

Tightwads and Spendthrifts

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Consumers often behave differently than they would ideally like to behave. We propose that an anticipatory pain of paying drives “tightwads” to spend less than they would ideally like to spend. “Spendthrifts,” by contrast, experience too little pain of paying and typically spend more than they would ideally like to spend. This article introduces and validates the “spendthrift-tightwad” scale, a measure of individual differences in the pain of paying. Spending differences between tightwads and spendthrifts are greatest in situations that amplify the pain of paying and smallest in situations that diminish the pain of paying.

They were so skewed and squint-eyed in their minds, their misering or extravagance mocked all reason. (Dante’s *Inferno*, “Canto VII: The Hoarders and the Wasters”)

Economic models of decision making are consequentialist in nature. They assume that decision makers choose between alternative courses of action based on a cognitive evaluation of the desirability (i.e., “utility”) and likelihood of their consequences. This does not, however, imply that consequentialist decision makers are devoid of

emotion or immune to its influence. To see why, it is useful to draw a distinction between “expected” and “immediate” emotions (Loewenstein et al. 2001; Loewenstein and Lerner 2003; Rick and Loewenstein, forthcoming).

Expected emotions are those that are anticipated to occur as a result of the outcomes associated with different possible courses of action. For example, in deciding whether to purchase a candy bar, a consumer might imagine the pleasure she would feel while eating it and possibly the guilt she would feel after indulging. The key feature of expected emotions is that they are experienced when the outcomes of a decision materialize, but not at the moment of choice; at the moment of choice they are only cognitions about future emotions.

Immediate emotions, like expected emotions, can arise from thinking about the future consequences of one’s decision. However, unlike expected emotions, immediate emotions are experienced at the moment of choice. For instance, when deciding whether to purchase the candy bar, the consumer might immediately feel pangs of guilt at the thought of consuming all those calories.

A role for expected emotions in decision making is perfectly consistent with the consequentialist perspective of economics. There is nothing in the notion of utility maximization that rules out the idea that the utility an individual associates with an outcome might arise from a prediction of emotions—for example, one might assign higher utility to an Italian restaurant dinner than a French restaurant dinner because one anticipates being happier at the former. By contrast, consequentialist decision makers are assumed to be immune to the influence of immediate emotions; such emotions are presumably “epiphenomenal” by-products of, but not determinants of, decisions (Loewenstein et al. 2001; Loewenstein and Lerner 2003; Rick and Loewenstein, forthcoming).

An implication of this consequentialist perspective in the domain of consumer choice is that prices are assumed to

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deter spending only through thoughts of forgone pleasure. That is, according to the standard economic account of intertemporal choice (Fisher 1930), people choose to consume immediately if the anticipated benefits of doing so exceed the forgone (discounted) benefits of future consumption. The price of a good captures the amount of future pleasure that must be sacrificed to finance immediate consumption.

The descriptive validity of this perspective rests on people's inclination (or ability) to think of prices in terms of opportunity costs. The relationship between price and opportunity cost is frequently assumed to be transparent (Becker, Ronen, and Sorter 1974; Okada and Hoch 2004). A recent study by Frederick et al. (2006), however, suggests that many people do not spontaneously consider opportunity costs when making purchasing decisions. In one experiment, Frederick et al. (2006) asked participants whether they would be willing to purchase a desirable video for \$14.99. All that varied was simply whether the option of not buying was framed as "do not buy" or "keep the \$14.99 for other purchases." Drawing people's attention to the pleasure that is forgone by consuming immediately significantly reduced their willingness to buy the video, suggesting that many people do not spontaneously perceive prices in a manner consistent with standard economic theory (see also Jones et al. 1998).

One reason why opportunity costs do not spontaneously come to mind may be that cognitive constraints simply make it too difficult to determine what exactly is forgone by consuming immediately. If people relied solely on cognitively nebulous representations of forgone consumption, most people would likely spend compulsively. Vague notions of forgone pleasures are unlikely to provide compelling motivation to control current spending (Loewenstein and O'Donoghue 2006). One way consumers can solve this problem is the cultivation of negative emotions in response to the prospect of spending. Prelec and Loewenstein (1998; see also Zellermayer 1996) propose that consumers rely on an immediate "pain of paying" to control their spending. Doing so would likely simplify decision making; instead of comparing the pleasure of consuming immediately to the anticipated pleasure of consuming later, consumers can instead compare immediate pleasure to immediate pain.

Knutson et al. (2007) examined whether an immediate pain of paying deters spending in an experiment in which participants chose whether or not to purchase a series of consumer goods while having their brains scanned with functional magnetic resonance imaging (fMRI). In each trial, participants first saw the available product, then saw its price, and finally decided whether or not to purchase it. As soon as participants saw the price, activation in the insula—a region previously associated with experiencing a variety of painful stimuli such as disgusting odors (Wicker et al. 2003), unfair ultimatum game offers (Sanfey et al. 2003), and social exclusion (Eisenberger, Lieberman, and Williams 2003)—was significantly greater for products that were ultimately not purchased than for products that were ultimately purchased. Thus, when opportunity costs are not explicitly represented,

people appear to rely on an anticipatory pain of paying to deter their spending.

Of course, given the massive amount of credit card debt accrued by many Americans (Bucks, Kennickell, and Moore 2006), one would not expect all people to feel the pain of paying intensely. Indeed, people likely differ in their tendency to experience the pain of paying, and these individual differences likely have important behavioral implications. At sufficiently high levels, the pain of paying may deter spending even more than would a deliberative (i.e., consequentialist) consideration of the pleasures that are forgone by consuming immediately (see Loewenstein, Rick, and Cohen [2008] for a review of neuroeconomic research suggesting that affective and deliberative desires often conflict). Suppose, for example, that dining out at a nice restaurant tonight requires you to forgo dining out at an even nicer restaurant next month. People who experience an intense pain of paying may behave as if dining out tonight requires giving up several nicer dinners next month. That is, their affective reaction to spending may lead them to spend less than their more deliberative selves would prefer. We refer to such consumers as tightwads.

By contrast, at sufficiently low levels, the pain of paying may deter spending less than would a deliberative consideration of forgone pleasures. In the scenario above, people who experience minimal pain of paying may behave as if dining out tonight requires giving up nothing next month. That is, the failure to feel the pain of paying may lead these consumers to spend more than their consequentialist selves would prefer. We refer to such consumers as spendthrifts.

At intermediate levels, the pain of paying may produce behavior consistent with deliberative considerations of forgone pleasures. That is, people who experience some moderate amount of pain of paying may behave as if dining out tonight requires giving up exactly one dinner at an even nicer restaurant next month. Such "unconflicted" consumers should therefore tend to spend about as much as their more deliberative selves would prefer.

Of course, note that considering the implications of intense pain of paying is only important if tightwads represent a substantial portion of the population. This might seem unlikely given the intense attention toward impulsive spending in the media and the academic literature (Baumeister 2002; Faber and O'Guinn 1992; Hoch and Loewenstein 1991; O'Guinn and Faber 1989; Rook 1987; Rook and Fisher 1995; Stern 1962; Valence, d'Astous, and Fortier 1988; Vohs and Faber 2007; Weun, Jones, and Beatty 1998). However, people are not uniformly impulsive across situations; for example, utility from savoring and dread motivates many to delay good outcomes and accelerate bad outcomes. Loewenstein (1987) found that, on average, people were willing to pay more to obtain a kiss from a movie star of their choice when that kiss was delayed by three days than when it was immediately obtainable.

More recent research has found that some people are often frustratingly unable to indulge themselves. Kivetz and Simonson (2002), for example, note that some "hyperopic"

consumers who are excessively farsighted require commitment devices to indulge themselves. For instance, they found that most women who hypothetically chose a spa package valued at \$80 over \$85 in cash said they did so because they feared they would otherwise use the cash on more utilitarian expenditures such as rent or groceries.

Ameriks et al. (2003) also found evidence of (anticipated) underindulgence in a recent survey of TIAA-CREF clients. They asked respondents to imagine that they had been given 10 gift certificates that were each redeemable for a fancy dinner. The gift certificates expire in 2 years, and respondents were asked how many they would ideally like to use during the first year and how many they anticipate actually using during the first year. While many people thought they would actually use more than they would ideally like to use during the first year, Ameriks et al. (2003) found that even more people thought they would actually use less than they would ideally like to use during the first year. While the above studies did not address spending per se, they do suggest that some people find it painful to indulge.

This article introduces and validates a spendthrift-tightwad (ST-TW) scale that measures individual differences in the tendency to experience a pain of paying.¹ While it would be ideal to measure such differences directly (e.g., via brain imaging), such methods are currently too costly to be efficient. Questionnaire measures of the pain of paying are less costly, although they face their own set of challenges. People are not always aware of their emotional processes; as LeDoux (1996) notes, conscious feelings are merely the tip of the emotional iceberg. Moreover, even if people had perfect access to their emotional processes, they may not always be completely forthcoming about them. Our scale, therefore, measures individual differences in the pain of paying somewhat indirectly. Rather than asking respondents to introspect regarding the emotions they experience while shopping, we ask them to indicate the extent to which their typical spending habits diverge from their desired spending habits. If individual differences in the pain of paying produce divergence between typical and desired spending habits, then self-reports of that divergence should serve as an appropriate proxy for the pain of paying.

