ELSEVIER
The Journal of Socio-Economics xxx (2006) xxx–xxx
The Journal of Socio-Economics
www.elsevier.com/locate/econbase

The framing of financial windfalls and implications for public policy☆

Nicholas Epley*, Ayelet Gneezy

University of Chicago Graduate School of Business, 5807 South Woodlawn Avenue, Chicago, IL 60637, USA

Abstract

Governments, employers, and companies provide financial windfalls to individuals with some regularity. Recent evidence suggests the framing (or description) of these windfalls can dramatically influence their consumption. In particular, objectively identical income described as a positive departure from the status quo (e.g., as a bonus) is more readily spent than income described as a return to the status quo (e.g., as a rebate). Such findings are consistent with psychological accounts of decision making and should supplement existing economic models. These results have important implications for the marketing of such windfalls, and discussion focuses particularly on implications for government tax policies.

JEL classification: E210

Keywords: Framing; Rebate; Tax

1. Introduction

In September 2001, the United States government returned a record 38 billion dollars to its citizens in the form of tax rebates (Shapiro and Slemrod, 2003a), at least partly with the stated goal of increasing consumers' spending and stimulating the economy. As part of this rebate, each tax paying American received a check for either $300, $500, or $600, depending on his/her reported annual income. Although the American government regularly acts unilaterally, it is certainly not alone in its occasional tendency to distribute financial windfalls to individual consumers. Governments around the globe distribute money to their constituents in various forms of social services.

☆ This research was supported in part by NSF Grant #SES0241544. Portions of article, and some of the data described herein, are adapted from Epley et al. (2005).
* Corresponding author. Tel.: +1 773 834 1266.
E-mail address: epley@chicagogsb.edu (N. Epley).

1053-5357/$ – see front matter © 2006 Published by Elsevier Inc.
doi:10.1016/j.socec.2005.12.012

Many employers dole out end of the year "bonuses" to reward good performance. Companies regularly offer cash-back bonuses or rebates to entice sales. And some people inherit money following the death of a relative or loved one who ran out of time before they ran out of money. People certainly work hard for their regular paychecks, but most are no stranger to unexpected and unearned financial windfalls. Although financial windfalls do not comprise a significant percentage of the average person's total wealth, they are common targets for interventions by outside agencies to alter a person's consumption behavior. Understanding how people respond to such windfalls is therefore of considerable interest for individual consumers and public policy makers alike.

Economic models make reasonably strong predictions about how financial windfalls should be saved or spent. Some of these predictions are confirmed in empirical tests, but many are not. Chief among the violations are cases in which the description or source of such income alters either the likelihood that objectively identical income is saved or spent, or the kinds of items purchased with it. These violations of fungibility are very predictable, and difficult to accommodate in rational models of human behavior or decision making. This paper is intended to review new empirical findings regarding the consumption of financial windfalls, provide a psychological account of how people respond to financial windfalls that could supplement existing economic models, and to discuss why these seemingly irrational responses might be of practical importance.

1.1. Economic models of spending and saving

No person would presumably desire to go from living like a prince one day to living like a pauper the next, and traditional economic theories of spending and saving therefore assume that people attempt to create the most consistent standard of living they can reasonably sustain over their lifetime. This desire for consistent consumption is seen most prominently in the two dominant economic theories of spending and saving—the Life-cycle (Ando and Modigliani, 1963) and Permanent Income (Friedman, 1957) hypotheses.

The two theories propose that people attempt to maintain a constant standard of living across fluctuations in their income. To do so, people are assumed to save during periods of unusually high income and dissave during periods of unusually low income. As a result, people should dissave both early in life (when people are making less than their average lifetime salary) and late in life (when people have fewer years to live), but should save money in mid-life when income is high in order to fund future consumption.

Because of this consistent standard of consumption, temporary fluctuations in income (such as windfalls) should have little impact on consumption. In this respect, people should be no more or less likely to spend windfalls, such as the 2001 U.S. Tax Rebate, than they would any other kind of transient income. Windfalls, by their nature, represent a temporary boost in income and therefore represent no permanent increase in one's standard of wealth.

