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# Preference reversals in evaluations of cash versus non-cash incentives

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ABSTRACT

Data are presented from six experiments that demonstrate preference reversals for cash versus non-cash incentives. When given a hypothetical choice between cash and non-cash incentives, participants chose the cash incentive (joint evaluation, JE). However when asked to evaluate them separately (separate evaluation, SE), participants gave higher ratings to the non-cash incentive; these findings were replicated with "real" monetary incentives. Preference reversals were partially dictated by the type of non-cash incentive offered: they were observed for hedonic non-cash incentives but not for utilitarian non-cash incentives. Preference reversals were caused by two factors: a shift in the dominant attribute under consideration and the presence of a value-seeking attribute that provides information about the rational choice. Specifically, participants consider the affective characteristics of the incentives during SE and the fungibility of the incentives during JE. Additionally, employees receiving rewards from an incentive program reported that recipients of non-cash awards would enjoy their reward more and would be more likely to tell their friends about it.

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## 1. Introduction

Is it better to reward an employee with a gift for their hard work? Or, should you instead reward the employee with the cash value of that gift? According to rational economic theory, an employer should always provide cash incentives, because employers will never be able to perfectly predict the preferences of all their employees. Furthermore, cash should always be favored because it is inherently more fungible than any non-cash incentive. Indeed, when *Incentive* magazine asked employees to indicate their preference among the following awards: $1500 cash, a travel award worth $1500, or a merchandise award worth $1500, 79% of the respondents chose to receive the cash (Hein & Alonzo, 1998). However, a study conducted by BI Performance Services and Goodyear Tire and Rubber Co. found that in a comparison of sales performance, the group of salespeople receiving non-cash incentives outperformed those receiving cash incentives by a margin of 46% (Alonzo, 1996).

In an effort to explain these puzzling results we performed six experiments. We demonstrated that employee preferences for incentives are not stable; they are influenced by the evaluation mode and the luxuriousness of the non-cash incentive. Specifically, when the cash and non-cash incentive are evaluated separately, the non-cash incentive is preferred. However when cash and non-cash incentives are evaluated jointly where one can be compared with the other, the cash is preferred. We suggest that such preference reversals are caused by two factors. First, the observed preference reversal can be explained by the evaluability hypothesis: responses elicited in joint evaluation (JE) differ from those in separate evaluation (SE) (Hsee, 1996; Hsee, Loewenstein, Blount, & Bazerman, 1999). Hsee and colleagues argued that the two modes highlight different

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dimensions upon which the stimuli are evaluated. In SE, responses are based on the easy to evaluate dimension, which in our studies is the affective value of the incentives. Responses in JE are based on the difficult to evaluate dimension, in our studies this is the fungibility of the incentives, which is not at all apparent in SE.

Second, the different evaluation modes either mask or highlight the presence of a "value-seeking attribute" that provides information about rational behavior (Hsee, 1999). Choosing the cash award in JE represents the more rational choice, one that is easily justified based on the advantageous fungibility of the cash.

## 2. Preference reversals: a review

The majority of rational choice theories assume the principle of invariance; decision makers should have measurable and stable preferences (von Neumann & Morgenstern, 1947). Preferences should not be affected by the manner in which the options are presented (description invariance) or the method through which the choice is made (procedural invariance). However, violations of both description and procedural invariance have been repeatedly demonstrated. When either the format of presentation or the elicitation method is varied, decision makers often display a reversal in preference (Hsee et al., 1999; Lichtenstein & Slovic, 1973; Slovic, 1995; Slovic & Lichtenstein, 1983; Tversky & Kahneman, 1981; Tversky, Slovic, & Kahneman, 1990). Preference reversals have been the subject of much research inquiry over the last 30 years, and a large body of research has supported the claim that the invariance property does not hold in human judgment. Specifically, preferences appear to be constructed at the time of judgment, are sensitive to the mode of elicitation, and are susceptible to framing effects (Slovic, 1995; Slovic & Lichtenstein, 1983; Tversky & Kahneman, 1981).

### *2.1. The compatibility hypothesis*

Several cognitive mechanisms have been proposed to explain preference reversals. According to the compatibility hypothesis, the weight a stimulus receives during the judgment process is directly related to its compatibility with the response mode (Slovic, Griffin, & Tversky, 1990). Thus if each of two bets is described by a probability and an amount to be won, people are willing to pay more for the bet with the higher amount to be won (Slovic & Lichtenstein, 1983). Because the response mode in this instance is dollar valuation, the dollar amount to be won in the wager is compatible with this mode and thus heavily influences the evaluation of the bet. However when people are asked to choose which bet they prefer, then the response mode is not in dollars, and the chooser may reverse his or her preference and select the bet with the small amount to be won but with a high probability.

### *2.2. The prominence hypothesis*

Another explanation advanced to explain preference reversals is the prominence hypothesis, which describes the different psychological processes that occur with two different response modalities: choice and matching (Tversky, Sattath, & Slovic, 1988). A typical example involves two highway safety programs: A—which results in 500 casualties per year and costs $55 million and B—which results in 570 casualties per year and costs $12 million. When asked to choose between the two programs, the majority of participants choose program A. In a matching task, participants are asked to provide the value for the cost of program A that would make them indifferent between the two programs. Preference inferred from this task demonstrates that the majority of participants prefer option B—the more cost-effective option. Tversky and colleagues argue that the two response modes evoke different decisional strategies. The choice mode naturally brings to mind a more qualitative reasoning strategy; in this response mode, decision makers tend to select the option that is dominant on the most important dimension, in this case the number of casualties. However, the matching response mode suggests a more quantitative reasoning strategy.

### *2.3. The evaluability hypothesis*

Finally, the evaluability hypothesis is designed to explain preference reversals in joint versus separate evaluations (Hsee et al., 1999). JE refers to stimuli presented simultaneously for evaluation, while SE refers to items being evaluated in isolation. JE is essentially a within-subjects comparison whereas SE is a between-subjects comparison. Decisions made during JE often differ significantly from those made during SE (González-Vallejo & Moran, 2001; Hsee, 1999; Hsee & Zhang, 2004; Hsee et al., 1999). "Traditional" preference reversals may arise because of differences between scales in the response modes. However, preference reversals observed between JE and SE occur because of differences in the evaluation mode itself (Hsee et al., 1999). A typical demonstration of this type of preference reversal uses the following two items: Dictionary J, which has 20,000 entries but has a torn cover, and Dictionary S, which has 10,000 entries but is in new condition. Participants are asked to indicate their willingness to pay (WTP) for each dictionary. In SE, dictionary S receives higher WTP values, while in JE, dictionary J receives higher WTP values. In this case, the same evaluation scale is used in both groups but the evaluation mode differs. The theoretical explanation for the preference reversals in joint versus separate evaluation modes relies on the ease with which an attribute can be evaluated in isolation. Using the dictionary example above, the condition of the book is easy to evaluate in isolation; there is an absolute indicator of quality—a torn cover demonstrates low quality. However, the

number of entries is not easy to evaluate in isolation; it is a characteristic that is highly context dependent. There is no gold standard for appropriate number of words for a dictionary; therefore, without information about other dictionaries, it is difficult to evaluate this attribute. In SE, attributes that are difficult to evaluate in isolation will have less impact, and, in JE, attributes that are difficult to evaluate in isolation will have a greater impact. A preference reversal will occur if there is a large shift in the relative impact of the easy and difficult to evaluate attributes between SE and JE modes.