We begin by introducing the ST-TW scale and evaluating its reliability. We then evaluate its discriminant validity by assessing its relationship with 28 potentially related scales from the economics, psychology, and marketing literatures. The measure that is most closely related to ours is the frugality scale of Lastovicka et al. (1999, 88), who conceptualize frugality as a “unidimensional consumer lifestyle trait

characterized by the degree to which consumers are both restrained in acquiring and in resourcefully using economic goods and services to achieve longer-term goals.” Tightwads and the highly frugal may therefore look similar in terms of spending, but frugality-scale items such as “making better use of my resources makes me feel good” (Lastovicka et al. 1999, 89) suggest that the psychological mechanism underlying individual differences in frugality is distinct from the psychological mechanism underlying individual differences along the ST-TW scale. We later present evidence suggesting that the highly frugal spend conservatively because they enjoy saving, not because the prospect of spending pains them.

We then examine the relationship between the ST-TW scale and actual spending. While we find strong relationships between ST-TW scores and credit card debt and savings, we find little relationship between ST-TW scores and income. This suggests that the differences in credit card debt and savings between spendthrifts and tightwads are more likely attributable to differences in spending habits than to differences in income.

Of course, individual differences are not all-powerful determinants of behavior. Our theoretical framework does not predict that spendthrifts will spend more than tightwads across all domains. If tightwads are particularly prone to experience the pain of paying, they should spend less when situational factors intensify the pain of paying than when situational factors mitigate the pain of paying. If spendthrifts are not particularly prone to experience the pain of paying (and thus less sensitive than tightwads to such situational factors), spending differences between tightwads and spendthrifts should be greatest when situational factors intensify the pain of paying. By contrast, such spending differences should be smallest when situational factors mitigate the pain of paying. We conclude by presenting two experiments that test this critical prediction.

DEVELOPMENT AND VALIDATION OF THE SPENDTHRIFT-TIGHTWAD SCALE

When considering items to include in our scale, we consulted a survey previously developed by Prelec, Loewenstein, and Zellermayer (1997) and administered to two samples of passengers waiting to board flights at airports. The survey included a variety of questions about respondents' spending habits, including several that appeared to measure the divergence between one's typical spending habits and one's desired spending habits. We selected four items from this survey that, based on face validity, appeared to precisely capture this divergence. These four items comprise the ST-TW scale presented in the appendix.

We administered the ST-TW scale to 13,327 respondents over a 31-month period beginning in October 2004. Respondents were drawn from four populations. Nearly one-fifth of all respondents ($N = 2,649$) were students at Carnegie Mellon or the University of Pittsburgh, parents of students, or staff members. Most respondents ($N =$

¹The scale consists of four items from a large questionnaire developed by Prelec et al. (1997), who were also interested in whether individuals differ in their tendency to experience a pain of paying. For each item in their questionnaire, they examined whether the proportion of participants endorsing responses suggestive of “tightwaddism” was different than the proportion of participants endorsing responses suggestive of “spendthriftiness.” We extend their analysis by demonstrating that four of the items from their questionnaire form a coherent scale. In this article we test the validity of this scale, demonstrate that it predicts economically important behaviors, and examine the moderating role of situational factors.

TABLE 1
SPENDTHRIFT-TIGHTWAD DISTRIBUTIONS BY SAMPLE (%)

	<i>Globe and Mail</i> (<i>n</i> = 154)	<i>New York Times</i> (<i>n</i> = 10,331)	Pittsburgh (<i>n</i> = 2,649)	NBC (<i>n</i> = 193)	Total
Tightwad	36	25	21	19	24
Unconflicted	57	60	61	52	60
Spendthrift	6	15	18	29	15

NOTE.—Some columns do not sum to 100% due to rounding errors.

10,331) were readers of the *New York Times*. On January 16, 2007, *New York Times* columnist John Tierney (2007) wrote a piece for the Science Times section that discussed another article coauthored by two of the present authors (Knutson et al. 2007) and included a link that interested readers could click to take our survey. A small number of respondents ($N = 193$) were viewers of a nightly news broadcast in Philadelphia. On February 5, 2007, NBC's WCAU affiliate ran a story on tightwads and spendthrifts and referred viewers to their Web site, which featured a link to our survey. The remaining respondents ($N = 154$) were readers of the *Globe and Mail*, one of Canada's most widely circulated newspapers. On April 27, 2007, *Globe and Mail* columnist Carolyn Abraham (2007) wrote a piece for the Report on Business section that discussed Knutson et al. (2007) and included a link that interested readers could click to take our survey.

Exploratory factor analysis of the four items yielded one factor with an eigenvalue greater than one. Confirmatory factor analysis using SAS PROC CALIS subsequently suggested that a single-factor model fit the data well, with a goodness-of-fit index of .99, a Bentler's Comparative Fit Index of .97, and a normed fit index of .97. The factor-loading estimates (item 1, .99; item 2a, .62; item 2b, .54; item 3, .47) were all significant, with all t -statistics exceeding 54 ($p < .001$).

We therefore simply summed scale responses for each participant as a measure of their location on the ST-TW scale. Since scale sums can possibly take on 23 different values (sums range from 4 to 26), we divide the scores as closely as possible into three equally sized groups of sums. We classify tightwads as those with scale sums from 4 to 11, "unconflicted" consumers as those with scale sums from 12 to 18, and spendthrifts as those with scale sums from 19 to 26. We employ a trichotomized division instead of a dichotomized one (i.e., tightwad or spendthrift) because we

believe that many consumers experience minimal divergence between their actual and desired spending habits. We propose that this lack of conflict is reflected in ST-TW scores that minimally diverge from the midpoint of the scale (15).

This criterion results in a larger number of tightwads than spendthrifts; in fact, tightwads outnumber spendthrifts by a 3 : 2 ratio (3,248 tightwads vs. 2,046 spendthrifts). The mean ST-TW score of 14.38 was significantly less than the scale midpoint ($t(13,326) = 18.35$; $p < .000001$), and the distribution of ST-TW scale scores was significantly skewed ($p < .001$). This is a surprising finding given the intense attention to impulsive spending in the media and the academic literature.

However, note that determining whether "tightwaddism" is more prevalent than "spendthriftiness" depends heavily on the populations from which participants are drawn. Table 1 shows the number of tightwads, unconflicted consumers, and spendthrifts in each sample. Note, for example, that tightwads outnumber spendthrifts by 30% in the *Globe and Mail* sample ($\chi^2(1) = 40.80$; $p < .0001$), whereas spendthrifts outnumber tightwads by 10% in the NBC sample ($\chi^2(1) = 5.11$; $p < .03$).

It is worth examining whether demographic measures can account for sample differences in ST-TW distributions. Although we collected little demographic information from the student-heavy Pittsburgh sample, we included several demographic measures in our other surveys. We find that three measures differ across these samples: gender, age, and education. Table 2 presents mean demographic values by sample.

Before examining whether these measures mediate the relationship between sample and ST-TW scores, we first examine their relationship with ST-TW scores. Across all samples, we collected gender data from 10,912 respondents (47.6% female). Females are no more likely to be tightwads than spendthrifts (20% (1,018/5,195) vs. 19% (1,012/5,195);

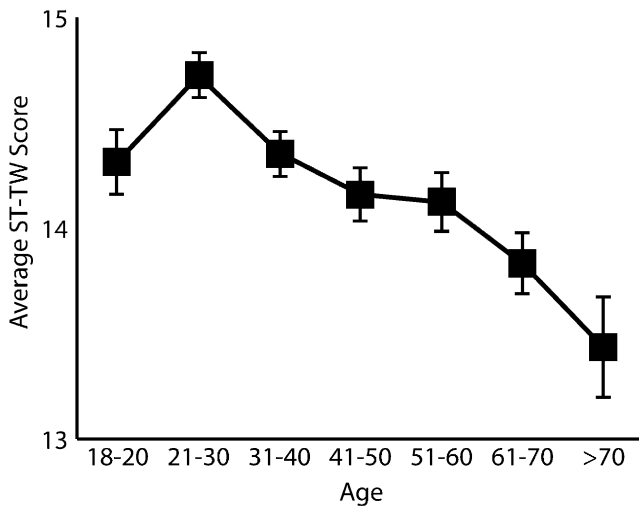
TABLE 2
DEMOGRAPHIC CHARACTERISTICS BY SAMPLE

	<i>Globe and Mail</i>	<i>New York Times</i>	NBC
Gender (female = 1)	.28 _a	.46 _b	.77 _c
Age	43.09 _a	39.75 _b	43.30 _a
Education (>bachelor's = 1)	.47 _a	.64 _b	.27 _c

NOTE.—Means within a row that have different subscripts differ at the $p < .01$ level.

FIGURE 1

MEAN ST-TW SCORES BY AGE GROUP



NOTE.—Error bars represent standard errors of the mean.

$\chi^2(1) = .02$), but males are more than two and a half times more likely to be tightwads than spendthrifts (29% (1,673/5,717) vs. 11% (636/5,717); $\chi^2(1) = 583.6$; $p < .0001$).

