(Poor) Seeing is Believing:

When Direct Experience Impairs Product Promotion

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Marketing tools that enable pre-purchase experience (e.g., product trials, sampling) are considered efficient means of reducing uncertainty and increasing demand for unfamiliar products. It is widely agreed that having more information improves the quality of choice, so demonstrations, sampling, and other experience-generating marketing tools are expected to increase consumers' welfare. The current paper challenges this concept by suggesting that experiencing some product types for a limited time might provide unrepresentative information, and thus might result in suboptimal choices. In three experiments, we evaluated the effect of potentially unrepresentative experience on consumer product acceptance. The results show that while experiencing products affects consumers even when it provides little information, the effect might be positive or negative, depending on the product value distribution. Specifically, short experience with the product increases the appeal of negatively skewed products, which appear appealing after a short, yet unrepresentative experience. Yet short experience impairs the appeal of positively skewed products, which appear unappealing given short or low-intensity experience. This pattern emerges even though the most likely result of a given sample is not a good predictor of the expected utility of the product. Theoretical and practical implications are discussed.

Keywords: demonstration; learning; product pre-purchase experience; sampling

1 Introduction

Demonstrations of durable products, samples of consumable products, and free trials in services aim to reduce pre-purchase uncertainty by providing consumers with experiential information (Urban et al. 1990). Pre-purchase product experience is assumed to facilitate learning about the benefits of competing products (Hahn 2005) and brand fit to consumer needs (Kuksov and Lin 2010). The resulting lower uncertainty shifts up demand, unless a greater number of consumers learn that the product does not fit their need than learn that it does (Sun 2011; Halbheer et al. 2013).

In some cases, provision of pre-purchase trials entirely resolves the uncertainty the consumer initially faces (Cheng and Tang 2010), e.g., sampling a new yogurt reveals its taste. Yet, in other cases, experiencing an unfamiliar product may reveal only partial information about its quality. Examples may include test driving, trying new complex software, and even sampling a lottery (e.g., trying a slot machine).

It is commonly assumed that pre-purchase product experience improves consumer's decisions even when it does not provide perfect information (Heiman and Muller, 1996; Heiman and Ofir, 2010). Experience is assumed to decrease the gap between consumers' prior perceptions and products' actual value (Kopalle and Lehmann 2006), in a manner consistent with Bayesian updating (Meyer and Sathi 1985; Roberts and Urban 1988; Erdem and Keane 1996; Cheng and Liu 2012). Thus, the more intense the product experience, the lower the unresolved uncertainty about its value. The posterior perceived benefits of the product are typically assumed to represent symmetric distribution (such as uniform Hahn 2005 or log-normal distribution, Roberts and Urban 1988). This assumption implies that product experience can only improve the quality of choice.

In this paper, we suggest that limited pre-purchase experience does not always improve consumers' choices or accelerate sales, and in certain cases it might result with the opposite

effects. For example, consider a consumer who deliberates between purchasing a car that is sporty but not very comfortable and one that has the opposite features (Carmon et al. 2003). The sporty car is likely to demonstrate its road performance quality primarily under conditions that involve wide or windy roads and low traffic. Yet, test drives typically take place in conditions involving heavy traffic and limited road space. Thus, the short experience of the sporty car might be disappointing, and fail to show the car's real value. In contrast, the more comfortable but less sporty car is likely to benefit from a product trial since its positive value (i.e., comfort) tends to show under such typical conditions. Yet, after purchasing the comfortable car, the consumer might find its performance in atypical conditions (e.g., wide open road) somewhat disappointing. Once again, the product experience might not fully reflect the product's true value. The cars example highlights a core aspect of this paper: many products are associated with a rich universe of diversified experiences, which depends not only on the product's features but also on their fit to consumer's idiosyncratic needs and to the environment in which they are tested. The car's experience depends on its own characteristics but also on their fit to specific driving conditions (weather, road, traffic etc.), which are out of the driver's control and are drawn randomly from some distribution that defines the universe of potential experiences.

Since the trial experience depends on exogenous variables (e.g., road and traffic conditions), the marketer may try to control the environment of non-standard products demonstrations to the greatest extent possible. Indeed, companies like Porsche and Land Rover restrict the randomness of the experiences in which their product is evaluated. Porsche's "on-road" circuit experience, for example, let consumers drive a racing road designed by the company and only after receiving professional instruction. On the other hand, new services, such as Tred, offer test drives for a variety of cars at a location and time determined by the consumer. As this example illustrates many product experiences are outside the marketer's control. Cars are brought to prospective buyers' home/work and taken for a fifteen-mile test-

drive. Such services, which are provided by third party, imply that the marketer loses control over the test-drive conditions. We suggest that in these particular cases, product trials might be misleading.

Our analysis is based on the abstraction of each product trial as an independent random draw from a "product value distribution". We distinguish between three main product categories according to the skewness of their value distribution (see Table 1). The type of the skewed outcome distribution is used to predict exactly when product experience facilitates overestimation of its value (negatively skewed distributions), and when it leads to underestimation of product's value (positively skewed distributions).

< Insert Table 1 >

Consumers trying a negatively-skewed product value distribution (top row of Table 1) are likely to prefer that product since it's typical (modal) experience yields a better value than its actual Expected Value (EV). The comfortable car, which fits the typical driving conditions but might fail in unusual conditions, is an example of the negative value distribution product class. On the other hand, trying a positively skewed product leads to underappreciation of its value since its typical (modal) performance yields a lower benefit than its actual worth (EV – see second row of Table 1). Experiencing a sporty car, which might not show its advantages in typical driving conditions but is highly valuable in less typical conditions, demonstrates the positively skewed type of product-experience. The bottom row of Table 1 presents the third category, which includes "non-skewed" products. These products are associated with a symmetric value distribution that even limited experience would reveal its true value, even though it may not resolve the uncertainty. This paper is mainly focused on the first two product types that are associated with either negatively or positively skewed value distributions. For conciseness we refer to them as negatively and positively skewed products.

We hypothesize that under the lure of direct product experience, consumers fail to acknowledge that their experience might be unrepresentative, even when they are given descriptive information to the contrary. This implies, counterintuitively, that experience may increase purchases of negatively skewed products, but might also be counterproductive and reduce purchases of positively skewed products.

The following sections provide a more detailed analysis of the effect of experience on product acceptance. In Section 2 we discuss the nature of learning from firsthand experience and construct the research hypotheses. Sections 3-5 present three experiments that test the effect of sampling on purchasing positively and negatively skewed products. Section 6 concludes with a discussion of the theoretical and practical implications of our experimental findings.

2 Learning from pre-purchase direct experience

Direct product experience has been found to be very effective in accelerating the adoption of new products (Jain et al. 1995; Bawa and Shoemaker 2004). This effectiveness is facilitated by the consumers responsiveness to experiential information; they overrate direct personal experience with a product (Hoch 2002) and discount indirect sources of product information, such as word of mouth or advertising (Smith and Swinyard 1983; Marks and Kamins 1988). This tendency seems natural given that firsthand experience information is salient, vivid, and memorable in consecutive brand judgment (Gigerenzer and Hoffrage 1995; Hoch 2002).

Studies that demonstrate the effectiveness of product experience in reducing perceived risk have focused mainly on the informative value of the experience (Marks and Kamins 1988; Kuksov and Lin 2010). Inherent in this approach is the assumption that firsthand experience improves the accuracy of consumer's product evaluation relative to indirect, potentially biased, information. Yet these studies have focused on the experience of simple consumable products in which a single sample typically reveals the value of the product's core attribute. Examples

include sampling of doughnuts (Steinberg and Yalch 1978), cheese-filled pretzels (Smith and Swinyard 1983), mineral water (Gedenk and Neslin 2000), ballpoint pens (Marks and Kamins 1988), chocolates (Lammers 1991), pencils and armchair-beds (Wright and Lynch 1995), and groceries (Shiv and Nowlis 2004; see related results by Bawa and Shoemaker 2004). In these cases, even a single sample (e.g., one square of a chocolate bar) provides a good approximation of the product's value, and offers consumers a more comprehensive impression than any indirect information.

In other product categories, this may not be the case, as the products' objective values are not necessarily revealed by experiential (limited) learning. Consumers cope with such situations by generating hypotheses that are based on their prior beliefs, and testing them on the experiential evidence. This process, however, is fallible and subject to the influence of psychological factors as well as environmental ones (Hoch and Deighton 1989). An inherent assumption in many studies is that the product value distribution is not skewed, but the way consumers sample this distribution is biased. Such biases in sampling often results from confirmatory hypothesis testing, which helps consumers interpret experiential evidence in more conclusive manner than exploratory sampling (Hoch and Ha 1986).

