased sample of participants (i.e., we do not know anything about people who did not want a mug). For example, credit card users who have rewards points or have cash back programs may, in fact, be paying less than $2. Similarly, it is feasible that cash users may have limited cash available in their wallet and might add on additional transaction costs of going to the ATM in order to have more cash available. For these cash users, $2 may feel like greater than $2 due to these additional costs. In addition to these aforementioned limitations, halo effects might also be driving the results, as individuals may not feel more committed but rather just may have more positive impressions overall (Nisbett and Wilson 1977). To overcome these limitations, Study 2 uses a controlled laboratory experiment to examine whether donating someone else’s money increases connection, using both behavioral and psychological measures of connection. Study 2 also tests whether increasing the pain of payment affects connection towards simply the chosen alternative or whether the pain of payment also influences connection towards the non-chosen alternatives.

STUDY 2: CHARITY LABORATORY EXPERIMENT

In Study 2, we test whether having individuals use forms of payment differing in pain of payment (i.e., $5 cash or a $5 voucher) affects psychological and behavioral connection to a charity chosen for a donation, even when the donation amount is not their own. In addition, we also test whether psychological connection for the non-chosen alternatives is influenced by payment form. We hypothesize that increasing the pain of payment will increase connection, both psychologically and behaviorally, for the chosen alternative and will also decrease commitment to the non-chosen alternatives. We measure both psychological and behavioral
commitment, the latter via the likelihood of wearing a ribbon lapel pin for their chosen charity one week following their initial donation (Baca-Motes et al. 2013).

Method

Participants. Ninety-four undergraduates (61.7% female) from a Southeastern University participated in this between-subjects experiment.

Experimental Manipulation. The participants were randomly assigned to one of two payment conditions. Half of the participants donated to one of three charities using a five-dollar bill, while the other half donated using a five-dollar voucher.

Procedure and design. Participants arrived at the lab and were informed that they would be taking part in a two-part study involving problem-solving and evaluating three different charities. Upon entering the lab, participants were given $7 (in the form of a $5 bill and two $1 dollar bills) as payment for their participation in the study plus either an additional $5 cash or a $5 voucher, which they were told explicitly would be used to donate to one of three charities of their choice during the second part of the experiment on behalf of the school. Having participants donate money that was not theirs reduced concerns that wealth effects or transactions costs were driving the relationship between the pain of payment and post-transaction connection. The five-dollar voucher had the exact same dimensions (6.14 x 2.61 inches) as the five dollar bill in order to limit any potential confounds due to differences inferred from the size of the payment modes.

The first part of the experiment was a 10-minute filler task where participants answered as many brain teasers and difficult anagrams as they could in the allotted time. This 10-minute task was used to ensure that there would be some delay between the time they received the $5 cash/voucher and the time that they donated this money to their chosen charity. The lag helped
create a sense of psychological ownership, which was bolstered by having the cash or voucher sitting on the same surface where participants were completing the 10-minute filler task.

After completing the 10-minute task, participants were told that they would have a chance to donate the $5 cash/voucher to one of three charities: Cancer Research Institute, Earthworks Environmental Organization, or Elizabeth Glaser Pediatric AIDS Organization. All charities were real and had received an "A" rating from an annual charity review; thus, they did not differ in terms of quality (http://www.charitywatch.org/toprated.html). Individuals were then given three clasp envelopes with a one-page description pasted on the front for each charity. The description for each charity was provided in order to ensure that the information was similar across choices (see Appendix A for descriptions).

Participants were then instructed to donate to the charity of their preference by placing their $5 cash/voucher into the associated envelope. They could not give any more (or less) than $5 and could not split the money up between one or more charities. The participants were then given a questionnaire asking them about their feelings toward the charity. The questionnaire measured the participant’s post-transaction psychological connection and positivity.

After completing the questionnaire, individuals were given a small ribbon lapel pin as a thank you and token of appreciation from the charity organization. The ribbon lapel pins were identical in shape and size but varied by color. A purple lapel pin corresponded to a donation to the Cancer Research Institute, a green lapel pin corresponded to a donation to the Earthworks Organization, and a red lapel corresponded to the Elizabeth Glaser Pediatric AIDS Foundation.

One week after participating in the experiment, all participants were emailed a follow-up questionnaire. The email thanked the participants for their participation. Participants were also
informed that the charity (which remained unspecified so that everyone could receive the same email) had a few follow-up questions.

**Measures.** There are two sets of measures in this study. The psychological variables were measured in the post-donation questionnaire; the behavioral measures were recorded in the follow-up email questionnaire that all participants received one week after their participation in the experiment.

