Two-Stage Prize Promotion Lotteries and the Timing of Prizes

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Abstract

A two-stage prize promotion campaign is a promotion wherein in the first stage the consumer who performs the desired action may win a “lottery ticket” and in the second stage some of the entries win prizes. We examine the effectiveness of two-stage prize promotions in three studies. In the first study, the promoted product is superior to the outside option. We find that the two-stage lottery is preferred to the one-stage lottery in that study, but both are deemed inferior to a no-lottery promotion. In the reverse scenario, where the outside option is preferred to the promoted product, the two-stage lottery produces far more pronounced improvements and is preferred to the no lottery option. A third study examines an Internet recruiting experiment. The environment in the third study is characterized by significantly larger prizes and longer periods between reinforcements. In that environment, the two-stage lottery increases the desired behavior by more than 50%.

Key Words: prize promotion; under-the-cap; experiments; learning

INTRODUCTION

Prize promotions have long been a popular marketing tool believed to be useful for generating brand "excitement," increasing brand awareness or re-awareness, and "skewing" a brand's usage towards a particular consumer subgroup. Despite their popularity, however, the effectiveness of prize promotions is not guaranteed. Prize promotion campaigns tend to involve relatively high administration costs, and their effect on consumer behavior seems to depend on many factors including product category (Chandon, Laurent and Wansink, 1997), timing, and distribution (Kalra and Shi, 2002; Blattberg and Neslin 1990; Ward and Hill 1991; Dhar, Gonzalez-Vallejo and Soman, 1995).

In an attempt to reduce the cost and the uncertainty associated with prize promotion campaigns, some firms use a two-stage lottery procedure. In the first stage, the consumer who performs the desired action (e.g., purchase of the product) may win a "lottery ticket" in the form of a number, a symbol, or a promise to be entered into a drawing. The second stage is played at later point in time when some of the entries win various prizes—typically large prizes.[1] One example is Pepsi's 2003 "Play for a Billion [Dollars] Sweepstakes." In that campaign some Pepsi caps contained a 10-digit number that was a lottery number for a prize of one billion dollars. Other under-the-cap sweepstakes campaigns have similarly relied on drawings to determine winners.

The main goal of the current research is to explore the behavioral effect of the two-stage-lottery procedure. Our interest in this effect stems from two observations. First, in many natural settings the move from one-stage to two-stage procedures is relatively easy. Thus, better understanding of this effect can be applied. Second, an investigation into the effect of two-stage lotteries can shed light on the relationship between important psychological concepts. A review of the relevant behavioral research reveals that known regularities can be used to reach different conclusions with regard to the expected effect of this procedure. Basic research illustrates that consumers are more sensitive to immediate than to delayed reinforcements (e.g., Peter and Nord, 1982;

[1] This two-stage procedure is expected to reduce cost when it eliminates the need to monitor workers and/or distributors who might try to discover the big prizes (if they are marked under the cap) before the products reach the consumers. In addition, this procedure can increase the control on the number of prizes to be

Meyers-Levy and Maheswaran, 1992). Under one generalization of this regularity, the delayed realization of the two-stage lottery is expected to adversely affect the success of the prize campaign. However, if the unrealized lotteries can serve as secondary reinforcements, the firm may be able to increase the frequency[2] with which consumers receive reinforcements. Secondary reinforcements (e.g., Sen and Johnson, 1997; for overview see Mazur, 1994) are often effective prior to receipt of the actual reward. The ability to use lotteries as secondary reinforcements is important in light of findings that low probability events are typically underweighted in repeated decisions with immediate feedback (Barron & Erev, 2003), but are typically overweighted in the evaluation of prospects (Khaneman & Tversky, 1979; Diamond, 1988). These results can be used to hypothesize a positive effect of the two-stage procedure: The delay of the second stage can increase the effect of the low probability prizes.

In this article we report three experimental studies that evaluate the behavioral effect of the two-stage lottery procedure. The first two studies involve laboratory experiments that evaluate abstract choice problems. The results show that a simplified two-stage lottery can increase the attractiveness of the rewarded option. The third study is a three-month long internet experiment, with two prize schemes designed to attract visitors to a web site. The results of this study demonstrate that the two-stage lottery procedure increases the number of a web site visits by more than 50%.

