

**The Cost of Comfort:
Affective Packages in Consumer Decisions***

By

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Abstract

A consumer has to make a consumption decision. She is modeled as making a binary decision regarding a suggested change to her status quo. An affective package refers to the totality of affective responses that the consumer is expected to have to the various aspects of this decision. It is proposed that consumers evaluate decisions based on these affective packages. Importantly, a package generates a link between goals and means, and some of the affect related to the decision is about this linkage. For instance, the consumer may expect to experience guilt feelings should she frivolously squander money that originates from a bequest from a frugal and austere relative. Several studies, employing self-report measures, show that affective packages do influence consumer choices in ways that contradict the assumption that money is fungible. The relationships between affective packages and mental accounting, as well as coupling, are discussed.

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Introduction

The twentieth century will not be remembered for bringing about a genuine rapprochement between economics and psychology.¹ For the most part, economists found neither the study of emotions nor of cognition to be very pertinent to their scientific endeavor. Rather, economics championed rational choice, and emotions were perceived as antithetical to rationality. To the extent that emotions did matter, they were generally swept away under the rug of a utility function, as determinants of preferences that deserved no special attention.² Similarly, cognition was considered a superfluous concept in the realm of the revealed preferences paradigm, since, according to this paradigm, only economic behavior mattered. The cognitive processes leading to human decisions were assumed to be irrelevant.

Nevertheless, there were attempts to wed the two disciplines. The research program pioneered by Kahneman and Tversky demonstrated that some of the tenets of economic theory were at odds with empirical data. (See Tversky and Kahneman (1974, 1981), Kahneman, Slovic, and Tversky (1982), and surveys by Bazerman (1986) and Piatelli-Palmarini (1994).) Moreover, it established that the study of cognitive decision processes might improve descriptive theories of economic behavior. (See Thaler (1980, 1985, 1992, 1994), and surveys by Camerer and Weber (1992), Harless and Camerer (1994), and Rabin (1998).)

At the same time, ironically, the economic paradigm of rationality was invoked (albeit, sometimes only implicitly) to explain a variety of phenomena that used to be considered as being in the realm of psychology. Becker (1976) argued that standard economic analysis could explain seemingly non-economic behaviors such as marriage and child bearing, and he sometimes employed utility functions that could be interpreted as reflecting emotions. For instance, the assumption that children's utility function is an argument of the utility function of their parents is a way to incorporate emotional payoffs in a formal model. In other economic studies, emotions were explicitly introduced into an individual's or a society's decision rule. For instance, regret has been explicitly modeled in decision theory (Savage (1951), Loomes and Sugden (1982)). More recently, Rabin (1993) and Brams (1997) suggested incorporating emotional factors into the analysis of games.

These studies attempted to reconcile emotional factors with rational decision making by assuming that emotions are among the determinants of tastes, or goals, and that economic agents pursue these goals in a rational way. This approach is consistent with the neo-classical economic paradigm that does not judge the rationality of goals themselves and that defines rationality merely as

¹ See Loewenstein (1992) and Lewin (1996) for historical surveys and analyses.

² A notable exception is envy, which has governed the economic analysis of inequality starting from Veblen (1899) through the relative income hypothesis (Duesenberry (1949)) and the concept of envy-free allocations (Foley (1967)) to present day research.

behavior that's consistent with respect to goals. By contrast, other authors have argued that rationality may be ascribed to emotional determinants of goals. For instance, De Sousa (1987), Solomon (1993), LeDoux (1996), and others have argued that emotions can often be explained as efficient proxies for optimal behavior, as defined by external criteria such as long-run survival, and Frank (1988) argued that seemingly irrational emotional reactions might be optimal in the long run. For instance, incurring cost in order to take revenge might seem a pointless and irrational act, whose sole goal is to vent anger. Yet, vengeful behavior may establish one's reputation as a "tough" type, which may be beneficial in future interactions with members of the same society. Thus, emotional reactions might complement rational decision making by foregoing short run profit for long-run benefit. D'Amasio (1994) used neurological studies to argue that emotions are not only compatible with, but also necessary for rational decision making.

There is also a growing literature on the impact of affective states, mostly moods, on decision making. Isen and colleagues studied the effect of positive affect on problem solving and on risk taking (Isen & Means, 1983; Isen, Daubman, & Nowicki, 1987; Isen & Geva, 1987). Mano and Lewinsohn examined the effect of pleasantness and of arousal on decision making, including consumer decisions (Mano, 1990, 1992, Lewinsohn & Mano, 1993). Risk taking under stress and in the presence of various affective states was also studied by Mann (1992). Forgas and Bower (1987, 1988) and Forgas (1991) studied mood effects on perception and decision strategies in the context of social decision making. Schwarz and Clore and their colleagues (e.g., Schwarz and Clore, 1983) have undertaken extensive investigations of the influence of affect on judgment, and Loewenstein (1996) offered a model of impulsive behavior, in which, following "visceral factors", people may fail to act in their own self-interest.

Yet, as Elster (1998) argues, the economic implications of emotions have not received sufficient attention. In the triangle emotion-cognition-decision, the emotion-decision link still seems to be the least studied, especially where economic decisions are concerned. The present paper attempts to make a contribution to this literature by introducing the concept of affective packages, by which consumers are postulated to evaluate binary decisions.

Sequential binary decisions

Neo-classical economics views decision making in a rather idealized way; it assumes that economic agents behave as if, at every point of time, they choose among a given set of alternatives whose implications are well-analyzed. In order to gain some basic insights, it may be beneficial to consider an alternative model that is also vastly simplified, but in different ways. To this end, we propose to study decisions as binary choices. Each decision problem is modeled as an accept/reject,

yes/no question regarding a particular offer that the decision maker has received. Further, these offers are suggestions to change the status quo. A “reject” decision means that the status quo remains unchanged. Thus, a consumer who sees a product in a shop window will be viewed as getting a take-it-or-leave-it offer to buy the product at the posted price. Should the offer be accepted, the consumer’s status quo would change – she would own the product but would give up some money. Likewise, the consumer makes accept/reject decisions when she entertains the prospect of going to see a new movie that she has read about, hears about a friend’s vacation abroad, and so forth.

Obviously, these binary choices are not independent of each other. First, the consumer’s budget constraints introduce linkages between choices. The consumer realizes that spending money on a given product may come at the expense of alternative purchases. But, importantly, the tradeoff between products is not necessarily (or even usually) explicitly represented in the consumer’s mind. Rather, as suggested by Marshall (1890), the consumer has a parameter that represents the “value” (or “marginal utility”) of money. This parameter allows the consumer to take prices into account, without conceiving of, let alone solving, an optimization problem involving all available products in all alternative periods.

There are other ways in which binary decision problems interact. Substitutability and complementarity between products imply that a sequence of binary decisions has to be analyzed as a whole, and that the consumer should be able to plan ahead. Also, in reality, most decisions are not binary. When our consumer notices that she is hungry, she has many different possible decisions. Moreover, even if the decision problem is introduced as binary, it might evolve into a more complicated problem. For instance, an employee who gets a job offer from a different employer might start thinking about her job opportunities more generally, and might choose to quit her job in favor of yet another employer.

It should therefore be taken for granted that a model of sequential binary decisions is not an accurate description of all economic decisions. However, there are many important decisions whose essence seems to be better captured by this model than by the neo-classical model of constrained optimization.

Affective packages

How does an economic agent evaluate a binary decision, namely, an “offer”? When such a decision is considered in isolation, it seems natural that the agent would weigh the pros and cons in an attempt to aggregate the positive and the negative impact of the proposed decision. This impact should include all relevant factors. Some would be purely hedonic, such as the pleasure of consumption or the pain of hard work. Some would involve more complicated emotions such as envy

or frustration. Others would be affective reactions that serve as encapsulations of long-run goals, such as guilt over spending too much money or for squandering time or other resources. Moreover, some affective reactions will be generated by the contrast between long-run goals and implicit generalizations of specific modes of behavior. We will refer to the totality of these reactions as the *affective package* generated by the (potential) decision.