Both of these economic theories predict that individual decision makers will have long temporal horizons, and will smooth consumption based on relatively long-term income levels. Empirical evidence, however, suggests that people are more temporally myopic such that consumption is overly sensitive to one's current income. People are more likely to accept a risky gamble, for example, after they have just won money in a gamble than after they have just lost money, a finding known as the "house-money effect" (Thaler and Johnson, 1990). Across the lifespan, the young and the old spend too much and the middle-aged spend too little given predictions from the Life-cycle hypothesis (Thaler, 1992Thaler, 1990). Finally, people are more likely to spend income when it is both unexpected and unearned, and is therefore less likely to be incorporated

into their overall wealth state. For example, participants in one particularly ingenious experiment (Experiment 5, Arkes et al., 1994) either anticipated receiving $5 for their participation, or were surprised to receive $5 once they arrived for the experiment. These participants were then sent off to a college basketball game. Participants in the unexpected earnings condition spent more of their earnings at the game than those in the expected income condition. These findings make it clear that people treat income relatively piece-meal, considering each transaction more independently than the actual fungibility of income would dictate.

This myopia in judgment and decision making has several interesting implications for how people treat financial windfalls. First, differing descriptions of objectively identical income should systematically influence how people code the income and how they allocate it to different "mental accounts" (Thaler, 1999). As we will show, simply altering the way a financial windfall is described can directly and dramatically influence spending and saving. Second, different sources of financial windfalls—say income inherited from one's late grandmother versus income won at the casino—may also influence spending and saving. In particular, these differing sources may influence the kind of items purchased with money inherited from different sources (e.g., Levav and McGraw, 2005). Although all dollars are created equal, one may feel a pang of reluctance at spending grandma's inheritance on a new sports car, but little reluctance spending casino earnings doing the same.

In this paper we will review new empirical findings related to the first of these implications, and present them not as a destructive critique of traditional economic models, but rather as a constructive presentation of experimental results with important personal and public policy implications. These data on financial windfalls add to the growing body of literatures emphasizing the importance of incorporating basic psychological principles—judgmental myopia, for instance—as modifications to economic theories of behavior.

2. Framing psychological windfalls

All income creates an objective gain in one's absolute level of wealth. A $2000 tax return means that a person is $2000 richer than he or she was the moment before. In order to detect this change in income, of course, one needs to compare one's current wealth state with the $2000 check to a prior state without the check and do some simple subtraction. This comparison process is so obvious and rudimentary that it hardly seems worth mentioning, but paying close attention to comparison processes has profound implications for how people code, and ultimately consume, financial windfalls.

Traditional economic models of spending and saving do not highlight the importance of comparisons, but generally assume that behavioral is guided by absolute assessments of wealth. Few stimuli in the environment, however, can be evaluated absolutely but instead must be evaluated in comparison to some standard or reference point. People are tall, stupid, or happy, for example, only in comparison to others who are shorter, smarter, or sadder. As Kahneman and Tversky (1979) put it, "our perceptual apparatus is attuned to the evaluation of changes or differences rather than to the evaluation of absolute magnitudes." Although income has an objective value that may attenuate the importance of these comparison processes, there is little reason to assume that comparisons with existing standards or reference points have no influence at all.

In particular, note that fluctuations in one's wealth are usually detected by comparisons with the status quo, or one's current level of wealth, and changes in wealth are therefore perceived as a relative gain or loss. A $2000 windfall means a person is relatively richer than a moment before, and a $2000 robbery means a person is $2000 poorer than a moment before. But the immediate

status quo is not the only possible reference point. People have a lifetime of past wealth states that could be used in the detection of change. The particular past wealth state used as a source of comparison may therefore determine whether people experience a windfall as an objective gain of some magnitude, or perhaps simply as a return to a previously better wealth state.

Notice that these comparisons suggest that income that creates an objective gain in wealth may not always be perceived as a gain to the consumer. In particular, windfalls framed as a gain from one's current wealth state (e.g., as a bonus) may be perceived quite differently than income framed as a returned to a previous wealth state (e.g., as a returned loss or rebate). Despite being objectively identical, a "bonus" describes a positive change from the status quo whereas a "rebate" subjectively describes a return to the status quo. If people evaluate income comparatively rather than absolutely, they may feel like they have more income to spend—and therefore be more likely to spend at least some of it—when it is described as a gain (e.g., as a bonus) compared to when it is described as a returned loss (e.g., as a rebate).