Contradicting predictions

Five robust psychological principles are likely to drive the effect of lottery-based prize promotions. The first principle is the *underweighting of delayed outcomes*. This principle is implied by the Law of Effect (Thorndike, 1898), which states that decision makers tend to respond in an adaptive fashion to immediate feedback. The importance of the immediacy of feedback led Herrnestein, Lowenstein, Prelec, and Vaughan (1993) to abstract this regularity as melioration: an attempt to maximize immediate payoffs.[3]

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distributed. By incorporating a second-stage drawing the company can ensure that it awards as many prizes as it wishes to award.

[2] Increased frequency of reinforcement has been show to increase promotion effectiveness (e.g., Berger and Mitchell, 1989; Alba, Broniarczyk, Shimp and Urbany, 1994)). However, there are instances where higher frequency may be detrminetal to promotion effectiveness (Gupta and Cooper, 1992; Alba et al., 1999).

A second relevant principle is *the sensitivity to secondary reinforcement* (see review in Mazur, 1994). Studies of human behavior show that the reinforcing value of a lottery ticket that gives a probability for a future consequential outcome is close to the expected value of the ticket. In a recent study, Perry, Erev and Haruvy (2002) observed that the effect of paying decision-makers with unresolved lotteries is similar to the effect of immediate payoff that is equal to the expected value of the lottery.

A third principle is *underweighting of rare events* in decisions from experience. Barron and Erev (2003) showed that in repeated decisions with immediate feedback decision makers tend to prefer the alternative that provides the best outcomes most of the time. When this alternative has low expected return, experience can move decision-makers away from maximization. For example, the average participant in Barron and Erev's study learned (over 400 trials with immediate feedback) to prefer "3 with certainty" over the gamble "32 with probability 0.1 and 0 otherwise."

The fourth relevant principle is *overweighting of small probabilities* during the evaluation of prospects, as implied by Prospect Theory (Khaneman and Tversky, 1979; also see Diamond, 1988). The fifth principle is *anticipation* (Loewenstein, 1987) that implies that subjects would cherish delayed prizes since the delay would allow them to savor the positive feeling longer.

Of the five principles, only the first—*underweighting of delayed outcomes*—predicts that two-stage lotteries will not be effective due to the delayed nature of the final prize. All the rest—sensitivity to secondary reinforcements, underweighting of rare events, overweighting of small probabilities,[4] and anticipation—would point in favor of two-stage lotteries.

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[3] There are two other related research streams that imply underweighting of delayed outcomes. The first is the literature on time preferences and impatience (e.g., Hoch and Lowenstein, 1991). In that literature, people prefer to receive a product or service earlier rather than later. A second research stream shows that people do not like waiting when time has an opportunity cost (e.g., Leclerc et al., 1995; Hui et al., 1998), as in waiting in line (Leclerc et al. 1995) or waiting for a computer to process a transaction (Hui et al., 1998). We approach the problem from a reinforcement learning angle. That is, we rely on a body of literature that shows that when reinforcements are delayed, learning is drastically hampered (Walters, 1964; Mowrer and Ullman, 1945; Banks and Vogel-Sprott, 1965; Cohen, 1968; Kamin, 1959). Although they approach delay from different angles, all these different research streams would suggest that delay is not desirable in promotions.

[4] It is important to stress that overweighting of small probabilities and underweighting of rare events are complementary rather than contradictory principles. The former refers to the perception of lotteries whereas the latter refers to learning from experience.

In order to understand the implications of these behavioral principles it is constructive to consider a simplified environment. Assume that the consumer can select between two alternatives: "OUTSIDE OPTION" (a substitute or competing brand) or "BUY". Assume that in the absence of prizes, the consumer gains one money-equivalent unit from each outside option choice and nothing from a BUY choice (all the surplus is extracted in the price charged by the retailer). Thus, the manufacturer is motivated to change the customer's incentive structure by reinforcing BUY choices with prizes. The expected prize must be greater than the consumer's opportunity cost yet smaller than the firm's expected gain from the campaign. The firm in this model has the ability to reinforce BUY choice with immediate prizes or with lottery prizes—by providing a chance of winning a future large prize. Assume that the firm cannot affect the prize distribution but can select among two prize systems: (1) Two-stage lotteries-- immediate and frequently obtained lottery tickets that are received at the time of purchase with probability p and signal a second-stage prize with probability q. (2) Large infrequent immediate prizes that are obtained with probability (p)(q).