Hsee (1999, p. 555) suggested that one basis for choice is the extent to which each option "... is most consistent with rationales—beliefs about how [people] should make decisions." Hsee (1999) opted to investigate one particular rationale, "value seeking," which implies that the decision maker should choose the option with the highest monetary value, even if it would not be the option that delivers the highest consumption utility. For example, participants were asked to imagine that they had won a lottery in which they could receive one of two chocolate bars as their prize: chocolate A (worth $.50, weighed .5 oz. and was in the shape of a heart) or chocolate B (worth $2.00, weighed 2 oz. and was shaped like a cockroach). Forty-six percent of the participants predicted they would get more enjoyment of chocolate A (the heart-shaped chocolate) than chocolate B (the cockroach-shaped chocolate). However, when they were asked which chocolate they would choose, 68% chose chocolate B, demonstrating a preference reversal. Although participants would get more utility of chocolate A, they would choose to consume chocolate B, because of its higher amount of chocolate.

In our studies we will concentrate on a different value-seeking rationale, fungibility, which in our economic context is the extent to which an item is exchangeable for other goods. Money is maximally fungible, of course, because it can be exchanged for any marketable good. The virtue of fungibility is present to a lesser extent in consumer goods. For example, unless one is participating in a barter economy, one cannot take flowers to a book store and ask the clerk to exchange a best seller for the flowers; flowers are not fungible in an economic sense in a modern economy. Despite the fact that flowers lack the substantial virtue of fungibility, no one accepts them as a gift by saying, "Thanks for the flowers, sweetheart, but I'd much rather have had the cash equivalent, because money is more fungible." One does not ordinarily think of fungibility in these circumstances, even though in other contexts fungibility would be a sensible basis for choosing among options.

One such context is the central focus of this manuscript: Do employees prefer a bonus that is a gift or one that is the cash equivalent of the gift? Our first hypothesis, based on the results of Alonzo (1996), is that in SE people will prefer the gift to the cash. The fungibility of the cash and the lack of fungibility in the gift will not be apparent, because neither the gift nor the cash in isolation will be sufficient to cue the presence or absence of fungibility. Our second hypothesis is that in JE fungibility will be cued, and the presence of this significant advantage will therefore lead people to prefer the cash.

Note that we are amalgamating the results of Hsee et al.'s (1999) demonstration of a JE/SE reversal with Hsee's (1999) demonstration that a rationale can override predicted consumption utility. (See also Shafir, Simonson, & Tversky, 1993). We hypothesize that in our experiments this rationale will only become apparent in JE.

We tested our hypotheses in six experiments. In addition to demonstrating the existence of preference reversals in this domain, this research represents a very strict test of the phenomenon. The earliest preference reversal studies (Slovic & Lichtenstein, 1968) required some participants to state how much they were willing to pay (WTP) for each of two lottery tickets, whereas other subjects were asked to rate the attractiveness of each lottery. According to Slovic and Lichtenstein (1968), these two modes of eliciting utility directed participants' attention to different aspects of the tickets—their probabilities of winning and losing in the case of the ratings and amounts to be won or lost in the case of WTP. Other preference reversal studies such as Irwin, Slovic, Lichtenstein, and McClelland (1993) used both marketable and non-marketable goods. An example of the latter would be improved air quality. The utility of non-marketable goods is particularly difficult to assess. Both unreliability in (Slovic & Lichtenstein, 1968) and difficulty of (Irwin et al., 1993) assessing utility provide the flexibility within which preference reversals can more easily be manifested. To the extent the utility of items is rigid and easily apprehended, preference reversals should be less likely to occur. In our study, we provide subjects with two entities whose values are specified precisely—$1500 in cash or $1500 in merchandise. Because the values of these two entities are clearly stipulated, and because the merchandise is marketable, there should be very little flexibility in participants' assessment of these items. If a preference reversal were to be manifested under these circumstances, it would constitute an extremely strong demonstration of the phenomenon.

## 3. Experiment 1

The first experiment was conducted to answer the basic question: what would employees prefer, a cash or non-cash incentive? And, would the two incentives be judged differently in joint versus separate evaluations? In order to accomplish this, students were asked to place themselves in the role of an employee and evaluate one of three bonus scenarios. In the first scenario, participants received a cash bonus. In the second scenario, they received a non-cash incentive. In the third scenario, they were offered a choice between the cash and non-cash incentives. The first two scenarios represent SE whereas the third scenario represents a JE task.

### *3.1. Research design*

One hundred ninety students participated in this experiment. All participants were psychology 100 students at Ohio State University who were taking part in the Research Experience Program; they received course credit for their participation in

this study. All data were collected via computer using the program Media Lab. The participants were presented with a short, online scenario and asked to respond to one scaled response question and one open ended question.

Following the usual procedure of Hsee (1996), we attempted to demonstrate a preference reversal by employing a JE group (a within-subjects comparison of the two incentive options) and two SE groups (a between-subjects comparison where each group rates only one of the incentive options). We compared the responses of the two SE groups with the JE group. The SE conditions consisted of a cash group and a non-cash incentive group.

Those participants in the cash group read the following scenario:

Assume that you have graduated from Ohio State and have a job paying you $35,000 per year. You consider this to be a good starting salary for someone in your field. You are satisfied with your working conditions, and you get along well with your co-workers. Although this is not the type of job you hope to hold when you are further along in your career, it is satisfactory at this point.

As you near the end of your first year of employment, the company decides to reward its most productive employees with a bonus. Due to your good performance, you are one of the approximately 50% of the employees who will receive this bonus. The amount of your bonus will be $1500. (The bonus is actually more than $1500, but you have to pay taxes on that amount, which leaves you with $1500 as the final value of the bonus.)

