Pennies-a-Day: The Effect of Temporal Reframing on Transaction Evaluation

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To increase transaction compliance, marketers sometimes temporally reframe the cost of a product from an aggregate one-time expense to a series of small ongoing expenses, often in spite of the fact that the physical payments remain aggregated. This temporal re framing is identified in this article as the "pennies-a-day" (PAD) strategy. A two-step consumer decision-making process of (1) comparison retrieval and (2) transaction evaluation is posited to explain the effectiveness of this strategy. In a series of laboratory studies, general support for PAD effectiveness across a range of product categories and specific support for the proposed two-step model was found. The PAD framing of a target transaction is shown to systematically foster the retrieval and consideration of small ongoing expenses as the standard of comparison, whereas an aggregate framing of that same transaction is shown to foster the retrieval and consideration of large infrequent expenses. This difference in retrieval is shown to significantly influence subsequent transaction evaluation and compliance.

Marketers are continually searching for ways to make goods and services appear more attractive to target consumers. One method used to achieve this goal is the temporal re framing of a transaction from an aggregate expense to a series of small daily or ongoing expenses—a method identified in this article as the "pennies-a-day" (or PAD) strategy.

Although largely neglected by researchers, the widespread use of PAD strategies by marketing practitioners suggests that they can be effective. For years, Sally Struthers has told us that for "only 72¢ a day" we can feed a starving child, and Chicago Public Radio has an ongoing membership drive in which individuals are asked to join their "Dollar-a-Day Club." In more mainstream consumer settings, magazine publishers highlight their low per-issue subscription prices, and one Chicago mattress retailer claims that you can sleep in comfort on one of their beds for "only 10¢ a night." These and other PAD claims typically are made in spite of the fact that the underlying physical payments remain aggregated.

In contrast to practice, two prominent theories of decision making predict that PAD strategies should have either no effect or a counterproductive effect on transaction compliance. First, according to standard economic theory, the re framing of a transaction from an aggregate to a PAD expense should not alter compliance, unless there is a corresponding change in the physical cash flows. The concept of "descriptive invariance" (Tversky, Sattath, and Slovic 1988) predicts that preferences should be invariant across different presentations of the same stimuli—in this case, the same physical cash flows.

Second, prospect theory (Kahneman and Tversky 1979) and Thaler’s (1985) rules of "hedonic editing" indicate that consumers should prefer to psychologically integrate a series of small costs into one large "bundled" cost. Rather than experience many small costs, with each cost assessed at the steepest and most painful part of the prospect-theory value function, a consumer should take advantage of the flattening of the value function at increasingly larger losses and integrate those costs into a single expense. However, this prescription for integrating costs implies that a PAD strategy should backfire—by magnifying rather than reducing a transaction’s perceived cost relative to a more aggregate framing.

With this apparent contradiction between existing practice and theory in mind, the present research addresses two important issues. First, can PAD strategies be effective at influencing consumers’ evaluations of product offerings? Second, if they can be effective, what are the underlying psychological processes that drive this effectiveness?

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PAD: EVIDENCE OF ITS EFFECTIVENESS

Given the real-world use of PAD strategies in select product categories, it seems logical to look for evidence of PAD effectiveness there. Magazines represent one such category, in which publishers first began framing the cost of their subscriptions on a per-issue basis in the early 1980s. This change in strategy was motivated by several well-controlled, market-based studies that compared subscription response rates for solicitations that used per-issue and per-year price framing.1 These studies revealed per-issue framing to be 10–40 percent more effective than financially equivalent per-year framing at securing such subscriptions. These results have contributed to the widespread adoption of per-issue price framing in the subscription-magazine business over the past decade.

Paul Price (1994) provides similar support for PAD effectiveness in his academic research. He asked subjects to rate the probability that they would rent a more conveniently located $650 apartment over a less conveniently located $600 apartment. Some subjects were reminded that the weekly price difference between the two apartments was $11.54. Others were reminded that the yearly price difference was $600. In keeping with PAD effectiveness, Price found the weekly reminder significantly increased subjects' likelihood of renting the more-expensive apartment, while the yearly reminder decreased that likelihood.

Finally, in the early stages of the present research, support for PAD effectiveness was gained through a series of pilot studies in which subjects were presented with familiar transaction scenarios with costs temporarily manipulated. A PAD framing was predicted to decrease the perceived monetary magnitude of each transaction relative to a more aggregate framing, thereby increasing the attractiveness of transactions involving the payment of funds and decreasing the attractiveness of transactions involving the receipt of funds.

Donation Study. In one such study, 120 subjects were presented with a hypothetical donation request in which they were asked to contribute to a worthy cause through corporate payroll deductions. Half saw the request framed as an ongoing contribution of $8 per day (PAD framing) and half saw it framed as a total contribution of $300 per year (aggregate framing). The use of payroll deductions made for financially equivalent donations across the two frames. The PAD framing was expected to decrease the perceived magnitude of the request, thereby increasing compliance relative to the aggregate framing. As expected, the percentage of subjects agreeing to donate was significantly higher under the PAD than under the aggregate framing (52 vs. 30 percent; \( \chi^2(1) = 4.66, p < .05 \)).

Telephone Study. In a second study, subjects were asked to imagine that they were in a position to receive rather than spend funds. In specific, 54 subjects were shown an offer to switch long-distance telephone carriers. Half were asked for the minimum monthly savings they would require to switch (PAD framing), and half were asked for the minimum yearly savings they would require (aggregate framing). Subjects in the PAD condition required a mean savings of $11.75 per month—the equivalent of $141 per year. In contrast, subjects in the aggregate condition required a mean savings of only $56 per year. This difference in compensation demanded was significant (\( r(52) = 3.04, p < .005 \)) and again was consistent with PAD effectiveness in that the PAD framing appeared to reduce the perceived magnitude of the funds in question.