Under the assumption that consumers display the above five behavioral regularities, the optimal strategy depends on the relative importance of the different regularities. If underweighting of delayed outcomes dominates, immediate prizes should be preferred. However, if the other regularities are more important, the two-stage lottery is likely to be more effective. Under these regularities, the unrealized lotteries obtained in the first part of the two-stage procedure will be highly effective secondary reinforcers: Underweighting of rare events will not impair the value of these reinfocers if the probability p is high enough, and overweighting of small probabilities during the evaluation and anticipation will enhance their effect.

STUDY 1

Method

Procedure. The experiment included 400 trials. In each trial the participants were asked to select between two virtual buttons (Left and Right) on a computer screen. The participants were informed that their goal is to maximize earnings, and that each button was associated with a payoff distribution. The payoff distributions were described in words: Option Left (OUTSIDE OPTION) was described as an equal chance to win 2 or 3. Option Right (BUY) was described as two independent gambles. The first implies an equal chance to win 1 or 2, and the second implies a 0.01 probability to win 200 (and 0 otherwise). The conversion rate of the experimental units (tokens) was 40 tokens = 1 Shekel = $0.25.

After each choice the participant received immediate feedback that appeared on the selected button. In addition, the number of tokens earned in a given round was added to the cumulative payoffs displayed at the bottom of the screen. The exact feedback concerning the 200 token gamble depended on the experimental condition:

In the one-stage condition, the 200 tokens lottery was played after each BUY choice. The outcome was immediately revealed to the participant following the choice and added to the total payoff.

In the two-stage condition, the participants were informed that the 200 tokens lottery implied by a BUY choice would be played in two stages. In the first, they would have a probability of 1/3 to win a lottery ticket that would in turn pay 200 tokens with probability 0.03 at the end of the experiment. Each win was signaled with the presentation of a yellow smiley face on the computer screen for 1 second. Notice that this condition implies $p = 1/3$, $q = 3/100$, and $(p)(q)=0.01$.

Condition one-stage with smiley was a control condition designed to control for a potential "smiley effect." This condition was identical to condition "one-stage" with the exception that a yellow smiley face was presented following BUY choices with probability 1/3. The presentation of the smiley was not correlated with the outcome of the selected lottery. Both types of feedback (the "uninformative" smiley and the monetary outcome of the selected lottery) were presented in parallel.

Participants. Twenty-five undergraduate engineering students participated in each of two immediate monetary incentive schemes ("one-stage" and "one-stage with smiley"). Fifty subjects participated in the "two-stage" condition.

Results

Figure 1 presents the proportion of BUY choices in eight blocks of 50 trials. The X-axis represents time periods. Over the 400 trials the addition of the informative smiley increased the rate of BUY choices from 45% (in the one-stage conditions) to 55% (in the two-stage condition) ($t[98] = 1.759$, $p < .05$ one-tail)[5]. The difference between the two one-shot conditions was insignificant ($t[48] = 0.174$, $p = 0.86$). This suggests that the appearance of the yellow smiley face did not alter their behavior when that smiley face was not indicative of a future lottery that would affect monetary rewards.

<Insert Figure 1>

Whereas the results show an advantage of the two-stage over one-stage lottery procedure, they also show that in the current setting both procedures are not very effective. The two-stage procedure increased the proportion of BUY choices to a mere 55%, which is not impressive given that the promoted product was associated with higher expected payoff. When the promoted product maximizes payoff, it is easy to find more effective procedures. For example, consider an “insurance policy” that ensures a net payoff of 3.1 from each BUY choice. This procedure is less costly to the seller and expected to lead to almost 100% BUY choices. In other words, the current analysis suggests that when the promoted product is the superior option, a lottery-based promotion may not be optimal. Study 2 examines an environment when the promoted product is inferior to the outside alternative.

STUDY 2

The main goal of study 2 is to examine the value of the two-stage procedure in an environment in which the seller cannot afford to offer prizes high enough to make the promoted product objectively attractive. Specifically, Study 2 focuses on a situation in which the value of the outside option is 1, and the expected value of the promoted option (from a BUY choice) is 0.9.