If people sometimes conceptualize decisions as binary choices regarding changes to the status quo, and if they tend to evaluate such choices based on their corresponding affective packages, it seems likely that this way of evaluating decisions will also have some implications for non-binary decisions or for sequences of such decisions. Our central claim is that people tend to retain the bundling of affective reactions relating to a binary decision, even when it does not appear rational. If this is the case, one cannot adopt the theoretically convenient separation between the question of desirability, namely, the utility function, and the question of availability, namely, the choice set. Emotional and cognitive factors may introduce a linkage between the bundle one chooses and the way it was financed, between the goals and the means, as the following examples illustrate.

John is about to buy a new car. He has decided on a sporty red convertible that costs \$29,000. He has negotiated financing terms with the car dealer, but a day before he signs the contract he learns that his uncle died and left him \$30,000. John's uncle was a rather frugal person. He saved this money over many years, and he never felt he could afford to buy luxurious items. John knows that he will be financially better off if he buys the car with his uncle's money. But he feels badly about this alternative, and so he decides to proceed with his previous plan of borrowing money for the car, and to invest his uncle's money in a low-interest savings account. This way, John doesn't feel that it is his uncle's hard-earned money that he squanders on the car. Rather, he feels that he invests his uncle's money just as his uncle would have found appropriate, whereas the money he borrows to buy the car is not his uncle's.

John is obviously facing the prospect of feeling guilty. Experiencing this emotion is a psychological "product" that will affect John's well-being. The bundle of \$30,000 with no guilt feelings differs from the bundle of \$30,000 with guilt attached. It would therefore seem that the appropriate way to model this choice is to incorporate the level of guilt feelings into John's utility function. But this will not fully capture John's dilemma. He cannot separate his financial resources, defining his budget set, from his well-being, defining his utility function. Because the guilt feelings John is trying to avoid are *about* money, the utility function depends on the budget set. Starting with John's decision, to borrow money at a high interest rate and to invest it at a low interest rate, we could expand his budget set by suggesting that he be his own lender. Namely, we could suggest that he

forget about borrowing and investing and just use his uncle's money to buy the car. This would leave him with more money. But this very decision would induce guilt in him.

In this example there is a clearly defined linkage between means and goals. Money is not exchangeable with money. It matters whether the money that John uses to buy the car is the money he got from his uncle, or the money he borrows from the car manufacturer. Differently put, means and goals are presented to John, and are represented cognitively by him as *packages*. Each "packaged decision" is evaluated based on the affective package it generates and is consequently accepted or rejected. Borrowing money to buy a car is a packaged decision that John decided to accept. Receiving the bequest and investing it is also an economically acceptable package for John. John feels great sorrow over his uncle's death, but, given this fact, investing the money is the best he can do. Yet, if we decompose these two decision packages and reconstruct them differently, we get one package in which John takes his uncle's money and buys a car with it, and another in which he borrows money in order to invest it at a lower interest rate. Both packages are unpalatable to John, one for emotional reasons and the other for financial ones. This example shows that we cannot simply look at the sum of resources and the all-encompassing bundle of goods; we need to take into account the means-goals packages that emotions generate.

To consider another example, assume that Tom is happily married to Sally. The loving husband would like to buy his wife a nice diamond ring for their upcoming anniversary. He will need to borrow money for that, but he is perfectly willing to do so and to pay off the debt over a year by giving up other goods. He knows that whenever he will have to forego a consumption opportunity, he will at least know that he bought Sally a nice ring that tells her how much he loves her. Imagine now that Sally is going to participate in this decision. She would love to have a diamond ring that would symbolize Tom's love. But if they have to borrow money for that, she is not as excited about the prospect. Moreover, the idea of debt affects her more than it affects Tom: Sally suspects that whenever she would look at the ring, her romantic thoughts would be tarnished by the reminder of the debt.³

This example illustrates two points. First, it shows that memory can also generate a linkage between means and goals. Whereas certain material goods, such as basic nutrition, can be enjoyed irrespective of the associations and memories they conjure up, the degree to which we enjoy most mental goods depends on the memories, cognitions, and affect that are related to them. Being reminded of the burden of a financial debt will affect the utility derived from a mental good. Second, the example makes it clear that we cannot always assume that the household is the unit of

consumption activity. If Sally is the one who should enjoy the ring and the romantic thoughts it brings about, and Tom is the one who is reminded of the debt, the ring may serve its original purpose. But if Sally is also reminded of something negative when she looks at the ring, the purpose will be defeated. Since mental linkages between means and goals are typically at the individual level, it might matter who, within a household, is consuming and who is paying. In the language of packages, it matters whether romantic thoughts are packaged with recollection of debt, or whether they can be separated into separate packages to be consumed by different individuals.

Affective packages often contain emotions that revolve around the decision maker's sense of obligation and responsibility. For instance, consider Mary who tries to avoid homeless beggars on her way home. She does so because she finds it hard to refuse their pleas for spare change, even though she doesn't believe that this would be money well spent. She prefers not to be asked for money and not to give any. If asked, however, she prefers to give money rather than to refuse and to have to live with her refusal.

This example shows that affective packages may involve not only emotions that result from the link between means and ends, but also from the link between outcomes and the act of choice that led to them. The same outcome may be more or less desirable if coupled with the knowledge that one is responsible for it. It is well known that people often prefer to be asked, and that having a sense of control may greatly improve well-being and even physical health (see, for instance, Shapiro, Schwartz, and Astin (1996)). Conversely, we argue that people may sometimes prefer to have a sense of lack of control, when it is interpreted as innocence and lack of moral responsibility.

With this background in mind, we conducted three studies to test the hypothesis that emotions about financing of economic activities may generate linkages between means and ends, and may thus lead to violations of the assumption that money is fungible.

Study 1

Study 1 was designed to test whether different sources of an economic resource, mostly money, can lead to different decisions regarding its use, *for given total resources and for the same consumption decisions*. Thus we focused on a given consumption decision and sought to determine whether people have preferences over which resource is used to finance it as a function of the origin of the resource.

Method

Respondents. 155 respondents were recruited from the student body at Tel-Aviv University, and were paid about \$7.50 for completing the questionnaires. Respondents were recruited by flyers posted in

³ Prelec and Loewenstein (1998) report related findings relating to the role of memory. Thaler (1985) discusses examples that resemble this one in the relevance of the definition of the decision maker. See the discussion

the building of the Faculty of Social Sciences. They were told that the questionnaires were designed to study their consumption patterns. Respondents were registered to avoid multiple appearances.

Stimuli. The stimuli comprised seven scenarios presented in a questionnaire which took about 25 minutes to complete. Four of the scenarios (the target scenarios) were designed to test the effects of affective packages. The other three (filler scenarios) were about consumption decisions in face of affective reactions and were interspersed with the four target scenarios. Two versions of each scenario were constructed, each contrasting two different sources or affective histories of the economic resource in question. For each scenario, half of the respondents saw one of the versions, and the other half, the other version. Finally, each version of each scenario ended with two questions asking respondents to select which resource they would prefer. The four target scenarios were:⁴

Scenario 1:

Version 1: You have ordered tickets for a trip to Paris. In order to finance it, you applied for a \$2,500 loan from the bank. The application has been approved, and you can pay it off in monthly installments from your salary. Before you actually take the loan, you find out that your beloved uncle, who used to be a frugal person and who died after a long disease six months ago, had left you \$3,000. How would you finance your trip?

- a. I'd use the bequest to finance the trip.
- b. I'd take the loan to finance the trip.

Version 2: You have ordered tickets for a trip to Paris. In order to finance it, you applied for a \$2,500 loan from the bank. The application has been approved, and you can pay it off by monthly installments from your salary. Before you actually take the loan, you find out that you won \$3,000 in a state lottery. How would you finance your trip?

- a. I'd use the lottery prize to finance the trip.
- b. I'd take the loan to finance the trip.