In this paper we add to the literature by analyzing the question of whether biases in learning might result from skewness in the product value distributions, even when self-initiated sampling is not biased but is dictated by chance. One source of bias in experiencing such skewed distributions might result from cases where some product characteristics are learned only after experience of significant length, thus short experience is not likely to reveal them (Heiman and Muller 1996).

Here we focus on another source of bias of experiencing uncertain skewed prospects, which is the consumer's tendency to discard low-probability outcomes as if "it won't happen to me" while deciding from experience (Hertwig and Erev 2009; Ert and Erev 2015). This underweighting of low-probability outcomes implies that when people experience skewed

value distributions, they are mainly affected by the modal outcomes. Hence, they form a biased impression of the distribution. As mentioned above, consumers tend to rely on their experience more than on other information sources for a variety of reasons. Therefore, this (biased) impression from experience might strongly affect their decisions.

There are at least two implications of "biases in learning" that result from experiencing skewed value distributions. The first refers to the effect of pre-purchase experience on product promotion. The second implication refers to early product experiences after purchase, which might dictate future usage. For example consumer might learn to stop using a safety device after trying it as they mainly experience a loss of convenience. The current paper is mainly focused on the first implication and tests the effect of short experience on product purchase.

2.1 Conceptual framework and Main Hypotheses

The current paper suggests that post-experience product evaluation depends on the nature of the product value distribution. Specifically, we are interested in understanding whether short experience promotes the purchase of negatively skewed products (Table 1, row 1), but de-motivates positively skewed products (Table 1, row 2), irrespectively of their actual expected value (EV.). We abstract the process of experiencing a product as discrete independent random draws from the product's "value distribution." As such, the effect of product experience is sensitive to the shape of the value distribution and the size of the sample. When the sample size is small, the informational value of experience is highly sensitive to distribution skewness.

A negatively skewed product is likely to show positive value in most incidences of usage, but might result in a substantial negative value in incidences with low probability of occurrence. Therefore short pre-purchase experience is most likely to reveal the product's benefits and therefore increase its appeal. Specifically, we hypothesize:

H1: A short experience of a negatively skewed product (i.e., product that is associated with a negatively skewed value distribution) increases the likelihood of purchase.

For example, imagine trying out a thriller, such as a Harlan Coben novel. Leafing through it, you will probably find it entertaining and enjoyable, yet there is also the possibility that you will chance on a description of a gruesome murder that will repulse you. Another example is Excellus BlueCross BlueShield's offering of a 30-day free prescription for generic medication that is suitable for 90% of the population. The generic drug costs only one quarter of the price of its branded alternatives. Yet the drug might fail with low probability, causing unlucky consumers to waste their money on a non-effective drug and/or suffer from negative side effects.

Additional examples of negatively skewed products may include boxes of assorted chocolates, popular books, mainstream music CDs, generic medications, and so forth. All are likely to result in positive experiences for most consumers most of the time, yet might be practically less valuable than a typical trial suggests.

A positively skewed product has the exact opposite features. Its typical outcome is lower than its expected value, since the product includes notably high benefits that occur with low probability. Thus, a short experience of a positively skewed product will mainly demonstrate its drawbacks, and is not likely to reveal its actual positive value. Consequently, a short experience with positively skewed products is predicted to decrease the products' appeal to a typical consumer, and reduce the likelihood of purchase.

H2: A short experience of a positively skewed product (i.e., product that is associated with a positively skewed value distribution) decrease the likelihood of purchase

Freud's books on the meaning of dreams, for example, are highly valuable if you once had a dream similar to a dream described in these books. In this case, the dream's interpretation will be highly meaningful. However, a brief skim of one of these books is unlikely to show this value, since most of the described case studies are likely to be irrelevant.

Another example is buying a single stock of startup companies, such as biotech and medical technologies firms which are highly risky, since approximately 90% of startups fail during their first five years of operation. Yet these stocks also offer (with low probability) the opportunity of a return of more than 100 times the initial investment.

Additional examples of positively skewed products may include different types of datasets (e.g., apartments or dating sites), which contain a vast quantity of information only a small portion of which is likely to be valuable to a given consumer. Examples may also include safety products (baby monitors, smoke detectors, bike helmets, etc.), whose use typically generates some loss of convenience, but which are designed to prevent serious casualties that might occur with low probability.

The utility derived from a product depends on its fit to the consumer needs. Therefore, the taxonomy of products as "negatively skewed" or "positively skewed", according to their value distribution, is based on three main elements: the product's characteristics, the environmental characteristics, and the consumer's characteristics. The environmental characteristics refer to how the environment in which the product is tested might change, as in the case of the "random draw" of the driving conditions (weather, road, etc.) in our cars example. The consumer characteristics refer to the idea that the product value is subject to consumer preferences, thus the taxonomy of products as negatively or positively skewed may differ between segments. For example, the Coben thriller that is assumed to be negatively skewed for most of its target audience might be classified as positively skewed by those who dislike reading thrillers. Similarly, Freud's book, perceived as positively skewed by the typical consumer, turns out to be a negatively skewed product for psychology students preparing for

an exam on the meaning of dreams. Similarly, dating websites can be viewed as negatively skewed for people interested in short-term interactions, but positively skewed for people looking for a long-term relationship. Our classification of productsas negatively skewed or positively skewed is based on how they are perceived by most consumers of the target segment. For example, a box of candies would be considered negatively skewed, whereas sophisticated software would be positively skewed simply because most of the target consumers perceive them as such.

The likelihood of choosing a product is assumed to be an increasing function of prior beliefs and a realization of benefits from the observed sample during experience (Russo et al. 1998). The current distinction suggests that when pre-purchase experience provides limited product information, it increases the appeal of negatively skewed products and decreases the appeal of positively skewed goods. Therefore, product experience might lead to suboptimal decisions: rejection of valuable products whose value distribution is positively skewed, and acceptance of products whose distribution is negatively skewed.

3 Overview of empirical studies

We evaluate our hypotheses in three studies, which we summarize in Table 2. Study 1 examined lottery purchases wherein the opportunity to test the lotteries is added to a precise description of the relevant payoff distributions. Consistent with our hypotheses, we found that sampling increased the appeal of negatively skewed lotteries, yet reduced the appeal of positively skewed ones.

To facilitate external validity (Winer 1999), Studies 2 and 3 examined the robustness and realism of the findings from Study 1 in natural settings. These studies include two phases. The first phase pretests our assumptions regarding the value distribution of the product in question. Specifically, we estimated the shape (skewness) of the products' subjective value distribution under direct experience with the product. In the second phase, we examined the

effect of free product trials on the product appeal. Study 2 explored the effect of product trials on buying an online database of apartments for rent/sale. It confirmed our assumption that datasets of this type are positively skewed products. As predicted, providing free samples of this dataset to prospective customers reduced the number of database purchases. Study 3 examined the appeal of a negatively skewed and a positively skewed book in a controlled experiment run during a book fair in a mall. It showed that allowing potential readers to sample the books increased the appeal of the negatively skewed book, yet impaired that of the positively skewed book.

< Insert Table 2 >

4 Study 1: Positively and negatively skewed lotteries

The current analysis focuses on scenarios in which short product experience provides limited information, and the type of product yields either positively or negatively skewed benefit. Our first experiment studied an abstract environment that satisfied these conditions: the decision to buy lottery tickets with known outcome distributions. We chose to focus on lotteries because of their objective features. A lottery has a clear value distribution and an objective expected value. These properties of lotteries crystalize the core question of this paper: assessing whether or not the effect of sampling is contingent upon the shape of the product's value distributions, regardless of the product's expected value.

To evaluate this question, Study 1 included five independent decision problems that are listed in Table 3. In each decision problem, participants were given a certain number of tokens. Then they had to choose whether or not to buy a chance in a particular lottery, the cost of which was equal to the value of their tokens in that decision problem.

The five decision problems were evaluated in a within-subjects design. They include two "target" problems that focus on the decision to buy positively and negatively skewed

lotteries, and three "filler" problems that involve the decision to buy non-skewed lotteries. In the positively skewed problem (No. 1 in Table 3), only 2% of the lottery's outcomes are higher than its expected value. The price of playing this lottery (9 tokens) is slightly lower than its expected value (9.25 tokens). In the negatively skewed problem (No. 2 in Table 3), most (70%) of the lottery's outcomes are higher than its expected value. The price of this lottery (59 tokens) is slightly higher than its expected value (58.94).

Two between-subject conditions, "Description" and "Sampling," were compared. Under both conditions, the participants first observed a description of the lotteries' payoff distributions (see example in Figure 1). The description was framed as the list of the expected outcomes and their frequencies from playing the lottery one million times. In addition to this description, the participants in the sampling condition were asked to sample the lottery (unlimitedly, but at least three times). Each sampling resulted in one draw, with replacement from the lottery's payoff distribution. Sampling was not possible under the description condition.