We collected age data from 10,760 respondents (range, 18–100; mean, 38.3). The zero-order correlation between age and ST-TW scores is small: $-.07$ ($t(10,758) = -7.35$; $p < .0001$). However, this correlation hides the non-linear pattern shown in figure 1. Among the 187 respondents aged 71 and over, tightwads outnumber spendthrifts 49 to 9 ($\chi^2(1) = 32.7$; $p < .0001$). Indeed, tightwads on average are over three years older than spendthrifts ($M_{TW} = 38.8$, $M_{ST} = 35.5$; $t(4,271) = 7.57$; $p < .000001$). Of course, this does not necessarily mean that people move toward the tightwad end of the continuum as they age. The data were collected across people, rather than across time, and the pattern above may therefore reflect the effects of growing up in different generations. Longitudinal research should seek to understand how (and why) one’s location on the ST-TW scale changes over time.

We also find a modest relationship between ST-TW scores and education. We asked 9,596 respondents (in all samples except the student-heavy Pittsburgh sample) to report the highest level of education they had completed. About 64% had more than a bachelor’s degree (i.e., at least some graduate school). Tightwads are 9% more likely than spendthrifts to have more than a bachelor’s degree (66% (1,580/2,391) vs. 57% (815/1,422); $\chi^2(1) = 29.3$; $p < .0001$). Moreover, among the 9,117 respondents who went to or were currently attending college, we find that tightwads and spendthrifts are attracted to different types of majors. For each reported major, we computed the average ST-TW score among respondents who reported it as their sole major. The three majors with the lowest ST-TW means were engineering

(13.2; $n = 645$), computer science (13.51; $n = 371$), and natural science (13.92; $n = 1,724$), whereas the three majors with the highest ST-TW means were humanities (14.87; $n = 1,075$), communication (14.92; $n = 216$), and social work (16.46; $n = 41$).

Finally, we examine whether sample differences along these demographic dimensions mediate the relationship between sample and ST-TW scores. Table 3 presents a series of regressions predicting ST-TW scores in the NBC, *Globe and Mail*, and *New York Times* samples; *New York Times* is the omitted category. Note that the demographic measures only slightly reduce the significance of the sample dummies. Thus, although these measures differ across samples and correlate with ST-TW scores, none fully mediates the relationship between sample and ST-TW scores.

We will now examine the ST-TW scale’s validity. We begin by demonstrating that the scale is reliable, in terms of both internal consistency and test-retest reliability. We then examine whether the ST-TW scale is distinct from measures of basic psychological constructs, marketing constructs, patience, and socially desirable responding. Finally, we demonstrate the scale’s construct validity by demonstrating that it predicts self-reported savings and credit card debt.

Reliability

The ST-TW scale is reliable, as reflected by a standardized Cronbach’s alpha of .75 and average inter-item correlation of .42. To assess test-retest reliability, the scale was re-administered to 447 people 2–539 days after its first administration, with an average of 207 days between the two administrations. The correlation between ST-TW scores at time 1 and at time 2 was .83 ($t(212) = 21.9$; $p < .0001$) when administrations were separated by 2–180 days (mean separation of 78 days). That this correlation is comparable to the 3-month test-retest reliability for the Big Five Inventory ($r = .85$; John and Srivastava 1999, 22), a measure of some of the most universally accepted traits in personality psychology, strongly suggests that our scale captures a stable construct. Moreover, the correlation between ST-TW scores at time 1 and at time 2 was .70 ($t(134) = 11.5$; $p < .0001$) when administrations were separated by 181–360 days

TABLE 3

RELATIONSHIP BETWEEN ST-TW SCORES AND SAMPLE AND DEMOGRAPHICS

	Model 1	Model 2	Model 3	Model 4	Model 5
NBC	.05***	.03**	.05***	.04***	.03**
<i>Globe and Mail</i>	-.04***	-.03**	-.04***	-.04***	-.03**
Gender	. . .	.17***	. . .	. . .	.16***
Age	. . .	. . .	-.06***	. . .	-.04***
Education	. . .	. . .	. . .	-.06***	-.04***
R ²	.004	.031	.008	.007	.034

NOTE.—Regression weights are standardized.
 ** $p < .01$.
 *** $p < .001$.

(mean, 241 days), and .72 ($t(95) = 10.2$; $p < .0001$) when administrations were separated by over 360 days (mean, 443 days).

Discriminant Validity

To assess the ST-TW scale's discriminant validity, we assessed its relationship with 28 potentially related scales from the economics, psychology, and marketing literatures. Table 4 presents these scales, their standardized alphas (Iacobucci and Duhachek 2003, 486), and their zero-order correlations with the ST-TW scale. We first examine the

relationship between the ST-TW scale and the scale with which it is most highly correlated, Lastovicka et al.'s (1999) measure of frugality ($r = -.46$). We then examine the relationship between the ST-TW scale and measures of basic psychological constructs, marketing constructs, patience, and socially desirable responding.

Relationship with Frugality. In this section we first use confirmatory factor analysis to demonstrate that the ST-TW and frugality constructs are distinct. We then attempt to uncover *how* these constructs differ. We conclude that the evidence suggests that frugality is driven by a pleasure of

TABLE 4
SCALE CORRELATIONS AND RELIABILITY ESTIMATES

Scale	N	Alpha	Correlation w/ST-TW
Basic psychological constructs:			
Affect Intensity Measure Short Form (Geuens and De Pelsmacker 2002; Larsen and Diener 1987)	138	.78	.22**
Big Five Inventory (BFI; John, Donahue, and Kentle 1991)			
extraversion subscale	140	.85	.13
BFI agreeableness subscale	138	.75	.09
BFI conscientiousness subscale	139	.84	-.13
BFI neuroticism subscale	138	.76	.11
BFI openness subscale	137	.82	-.04
Maximization scale (Schwartz et al. 2002)	1,363	.67	-.07*
Regret scale (Schwartz et al. 2002)	1,399	.82	-.08**
Regulatory focus questionnaire (RFQ; Higgins et al. 2001)			
promotion subscale	1,387	.69	.02
RFQ prevention subscale	1,412	.79	-.13**
Self-control short form (Tangney et al. 2004)	198	.84	-.25**
Sensation-seeking form V (Zuckerman 1994)	54	.87	.27*
Test of Self Conscious Affect (TOSCA) 3-Guilt Subscale (Tangney and Dearing 2002)	138	.75	-.27**
TOSCA-3 Detachment Subscale	138	.74	-.01
TOSCA-3 Externalization Subscale	139	.70	-.03
TOSCA-3 Shame Subscale	139	.67	-.08
Marketing constructs:			
Compulsive buying (Faber and O'Guinn 1992)	58	.73	-.15
Frugality (Lastovicka et al. 1999)	1,955	.84	-.46**
Materialism Nine-Item Short Form (Richins 2004)	257	.83	.26**
Price consciousness (Lichtenstein et al. 1993)	136	.81	-.40**
Sale proneness (Lichtenstein et al. 1993)	135	.87	.00
Value consciousness (Lichtenstein et al. 1990)	136	.89	-.33**
Patience:			
Barratt Impulsivity Scale Form 11 (Patton, Stanford, and Barratt 1995)	56	.81	.08
Time preference	709	.62	.12**
Zimbardo Time Perspective Inventory (ZTPI) short form			
present subscale (Keough, Zimbardo, and Boyd 1999)	59	.64	.23*
ZTPI short form future subscale	58	.79	-.21
Socially desirable responding:			
Balanced inventory of desirable responding (Paulhus 1984)	57	.81	-.04
Concern for appropriateness (Lennox and Wolfe 1984)	76	.89	.08

NOTE.—For each scale in this table, we investigated whether a quadratic model ($\text{scale} = \beta_0 + \beta_1(\text{ST-TW}) + \beta_2(\text{ST-TW}^2)$) fit significantly better ($p < .05$) than a linear model ($\text{scale} = \beta_0 + \beta_1(\text{ST-TW})$). The quadratic model fit better for three scales: sensation-seeking ($\beta_2 < 0$), extraversion ($\beta_2 > 0$), and openness ($\beta_2 > 0$). Our measure of time preference consisted of two items: item 1: A = \$100 immediately, B = \$__ in one year; and item 2: A = \$__ immediately, B = \$400 in one year. Respondents were asked to fill in the blanks to make A and B equally attractive. Time preference was computed as follows: let x be the response, ρ be the rate of time preference, and t be the number of years between A and B. Assuming an exponential discount function (i.e., time consistency), item 1 implies $100 = xe^{-\rho t}$; i.e., $\rho = -\ln(100/x)$. Similarly, item 2 implies $\rho = -\ln(x/400)$. Higher values of ρ reflect greater impatience. We averaged the implied ρ from each item to create our measure of time preference.

* $p < .10$ that $r \neq 0$.

** $p < .05$.

*** $p < .01$.

TABLE 5

RELATIONSHIP BETWEEN PAIN OF PAYING AND ST-TW AND FRUGALITY SCORES

	Model 1	Model 2	Model 3
ST-TW	-.42***	. . .	-.42***
Frugality	. . .	.21***	.02
R ²	.18	.04	.18

NOTE.—Regression weights are standardized.
*** $p < .001$.

saving, as compared with tightwaddism, which is driven by a pain of paying.