Subscription Study. A third study described an annual subscription offer for a weekly magazine. Fifty-three subjects were asked to report either a fair per-issue price (PAD framing) or a fair overall price (aggregate framing) for this annual subscription. The mean per-issue price considered fair was $1.47, for a yearly total of $76.25. The mean overall price considered fair was $38.65. This difference was significant (\( r(51) = 3.92, p < .0005 \)) and in general agreement with the magazine-industry studies reported above.

Taken together, these industrial and laboratory studies indicate that PAD strategies can affect consumer compliance across a range of product categories. I will now attempt to establish a theoretical account for this PAD phenomenon.

PAD: A THEORETICAL FRAMEWORK

Over the past several decades, marketing research has shown that much of consumer choice is comparative in nature, with potential transactions evaluated relative to other transactions that are judged to be similar in some fashion (for an overview, see Payne, Bettman, and Johnson [1993]). This has been shown for choices between comparable alternatives, as when selecting one brand from a group of highly similar brands within a product category, and for choices between noncomparable alternatives, as when deciding whether to spend birthday money on a new bicycle or a stereo system (Johnson 1984).

As noted by Lynch and Snell (1982), however, almost all existing consumer-choice research can be classified as "stimulus based," with the entire range of alternatives available to the decision maker either physically present or described in detail. In contrast, much real-world consumer decision making does not entail a well-defined set of alternatives (Lynch, Marmorstein, and Weigold 1988) but, rather, a single alternative that must be either accepted or rejected. I believe the processes that underlie such single-alternative decision making form the basis for PAD effectiveness.

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1Personal communication on March 22, 1995, with the Director of Marketing, Time Inc.
A Model of Single-Alternative Decision Making

In their recent research, Novlis and Simonson (1997) claim that product attributes differ in the degree to which they may be meaningfully evaluated in the absence of multiple alternatives. They argue that certain attributes, such as brand quality, are context independent. Such attributes may be reliably assessed independent of the alternatives considered. Other attributes, such as price, are extremely context dependent. Evaluations of these attributes are difficult and unreliable in the absence of available alternatives.

Accepting the importance of context in the assessment of price, I propose the following two-step model to explain PAD effectiveness. In step 1, when faced with a single-alternative transaction, consumers retrieve a category or class of comparable expenses for the purpose of providing context (see Fig. 1). Rather than attempt to trade off the utility and the price of the target transaction in isolation, a task that grows increasingly difficult with one's lack of familiarity with a product category, a consumer will retrieve a set of seemingly similar expenses to serve as a standard of comparison.¹

In step 2, the target transaction is critically evaluated in the context of this retrieved category of comparison expenses. If the target transaction is judged to be similar, assimilation occurs, and the target transaction is accepted as a member of the retrieved category. If the target transaction is judged to be sufficiently different from the retrieved category, contrast occurs, and the target transaction is rejected as a member of that category (for an overview of the assimilation and contrast literature, see Schwarz and Bless (1992)).

To explain PAD effectiveness, I claim that the temporal framing of price for a single-alternative transaction systematically affects the nature of the expenses that a consumer retrieves for the purpose of comparison. In specific, I argue that a PAD framing will foster the retrieval of small ongoing expenses as the standard of comparison, whereas an aggregate framing will foster the retrieval of large infrequent expenses. This difference in retrieval is predicted to influence subsequent transaction evaluation and compliance. This model is outlined in detail below.

Step 1: Comparison Retrieval. The process of categorization has been argued to be among the most basic of human processes (see, e.g., Mervis and Rosch 1981). According to Sujan (1985), "people naturally divide the world of objects around them into categories, enabling an efficient understanding and processing of the environment" (p. 31). These efficiencies result from expectations about members of a particular category that are derived from some pattern of features those members tend to share.

Schwarz and Bless (1992) offer similar thoughts when they state that "individuals who are asked to form a judgment about some target stimulus first need to retrieve some cognitive representation of it. In addition, they need to determine some standard of comparison to evaluate the stimulus" (p. 218).

For consumer transactions, the existence of categories and the use of comparisons is no less important. For instance, Emery (1969) argues that consumers do not judge price in isolation but, rather, relative to similar products categorized on a price-versus-quality basis. Similarly, Thaler (1985) claims that consumers group transactions into budgetary categories or "mental accounts" (e.g., food, entertainment) and evaluate individual transactions, as they arise, within the context of these mental accounts.

This categorization or comparison-retrieval process may be contextually dependent (Barsalou 1982; Henderson and Peterson 1992). As noted by Schwarz and Bless (1992), individuals' "temporary representation of the target stimulus, as well as their construction of the standard of comparison, includes information that is . . . temporarily accessible due to contextual influences" (p. 218).

Applied to PAD, one such contextual influence may be the manner in which the cost of a transaction is temporally framed. I believe that the PAD framing of a target transaction will foster the retrieval of small ongoing expenses as the standard of comparison and that an aggregate framing of that same transaction will foster the retrieval of large infrequent expenses. In the extreme, marketers might try to help consumers in this process by offering candidate comparisons. Jennifer Convertibles, for example, has run ads in which it proclaims, "If you can afford this," while showing a bottle of Evian water, "Then you can afford this," while showing a luxury sofa bed priced at "$1.50 per day." Similarly, Kellogg's claims that "for less than the cost of a postage stamp, you can address a bowl of Kellogg's Corn Flakes." This predicted effect of temporal reframing on the retrieval of comparison expenses is reflected in the following hypothesis:

H1: The PAD framing of a transaction will lead to the retrieval of small ongoing expenses as a standard of comparison more readily than will a financially equivalent aggregate framing.