From a normative perspective, this experimental design ensures that experiencing the lotteries provides no informational value. That is, theoretically, experience does not add information to the description that the consumer has already received. Under the assumption that consumers are utility maximizers, it is expected that a lottery ticket will be purchased if and only if it maximizes expected utility. To simplify the derivation of this normative behavior, we used the binary lottery procedure, which aims to control attitudes toward risk (Roth and Malouf 1979). In this procedure each token yields a binary lottery, and expected utility maximization coincides with the maximization of expected value.

However, as we conjectured, there are reasons to doubt that individuals will behave normatively even under the current settings. In particular, it is doubtful that consumers fully understand all the information that they receive (both during lab experiments and in "real life"). Thus, sampling the product can serve as "hypothesis testing." The consumer may form a

first impression based on the product description, and then search for confirming/disconfirming evidence during the sampling process (see related ideas in Meyvis and Janiszewski 2002).

This idea of hypothesis testing may explain consumers' tendency to give too much weight to the importance of sampled information. Assuming that the samples are relatively small, this tendency to rely on sampling predicts a contingent experience effect. That is, sampling is expected to facilitate purchase of the negatively skewed product (due to an appealing typical outcome) and de-motivate purchase of the positively skewed product (due to an unappealing typical outcome).

< Insert Table 3 >

Method

Participants. One hundred twenty students served as paid participants in this study. Sixty participants were assigned to the description condition, and 60 participants to the sampling condition. Total payment for each participant was determined based on an initial payment of 10 shekels ($2.22-$2.50) and a "payoff problem" randomly selected and played at the end of the experimental session.

Procedure. The participants were seated in front of personal computers and received written instructions. The instructions explained that the study included five independent problems. The participants were informed that their task, in each of the problems, was to decide whether or not to buy a play in a lottery. Figure 1 presents the screen in one of the five problems (the positively skewed problem). It shows the payoff distribution associated with the lottery (the number of times each of the possible outcomes is expected to occur in one million realizations), the price of playing the lottery, and two keys: "Buy" and "Do not buy."

< Insert Figure 1 >

Each participant played each of the five problems, which were presented in random order. The participants were informed that these choice problems were independent and that their final payoff would be determined based on one of the five problems, to be randomly selected at the end of the session. The tokens earned in the Payoff Problem were converted to cash using a binary lottery procedure (Roth and Malouf 1979). Each token implied a 1% chance of winning 80 shekels ($18.00), and nothing otherwise. This conversion procedure implies that attitudes towards uncertainty should not affect preferences. Thus, in the current study, normative behavior implies expected value (EV) maximization. That is, buying the positively skewed lottery, but declining the purchase of the negatively skewed lottery.

Participants in the description condition were asked to make their decision based solely on the description of the lottery. The decision was made by clicking one of two buttons (see Figure 1). In the sampling condition, each problem involved two screens. The first screen was identical to the screen presented in Figure 1, with the exception of the two buttons. In the sampling condition, the buttons were labeled “Sample” and “Proceed to the real game.” Sampling was conducted by clicking a button labeled “Sample.” Each click resulted in a draw from the relevant payoff distribution, which appeared on the screen for two seconds. When the participants felt they had sampled enough, but not before taking three draws, they could stop the sampling process by clicking “Proceed to the real game.” At this stage, the sampling condition participants saw the same screen as did the participants in the description condition, and were asked to choose between buying or not buying the lottery.

Results and Discussion

Figure 2 shows the proportion of participants who decided to buy the lottery in the two experimental problems. The results reveal significant interaction between the product type

and experience in their effect on product appeal: $t(59) = 2.26$, $p < 0.03$. Specifically, sampling increased the tendency to purchase the negatively skewed lottery (from 42% to 57%; t (118) = 1.66, $p < 0.05$, one tail), but decreased the tendency to buy the positively skewed lottery (from 58% to 40%; $t(118) = 2.3$, $p < 0.05$). In the current context, maximizing expected value implies the opposite pattern of choices from that observed. Thus, the results demonstrate that under some circumstances (i.e., when the typical outcome does not reflect expected value), product experience can actually impair expected value maximization.

< Insert Figure 2 >

In the sampling condition, the median sample size (i.e., number of draws) was fewer than eight in each of the five problems (see the third column from the right in Table 3), suggesting that the participants relied on small samples. Yet, although participants relied on small samples, they sampled significantly more (8.09 on average) in the target (skewed) problems than in the filler problems (6.84; $t(59) = 3.82$, $p < .001$ for the difference). Thus, participants might have felt that they needed more information when they faced the skewed lotteries. Although they relied on only a small number of samples, their final choices were more sensitive to the sampled outcomes than to the expected values of the lotteries. With the exception of the problem in which the expected value of the lottery was equal to its cost, 42% of the choices reflected expected value maximization, while 61% were consistent with the "rely on the sample" rule that states: "Buy if and only if the lottery price is lower than the mean of the sample." In order to evaluate the degree to which each subject follows each rule, we computed the number of choices per participant that were consistent with each rule and compared them. This comparison reveals significant differences in favor of the "rely on sample" rule: $t(59) = 1.99$, $p = 0.051$. Additional analysis of the samples' effect reveals sensitivity to the observation of extreme outcomes: in negatively skewed distribution of

outcomes, the observation of a sample below 50 (by seven of the participants) reduced the buying rate from 65% (n = 53) to 0%. In positively skewed distribution of outcome, the observation of a sample above 60 (by nine of the participants) increased the buying rate from 39% to 44%.

The examination of the three non-skewed lotteries (i.e., the filler problems) also confirms our expectations. The results reveal high purchase rate (85%) of the lottery whose EV is higher than its price, and low purchase rate (27%) of the lottery whose EV is lower than its price. In line with our predictions, sampling these non-skewed lotteries did not change their purchase rate.

4.1 Replications and robustness checks with other variants of Study 1

4.1.1 Study 1b: Is the sampling effect limited to consumers who are not exposed to a description of the product's expected value?

The results of Study 1 revealed a contingent sampling effect on product appeal. Recall that, from a normative perspective, consumers received all the information they needed to compute the product's expected value. Yet the computation of expected value is effortful in the current setting (as in many real-life situations). Therefore, we were interested in evaluating whether consumers would still rely on experience even when they received an explicit description of the product's expected value.

Study 1b was designed to evaluate exactly this. This study's procedure replicated that of Study 1, only this time the participants received clear information regarding the product's EV as part of its description. Sixty students, who had not participated in Study 1, served as paid participants in Study 1b. Thirty students were randomly assigned to the description condition, and the other 30 were assigned to the sampling condition. The procedure and apparatus of the current study were identical to that of Study 1. The only exception is that a label was added to both conditions with information on the lottery's expected value. For

example, in the positively skewed lottery this label stated: "Average outcome: 9.2" at the bottom of the lottery's description.

Similarly to the results of Study 1, the results of Study 1b reveal significant interaction between the product type and experience in their effect on product appeal: $t(58) = 2.00$, $p < 0.05$. That is, sampling increased the tendency to buy a negatively skewed lottery from 70% to 77% (albeit insignificantly), but decreased the tendency to buy the positively skewed lottery from 60% to 33% ($t(58) = 2.11$, $p < 0.04$). This pattern suggests that the effect of sampling on negatively and positively skewed products seem to hold even when consumers receive explicit information on their expected value.

4.1.2 Study 1c: Are the lab study results sensitive to the payment method?

The last study we ran tested the sensitivity of the current results to the binary lottery procedure used to convert tokens to payoffs in our lab studies. While this procedure elucidates the implications of expected utility theory, it could be criticized on the grounds that it might confuse participants. Although it is hard to see how such confusion would alter the comparison between the description and sampling conditions, as both were studied with the same procedure, we wanted to rule out such confusion critique. Therefore, we ran another replication of Study 1 with other 60 students employing the same procedure, only this time with a direct conversion rate: each token paid 1 shekel ($0.22).

The results are similar to those reported above. They reveal a significant interaction between the product type and experience on product appeal: $t(58) = 1.82$, $p < 0.07$. Once again sampling increased the purchase rate of the negatively skewed lottery from 46% to 52% (albeit insignificantly), but decreased the purchase rate of the positively skewed lottery from 70% to 37%; ($t(58) = 2.7$, $p < 0.01$). The findings suggest that the method of payment had a very limited effect on the results of the current lab studies.

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4.2 Conclusions from the lab studies

The results of the lab studies support our assertion that when direct experience provides only limited information, the shape of the product's value distribution (i.e. positively versus negatively skewed) can predict the effect of experiencing the product on consumers' preferences. Specifically, experiencing a negatively skewed product is likely to increase its appeal, while experiencing a positively skewed product is expected to decrease its appeal. While the effect of experiencing a negatively skewed product seems in line with previous literature suggesting that experience has a positive effect on product choice, the latter prediction of the negative effect of experiencing a positively skewed product is more surprising, as it suggests that experiencing products might also have a negative effect on its choice.