The post-donation questionnaire measured two variables with a series of seven-point Likert scales (1 = Strongly Disagree; 7 = Strongly Agree). First, the participants described their Psychological Connection with a three-item scale. The scale items asked about the participant’s connection to the charity’s values and mission, the likelihood of recommending the charity to a friend, and the likelihood of donating in the future to the charity (Cronbach’s alpha = .901). Second, the participants described the Positivity of the charity with a four-item scale. The items on this scale asked participants about the charity’s competence, genuineness, efficiency, and whether it will fulfill its goals (Cronbach’s alpha = .933). We measured the positivity rating of each charity to rule out the alternative explanation of a halo effect regarding the participant’s chosen charity (Nisbett and Wilson 1977). These two scales exhibited discriminant validity, with the two-factor model fitting better than the one-factor model which combined the two scales ($\chi^2(1) = 266.8, p < .001$). Participants completed these two scales three times, once for each of the three charities they could choose from.

The follow-up questionnaire asked about the participant’s post-experiment behavior. To measure post-transaction behavioral connection, we asked participants if they wore their lapel pin during the last week (Binary outcome: Yes/No) and how many days they wore the pin (1 = 1 Day, 2 = 2-3 Days, 3 = 4-5 Days, 4 = 6+ Days). Unrelated to the present research, we also
asked the participant if they thought the charity should continue giving out ribbon pins to donors (Binary outcome: Yes/No).

Results

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Post-Donation Questionnaire. First, looking at Psychological Connection, we found that individuals who donated to charity using $5 cash felt significantly more psychological connection to their chosen charity than participants who donated using a $5 Voucher (t(92) = 2.15, p = .034; M_{Cash} = 17.43, M_{Voucher} = 15.96). We also found that individuals who donated using $5 Cash felt significantly less committed to their non-chosen alternatives (using the average of the two non-chosen alternatives) than those who donated to charity using a $5 Voucher (t(92) = -2.77, p = .007, M_{Cash} = 11.66, M_{Voucher} = 13.69). Second, we used the Positivity measure to investigate whether pain of payment influences post-transaction psychological connection, rather than producing a more generalized halo effect. Unlike the psychological connection measure, we found no evidence that individuals who donated via cash viewed their chosen charity more positively than those who donated by voucher (t(92) = .469, p = .64; M_{Cash} = 23.43, M_{Voucher} = 23.04). Payment form also did not influence positivity measures for the non-chosen alternatives, (t(92) = -0.403, p = .688; M_{Cash} = 21.17, M_{Voucher} = 21.45).
Post-Transaction Behavioral Connection (i.e., wearing a lapel pin). Out of the initial ninety-four participants, sixty-eight responded to the email survey ($n_{\text{cash}}=39$, $n_{\text{voucher}}=29$). Consistent with our hypothesis, individuals who donated by cash instead of voucher were both significantly more likely to report wearing the lapel pin after one-week ($\chi^2(1) = 8.66$, $p = .003$; $M_{\text{Cash}} = 51.3\%$, $M_{\text{Voucher}} = 13.8\%$) and reported wearing the lapel pin more frequently ($t(66) = 2.25$, $p = .028$; $M_{\text{Cash}} = 1.31$, $M_{\text{Voucher}} = .48$). Finally, ratings on the Psychological Connection measure fully mediated the effect of payment method on the post-transaction behavioral connection measure, $z=2.04$, $p=.041$. This result implies that payment form influenced post-transaction psychological connection, which subsequently influenced the likelihood to demonstrate post-transaction behavioral connection via publicly signaling support for the charity.

Discussion of Study 2

The results from Study 2 provide additional evidence that experiencing more pain while paying increases the degree of connection to the chosen alternative, despite participants not parting with their own money. Increasing the pain of payment also increased the propensity to publicly signal their connection and decreased the psychological connection towards the non-chosen alternatives. Study 2 also rules out two potential alternative explanations. First, since participants were donating money on behalf of someone else and not parting with their own money, we rule out potential alternative explanations that wealth effects or transaction costs could be driving the relationship between pain of payment and post-transaction connection. Second, given that pain of payment did not lead to significant differences between positivity measures for the various options, we rule out the potential alternative explanation that pain of payment simply leads to a halo effect rather than specifically increasing post-transaction psychological and behavioral connection.
STUDY 3: DONATION ARCHIVAL DATA ANALYSIS

The results of Study 1 and Study 2 suggest that paying with a more painful form of money increases post-transaction value and commitment. However, both of these studies looked at relatively low-value purchases and relatively short time-horizons. The participants in Study 1 purchased a $2 mug and were surveyed a few hours later, while the participants in Study 2 donated $5 to charity and were surveyed a week later. The goal of Study 3 is to provide real-world evidence that people who pay with a more painful form of money tend to exhibit longer-term connection and commitment, demonstrated by their likelihood to make a repeat transaction.

Study 3 investigates the relationship between how alumni pay for a charitable donation to their alma mater and their probability of making future donations. Specifically, we use an archival data set of alumni donations to assess whether paying with a more painful form of payment in year \( t \) increases the probability that the individual will donate again in year \( t + 1 \). Alumni donations provide a suitable context for testing our hypothesis about the relationship between pain of payment and post-transaction connection because making a future donation is a behavioral measure of connection and financial commitment.