In addition, Study 2 explores the effect of the probability (p) to win the lottery ticket. Three conditions are compared: $p = 1$, $p = 1/3$, and a No Lottery condition. The three conditions differed with respect to the outcomes of the BUY choice. In the first two

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[5] If we were to ignore decision makers who never change their behavior in response to feedback the significance would increase (p-value < 0.02).

conditions (the lottery conditions), each BUY choice was associated with a prize of 90 tokens with probability 0.01 and 0 otherwise. Thus, and the probability of winning the prize (p)(q) was 0.01. The sole difference between these conditions was the value of p (that implies the value of q). The third condition—No Lottery-- can serve as a benchmark for the first two conditions. Each BUY choice in the No Lottery condition yielded a sure payoff of 0.9 tokens.

A comparison of these conditions is potentially interesting because it can shed light on the psychological process behind the advantage of the two-stage procedure. A possible explanation for the advantage of the two-stage procedure in Study 1 is that it arises from the subjective value of the unrealized lotteries being larger than their expected value. This explanation is consistent with overweighting of small probabilities during the evaluation of prospects (as implied by certain interpretations of Prospect Theory, Khaneman & Tversky, 1979), or from anticipation (see Loewenstein, 1987). Under these hypotheses, the BUY option will be highly attractive even when p = 1.

According to a second interpretation, the advantage of the two-stage procedure in Study 1 is driven by the fact that winning the ticket was reinforcing. This hypothesis suggests higher proportion of BUY choices in condition p = 1/3 than in condition p=1.

Method

Procedure. As in Study 1, the participants of Study 2 played a computerized game in which they were asked to make 400 binary choices. One of the alternatives (the OUTSIDE OPTION) always offered a sure payoff of 1 token. The payoff associated with the second alternative (BUY) depended on the experimental condition. In condition p=1 each BUY choice yielded a lottery ticket that would in turn pay 90 tokens with probability 0.01 and 0 otherwise. In condition p = 1/3, only 1/3 of the BUY choices were reinforced with a lottery ticket. The ticket promised a payoff of 90 tokens with probability 0.03 and 0 otherwise. Finally, in the No Lottery condition, the BUY option yielded a sure payoff of 0.9 tokens.

The participants received limited prior information concerning the possible payoffs. They were told that in each choice they could win tokens or lottery tickets to be played at the end of the experiment. The distribution implied by each lottery ticket (90 tokens with probability q; 0 otherwise) was described, but the probability p of winning the lottery and the distribution of immediate token earnings were not presented. The participants could learn these parameters from the feedback they received after each trial.

Participants. Thirty undergraduate engineering students participated in each of two lottery conditions. Fourteen subjects participated in the No Lottery condition.

Results

Figure 2 presents the proportion of BUY choices in eight blocks of 50 trials. The X-axis represents time periods. The results reveal relatively high proportions of BUY choices in the two lottery conditions. Over the 400 trials the proportion of BUY choices in these conditions (0.38 in p=1/3 and 0.36 in p=1) is larger than the proportion of BUY choices in condition No Lottery (0.075) and this difference is statistically significant ($t[42] = 3.77$ in p=1/3 and 3.7 in p=1, $p < 0.001$). Without the lottery the participants learn to avoid the inferior option.

<Insert Figure 2>

In the first block, the proportion of BUY choice was highest in condition p=1, but experience reversed this pattern. In condition p=1/3 the two-stage procedure prevented learning toward maximization. The choice rate of the promoted low expected value product did not decrease with experience. The difference between the two lottery conditions in the linear time trend (the time by condition interaction) is significant ($t[58] = 2.5$, $p <. 05$). This interaction suggests that there may be more than one contributor to the effect of the two-stage procedure. It seems that some subjects behave as if the lottery is more reinforcing than its expected value. However, the decline in the proportion of BUY choices in Condition p =1 implies that the effect of this tendency diminishes with experience. The stable rate of BUY choices in condition p=1/3 suggests that the value of winning the lottery is more robust.