As an initial, theory-free test of whether the ST-TW and frugality scales are distinct, we conducted a confirmatory factor analysis of the ST-TW and frugality items. Specifically, we tested whether a model in which two factors, ST-TW and frugality, were allowed to covary fit the data better than a unidimensional model that assumes perfect correlation between the two factors. The chi-square statistic associated with the former model is $\chi^2(53) = 602.68$, whereas the chi-square statistic associated with the latter model is $\chi^2(54) = 1,118.08$, a highly significant difference ($\Delta\chi^2 = 515.40$; $df = 1$; $p < .0001$), which suggests that the two constructs are distinct (Anderson and Gerbing 1988).

Of course, confirmatory factor analysis cannot shed light on *how* these constructs differ. An examination of frugality-scale items (e.g., “making better use of my resources makes me feel good,” Lastovicka et al. 1999) suggests that the highly frugal may spend conservatively because they enjoy saving, not because the prospect of spending pains them.

To examine this hypothesis, we first asked 966 respondents from the Pittsburgh sample to rate the extent to which they agree with the statement “spending money is painful for me” on a 1 (strongly disagree) to 5 (strongly agree) scale. Table 5 shows the results of a series of regressions predicting agreement with the statement. Models 1 and 2 suggest that both ST-TW and frugality scores predict the extent to which people find spending money painful. However, the standardized coefficient for ST-TW is twice the magnitude of that for frugality, the R^2 is more than four times as large, and when both scales are entered into a multiple regression (model 3), only ST-TW scores remain significantly related to a self-reported pain of paying.² This

²Note that these results do not necessarily support the claim that tightwads are particularly likely to experience an *anticipatory* pain of paying. Rather, it is possible that tightwads only find spending painful once they have spent money. That is, it may not be the case that tightwads are particularly likely to be deterred from spending by an anticipatory pain of paying, but rather that they are particularly likely to regret their purchases or feel guilty about them. To examine the extent to which the pain of paying is an emotion experienced at the moment of choice, we asked 652 Pittsburgh respondents, “When do you find spending money most painful?” Respondents could choose one of five options: minutes before making a purchase, seconds before making a purchase, the moment of purchase, seconds after making a purchase, or minutes after making a purchase. Consistent with the claim that the pain of paying is an anticipatory emotion

TABLE 6

RELATIONSHIP BETWEEN PLEASURE OF SAVING AND ST-TW AND FRUGALITY SCORES

	Model 1	Model 2	Model 3
ST-TW	-.18***	. . .	-.01
Frugality	. . .	.45***	.45***
R ²	.03	.20	.20

NOTE.—Regression weights are standardized.
*** $p < .001$.

provides strong evidence that tightwaddism is more closely related to the pain of paying than is frugality.

Next, we examine whether frugality is more closely related to the pleasure of saving than is tightwaddism. We asked 316 respondents from the Pittsburgh sample to rate the extent to which they agree with the statement “saving money is pleasurable for me” on a 1–5 scale. Note that these respondents were part of the larger set of 966 respondents who rated their agreement with the statement “spending money is painful for me,” which allows us to assess the relationship between the pleasure of saving and the pain of paying. Somewhat surprisingly, we find that the extent to which people report experiencing a pain of paying is virtually independent of the extent to which they report experiencing a pleasure of saving ($r = .08$). This strongly suggests that tightwads do not find spending painful *because* they find saving pleasurable.

Table 6 shows the results of a series of regressions predicting agreement with the pleasure of saving statement. Models 1 and 2 suggest that both ST-TW and frugality scores predict the extent to which people find saving money pleasurable. However, in this case the standardized coefficient for frugality is more than twice the coefficient for ST-TW, the R^2 is almost seven times the magnitude, and when both scales are entered into a multiple regression (model 3), only frugality scores remain significantly related to the pleasure of saving.

Thus, although both tightwads and the highly frugal may spend conservatively, they appear to do so for different reasons. Conservative spending by tightwads is likely driven by a pain of paying, whereas conservative spending by the highly frugal is likely driven by a pleasure of saving.

Relationship with Other Scales. The first section of table 4 presents the relationship between the ST-TW scale and measures of several psychological constructs. Such comparisons are important to make, as individual differences

among tightwads, we find that tightwads are significantly more likely to find spending most painful before the moment of purchase rather than after the moment of purchase (83/138 vs. 32/138; $\chi^2(1) = 38.77$; $p < .0001$). Tightwads are also significantly more likely than unconflicted consumers (183/400) and spendthrifts (36/114) to report that spending is most painful before the moment of purchase ($\chi^2(1) = 8.51$, $p < .01$, and $\chi^2(1) = 20.44$, $p < .0001$, respectively). Spendthrifts, unlike tightwads, are significantly more likely to find spending most painful after the moment of purchase rather than before the moment of purchase (56/114 vs. 36/114; $\chi^2(1) = 7.29$; $p < .01$).

TABLE 7
CREDIT CARD DEBT BY ST-TW CLASSIFICATION (%)

	Tightwad (<i>n</i> = 2,406)	Unconflicted (<i>n</i> = 5,780)	Spendthrift (<i>n</i> = 1,430)	Total (<i>n</i> = 9,616)
Do not use	8	6	7	7
Pay off balance	73	63	37	61
\$1–\$5,000 in debt	11	18	29	18
\$5,001–\$20,000 in debt	6	10	20	10
Over \$20,000 in debt	2	3	8	3

NOTE.—Some columns do not sum to 100% due to rounding errors.

in spending behavior may be the consequence of individual differences in more basic personality traits (Lastovicka 1982). Note that we find a negative correlation between the ST-TW scale and the short form of Tangney, Baumeister, and Boone's (2004) self-control scale ($r = -.25$). The modesty of this correlation is not particularly surprising given Tangney et al.'s (2004, 314) distinction between self-control and self-regulation. Their view suggests that tightwads and spendthrifts do not necessarily differ in trait levels of self-control, but rather that they both have problems of self-regulation. That is, tightwads are unable to suspend (otherwise beneficial) self-control when doing so would be desirable, and spendthrifts have an inability to exert self-control when doing so would be desirable.

The second section of table 4 presents the relationship between the ST-TW scale and measures of several constructs from the marketing literature. Although our scale, like many other scales in marketing, is intended to predict spending behavior, we believe our scale uniquely captures individual differences in the pain of paying. Note, for example, that there is only a modest correlation with Faber and O'Guinn's (1992) measure of compulsive buying ($r = -.15$) and Richins's measure of materialism ($r = .26$). The former correlation is negative because lower scores on Faber and O'Guinn's (1992, 468) measure are diagnostic of greater compulsive buying. The weakness of these correlations likely reflects the fact that spendthrifts do not overspend primarily because they are trying to alleviate negative affect (a hallmark of compulsive buying) or because they are trying to impress others (a hallmark of materialism), but rather because they fail to experience sufficient pain of paying. ST-TW scores are more strongly related to value consciousness (Lichtenstein, Netemeyer, and Burton 1990; $r = -.33$) and price consciousness (Lichtenstein, Ridgway, and Netemeyer 1993; $r = -.40$), but the size of these correlations suggests that neither is the defining characteristic of tightwaddism.

The third section of table 4 presents the relationship between the ST-TW scale and measures of patience and impulsivity. We conduct such comparisons to examine whether our scale simply captures individual differences in valuation of future consumption. The generally low correlations suggest that it does not. Indeed, it would have been surprising if these correlations were high, as our scale is intended to capture individual differences in the immediate pain of pay-

ing, which people presumably rely on so that they do not have to think carefully about what is given up in the future.

The fourth section of table 4 presents the relationship between the ST-TW scale and two measures of socially desirable responding. Since "tightwad" and "spendthrift" have a somewhat negative connotation (see item 1 of the ST-TW scale) and since Mr. A and Mr. B are both described as doing something they do not want to do (see item 3), people who tend to respond in a socially desirable fashion may be motivated to categorize themselves as unconflicted consumers. However, we find no significant curvilinear (or linear) relationship between ST-TW scores and balanced inventory of desirable responding (Paulhus 1984) or concern for appropriateness (Lennox and Wolfe 1984) scores, suggesting that the ST-TW scale is not influenced by socially desirable responding.

Construct Validity

Having provided evidence of the reliability and discriminant validity of the ST-TW scale, we next test the basic hypothesis that spendthrifts should generally spend more than tightwads. We did so by asking respondents in the *Globe and Mail*, *New York Times*, and NBC samples to report their total savings and current level of credit card debt. We also asked respondents to report their annual income in order to determine whether any tightwad/spendthrift differences in savings or credit card debt could be attributed to differences in income rather than to differences in spending habits.

We first examine the credit card responses ($N = 9,616$). Respondents were asked, "approximately how much credit card debt do you have?" and could indicate one of nine intervals, ranging from \$1–\$500 to over \$50,000. The intervals were shown in terms of both Canadian and U.S. dollars for *Globe and Mail* respondents. Respondents could alternatively indicate "I pay off my balance in full each month" or "I do not use credit cards."