Data and Variables

The alumni donations database includes information about all of the donations alumni contributed to a top-ranked business school between 2005 and 2013. Across these nine years, 9,482 alumni had 71,110 opportunities to make a yearly donation to their alma mater and made a total of 35,113 donations. The total number of donation opportunities is 71,110 rather than 85,338 (9,482 alumni * 9 donation years) because alumni do not enter the database until after they graduate.
Alumni Information. The data set includes information about alumni who donated to their business school. The dummy variable Male equals 1 if the donor is male, Graduating Class indicates the year that the donor graduated from the university, and the dummy variable Attends Reunions indicates whether the alumni attended any of the school’s reunions. We include this reunion information in our analysis as a control variable because previous research suggests that people who attend reunions are more likely to donate to their university (Netzer, Lattin, and Srinivasan 2008).

Donation Opportunity Information. The data set also includes information about what the 9,482 alumni did during the 71,110 opportunities they had to make a yearly donation. For each donation opportunity, we use a dummy variable Donated in Year t to indicate whether or not the alumni made a donation during that fiscal year, the logarithm plus one of the total Donation Value the alumni contributed during that year, and a series of dummy variables to indicate the Donation Year. The outcome variable is Future Donation, a dummy variable that indicates whether the donor made a donation in Year t + 1.

Importantly, we also have information about how each donor paid for each donation. In this dataset, the more painful form of donation payment is paying by check, whereas the less painful form is paying by debit or credit card (Soman 2003). Although this database does not distinguish whether a debit or credit card (i.e., plastic) was used to make a particular card donation, prior research suggests that both types of card payments are relatively low pain forms of payment (Soman 2003). A small percentage of the donations were also made using other non-traditional payment forms (e.g., wire transfer, stock gifts, etc.).
**Analytical Strategy.** We had to make a series of decisions about how to best test our hypotheses. To be as transparent as possible, we discuss all of the analytical strategies we considered and why we eventually settled on our chosen alternative.

Our initial analytical strategy was to study how more painful forms of payment influence future donation behavior with panel analysis. Panel analysis would allow us to assess the relationship between within-person variations in payment forms and variations in future donation behavior, while also controlling for any individual differences that may create between-person differences in the predictor or outcome variable (Hagenaars 1990; Kessler and Greenberg 1981). Unfortunately, the archival data are not amenable to this analytical strategy. Our review of the data revealed that most alumni always used the same payment form—greatly reducing the power of our analysis—and the few alumni who switched tended to make their early donations with checks and then switch to some form of plastic for their later donations. This trend suggests that any changes in payment form decision may be a proxy for a third unmeasured variable that may also be related to donation behavior. Thus, with a restricted sample and endogeneity concerns, we concluded that the data were not amenable to studying whether within-person changes in payment form cause changes in future donation behavior. However, with causality established by the experiments in Study 1 and Study 2, we felt that the archival data could still provide a real world replication of the relationship between payment form and post-transaction loyalty.

We test our hypotheses by comparing the future donation behaviors of the 2,057 alumni who make all of their donations via check to the 4,041 alumni who make all of their donations via plastic. As every donation is nested within an alumnus, these analyses required a multilevel model. More specifically, the model must assess whether a characteristic of the alumni—i.e., whether they pay by cash or card—influences the loyalty created by making a donation while
also accounting for the interdependence inherent in the data. How to best model this interdependence is not a trivial question, especially with different communities of scholars recommending different approaches to multilevel data. In their models, econometricians often put extensive thought into how to properly model the interdependence among the error terms, to improve the robustness of the estimators, and to correct potential issues of endogeneity. Scholars from this tradition would most likely recommend that we test our hypotheses with fixed effect models; they would only recommend random effects when a Hausman-style test (Hausman 1978) confirms that the random effects are uncorrelated with the predictors (Mundlak 1978). Statisticians, in contrast, are more likely to use “mixed-effects” models that use random effects to model interdependence and fixed-effects parameters to estimate the relationships between the predictors and the outcome (Gelman and Hill 2006). In this tradition, the decision to model interdependence with random, rather than fixed, effects is often based on whether the people in the data can be considered a suitably random sample of a larger population of interest (Pinheiro and Bates 2000). Interdependence between the predictors and the random effects is not considered a limitation of mixed-effects models. Instead, one of the features of these models is that they allow researchers to estimate the effects of predictors that both do and not vary within-person.

Given these differences, we decided to use a mixed-effects model for three reasons. First, we would like to model how the individual-level characteristics of the donors influence donation behavior, as these associations will replicate the findings of previous studies. Second, we would like to use our sample of data to make inferences about the larger population of alumni at similar institutions, rather than restrict our estimate to the population at hand. Third, we are not interested in trying to establish causality with these data, the primary focus of most econometrics
approaches. However, we also acknowledge that other researchers may strongly prefer a fixed effects approach. Therefore, we also discuss the results of fixed-effects models as an alternative analytical strategy and show that we get similar results to those from the mixed-effects model.