To illustrate this point, imagine that you lose a $20 bill at the office. In one case, a colleague spots you the next day and gives you a $20 bill, noting that she saw it fall out of your wallet and thought you would like it back. In another case, a colleague spots you the next day and gives you $20, noting that she had just done well at the craps table and wanted to share some of her good fortune with her favorite colleague. Although you are objectively—and unexpectedly—richer in both cases, the first case explicitly highlights one's current lack of $20 compared to yesterday's possession of the same $20, whereas the latter case highlights a gain from a current wealth state. Our strong suspicion is that people would be more likely to spend their $20 windfall in the latter case when it is given than in the former case when it is returned. This suggests that windfalls may be spent more readily when it is framed as a gain from one's current wealth state (e.g., as a bonus) than when it is framed as a return to a previous wealth state (e.g., as rebate or returned loss).

Epley et al. (2005) tested this framing hypothesis in a series of recent experiments. In each, participants received unexpected income described as either a return to a previous wealth state (e.g., as a "rebate") or as a gain from a current wealth state (e.g., as a "bonus"). In one experiment, for example, participants arrived in the laboratory and learned, quite unexpectedly, that they were going to receive a $50 check as part of an experiment investigating how undergraduates allocate financial resources. All participants learned that this check was coming from a laboratory that—like most—was partially funded by students' tuition dollars through the university's operating budget. Participants in the *rebate condition* were then told that "you are receiving this *tuition rebate* because our lab has a surplus of funds," that "we will contact you in 1 week to ask you some questions about your *tuition rebate*," and were asked if they had "any questions about this *tuition rebate*." All instructions were identical for participants in the bonus condition, except that all three instances of "tuition rebate" were replaced with "bonus income." Participants then received their check and left—most wielding sizeable smiles. One week after this initial session, participants were contacted by e-mail and asked to indicate how much of the $50 they had saved and how much they had spent. No mention of "bonus" or "rebate" was used in this follow-up e-mail.

As predicted, participants reported spending significantly more of the $50 windfall when it was described as a bonus (M = $22.04) than when it was described as a rebate (M = $9.55). In fact, 73% of participants in the rebate condition reported spending none of their $50 check, compared to only 36% in the bonus condition. These results are significant not only in statistical terms, but in practical terms as well. Participants in the bonus condition reported spending, on average, almost 2.5 times more of their objectively identical income compared with participants in the rebate condition.

The relatively simple design of this experiment is desirable because it does not restrict participants' spending in any way, nor were participants even informed that their spending would be measured subsequently. It was designed, in fact, to be as similar as possible in an experimental context to receive a tax rebate check—for instance—from the federal government. It is not ideal, however, because it relies exclusively on recalled behavior rather than on actual behavior. There was also no instruction about what should be counted as spending and what should be counted as saving, and it is possible that what participants chose to define spending versus saving somehow differed between the two conditions.

To retain some of the ecologically desirable aspects of this study with a potentially more valid measure of behavior, a second experiment utilized the same framing manipulation but asked participants to document each expenditure of the windfall on a small accounting slip. At the end of 1 week, participants were asked to return the accounting slip in the mail. Spending versus saving was then coded by independent raters (unaware of our experimental hypotheses), instead of by participants themselves. Despite these procedural changes, the results of this study were conceptually identical to the first. Participants in the bonus condition spent significantly more of their \$50 windfall (M = \$31.46) than participants in the rebate condition (M = \$7.41). Overall, 75% of participants in the rebate condition saved *all* their \$50 check compared to only 21% of participants in the bonus condition.

This second experiment, however, went only part-way towards eliminating concerns about self-reported behavior, and one final experiment sought to rule out these concerns altogether by creating a store in the laboratory from which participants could purchase a variety of items. As in the preceding studies, participants received a financial windfall—in this case \$25—described as either "bonus money" or "rebate money." In contrast to previous experiments, however, participants were not given a check for the full amount but were instead told that they could choose to spend any amount of the income on items available in a "lab store." Participants were then shown an array of 15 different items labeled with their sale prices, primarily consisting of university memorabilia (e.g., mugs, pens, ID holders) and snack foods (e.g., soda, potato chips). Participants learned that these items were being sold at a 20% discount, that they could choose to spend as much or as little of their \$25 income as they wished, and that any unspent portion would be given to them as a personal check. After studying the array, participants indicated how much of their \$25 they wished to spend, purchased their items, and received a personal check from the experimenter for the unspent amount.

Consistent with the predictions and the results of the preceding experiments, participants spent significantly more of their income in the "lab store" when it was described as "bonus money" (M = \$11.16) than when it was described as "rebate money" (M = \$2.43). Although participants were generally more inclined to save their money than to spend it, this was especially true among participants in the rebate condition—79% of participants in the rebate condition saved all of their \$25 income compared to only 16% of participants in the bonus condition.