STUDY 3

An attempt to generalize the results of Studies 1 and 2 to address consumer behavior outside the laboratory can be criticized on two main grounds. First, the tasks examined in these studies are abstract with small payoffs and little time between repeated decisions. It is possible that when the decisions are more consequential and the time horizon is longer, different behavior could emerge. A second criticism relates to the weak manipulation of time delay. In Studies 1 and 2, the unrealized "delayed" lotteries were played at the end of the experimental session. Since all points were not converted to money earlier, it can be argued that the participants did not view this timing as a "delayed." Moreover, in the two-stage conditions the participant had only one experience with playing the lotteries. It is possible that the effect is eliminated after the first experience. Study 3 was designed to address these issues. It studies decisions on the Internet when the participants have enough free time, the second stage lotteries are delayed to the end of the month, and the participants gain three months of experience.

Method

Procedure. Recruitment posters around campus invited subjects to visit a web site used by one of the researchers for the purpose of recruitment for experiments. Instead of the web site's address, the poster only listed an email address. Upon sending an email, a subject was given a web address that corresponded to one of two conditions – immediate or delayed. Upon logging in, subjects were told that experiments would run in the coming weeks[6] and were asked to log in daily to check for recruitment announcements. They were further told that as an added incentive they would be eligible to enter a drawing for $100 once a day (and no more than once a day). Each log on resulted in a chance of 1/250 to win $100. Chances were independent of each other and other subjects. Under the one-stage condition subjects were told instantly of the outcome of the lottery. In the two-stage condition, with probability 1/3, subjects were told they had won a lottery ticket that

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[6] These experiments were not announced on any other forum. Two studies with two sessions each were conducted during that period. Each subject was only allowed participation in one session per study. Hence, subjects could have participated in two paid experimental sessions during the duration of the present study. All sessions were opened to subjects in both conditions.

would give them the prize money of $100 at the end of the month with probability of 1 in 83.33. The experiment lasted 90 days, beginning on July 3, 2002 and terminating on September 30, 2002.

In both conditions, subjects saw the following message upon visiting the site: “Welcome to the Experiment Registration Page. What do you need to do to get paid? Occasionally researchers will post studies on this web page. You will need to log in to the studies page as often as you can to find out about studies. To encourage you to check this web site often, we are offering prize money! Every day you log in, you may win $100. One in 250 logins will win $100. Winnings are independent of each other, so if you log in today and win the $100 prize, this will not affect you chance of winning $100 again tomorrow. To log in, you simply need to provide your name and email.”

Upon entering their name and email in the appropriate textbox, subjects observed the response, which was “sorry, you did not win this time” or, depending on the condition, either a lottery ticket or an immediate prize announcement.

Participants. Though the experiment did not allow more than one log in per day by the same individual (same name or email address), some people managed to log in more than once a day by slightly changing their names and email addresses. Before analyzing the data we eliminate such fraudulent entries. A total of 117 subjects participated in the recruitment experiment. Of these subjects, 64 were in the two-stage condition and 53 were in the one-stage condition. The subjects were all students, and predominantly undergraduates.

Results

Figure 3 presents the main experimental results: The proportion of entries by day in the two conditions. Over the 90 days the average participants entered 6.81 times (STD = 8.33) in the one-stage condition and 11.64 (STD = 15.17) in the two-stage condition. The difference between the two conditions is significant ($t[115] = -2.07$, $p < .05$). The advantage of the two-stage procedure appears to be robust over time.

<Insert Figure 3>

Figure 4 presents the Kaplan-Meier curves--a common method to describe survival characteristics-- for the two conditions. Since different subjects' first visit to the site may have been on different days, we start counting the survival duration only from the date of the first visit of each subject.

<Insert Figure 4>

We record the last visit date for each subject. This date is the "termination date" for the subject's participation. Though it is possible that the subject might have returned at a later date (if the experiment had lasted a longer period), we must maintain this assumption to arrive at survival graphs. This assumption is not unreasonable in light of the fact that only one subject kept visiting the site until the end of the study.

The survival graphs provide insight into the shape of the survival function for each condition. The top curve represents the survival function of the two-stage lottery condition and the bottom curve represents the survival function of the one-stage lottery condition. No subject survived past 71 days. The one subject who survived 71 days was the only subject who survived until the last day of the experiment. The last month of the experiment contained no experiments, with the last experiment taking place on August 26, 2003. Presumably, subjects were discouraged by the lack of experiments and stopped visiting. The Kaplan-Meier curves reveal that the stark difference between the conditions occurred between 20 and 50 days into the subjects' visiting duration. In that duration interval, subjects in two-stage lottery condition were more than 50% as likely to survive. For example, 37.5% of the two-stage lottery subjects survived past 20 days. In contrast, only 24.5% of the one-stage lottery subjects survived past 20 days.