The scenario presented to the non-cash incentive group modified only the type of bonus the employee received. Instead of being awarded the $1500 cash bonus, the participants saw the following statement, which replaced the last two sentences of the cash group's instructions:

For the bonus, you can choose one of five packages (listed below), which total $1500 in value. (The value of the bonus is actually more than $1500, but you have to pay taxes on the monetary value of the bonus, which leaves you with $1500 as the final value of the bonus.)

(1) Home audio system
The system will include two Klipsch synergy series floorstanding speakers (35" high, 8" wide), a Sony 600-W, 6.1 channel audio–visual receiver with Dolby digital sound, a Sony 400-disc mega storage CD changer with CD-RW and MP3 capability, and a Sony progressive scan DVD/hi fi VCR combo.
(2) Sony 51" widescreen rear-projection HDTV
The 51" TV has a 16:9 aspect ratio (movie style screen) and 1080i capability which provides the highest quality picture from a high-definition source. It also has a 2-tuner PIP (picture in picture) which allows you to watch two equally sized shows at once.
(3) Compaq Presario laptop computer
The laptop has an Intel Pentium 2.3 Ghz processor with a 40 GB harddrive. The screen is 15" and the computer comes with DVD/CD-RW combination drive.
(4) Columbus Blue Jackets ticket package
Two club-level box seat tickets to four Columbus Blue Jackets games of your choice. Additionally, for each game, you will receive dinner for two at the Italian restaurant, Buca di Beppo, located across the street from the Nationwide Arena.
(5) A 5-night Carnival western Caribbean cruise
This cruise package includes an ocean-view room for two adults on the Carnival cruise ship, the Imagination; the cruise departs from Miami, Fl and travels to the Grand Cayman, the Cayman Islands, and Ocho Rios, Jamaica. All food and non-alcoholic beverages are included as well as all entertainment on board the ship.

Note the bonuses were worth approximately $1500 at the time the experiment was conducted. In the JE condition, participants were given the option to choose the cash or the non-cash incentive.

The SE conditions were asked to report their opinion of the bonus on a 7-point scale (1 = extremely dissatisfied; 7 = extremely satisfied). Those in the JE condition were asked to indicate their preference between the two possible bonuses on a 7-point scale (1 = extremely likely to choose the cash, 7 = extremely likely to choose one of the non-cash incentives).

### 3.2. Data analysis and results

Satisfaction with the bonus, as reported by the participants in the two SE conditions, was highly negatively skewed. Due to the nonnormality of our sample, the data were analyzed using nonparametric tests. Participants in the cash incentive group reported a median response of 5, which indicated that they were somewhat satisfied with the bonus they received at this job. However, participants in non-cash incentive group indicated that they were very satisfied with the bonus they received, a median satisfaction rating of 6. Using a Mann–Whitney U test of ranks, it was determined that subjects in the non-cash group were significantly more satisfied with their bonus than were subjects in the cash group, $z = 3.17, p < .05$.

Participants in the JE condition were asked to indicate their preference between the cash and non-cash incentives; specifically, they were asked to report their likelihood of choosing either alternative. With a median response of 3, the JE group reported being somewhat likely to choose the cash incentive. To test whether participants were significantly more likely to choose the cash or the non-cash incentive, this variable was truncated into two categories; participants responding with a 1, 2, or 3, which represented a slight to a strong preference for receiving the cash, were grouped into the "choose cash" cate-

gory, while participants responding with a 5, 6, or 7, representing varying degrees of preference for the non-cash incentive, were grouped into the "choose non-cash" category. Participants choosing a four were discarded from this analysis; this resulted in the exclusion of only two participants from this analysis. A binomial test revealed that a significantly larger proportion preferred to receive the cash incentive (63%), $z = 2.00, p < .05$. In summary, the non-cash incentive was preferred over the cash incentive when the alternatives were evaluated separately; however, the cash incentive was preferred when the alternatives were jointly evaluated.

### 3.3. Discussion

In Experiment 1, a reversal was demonstrated in preference for cash versus non-cash incentives in joint versus separate evaluation mode. We hypothesize that two factors contribute to this effect. First, the two evaluation modes, JE and SE, differentially highlight dimensions upon which the stimulus is rated (Hsee, 1996). We hypothesize that the affective response to the award is palpable and dominant in SE. No comparison to any other stimulus is required to apprehend how much one would like a Caribbean cruise or a $1500 check. The very desirable characteristic of cash—its fungibility—is not even considered in SE. Second, only in JE does the value-seeking feature—fungibility—become apparent, when cash is contrasted to a specific award. Fungibility provides a good rational basis for preferring the cash award, because money is fungible, meaning it can be spent on anything—including one of the bonus options offered.

Support for the primacy of affect in SE comes from Zajonc's affective primacy hypothesis (Murphy & Zajonc, 1993; Zajonc, 1980; Zajonc & Markus, 1982). Zajonc demonstrated that affective reactions occur before cognitive reactions and they require very little processing or encoding. Therefore, we argue that in SE, participants' initial affective response drives their evaluation of the incentive. Furthermore, it is highly likely that participants will have a greater affective response to one of the bonus options than the less imaginative cash value award, thus resulting in a more favorable evaluation of the non-cash incentives during SE. More direct support for this hypothesis will be presented in Experiment 3.

## 4. Experiment 2

Experiment 2 was designed to investigate further the role of the value-seeking attribute in the observed preference reversal. To do so, we manipulated the prediction of the value-seeking attribute hypothesis by varying the non-cash incentives. When the non-cash incentives were hedonic, such as those presented in Experiment 1, the value-seeking hypothesis predicts that it would be more rational, hence more justifiable, to choose the cash incentive over the hedonic non-cash incentive. For example, one of the options listed in experiment 1 was a 51" widescreen TV. At the time Experiment 1 was conducted (2004), most participants would be unable to purchase the TV on their own, or they would be unable to justify the purchase because the money that would go to pay for the TV should go towards paying household bills or debt. Because this item is highly luxurious, it is also extremely desirable but not justifiable. Therefore, if an employee were to receive this TV as a bonus from their employer, because it is an extremely desirable item, they are likely to be very satisfied with the bonus. Its consumption utility would be high. However, if they have to choose between receiving the TV or the cash value of the TV, the employee would find it difficult to justify choosing the TV over the cash because of the fungibility of the cash. This is supported by research by Kivetz and Simonson (2002), which shows that consumers have difficulty choosing a hedonic good over a utilitarian good in the moment but will commit to choosing a hedonic good in advance.

In contrast, when the non-cash incentives offered are more utilitarian, such as $1500 in gas or groceries, the value-seeking hypothesis would not predict that cash should be preferred to the non-cash incentive. The consumption utility of gas or groceries is less than that of a glamorous gift. Either the cash or the non-cash awards would be considered rational choices, because both could be used toward daily expenses. Thus, the value-seeking hypothesis predicts less difference between the two options during JE, because consumption utility and a rationale for choosing do not as strongly point toward opposite choices as is the case for hedonic bonuses.