Scenario 2:

Version 1: You plan to celebrate your 25th birthday by throwing a large party in a club (as is common among your friends). The party would cost about \$2,000, and you can choose to pay this amount in monthly installments you can afford (at a normal interest rate). Shortly before you decide on the payment schedule, you find out that a distant relative of your grandmother, of

below.

⁴ The monetary sums were converted from Israeli Shekels to rounded off US dollars. In the translation of the questions from Herbew, we followed their spirit rather than their letter. For instance, we replaced specific

whom you have barely heard, died abroad and left you \$2,500. Assuming you throw the party as planned, choose one of the following

- a. I'd pay for the party as planned.
- b. I'd use the bequest to finance the party.

Version 2: You plan to celebrate your 25th birthday by throwing a large party in a club (as is common among your friends). The party would cost about \$2,000, and you can choose to pay this amount in monthly installments you can afford (at a normal interest rate). Shortly before you decide on the payment schedule, you find out that your beloved uncle died after having suffered from a serious disease, and left you \$2,500. This uncle had a modest lifestyle and had never allowed himself conspicuous luxuries. Assuming you throw the party as planned, choose one of the following

- a. I'd pay for the party as planned.
- b. I'd use the bequest to finance the party.

Scenario 3:

Version 1: Your grandfather died several years ago. You intend to finally make a long-planned trip to Poland, to visit the concentration camp in which your grandfather was interned during WWII. You have recently received a notification that you won \$2,000 in a state lottery. You have to decide between two possible dates for your trip. In the earlier date you will have to finance the trip from your regular salary, which you can afford. In the later date you will be able to use the lottery money, which is supposed to be paid to you by then. Assuming there are no other differences between the two dates, which would you choose?

- a. The earlier date.
- b. The later date.

Version 2: Your grandfather died several years ago and since then you have been dealing with the financial matters relating to his bequest. You intend to finally make a long-planned trip to Poland, to visit the concentration camp in which your grandfather was interned during WWII. You have recently received a notification that, as your grandfather's heir, you are about to receive \$2,000 as part of a new agreement for compensation of forced laborers. You have to decide between two possible dates for your trip. In the earlier date you will have to finance the trip from your regular salary, which you can afford. In the later date you will be able to use the

locations (such as "Ramat Aviv Mall") by more generic descriptions ("a fancy mall"). The original questionnaires are available upon request.

lottery money, which is supposed to be paid to you by then. Assuming there are no other differences between the two dates, which would you choose?

- a. The earlier date.
- b. The later date.

Scenario 4:

Version 1: About a month ago, as a surprise gift for the first anniversary of your first date, you bought two tickets for a show, one for you and one for your boyfriend/girlfriend. During this month, however, your boyfriend/girlfriend broke up with you. The show will take place next week and tickets are still available.

A few days ago the show was mentioned in a conversation with a friend, and you decided to see it together (your friend will pay for her/his) ticket. What would be your choice?

- a. I'd use the two tickets I already have.
- b. My friend and I would buy new tickets, and I'd sell the two tickets I have, for their full value, to another friend who wants to go to the show with his/her spouse.

Version 2: About a month ago, as a surprise gift for her/his visit to your country, you bought two tickets for a show, one for you and one for your friend. It turned out, however, that your friend had to postpone her/his visit, and will not be in the country on the date of the show. The show will take place next week and tickets are still available.

A few days ago the show was mentioned in a conversation with a friend, and you decided to see it together (your friend will pay for her/his ticket). What would be your choice?

- a. I'd use the two tickets I already have.
- b. My friend and I would buy new tickets, and I would sell the two tickets I have, for their full value, to another friend who wants to go to the show with his/her spouse.

This question was phrased differently for male and female respondents, in such a way that the "friend" is clearly of the same gender as the respondent.

Procedure. Respondents were asked to answer the question at the end of each scenario, responding with the decisions they expected they would make in the hypothetical situations that the scenarios represented.

Results

In Scenario 1 the respondents were asked to choose between two ways of financing a trip. One is to take a loan as planned, not using the windfall gain, and the other is to avoid the loan and use the gain.

The latter is the financially “rational” option. In Version 1 the windfall gain arises from a bequest of a beloved uncle, whereas in Version 2 – from a state lottery prize. In this latter version, 83% of the respondents (65 out of 78) preferred the financially “rational” option, but when the windfall came from the bequest this dropped to 60% (46 out of 77 respondents). This difference is significant ($z=3.36$, $p<0.001$).

The two versions of Scenario 2 differed only in the emotional relationship to the deceased. In Version 1, where the deceased is described as a distant relative of the respondent’s grandmother whose existence was barely known to the respondent, 68% of respondents (52 out of 77) preferred the financially rational option of using the bequest money to finance the party, and avoiding the loan. In Version 2, where the deceased is a beloved uncle who died in suffering and who is known to have been frugal, this dropped to 59% (46 out of 78). This difference is not significant ($z=1.10$, $p=0.13$).

In Version 1 of Scenario 3 about when to visit the concentration camp, the unexpected source of money is a state lottery. In this version, 94% (72 of 77 respondents) indicated that they would prefer to take the trip sooner, rather than waiting to finance it with the lottery winnings. By contrast, in Version 2 the unexpected money is related to the grandfather and to the theme of the trip. In this version, only 19% of the respondents (63 out of 78) preferred to take the trip earlier. This difference is significant ($z=2.41$, $p<0.01$). Given that the description of the scenarios made clear that there were no advantages of any kind to postponing the trip other than how to pay for it, one can argue that the “rational” choice would be to take it earlier rather waiting for the windfall to finance it.

The two versions of Scenario 4 differed in the story about the companion to the show and the reason for the cancellation. Version 1 had to do with a romantic partner who had broken up with the respondent, whereas Version 2 pertained to a friend who had to cancel a visit to the country. The results were surprisingly similar, respondents choosing the “rational” option in both cases. In Version 1, 83% of the respondents (64 out of 77) chose to use the tickets they already had rather than buy new ones. In version 2, 81% (63 out of 7) selected this same alternative.

Study 2

The results of Study 1 suggested a need for fine-tuning some of the scenarios and pinpointing the affective effects in them. We also felt it desirable to include as benchmarks a couple of classical scenarios that tap mental accounting phenomena.. Finally, lest students in the social sciences had been exposed to ideas in basic economic theory thus somehow influencing their responses, in this second study, we used respondents for whom such “contamination” was less likely.

Method

Respondents.: Respondents were 177 undergraduates, recruited as they were for Study 1, except that the recruitment flyers were posted in the building of the Faculty of Life Sciences.

Stimuli. The stimuli were similar to those used in Study 1, with a modified questionnaire containing five scenarios that directly tested the effects of affective packages, with four other questions interspersed. The five relevant questions were Questions 1-3, a modified version of Question 4, and a new Question 5.

Scenario 4 (modified):

The new form of this scenario had four versions (for each gender). For purposes of clarity, we here present the four versions for female respondents, highlighting the differences from the original version(s) used in Study 1. The text in the questionnaires was in plain font:

About a month ago, as a surprise gift for the first anniversary of your first date, **you/your boyfriend** bought two tickets for a show, one for you and one for your boyfriend. During this month, however, **your boyfriend broke up with you/you broke up with your boyfriend**. The show will take place next week and tickets are still available.

A few days ago the show was mentioned in a conversation with a (male) friend, and you decided to see it together. (You suspect that a romantic relationship might develop between you!) What would be your choice?

- a. I'd use the two tickets I already have.
- b. My friend and I would buy new tickets, and I'd sell the two tickets I have, for their full value, to another friend who wants to go to the show with her husband.

Scenario 5:

Version 1: Walking in a fancy mall, you found a nice leather wallet on the floor. It contained \$40 in two bills, and had no identification. You assumed that it was lost by a shopper who had another, main wallet. You decided that there is no point in bringing the wallet to a lost-and-found stand since there is no chance that its owner would look for it there or be able to identify it.

You need cash for two pre-determined goals: to have lunch with your boyfriend/girlfriend, and to donate \$30 (in cash) to "Save the Wildlife". (You make such a donation every 6th of the month, which happens to occur tomorrow.) You can either stop at a cash machine now to get cash for lunch and make the donation tomorrow, or you can pay for lunch with the money you found in the wallet and stop at a cash machine tomorrow for the donation. What would you do?