The immediate benefit of the above experiment was in the improvement of our recruitment methods. With identical effort and cost, we are now able to improve our reach to potential experimental subjects by over 71%. In light of the insight reviewed earlier in the article—that subjects treat the first-stage lottery tickets as reinforcement—the direction of this finding should not be surprising. The more frequent reinforcements result in more repetitions of the desired response, even though the expected monetary reward remains the same.

CONCLUSIONS

In this article we reported three studies that explored the behavioral effect of promotion campaigns that use a two-stage lottery procedure. Study 1 showed that the two-stage procedure outperforms the one-stage procedure when the promoted product is superior, but both procedures yielded unimpressive improvements in the buying rate. Study 2 showed that when the alternative option is objectively preferred to the promoted product, the two-stage procedure yields a dramatic improvement. Study 3 was intended to test the robustness of the previous findings to settings with substantial stakes and longer time periods between reinforcements. In that study, we examined web recruiting of subjects—with two-stage lottery (delayed prizes) or one-stage lottery (immediate) prizes. We found that the delayed realization condition outperforms the immediate prize realization condition.

We believe that the current results have clear direct implications to marketers of prize promotions, and potentially broader implications. The direct implications can be summarized with two assertions: (1) Lottery tickets can serve as effective reinforcers. This implication is crucial since many promotions find it unfeasible to offer immediate prizes. This is especially true when the prize is large. (2) Using a two-stage design, in which the participant first draws a lottery ticket and later on draws the actual prize, may prove superior to a one-stage design due to the more frequent reinforcement. With a two-stage design, frequent lottery tickets serve as reinforcements. The alternative one-stage design would result in immediate but rare prizes. With rare positive reinforcements, desired behavior may become extinct before the rewards are realized.

For practitioners, the findings of this paper could assist in balancing the need for meaningful and memorable prizes with the need for immediate and frequent reinforcement. The requirement for excitement and memorable prizes calls for large prizes such as the recent Coca Cola-Minute-Maid campaign where grand prize was a family trip for four to London, Pepsi's prizes of trips to concerts and events, and Mountain Dew's prize of a home theater system. The advantage of such prizes is that they are appropriate to the target demographic, create excitement, are simple to communicate and advertise, and are easy to co-promote. The disadvantage is that they are not likely to be effective as reinforcement devices since consumers are not very likely to win them. Reinforcement learning studies have consistently demonstrated that actions that are immediately and frequently positively reinforced increase in frequency, whereas actions that are negatively reinforced or not reinforced eventually become extinct. The present study suggests that companies could focus on large prizes while allowing for frequent reinforcements by breaking up the prizes into many and frequently received "lottery ticket" equivalents that provide a chance to win at a later drawing.

Another application involves web promotions. Several companies (Blockbuster, Sprite, Pepsi, ETrade) have attempted to maximize visits to their web sites (where they can advertise, sell, and collect personal information and clickstream data). These companies have devised various incentives to get consumers to come to their web sites. As our web experiment suggest, web visits may be far more frequent with a two-stage lottery than with the one-stage lottery.

The more general implications of the current analysis can be derived under the assertion that prize promotion is only one of many situations in which the two-stage procedure can be used. One important example involves optimal compensation. When firms decide to reward desired behavior of workers with bonuses, the rewards may look (to the workers) like lottery incentives. That is, only small part of the desired behaviors can be detected and reinforced. It is therefore possible that a two-stage procedure would be relevant. We hope that generalizations of the current analysis can shed light on a broad set of situations.