Results

Table 1 shows the descriptive statistics for the alumni who donate via check and via plastic. In addition to highlighting some of the differences between these groups of alumni—e.g., the alumni who use checks tend to be older and less likely to attend reunions—these descriptive statistics are consistent with both prior research on pain of payment and our hypotheses. We see that the pain of payment reduces the likelihood of initiating a donation: compared to donors who use plastic, donors who use checks to make donations are less likely to start making donations in Year $t + 1$ if they have not made a donation in Year $t$ (Plastic Probability = 21.6%, Check Probability = 18.9%, $t = 4.88, p < .001$). Consistent with our hypothesis, the descriptive statistics also suggest that more painful forms of payment have a positive effect on future financial commitment. Alumni who donate by check in year $t$ are significantly more likely to donate in year $t + 1$ (Check probability = 62.3%) than those who donate by plastic (Plastic probability = 56.7%, $t = 6.94, p < .001$), suggesting that people who choose to pay with a more painful form of payment tend to also be more financially committed in the following year.

We formally test our hypothesis with a mixed effects logistic regression model. In this model, the outcome variable is whether the donor made a donation in Year $t + 1$. The predictor variables are then organized in terms of their level of analysis. At the level of the donation
opportunity—i.e., Level 1 variables in the language of hierarchical linear modeling (HLM; Radenbush 1993)—we include information about whether the donor \textit{Donated in Year }t, the total \textit{Donation Value}, and the dummy variables indicating the \textit{Donation Year}. The donor level—i.e., Level 2—predictors describe whether the donor is \textit{Male}, whether he or she \textit{Attends Reunions}, and most importantly, whether the donor consistently donates via check or card, as measured with the dummy variable \textit{Donor Uses Checks} (1 if check used, 0 if card used). We then test our hypothesis by studying the cross-level interaction between the Level 1 variable \textit{Donated in Year }t and the Level 2 variable, \textit{Donor Uses Checks}. Our hypothesis predicts that this cross-level interaction term will be positive and significant.

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### Table 2

Table 2 shows the results of the multilevel logistic regression models we use to investigate our hypothesis. Model 1A regresses the binary variable of future donations against all predictor variables except the variables related to the year’s donation behavior. As expected, we find that people are significantly more likely to donate when they are reunion attendees (b = 0.41, SE = 0.06, $z = 9.73, p < .001$). We also find that donation likelihood varied across the years. This baseline model also reveals no difference in future donation likelihood between donors who use checks and donors who use plastic (b = 0.01, SE = 0.05, $z = 0.10, p = .91$).

Model 1B adds the dummy variable \textit{Donation Made in Year }t into the regression model. As expected, we find that making a donation in year $t$ increases the donor’s likelihood of donating again in year $t + 1$ (b = 0.96, SE = 0.03, $z = 29.87, p < .001$).
Model 1C incorporates the cross-level interaction term that we use to test our hypothesis. Consistent with our hypothesis, the cross-level interaction effect (b = 0.25, SE = 0.06, z = 4.31, p < .001) indicates that donors who make a donation in Year t are more likely to make a donation in Year t + 1 when the donor donates with checks rather than with plastic. Figure 4 demonstrates the cross-level interaction of donation behavior as a function of payment in year t and year t + 1.

To check the robustness of our results, Model 1D and Model 1E include the same predictor variables as Model 1B and 1C respectively, but also include the value of the donor’s donations during the fiscal year. In both models, donors who donate more money in a given year are more likely to make a donation in the following year (Model 1D: b = 0.17, SE = 0.02, z = 10.19, p < .001; Model 1E: b = 0.18, SE = 0.02, z = 10.59, p < .001). Controlling for the donation value does not, however, change the direction or significance of the cross-level interaction effect, the primary result of interest b = 0.30, SE = 0.06, z = 5.19 p < .001).

As discussed above, we also tested our hypotheses using the fixed effects approach preferred by econometricians. These models are not able to estimate the simple effects of donor-level variables such as whether the donor is Male, whether he or she Attends Reunions, and whether the Donor Uses Checks; all of the variance that could be explained by these donor-level variables is already accounted for by the model’s fixed effects. The models can, however, estimate the effects of the donation-level variables and, most importantly, the cross-level interaction relevant to our hypotheses.
Table 3 shows the results of fixed effect models. As in the previous analyses, we find support for our hypothesis using models that both do and do not include the size of the donation. Model 1C does not include a donation size control. Following a donation in Year $t$, the results of this model suggest that check-using donors are significantly more likely to make a Year $t+1$ donation than card-using donors ($Donation \text{ in } Year \ t \ast Donor \ Uses \ Checks: b = 0.13, SE = 0.06, p = .041$). We find the same pattern of results in Model 2E, the model that includes the donation size control. Controlling for the size of the donation, we again find that check-using donors are more likely than card-using donors to follow up a donation with a second donation ($Donation \text{ in } Year \ t \ast Donor \ Uses \ Checks: b = 0.15, SE = 0.06, p = .016$).