The results of these three experiments suggest that decisions to spend or save financial windfalls may depend critically on the way those windfalls are described in comparison to one's current wealth. Income described as a gain from the status quo or a bonus is more likely to be spent than income described as a return to a previous status quo or a rebate. These observed effects were not small, but were substantial in all three of the experiments just described. The effect size (d) of the basic framing manipulation was .62 in the first experiment described, 1.22 in the second, and 1.28 in the last. This effect size is essentially the ratio of the mean difference between conditions and the pooled standard deviation of the two conditions. An effect size over 1 therefore means that the mean difference between conditions was larger than the pooled standard deviation of those

conditions, and the accepted categorization for a medium effect size is .5 and for a large effect size is .8 (Cohen, 1988). Income framing in this context not only has a significant effect on behavior, it had a sizeable effect as well.

It is important to note that these experiments are relatively immune to many of the standard concerns about the generalizability of psychological laboratory results to the broader population. These experiments involved real money rather than hypothetical scenarios or intuitive judgments, measured spending in both fairly loosely controlled as well as more tightly controlled conditions, used varying sizes of windfalls, and utilized different forms of payment—from personal checks to the equivalent of cash in the "lab store" experiment. They are not, of course, immune to all concerns, and future experiments with a broader sample of participants, varying amounts of payment, and alternative frames will undoubtedly identify important and interesting moderators of windfall framing effects. What we know now is that describing a windfall as a gain from a wealth state can increase spending compared to describing a windfall as a return to a previous wealth state. What we don't know is how, and how much, the size of this framing effect is likely to vary from one moment to the next or from one participant to another. Such issues are of critical importance in public policy decisions, and we look forward to the next round of research to clarify these issues.

3. Accounting for income framing

Although the differences in spending and saving in the preceding experiments are clear, the reasons for these differences are not. We have suggested here that a bonus describes a gain in wealth whereas a rebate describes a returned loss and hence as no absolute gain in wealth. As a result, people who are given a bonus feel like they have money to spend whereas those given a rebate do not. A follow-up to the lab-study experiment tested this account directly by asking participants to indicate the extent to which the windfall they received felt like additional income versus returned income. In particular, participants were given a $25 windfall as described earlier, given the opportunity to spend their income on items in the "lab store," and then rated the extent to which the windfall seemed like "extra money you received in additional whatever income you would normally make this month" and the extent to which it seemed like "returned money that is now being given back to you."

As in the original study, participants in the bonus condition spent significantly more of their windfall ($M = 7.63$) than participants in the rebate condition ($M = \$1.63$). More important, participants in the bonus condition were also more likely to indicate that the windfall felt more like extra money than returned money, and vice versa in the rebate condition. What is more, this difference in the perception of wealth significantly mediated the effect of windfall framing on spending.

This difference in perceived wealth, however, was only a partial mediator of the relationship between windfall framing and spending, suggesting that additional mechanisms may be involved as well. This follow-up experiment tested two additional mechanisms that appeared plausible, but found support for neither. One alternative was that participants in the rebate condition were less likely to spend income because a returned loss was perceived as more valuable than an additional gain. If so, this may have made the rebate seem subjectively larger than the bonus, or made the objects in the array seem relatively overpriced given then income's value. Such a result would be consistent with the asymmetrical gain/loss weighting function as described by Prospect Theory (Kahneman and Tversky, 1979), by which a returned loss should be seen as more valuable than a simple gain. Such a result would also be consistent with the results of Gregory et al. (1993) who found that participants stated—in a hypothetical scenario—that they would be willing to

pay more money for public policies framed as returned losses (e.g., restoring a wetland) than as gains (e.g., creating a wetland). Participants' responses in our studies, however, did not support this prediction. There were no significant differences in the extent to which the financial windfall "seemed like a large or a small amount," in the extent to which the "objects seemed appropriately priced," or in the extent to which the "objects seemed like a good value." We suspect this occurred because the objective value of the income and objective discount on the items for purchase were so transparent that they allowed for little ambiguity in the subjective value of these goods. This mechanism may therefore play a larger role in contexts where the objective value of an object is more ambiguous (such as in those investigated by Gregory et al., 1993).