The main goal of our next studies was to evaluate the implications of the current results in the field, specifically in more natural environments wherein the predictions derived under our distinction between negatively and positively skewed products lead to results similar to those we found in Study 1.

5 Study 2: Buying an online apartment database

Study 2 was conducted in cooperation with the owner of a website that offers a database of apartments for sale in Israel. One of the first of its kind, this small business has supported its owner financially for more than 10 years. The database includes several hundred apartments. Upon entry, consumers are given information about the distribution of available apartments by region and type. They are also told the number of new apartments added to the database during the previous week. At the time of this study, consumers were charged 169

shekels (about $45) per month to enroll in the database. Before the study began, the owner of the website told us that he added an average of three subscribers per day (resulting in about $4,000 revenue per month).

In Israel, datasets of this sort typically include assets advertised by property liquidators at significantly lower prices than their market value. Thus, enrolling in such datasets can be highly valuable to prospective customers if they can find an apartment that fits their requirements. Yet, the likelihood of finding an apartment with the desired properties at any given time is expected to be low. Thus, we presume this dataset to be a positively skewed product. The first phase of the study was designed to test this assumption by estimating the shape of the dataset's value distribution.

5.1 Phase 1: Manipulation check

Unlike our lab study, in which the value distribution of the product (lottery) could be pre-defined, this field study involves an actual product whose value distribution is both much more subjective and much less clear. Thus, before conducting the actual study, we ran a manipulation check to confirm our assertion that apartment datasets are a product associated with a positively skewed value distribution. In order to do so, we needed to estimate the product's value distribution.

Estimating the shape of the subjective value distribution reveals that it is important to distinguish between two elements of the product at hand. The first is the actual apartments and their descriptions; the second is the search engine provided with the dataset. In the current analysis, we chose to focus on the first element; we considered free sampling of a random subset of entries from the dataset without the use of the search engine. The main reason for this choice was an effort to avoid a cannibalization effect (Bawa and Shoemaker 2004). Specifically, with the search engine, apartment-hunters interested in a narrow subset of the dataset (e.g., a five-bedroom apartment with a patio and private parking on a particular street)

might abuse the possibility of sampling the product (database) by retrieving all the information they need with a single search.

In order to estimate the shape of the subjective value distribution, we randomly sampled data on 30 apartments from a similar dataset, and let individuals assign a value to each apartment separately. We recruited 20 participants for this phase of the study, each of whom was paid 20 shekels ($4.44) for participating.

Estimation procedure

The participants were seated at personal computers and received written instructions explaining that the study involved data on several apartments randomly sampled from a large online database. The data on each apartment was presented in turn and included its location (neighborhood and street), number of rooms, price, floor, and whether there was an elevator in the building and/or private outdoor parking. The participants could consider each apartment's data as long as they wished (but for at least 10 seconds), and were asked to assign a value to each apartment in turn ("Based on the data above, how interested are you in seeing this apartment?" from "not at all" to "extremely interested" on a ten-point scale).

Estimation results

Recall that the product type (positively or negatively skewed) is defined by the skewness of its subjective value distribution during experience (e.g., product trials). In order to estimate the subjective value distribution, we first calculated the skewness of the 30 responses provided by each participant where each participant had a single score. The mean score was 0.38 (STD = 0.65), a value significantly larger than zero ($t(19) = 2.64$, $p < 0.02$). Positive values were observed for 15 of the 20 subjects. These findings suggest that the value distribution of the apartment database is right-tailed, confirming our assumption that it is a

positively skewed product. Consumers typically tend to consider the entries of such a database unappealing, yet may find a small number of entries to be highly valuable.

5.2 Phase 2: The field experiment

We asked our students whether providing random samples from the apartment dataset to prospective consumers would promote the product. Our students' intuition suggested that it would. The typical reasons they suggested is that providing samples from the dataset discloses information about its value, signals seller credibility, and increases consumers' trust.

However, following the results of our manipulation check, which confirmed our assumption that the dataset is a positively skewed product, we were interested in evaluating the possibility of a less intuitive prediction. We hypothesized that providing samples of this positively skewed dataset to prospective consumers might actually decrease the rate of dataset subscriptions. In other words, we hypothesized that fewer consumers would subscribe to the database when free sampling of entries was offered than when free samples were not available.

Participants

The participants were potential consumers who entered the relevant website during the study. The experimental manipulation did not include advertising or other actions that could affect the population of entrants. It is reasonable to assume that most entrants were looking for an apartment to buy and decided to check the service offered.

Apparatus and Procedure

The study was conducted over four weeks, two of which (Weeks 1 and 3) were used as the experimental condition. In the first week, a banner was added to the landing page reading "For free samples, click here." When participants clicked on the banner, they viewed a predetermined sample of data on ten apartments from the database. We refer to

this sample as "Free Sample A." In Week 2, the banner was removed, and no samples were available. In Week 3, the banner was reinstated, offering another predetermined sample of ten apartments, which will be referred as "Free Sample B." At the end of Week 3, the banner was permanently removed. During the study, the site data and design remained the same as before the study began. All entries to the site were recorded daily, as was the number of database subscriptions per day.

Results and Discussion

Figure 4 shows the number of consumers per day who subscribed to the database during the study. Consistent with our prediction of a negative effect of experiencing a positively skewed product, the number of subscriptions on days that offered free sampling (M = 1.42, SD = 0.67) was lower than on days on which sampling was not offered (M = 3.28, SD = 1.2). The difference is significant, $t(24) = -4.77$, $p < 0.001$. No difference was found between the number of visits to the site on days when free samples were offered (M = 130.42, SD = 23.6) and days when they were not (M = 130.78, SD = 20.7).

A message received from the site owner in Week 3 of this study illustrates the magnitude of the current results. He wrote: "*The banner is killing my business! Yesterday I had only one subscriber. Hope you will allow me to end this experiment soon*." Following this negative sampling effect we compensated the owner, when the study ended, for the mean difference in revenues between the control and the experimental conditions.

< Insert Figure 4 >

These results indicate that free sampling of the apartment dataset de-motivated purchases. They show that the consideration of product value distributions can provide interesting insights into the effect of product trial in the field. Like the participants in the

laboratory study, actual consumers (behave as if they) over-weight the outcomes of the sampling process, even when the sampling process provides only limited and unrepresentative experience of the actual product distribution.

The field study focuses on a buyer-seller interaction. As such, it adds an interesting dimension to the context of sampling, which relates to the consumer's attentiveness to the seller's motives (Friestad and Wright 1994; Ert et al. 2014). Note that in the current study, the seller determines the apartments available for the sample. Thus consumers might believe that in order to motivate purchase, the seller includes the best apartments in the sample. As a consequence, prospective buyers who view sample apartments that were actually selected randomly assume they are sampling the best apartments available, and might conclude that the database is unattractive. The attentiveness to the seller's motives appears to be an alternative explanation to the results of Study 2, although it is worth noting that this cannot explain the lab study results (Study 1). Study 3 is designed to control for this explanation in a field setting as well.

6 Study 3: Product experience's effect on book purchases

The results summarized above suggest that evidence from the field supports our hypothesis that short experience with a positively skewed product decreases its appeal, and might harm sales. The dataset owner has full control over the consumer's ability to try out his product. He may allow or not allow potential consumers to sample the dataset.

In the current study, we wanted to test whether these findings also apply to businesses, such as bookstores, that typically have less control over the consumer's ability to try out their products. Consumers in bookstores are usually free to leaf through books as they wish. The results of the previous studies imply that while such an experience might facilitate the sales of negatively skewed books, it might have a detrimental effect on the appeal of positively skewed

books. This study was proposed to test this hypothesis. It studies the effects of short experience on the purchase of two different books: the thriller *No Second Chance* by Harlan Coben, and Sigmund Freud's classic *On Dreams*. As noted in the introduction, we would expect Coben's book to exemplify a negatively skewed product, and Freud's book a positively skewed one. Testing this proposition requires estimating the product's value distribution shape under short experience. The first phase of the study was designed to achieve this goal.

6.1 *Phase 1:* ***Manipulation check***

As in Study 2, we began by testing our intuition regarding the exact value distributions of the products in question. In order to do so, we randomly chose 30 pages from each book, and let individuals assign a value score to each page they read separately. Twelve students, each of whom was paid a participation fee of 20 shekels ($4.44), served as participants in this phase of the study.

Estimation procedure

The participants were seated in a large room, separated from each other. Before running the procedure, the experimenter ensured that the participants had not read either of the two books being evaluated. Next, each participant viewed 30 pages chosen randomly from one book, followed by 30 pages from the other book. The order of book presentation was counterbalanced across participants. Each of the 60 pages was presented (one at a time) for 40 seconds. The participants were asked to rate each page on a dedicated sheet that they were given ("Based on the page you just saw, how interested are you in reading the book from which this page was taken?" from "not at all" to "extremely interested" on a ten-point scale). The entire procedure lasted about an hour.