Step 2: Transaction Evaluation. Following the retrieval of a category of comparison expenses, a consumer is left to evaluate the target transaction in the context of those expenses. As suggested by Schwarz and Bless (1992) and others (e.g., Herr 1986, 1989), one of two processes may occur at this point. If the target transaction is judged to be sufficiently similar to the retrieved category of expenses, assimilation will occur and the target transaction will be accepted as belonging to that category, thereby taking on the general characteristics of the re-

¹For highly familiar, repeat-purchase types of product categories, memory-based choice may supplant the more "constructive" choice processes proposed here.
FIGURE 1
A TWO-STEP MODEL OF SINGLE-ALTERNATIVE DECISION MAKING FOR TEMPORALLY FRAMED TRANSACTIONS

Note.—It is predicted that category width will be greater for large infrequent expenses than for small ongoing expenses, leading to a greater likelihood of assimilation for aggregate-framed transactions than for PAD-framed transactions.

trived expenses. If, on the contrary, the target transaction is judged to be sufficiently different from the retrieved category of expenses, contrast will occur and the target transaction will be rejected as a member of that category. As such, the general characteristics of the retrieved expenses will not be transferred to the target transaction but, rather, may be subtracted from the transaction (Schwarz and Bless 1992).

According to research, the likelihood that the target transaction will be assimilated or contrasted with the retrieved expenses should depend on the perceived overlap of their salient features (Sujan 1985; Tversky 1977). Rosch and Mervis (1975) refer to this as "family resemblance." If the perceived overlap is high, assimilation should occur. If it is low, contrast should occur. Schwarz and Bless (1992) argue that one key to perceived feature overlap involves the width of the retrieved category. The more narrowly a consumer defines a retrieved category on some dimension, the less opportunity there is for category-stimulus overlap, and the less likely assimilation is to occur. Conversely, the more broadly a consumer defines a retrieved category on that dimension, the more likely assimilation is to occur.

These concepts can now be applied to help explain PAD effectiveness. Assume that step 1 of the proposed model leads to the systematic retrieval of comparisons as predicted, with a PAD frame fostering the retrieval of small ongoing expenses, such as coffee and lottery tickets, and an aggregate frame fostering the retrieval of large infrequent expenses, such as airline tickets and appliances. In step 2, consumers are left to evaluate the target transaction in the context of these retrieved comparisons.
In one such evaluation, both the PAD and the aggregate transactions may be judged as similar to their respective retrieved comparisons, which results in assimilation and category inclusion in both cases. Therefore, the PAD transaction takes on the characteristics of expenses such as coffee and newspapers—expenses typically thought of as trivial, affordable, and out-of-pocket. Similarly, the aggregate transaction takes on the characteristics of expenses such as airline tickets and appliances—expenses typically thought of as significant and somewhat unaffordable and that consumers generally look to avoid or delay. As a result, all else being equal, the PAD transaction should be perceived as a more attractive offering and lead to higher compliance than the financially equivalent aggregate transaction.

For example, consider a donation solicitation for $365. When framed as a PAD request for $1 per day, it may be viewed as highly consistent with a variety of small ongoing expenses. And when framed as an aggregate request for $365, it may be viewed as highly consistent with a wide variety of large infrequent expenses. Given the relative palatability of the small as opposed to the large expenses, however, the solicitation should be perceived as more attractive and lead to a higher level of compliance under the PAD framing than under the aggregate framing.

There may be a monetary upper limit to this PAD effectiveness, however. As pointed out, the likelihood of assimilation versus contrast should depend on the width of the retrieved category, with a wider category resulting in a greater likelihood of assimilation than a more narrow category (Schwarz and Bless 1992). I believe category width, here defined in terms of monetary magnitude, may be more narrow for small ongoing expenses than for large infrequent expenses. As a result, a low-cost transaction may result in assimilation under either an aggregate framing or a PAD framing, a high-cost transaction could result in assimilation under an aggregate framing but could result in contrast under a PAD framing, which would cause the PAD strategy to backfire.

For instance, now consider a donation solicitation for $3,650 instead of $365. When framed as a PAD request for $10 per day, this solicitation will likely be viewed as highly inconsistent with the small ongoing expenses one has retrieved, because of the relatively narrow category width for such expenses. This should result in contrast and a perception of extreme unaffordability. When framed as an aggregate request for $3,650, however, it should still be viewed as consistent with the large infrequent expenses one has retrieved, because of the greater category width for large expenses, and this should lead to assimilation. As a result, at this higher monetary level, a PAD framing of the donation request may lead to lower transaction compliance than a financially equivalent aggregate framing.

Thus, while a PAD strategy may be more effective at small daily dollar amounts, it may be less effective at large amounts. These expectations are captured in the following two hypotheses:

H2: At small daily dollar amounts, the PAD framing of a transaction will result in significantly higher compliance than a financially equivalent aggregate framing.

H3: At larger daily dollar amounts, the effectiveness of a PAD framing will decrease and possibly reverse, relative to a financially equivalent aggregate framing.

These hypotheses were tested in two studies designed to assess the causes and limitations of PAD effectiveness.

STUDY 1

Study 1 employed a charitable-donations scenario in which the temporal framing and the monetary magnitude of a charitable request were manipulated across subjects. Study 1 was designed to address several issues. First, it was designed to assess step 1 of the proposed two-step model by testing whether the temporal framing of a target transaction would influence the nature of the expenses a consumer considered comparable (Hypothesis 1). Second, it was designed to assess step 2 of the proposed model by testing for PAD effectiveness at small daily dollar amounts (Hypothesis 2) and by testing whether that effectiveness was moderated by the size of the monetary request (Hypothesis 3).

Method

Subjects. Subjects in this study were part-time and executive M.B.A. students at the University of Chicago who received a survey through their campus mail folders. They were motivated to participate by a $100 lottery for those returning surveys. Of 575 surveys distributed, 124 were returned for a 21 percent response rate. Although overall response mortality was high, a test for differential mortality revealed no significant response rate differences across the various experimental conditions ($\chi^2 < 1$).

Stimuli and Design. One-page surveys labeled "Donations Questionnaire" were used in this study, with each survey depicting a company-sponsored donation scenario. Subjects were asked to imagine that they were earning $50,000, that their company was sponsoring a donation drive to help the underprivileged in the United States, and that participation was optional and anonymous. They were told that the requested donation would be "pro-rated and automatically deducted from their monthly paychecks," which thereby equated the timing of physical payments across PAD and aggregate framings. The term "pro-rated" was designed to avoid misunderstandings on the part of the subjects.