A final alternative examined in this follow-up experiment was that returning money to participants in the form of a rebate triggered thoughts about past spending and expenditures that a bonus did not. Although the framing manipulation used in all of these experiments altered only the label attached to the money itself and not its source or attention to prior expenses, describing income as returned income may have led participants to think more carefully about the initial expenditure, a thought that was not induced by the description of income as a bonus. In turn, this may have inhibited spending by making participants feel like they have been spending too much money recently, or have been spending their money unwisely and need to do more saving. However, participants' responses did not support this alternative either. There were no differences in the amount participants reported spending this month compared to the average month, nor in the extent to which participants reported that they "have been spending their money wisely."

Failure to find support for differences in the perceived value or sensitivity to past expenditures does not mean that such mechanisms do not play a role in how people spend financial windfalls, and it is possible that different measures or different contexts may find support for one or both of these mechanisms. It is also likely that additional psychological factors, such as a person's mood (Lerner et al., 2004) or affect associated with a particular windfall (Levav and McGraw, 2005) significantly influence the likelihood of spending psychological windfalls. However, the set of experiments we just described did not investigate the potential role of these factors in the framing of psychological windfalls. The most we can say for now is that participants who received a windfall described as a bonus believed they had extra income that those who received income described as a rebate did not.

4. Implications—narrow and broad

The framing effects on financial windfalls that we have described join a growing body of evidence demonstrating the importance of incorporating basic psychological principles into economic behavior and decision making (e.g., Ariely et al., 2003; Camerer, 1999; Kahneman, 2003; Thaler and Benartzi, 2004). One of psychology's most basic insights is that the evaluation of objects is based heavily on descriptions of objects rather than simply on objective features of the objects themselves (Tversky and Koehler, 1994). Different descriptions of the same objective events can therefore yield very different judgments that sometimes—as in our case—contradict very basic assumptions of traditional economic models. In this particular case, describing income as a gain from the status quo dramatically increased people's propensity to consume income relative to describing income as a returned loss.

All of the experiments we described involved cases in which a current financial windfall could be related to a past expense. We believe it is likely that relating a windfall to any kind of past expense—be it time, effort, or non-monetary losses—would produce similar results as well. We would expect, for instance, that a year-end windfall from an employer would more likely be saved

if it were described as a reward for the past year's efforts than if it was simply described as a gift of appreciation. Like the rebate described in relation to a past expense, income described in relation to one's past efforts may not feel like an absolute gain in the same way as income that appears both unexpected and unearned, and may therefore not promote the same level of spending. This may be part of the reason that unexpected and unearned financial windfalls, per se, are more likely to be spent than non-windfalls (Arkes et al., 1994).

What is more, the psychological mechanisms involved in the framing effects we have described are likely to produce analogous results in other domains as well. Consider, for example, the increased concern that would seem to arise from a 10% increase in the likelihood of a national terrorist attack compared to a 10% return to last month's level of risk. Or differences in the likelihood of changing one's diet after gaining ten pounds over the last month compared to regaining ten pounds. Or the increased likelihood of "wasting" one's time if a regularly scheduled meeting is canceled adding an "extra" hour to one's normal work day compared to a one-time meeting being canceled that simply "returned" an hour to one's work day. From calculating risk to consuming time, the ability to frame events as a change from one's current state versus a return to a previous state seems common. Empirical extensions of the framing effects we described may therefore be quite broad. Marketing implications of these results seem fairly obvious.

Perhaps the most important implications of windfall framing effects, however, are for government tax policies. As mentioned earlier, one reasonably common economic strategy for stimulating a local economy is to redistribute wealth to constituents. These government windfalls can take many forms, from tax returns at the end of the fiscal year to formal tax cuts, but the most common for stimulating the economy directly are tax rebates. Tax rebates are one-time windfalls distributed according to a person's overall wealth. The most recent of these tax rebates—and also the largest the world has ever seen—was the U.S. tax rebate of 2001 in which 38 billion dollars were distributed to U.S. tax-payers in the form of $300, $500, or $600 checks. The economic logic of this tax cut was fairly simple—spending is a function, at least in part, of a person's absolute wealth, so increasing the wealth of U.S. citizens will increase spending and stimulate economic growth. According to the Bush administration's council of economic advisors, this tax rebate "provided valuable stimulus to economic activity in the short run" and "softened the recessionary headwinds in 2001 that has helped to put the economy on the road to recovery in 2002" (cited in Shapiro and Slemrod, 2003b).

Of course, when times are unusually bad, it's useful to remember that times are likely to get better by statistical chance alone, and it's not entirely clear what data would conclusively demonstrate a softening of recessionary headwinds. What is more, empirical data suggests that the tax rebate might not have been quite as effective in stimulating short-term spending as the Bush administration might have hoped. In one survey, for instance, only 22% of taxpayers reported that they would spend their tax rebate check and the remaining vast majority reported that they would save it (Shapiro and Slemrod, 2003b). Given that the average American has a difficult time saving even the smallest percentage of their regular income, these reported savings rates are quite impressive.