Estimation results

The results reveal that Coben's book can be labeled a negatively skewed product, as the mean skewness of its subjective value distribution was -0.43 (STD = 0.46; $t(11) = -3.06$, $p < 0.02$). Indeed, the majority of participants judged most of Coben's pages as highly appealing, and few pages as very unappealing. However, when the pages from Freud's book were evaluated, the participants' ratings exhibited an opposite pattern: The subjective value distribution of Freud's book was positively skewed (Mean = 0.33; STD = 0.60; $t(11) = 1.81$, $p < 0.05$, one sided), suggesting that Freud's book can be labeled a positively skewed product.

6.2 Phase 2: The field experiment

The main part of the current study was run during Israel Book Week, an annual event held in large spaces such as malls, at which publishers promote their books and offer them at special prices. For the purpose of the study, we rented a booth at which potential readers were offered either a book or cash in exchange for participating once in a draw that offered a 10% chance of winning. The book offered was a Hebrew translation of either a fiction or nonfiction work: the thriller *No Second Chance* by Harlan Coben, or Sigmund Freud's *On Dreams*.

The experiment included two between-subject conditions: In the Description Condition, the relevant book was displayed as is typical in online bookstores, with only its front and back covers presented side by side (see Figure 5). In the Sampling Condition, the book itself was offered for perusal, as in brick-and-mortar bookstores.

< Insert Figure 5 >

The participants were individuals who came to the book fair and approached our booth. Each participant was assigned to one of four groups (2 books x 2 information conditions), and was asked to choose between the book and 40 shekels ($9.10). After making their choice,

participants were given a random draw of one of ten balls from a sealed box to determine their payoff.

The results of our book estimation phases characterized Coben's book as a negatively skewed product, and Freud's book as a positively skewed product. Consequently, we predicted that a free short experience with Coben's *No Second Chance* would have a positive effect on its appeal. Allowing consumers to try Freud's *On Dreams*, on the other hand, was predicted to have a negative effect on its appeal. Note that the aforementioned analysis does not suggest that Freud's book is simply a bad product. Rather, it suggests that a short experience with it is not expected to reveal its true value to the consumer. An examination of reader reviews on Amazon.com's customer rating system (a rough proxy for books' subjective values) seems to support the assertion that both books are valuable. After reading, consumers assigned relatively high ratings to both books. Specifically, at the time of our study, the mean rating of *No Second Chance* was 4 and of *On Dreams* 4.5 on a 5-point scale.

Participants. Three hundred twenty-seven potential consumers approached our booth and agreed to participate in the study. One hundred sixty-five were randomly assigned to the Description Condition (92 were offered copies of *No Second Chance* and 73 were offered copies of *On Dreams*). The other 162 participants were randomly assigned to the Sampling Condition (93 examined *No Second Chance* and 69 examined *On Dreams*). Participants ranged in age from 18 to 68, and 61% were female. The reward for each participant was determined based on a random draw conducted after the participant made her selection. No initial (show-up) fee was paid in this study. Final rewards were either no payoff, 40 shekels ($9.1), Freud's book, or Coben's book.

Apparatus and Procedure. People who approached the stand were asked to participate in a scientific study on book preferences. Those who agreed were randomly assigned to one of the conditions. Participants then received either a written description of the book, or were allowed

to sample the book itself as per their assigned condition (those assigned to the Sampling Condition were permitted to examine the book for as long as they wished). At that point, participants were asked to decide between the book and 40 shekels (each volume had a retail price of about 80 shekels), marking their choice on a sheet of paper. Immediately after choosing, each participant randomly drew one ball from a sealed box containing nine white balls and one yellow ball, in order to determine his or her reward. The experimenter then thanked the participant for his or her participation.

Results and Discussion

Figure 6 shows the proportion of participants who chose the book over the cash in each of the experimental conditions. The results reveal the predicted interaction: $\chi^2(1) = 8.57$, $p < 0.004$. Sampling decreased the preference for Freud's book (from 51% to 32%, $t(140) = -2.3$, $p < 0.02$) and increased the preference for Coben's book (from 55% to 69%, $t(183) = 1.88$, $p < 0.03$, one tail).

< Insert Figure 6 >

The results reveal the contingent effect of short product experience on the negatively skewed (Coben) and the positively skewed (Freud) books. This finding suggests that consumers who are allowed to browse books in bookstores find negatively skewed books (like Coben's book) much more appealing than positively skewed ones (like Freud). Yet these judgments might be unrepresentative of the books true value for readers: The mean review score of Freud's book by readers who actually read it on Amazon was 4.5 (even higher than Coben's review score which was 4) on a 5 point scale, suggesting that consumers who refrained from reading this positively skewed book after sampling it at our booth might have missed a very good read.

7 General Discussion

Previous studies of the effect of pre-purchase experience on consumer's behavior have suggested that additional information, in particular information based on personal experience, reduces risk and shifts demand. In this vein, offering product demonstrations of durable products and distributing free samples of consumables can be effective in accelerating product adoption (Heiman and Muller 1996). The current research aims to extend our understanding of the effects of product experience on consumers' choices by focusing on situations in which experience provides only limited information, and might yield non-representative outcomes. The results of our analysis imply, counter-intuitively, that in some cases experiencing the product in a free trial might be counterproductive to both consumers and marketers.

The current results suggest that consumers rely on the small samples they experience and favor the option that seems most appealing in the sample. Thus, the effect of uncontrolled product experience depends on the shape of the product's subjective value distribution; sampling facilitates the appeal of negatively skewed products like popular novels, yet impairs the appeal of positively skewed products such as typical information sources (nonfiction books, datasets). The results of our controlled lab experiments (Study 1) demonstrated that this effect occurs even in the case where, theoretically, product experience does not add information beyond the product description. We found that, even when the lottery's expected value was explicitly revealed to them, consumers were heavily influenced by their product experience.

7.1 Theoretical implications

A common assumption in most studies of the effect of pre-purchase trial or short post purchase experience is that consumers' ex-post benefits are uniformly distributed (Heiman and Ofir 2010; Kuksov and Lin 2010; McWilliams 2012; Halbheer et al. 2013). Our study suggests

that this assumption falls short in predicting the effect of short experience of products associated with skewed value distributions, mainly "negatively skewed" and "positively skewed" products on purchase choices. Our results also contribute to the literature of optimal consumer's search rules that commonly assumes a symmetric benefit distribution (Branco et al. 2012). Our findings results suggest that such search rules might result in suboptimal choices when the outcome distribution is skewed. That is, consumers might terminate their search after hitting high (low) thresholds that are unrepresentative of the product's real value.

The current research also proposes a complementary perspective to studies of consumer learning (e.g., Hoch & Deighton, 1989), by showing that "biased learning" might be caused not only by biases in the way consumers sample and interpret information, but also by the statistical skeweness of the product's value distribution. That is, random samples might facilitate wrong impressions about sampled products if their value distribution is skewed. Indeed, in the current studies the only bias that the consumer expresses is the reliance on the samples even when s/he holds descriptive and accurate information to the contrary (e.g., Study 1).

Our distinction between positively and negatively skewed products brings up the question of what factors shape the product's value distributions. As noted in the introduction, we assert that the shape of the value distribution is defined by both the consumer characteristics (e.g., their benefits) and product's characteristics, that their realization are sometimes shaped by environmental conditions (e.g., the driving conditions in the cars example). This assertion implies that niche products would be characterized as positively skewed for the mass market but not for the niche consumers. In this paper, our definition of the product type has been based on its fit to the mass market. Regarding the role of the product characteristics, we assert that the more complex the product (e.g., the more features it includes), the more likely it is to be characterized as skewed for the mass market. For example, a free sample of a candy is considered a non-skewed product, since one sample is enough to

reveal if the sampled brand fits with consumer taste. Yet a box of assorted candies would be probably characterized as negatively skewed if its content included common candies, while it might be characterized as positively skewed if it included unusual gourmet candies. Interestingly, examples of negatively skewed products seem to come more easily to mind than examples of positively skewed products. Perhaps this is one reason why product trials are typically considered to have positive effects. To the best of our knowledge, the current study is the first to show that direct product experience might also have a negative effect on product purchase.

7.2 Practical implications

To managers who focus on short-term goals (e.g., increasing sales volume, adoption) the implications of the current studies are rather clear: product trials induce the purchase of negatively skewed products (which their value distribution implies that their typical experience is better than their EV), but significantly decrease the sales of positively-skewed products (that their typical experience suggests lower value than their EV).