- a. I'd withdraw cash today to pay for lunch, and make the donation tomorrow using the money I found.

- b. I'd pay for lunch using the money I found, and withdraw cash to make the donation tomorrow.

Version 2: Walking on a crowded street in a shady neighborhood, you found a shabby wallet. It contained \$40 in small bills and in coins, and had no identification. You assumed that it was lost by one of the beggars on the street. You decided that there is no point in bringing the wallet to a lost-and-found station since there is no chance that its owner would look for it there or be able to identify it.

You need cash for two pre-determined goals: to have lunch with your boyfriend/girlfriend, and to donate \$30 (in cash) to "Save the Wildlife". (You make such a donation every 6th of the month, which happens to occur tomorrow.) You can either stop at a cash machine now to get cash for lunch, and make the donation tomorrow, or you can pay for lunch with the money you found in the wallet and stop at a cash machine tomorrow for the donation. What would you do?

- a. I'd withdraw cash today to pay for lunch, and make the donation tomorrow using the money I found.
- b. I'd pay for lunch using the money I found, and withdraw cash to make the donation tomorrow.

Results

In Version 2 of Scenario 1, where the source of the windfall was the lottery prize, 74 out of 89 respondents (83%) indicated that they would use the lottery winnings to pay for the trip to Paris. When, as in Version 1, the source was the bequest, 69 out of 88 respondents (78%) made this choice. This difference was not significant.

In Version 1 of Scenario 2, where the deceased is described as a distant relative of the respondent's grandmother, 72% of respondents (63 out of 88) preferred to use the bequest money to finance the party, and avoid the loan. In Version 2, where the deceased is a beloved uncle, only 57% (51 out of 89) chose the same option. This difference was significant ($z=2.00$, $p=0.02$).

The results from Scenario 3 in this study were inexplicably at odds with the very strong effect (94% vs. 19%) observed in Study 1. In this study, there was no difference between the two versions. In Version 1 (where the money originates in a state lottery), 53 out of 88 respondents (60%) preferred the earlier trip whereas in Version 2 (where the money is associated with the theme of the trip) (63% of respondents (56 out of 89) made the same choice)

Scenario 4 had four versions. In Versions 1 and 3 respondents were asked to assume that it was they who had bought the tickets, whereas in Versions 2 and 4, the tickets had been bought by the

boy/girlfriend. In Versions 1 and 2 it was the boy/girlfriend who initiated the break-up, whereas in Versions 3 and 4 it was the respondent. In Version 1, 37 out of 43 respondents (86%) chose to use the available tickets rather than buy new ones compared with 36 out of 44 respondents (82%) in Version 2, 44 out of 45 (98%) in Version 3, and 31 out of 43 (73%) in Version 4.

Two main effects might be at work here. First, respondents may have felt it inappropriate to use the self-same tickets that the ex-boy/girlfriend had bought as opposed to tickets they had bought themselves. This effect has little to do with fairness, however, since the alternatives to using the tickets was selling them for their full value to a third party. Still, this effect was significant. In the combined responses to Versions 1 and 3, 92% of the respondents (81 of 88) chose to use the tickets that they had already had when they had bought them themselves, as compared to 77% (67 out of 87) who chose to use the existing tickets in the combined responses to Version 2 and 4 in which the tickets had been bought by the boyfriend/girlfriend. This difference is significant ($z=2.81, p<0.01$).

Second, one might expect respondents' choices to depend in part on who initiated the break-up. However, this difference was far from significance. In the combined responses to Versions 1 and 2, 83% of respondents (73 out of 87) (84%) chose to use the tickets they already had, as compared to 85% (75 out of 88) for the combined responses to Versions 3 and 4.

In both versions of Scenario 5 using the found money and saving a trip to the cash machine is the more convenient option, as it postpones the need to withdraw cash to the next day. In Version 1, where the money was found in a fancy wallet, 64% of respondents (54 out of 85) chose this option. In Version 2, where the money is assumed to have belonged to a beggar, only 48% (43 out of 89) chose it. This difference was significant ($z=2.05, p=0.02$).

Study 3

Studies 1 and 2 focused primarily on the presumed effects of guilt but are quite uninformative about the possible effects of other emotions. In addition, respondents in these studies were compensated for their participation, thus potentially inducing a selection bias. Respondents in Study 3 were not compensated.

Method

Respondents. 218 undergraduate students in economics classes at Tel-Aviv University volunteered to fill out the questionnaires. Participation was neither rewarded and nor obligatory. Respondents were told that the questionnaires were designed to study their consumption patterns.

Stimuli. The stimuli again comprised a questionnaire, this time consisting of six scenarios. The target scenarios were a modification of Scenario 1, Scenario 5, and three new scenarios.

In the modified Scenario 1, the sum of money of the windfall gain (bequest or lottery prize) was reduced to \$2,500, to match the sum of the loan exactly. This was done with a view to avoiding any potential misunderstandings regarding the total amount of money used for the trip. The new scenarios are presented below. Notice that Scenarios 6 and 7 are very similar. Therefore, to avoid repetitions, about half of the subjects were asked to respond to (one of the versions of) Scenario 6, and the other half to one of the versions of Scenario 7.

Scenario 6 (version for female respondents)⁵:

Version 1: A week ago you found out that your boyfriend had been having an affair, and consequently you broke up. Before the break up, your boyfriend bought tickets for a show that will take place next week. The tickets are to be picked up at the box office, under your name (they have been paid for in full). Now, you want to go to the show with a male co-worker with whom you suspect that a romantic relationship might develop. Your co-worker tells you that your firm distributes free tickets for this show. What would you choose?

- a. I'd pick up the two tickets under my name at the box office and use them to go to the show with my co-worker.
- b. I'd get tickets from my firm and give up the tickets at the box office.

Version 2: A week ago you and your boyfriend broke up. Before the break up, your boyfriend bought tickets for a show that will take place next week. The tickets are to be picked up at the box office, under your name (they have been paid for in full). Now you want to go to the show with a male co-worker with whom you suspect that a romantic relationship might develop. Your co-worker tells you that your firm distributes free tickets for this show. What would you choose?

- a. I'd pick up the two tickets under my name at the box office and use them to go to the show with my co-worker.
- b. I'd get tickets from my firm and give up the tickets at the box office.

Scenario 7 (version for female respondents):

Version 1: You bought a bottle of wine to celebrate the anniversary of your first date with your boyfriend. But last week you found out that your boyfriend had been having an affair, and as a result, you had a fight and broke up. You have been invited to two social events, to each of which you'd like to bring a bottle of wine. One is a party of co-workers, and the other is an intimate dinner at the place of an old male friend, whom you have started seeing again. What would you choose?

⁵ This is a variant of Question 4.

- a. I'd bring the bottle I bought for the anniversary to the intimate dinner, and I'd buy another bottle for the co-workers party.
- b. I'd bring the bottle I bought for the anniversary to the co-workers party, and I'd buy another bottle for the intimate dinner.

Version 2: You bought a bottle of wine to celebrate the anniversary of your first date with your boyfriend. But last week you broke up. You have been invited to two social events, to each of which you'd like to bring a bottle of wine. One is a party of co-workers, and the other is an intimate dinner at the place of an old male friend, whom you have started seeing again. What would you choose?

- a. I'd bring the bottle I bought for the anniversary to the intimate dinner, and I'd buy another bottle for the co-workers party.
- b. I'd bring the bottle I bought for the anniversary to the co-workers party, and I'd buy another bottle for the intimate dinner.

Scenario 8:

Version 1: After having worked for a firm for two years, you got a tempting job offer from another firm and decided to move. You know that you will receive a payment from a compensation fund of your firm, amounting to \$2,500. You will receive the money next week. You decided it's time you bought a stereo system you like, which costs \$2,000. When you notified your firm that you intended to quit, you received many compliments for your service, and were positively surprised by the nice attitude. What would you prefer?