Experiment 2 compared the evaluations of hedonic non-cash incentives to utilitarian non-cash incentives in both SE and JE. If the value-seeking hypothesis contributes to the effect observed in Experiment 1, the results of Experiment 2 would depend upon the luxuriousness of the non-cash incentive. Specifically, participants will be significantly more satisfied with the hedonic non-cash incentives than the cash incentive in SE but more likely to choose the cash over the hedonic non-cash incentives in JE—replicating the findings of Experiment 1. In addition, participants would be indifferent between the cash award and the utilitarian non-cash award in JE. The hypothesis has no prediction about the evaluation of the two awards in SE. Thus, the findings would differ for hedonic and utilitarian non-cash incentives. In contrast, if the value-seeking hypothesis does not contribute to the findings in Experiment 1, the results of the SE versus JE comparisons should be the same for hedonic and utilitarian non-cash incentives.

### 4.1. Research design

Three-hundred seventy-five students participated in this experiment. All participants were Psychology 100 students at Ohio State University who were taking part in the Research Experience Program; they received course credit for their participation in this study. All data were collected via computer using the program Media Lab. The participants

were presented with a short, online scenario and asked to respond to one scaled response question and one open ended question.

Again, following Hsee (1996) we attempted to demonstrate the preference reversal by comparing ratings of the JE groups to the SE groups. Participants were randomly assigned to one of five experimental groups; the number of participants per group ranged from 71 to 81. There were three SE groups: cash only, utilitarian non-cash incentives, and hedonic non-cash incentives. The utilitarian and hedonic non-cash incentives were chosen based on the results of a pre-test in which participants rated the "luxuriousness" of 20 items.

The cash group evaluated a $1500 cash bonus only; this scenario was identical to that of the cash group in Experiment 1. The utilitarian non-cash incentive group was given the option to choose one of the five following options all worth $1500:

(1) Lawnmower: Craftsman 42 inch Lawntractor with a 6-speed 20 hp engine.
(2) Washer and dryer: the Kennmore Elite high efficiency front-loading washer and the Kennmore gas dryer with automatic moisture sensing.
(3) One-year supply of groceries at any Giant Eagle grocery store.
(4) Oven: Maytag stainless steel double oven with black trim; the oven is electric and features a ceramic-glass top and electronic controls.
(5) One-year supply of gas at any BP gas station.

The hedonic non-cash incentive group, was given the option to choose one of five luxurious bonus options. These bonus options were identical to those offered in Experiment 1 (home audio system, large screen HDTV, laptop computer, Blue Jackets ticket package, and cruise). All three groups were subsequently asked to report their satisfaction with this bonus on a 7-point scale (1 = extremely dissatisfied, 7 = extremely satisfied).

There were two JE conditions. The utilitarian JE condition was offered a choice between one of the five utilitarian bonus options and $1500. The hedonic JE condition was offered a choice between one of the five hedonic bonus options and $1500. Both groups were subsequently asked to report their preference between the two alternatives on a 7-point Likert-type scale (1 = extremely likely to choose the cash, 7 = extremely likely to choose one of the bonus items).

### 4.2. Data analysis and results

The following analyses compared the responses of the SE conditions. Participants in the cash group reported a median response of 5, which indicated that they were somewhat satisfied with the bonus they received at this job. However, participants in both the utilitarian and hedonic non-cash incentive groups indicated that they were very satisfied with the bonus they received, a median satisfaction rating of 6. A Kruskal–Wallis test of ranks indicated that there were significant differences between the three SE conditions, $\chi^2(2) = 5.96, p = .051$. Planned comparisons were designed to test for differences between the three groups. A one-tailed Mann–Whitney U test revealed that, as expected, the hedonic non-cash incentive received significantly higher ratings than the cash incentive, $z = -1.91, p < .05$. One-tailed tests were used for the previous comparison, because this finding was predicted from the results of Experiment 1. Additional two-tailed Mann–Whitney U tests determined that the utilitarian non-cash incentives also received significantly higher satisfaction ratings than the cash incentive, $z = -2.29, p < .05$, and the hedonic and utilitarian non-cash incentive groups did not differ significantly from each other, $z = -0.33, p < .05$. Therefore, both non-cash groups, regardless of the luxuriousness of the bonus, were more satisfied with their incentive than the cash group.

The following analyses compared the results of the JE conditions. Participants in the utilitarian JE condition reported a median preference of 4, which indicated they were "indifferent" between the cash and utilitarian non-cash incentive. Participants in the hedonic JE condition reported a median preference of 2, which indicated that they were "very likely to choose the cash incentive." To test whether participants were more likely to choose the cash or the non-cash incentive, preference was truncated into two categories; participants responding with a 1, 2, or 3, which represented a slight to a strong preference for receiving the cash, were grouped into the "choose cash" category while participants responding with a 5, 6, or 7, representing varying degrees of preference for the non-cash incentive, were grouped into the "choose non-cash" category. Participants choosing a 4 were discarded from this analysis; a total of 8 participants were removed from these analyses. In the hedonic JE group, a significantly greater proportion of the participants chose the cash incentive (65%), $z = 2.23, p < .05$; however, in the utilitarian JE group, participants were equally likely to choose the cash (51%) or the non-cash incentive (49%), $z = 0.84, p > .05$.

### 4.3. Discussion

The preference reversal observed in Experiment 1 was replicated in Experiment 2: in the SE condition, the hedonic non-cash incentives were given higher satisfaction ratings than the cash incentive. Nevertheless, 65% of the people chose to receive the cash incentive over the hedonic non-cash incentive in JE.

The results of Experiment 2 also followed the predictions of the value-seeking hypothesis. That is, the results were dependent upon luxuriousness of the non-cash incentive. In the JE conditions, participants were more likely to choose the cash over a hedonic non-cash incentive but were indifferent between the choice of cash and a utilitarian non-cash incentive.

We hypothesize that the greater likelihood of choosing the cash when paired with hedonic non-cash incentives is due to the difficulty in justifying the selection of a luxurious item when the cash incentive enjoys the significant benefit of fungibility. This fungibility provides a very sound value-seeking rationale for choosing the cash incentive, even though participants indicate they would be more satisfied with the hedonic non-cash incentive. In contrast, participants were indifferent between the cash and utilitarian non-cash awards because these non-cash items are necessary, a value-seeking factor that can counter the rationality of the cash's fungibility. Thus the results indicate that the effect observed in Experiment 1 and replicated in Experiment 2 can at least partially be explained by the value-seeking hypothesis.