Discussion of Study 3

Study 3 extends the experimental findings in Study 1 and Study 2 by providing a real-world replication of the relationship between payment forms and post-transaction commitment. Compared to people who make a less painful form of payment (i.e., card), we found that people who use a more painful form of payment (i.e., check) show increased post-transaction connection through greater financial commitment and loyalty over time. Check-using donors are less likely to donate in any given year in comparison to plastic-using donors, but, after they choose to make a donation, their commitment to the organization increases in subsequent years (as measured by future willingness to donate). The results suggest that the pain of payment may have an economic upside: more painful forms of payment may help instill the loyalty and commitment that charitable organizations depend on.

GENERAL DISCUSSION

In the 1970s, consumers could choose between about five payment forms for most transactions, with cash being the dominant form of choice (Foster, Schuh, and Zhang 2013).
However, the financial landscape has changed dramatically. In today’s marketplace, there are over twenty potential methods of payment (Foster, Schuh, and Zhang 2013). These payments all vary with respect to how psychologically distant they are from the consumer, and thus vary in terms of how much psychological pain an individual feels when spending with these various forms. As we move toward a ‘cashless economy,’ it is important to understand whether the way we pay can influence the value individuals feel for what they purchase, the commitment they feel towards what they choose to spend their resources on, and the likelihood that they will remain brand and product loyal. In this paper, we seek to fill a gap in current research by examining whether payment form can influence post-transaction connection. Across field, laboratory, and archival studies, we demonstrate that the pain of payment can significantly influence post-transaction value and commitment.

In Study 1, we use a field experiment selling mugs in order to determine whether exogenously varying payment method can influence post-transaction value. After purchasing a mug, we measure whether paying by cash, a more painful form of payment, will increase an individual’s subsequent willingness to accept (WTA), the amount necessary to give up their mug (i.e., the endowment effect). We find that paying by cash increases the endowment effect. Paying by cash also leads to greater emotional attachment to the mug. In Study 1, we also find that the pain of paying fully mediates the relationship between payment form and post-transaction connection. In Study 2, we ruled out two potential alternative explanations. First, individuals were asked to choose a charity to donate someone else’s money to, ruling out the possibility that wealth and income effects are driving the results. Second, Study 2 ruled out the possibility that a positivity bias or, in other words, halo effects, could be driving the results. By measuring both general positivity ratings as well as psychological connection, we find that
paying by a more painful form increases psychological connection to the chosen alternative but does not influence generalized positivity ratings. We also find that increasing post-transaction psychological connection by donating with a more painful form of payment increases post-transaction behavioral connection. Individuals were more likely to wear a lapel pin, publicly signaling support for their chosen charity, when they paid by cash. Finally, we show that increasing the pain of payment increases psychological connection for the chosen alternative and also decreases psychological connection for the non-chosen alternatives. This pattern is congruent with dissonance reduction via spreading of alternatives as well as self-perception theory (Bem 1967; Festinger 1969; Harmon-Jones and Mills 1999). These results imply that individuals use the psychological pain from paying as an indicator of value for their chosen alternative as well as for how they feel about non-chosen alternatives. In Study 3, we sought to replicate our results in the real-world using archival donation data where we could determine whether paying with a more (versus less) painful form of payment in a given year would increase (decrease) the probability of donating in the subsequent year. In Study 3, we demonstrated that paying by check (a more painful form of money) can increase donation likelihood in the future period by 9.9% (i.e., 62.3% likelihood to donate in year t + 1 by check versus 56.7% by credit/debit card). Thus, Study 3 demonstrated the robustness of payment form effects on organizational commitment, even over a one-year period.

It could be argued that traditional signaling theory with respect to price could explain these findings. A great deal of research has shown that higher costs (e.g., higher price) can sometimes signal that the product is of higher quality or value (e.g., Monroe 1973; Zeithaml 1988). We sought to limit this potential explanation in the archival study by controlling for donation value. In addition, both Studies 1 and 2 rule out the potential for a traditional price
signaling explanation since the price and donation amount were controlled and the same across payment conditions ($2 and $5 respectively). Thus, the results of the studies suggest that the psychological pain associated with payment can be its own separate signal for value. This process occurs even if the objective dollar amount is constant and even when the psychological pain is not directly tied to the individual (i.e., donating someone else’s money).

From a theoretical perspective, these findings lend support to the notion that the pain of payment can affect not only decision-making during the purchase context, but also how much value and commitment are experienced post-purchase. Our findings suggest that the subjective pain can influence how much individuals value their chosen product, how connected they feel to it, and how committed they are over time. While increasing the pain of payment may decrease purchasing initially, our work demonstrates the potential downstream benefits of increasing the psychological pain of payment for both the firm and the individual. Individuals are more committed to the organization/firm financially, psychologically, and behaviorally and even value their products more when they pay with a more painful form of payment.

In addition to the pain of payment literature, the notion that the pain of payment can influence value and commitment is related to psychological and behavioral research on how value and commitment are influenced by physical and emotional pain, such as research on cognitive dissonance and self-perception (Bem 1967; Festinger 1969; Gross 1998). We also demonstrate that psychological pain can influence value perceptions and subsequent commitment, even when the individual is donating money on behalf of someone else. Although it is beyond the scope of the present paper to attempt to discriminate between dissonance and self-perception, we note that these latter results may be more consistent with self-perception. Individuals were not donating their own money, so there was no reason to believe that the donation created
dissonant thoughts, or a negative drive state, that needed to be reconciled through increased commitment and connection.