- a. to buy the system immediately, using money from a savings account, and to re-invest the money that you'll receive next week when you get it.
- b. to wait another week and buy the system using the compensation funds.

Version 2: After having worked for a firm for two years, you got a tempting job offer from another firm and decided to move. You know that you will receive a payment from a compensation fund of your firm, amounting to \$2,500. You will receive the money next week. You decided it's time you bought a stereo system you like, which costs \$2,000. When you notified your firm that you intended to quit, you were surprised to discover that no one tried to convince you to stay. Rather, you were blamed for incompetence and disloyalty. What would you prefer?

- a. to buy the system immediately, using money from a savings account, and to re-invest the money that you'll receive next week when you get it.
- b. to wait another week and buy the system using the compensation funds.

Results

In Version 2 of Scenario 1, 92% of respondents (109 out of 119) opted for the lottery winning to pay for the trip to Paris as compared to 86% (81 out of 94) when the windfall was the inheritance from the uncle. This difference was not significant ($z=1.24$, $p=0.11$). It should be mentioned that the questionnaire contained a potentially problematic typographical error wherein the bequest money was referred to as “the prize”.

In Version 1 of Scenario 5 where the wallet allegedly belonged to a (relatively) wealthy person, 70% of respondents (66 out of 94) chose (the more convenient option of using the found money for lunch. In Version 2, , only 59% (68 out of 115) chose this option. This difference is significant ($z=1.68$, $p<.05$).

Scenario 6 presented respondents with two choices: picking up pre-paid tickets at the box office or picking up free tickets at their workplace. In Version 1, the ex-boy/girlfriend is known to have been unfaithful. In this version 54% of respondents (28 out of 52) chose to pick up the pre-paid tickets at the box office. In Version 2, by contrast, nothing is known about the cause for the break-up, and then only 30% (17 out of 56 respondents) chose the box office option. This difference is significant ($z=2.54$, $p<0.01$).

Scenario 7 presented a choice between two means-ends pairs that are identical in terms of the sum of resources and of goods. Option (a) was to use the same bottle for another romantic occasion (and to buy a new one for the non-romantic gathering) whereas option (b) was reversed. In Version 1 the ex-boy/girlfriend was described as unfaithful, and then 45% of respondents (19 out of 42) chose option (a). Version 2 remained silent regarding the reason for the break-up, and somewhat surprisingly this resulted in 61% (35 out of 57) choosing option (a). This difference is nearly significant ($z=1.61$, $p=0.053$).

Finally, Scenario 8 had to do with employee-employer relationships. In Version 1 the respondent is asked to assume that she (the employee) is well-treated, whereas in Version 2 she is maltreated. The choice is between option (a), of buying the stereo system immediately, and option (b), of waiting for compensation fund money to buy it. In Version 1, in which the respondent was well-treated, 81% of respondents (77 out of 95) chose to wait for the company’s compensation payment, option (b), whereas this rose to 89% (107 out of 120 respondents) in the maltreatment condition (Version 2). This difference is significant ($z=1.65$, $p<.05$).

General Discussion

The Scenarios and Affective Packages

Scenarios 1, 2, 4, and 5 have a similar structure: in each of them respondents were asked to choose between two ways of financing a given good, where one way was distinctly more convenient than the other. For instance, in Scenario 1 the respondents had to choose between taking a loan or using a windfall gain to finance a trip to Paris. Normally, one would expect to pay a higher interest rate on a loan than one would get on a savings account, and thus taking the loan is a dominated act from a financial viewpoint. Furthermore, for most economically unsophisticated lay people, logic raises the question “why take a loan when you’ve got the money?” Scenario 2 about how to finance the party is identical in this respect. Similarly, in Scenario 4, respondents were faced with a choice between using tickets already in their possession on the one hand, or selling them and buying new ones on the other. While the latter option incurs no additional financial cost, it is still more costly in terms of time and convenience. Thus, the first option would be economically dominant if one were to ignore affective payoffs. Scenario 5 also has a similar structure. Faced with a choice between stopping at a cash station immediately, on the way to lunch, and postponing it by a day, *homo economicus* would prefer the additional flexibility offered by the second option.

If respondents had behaved according to the dictates of economic rationality, narrowly defined, they should have all always indicated preferences for the more convenient option in each of the above questions. There are several explanations as to why they did not. One possibility is that some of the respondents did indeed take into account factors that are traditionally ignored by economic analysis. Another is that they might sometimes have made errors of calculation. For instance, some might not have been aware of the fact that the interest rates offered to investors are generally lower than those they pay as borrowers. And it is also possible that some respondents are poor predictors of their own choices, and that actual choice would not deviate from economic rationality.

Be that as it may, our focus is not on respondents’ predicted choices in any such decision problem, but on the way choices vary as a function of changes in the manipulated details about the origins of the economic resources in the stories preceding them. . We do not merely claim that affective considerations impact consumption decisions. We argue that they do so in a way that cannot be captured by the constrained optimization paradigm, *even if* affective payoffs are factored into the utility function. Consider first an example such as Scenario 1. If one were to try to explain the difference in willingness to use an unexpected windfall from different sources (lottery vs. uncle’s bequest) as opposed to a loan in terms of constrained optimization, one would have to argue that the disutility attached to the cost of an unnecessary loan differs in the two conditions. For instance, one might suggest that, due to sadness over the uncle’s death, the respondent is generally less careful about money, or finds it distasteful to optimize her finances. Such an explanation is theoretically

viable, but it seems less plausible than our alternative explanation, according to which people have preferences over means-ends pairs.

In Scenarios 3, 6, 7, and 8 there was no “economically” dominant choice. In Scenario 3 respondents were asked to suppose that the timing of the trip was immaterial, and the two financing methods were described as equivalent. In particular, going on the trip sooner rather than later would have no (adverse) financial consequences. While results indicated that respondents still preferred the earlier date, the prevalence of this preference depended on the source of the unexpected income. In Scenario 6, the two ways of obtaining the tickets are described as roughly equivalent. As in Scenario 1, one might try to offer a constrained optimization explanation for different choices in these problems, but it would be rather awkward. By contrast, different choices in the two versions of Scenario 7 (about the bottle of wine) can only be explained if one allows preferences to be defined on means-ends pairs. It appears that this is also the scenario in which demand characteristics are most pronounced;⁶ a respondent whose preferences do not depend on the origins of economic resources might come to generate such a dependency as a result of the question. On the other hand, the formulation of the two options in Scenario 7 implicitly explains the logic behind the economic assumption that resources are fungible. Hence, while the question asks respondents to come up with preferences between the two options, it can also generate a reverse demand characteristic, convincing respondents that the two options are equivalent. For this reason we only used one such question. Finally, Scenario 8 also described two choices intended to be economically similar, apart for time preference (i.e., a preference to buy the stereo system sooner rather than later). As in Scenarios 3 and 6, different choices in the two versions of this question can be explained in more than one way, but a preference for linkages between means and goals seems the most reasonable.

The Findings

In Question 1 we expected that using a beloved uncle’s money for buying a luxurious item will generate negative affect, that can be avoided by taking the loan as planned. This would mean that a higher proportion of respondents would choose option (a) in Version 1 than in Version 2. While this was the case in Study 1, we were surprised to find that Question 1 did not invoke significantly different reactions in Study 2. The main difference between the two studies appears to be in the response to Version 1 of Question 1. In Study 1, only 60% of the respondents predicted that they would use the bequest money to finance a trip, as compared to 78% of the respondents in Study 2 who predicted to make this choice. It is possible that the difference is due to the interpretation of the difference in the monetary sums by the two groups: the bequest is a higher amount than the requested

⁶ See a discussion of demand characteristics below.

loan. It might be the case that the students in the social sciences faculty interpreted the bequest as a different source of financing, whereas the students in the life science faculty tended to think that they are also free to spend more money on their trip. Study 3 exhibited a more pronounced difference than did study 2, but a typographical error in the questionnaire of Study 3 makes the results hard to interpret.