## 5. Experiment 3

Experiments 3 and 4 were designed to more directly test the roles of the affect and fungibility in the preference reversals observed between separate and joint evaluation modes in Experiments 1 and 2. According to Hsee and colleagues (1999), easy to evaluate attributes are apparent without needing any referent for comparison and will have greater weight in the SE condition; attributes that are difficult to evaluate without a referent will have greater weight in the JE condition where comparison is possible. We hypothesized that (a) the affective response to the incentive is an easy to evaluate dimension and will be given greater weight during SE; (b) the fungibility of cash is the difficult to evaluate dimension and will only play an important role during JE. In fact, fungibility is a value-seeking factor that will only become apparent in JE and thus can play no role in SE. In Experiment 3 we tested the first of these two hypotheses, and in Experiment 4 we tested the second one. It is necessary to evaluate the two hypotheses in separate experiments. In SE, we can only compare the relative endorsement of affective statements between those persons considering either cash or non-cash incentives. If we were to ask SE participants to also rate statements about fungibility, this would bring to mind the natural comparison between cash and non-cash incentives that would not normally be made during SE. This would effectively make the SE the same as the JE. Therefore, the two hypotheses regarding SE and JE were tested in two separate experiments.

To test the hypothesis that the affective response plays a larger role in the evaluation of the incentive in SE, we created statements designed to capture aspects of the affective reaction. We hypothesized that these statements would be more strongly endorsed by participants receiving the non-cash incentive compared with participants receiving the cash incentive.

### 5.1. Research design

Eighty-five students participated in this experiment. All participants were students in a Psychology course at Wichita State University. They received course credit for their participation. Data were collected via the Internet using the survey tool MRInterview. In this experiment, we used only the SE conditions; therefore, there were two groups. Participants were presented with 1 of 2 scenarios similar to those used in Experiment 1. Group 1 was presented with a cash incentive, and group 2 was presented with a hedonic non-cash incentive. The scenario for the cash incentive was identical to that used in Experiment 1, except that the name of the university was changed to reflect the change in venue of the experiment. The scenario for the hedonic non-cash incentives was updated to reflect the changes in value of the non-cash items that had occurred since Experiment 1 was conducted. Instead of the five options presented in Experiment 1, participants in group 2 were given the following five hedonic non-cash incentives to consider:

(1) Panasonic 42" Flat-panel Plasma HDTV
This plasma TV integrates technologies such as progressive scan and Digital Cinema Reality, providing lush images to push the realism of your multimedia. Surround sound and two 20-W speakers create a lush soundscape.
(2) Dell XPS M1330 Laptop Computer
This laptop has two Intel© Core™ Processors (each 1.5 GHz), 2 GB of memory, and a 120 GB hard drive. It also has a CD/DVD burner, an Intel© Integrated Graphics Media Accelerator X 3100 video card, and it is loaded with the new Windows Vista operating system.
(3) Five-night Caribbean cruise on the 4½ star ship, Enchantment of the Seas, by Royal Caribbean
This cruise package includes an ocean-view or balcony room for two adults (room choice seasonally dependent); the cruise departs from Fort Lauderdale, Fl and travels to the Key West, FL, Cozumel, Mexico, and Coco Cay, Bahamas. All food and non-alcoholic beverages are included as well as all entertainment on board the ship.
(4) BOSE DVD Home Theater System with Hard Drive
Enjoy theater-like sound from the Gemstone™ speakers and hideaway Acoustimass® module of this advanced BOSE® 3·2·1™ DVD home entertainment system. You can also store up to 200 h of your favorite music in the system's media center.
(5) Four-night stay at Mt. Princeton, hot springs resort in Nathrop, Colarado
This vacation includes a 4-night stay in a luxury cabin located on beautiful Chalk Creek. The cabins meander along the old Denver and South Park Rail Road Bridge with easy walking access to both the restaurant and swimming areas. Decks open up to a wonderful alpine environment. Each cabin has a master bedroom with a king bed and a loft with two queen beds. In addition, each cabin has a fireplace and a kitchenette.

Both groups of participants were then asked to evaluate the bonus on the following three dimensions.

(1) How enjoyable is this award?
  0- Not enjoyable at all
  1- Slightly enjoyable
  2- Somewhat enjoyable
  3- Very enjoyable
  4- Extremely enjoyable

(2) How satisfying would it be to receive this award?
  0- Not satisfying at all
  1- Slightly satisfying
  2- Somewhat satisfying
  3- Very satisfying
  4- Extremely satisfying

(3) How happy would you be to receive this award?
  0- Not happy at all
  1- Slightly happy
  2- Somewhat happy
  3- Very happy
  4- Extremely happy

### 5.2. Data analysis and results

Compared to participants in the cash incentive group, participants in the non-cash incentive group provided significantly higher ratings of their enjoyment, 4.29 versus 3.84, $t(83) = 2.85$, $p < .01$, satisfaction, 4.34 versus 3.98, $t(83) = 2.20$, $p < .01$, and happiness 4.56 versus 4.14, $t(83) = 3.00$, $p < .01$.

### 5.3. Discussion

Experiment 3 supported the hypothesis that the affective responses to the incentives were highlighted during SE. When participants were presented with the non-cash incentive, they predicted that they would be more likely to enjoy the reward, be more satisfied with it, and be happy with it. We argue that these items clearly reflect a participant's affective reaction to the award, and the greater endorsement of these items by the non-cash incentive group reflects the fact that affective responses are more salient in SE.

## 6. Experiment 4

We hypothesized that in JE, participants would indicate that the dimension of fungibility played a larger role in their decision than their affective responses to the stimulus. To test this, we created statements designed to capture both the affective and fungibility dimensions. We hypothesized that in JE, participants would endorse the statements representing the fungibility dimension more strongly than statements reflecting the affective dimension.

### 6.1. Research design

One hundred thirty-six students from Wichita State University participated in this study. The students received course credit for their participation. Data were collected via the Internet using the survey tool MRInterview. In this experiment, there was only one condition—JE. Therefore, participants were presented with a choice between 1 of 5 hedonic non-cash incentives or a cash incentive of equal value. This experiment used the JE scenario presented in Experiment 1 substituting the five hedonic non-cash incentives described in Experiment 3. After reading the scenario, participants were asked to indicate their preference between the cash and non-cash incentives on a 6-point Likert scale (1 = "very likely to choose one of the bonus options," 6 = "very likely to choose the check"). Then participants were presented with the following four statements:

(1) Money is the more practical choice because it can be used for any type of purchase.
(2) Money is the more sensible choice because it can be spent on anything, not just the awards mentioned in the list.
(3) I would receive more enjoyment from the non-cash awards than the cash.
(4) Receiving a non-cash award would be more exciting to me than receiving the money.