What remains unclear is why different forms of money create differences in subjective pain, despite holding the objective value and payment coupling constant. Is it simply that different forms prime the notion of economic loss aversion to a varying degree? Or is it more complex? Is it possible that spending money can evoke different types of losses, above and beyond just an economic notion of loss? For example, Vohs and Baumeister (2014) have demonstrated that spending money can conjure thoughts of the self, such that spending money is like losing pieces of the self. Other work has demonstrated that having money is agentic in nature, as one is not as dependent on the resources of others and can focus on one’s own needs and desires (Johnson and Krueger 2006; Weatherford 1998). Future research to disentangle these and other potential alternatives would be useful. For example, priming various goals and contexts while conjuring thoughts of spending (e.g., spending $10 for a late fee, which is more penalty and loss-oriented, versus spending $10 to take a friend to coffee, which is more prosocial) would help to establish the underlying drivers of the psychological costs of different payment forms. In addition, an interesting question for future work is whether the pain of payment can influence interpersonal commitment. Individuals spend more than 4% of their household budget on gifts for others (Davis 1972; Garner and Wagner 1991). In addition, consumers spend about one-third of their income on goods/experiences that are used for shared consumption (Consumer Expenditure Survey 2006). Is it possible that the way people pay for another person can influence the affiliation and connection they feel for that other person? Would it affect how the person paid for feels about the relationship? Future research should
examine such consequences that pain of payment might have on interpersonal relationships and closeness to others.

Implications for Marketers and Managers

Substantively, this research contributes to our understanding of how different forms of payment can impact sales and customer loyalty. The number of brands in any given product category has increased roughly tenfold over the last twenty years, making customer retention a top priority. A recent study conducted by Deloitte LLP argues that brand loyalty is in decline (Deloitte 2013). Individuals are more likely to switch brands to get the best deal or the newest technology. Consumers are also less likely to display their brand loyalty or share their favorite brands with others in comparison to five years ago (Mindshare 2014). Not surprisingly, many firms are prioritizing customer loyalty and commitment, especially in the increasingly competitive current marketplace.

This research makes a contribution to this issue by furthering our understanding of the psychological impact that payment type can have on a) how committed individuals feel to products, brands, and organizations and b) how much they value what they have. The results from these three studies demonstrate the pros and cons of consumers using more painful forms of payment. If a firm is interested in obtaining the highest number of customers without any regard for potential loyalty (e.g., fast-food chains at airports or locations with high tourist traffic), encouraging payment via less painful forms of payment will be best. However, if a firm is more commitment-focused and interested in increasing the number of brand loyal customers that it can rely on (e.g., luxury products, high-end or specialty retailers), increasing the pain of payment may be more beneficial. One way to increase the pain of payment is to encourage cash payments. Given that the economic marketplace is becoming more ‘cashless,’ a more realistic and plausible
solution could be increasing the pain of payment after a consumer has made a debit/credit card purchase. For example, retailers could nudge patrons to pay with cash which will encourage patrons to use more painful forms of payment or at least increase the accessibility of painful forms of money accessible (Chatterjee and Rose 2011).

Some interesting questions for further research for marketers and managers also emerge from this work. Our results indicate that while credit and debit card users may be more likely to purchase an item initially, they are less committed to the product in the long run. This potentially indicates that card users may be more likely to return their purchases, which is detrimental to firm profits even in the short-term. Similarly, our results indicate that for products with higher turnover (e.g., consumer packaged goods), cash users may have higher repurchase rates for particular brands than those who pay by plastic. Future research should investigate whether the pain of payment can influence product returns and repurchase rates.

Implications for Policy

From a consumer welfare perspective, the results from this paper suggest that individuals create longer lasting connections and value what they purchase more if they pay using a more painful form. Prior research has found that decreasing the pain of payment can lead to overspending. We find that decreasing the pain of payment also leads to less commitment and value even after the purchase has occurred. The implications, when taken together, are that decreasing the pain of payment can not only increase overspending immediately because the costs are not as immediately felt, but can also lead to greater product disposal or abandonment, with individuals feeling less satisfied with what they purchase. This is a particularly interesting implication because over the last century there has been a tenfold rise in ‘product waste’ (e.g., packaging and old products), from 92 pounds of product waste per person in 1905 to 1,242
pounds in 2005. Product waste accounted for three-fourths of what people throw away (Morse 1908; Spiegelman and Sheehan 2005). Some old products are thrown away because they are broken beyond repair, whereas others have been discarded in favor of a newer product. Given that the marketplace is moving towards less painful forms of payment, this trend may have contributed to the increase in product waste and product turnover. Therefore, future research might also examine how to increase the perceived pain of payment for less tangible forms of money in order to increase value and commitment and potentially reduce product waste.