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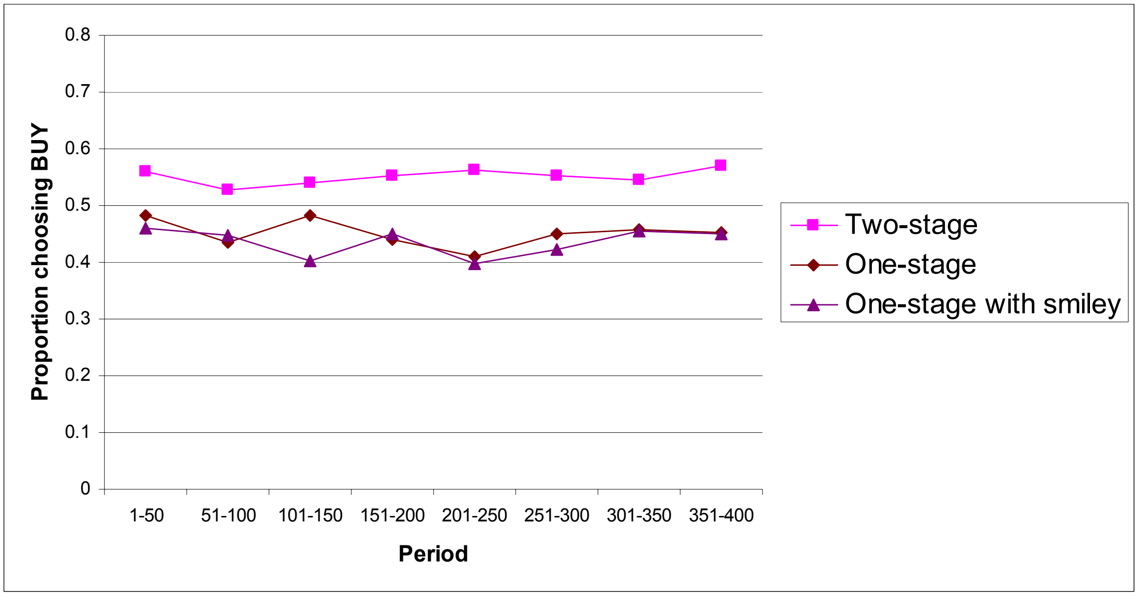
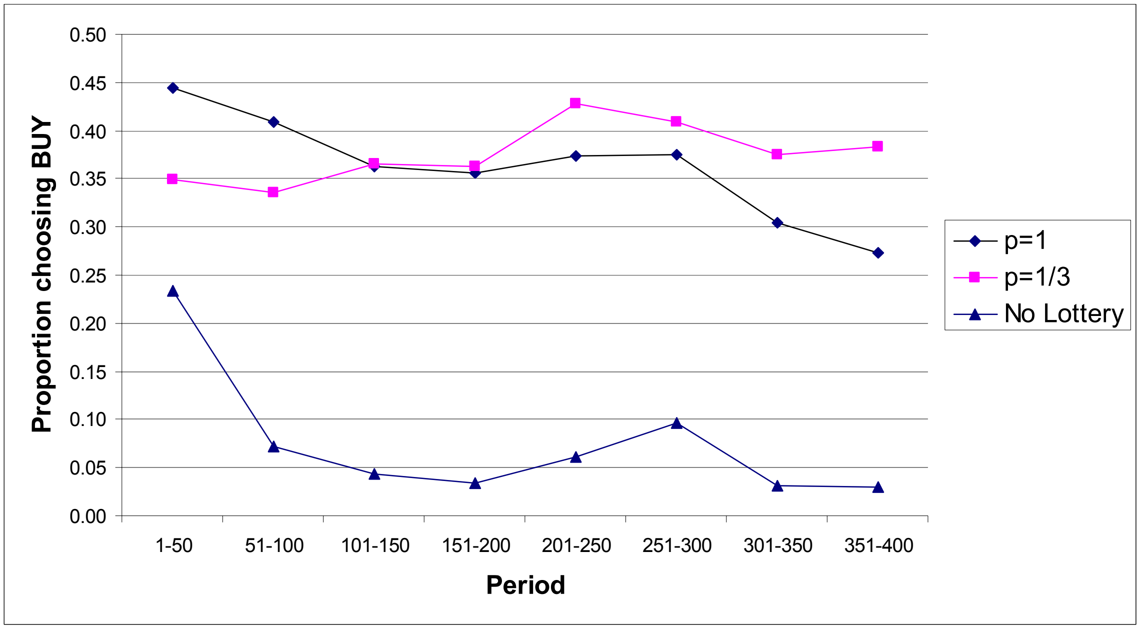
Figure 1. Proportion of BUY choices in Study 1 as a function of condition and time (in 8 blocks of 50 trials each). The objective payoff distributions are presented below the graph.