Each statement was rated on a 6-point Likert scale (1 = "Strongly agree," 6 = "Strongly disagree"). Statements 1 and 2 captured the fungibility of cash, whereas statements 3 and 4 represented the affective response to the incentive. The order of the dependent variables was randomized. Some of the participants indicated their preferred incentive before rating their agreement with the four statements, and some of the participants rated the four statements before indicating their preferred incentive. In addition, the order of the statements was randomized. Some of the participants rated the fungibility statements first, and some rated the affect statements first.

### 6.2. Data analysis and results

Replicating the previous experiments, participants reported being more likely to choose the cash incentive during JE; the median response was a 5.00 of 6. This variable was negatively skewed with 37.5% of the participants indicating that they would be extremely likely to choose the non-cash incentive. The responses to both fungibility statements were also highly skewed; approximately half of the sample indicated that they strongly agreed with both fungibility statements (48.5% in statement 1 and 51.5% in statement 2). Therefore, nonparametric tests were employed.

The statements representing fungibility, statements 1 and 2, were significantly positively correlated with each other (Spearman's $r = +.72$, $p < .05$). The statements reflecting the affective reaction to the incentive, statements 3 and 4, were also significantly positively correlated (Spearman's $r = +.79$, $p < .05$). However, the statements reflecting the affective response were negatively correlated with the statements describing fungibility. See Table 1 for the correlations.

To test the hypothesis that the statements reflecting fungibility would be more strongly endorsed than the statements describing the affective response, we compared the ratings of the "affective" statements to the "fungibility" statements using Wilcoxon Sign Ranks tests. In line with our hypothesis, statement 1, the first fungibility statement, was given significantly higher ratings than both statements reflecting the affective response, statements 3 and 4, respectively, $Z = 7.60$, $p < .01$, $Z = 7.99$, $p < .01$. And, statement 2, the second statement reflecting the dimension of fungibility, was given significantly higher ratings than both statements reflecting the affective response, statements 3 and 4, respectively, $Z = 7.85$, $p < .01$, $Z = 8.24$, $p < .01$.

We performed additional Spearman correlations to investigate the relationship between participants' ratings of the four statements and their choice of the cash versus non-cash incentives. The correlations between each of the fungibility statements (statements 1 and 2) and choice were −.53 and −.46 (both $p$'s < .05), indicating that endorsing the importance of fungibility was significantly correlated with the choice of the cash. On the other hand, the correlations between each of the affect statements (statements 3 and 4) and choice were +.66 and +.58, indicating that endorsing the importance of affect was significantly correlated with the choice of the non-cash incentive.

### 6.3. Discussion

Experiment 4 supported the hypothesis that the fungibility of the cash incentive was highlighted during JE. During JE, participants were given the option to choose between a cash and hedonic non-cash incentive, thus allowing for comparisons between the two awards. We argue that this comparison draws the participants' attention to the fact that the cash award is fungible; the non-cash awards are not. This leads people to focus on this dimension while forecasting their decision. This conjecture is strongly supported by the fact that participants in this study much more strongly endorsed fungibility-based reasons as their basis for their choice compared to their endorsement of affect-based reasons. Thus, Experiment 4 demonstrates that the evaluability hypothesis, in addition to the value-seeking hypothesis, helps to explain the findings observed in Experiment 1.

In addition, the data suggest a modification to the evaluability hypothesis. The hypothesis as originally formulated by Hsee and colleagues states that in SE, the easy to evaluate dimension has greater impact than the difficult to evaluate dimension, which lacks a referent. But, in JE, the easy to evaluate dimension takes a back seat to the difficult to evaluate dimension, which now has a referent. However, even in isolation it would be easy for people to conclude that money is the most fungible incentive possible. This is unlike the number of entries in a dictionary, which is hard to evaluate without another dictionary for comparison. However fungibility is a dimension that is simply not even considered until there is a contrast that makes this dimension apparent. Therefore, we suggest the following modification to the evaluability hypothesis: Preference reversals between SE and JE can be driven by features that are difficult to evaluate in isolation OR by features that are never even considered without a contrast.

**Table 1**
Spearman correlations among the dependent variables of Experiment 4.

| | Fung. #2 | Affect #1 | Affect #2 |
|---|---|---|---|
| Fungibility statement #1 | .72 | −.46 | −.39 |
| Fungibility statement #2 | | −.38 | −.28 |
| Affect statement #1 | | | .79 |

## 7. Experiment 5

Experiments 2–4 demonstrated that both the evaluability hypothesis and the value-seeking hypothesis help to explain the effect observed in Experiment 1. The final two experiments in this paper attempt to explore the limits of the preference reversal observed in Experiment 1 by testing whether employees have a lay theory about this effect (Experiment 5) and whether this effect can be replicated when real incentives are provided to participants (Experiment 6).

Experiment 5 was a survey-based field study performed to ascertain the opinions of persons who have actually participated in an awards program. Would they enjoy non-cash awards more than cash ones? According to their "lay theory" of motivation, do they believe that employees receiving one type of award would work harder than employees receiving the other type?

### *7.1. Research design*

Questionnaires were sent to approximately 150 employees from various companies who received merchandise awards or gift certificates from Hinda Incentives, a company that provides rewards to employees and customers enrolled in incentive programs. Seventy-six surveys were returned. Participants in this experiment had earned "true reward points" from their company, which could be redeemed via a catalogue of gifts provided by Hinda Incentives. The catalogue included items in a wide variety of price ranges, hedonic and utilitarian goods, and gift certificates to well known stores such as Best Buy. Participants were asked to read a brief scenario and complete a brief five-item questionnaire sent to them via email. The scenario described two fictitious employees: Employee A (who received a big award item, such as a high-definition TV) and Employee B (who received a cash award exactly equal in value to the award Person A received). Participants were asked to respond to the following questions:

(1) Which person would you rather be?
(2) Which person would enjoy their reward for a longer period of time?
(3) Who would be more likely to tell their friends about the reward?
(4) Who would be more proud of their reward?
(5) Who will work harder for their reward?

For each question, participants were asked to respond on 7-point Likert-type scales, where a "1" indicates "definitely Person A" and a "7" indicates "definitely Person B"; a score of "4" corresponds to indifference.

### *7.2. Data analysis and results*

Six participants were removed from the analyses because they only filled out portions of the questionnaire; 70 participants remained. Of these 70 participants, 20 elected to receive gift certificates for their last actual reward, 31 received large dollar items (e.g. a television), and 19 received small dollar items (e.g. an ice cream maker). The opinions of the participants did not differ based upon the prize category they had chosen. On average, participants indicated a preference to be Employee B, who received the cash reward: $\overline{X} = 5.03$, 95% CI = (4.51, 5.55).