These reported savings rates are also reflected in macroeconomic data of actual behavior (Shapiro and Slemrod, 2003a). The tax rebates of 2001 were distributed primarily during July, August, and September. In the first 6 months of 2001, the personal savings rate as percentage of disposable personal income hovered around 2%, but nearly doubled over the following 3 months, coinciding perfectly with the distribution of the rebate checks. Very similar findings were observed following a very similar tax rebate in 1975, when savings rates spiked from approximately 10% before the rebate to roughly 14% after the rebate. The results do not indicate that tax rebated did

not, in fact, soften the recessionary headwinds in 2001, but rather that tax rebates might not have softened such headwinds as much as they possibly could.

Economic theory explains these increases in savings by noting that the rebates were not permanent and therefore should not have influenced consumers' spending. This may well be true, but the windfall framing effect suggest another possibility—that the tax rebates were coded as a returned loss rather than as an additional gain, and hence did not stimulate spending for the same reasons we saw in the rebate conditions described earlier. Some of the administration's own political rhetoric, in fact, encouraged this kind of framing. When unveiling the proposed rebate, for instance, President Bush argued that a budgetary surplus "should be returned to the taxpayers who earned it" because "it's the people's money and government ought to be passing it back after it's met priorities" (Bush, 2001). Many clarion calls from politicians for decreases in government spending and economic growth herald the need to "return the tax-payer's money," a framing that might be a very fine political strategy but a poor economic strategy.

Scientists are obviously unable to manipulate the way governments distribute to its constituents, but we (Epley et al., 2005) tried to do the next best thing by investigating how windfall framing might influence people's memory for spending of their 2001 tax rebate. Although decisions about whether to spend or save income are superficially distinct from one's memory for spending and saving, the reconstructive process of memory (Schacter et al., 1998) operates in much the same way as the construction of preferences that precedes decision and choice (Slovic, 1995). Therefore, the effect of framing on the construction of preferences for spending or saving should operate similarly in the reconstructive process of memory.

To examine the role of framing on memory for spending the 2001 tax rebates, a sample of Boston-area residents were recruited in public train stations several months after disbursement of the rebates. All were first asked whether they recalled receiving a check—$300, $500, or $600—from the 2001 Tax Relief Act, and all did. Participants then read one of two descriptions of the 2001 Tax Relief Act at the top of a questionnaire—one that described the checks as an additional income resulting from a budget surplus that should be returned as *bonus income*, or another that described it as tax surplus that should be returned as *withheld income* (i.e., as returned income). In particular, those in the bonus condition read that "proponents of this tax cut argued that the costs of running the government were lower than expected, resulting in a budget surplus" that should be returned "as bonus income," whereas participants in the returned income condition read that "proponents of the this tax cut argued that the government collected more tax revenue than was needed to cover its expenses, resulting in a tax surplus" that should be returned "as withheld income." The framing in the returned income condition, in fact, was paraphrased from the Bush administration's description of the rebate.

All participants were then asked to indicate the rebate amount their household received ($300, $500, or $600), and what percentage of this money they recalled spending and what percentage they recalled saving. As predicted, participants in the bonus condition recalled spending, on average, a whopping 87% of their tax rebate whereas participants in the returned income condition recalled spending, on average, only 25%. The similarity between this latter figure and the 22% predicted spending figure reported by Shapiro and Slemrod (2003a) may be no coincidence, given the similarity between the description in the returned income condition and the frame participants were likely to hear of this tax rebate in their daily lives. This result is consistent with the possibility that the low spending rates of tax rebates are, at least partly, a function of the way such rebates are naturally described, and which suggests that an alternate frame has at least some hope of influencing spending rates.