The implications of the current research for long term goals seem less straightforward, given the unrepresentative information that consumers get by the experience of any skewed product. Direct experience leads consumers to underestimate the value of positively skewed products but also to overestimate the value of negatively skewed products. The latter effect suggests that consumers who purchased a negatively skewed product, and revealed its drawbacks only after some time might get disappointed. The plausibility of such disappointment following post-purchase (long) experience is an empirical question that has to be analyzed, as different mechanisms of evaluation from experience might suggest opposite implications. For example, primacy and recency effects (e.g., Baddeley and Hitch 1993) imply oversensitivity to the frequent outcomes even with long experience, while vividness, saliency, peak effects suggest oversensitivity to the infrequent outcomes (Kahneman et al. 1997). This

question of long-term consequences of short experience is out of the scope of the current analysis, which has focused on the effect of short pre-purchase experience. Yet if this concern will get empirical support then marketers may be wise to not to allow for pre-purchase experience of any skewed product (i.e., including products associated with a negatively skewed value distribution) to avoid negative effects in the long term.

Given the unrepresentative nature of short experience of skewed product distributions, offering long predesigned demonstration for such products is likely to increase consumers' surplus. However, providing such demonstrations is costly to sellers. One way to increase the quality of pre purchase information, while limiting the high cost of demonstration, is to offer pre purchase experience to targeted consumers who are more likely to purchase the product once their uncertainty is resolved (Heiman, 2010). If individualized demonstration is not feasible then the seller of skewed products may consider offering other risk reduction mechanisms that would complement short product experiences. For example, offering Money Back Guarantee (MBG) for a negatively skewed product enables consumers to try the product for a longer period of time and decide whether or not to keep the product based on more representative information. As such, MBG may reduce potential disappointment and negative perceptions of negatively skewed products. Notice that the combination of short experience and MBG would not work for positively skewed products, since MBG has no effect on the pre-purchase experience that deters consumers from buying the positively skewed products in the first place. In this case MBG might perhaps act as a replacement to the pre-purchase experience. Other potentially useful risk-reducing mechanisms may include leasing or renting to allow for longer time to learn about the product (see Heiman et al. 2002 for discussion).

Another important factor, which is relevant to the effect of short product experiences, is the degree of control that the marketer has on the sampling process. The current findings suggest that such control is especially crucial in the case of experiencing positively skewed products. Otherwise, the benefits of these products are unlikely to "naturally" reveal

themselves during the product experience. This observation may explain how firms may have learned to fully control their product experiences, as suggested by the example of Porsche, which, as mentioned above, designs a pre-determined racing track for test drives. Limiting product trials to such artificial, yet fully controlled, environments allows the consumer to evaluate the benefits of the car, since it restricts the experience of the value distribution to outcomes that would otherwise occur with low probability.

In some cases, the marketer may fully control the samples that consumers receive. Movie trailers and single releases from new music albums, for example, are pre-determined samples that the marketer has carefully selected to promote the product. The natural tendency of the seller is to provide the best samples possible. Yet sometimes the seller's ability to include such samples is limited. For example, in our Study 2, the database apartment owner has to fit the sampled apartments to the exact requirements of each consumer in order to overcome the properties of this positively skewed product distribution. However, doing so might put the owner at risk of cannibalizing his product. That is, once the consumer receives at least some of the relevant apartment's characteristics he no longer needs to use the website's services to find it. Thus, the seller's control in this case seems to be limited to not letting consumers sample his product.

Moreover, sellers cannot always control whether and how consumers sample their products. In some situations, samples are fully dictated by consumers (e.g., our book-store experience in Study 3), and/or experienced by a seemingly random process (e.g., the lottery experience in Study 1; the car test-drive example). The current findings suggest that these environments are particularly challenging to marketers of positively skewed products. Obviously, marketers of such products are advised to discourage situations in which their product is experienced in the store, if possible. In this respect, it seems that marketers who sell their product online may exert more control over their product trials than sellers in brick-and-mortar shops.

Another interesting feature of online retailing is the advent of online consumer reviews, which provide another important source of pre-purchased information (Chen and Xie 2008). Since the online environment is somewhat restricted in allowing for firsthand product experience, online reviews were designed to replace this information by providing experiential information from a third party. Indeed, positive reviews were found to facilitate product choice and increase sales (e.g., Senecal and Nantel 2004; Chevalier and Mayzlin 2006), although their effect might vary across markets, products, consumers, and other variables (Babic et al. 2015). A recent interesting study suggests that the variance in ratings also positively correlates with product returns (Sahoo et al. 2013), a finding that seems consistent with our assertion that the effect of experiential information is very limited when it does not fully resolve uncertainty. Technological advances now enable consumers to have at least some direct experience online, and it is not clear how the two sources of information (self experience vs. online reviews that reflect the experience of others) are combined to form a product impression. We are not familiar with any studies that explored this question, which is outside the scope of the current paper as well. However, we believe that this is an important question that should be further explored in future studies.

7.3 Future Research

Future research may extend the current analysis in other ways as well. First, while the current paper focuses on short product experience at the point of purchase, the analysis may be extended to assess the marketer's expected value from allowing for different durations of product experience. Heiman and Muller (1996) showed that the value of experience duration to the marketer might depend on which attributes are revealed first. If the positive attributes are the first to be revealed, a short demonstration is better than a longer one. If, however, the product's drawbacks are experienced first, then the product is "indemonstrable," as it requires a long duration of trial, which can be unprofitable. Under the terms of the current analysis,

negatively skewed products are "demonstrable." That is, short experience will highlight their benefits, and revealing their shortcomings might require much longer experience. According to Heiman and Muller (1996), the probability of purchase as a function of the duration of demonstrations for such products has an inverse U-shape effect; short experience increases their appeal, yet after a certain point, appeal might decrease. The current analysis also implies that positively skewed products are "indemonstrable" and associated with a direct U-shape effect; consumers favor such products only if they are not given any experience, or alternatively if they are compelled to have an extensive experience that is likely to reveal the product's "hidden" attributes.

Another potential extension of the current research addresses the evaluation of services, rather than goods. Services are typically more difficult to evaluate then goods, as services are intangible goods, and their quality varies between times, locations, and suppliers. As such, services are associated with more experience and credence attributes than products. To our knowledge, little empirical work has been done on the effect of trying services. One typical example of "service product trial" occurs at the beginning of the semester during the students' "shopping week." In the first two weeks, students try out various courses and are allowed to change their registration to a different course. The current analysis implies that courses associated with a positively skewed distribution of benefits (e.g., sophisticated, non-enjoyable, yet potentially important courses) might suffer from this mechanism. Thus, we believe that our distinction between products is commensurately relevant to the evaluation of services. Future research should evaluate this proposition more directly.

Another interesting question for future research is whether the effect of experiencing skewed product distributions could be mitigated. Theoretically, such mitigation could be achieved by either directing consumers to sample representatively across the value distribution if possible, otherwise the provision of more samples may be required. One possibility that we discussed earlier is the effect of longer experiences. Another interesting possibility relates to

Ert and Erev's (2007) finding that providing more samples simultaneously can mitigate consumers' tendency to neglect outcomes occurring with low probability. Perhaps one way of doing this is exposing consumers to their peer's experiences in addition to theirs.

7.4 Summary

The summary of our results suggests non-trivial predictions concerning the impact of online (and other remote) shopping on the appeal of various products. Under the assumption that online shopping is less likely to involve free sampling than brick-and-mortar shopping, positively skewed products can be expected to flourish online. Three examples of products of this type — lotteries, datasets, and non-popular nonfiction books — were studied here. The observation that short product experience can impair the appeal of such products suggests that they will appear more appealing in the sampling-restricted, online environment, and advanced technology that allows sampling online (e.g., sites that allow women to "try" makeup on their own virtual avatars) might lead consumers to forgo positively skewed products that might actually benefit them if purchased. Acknowledging that product experience might act as a "double-edge sword" seems necessary for designing a better-quality promotion mix that will benefit marketers and consumers alike.