A similar analysis applies to Question 2. Its two versions involve bequests, but the degree of proximity of the deceased varies. We predicted that a lower proportion of respondents would use the bequest money for financing a party in Version 2 than in Version 1. The data seem to support this prediction. Whereas the difference between the two proportions is significant only in Study 2, the proportions are similar enough to suggest a robust phenomenon (68% and 59% in Study 1 vs. 72% and 57% in Study 2).

In Question 3 we expected that respondents will prefer to spend the windfall gain on the trip to the concentration camp if this gain is associated with the grandfather's suffering during the war. This type of preference might be due to several factors. First, respondents might prefer not to use the grandfather's compensation money for any other purpose. Second, respondents might prefer to use a state lottery prize on a happier occasion. Finally, there might be some preference for the "poetic justice" that will be done if the compensation money is spent on the trip, without any specific emotional response. Our expectations were confirmed by Study 1 but not by Study 2. Interestingly, in Study 2 respondents indicated a preference for an earlier trip less often than in Study 1, in both versions of the questions (94% and 81% in Study 1 vs. 60% and 63% in Study 2). While we have no explanation for this finding, we suspect that the two groups of students tended to interpret the question differently.

In the original version of Question 4 we contrasted preferences for using previously purchased tickets to a show when the companion changes unexpectedly. We predicted that a boy/girlfriend who initiated a break-up with the respondent would invoke a stronger emotional response than would a friend who simply canceled his/her trip to the country. The results were not significant. This might be due to opposing emotional reactions: using a ticket that was supposed to be used by the ex-boy/girlfriend may generate negative affect due to sorrow, loneliness, and longing, but it may also generate positive affect as a form of revenge, statement of independence, and so forth. In an attempt to elucidate these effects, we modified this question in Study 2. We focused on a case of a romantic break-up and made the alternate companion also a candidate for a romantic relationship. We also varied the buyer of the tickets. We predicted that respondents would hesitate to use tickets that their partner paid for than tickets that they bought themselves. This prediction was confirmed. As mentioned above, this pattern of preferences cannot be simply explained by preference for fairness,

because the buyer of the tickets was not compensated for them in any event. We also predicted that respondents would tend to use an ex-boy/girlfriend ticket as a form of revenge if he/she was responsible for the break-up (rather than the respondent). This prediction was not confirmed. Interestingly, when the respondents were responsible for the break-up, their responses were more extreme in both directions: buyers of the tickets seem to have felt that it was their right to use them, whereas recipients of tickets were particularly hesitant in using them. At this point we cannot but speculate about the exact mechanisms that are at work here. It does appear, however, that respondents are not indifferent to the way they obtained the tickets.

Question 5 was supposed to test whether negative affect generated by using a beggar's lost money will change the way this money is used. We predicted that people might feel uneasy about using money that they found for their own consumption (lunch), and would prefer to donate it. Importantly, we predicted that the proportion of people who experience such feelings would be higher if the money was lost to a beggar than to a rich person. This prediction was confirmed both in Study 2 and in Study 3.

Questions 6 and 7 were designed to test whether wrongdoing by a romantic partner might generate affective packages driven by vengeance. In Question 6 the tickets to the show were bought by the ex-boy/girlfriend. We predicted that, in case of wrongdoing, respondents would tend to use these tickets more than they would in case of a more neutral description of the break-up. This prediction was confirmed (54% vs. 30%). Question 7 differed from Question 6 in two respects. First, it was the respondent who presumably have bought the good (a bottle of wine). Second, the two options were *completely* identical if one were to sum up the resources used and the goods obtained. We predicted that, by similar reasoning to that of Question 6, there would be a greater tendency to use the bottle that was bought for the ex-boy/girlfriend with the new romantic partner, if the ex-boy/girlfriend had been unfaithful, as a form of vengeance, than if nothing is known about the break-up. To our surprise, the pattern of results was reversed (and nearly reached significance). It is possible that when the respondent imagined that she were the one who bought the bottle, the effect of revenge was minor. On the other hand, it is also possible that other factors, such as superstition, yielded the difference in responses. At any rate, respondents were not indifferent to the reasons for the break-up.

Finally, Question 8 attempted to test whether vengeance towards an employer can also generate affective packages. We expected that respondents who imagined that they had been maltreated would tend to use their company's money to buy the system, as a form of revenge, more than would respondents who imagined that they had been well treated. This prediction was confirmed. Most respondents expressed preference for waiting and buying the system a week later (without

withdrawing money from their savings account and re-investing money later) in both versions. However, among the presumably-maltreated respondents, more expressed preference for buying the system with their company's money than among the presumably well treated ones (89% as compared to 81%). Overall, Questions 6 and 8 indicate that affective packages can be generated also by emotions such as vengeance.

Emotions or Social Norms?

In many of our questions respondents were asked to choose between two options, one of which was clearly more convenient, or more in line with "economic rationality", such as avoiding an unnecessary loan, postponing a trip to a cash station, and so forth. In these questions we were attempting to invoke (the anticipation of) negative affective reactions that might dissuade people from choosing the more convenient alternative. For instance, sorrow over an uncle's death, or guilt over spending his money on a luxurious item he would not have afforded himself, might generate preference for the less convenient alternative of taking a loan and paying a high interest rate on it.

Emotions such as sorrow or guilt associated with a deceased uncle are socially acceptable emotions. Moreover, the perceived absence of such emotions is likely to be frowned upon. Imagine, for instance, that John used his uncle's money to buy the sporty car and that he mentions to a friend that he no longer needs the loan. Should the friend ask why, John might be a little embarrassed to admit that he used the uncle's money to buy the car. Anticipating this embarrassment, John might prefer to still take the loan. In this case, the linkage between means and ends has nothing to do with affective reaction, and it may be fully attributed to social norms.

However, the results of Study 3 indicate that social norms cannot be the only driving force behind our results. In this study we introduced several scenarios that might invoke envy, resentment, and might instigate vengeful acts. In these questions, acting on such emotions stands in conflict to standard "economic rationality". That is, the more convenient alternative would ignore these emotions. Choosing the less convenient alternative indicates that respondents are willing to bear some cost in order to vent their anger, seek revenge, and so forth. But these emotions are much less socially acceptable than is, say, guilt. Therefore, the choices that respondents predicted to make in Study 3 cannot be explained by following social norms. Whereas we believe that social norms might also generate means-goals linkages, we believe that affective reactions are a primary force in generating these linkages.

Demand Characteristics

The questions in our studies highlighted the different ways in which goods can be financed. Respondents were asked which economic resources they would use for given goals, suggesting that they might indeed have preferences over these matchings. One might wonder, do such preferences exist in consumers' minds, or are they simply an artifact of the fact that the questions were posed? Could it be the case that, in our studies, responses differed across different conditions without reflecting any real differences in economic behavior?

This problem is especially acute in Question 7, which frames an economically identical choice as two different pairs of affective packages. One might well argue that whatever preferences are reported in response to such a question, there is no evidence that they existed in any well defined sense prior to posing the question, or even that they would survive in the future. That is, Question 7 might introduce a rather weak preference between two options that were completely equivalent before it was posed. Observe that it is harder to make this case when Questions 1, 2, 4, and 5 are concerned. As mentioned above, in each of these questions there is one option that is clearly more convenient, which should be dominant by standard economic analysis. Expressing preference for the dominated choice in these problems indicates that predicted preferences for certain means-ends linkages are strong enough to overcome the economic argument. Still, it is not clear that such preferences existed a-priori. As mentioned above, this argument might also be reversed: a-priori preferences that have the potential to affect economic decision making might be revised in light of questions that indirectly point to the fact that affective packages might be re-packaged in different ways.

Demand characteristics are inherent to the self-report methodology. One may use cognitive measures in an attempt to establish the effects of affective packages independently of the study itself. For instance, one may measure how long it takes for a participant to respond to different completions of a given story. If, for example, respondents will take longer to read an ending to John's story in which he uses his grandfather's money to buy the car than they would to read an ending in which he takes the loan as planned, as compared to other surprising endings of other stories, one might infer that a distinction between different means-ends linkages exists in the respondent's mind prior to the study.