Table 7 presents the frequency of different credit card responses by consumer type. Notice that tightwads are about as likely as spendthrifts to abstain from using credit ($\chi^2(1) = 1.35$; $p = .25$). When we focus only on credit card users, we find that spendthrifts are three times more likely than tightwads to carry debt. Sixty percent (804/1,330) of spendthrift credit users carry debt, but only 20%

TABLE 8
AMOUNT SAVED BY ST-TW CLASSIFICATION (%)

	Tightwad (<i>n</i> = 2,326)	Unconflicted (<i>n</i> = 5,654)	Spendthrift (<i>n</i> = 1,414)	Total (<i>n</i> = 9,394)
\$0–\$10,000	24	31	52	33
\$10,001–\$50,000	24	25	21	24
\$50,001–\$100,000	12	10	8	10
\$100,001–\$250,000	12	11	7	11
Over \$250,000	28	22	12	22

NOTE.—Some columns do not sum to 100% due to rounding errors.

(451/2,213) of tightwad credit users do ($\chi^2(1) = 583.2$; $p < .0001$). Spendthrifts are not only more likely to be in debt, but they also carry more debt. When we focus only on credit card users in debt, we find that tightwads are more likely than spendthrifts to carry \$1–\$5,000 in debt (61% (273/451) vs. 51% (413/804); $\chi^2(1) = 9.79$; $p < .005$), whereas spendthrifts are more likely than tightwads to carry over \$20,000 in debt (13% (108/804) vs. 9% (42/451); $\chi^2(1) = 4.66$; $p < .05$).

Next, we examine savings ($N = 9,394$) and income ($N = 9,431$) responses. Respondents were asked, “approximately how much money do you have in savings?” and “what is your annual income?” Respondents could select one of 12 intervals, ranging from \$0–\$10,000 to over \$250,000. Intervals were shown in terms of both Canadian and U.S. dollars for *Globe and Mail* respondents.

Table 8 presents the frequency of different savings responses by consumer type. The distribution of savings among tightwads differs from the distribution among spendthrifts ($\chi^2(4) = 333.39$; $p < .0001$), but we observe particularly strong differences at the two extremes of amount saved. Spendthrifts are more than twice as likely as tightwads to have less than \$10,000 in savings ($\chi^2(1) = 293.48$; $p < .0001$), and tightwads are more than twice as likely as spendthrifts to have more than \$250,000 in savings ($\chi^2(1) = 129.06$; $p < .0001$).

Thus, spendthrifts carry more debt and save less than tightwads. It is worth examining whether there are analogous tightwad/spendthrift differences in income. Table 9 presents the frequency of different income responses by consumer type. The distribution of income among spendthrifts differs from the distribution among tightwads ($\chi^2(4) = 15.23$; $p < .005$). This difference is driven by the fact that spend-

thrifts are 4% more likely than tightwads to have incomes ranging from \$10,001 to \$50,000 ($\chi^2(1) = 7.32$; $p < .01$), whereas tightwads are 5% more likely than spendthrifts to have incomes ranging from \$100,001 to \$250,000 ($\chi^2(1) = 10.51$; $p < .005$). Tightwad/spendthrift differences in the three other income categories fail to reach significance (all $\chi^2(1) \leq 1$; all $p > .30$). Thus, although the income distribution among tightwads differs from the income distribution among spendthrifts, these small differences are unlikely to account for large differences in credit card debt and savings noted earlier.

Table 10, for example, focuses on the 3,751 tightwads and spendthrifts for whom we have both income and credit card data. Focusing only on credit card users, spendthrifts are significantly more likely than tightwads to carry credit card debt at each income level (all $\chi^2(1) > 19$; all $p < .0001$). The results suggest that tightwad/spendthrift differences in credit card debt do not depend heavily on income.

TESTS OF OUR THEORETICAL FRAMEWORK

The evidence presented thus far suggests that the ST-TW scale is reliable, distinct from related constructs, and predictive of credit card debt and savings. However, individual differences are not all-powerful determinants of behavior. Our theoretical framework does not predict that spendthrifts will spend more than tightwads across all domains. If tightwads are particularly prone to experience the pain of paying, they should spend less when situational factors intensify the pain of paying than when situational factors mitigate the pain of paying. If spendthrifts are not particularly prone to experience the pain of paying (and thus less sensitive than

TABLE 9
INCOME BY ST-TW CLASSIFICATION (%)

	Tightwad (<i>n</i> = 2,349)	Unconflicted (<i>n</i> = 5,669)	Spendthrift (<i>n</i> = 1,413)	Total (<i>n</i> = 9,431)
\$0–\$10,000	8	7	9	8
\$10,001–\$50,000	32	31	36	32
\$50,001–\$100,000	33	34	32	33
\$100,001–\$250,000	22	23	17	22
Over \$250,000	5	5	6	5

tightwads to such situational factors), spending differences between tightwads and spendthrifts should be greatest when situational factors intensify the pain of paying. By contrast, such spending differences should be smallest when situational factors mitigate the pain of paying. Studies 1 and 2 experimentally test this hypothesis.

Study 1

In study 1 we experimentally manipulate whether or not the (hypothetical) fee to have a product shipped overnight is framed as “small.” Presumably, framing the fee as small makes it seem less painful to pay, and thus spending differences between tightwads and spendthrifts are predicted to be smallest in the “small” fee condition.

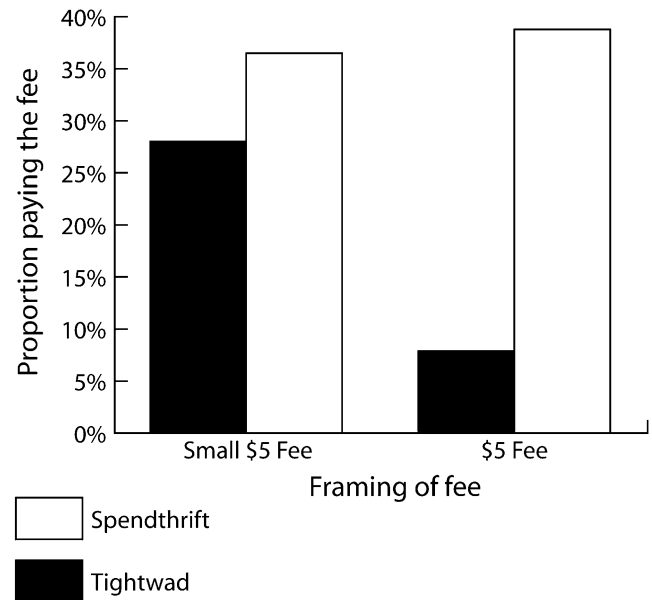
Participants. Over a 5-month period beginning in March 2005, 538 Carnegie Mellon students responded to a series of online surveys that, among other items, included a question that asked participants if they would be willing to pay a hypothetical fee. The sample included 88 tightwads, 112 spendthrifts, and 338 unconflicted consumers.

Method. All surveys began with the ST-TW scale. Survey respondents were then asked, “suppose that in exchange for completing a survey for Amazon.com, you could receive your choice of one of the four DVD box sets listed below. If you choose to complete the survey, the box set will be shipped to you for free within four weeks. Which box set would you most like to receive?” The list of DVD box sets included season 1 of the *Sopranos*, seasons 1 and 2 of *Seinfeld*, seasons 1 and 2 of *Family Guy*, and season 1 of *Chappelle’s Show*.

Respondents were then asked one of two questions, which differed by only one word. Respondents in the \$5 fee (small \$5 fee) condition were asked, “would you be willing to pay a (small) \$5 fee to receive the box set by overnight delivery, rather than waiting four weeks?” There were 243 and 295 respondents in the “\$5 fee” and “small \$5 fee” conditions, respectively.

Results. Since our hypothesis focuses on tightwads and spendthrifts, we will initially focus exclusively on the behavior of tightwads and spendthrifts. Figure 2 presents the proportion of tightwads and spendthrifts willing to pay the

FIGURE 2
PROPORTION WILLING TO PAY FEE (STUDY 1)



fee in each condition. We analyzed the data with factorial logistic regression, which treated the binary decision as the dependent variable and type of framing and consumer type as the independent variables. We find no significant main effect of the type of framing ($\chi^2(1) = .06; p = .81$). Participants are not significantly more likely to pay the small \$5 fee than the \$5 fee (33% (37/113) vs. 25% (22/87)). However, there is a significant main effect of consumer type ($\chi^2(1) = 8.93; p < .01$). Spendthrifts are significantly more likely than tightwads to pay the fee (38% (42/112) vs. 19% (17/88)). Most importantly, we find a significant interaction between the type of framing and consumer type ($\chi^2(1) = 4.21; p < .05$). Spendthrifts are only 9% more likely than tightwads to pay the “small” \$5 fee (37% (23/63) vs. 28% (14/50); $\chi^2(1) = .92; p = .34$), but they are 31% more likely to pay the \$5 fee (39% (19/49) vs. 8% (3/38); $\chi^2(1) = 10.8; p = .001$). Viewed in ratio terms, spendthrifts are nearly five times more likely than tightwads to

TABLE 10
CREDIT CARD DEBT BY ST-TW CLASSIFICATION AND INCOME (%)

Income	Tightwad			Spendthrift		
	Do not use	Pay off balance	Carry debt	Do not use	Pay off balance	Carry debt
\$0–\$10,000	35	56	9	24	46	30
\$10,001–\$50,000	11	67	22	8	27	65
\$50,001–\$100,000	4	73	23	3	35	62
\$100,001–\$250,000	2	83	16	4	48	48
Over \$250,000	2	92	6	2	64	33

NOTE.—Rows within a particular consumer type sum to 100%; some do not due to rounding errors.

pay the \$5 fee, but almost equally likely to pay the “small” \$5 fee.