The results of this study were replicated in a follow-up experiment conducted approximately 6 months later. This time the participants were 76 travelers in New York City's Grand Central Station. These participants were randomly assigned to the same conditions as in the previous experiment. Once again, participants in the bonus condition recalled spending significantly more of their tax rebate ($M = 76\%$) than those in the rebate condition ($M = 41\%$). More important, participants in this study were also asked the extent to which they perceived the rebate as a gain from one's current wealth—as " 'extra' money that you received in addition to whatever you would normally make this month"—and the extent to which they perceived it as a return to a previous wealth state—as "money belonging to your original income that was temporarily withheld, and which is now being given back to you." Those in the bonus condition were more likely to perceive the check as extra income and less likely to perceive it as returned income, compared to participants in the rebate condition—a difference that significantly mediated the relationship between windfall framing and recalled spending.[1]

It is important to remember that these differences in recalled spending are clearly memory errors and almost certainly do not reflect differences in actual spending, as participants were randomly assigned to their respective conditions. Nevertheless, these results, in concert with the behavioral experiments described earlier, suggest that altering the description of a tax rebate to highlight the objective gain in income, may be an effective way to increase spending and stimulate economic recovery. Altering the frame of such tax policies cost nothing, so at the very least any influence on behavior would undoubtedly be an amazing return on the financial investment.

Notice that similar logic can be applied to more permanent tax cuts as well. To the extent that such permanent tax cuts are meant to increase consumers' spending, care should be taken to highlight the "bonus" income these tax cuts provide. Perhaps IRS checks in post-cut years should include a report of what one's taxes would have been without the new tax cut, and even do the subtraction to keep the windfall salient in the decision maker's mind and keep it from simply melding into the background as part of one's permanent income. We would predict, for instance, that a tax return that included a check for $3000 plus a $500 bonus would be spent more readily than a single check for $3500. Given that people evaluate individual transactions relatively myopically, decoupling the "regular" tax return from a new "bonus" should facilitate spending of the additional income. Indeed, decoupling expenses that are typically grouped together can have a dramatic influence on consumption. For instance, people might not be wild about spending $500 on a hotel room, $125 on meals, and $75 on activities, but might be thrilled to spend $700 per day on an all-expenses-paid hotel visit (Prelec and Loewenstein, 1998; Thaler, 1980; Van Boven and

[1] One secondary finding in both of these memory studies was that participants who received a smaller rebate check ($300) recalled spending a larger portion of it relative to participants who received a larger check ($500 or $600). This difference was significant in the first memory-recall study we described and marginally significant in the second. One dull interpretation of this result is that those who received a larger check were wealthier, and therefore able to save more of the check than those who received a smaller check and were less wealthy. This interpretation almost certainly has some merit.

A more interesting interpretation is that people are simply more likely to spend small windfalls than larger windfalls. This interpretation is consistent with theories of mental accounting, which suggest that small windfalls are not incorporated into one's overall income and are therefore not "booked" in the same way as larger windfalls (Thaler, 1999). Smaller windfalls may be less likely to be deposited into one's bank account, and instead be spent on smaller, frivolous purchases. The propensity to consume a windfall may therefore be negatively correlated with its size relative to one's permanent income, exactly the result found in spending of windfalls given to Nazi Holocaust survivors by the German government (Landsberger, 1966). Similar results were found for windfalls given to U.S. war veterans (Bodkin, 1966) and university employees (Rucker, 1984). Whether governments could facilitate spending by simply distributing windfalls in smaller amounts is therefore an intriguing but untested hypothesis.

Epley, 2003). None of these framing effects, of course, would alter ideological justifications for various tax policies in the first place, be they more liberal or more conservative, but they might alter the impact of these policies on individual consumption.

We believe these temporal framing effects are not restricted to tax policies but apply to a variety of public policy domains as well. Most policy interventions aim to change some current state, and many may therefore be described as creating a gain from the current status quo versus returning to a previous status quo. Attempts to clean up the environment, for example, could involve improving the current environment or returning to a cleaner environment of the past. Diminishing terrorist threats could be described as reducing the high risk felt in 2005 or as returning to the lower risks of 1995. And attempts to curb the obesity epidemic could be described as a reduction in obesity rates of the current generation or as a return to the lower rates of previous generations. In contrast to the studies we have described that attempt to change consumption, many of these policies are attempts to change attitudes in order to improve the effectiveness of these campaigns. As Lichtenstein et al. (1995) demonstrated, returned losses in these domains can be seen as more valuable than gains, suggesting public policies that try to create positive attitudes for those policies and increase compliance should therefore focus on returning to better days of the past rather than on improving bad days of the present.