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Table 1. *Characterizing the experiences of three different types of product value distribution, which are associated with the same Expected Value (EV)*

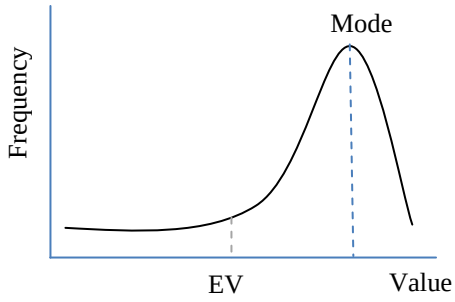
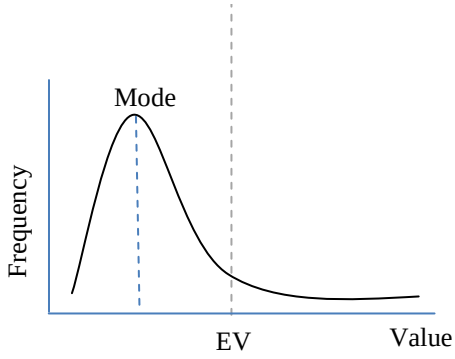
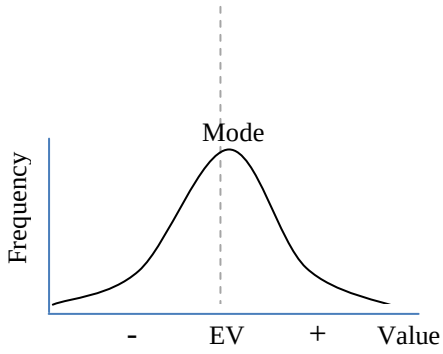
Product type	**Product value distribution**	**Expected experience**	**Post-experience product evaluation**	**Examples**
Negatively skewed		Typical outcome: higher than EV	Increased attractiveness	*Test driving comfortable car *Sampling negatively-skewed lottery(study1) and book(study3)
Positively skewed		Typical outcome: lower than EV	Decreased attractiveness	*Test driving sporty car *Sampling positively-skewed lottery(study1) and book(study3) *Sampling database(study2)
Non Skewed		Typical outcome: matches EV	Neutral	*Sampling non-skewed lottery(Study1)

Table 2. Overview of empirical studies.

	Study 1	*Study 2*	*Study 3*
Main Objectives	Compare the impact of sampling on buying negatively, positively, and non-skewed lotteries	Test the impact of sampling on an online apartment database (an example of a positively skewed product)	Test the impact of sampling on purchase of a positively skewed and negatively skewed book
Sampling frame	Students	Online consumers	Book fair visitors
Sampling size	120	3396 (website's visits)	327
Experimental design of stimuli	2 (lottery type: negatively or positively skewed) X 2 (information: with or without sampling)	Two conditions: sampling (weeks 1 & 3), or without sampling (weeks 2 & 4)	2 (book type: negatively or positively skewed) X 2 (information: with or without sampling)
Experiment type	Lab experiment	Online field experiment	Field experiment

Table 3. The problems studied in Study 1

No.	Problem	Lottery	EV	Price	Median sample size	Buying rate (%) Description condition	Buying rate (%) Sampling condition
Target							
1	Pos. skewed	(70 with p = 0.02; 8 otherwise) + e	9.2	9	8	58%	40%
2	Neg. skewed	(60 with p = 0.98; 7 otherwise) + e	58.9	59	6	42%	57%
Fillers							
3	EV > price	17 + e	17	15	5	85%	85%
4	EV < price	18 + e	18	20	5	27%	16%
5	EV = price	26 + e	26	26	6.5	67%	62%
	Overall				**6**	**56**%	**52**%

NOTE: The value of e was drawn from the following symmetric probability distribution: each of the values in the set {–2, -1, 0, +1, +2} were selected with probability 0.136, each of the values in the set {–4, -3, +3, +4} were selected with probability 0.065, and each of the values in the set {-6, –5, +5, +6} were selected with probability 0.015.

Figure 1. The decision screen in the "positively skewed" problem

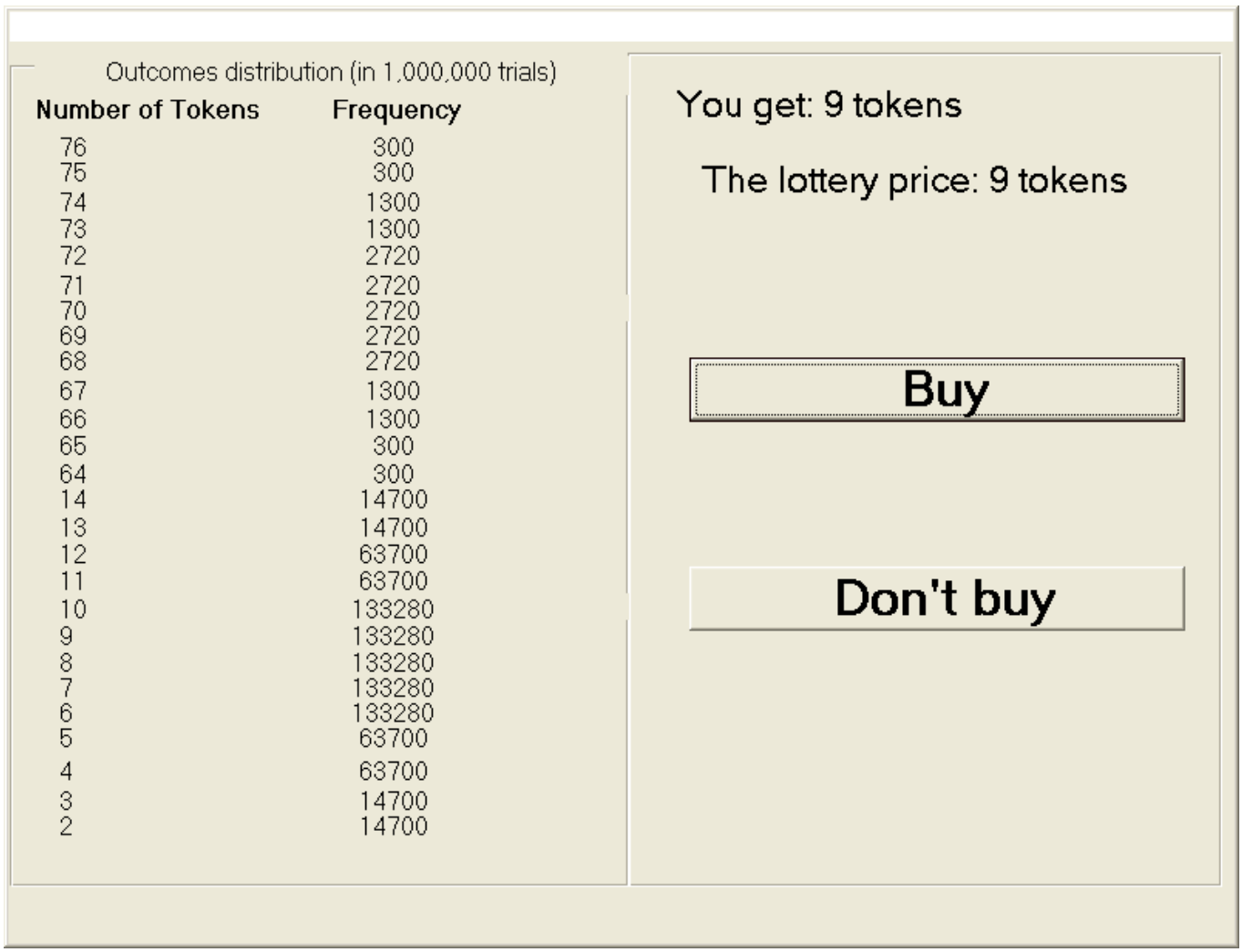


Figure 2. Proportion of lottery buyers in the two experimental problems in Study 1

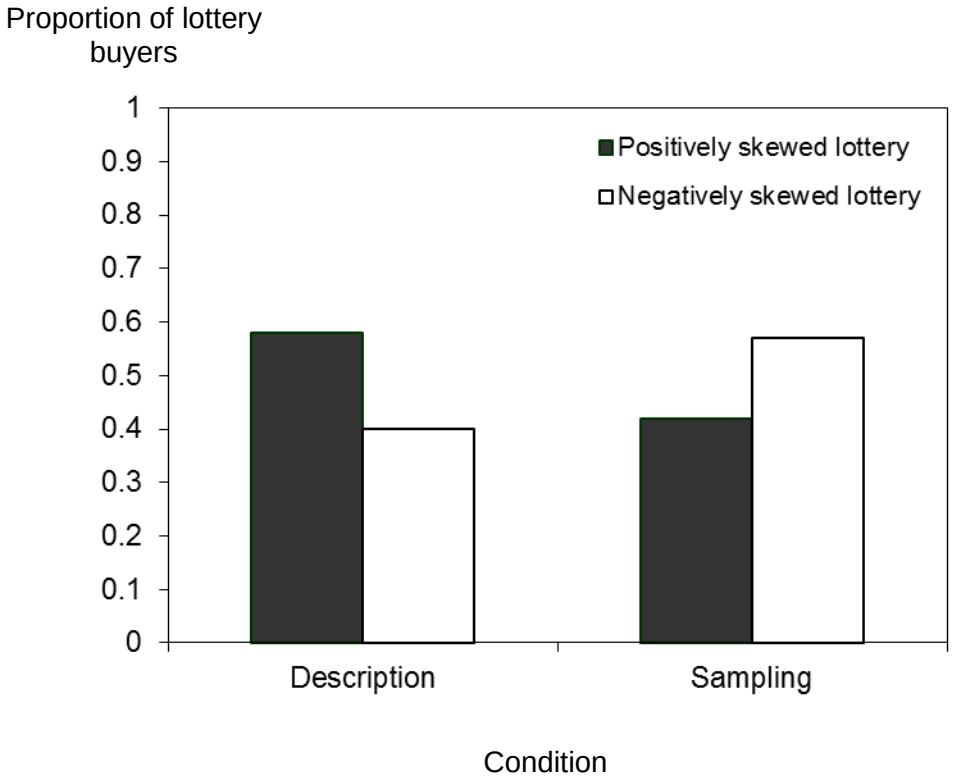


Figure 3. Proportion of lottery buyers in the two experimental problems in Study 1b (in which participants knew the lottery's expected value), and Study 1c (which used a direct conversion rate).