In addition, participants indicated that they believe Employee B was likely to work harder for their reward than Employee A: $\overline{X} = 4.55$, 95% CI = (4.11, 4.98).

However, they reported that Employee A is likely to enjoy his/her reward more: $\overline{X} = 3.46$, 95% CI = (2.91, 3.99). Additionally, Employee A was more likely to tell his/her friends about the reward: $\overline{X} = 3.29$, 95% CI = (2.79, 3.78). However, participants reported being indifferent as to which employee would be more proud of their reward: $\overline{X} = 3.90$, 95% CI = (3.45, 4.35). All five questions were positively correlated. All of the correlations were at least of a moderate magnitude; however, there were a few substantial correlations of .6 and .7.

### *7.3. Discussion*

Replicating the survey conducted by *Incentive* magazine, participants in Experiment 5 reported that they would rather be the employee who receives a cash award. In addition, participants also believed that the employee who received a cash award would work harder than an employee who received a big non-cash award. However, this finding is contrary to the report by Good Year Tire and Rubber Co., which found that participants receiving non-cash awards outperformed those receiving cash awards.

On the other hand, participants believed that the employee who received a non-cash award would be more likely to enjoy their award and would additionally be more likely to tell their friends about the reward. This latter piece of information supports the hypothesis that non-cash awards are more enjoyable for the recipients. This also provides direct evidence that employees actively choose the award that they overtly acknowledge would bring them less enjoyment. In addition, the greater amount of enjoyment and the larger "trophy value" could potentially lead to increased future performance. However, these participants believed that a cash award would be a stronger motivator. This experiment was successful in capturing

"lay" theories about the influence of cash and non-cash incentives on enjoyment and performance. More importantly, the participants' belief that non-cash incentives were more enjoyable supported the data from Experiments 1–3.

## 8. Experiment 6

To increase the generality of the findings, we designed an experiment to replicate the prior vignette-based studies in a performance-based format offering "real" choices. Participants in this experiment were asked to complete a challenging task, and the person who received the highest score earned an incentive. Therefore, the ratings given in this experiment reflected real bonuses that could be received as opposed to predicted reactions to hypothetical choices. Furthermore, with the additional requirement that participants complete a challenging cognitive task, performance can be examined as a function of the type of reward offered. This goal of this experiment was to replicate the preference reversals from the previous vignette-based studies.

### *8.1. Research design*

Eighty-eight psychology 100 students participated in this experiment. All participants were psychology 100 students at Ohio State University who were taking part in the Research Experience Program; they received course credit for their participation in this study. All data were collected via computer using the program Media Lab. Participants were asked to complete an experimental task, which consisted of solving 45 anagrams (or scrambled words). Prior to starting the task, participants were informed that the person with the best score on the anagram task will earn a prize. If there were ties for the best score, one winner would have been chosen at random from the best performers. Participants were randomly assigned to one of three conditions. Participants in the cash group, group 1, were told that they are eligible to win a $250 cash prize. Participants in the non-cash incentive group, group 2, were told that they will win their choice of one of three prize options: Apple I-pod, Sirius satellite radio receiver and 6 month subscription, or a Palm Tungsten E handheld organizer (each worth approximately $250 in value). Finally, group 3, the JE condition, was informed that they had the option to choose between the cash prize and one of the bonus options. Participants were then asked to solve 45 anagrams, a scrambled word task, that ranged in levels of difficulty. Participants were given 1 minute to solve each anagram. Anagrams were chosen based on their reported level of difficulty (Tresselt & Mayzner, 1966); the median solution times for the 45 anagrams summed to approximately 30 minutes. Participants were then presented with the information regarding the possible bonus they could receive. Participants in the cash group were shown the following text:

> Because we would like you to put your best effort into solving the anagrams, we are offering a bonus to the person who solves the most anagrams this quarter. If there are ties, one winner will be randomly selected from the group of people who solved the most anagrams correctly. If you solve the most anagrams correctly, you will receive a check for $250. You will be contacted at the end of the quarter if you are the winner of this bonus. (Picture of money is shown). We are not kidding about the bonus! Because we want you to try your best, we will be rewarding the participant who solves the most anagrams with a $250 check. Please take this task seriously!

The text presented to participants in group 2 was identical except for information about the bonus. The second group was told about the three prizes they could win (Apple I-pod, satellite radio, or Palm Pilot). They were provided with detailed information about each of the prizes along with a picture of the items. Group 3 was offered a choice between the $250 and one of the three prizes. Participants were then asked to solve the 45 anagrams. After they completed the anagram task, the participants were reminded of their potential bonus and were asked to respond to a question about the bonus. Participants in groups 1 and 2 were asked to express their opinion of the bonus of a 5-point Likert-type scale (1 = indifferent, 2 = somewhat good, 3 = good, 4 = very good, 5 = excellent). Participants in group 3 were asked to express their preference between the cash and non-cash incentives on a 7-point scale (1 = extremely likely to choose the cash, 7 = extremely likely to choose one of the bonuses). In addition they were told:

> If you are the recipient of the bonus for this experiment, we will give you a check for $250 as your reward if you choose 1, 2, or 3 on the scale. If you choose 4 on this scale, this indicates that you are indifferent between the cash award and choosing one of the bonus options. We will then flip a coin to determine whether you will receive the cash or your choice of one of the other bonus options listed above. If we randomly choose the bonus item for you, we will email you at the end of the quarter to ascertain your preference among the three items. Finally, if you choose 5, 6, or 7 on the scale, you will receive your choice of one of the 3 bonus options. If you are the winner, we will email you at the end of the quarter to ascertain your preference among the three items.

### *8.2. Data analysis and results*

The distribution of satisfaction ratings was nonnormal; thus, nonparametric statistics were employed. One-tailed tests were chosen because we predicted replications of the results obtained in Experiments 1 and 2. A one-tailed Mann–Whitney

U test revealed that participants in the non-cash incentive group reported more favorable responses towards their reward than did the participants in the cash group, $z = -1.71, p < .05$. The median satisfaction rating for the cash group was 3, indicating that participants felt the bonus was "good." The median satisfaction rating for the non-cash incentive was a 4, indicating that participants felt the bonus was "very good". However, the participants in group 3, the JE condition, overwhelmingly preferred receiving the cash incentive; the median choice was a "1" indicating participants were "extremely likely to choose the check." Participants' preferences were truncated to create a binary variable with responses of 1, 2, and 3 being recoded as "choose check" and responses of 5, 6, and 7 being recoded as "choose non-cash incentive." Responses of 4 were deleted for this analysis, resulting in the removal of three participants from this analysis. Of the remaining participants 70% chose the check; a one-tailed binomial test determined that this proportion was significantly different from 50%, $z = 1.72$, $p < .05$.