Finally, we examine the behavior of unconflicted consumers, about whom we did not have a hypothesis. Pooling across framing conditions, 27% of unconflicted consumers pay the fee, as compared to 19% of tightwads and 38% of spendthrifts. Like spendthrifts, unconflicted consumers are fairly insensitive to the framing manipulation: 28% (51/182) pay the small \$5 fee, and 26% (40/156) pay the \$5 fee ($\chi^2(1) = .24$; $p = .62$).

Discussion. Consistent with our hypothesis, we find that spending differences between tightwads and spendthrifts are smallest when situational factors mitigate the pain of paying. One limitation of this study, however, is that there was no manipulation check to verify that we were indeed manipulating the pain of paying. Accordingly, it is difficult to rule out alternative explanations. One alternative explanation, consistent with the education data presented earlier, could be that tightwads are more thoughtful. The source of the framing (the experimenter) is presumably credible, and thoughtful consumers may infer that they are being told that the \$5 fee for overnight shipping is small because it is indeed small relative to typical overnight shipping fees (Grice 1975). In study 2 we therefore attempt to replicate the interaction observed here and more definitively attribute it to situational differences in the pain of paying.

Study 2

Like study 1, study 2 examines the hypothesis that spending differences between tightwads and spendthrifts will be smallest when situational factors diminish the pain of paying. To manipulate the pain of spending, we vary whether a (hypothetical) massage is framed as necessary to relieve back pain (utilitarian) or desired because it would be pleasurable (hedonic). If the pain of paying is buffered by the magnitude or length of anticipated benefits (Prelec and Loewenstein 1998), and the utilitarian massage provides more long-term benefits than the purely hedonic massage, then the utilitarian massage should be less painful to pay for than the hedonic massage. As a result, spending differences between tightwads and spendthrifts should be greater in the hedonic condition than in the utilitarian condition.

Participants. This experiment was conducted with three samples and a total of 1,087 participants. One version of our *Globe and Mail* survey included this experiment and was taken by 36 tightwads, 6 spendthrifts, and 60 unconflicted consumers. One version of our *New York Times* survey also included this experiment and was taken by 131 tightwads, 83 spendthrifts, and 331 unconflicted consumers. We also contacted tightwads and spendthrifts who had previously taken either a *New York Times* or NBC survey that did not include the present experiment and asked them to take a new survey that only included this experiment. The amount of time between the two surveys varied from 1 to 3 months. Of the 1,019 tightwads contacted, 273 partici-

pated in the present experiment, and of the 696 spendthrifts contacted, 167 participated. Across all samples, 440 tightwads, 256 spendthrifts, and 391 unconflicted consumers participated.

Method. In the *Globe and Mail* and *New York Times* samples, we employed a 2×2 design. Specifically, we varied whether participants faced the massage scenario immediately before or immediately after completing the ST-TW scale and whether they were assigned to the utilitarian or hedonic scenario. In the *New York Times*/NBC sample, participants were classified as tightwads or spendthrifts based on their original survey responses. For these participants, we only varied whether they were assigned to the utilitarian or hedonic scenario; they did not complete the ST-TW scale a second time.

In the utilitarian condition, participants read the following scenario. Imagine that your back has been bothering you lately. You discuss the situation with a physician, who recommends a therapeutic massage. You shop around and find an excellent clinic that offers a therapeutic massage for \$100. Your insurance does not cover the cost. And in the hedonic condition, participants read the following scenario. Imagine that you find massages very pleasurable (no need to imagine if this is actually true). You shop around and find an excellent spa that offers a pleasurable massage for \$100.

Immediately following each scenario, participants were asked, “would you get the massage?” They could indicate either yes or no. There were 548 respondents in the utilitarian condition and 539 in the hedonic condition.

A manipulation check followed the decision (cf. Shiv and Fedorikhin 1999). Specifically, participants were asked, “how painful would it be to pay for the massage?” Responses were rated on a 1 (not at all painful) to 7 (very painful) scale.

Manipulation Check. Factorial ANOVA treating self-reported pain of paying as the dependent variable, and massage and consumer type as the independent variables, reveals a significant main effect of massage type ($F(1, 692) = 48.23$; $p < .0001$). As predicted, participants in the utilitarian condition find paying for the massage significantly less painful than do participants in the hedonic condition ($M_{\text{utilitarian}} = 3.92$, $M_{\text{hedonic}} = 4.76$). There is also a significant main effect of consumer type ($F(1, 692) = 34.35$; $p < .0001$); tightwads find paying for the massage significantly more painful than do spendthrifts ($M_{\text{TW}} = 4.60$, $M_{\text{ST}} = 3.87$). There is no significant interaction between consumer type and massage type ($F(1, 692) = 1.29$; $p = .26$).

Results. Since our hypothesis focuses on tightwads and spendthrifts, we will initially focus exclusively on the behavior of tightwads and spendthrifts. We first examine whether the order (or presence) of the ST-TW scale influenced choices. Overall, willingness to pay for a utilitarian massage does not vary significantly with ST-TW scale placement: 68% buy when the scenario precedes the scale,

67% buy when the scenario follows the scale, and 75% buy when the scale is not present ($\chi^2(2) = 2.26$; $p = .32$). Likewise, willingness to pay for a hedonic massage does not vary with ST-TW scale placement: 32% buy when the scenario precedes the scale, 30% buy when the scenario follows the scale, and 34% buy when the scale is not present ($\chi^2(2) = .44$; $p = .80$). Moreover, willingness to buy either massage is not significantly influenced by ST-TW scale placement among either consumer type (all $\chi^2(2) < 4.10$; all $p > .10$). In our analyses below, we therefore collapse responses across this factor.

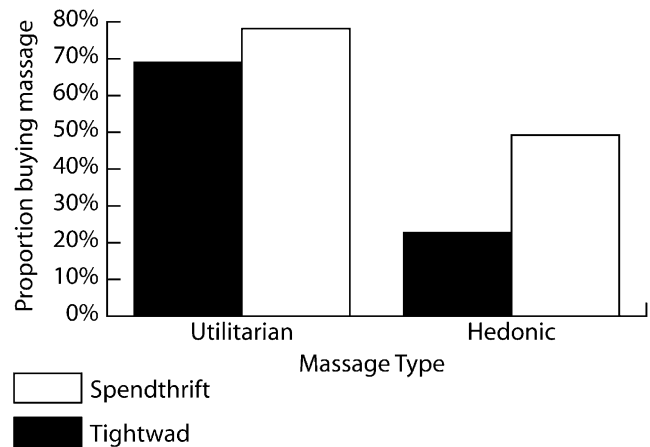
Figure 3 presents the proportion of tightwads and spendthrifts willing to purchase each type of massage. We analyzed the data with factorial logistic regression, which treated the binary purchase decision as the dependent variable and massage and consumer type as the independent variables. We find a significant main effect of massage type ($\chi^2(1) = 24.37$; $p < .0001$). Participants are significantly more willing to buy the utilitarian massage than the hedonic massage (72% (258/357) vs. 33% (111/339)). We also find a significant main effect of consumer type ($\chi^2(1) = 22.10$; $p < .0001$). Tightwads are significantly less willing than spendthrifts to buy a massage (47% (206/440) vs. 64% (163/256)). Most importantly, we find a significant interaction between consumer type and massage type ($\chi^2(1) = 4.15$; $p < .05$). Spendthrifts are 9% more likely than tightwads to buy the utilitarian massage (78% (100/128) vs. 69% (158/229); $\chi^2(1) = 3.41$; $p > .05$) and 26% more likely to buy the hedonic massage (49% (63/128) vs. 23% (48/211); $\chi^2(1) = 25.35$; $p < .0001$). Viewed in ratio terms, spendthrifts are more than twice as likely as tightwads to buy the hedonic massage, but almost equally likely to buy the utilitarian one.

Finally, we examine the behavior of unconflicted consumers, about whom we did not have a hypothesis. Like tightwads and spendthrifts, unconflicted consumers are largely unaffected by the placement of the ST-TW scale. In the utilitarian condition, 70% buy when the scenario precedes the scale and 77% buy when the scenario follows the scale ($\chi^2(1) = 1.36$; $p = .24$). In the hedonic condition, 39% buy when the scenario precedes the scale and 38% buy when the scenario follows the scale ($\chi^2(1) = .02$; $p = .89$). Collapsing responses across the order factor, unconflicted consumers are significantly more willing to buy the utilitarian massage than the hedonic massage (73% (140/191) vs. 38% (76/200); $\chi^2(1) = 49.23$; $p < .0001$). The 35% difference among unconflicted consumers falls in between the 46% difference among tightwads (69% vs. 23%) and the 29% difference among spendthrifts (78% vs. 49%).