Although the direct implications of the work we have described on windfall framing for broader public policy issues are somewhat speculative, we find them worthy of consideration and further empirical investigation. Returning specifically to financial windfalls, surely government agencies could conduct research of their own to investigate the impact of different descriptions of their public policies on behavior in certain test markets before instituting one policy in particular. Such market research is invaluable to the effectiveness of corporate campaigns, and would almost certainly be invaluable in public policy campaigns as well. Many politicians are experts at providing just the right kind of "spin" on the available information, and in this respect might be well advised to apply the same kind of framing strategies used to alter people's attitudes into altering people's economic behavior. Given the amount of money spent on public tax policies alone, and the likely impact these policies have on the overall economy and the population at large, time devoted to understanding how decision makers code financial windfalls would seem to be time well spent.

References

Ando, A., Modigliani, F., 1963. The life cycle hypothesis of saving: aggregate implications and tests. American Economic Review 53, 55–84.

Ariely, D., Loewenstein, G., Prelec, D., 2003. Coherent arbitrariness: stable demand curves without stable preferences. Quarterly Journal of Economics 118, 73–105.

Arkes, H.R., Joyner, C.A., Pezzo, M.V., Nash, J.G., Siegel-Jacobs, K., Stone, E., 1994. The psychology of windfall gains. Organizational Behavior and Human Decision Processes 59, 331–347.

Bodkin, R.H., 1959. Windfall income and consumption. American Economic Review, 602–614.

Bush, G.W., 2001. Transcript of President Bush's White House News Conference. New York Times, February 23, p. A10.

Camerer, C.F., 1999. Behavioral economics: reunifying psychology and economics. Proceedings of the National Academy of Sciences 96, 10575–10577.

Cohen, J., 1988. Statistical Power Analysis for the Behavioral Sciences, second ed. Lawrence Erlbaum, New Jersey.

Epley, N., Idson, L., Mak, D., 2005. Bonus or rebate? The impact of income framing on spending and saving. Submitted for publication.

Friedman, M., 1957. A Theory of the Consumption Function. Princeton University Press, Princeton, NJ.

Gregory, R., Lichtenstein, S., MacGregor, D., 1993. The role of past states in determining reference points for policy decisions. Organizational Behavior and Human Decision Processes 55, 195–206.

Kahneman, D., 2003. A psychological perspective on economics. American Economic Review (Proceedings) 93, 162–168.

Kahneman, D., Tversky, A., 1979. Prospect theory: an analysis of decision under risk. Econometrica 47, 263–291.

Landsberger, M., 1966. Windfall income and consumption: comment. American Economic Review 56, 534–540.
Lerner, J.S., Small, D.A., Loewenstein, G., 2004. Heart strings and purse strings—carryover effects of emotions on economic decisions. Psychological Science 15, 337–341.
Levav, J., McGraw, A.P., 2005. Emotional accounting: feelings about money and consumer choice. Unpublished manuscript, Columbia University.
Prelec, D., Loewenstein, G., 1998. The red and the black: mental accounting of savings and debt. Marketing Science 17, 4–28.
Rucker, M.H., 1984. Allocation of windfall income: a case study of a retroactive pay increase to university employees. Journal of Consumer Affairs 18, 101–118.
Schacter, D.L., Norman, K.A., Koutstaal, W., 1998. The cognitive neuroscience of constructive memory. Annual Review of Psychology 49, 289–318.
Shapiro, M., Slemrod, J., 2003a. Did the 2001 tax rebate stimulate spending? Evidence from taxpayers surveys. In: Poterba, J. (Ed.), Tax Policy and the Economy. MIT Press, Cambridge, pp. 83–109.
Shapiro, M., Slemrod, J., 2003b. Consumer response to tax rebates. American Economic Review 93, 381–396.
Slovic, P., 1995. The construction of preference. American Psychologist 50, 364–371.
Thaler, R.H., 1980. Toward a positive theory of consumer choice. Journal of Economic Behavior and Organization 1, 39–60.
Thaler, R.H., 1992. Savings, fungibility, and mental accounting. Journal of Economic Perspectives 4, 193–205.
Thaler, R.H., 1999. Mental accounting matters. Journal of Behavioral Decision Making 12, 183–206.
Thaler, R.H., Benartzi, S., 2004. Save more for tomorrow: using behavioral economics to increase employee savings. Journal of Political Economy 112.1, S164–S187.
Thaler, R.H., Johnson, E.J., 1990. Gambling with the house money and trying to break even: the effects of prior outcomes on risky choice. Management Science 36, 643–660.
Tversky, A., Koehler, D., 1994. Support theory: a nonextensional representation of subjective probability. Psychological Review 101, 547–567.
Van Boven, L., Epley, N., 2003. The unpacking effect in evaluative judgments. Journal of Experimental Social Psychology 39, 263–269.