Next, each subject was presented with one of six specific donation requests, prefaced with the phrase
"This Year's Requested Donation Pledge." This request was manipulated in a 2 X 3 between-subjects design. The first factor was the temporal framing of the donation request (frame): subjects saw either a PAD-framed request in the form of a daily donation or an aggregate-framed request in the form of a yearly donation. The second factor was the dollar amount of the donation request (request amount): $1, $4, or $7 per day, under the PAD framings, or the approximate yearly equivalents of $350, $1,400, or $2,500, under the aggregate framings. The yearly amounts were rounded off and marginally lower than their respective daily amounts to avoid suspicious yearly requests and to slightly bias compliance away from the PAD frames.

These dollar amounts were chosen to test the moderating effect of request amount. A priori, I expected a PAD request for $1 per day to be perceived as highly consistent with small ongoing expenses and to lead to assimilation. However, I expected PAD requests of $4 and $7 per day to be perceived as increasingly less consistent with small ongoing expenses and to decrease the probability of assimilation (or, conversely, to increase the probability of contrast). Therefore, while I expected PAD effectiveness at $1/$350, I also expected PAD effectiveness to become less and less positive (or more and more negative) as the request amount increased to $4/$1,400 and $7/$2,500.

Following each request, several questions were posed. First, subjects were asked, "What is the likelihood you would agree to donate the amount requested?" They were told to respond on an 11-point scale, anchored by "not at all likely" at zero and "extremely likely" at 10. In keeping with existing research (Dodds, Monroe, and Grewal 1991; Grewal, Monroe, and Krishnan 1996), it was expected that "likelihood of donation" would correlate with subsequent behavior—in this case, donation compliance. Next, subjects were asked, "What expenditures do you feel are comparable to the donation amount requested? List three." Finally, subjects were asked several demographic questions, including their years of work experience and whether they had previously been exposed to a company-sponsored donation program.

Procedure. The six conditions used in this study were not evenly distributed across potential subjects. Under the assumption that the three PAD requests would produce more variable responses than would the three aggregate requests, 200 copies of each of the PAD surveys and only 125 copies of each of the aggregate surveys were distributed, for a total of 975 surveys distributed. A total of 124 surveys was returned.

Results

Mean reported full-time work experience across all subjects was 7.56 years, with 88.6 percent of subjects reporting having been previously exposed to a corporate-sponsored donation program. A priori, one might expect such an experienced subject pool to be less susceptible to the temporal framing manipulations employed here.

Comparison Retrieval. To assess the effects of temporal framing on the retrieval of comparison expenses (Hypothesis 1), all subjects were asked to list three expenditures that they felt were comparable to the donation amount requested. Three independent raters categorized each of these generated expenditures as either a "small" or a "large" expense. Small expenses were defined for the raters as "routinely encountered, petty-cash types of expenditures." Small expenses commonly mentioned by subjects included clothing, lunch, and taxi fare. Large expenses were defined as 'infrequently encountered, major expenditures.' Commonly mentioned large expenses included suits and vacations. Mean interrater reliability was high (r = .84), with disagreements settled by majority opinion.

With the number of small expenses generated by each subject as the dependent measure, the effects of framing and monetary magnitude on the generation of these comparable expenses were analyzed in a 2 (frame) X 3 (request amount) ANOVA. Seven of 124 subjects failed to report any expenditures and were eliminated from this analysis.

In this analysis, frame proved to be the only significant variable (F(1, 111) = 22.95, p < .0001), with PAD subjects generating an average of 1.2 small comparisons and aggregate subjects generating an average of 0.2 small comparisons.

These results support the prediction that temporal framing affects the nature of the expenses that a consumer retrieves in response to a target transaction (Hypothesis 1). Here, when asked to retrieve expenditures that were comparable, PAD subjects frequently retrieved small ongoing expenses (55 percent retrieved one or more small expenses), and aggregate subjects almost exclusively retrieved large expenses (only 10 percent retrieved one or more small expenses). Note that request amount had no significant effect on the categorical nature of the comparisons retrieved, which is consistent with step 1 of the proposed model. As per step 1, subjects in the PAD conditions would have been expected to retrieve categorically similar expenses across each of the three request amounts. In addition, subjects in the aggregate conditions also would have been expected to retrieve categorically similar expenses across the three request amounts. These retrieved expenses would then have formed the standard of comparison in step 2 of their decision-making processes, with the amount of the request resulting in either assimilation and perceived affordability or contrast and perceived unaffordability. This appears to have been the case.

Transaction Evaluation. To assess the effects of framing and monetary magnitude on transaction evaluation, subjects' responses were also analyzed in a 2 (frame) X 3 (request amount) ANOVA. Not surprising, request amount had a significant main effect on evalu-
tion, with subjects more likely to comply with the donation request when the requested amount was low rather than high ($F(2, 118) = 8.49, p < .001$).

This main effect was qualified, however, by a significant interaction between frame and request amount ($F(2, 118) = 4.57, p < .02$), as shown in Figure 2. In the $\$1/$\$350$ condition, the mean likelihood of donation was higher for subjects in the PAD condition than in the aggregate condition ($X_{PAD} = 4.83$ vs. $X_{Aggregate} = 3.16$). A planned contrast revealed this simple main effect to be marginally significant ($F(1, 118) = 3.85, p < .06$), which supports PAD effectiveness at small daily dollar amounts (Hypothesis 2). At the same time, the mean likelihood of donation was lower for subjects in the PAD as opposed to the aggregate conditions at both the $\$4/$\$1,400$ level ($X_{PAD} = 1.00$ vs. $X_{Aggregate} = 2.88$; $F(1, 118) = 4.56, p < .05$) and the $\$7/$\$2,500$ level ($X_{PAD} = 1.23$ vs. $X_{Aggregate} = 2.20$; $F(1, 118) = 1.19, NS$).