Conclusion

Overall, our results indicate that people do not treat all their economic resources identically. Rather, respondents in our studies expected to have preferences over different matchings between means and ends. This phenomenon stands in contrast to neo-classical economic theory, which

suggests that consumers will consider their total income, irrespective of its sources, and choose an optimal bundle that can be purchased with it.

Observe that our findings do not merely indicate that emotions affect consumer decisions. They suggest that affective reactions might generate preferences over the seemingly immaterial matchings between means and ends. For instance, in Question 1 the respondents were not asked whether they would cancel a trip to Paris because their uncle died. Rather, they were asked to assume that the trip will take place in any event, and were only asked *how* they would finance the trip should the uncle die, not *whether* they would take it. The fact that emotions affect consumer decisions is well known, and it is not a criticism of the constrained optimization paradigm. Specifically, by introducing a utility function that takes affective states into account, one may extend the constrained optimization paradigm to deal with situations in which different goods are valued differently due to affective reactions. By contrast, our findings do not fit the constrained optimization paradigm that nicely, because they suggest that the dichotomy between the feasible and the desirable, which is at the heart of constrained optimization, may not be entirely realistic.

4. General Discussion

Constrained optimization

The examples discussed above highlight those behavioral aspects of affective packaging that are at odds with standard economic models of rational choice. For instance, the means-ends linkage poses a substantial challenge to the constrained optimization paradigm. One might propose incorporating the emotional impact of such linkages into the bundle of products, and then defining the utility function correspondingly. But this would rob the constrained optimization paradigm of its beauty and potency: one would end up with a feasible set that lacks mathematical structures such as a topology, a measurable space, or linear operations. In such a model all one would be able to say is that, tautologically, the best alternative is chosen. But one would not be able to use any of the techniques or concepts of optimization to study the problem, to perform sensitivity analysis on it, and so forth. Moreover, in such a model one would also have to shed the conceptual dichotomy between the feasible and the desirable, since every option specifies not only an outcome but also the choice that led to it. Similarly, if an agent has preferences over control and responsibility, one cannot describe the “bundle” that she consumes without also specifying whether she has chosen it. In short, insisting on constrained optimization in these examples of affective packaging is hardly an option.⁷

Yet, affective packaging is not always an irrational phenomenon. For many decision problems, it may be an adaptive and efficient way to make reasonable choices. In particular, one may view the

⁷ In the words of the late Amos Tversky, “Theories are not refuted. They are embarrassed”.

paradigm of constrained optimization, which is sometimes considered to be the definition of rational behavior, as a special case of affective packaging.

Specifically, consider the standard neo-classical optimization problem of a consumer

$$\begin{array}{ll} \text{Max} & u(x) \\ \text{s.t.} & px=I \end{array}$$

where $x=(x_1, \dots, x_n)$ is the consumed bundle, $p=(p_1, \dots, p_n)$ is the price vector, and I is the consumer's income. The LaGrange approach yields the unconstrained optimization

$$\text{Max} \quad u(x) - \lambda[px-I]$$

where λ can be thought of as the “marginal utility of money”. It has already been noted by Marshall (1890) that one may view consumers as going about their business carrying in their mind the value of λ . When such a consumer faces a consumption opportunity for a product i , she compares the marginal utility of the product, u_i , to the marginal utility of its cost, λp_i , and decides to make a purchase only if the former exceeds the latter. In this way the consumer may eventually come to solve the optimization problem by making local decisions, and without having to visualize her whole bundle, let alone the entire feasible set.

The difference $u_i - \lambda p_i$ may be viewed as the net impact of the affective package of the decision to purchase product i . The first term denotes the positive affect generated by the product, whereas the second captures the pain involved in parting with one's money. This “pain” should be viewed as a proxy, within the local decision problem, for the need to solve the global one. Thus, affective packages that consist solely of the hedonic value of consumption and the shadow price of money have no substantial quarrel with economic theory. They simply offer a cognitively plausible, dynamic account of the process by which consumers come to maximize a utility function over a budget set.^{8 9}

Mental accounting

Tversky and Kahneman (1981, see also Kahneman and Tversky (1984)) and Thaler (1980, 1985) pointed out that money is often non-fungible. They suggested the concept of “mental

⁸ Some caveats are due. First, the local optimization process need not converge to a unique optimal point if the utility function is not concave. Second, Marshall also discusses the process of updating the shadow price λ , and the possibility that consumers will be, at least temporarily, off their budget constraint. But these issues are of secondary importance for our purpose here.

accounting” to explain why people might use money in a way that depends on its sources. For instance, people may spend more money on a fancy dinner if they received a large amount that is somehow related to entertainment for that evening (say, as compensation for a canceled show), than they would otherwise, despite the fact that the money can be used for whatever purpose they wish. Similarly, one may find it easier to forego a show if the tickets were received as a gift, as compared to a situation in which they were bought. Mental accounting is thus a cognitive process that generates links between means and goals.

Phenomena of mental accounting can often be viewed as consequences of affective packaging. For instance, one might feel guilty about spending a large sum of money on a dinner. But this guilt would be greatly attenuated if the money had been given with this particular use in mind. Nor would guilt be experienced if there were an “excuse” for spending the money, such as a birthday or an anniversary. Similarly, one may have negative affect resulting from having made a silly decision to buy tickets one ended up not using. Tickets that were given as a gift tend to be exempt from this negative reaction.

In many examples of mental accounting, the relevant affective reaction has to do with hypothetical generalizations, that is, with imagining that the decision to be taken will be repeated in many similar problems.¹⁰ For example, spending a large amount of money on luxurious items is often problematic only if it is perceived as a decision that might become a norm. Alternatively, one could argue that people always engage in hypothetical generalizations, but apply them to the decision problem as well as to their choices. Thus, one might not be troubled by the prospect of always squandering windfall profits, but one might be troubled by the prospect of spending the same amount out of one’s regular income. Similarly, one finds it easier to spend money on birthdays, anniversaries, and other occasions that are guaranteed not to recur too often, than to spend the same amounts on the same goods on “regular” days.

In the language of affective packages, these phenomena of mental accounting generate affect via imagination of future behavior. A single decision situation, including the means used and the ends pursued, is hypothetically generalized, or simply replicated, and the affective impact of this generalization enters the evaluation of the decision. But the notion of affective packaging goes beyond phenomena of mental accounting. For instance, the guilt that John might experience over using his uncle’s money for buying a luxurious car is an emotion that is generated directly from the means-goals link. It does not have to do with long-run financial concerns or with self-discipline, and

⁹ Gilboa and Schmeidler (1997) offer a dynamic model of consumer choices that also models prices as detracting from the utility of consumption.

¹⁰ See Gilboa and Gilboa-Schechtman (2000).

it is not an emotion that can be rationalized by economic or financial considerations. Moreover, it is an emotion about a single decision, and not about a hypothetical generalization thereof.

Coupling

Prelec and Loewenstein (1988) study consumer preferences over goods and over the ways to finance them. They analyze the impact of consumption at various time periods. For instance, they argue that the unpleasantness of pre-payment for a vacation is mitigated by the anticipation of the vacation. On the other hand, incurring debt for the same vacation will diminish future pleasure, as memories of the vacation will become tarnished by those of an outstanding debt. Indeed, they find that people prefer to borrow money for non-luxury and durable goods, and to save and pre-pay for luxurious goods. They explain their finding in terms of an elaborate model of mental accounting, in which they introduce *coupling* between means and goals, such as the debt and the dream vacation it finances.

The notion of coupling is very close to linkages between means and ends discussed above. Indeed, coupling may be viewed as a packaged decision, generating an affective package. Hence it appears that the model of Prelec and Loewenstein can be rephrased in the language of affective packages. We believe, however, that affective packages include a wider range of phenomena than does coupling. For instance, while coupling focuses on the roles of anticipation and of memory in hedonic reactions, it does not seem to deal explicitly with guilt over squandering a bequest, or with moral responsibility for having made a particular decision.