Technological advancements with regard to payment (e.g., credit/debit card, Google wallet, Paypal, and other mobile and online payments) have decreased the psychological distance from payment, making it easier to spend. Technological innovation can quite foreseeably be used to increase the pain of payment as well. For example, financial planning websites such as Mint consolidate a consumer’s spending patterns across payment devices and can serve as reminders of money spent on an item or product category, subsequently increasing the psychological pain of payment and value for what was already purchased. While this may decrease spending at this future point of purchase, it may be beneficial in the long-term for both the consumer and firm, by saving money and finding more value in what s/he already owns and feeling more committed to the product/firm. Finally, on a societal level, finding ways to increase the pain of payment in a ‘cashless’ and mobile world could also help decrease wasteful spending and overall product waste by reducing the amount of disposal and abandonment overall.
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**FIGURE 1.**
Willingness to Accept for Mug (Value) as a Function of Payment Form, Study 1.
FIGURE 2.
Psychological Connection Ratings for Chosen Alternative and Non-Chosen Alternatives as a Function of Payment Form, Study 2.

Psychological Connection Ratings
(1-7 Likert for Each Question: 1 = Not at all, 7 = Very Much So)

N = 94
FIGURE 3.
Proportion Wearing a Lapel Pin After One-Week as a Function of Payment Form, Study 2.

Proportion Wearing Lapel Pin After One-Week

Voucher: 13.8%
Cash: 51.3%

\( N = 68 \)

Payment Form
Error Bars +/- 1 SE
FIGURE 4.
Proportion Donating the Following Year as a Function of Payment Form, Study 3.
TABLE 1.

Descriptive Statistics for Donor and Donation Characteristics, Study 3.

<table>
<thead>
<tr>
<th></th>
<th>All Alumni</th>
<th>Alumni Who Use Plastic</th>
<th>Alumni Who Use Checks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Donor Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>73%</td>
<td>74%</td>
<td>72%</td>
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<tr>
<td>Graduating Class</td>
<td>1999.5</td>
<td>2002.4</td>
<td>1993.8</td>
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<td>Attends Reunions</td>
<td>18%</td>
<td>20%</td>
<td>13%</td>
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<td>Donor Uses Checks</td>
<td>34%</td>
<td>0%</td>
<td>100%</td>
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<td><strong>Donation Characteristics</strong></td>
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<tr>
<td>Log(Donation Value + 1)</td>
<td>2.23</td>
<td>2.34</td>
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<td>Donates in Year $t + 1$</td>
<td>36%</td>
<td>35%</td>
<td>36%</td>
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<tr>
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<td>59%</td>
<td>57%</td>
<td>62%</td>
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<tr>
<td>Donates in Year $t + 1$ after not donating in Year $t$</td>
<td>21%</td>
<td>22%</td>
<td>19%</td>
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TABLE 2.
Mixed Effects Model Results, Study 3.

<table>
<thead>
<tr>
<th></th>
<th>Model 1A</th>
<th>Model 1B</th>
<th>Model 1C</th>
<th>Model 1D</th>
<th>Model 1E</th>
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</tr>
<tr>
<td>Male</td>
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<td>(0.0001)</td>
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<td>0.36 ***</td>
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<td>0.32 ***</td>
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<td>0.00</td>
<td>-0.13 **</td>
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<td>(0.04)</td>
<td>(0.05)</td>
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<tr>
<td>Donation-Level Variables</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>Cross-Level Interaction</td>
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### TABLE 3.

Fixed Effects Model Results, Study 3.

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### Cross-Level Interaction

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<table>
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<th>AIC</th>
<th>Model 2A</th>
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Appendix A: Description of Charities

Cancer Research Institute Mission:

The Cancer Research Institute (CRI) is the world's only nonprofit organization dedicated exclusively to harnessing the immune system's power to conquer all cancers. This important work has led to a promising new class of cancer treatments called cancer immunotherapy. These treatments mobilize, strengthen, and sustain the immune system's natural ability to destroy cancer cells, wherever they are in the body.

CRI awards research grants and fellowships to support scientists at leading research universities and clinics around the world. Funding decisions are guided by a Scientific Advisory Council composed of renowned immunologists and tumor immunologists, including three Nobel Prize winners, 26 members of the National Academy of Sciences, and 20 members of the Academy of Cancer Immunology. To accomplish this, the Cancer Research Institute relies on generous support from individuals, corporations, and foundations who have a desire to become partners in our effort to conquer cancer through immunology. Join with us in advancing the next breakthrough in cancer treatment.

How We Work

We are proud to count many of the world's leading immunologists and tumor immunologists among our community of scientific leaders. These include three Nobel laureates and 27 members of the National Academy of Sciences, as well as clinical oncologists with expertise in cancer immunotherapy, and industry leaders versed in the challenges of drug development. Together, these experts ensure that our programs continue to achieve the most impact possible and that CRI remains at the cutting-edge of the science of tumor immunology and cancer immunotherapy.

The History of Cancer Research Institute

CRI was founded in 1953 by Helen Coley Nauts (1907-2001) and her friend Oliver R. Grace (1909-1992) with a $2,000 grant from Nelson Rockefeller. Ms. Nauts established the institute in honor of her father William B. Coley, an early pioneer of non-surgical, immunological treatments for cancer.