This significant omnibus interaction supports the moderating effect of request amount, as predicted in Hypothesis 3. However, additional insight into this moderating effect can be gained through a frame $\times$ request amount trends analysis. A priori, I would have expected to find a linear, but not a quadratic, interaction effect between frame and request amount on likelihood of donation. In specific, within the monetary ranges tested, I would have expected PAD effectiveness to become less and less positive (or more and more negative) as request amount increased.

This expectation was only partially supported. The interaction contrast between frame and linear trend of request amount proved significant ($F(1, 118) = 4.60, p < .05$), as expected. However, the interaction contrast between frame and quadratic trend of request amount also proved significant ($F(1, 118) = 4.31, p < .05$), contrary to expectations. As shown in Figure 2, the cause for this significant quadratic trend can be traced to the fact that the simple main effect for frame is greater at the $\$4/$\$1,400$ level ($F(1, 118) = 4.56, p < .05$) than at the $\$7/$\$2,500$ level ($F(1, 118) = 1.19, NS$). Although this finding is a concern, it is possible that floor effects in the response scale were responsible for this unexpected result. Note that the mean donation likelihood in the $\$4-per-day condition was already at the low level of 1.00. If subjects were reluctant to report a donation likelihood of zero, it would not be surprising to end up with comparable donation likelihoods across the $\$4-per-day and $\$7-per-day conditions.

**Discussion**

This first study provides support for step 1 of the proposed two-step decision-making model. It suggests that the temporal framing of a transaction affects the types of expenses a consumer considers comparable (Hypothesis 1). Subjects who encountered a PAD request were six times as likely to compare that request to small ongoing expenses than were subjects who encountered an aggregate request. However, given that subjects were asked to generate comparisons after they reported their likelihood of donation, it is not clear that consumers naturally considered such comparisons during their decision-making processes. It is possible that the comparisons generated in this study were merely an experimental demand effect. This concern is addressed in study 2.

Study 1 also provides support for step 2 of the proposed model. Consistent with the evaluation processes of assimilation and contrast, a PAD strategy increased subjects' mean donation likelihoods at the $\$1/$\$350$ level but decreased their donation likelihoods at the $\$4/$\$1,400$ and $\$7/$\$2,500$ levels. Therefore, it appears that a PAD strategy can increase transaction compliance (Hypothesis 2) but that this effectiveness is limited by the monetary size of the target transaction (Hypothesis 3).

In addition to supporting the hypotheses put forth, study 1 also provides evidence against several alternative explanations for PAD effectiveness. First, one could argue that consumers systematically view donations in terms of the benefits they receive (e.g., satisfaction), as opposed to the costs they incur. If so, they may prefer to psychologically segregate their contributions into a long series of daily donations, as suggested by Thaler (1985). If this had been the case, however, the PAD framings should have been more effective than the aggregate framing.

![Figure 2](image)
across all three request amounts. Given the reversal of PAD effectiveness at $4 and $7 per day, this explanation can be rejected.\footnote{However, consistent with a more complex application of Thaler's framework (1985), it is possible that consumers view small donations in terms of benefits (leading to a desire for aggregation) but large donations in terms of costs (leading to a desire for integration).}

Second, it is possible that PAD strategies are effective because individuals fail to recognize the yearly implications of PAD requests and systematically underestimate the cumulative expense. Given this explanation, one would again expect the PAD framing to be more effective across all three dollar amounts. Given that this was not the case, this explanation is inadequate to explain PAD effectiveness.

Third, one might claim that PAD strategies are effective because individuals mistakenly discount the cash flows under the various PAD framings. Given psychological discount rates that typically are far in excess of financial discount rates (Loewenstein and Prelec 1992; Thaler 1981), this would cause the PAD requests to be far more palatable than the equivalent aggregate requests. Again, however, this explanation would imply PAD effectiveness across all three donation levels, which was not found.

**STUDY 2**

Study 1 provided general support for the proposed two-step decision-making process of comparison retrieval (step 1) and transaction evaluation (step 2). However, given that subjects were asked to generate comparisons in the first study, step 1 of the proposed model requires further attention. Therefore, study 2 was designed specifically to test step 1 of the proposed two-step process.

According to the proposed model, when faced with a PAD transaction, consumers retrieve small ongoing expenses as the standard of comparison. If true, one would expect a consumer's evaluation of a PAD transaction to be significantly influenced by the prices of those small expenses. If the PAD transaction compares favorably on price relative to those small expenses, assimilation should be more likely to occur, and compliance should be higher than if the transaction compares unfavorably. One would also expect a consumer's evaluation of that PAD transaction to be unaffected by the prices of large infrequent expenses, as consumers should tend not to retrieve such expenses for the purpose of comparison.

Conversely, when faced with an aggregate transaction, the model suggests that consumers retrieve large infrequent expenses. Following the same logic as above, their evaluation of such a transaction should be significantly affected by the prices of those large expenses but unaffected by the prices of small ongoing expenses.

These two predictions can be combined to form a more general prediction of price sensitivity, in which consumers will be significantly influenced by the prices of expenses that are congruent with a temporal framing but unaffected by the prices of expenses that are incongruent with that framing. For a PAD transaction, small ongoing expenses would be considered congruent with the PAD framing, and large expenses would be considered incongruent. And for an aggregate transaction, large infrequent expenses would be considered congruent with the aggregate framing, and small expenses incongruent. This more general pattern of price sensitivity is reflected in the following hypothesis:

H4: For a temporally framed transaction, a consumer's evaluation of that transaction will be influenced by expenses that are congruent with the temporal framing but unaffected by expenses that are incongruent with the framing.

In an attempt to demonstrate this frame-dependent price sensitivity, in study 2 the cost of a target transaction was held constant and the prices of potential small and large comparisons were manipulated. In specific, this study described a fictional foreign country with an unfamiliar currency (i.e., the "Gern"). Subjects were asked to comment on the generosity of a friend who had made a Gern-based donation that was quoted either as a daily contribution (PAD framing) or a yearly contribution (aggregate framing).

To aid in their assessment of generosity, subjects were provided with the prices of several small ongoing expenses (e.g., coffee) and several large infrequent expenses (e.g., a business suit). By holding constant the amount being donated and independently manipulating the prices of these small and large expenses, I hoped to determine which comparisons subjects employed when judging donation generosity.