Framing

Affective packages might be viewed as a special type of framing effects (Tversky and Kahneman (1981)). In particular, consider the example of John buying a car in the introduction. We argued that John might like each of the decisions “invest your uncle’s money” and “take a loan to buy a new car”, while he would reject each of the decisions “buy a car with your uncle’s money” and “take a loan in order to invest the money”. It can be argued that the matchings between means and ends are merely “frames”. Indeed, as is the case with other framing effects, John might be convinced that the two pairs of decisions are actually equivalent. The non-fungibility of money is a result of a framing effect, and it may disappear if we were to expose John to a persuasive argument for the economic equivalence of the two pairs of decisions.

Viewed from this perspective, affective packages attempt to pinpoint the mechanism that drives a particular framing effect. Whereas framing effects can generally be generated by linguistic representations and by associative thinking, affective packages are generated by economic

transactions. Since every source of income has a story attached to it, one need not intentionally frame a decision in order for affective packages to be generated. Thus, affective packages might influence consumer behavior in a broad set of economic activities.

References

- Bazerman M. (1986), Judgment in Managerial Decision Making. New York: John Wiley and Sons.
- Brams S. (1997), "Game Theory and Emotions", Rationality and Society, 9: 91-124.
- Camerer, C. and M. Weber (1992), "Recent Developments in Modeling Preferences: Uncertainty and Ambiguity", Journal of Risk and Uncertainty, 5: 325-370.
- D'Amasio, A. (1994), Descartes' Error. New York: Putnam.
- Duesenberry, J. S. (1949), Income, Saving, and the Theory of Consumer Behavior. Cambridge, MA: Harvard University Press.
- Elster J. (1998), "Emotions and Economic Theory", Journal of Economic Literature, 36: 47-74.
- Foley, D. (1967), "Resource Allocation and the Public Sector", Yale Economic Essays, 7: 45-98.
- Forgas, J. P. (1991), "Mood Effects on Decision Making Strategies", Australian Journal of Psychology, 41: 197-214.
- Forgas, J. P. and G. H. Bower (1987), "Mood Effects on Person Perception Judgments", Journal of Personality and Social Psychology, 53: 53-60.
- Forgas, J. P. and G. H. Bower (1988), "Affect in Social Judgment", Australian Journal of Psychology, 40: 125-145.
- Frijda, N. H. (1986), The Emotions. Cambridge, England: Cambridge University Press.
- Gilboa, I. and E. Gilboa-Schechtman (2000), "Mental Accounting and the Absentminded Driver", in Collected Essays in Psychology and Economics, I. Brocas and J. D. Carillo (eds.). Oxford University Press, forthcoming.
- Gilboa, I. and D. Schmeidler (1997), "Cumulative Utility Consumer Theory", International Economic Review, 38: 737-761.
- Gilboa-Schechtman, E. and A. Ortony (1998), "Valence asymmetries in the recall and experience of emotions". Presented at the Annual Meeting of the International Society for Research on Emotions, Wuertzburg, Germany, August 1998.
- Harless, D. and C. Camerer (1994), "The Utility of Generalized Expected Utility Theories", Econometrica, 62: 1251-1289.
- Isen, A. M., K. A. Daubman, and G. P. Nowicki (1987), "Positive Affect facilitates Creative Problem Solving", Journal of Personality and Social Psychology, 52: 1122-1131.
- Isen, A. M. and N. Geva (1987), "The Influence of Positive Affect on Acceptable Level of Risk and Thoughts about Losing: The Person with the Larger Canoe has a Large Worry", Organizational Behavior and Human Decision Processes, 39: 145-154.

- Isen, A. M. and B. Means (1983), "The Influence of Positive Affect on Decision Making Strategy", Social Cognition, 2: 18-31.
- Kahneman, D. and D. T. Miller (1986), "Norm theory: Comparing Reality to its Alternatives", Psychological Review, 93, 136-153.
- Kahneman D., P. Slovic, and A. Tversky (1982) (Eds.) Judgment under Uncertainty: Heuristics and Biases. Cambridge and New York: Cambridge University Press.
- Kahneman, D. and A. Tversky (1984), "Choices, Values, and Frames", American Psychologist, 39: 341-350.
- Lewin, S. (1996), "Economics and Psychology: Lessons For Our Own Day From the Early Twentieth Century", Journal of Economic Literature, 34: 1293-1323.
- LeDoux, J.E. (1996), The Emotional Brain. New York: Simon and Schuster.
- Lewinsohn, S. and H. Mano (1993), "Multi-Attribute Choice and Affect: The Influence of Naturally Occurring and Manipulated Moods on Choice Processes", Journal of Behavioral Decision Making, 6: 33-51.
- Loewenstein, G. (1992), "The Fall and Rise of Psychological Explanation in the Economics of Intertemporal Choice". In G. Loewenstein and J. Elster (Eds.), Choice over Time (pp. 3-34). New York: Russell Sage.
- Loewenstein, G. (1996), "Out of Control: Visceral Influence on Behavior", Organizational Behavior and Human Decision Processes, 65: 272-292.
- Loomes G. and R. Sugden (1982), "Regret Theory: An Alternative Theory of Rational Choice under Uncertainty", Economic Journal, 92: 805-824.
- Mann, L. (1992), "Stress, Affect, and Risk Taking". In Yates, J. F. (Eds.): Risk Taking Behavior (pp. 202-230). Wiley Series in Human Performance and Cognition. Chichester: John Wiley and Sons.
- Mano, H. (1990), "Emotional States and Decision Making". In Goldberg, M., G. Gorn, and R. Pollay (Eds.), Advances in Consumer Research, 17: 577-584.
- Mano, H. (1992), "Judgment under Distress: Assessing the Role of Unpleasantness and Arousal in Judgment Formation", Organizational Behavior and Human Decision Processes, 52: 216-245.
- Marshall, A. (1890), Principles of Economics. London: Macmillan.
- Ortony, A., G. L. Clore, and A. Collins (1988), The Cognitive Structure of Emotions. New York: Cambridge University Press.
- Piatelli-Palmarini (1994), Inevitable Illusions: How Mistakes of Reason Rule Our Minds. New York: John Wiley and Sons.

- Prelec, D. and G. Loewenstein (1998), "The Red and the Black: Mental Accounting of Savings and Debt", Marketing Science, 17: 4-28.
- Rabin M. (1993), "Incorporating Fairness into Game Theory and Economics", American Economic Review, 83: 1281-1302.
- Rabin M. (1998), "Psychology and Economics", Journal of Economic Literature, 36: 11-46.
- Savage, L. J. (1951), "The Theory of Statistical Decision", Journal of the American Statistical Association, 46: 55-67.
- Schwarz, N. and G. L. Clore (1983), "Mood, Misattribution, and Judgments of Well-Being", Journal of Personality and Social Psychology, 45, 513-523.
- Shapiro, D., S. Schwartz, and A. Astin, (1996), "Controlling Ourselves, Controlling Our World: Psychology's Role in Understanding Positive and Negative Consequences of Seeking and Gaining Control", American Psychologist, 51: 1213-1230.
- Solomon R. (1993), The Passions. Indianapolis: Hackett.
- de Sousa, R. (1987), The Rationality of Emotions. Cambridge, MA: MIT Press.
- Thaler, R. H. (1980), "Toward a Positive Theory of Consumer Choice", Journal of Economic Behavior and Organization, 1: 39-60.
- Thaler, R. H. (1985), "Mental Accounting and Consumer Choice", Marketing Science, 4: 199-214.
- Thaler, R. H. (1992), The Winner's Curse: Paradoxes and Anomalies of Economic Life. Princeton: Princeton University Press.
- Thaler, R. H. (1994), Quasi Rational Economics. New York: Russell Sage Foundation.
- Tversky, A. and D. Kahneman (1974), "Judgment under Uncertainty: Heuristics and Biases", Science, 185: 1124-1131.
- Tversky, A. and D. Kahneman (1981), "The Framing of Decisions and the Psychology of Choice", Science, 211: 453-458.
- Veblen, T. (1899), The Theory of the Leisure Class. New York: MacMillan.