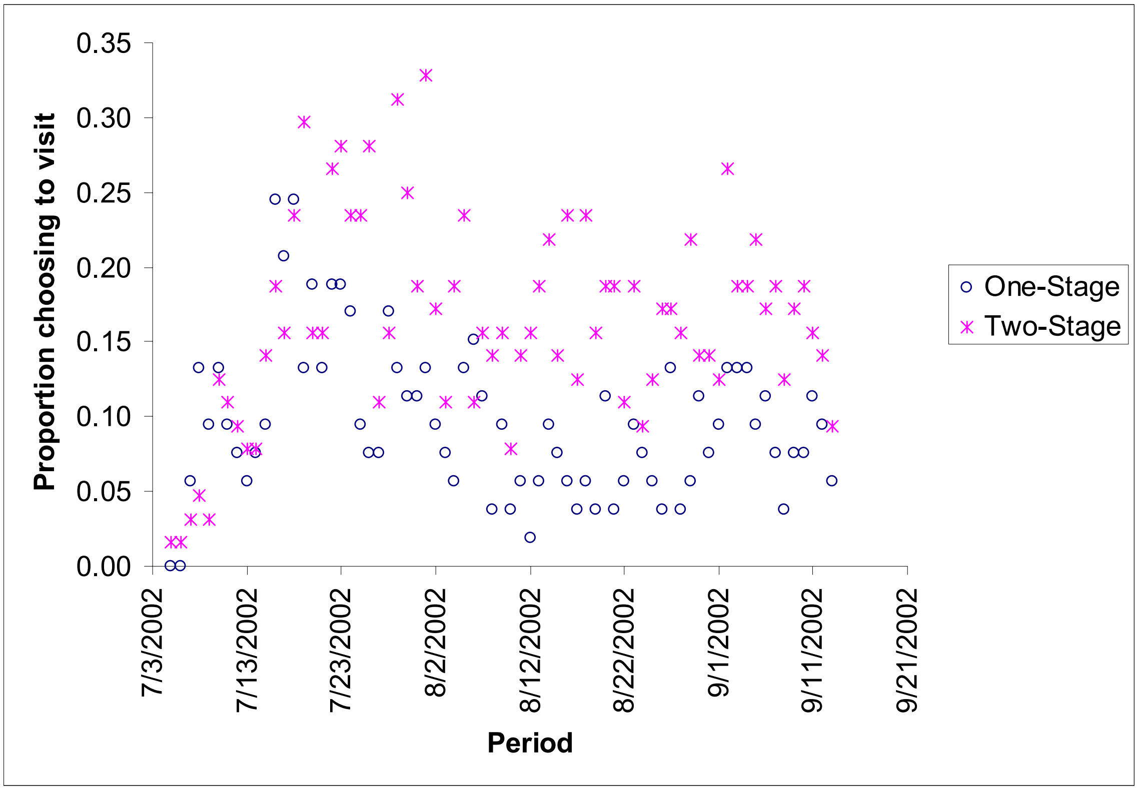
Choice	Basic payoff	Large prize (additional lottery)
BUY	2 with prob. 0.5; 1 otherwise	200 with prob. 0.01; 0 otherwise
OUTSIDE	3 with prob. 0.5; 2 otherwise	0

Figure 2. Proportion of BUY choices in Study 2 as a function of condition and time (in 8 blocks of 50 trials each). The objective payoff distributions are presented below the graph.



Condition	Choice	Basic payoff	Large prize (additional lottery)
p=1/3 and p=1	BUY	0	90 with prob. 0.01 (p×q=0.01); 0 otherwise
	OUTSIDE	1	0
No Lottery	BUY	0.9	0
	OUTSIDE	1	0

Figure 3. Proportion of visits to the web site in Study as a function of condition and time. The objective payoff distributions are presented below the graph.



Choice	Basic payoff	Large prize (additional lottery)
Visit	Waste time	100 with prob. 1/250; 0 otherwise
Not Visit	Not waste time	0

Figure 3 The survival curves for the two conditions in Study 3. Each curve shows the proportion of subjects who have not yet stopped visiting by each date.