It should be noted that, in contrast to study 1, this second study was primarily theoretical in nature. I was interested in the comparisons retrieved and used by an individual to make a judgment about a temporally framed transaction. As such, while there may be some question as to the strength of correlation between "generosity of a friend" and "transaction compliance," the choice of this dependent measure was felt to be appropriate to test step 1 of the proposed two-step process. In addition, "a friend" was chosen as the point of reference, as opposed to the subjects themselves, to justify the foreign-country scenario and to avoid idiosyncratic responses (e.g., "I only donate to my church").

**Method**

**Subjects.** Subjects for this study were full-time M.B.A. students from the University of Chicago who received surveys through their campus mail folders. They were motivated to participate by a $100 lottery for those returning surveys. Of 1,100 surveys distributed, 172 were returned for a 15.6 percent response rate. While overall
response mortality was again high, a test for differential mortality revealed no significant response rate differences across experimental conditions ($\chi^2(7) = 4.93, p > .60$).

**Stimuli and Design.** As in study 1, a donation setting was employed. Surveys were one-page documents in which subjects were presented with the following scenario:

Imagine that you are having a telephone conversation with a friend who lives and works in a foreign country. The currency in this foreign country is the "Gern." You are not familiar with this currency.

In passing, your friend mentions that for the past several years, he has been donating money to a public television station in his adopted country. He describes the station in much the same way that someone might describe a public television station in the United States.

Being curious, you ask how much he donates. He tells you that the public television station has several pledge levels. This year his pledge level is [10 Gerns per day/3,500 Gerns], payable in monthly installments.

To put this donation in perspective, you ask your friend about the average prices for some common expenses. Your friend reports the following prices:

- Each subject was then shown six expenses that were priced in the local currency of Gerns. These expenses consisted of three small ongoing expenses (i.e., daily newspaper, cup of coffee, lunch) and three large expenses (i.e., business suit, 35-mm camera, monthly rent). The order of presentation for these items was counterbalanced across subjects.

With this scenario as a foundation, a $2 \times 2 \times 2$ between-subjects manipulation was employed. The independent factors were (1) the temporal frame of the donation pledge, (2) the relative prices of the small expenses, and (3) the relative prices of the large expenses.

The first factor manipulated was the frame of the annual donation pledge (frame). Half the subjects saw the donation pledge framed as a yearly expense of "10 Gerns per day" (PAD framing). The other half saw the donation pledge framed as a yearly expense of "3,500 Gerns" (aggregate framing). These pledge amounts were chosen so as to minimize the cognitive effort required to consider the yearly implications of the PAD pledge or the daily implications of the aggregate pledge. Also, given the monthly payment schedule outlined in the scenario, these amounts represented almost identical physical payments.

The second factor was the relative prices of the three small ongoing expenses that each subject saw (size of small expenses). Subjects were presented with prices that were either comparatively low (i.e., newspaper = 3 Gerns, coffee = 6 Gerns, lunch = 30 Gerns) or comparatively high (i.e., newspaper = 9 Gerns, coffee = 18 Gerns, lunch = 90 Gerns).

The third factor was the relative prices of the three large expenses each subject saw (size of large expenses). Again, subjects were presented with prices that were either comparatively low (i.e., suit = 2,000 Gerns, camera = 2,500 Gerns, rent = 5,000 Gerns) or comparatively high (i.e., suit = 6,000 Gerns, camera = 7,500 Gerns, rent = 15,000 Gerns).

These second and third factors were manipulated independently, forming four different sets of background prices for the small and large expenses. Each subject saw only one of these four sets of background prices; (1) low/low, (2) low/high, (3) high/low, or (4) high/high.

**Dependent Variables.** After reading their respective donation scenario, each subject was asked several questions. The primary dependent variable for this study was a subject's rating of their friend's generosity. Subjects were asked, "How generous would you consider your friend's donation pledge?" and were provided with an 11-point response scale anchored by "not at all generous" at 1 and "extremely generous" at 11. In addition, subjects were asked, "What do you think is the Dollar to Gern exchange rate in this country? $1 (U.S.) = ___ Gerns" and were instructed to fill in the blank. Finally, to assess their understanding of the stimuli, subjects in the PAD conditions were asked to report the total yearly amount being donated, while subjects in the aggregate conditions were asked to report the approximate daily amount being donated.

**Results**

Five of 172 returned surveys were eliminated from this study, either for failure to respond to all of the questions (one survey) or for obvious errors of calculation (four surveys). All reported analyses were conducted on the remaining 167 surveys.

**Generosity Ratings.** Mean generosity ratings across the eight conditions are shown in Table 1. In considering these results, it should be noted that subjects almost exclusively used the upper portion of the 11-point response scale. Fewer than 10 percent of subjects rated their friend's generosity less than 6, and nobody rated it less than 4.

With subjects' generosity ratings as the dependent variable, I tested whether subjects were systematically sensitive to changes in the prices of expenses that were congruent with, as opposed to incongruent with, the temporal frame of the target transaction (Hypothesis 4). To test this hypothesis, the 2 (frame) $\times$ 2 (size of small expenses) $\times$ 2 (size of large expenses) design was rearranged to form a 2 (frame) $\times$ 2 (size of congruent expenses) $\times$ 2 (size of incongruent expenses) design. In specific, for the PAD conditions, size of small expenses was recoded as size of congruent expenses, and size of large expenses was recoded as size of incongruent expenses. For the aggregate conditions, size of large expenses was recoded as size of incongruent expenses.
TABLE 1
MEAN GENEROSITY RATINGS AND EXCHANGE-RATE ESTIMATES BY TEMPORAL FRAME AND SIZE OF BACKGROUND EXPENSES: STUDY 2

<table>
<thead>
<tr>
<th></th>
<th>PAD framing</th>
<th>Aggregate framing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low small expenses</td>
<td>High small expenses</td>
</tr>
<tr>
<td></td>
<td>Low large expenses</td>
<td>High large expenses</td>
</tr>
<tr>
<td>Generosity of friend</td>
<td>8.64 (25)</td>
<td>8.22 (25)</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>8.14 (25)</td>
<td>11.50 (25)</td>
</tr>
<tr>
<td></td>
<td>8.09 (18)</td>
<td>11.38 (18)</td>
</tr>
</tbody>
</table>

Note.—Number of observations is in parentheses.

as congruent, and size of small expenses was recoded as incongruent.