Discussion. Taken together, the two studies presented here support our hypothesis that spending differences between tightwads and spendthrifts will be smallest when situational factors diminish the pain of paying. Nevertheless, it would be useful to test our hypothesis using other manipulations to vary the pain of paying. For example, Prelec and Loewenstein (1998) propose that it is less painful to spend token currencies (e.g., casino chips, beads at Club

FIGURE 3

PROPORTION WILLING TO BUY MASSAGE (STUDY 2)



Med) than regular money. Our framework predicts that differences in spending between tightwads and spendthrifts will be greater when both are spending regular money than when both are spending token currencies.

GENERAL DISCUSSION

Consequentialist models of decision making assume that emotions experienced at the moment of choice are epiphenomenal, simply a by-product of the decision-making process. The only emotions assumed to influence decision making are those that are anticipated to occur if various courses of action are taken. However, the results presented here suggest that individual differences in tendencies to experience an immediate emotion, the pain of paying, powerfully influence spending behavior.

That so many people in our sample of over 13,000 experience the pain of paying intensely is counterintuitive given the incredibly low rates of saving in the United States. How can the two phenomena be reconciled? One possibility is that our samples are not representative of the population. Future research should examine the distribution of ST-TW scores in other samples. Another possibility is simply that it is difficult for many people to make ends meet. Income constraints coupled with uninsured health problems or other unpleasant surprises, or the need to pay for child care, dental work, transportation, and other routine expenses, can drive even tightwads into debt. It is also possible that, while many tightwads apparently experience more pain than they would like to experience, far fewer feel as much pain as they would need to feel to ensure sufficient savings.

Of course, individual differences are not all-powerful determinants of behavior, and we find that tightwads and spendthrifts behave similarly when situational factors diminish the pain of paying. Indeed, an alternative explanation for the coexistence of widespread undersaving and tightwadism could be that many retail environments provide

increasingly painless ways to pay. Paying by credit, for example, is becoming less and less painful. Credit transactions can now be executed with a single mouse click (e.g., Amazon.com's patented One-Click checkout) or a single tap of a key fob (e.g., MasterCard's "contactless" PayPass credit card).

Directions for Future Research

Although our experiments suggest that tightwads are most sensitive to situational determinants of the pain of paying, spendthrifts may be the most distinctive of the three types of consumers identified by the ST-TW scale. That is, unconflicted consumers often appear more similar to tightwads than to spendthrifts. For example, unconflicted credit users were 13% less likely than tightwad credit users, and 27% more likely than spendthrift credit users, to pay off their balance in full each month. Similarly, unconflicted consumers are only 7% more likely than tightwads, and 21% less likely than spendthrifts, to have \$10,000 or less in savings. However, the behavior of unconflicted consumers is not always more similar to that of tightwads than to that of spendthrifts; for instance, tightwads were the only type of consumer who appeared sensitive to the framing manipulation in study 1. Future research should examine more explicitly whether unconflicted consumers are more distinct from tightwads or spendthrifts, in terms of both behavior and the pain of paying.

Moreover, while the present research focused on the behavioral implications of individual differences in the pain of paying, these differences may have hedonic consequences as well. Prior research on compulsive spending and depression suggests that we should observe a linear relationship between happiness and ST-TW scores, whereby spendthrifts are most unhappy (Black et al. 1998; Faber and Christenson 1996). However, if both tightwads and spendthrifts consistently deviate from their desired spending habits, then we should observe a curvilinear relationship between ST-TW scores and happiness, whereby unconflicted consumers are happiest. Indeed, this may be another domain in which tightwaddism differs from frugality. If the highly frugal derive pleasure from saving and consistently save,

then we should observe a linear relationship between frugality scores and happiness, whereby the most frugal are happiest.

Future research should also seek to establish a direct link between the actual experience of anticipatory pain and one's location on the ST-TW scale. Although the present research is highly suggestive of such a link, we have yet to establish a link between ST-TW scores and physiological or brain-imaging data. In addition to examining whether a correlation between physical measures of pain and ST-TW scores exists, future work should also examine whether medications that reduce pain and anxiety (e.g., lorazepam; Paulus et al. 2005) have a particularly strong effect on the spending behavior of tightwads.

Finally, future research should devise ways to identify tightwads and spendthrifts "in the wild." Although many businesses want to know which customers are tightwads and which are spendthrifts, using a scale to perform the diagnoses would be difficult. However, easily observable behaviors may be highly diagnostic of tightwaddism or spendthriftiness. For example, when shopping online, people can often search for products based on price or quality. When shopping for flights, for instance, consumers often reveal whether price or more hedonic concerns (e.g., number of stops, departure/arrival times, type of seat) are a priority. Such information could serve as a valuable proxy for one's ST-TW score.

Conclusion

When we have presented this research at meetings, we sometimes take a show of hands of how many people can easily classify themselves as tightwads and of how many people are personally familiar with people they view as extreme tightwads. Both questions generally produce a large fraction of raised hands. The research reported here, therefore, supports the commonplace intuition that people reliably differ in the extent to which they are tightwads or spendthrifts, and it shows that this trait can be measured with a simple scale that is reliable, valid, and predictive of a wide range of important consumer behaviors.

APPENDIX

THE SPENDTHRIFT-TIGHTWAD SCALE

1. Which of the following descriptions fits you better?

1	2	3	4	5	6	7	8	9	10	11
Tightwad (difficulty spending money)					About the same or neither			Spendthrift (difficulty controlling spending)		

2. Some people have trouble limiting their spending: they often spend money—for example on clothes, meals, vacations, phone calls—when they would do better not to.

Other people have trouble spending money. Perhaps because spending money makes them anxious, they often don't spend money on things they should spend it on.

a. How well does the first description fit you? That is, do you have trouble limiting your spending?

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

b. (-) How well does the second description fit you? That is, do you have trouble spending money?

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

3. (-) Following is a scenario describing the behavior of two shoppers. After reading about each shopper, please answer the question that follows.

Mr. A is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. A sees that the store has a “one-day-only-sale” where everything is priced 10-60% off. He realizes he doesn't need anything, yet can't resist and ends up spending almost \$100 on stuff.

Mr. B is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. B sees that the store has a “one-day-only-sale” where everything is priced 10-60% off. He figures he can get great deals on many items that he needs, yet the thought of spending the money keeps him from buying the stuff.

In terms of your own behavior, who are you more similar to, Mr. A or Mr. B?

1	2	3	4	5
Mr. A		About the same or neither		Mr. B

NOTE.—Items 2b and 3 are reverse-scored.