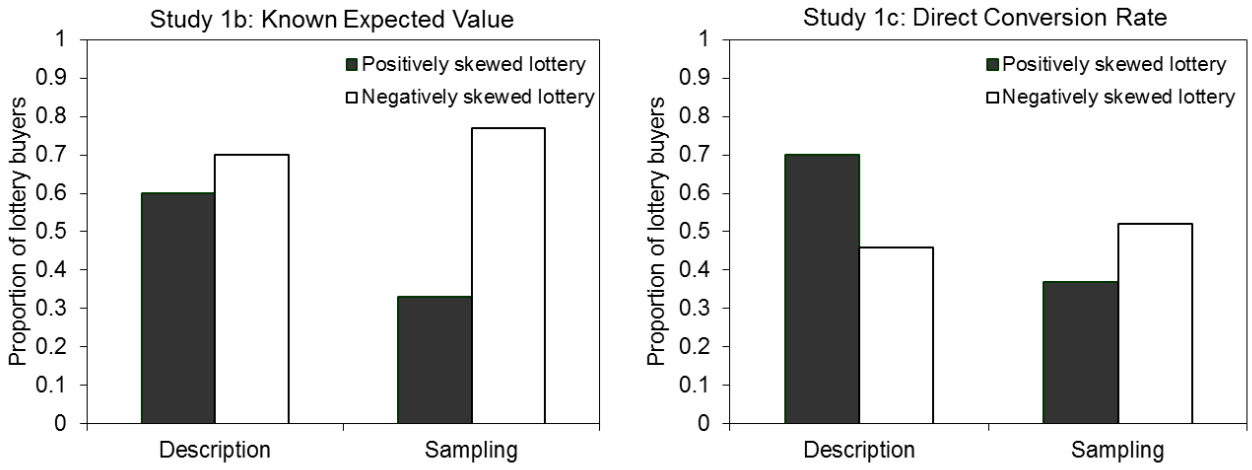


Figure 4. Buyers per day in Study 2

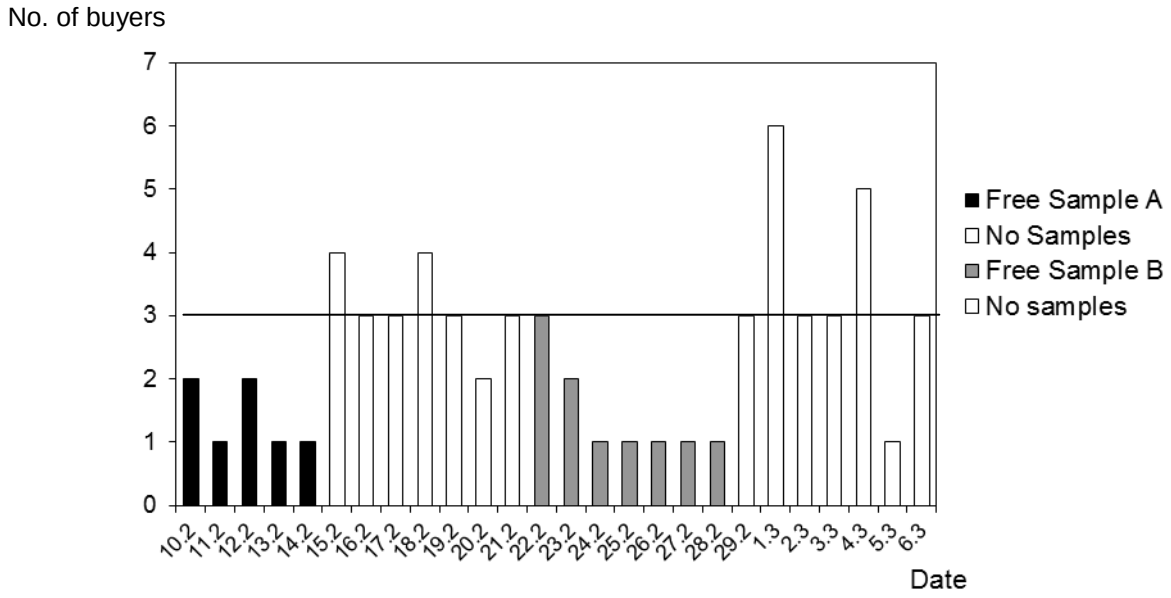
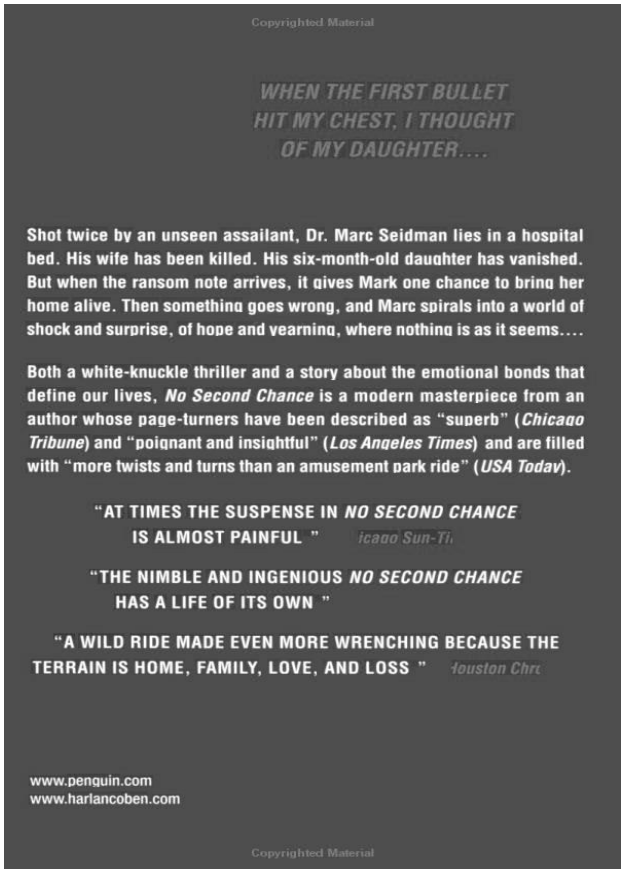
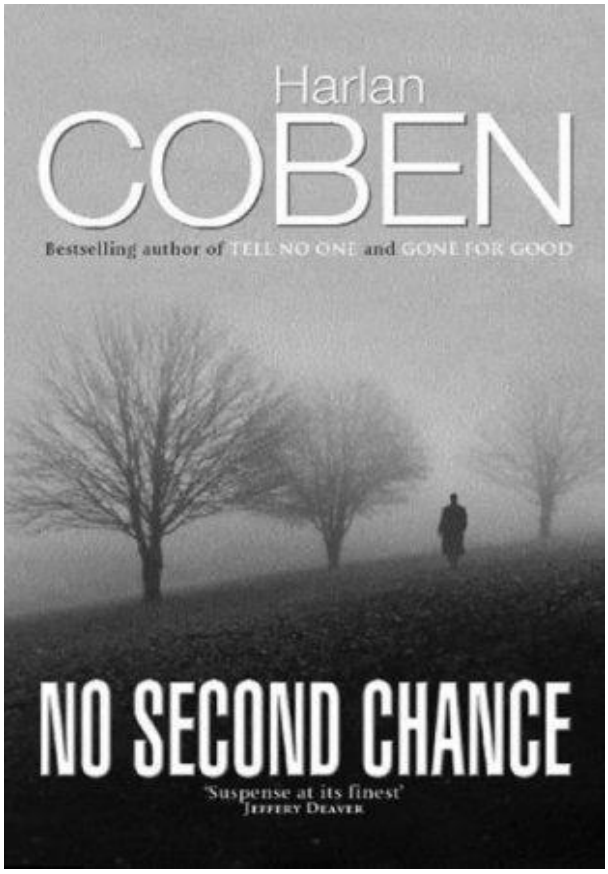


Figure 5. An example of the book presentation in condition "Description" of Study 3b





NOTE: The participants examined the Hebrew translation of the book. The cover displayed the price.

Figure 6. Proportion of choices favoring book over cash in Study 3