This new design was then analyzed in a $2 \times 2 \times 2$ ANOVA, which revealed no main effect for frame ($F(1, 159) = 1.75, p > .18$), a significant main effect for size of congruent expenses ($F(1, 159) = 17.74, p < .0001$), and no main effect for size of incongruent expenses ($F < 1$). In addition, no higher-order interaction proved significant (all $p$'s $>.30$).

As can be seen in Figure 3, subjects in both the PAD- and aggregate-framing conditions were quite sensitive to changes in the price of expenses that were congruent with their frame but not at all sensitive to the changes in the prices of expenses that were incongruent. In specific, in the PAD condition, a subject's rating of their friend's generosity was affected by the changes in prices of small ongoing expenses but not by the changes in prices of large expenses. And in the aggregate condition, subjects' ratings were sensitive to changes in the prices of large but not small expenses. Finally, this pattern of price sensitivity was not frame dependent, as evidenced by the lack of significance for any effect involving frame.

Exchange-Rate Evaluations. In addition to rating their friend's generosity, subjects were asked for the likely dollar-to-Germ exchange rate in the foreign country. Mean responses across the various experimental conditions are also shown in Table 1.

With reported exchange rates as the dependent variable, the $2$ (frame) $\times$ $2$ (size of small expenses) $\times$ $2$ (size of large expenses) design was again rearranged and analyzed in a $2$ (frame) $\times$ $2$ (size of congruent expenses) $\times$ $2$ (size of incongruent expenses) ANOVA. This analysis revealed a significant main effect for both size of congruent expenses ($F(1, 159) = 40.71, p < .0001$) and size of incongruent expenses ($F(1, 159) = 25.85, p < .0001$). And although the main effect of frame was not significant ($F < 1$), the interaction between frame and size of congruent expenses was ($F(1, 159) = 4.28, p < .05$). It appears that size of congruent expenses had a significantly greater impact on exchange rates for subjects in the PAD conditions ($\bar{x}_{\text{congruent-low}} = 9.7$ vs. $\bar{x}_{\text{congruent-high}} = 18.3$) than for those in the aggregate conditions ($\bar{x}_{\text{congruent-low}} = 11.3$ vs. $\bar{x}_{\text{congruent-high}} = 16.5$).

These results were in sharp contrast to those for subjects' generosity ratings. Whereas subjects explicitly considered both the size of congruent and the size of incongruent expenses when estimating an exchange rate, they considered only the size of congruent expenses when assessing generosity. And whereas frame appeared to have a significant impact on exchange-rate estimates, as evidenced by the interaction between frame and congruent expense, it had no impact on generosity. Therefore, it appears that subjects were perfectly capable of using all of the information provided, as indicated by their exchange-rate estimates, but spontaneously used only a portion of that information in their assessment of the generosity of a temporally framed donation pledge.

To further confirm this premise, a test of mediation was conducted in the manner suggested by Baron and Kenny (1986). On the basis of four regression analyses, reported in Figure 4, I found (1) a significant effect of congruent expense ($p < .0001$), incongruent expense ($p < .0001$), and frame $\times$ congruent expense ($p < .05$) on exchange rate; (2) a significant effect of exchange rate ($p < .0002$) on generosity; (3) a significant main effect of congruent expense ($p < .0001$) on generosity; and (4) a significant main effect of congruent expense ($p = .0054$) on generosity even after the effect of exchange rate ($p = .022$) on generosity was partialed out. This final regression indicates that while exchange rate may partially mediate the effect of congruent expense on generosity, it in no way eliminates that effect. Thus, even after accounting for the potential mediating effect of "perceived exchange rates," strong support was gained for the differential price sensitivity suggested in Hypothesis 4.

Discussion

There are two main findings from this second study. First, this study supports step 1 of the proposed decision-
FIGURE 3
EFFECTS OF TEMPORAL FRAME AND SIZE OF BACKGROUND EXPENSES ON RATINGS OF GENEROSITY: STUDY 2

<table>
<thead>
<tr>
<th>Within PAD Condition</th>
<th>Within Aggregate Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generosity</td>
<td>Generosity</td>
</tr>
<tr>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>8.5</td>
<td>8.5</td>
</tr>
<tr>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td>6.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>8.64</td>
<td>8.78</td>
</tr>
<tr>
<td>Size of Congruent Expenses = Low</td>
<td>Size of Congruent Expenses = Low</td>
</tr>
<tr>
<td></td>
<td>8.22</td>
</tr>
<tr>
<td></td>
<td>7.12</td>
</tr>
<tr>
<td>7.00</td>
<td>7.46</td>
</tr>
<tr>
<td>Size of Congruent Expenses = High</td>
<td>Size of Congruent Expenses = High</td>
</tr>
<tr>
<td></td>
<td>7.74</td>
</tr>
<tr>
<td></td>
<td>8.52</td>
</tr>
<tr>
<td>Size of Incongruent Expenses</td>
<td>Size of Incongruent Expenses</td>
</tr>
</tbody>
</table>

Note.—Within the PAD condition, congruent expenses were small expenses (e.g., coffee), and incongruent expenses were large expenses (e.g., rent). Within the aggregate condition, congruent expenses were large expenses, and incongruent expenses were small expenses.

making model. It appears that consumers differentially retrieve and use comparable expenses to evaluate transactions on the basis of the temporal framing of those transactions (Hypothesis 4). Those subjects faced with a PAD donation pledge systematically evaluated their friend's generosity in the context of small ongoing expenses as opposed to large infrequent expenses. And those subjects faced with an aggregate donation pledge systematically evaluated their friend's generosity in the context of the large as opposed to small expenses.