REFERENCES

- Abraham, Carolyn (2007), "Your Brain on Gucci," *Globe and Mail*, <http://www.reportonbusiness.com/servlet/story/RTGAM.20070425.wrob-gucci-0427/BNStory/specialROBmagazine/home>.
- Ameriks, John, Andrew Caplin, John Leahy, and Tom Tyler (2003), "Measuring Self Control," working paper, TIAA-CREF Institute, New York, NY, 10017.
- Anderson, James C. and David W. Gerbing (1988), "Structural Equation Modeling in Practice," *Psychological Bulletin*, 103 (3), 411–23.
- Baumeister, Roy F. (2002), "Yielding to Temptation: Self-Control Failure, Impulsive Purchasing, and Consumer Behavior," *Journal of Consumer Research*, 28 (March), 670–76.
- Becker, Selwyn W., Joshua Ronen, and George H. Sorter (1974), "Opportunity Costs—an Experimental Approach," *Journal of Accounting Research*, 12 (2), 317–29.
- Black, Donald W., Susan Repertinger, Gary R. Gaffney, and Janelle Gabel (1998), "Family History of Psychiatric Comorbidity in Persons with Compulsive Buying: Preliminary Findings," *American Journal of Psychiatry*, 155 (7), 960–63.
- Bucks, Brian K., Arthus B. Kennickell, and Kevin B. Moore (2006), "Recent Changes in U.S. Family Finances: Evidence from the 2001 and 2004 Survey of Consumer Finances," *Federal Reserve Bulletin*, <http://www.federalreserve.gov/Pubs/Bulletin/2006/financesurvey.pdf>.
- Eisenberger, Naomi I., Matthew D. Lieberman, and Kipling D. Williams (2003), "Does Rejection Hurt: An fMRI Study of Social Exclusion," *Science*, 302 (5643), 290–92.
- Faber, Ronald J. and Gary A. Christenson (1996), "In the Mood to Buy: Differences in the Mood States Experienced by Compulsive Buyers and Other Consumers," *Psychology and Marketing*, 13 (December), 803–19.
- Faber, Ronald J. and Thomas C. O'Guinn (1992), "A Clinical Screener for Compulsive Buying," *Journal of Consumer Research*, 19 (December), 459–69.
- Fisher, Irving (1930), *The Theory of Interest as Determined by Impatience to Spend Income and Opportunity to Invest It*, New York: Macmillan.
- Frederick, Shane, Nathan Novemsky, Jing Wang, Ravi Dhar, and Stephen Nowlis (2006), "Neglect of Opportunity Costs in Consumer Choice," working paper, Marketing Department, Sloan School of Management, Massachusetts Institute of Technology.
- Geuens, Maggie and Patrick De Pelsmacker (2002), "Developing a Short Affect Intensity Scale," working paper, Vlerick Leuven Gent Management School, Ghent University.
- Grice, H. Paul (1975), "Logic and Conversation," in *Syntax and Semantics*, Vol. 3, *Speech Acts*, ed. Peter Cole and Jerry Morgan, New York: Academic Press, 41–58.
- Higgins, E. Tory, Ronald S. Friedman, Robert E. Harlow, Lorraine C. Idson, Ozlem N. Ayduk, and Amy Taylor (2001), "Achievement Orientations from Subjective Histories of Success: Promotion Pride versus Prevention Pride," *European Journal of Social Psychology*, 31, 3–23.
- Hoch, Stephen J. and George Loewenstein (1991), "Time-Inconsistent Preferences and Consumer Self-Control," *Journal of Consumer Research*, 17 (March), 492–507.
- Iacobucci, Dawn and Adam Duhachek (2003), "Advancing Alpha: Measuring Reliability with Confidence," *Journal of Consumer Psychology*, 13 (4), 478–87.
- John, Oliver P., Eileen M. Donahue, and Robert L. Kentle (1991), "The Big Five Inventory—Versions 4a and 54," Institute for Personality and Social Research, University of California, Berkeley.
- John, Oliver P. and Sanjay Srivastava (1999), "The Big-Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives," in *Handbook of Personality: Theory and Research*, 2nd ed., ed. Lawrence A. Pervin and Oliver John, New York: Guilford, 102–39.
- Jones, Steven K., Deborah Frisch, Tricia J. Yurak, and Eric Kim (1998), "Choices and Opportunities: Another Effect of Framing on Decisions," *Journal of Behavioral Decision Making*, 11 (3), 211–26.
- Keough, Kelli A., Philip G. Zimbardo, and John N. Boyd (1999), "Who's Smoking, Drinking, and Using Drugs? Time Perspective as a Predictor of Substance Use," *Basic and Applied Social Psychology*, 21 (2), 149–64.
- Kivetz, Ran and Itamar Simonson (2002), "Self-Control for the Righteous: Toward a Theory of Precommitment to Indulgence," *Journal of Consumer Research*, 29 (September), 199–217.
- Knutson, Brian, Scott Rick, G. Elliott Wimmer, Drazen Prelec, and George Loewenstein (2007), "Neural Predictors of Purchases," *Neuron*, 53 (January), 147–56.
- Larsen, Randy J. and Ed Diener (1987), "Affect Intensity as an Individual Difference Characteristic: A Review," *Journal of Research in Personality*, 21 (1), 1–39.
- Lastovicka, John L. (1982), "On the Validation of Lifestyle Traits: A Review and Illustration," *Journal of Marketing Research*, 19 (February), 126–38.
- Lastovicka, John L., Lance A. Bettencourt, Renée S. Hughner, and Ronald J. Kuntze (1999), "Lifestyle of the Tight and Frugal: Theory and Measurement," *Journal of Consumer Research*, 26 (June), 85–98.
- LeDoux, Joseph E. (1996), *The Emotional Brain*, New York: Simon & Schuster.
- Lennox, Richard D. and Raymond N. Wolfe (1984), "Revision of the Self-Monitoring Scale," *Journal of Personality and Social Psychology*, 46 (6), 1349–64.
- Lichtenstein, Donald R., Richard G. Netemeyer, and Scot Burton (1990), "Distinguishing Coupon Proneness from Value-Consciousness," *Journal of Marketing*, 54 (July), 54–67.
- Lichtenstein, Donald R., Nancy M. Ridgway, and Richard G. Netemeyer (1993), "Price Perceptions and Consumer Shopping Behaviors: A Field Study," *Journal of Marketing Research*, 30 (May), 234–45.
- Loewenstein, George (1987), "Anticipation and the Valuation of Delayed Consumption," *Economic Journal*, 97 (387), 666–84.
- Loewenstein, George and Jennifer Lerner (2003), "The Role of Affect in Decision Making," in *Handbook of Affective Science*, ed. Richard J. Dawson, Klaus R. Scherer, and H. Hill Goldsmith, Oxford: Oxford University Press, 619–42.
- Loewenstein, George and Ted O'Donoghue (2006), "'We Can Do This the Easy Way or the Hard Way': Negative Emotions, Self-Regulation and the Law," *University of Chicago Law Review*, 73 (Winter), 183–206.
- Loewenstein, George, Scott Rick, and Jonathan Cohen (2008), "Neuroeconomics," *Annual Review of Psychology*, forthcoming.
- Loewenstein, George, Elke U. Weber, Christopher K. Hsee, and Ned Welch (2001), "Risk as Feelings," *Psychological Bulletin*, 127 (2), 267–86.
- O'Guinn, Thomas C. and Ronald J. Faber (1989), "Compulsive Buying: A Phenomenological Exploration," *Journal of Consumer Research*, 16 (September), 147–57.
- Okada, Erica M. and Stephen J. Hoch (2004), "Spending Time

- versus Spending Money," *Journal of Consumer Research*, 31 (September), 313–23.
- Patton, Jim H., Matthew S. Stanford, and Ernest S. Barratt (1995), "Factor Structure of the Barratt Impulsiveness Scale," *Journal of Clinical Psychology*, 51 (6), 768–74.
- Paulhus, Delroy L. (1984), "Two-Component Models of Socially Desirable Responding," *Journal of Personality and Social Psychology*, 46 (3), 598–609.
- Paulus, Martin P., Justin S. Feinstein, Gabriel Castillo, Alan N. Simmons, and Murray B. Stein (2005), "Dose-Dependent Decrease of Activation in Bilateral Amygdala and Insula by Lorazepam during Emotion Processing," *Archives of General Psychiatry*, 62 (March), 282–88.
- Prelec, Drazen and George Loewenstein (1998), "The Red and the Black: Mental Accounting of Savings and Debt," *Marketing Science*, 17 (1), 4–28.
- Prelec, Drazen, George Loewenstein, and Ofer Zellermyer (1997), "Closet Tightwads: Compulsive Reluctance to Spend," paper presented at the Association for Consumer Research Conference, Denver.
- Richins, Marsha L. (2004), "The Material Values Scale: Measurement Properties and Development of a Short Form," *Journal of Consumer Research*, 31 (June), 209–19.
- Rick, Scott and George Loewenstein (forthcoming), "The Role of Emotion in Economic Behavior," in *The Handbook of Emotion*, 3rd ed., ed. Michael Lewis, Jeannette M. Haviland-Jones, and Lisa Feldman-Barrett, New York: Guilford.
- Rook, Dennis W. (1987), "The Buying Impulse," *Journal of Consumer Research*, 14 (September), 189–99.
- Rook, Dennis W. and Robert J. Fisher (1995), "Normative Influences on Impulsive Buying Behavior," *Journal of Consumer Research*, 22 (December), 305–13.
- Sanfey, Alan G., James K. Rilling, Jessica A. Aronson, Leigh E. Nystrom, and Jonathan D. Cohen (2003), "The Neural Basis of Economic Decision-Making in the Ultimatum Game," *Science*, 300 (5626), 1755–58.
- Schwartz, Barry, Andrew Ward, John Monterosso, Sonja Lyubomirsky, Katherine White, and Darrin R. Lehman (2002), "Maximizing versus Satisficing: Happiness Is a Matter of Choice," *Journal of Personality and Social Psychology*, 83 (5), 1178–97.
- Shiv, Baba and Alexander Fedorikhin (1999), "Heart and Mind in Conflict: The Interplay of Affect and Cognition in Consumer Decision Making," *Journal of Consumer Research*, 26 (December), 278–92.
- Stern, Hawkins (1962), "The Significance of Impulsive Buying Today," *Journal of Marketing*, 26 (April), 59–62.
- Tangney, June P., Roy F. Baumeister, and Angie L. Boone (2004), "High Self-Control Predicts Good Adjustment, Less Pathology, Better Grades, and Interpersonal Success," *Journal of Personality*, 72 (2), 271–324.
- Tangney, June P. and Ronda L. Dearing (2002), *Shame and Guilt*, New York: Guilford.
- Tierney, John (2007), "The Voices in My Head Say 'Buy It!' Why Argue?" *New York Times*, January 16, D1.
- Valence, Gilles, Alain d'Astous, and Louis Fortier (1988), "Compulsive Buying: Concept and Measurement," *Journal of Consumer Policy*, 11 (September), 419–33.
- Vohs, Kathleen D. and Ronald J. Faber (2007), "Spent Resources: Self-Regulatory Resource Availability Affects Impulse Buying," *Journal of Consumer Research*, 33 (March), 537–47.
- Weun, Seungoog, Michael A. Jones, and Sharon E. Beatty (1998), "Development and Validation of the Impulse Buying Tendency Scale," *Psychological Reports*, 82 (3), 1123–33.
- Wicker, Bruno, Christian Keysers, Jane Plailly, Jean-Pierre Royet, Vittorio Gallese, and Giacomo Rizzolatti (2003), "Both of Us Disgusted in My Insula: The Common Neural Basis of Seeing and Feeling Disgust," *Neuron*, 40 (3), 655–64.
- Zellermyer, Ofer (1996), "The Pain of Paying," unpublished dissertation, Department of Social and Decision Sciences, Carnegie Mellon University, Pittsburgh, PA.
- Zuckerman, Marvin (1994), *Behavioral Expressions and Biosocial Bases of Sensation Seeking*, Cambridge: Cambridge University Press.