Effectiveness of Cancer Research Institute

We turn donations into direct research and educational support for the world’s top cancer scientists and medical professionals. CRI grants and fellowships help to provide crucial resources for laboratory work and clinical trials, including personnel, equipment, and supplies. We also host conferences and meetings for the global scientific community. CRI donations also are used for cancer immunology awareness and education for patients and the public. Open disclosure of our financial information is essential for maintaining the trust donors place in the Institute. Since its founding, CRI has upheld the highest standards of fiscal responsibility and integrity. When you give to CRI, you can be sure your charitable investment will be spent wisely and will make the most impact possible in our efforts to conquer cancer.

See more at: http://www.cancerresearch.org/about#sthash.LkMpEq6H.dpf
Earthworks' Mission

Earthworks is a nonprofit organization dedicated to protecting communities and the environment from the impacts of irresponsible mineral and energy development while seeking sustainable solutions. Earthworks stands for clean water, healthy communities and corporate accountability. We're working for solutions that protect both the Earth’s resources as well as our communities.

How We Work

We fulfill our mission by working with communities and grassroots groups to reform government policies, improve corporate practices, influence investment decisions and encourage responsible materials sourcing and consumption. We expose the health, environmental, economic, social and cultural impacts of mining and energy extraction through work informed by sound science.

The Genesis of Earthworks

Earthworks evolved from the work of two organizations: Mineral Policy Center and the Oil & Gas Accountability Project. Mineral Policy Center was founded in 1988 by Phil Hocker, Mike McCloskey and former Secretary of the Interior Stewart L. Udall to help reform mining laws and practices. Mineral Policy Center’s track record of success includes: protecting Yellowstone National Park from the proposed New World gold mine, protecting 400,000 acres of the scenic Rocky Mountain Front, preventing mineral development near Yosemite National Park and helping to defend Argentina’s pristine Patagonia region from another proposed open-pit gold mine, and requiring mining companies to report their toxic releases in the United States.

In 1999, the Oil & Gas Accountability Project (OGAP) was founded to work with people in rural, tribal and urban communities to protect their homes and environment from the devastating impacts of oil and gas development — bringing together such diverse partners as Native Americans, ranchers, sportsmen and environmentalists.

OGAP's accomplishments include: the permanent protection of New Mexico’s Valle Vidal, the passage of precedent setting reforms for landowner rights and environment from oil and gas wastes in New Mexico, the first-ever governmental requirements for disclosure of gas drilling chemicals in Colorado, and the local government adoption — in eight states — of OGAP-initiated best practices. In 2005, these two organizations joined forces.

Collaboration, Efficiency and Effectiveness

Earthworks partners with local affected communities, national and international advocates to respond to and solve the growing threats to the earth’s natural resources, clean water, biodiversity, special places and communities from irresponsible mining, drilling, and digging. Earthworks is dedicated to mobilizing the public, and governmental and corporate decision makers to take action against the destructive impacts of extraction. See more at: http://www.earthworksaction.org/about#sthash.NRbVsAET.dpuf
Elizabeth Glaser Pediatric AIDS Foundation's Mission

The Elizabeth Glaser Pediatric AIDS Foundation seeks to prevent pediatric HIV infection and to eradicate pediatric AIDS through research, advocacy, and prevention and treatment programs.

EGPAF’s program implementation efforts seek to extend HIV prevention, care, and treatment services to at least 80 percent of children, women, and families affected by HIV in the countries where we work. Strengthening of health systems, and integration of HIV care within maternal and child health services in particular, is critical to achieving this goal.

How We Work

Key programmatic areas that EGPAF supports include:
- Preventing Mother-to-Child Transmission of HIV
- Care and Treatment for Children, Women, and Families Living With and Affected by HIV
- Health Systems Strengthening
- Community Engagement
- Strategic Information and Evaluation
- Research

The History of the Foundation

The foundation that began as three mothers around a kitchen table in 1988 is now the leading global nonprofit organization dedicated to eliminating pediatric HIV and AIDS. Since 2000, EGPAF has supported expanded access to comprehensive HIV prevention, and later to HIV care and treatment services, in regions of the world deeply affected by HIV and AIDS. Our dedicated staff work in close partnership with local governments and like-minded organizations to halt the spread of the virus, especially among children, and to ensure those living with HIV receive the care and support they need to live long and healthy lives.

Collaboration, Efficiency and Effectiveness

EGPAF is currently supporting more than 7,300 sites around the world. Since its international efforts began, EGPAF-supported programs have provided more than 18 million women with services to prevent transmission of HIV to their babies, tested nearly 16 million women for HIV, enrolled more than 2.1 million individuals, including nearly 165,000 children, into HIV care and support programs; and started more than 1.1 million individuals, including nearly 99,000 children under the age of 15, on antiretroviral treatment.

- See more at: http://www.pedaids.org/pages/health-system-strengthening-impact