Second, as evidenced by their calculations of exchange rates, it appears that subjects were fully capable of considering all of the comparison expenses provided. However, when rating their friend's generosity, they considered only a subset of those expenses. Therefore, it appears that the framing of the donation pledge significantly and systematically affected the comparisons subjects chose to consider in their assessment of their friend's generosity.

CONCLUSIONS AND MANAGERIAL IMPLICATIONS

To increase transaction compliance across a wide variety of products, marketers sometimes frame product costs as only "pennies-a-day." To explain the effectiveness of this strategy, I have proposed a two-step model of consumer decision making that consists of (1) comparison retrieval and (2) transaction evaluation.

In a series of pilot studies and main studies across a variety of product categories, this research has provided general support for PAD effectiveness and specific support for the two-step model. In three pilot studies, it was shown that PAD framing could decrease the perceived monetary magnitude of a consumer transaction relative to a more aggregate framing, thereby affecting the attractiveness of the proposed transaction. In study 1, PAD effectiveness at small daily dollar amounts, as well as the presence of a monetary threshold for that effectiveness, was demonstrated. Study 2 provided evidence that this effectiveness is tied to the nature of the expenses a consumer retrieves for the purpose of comparison. These results are all consistent with the two-step model.

In addition, this research challenges several potential competing explanations for PAD effectiveness. Most prominently, the reversal of PAD effectiveness at large daily dollar amounts challenges explanations that hinge on temporal discounting or the systematic miscalculation of the aggregate effect of a daily expense.

In total, these results provide evidence that PAD strategies can be effective, that this effectiveness is tied to an underlying process of comparison retrieval and transaction evaluation, and that this process leads to a systematic and predictable monetary boundary to PAD effectiveness.

Managerial Implications

Price Promotion. On the basis of the present research, it appears that firms can influence consumer evaluations by temporally reframing the price of goods and services. From a strategic perspective, this reframing could serve two distinct
purposes. First, a PAD strategy could be effective at increasing primary demand for a product (or product category) by making that product seem more affordable. This seems to be the strategy of Jennifer Convertibles, who tells us that a new living-room set costs only $1.50 per day. Their PAD claim focuses on the absolute price of a sofa bed, highlighting its surprising affordability.

In contrast, temporal framing could be effective at defending or stealing market share within a highly competitive product category. Consider the advertising of the long-distance telephone-service providers AT&T and MCI, for example. In an attempt to retain existing customers and win back lost customers, AT&T trivializes the savings offered by MCI by disaggregating to the level of pennies-per-minute. MCI, on the contrary, has chosen to magnify those same savings by aggregating the billions of dollars all consumers have cumulatively saved by switching to MCI. Thus, the same monetary savings can be framed as either pennies-per-minute, to defend market share, or as many billions of dollars, to steal market share.

**Buying Behavior and Consumer Self-Control.** The temporal reframing of price may also be useful in modifying habitualized buying behaviors, especially the ongoing daily purchase of potential vices such as cigarettes, soft drinks, and lottery tickets (see Thaler 1980; Werkenbroch 1994). Consumers often justify these purchases as merely "pennies-a-day" expenses, thereby contributing to their overconsumption. Price reframing could be proactively employed by these consumers to overcome such consumption behavior. Rather than view one’s habits as merely "pennies-a-day," it may be motivationally advantageous to aggregate over time and view such behaviors in terms of their long-term financial implications. For instance, a person wishing to quit smoking might be more motivated to do so if they view their habit as costing $1,000 a year rather than $3 a day.

Conversely, consumers could use price reframing to promote the consumption of virtuous products, such as vitamins, health insurance, and smoke detectors, which might have high up-front costs (see Werkenbroch 1994). By focusing on the low per-usage costs of these products, as opposed to their high aggregate costs, a consumer may perceive them to be more affordable and be motivated to consume them at an increased rate.

**Cost Communication.** A third domain of applicability for price framing is in the area of cost communication. Organizations and individuals, public and private, are often responsible for disclosing monetary information to the general public (e.g., corporate earnings, social program costs). This research indicates that the manner in which such monetary information is presented could significantly affect one’s perception of that information. For instance, in 1995 the federal government debated whether to cut funding for the National Endowment for the Arts. Proponents of the cuts framed the potential budgetary savings as $165 million per year, while opponents of the cuts framed those same savings as only $64 per citizen. As one is assessing the efficacy of such a funding cut,...

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these two framings could lead to substantially different conclusions.

Future Research

The present research attempted to answer the question of why PAD strategies are effective. Several issues deserve further attention, however. First, study 1 identified monetary magnitude as one factor that moderates PAD effectiveness. Future research should explore additional factors that may moderate or mediate this effectiveness. Preliminary research in this direction suggests that the natural rate of product consumption is one such factor. In specific, it appears that PAD strategies may be more effective when used to promote products that are consumed on an ongoing basis (e.g., a health-club membership) than when used to promote products consumed in a lump-sum manner (e.g., a weekend vacation). A second factor that may influence PAD effectiveness is a consumer's familiarity with prices within a product category. Consumers who are more familiar with prices (e.g., experts) may be less susceptible to temporal reframing than consumers who are less familiar (e.g., first-time buyers). Finally, I believe that PAD effectiveness may be affected by the strength with which a product category is tied to a single form of payment. For instance, framing the rent of an apartment as $30 per day may be ineffective because of the strength with which apartment rents are identified with monthly payments. In contrast, framing a magazine subscription as "only $1.50 per issue" may be effective because of the wide variety of payment schedules used for magazines.

A second issue that would be interesting to investigate is the cumulative effects of PAD pricing strategies over time. Currently, PAD claims represent a very small percentage of the pricing claims that any given consumer encounters. If the frequency of PAD claims were to increase significantly, however, consumers might become increasingly immune to their influences. Therefore, although PAD strategies may be effective in certain situations, their continued effectiveness may lie in their sparing employment.

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REFERENCES