Participants solved, on average, 22.57 anagrams correctly (50.15% accuracy). Their scores on the anagram task were roughly normally distributed. However, participants' average accuracy did not differ based upon their bonus opportunity, $F(2,85) = .04$, $p > .05$.

### 8.3. Discussion

Participants in the "real" choice task demonstrated a preference reversal, replicating the results from the vignette studies. Of the participants in the SE conditions, those with the opportunity to receive the non-cash incentive were significantly more satisfied than those offered the cash incentive. However, in the JE condition, the majority of the participants elected to receive the cash over the non-cash incentive; this represents a preference reversal.

Unlike ratings of satisfaction, participants' average accuracy was not affected by the incentive offered. This result is in contrast with the Goodyear Tire Company study, which reported a large increase in sales for those salespersons receiving the non-cash incentives (Alonzo, 1996). In addition, these results do not match the lay-theories reported by employees involved in a non-cash incentive program. These employees predicted that people would work harder to receive a cash incentive; however, there was no difference in accuracy between any of the groups.

This study may be limited in its ability to capture behavior in a work environment. It is likely that, although a sizable bonus was offered, the task was not given the same effort that would be applied to a place of employment. Furthermore, participants may have perceived this task to be extremely difficult and, therefore, believed their likelihood of obtaining the bonus was slim. However, given that a chosen job often represents work that captures a person's strengths, it is possible that one might feel more positive about their likelihood of earning the bonus at their actual place of employment. Therefore, the effort obtained from participants on this task may not match the effort that would be put forth in their job. The only way to accurately answer this question would be to try to examine accuracy in a more naturalistic setting.

## 9. General discussion

These six experiments have attempted to explain an apparent conflict over the best method of rewarding employees. Should employers use cash or non-cash incentives? Employees report a preference for cash incentives when given an explicit choice between the two (Hein & Alonzo, 1998); however, employees receiving non-cash incentives impressively outperform their peers receiving the cash equivalent (Alonzo, 1996). How can people be so keenly unaware of the factors that motivate them? At the root of this issue is the assumption that humans have stable, measurable preferences that are not susceptible to framing effects. Researchers in the incentive literature have assumed that the best way to elicit an employee's preference is simply to ask them. On the surface, this appears like the logical solution. However, approximately 30 years of research in psychology has demonstrated that preferences are not stable (Lichtenstein & Slovic, 1971, 1973). Consequently, preferences are susceptible to framing effects—even slight changes in the wording of a question can produce significant changes in judgment.

Preferences for incentives are no different. The experiments presented demonstrated that preferences can be reversed with changes in mode of elicitation. One method of assessing preference at the population level is to ask one group of individuals to evaluate item A and one group of individuals to evaluate item B. The item that receives the higher rating is preferred. In this paper, a group of participants was asked to rate their satisfaction with receiving a cash incentive while a second group of participants was asked to rate their satisfaction with receiving a non-cash incentive. The non-cash incentive received a higher rating than the cash incentive; therefore, it can be inferred that a non-cash incentive is preferred. However, a second and more often utilized method of ascertaining preference is to simply ask a group of people which of the two items they would rather have: item A or item B. In this paper, a third group was asked to make an explicit choice between the cash and non-cash incentives. In this case, participants reported that they would rather receive the cash incentive. This shift in preference that occurs between separate and joint evaluation modes represents a preference reversal.

Two factors appear to contribute to this preference reversal. First, the observed preference reversal can be explained by the evaluability hypothesis: responses elicited in JE differ from those in SE (Hsee, 1996; Hsee et al., 1999). Hsee and colleagues argued that the two modes highlight different dimensions upon which the stimuli are evaluated. In SE, the rating an award receives will be based upon the attribute that is easiest to evaluate—that is, that attribute that needs no reference point for evaluation and comes to mind easily. In this case, the easy to evaluate dimension is the affective reaction to the award.

Reviewers of this manuscript disagreed whether a cash incentive would be easy or difficult to evaluate. Our view is that the affective reaction to an incentive is salient and easily apprehended, as Zajonc (1980) would suggest. Our data lead us to conclude that whatever the affective reaction to money might be, and whether it has been easy or difficult to arrive at that affective evaluation, it is not as great as the affective reaction to the non-cash incentives. It is highly likely that participants receive more affective feedback from one of the bonus options than the less imaginative cash value award, thus resulting in a more favorable evaluation of the non-cash incentives during the SE. This was supported by Experiment 3, which demonstrated that participants were significantly more likely to endorse statements about the affective dimension of the award when given a non-cash incentive.

However, in JE, Hsee and colleagues hypothesize that the choice between two alternatives is more likely to be influenced by the dimension that is difficult to evaluate in isolation. We hypothesize that in these experiments the dimension that influences choice in JE is the fungibility of the cash award. According to economic theory, participants should always prefer to receive the cash value of the award because money is fungible, meaning it can be spent on anything—including one of the bonus options offered. Hence persons who base their selection on fungibility are utilizing a sensible rationale, which Hsee (1999) terms "value seeking." This is the second factor contributing to the preference reversal. Our studies differ from those in Hsee (1999) in that our value-seeking dimension comprised the difficult-to-evaluate dimension that became evaluable only in JE when the fungibility of the cash could be perceived as an advantage over the non-cash award. Indeed, in Experiment 4, participants indicated that fungibility of cash was an important determinant of their decision to choose the cash award over the non-cash award. Further, participants in that experiment also indicated that the affective component of the award was not an important factor in their decision. In SE, the flexibility of the cash award was not likely to be realized; instead the relative affective values of the cash and non-cash awards in SE gave the latter an advantage.

These experiments suggest a combination of two of Hsee's hypotheses. The dimension of fungibility is more than an attribute that is difficult to evaluate in isolation. We suggest that it is not even considered until the relevant comparison to a non-cash incentive is made. Thus, in addition to demonstrating that the evaluability hypothesis (Hsee et al., 1999) helps to account for the preference reversal between cash and non-cash incentives, we have also suggested that JE can make visible a value-seeking rationale (Hsee, 1999) that will counter the affective appeal of consumption utility and foster the preference reversal. We acknowledge that Hsee's (1999) use of "value seeking" did not include the situation in which a value is apparent in JE but not in SE. However we suggest that merging "value seeking" with the evaluability hypothesis (Hsee et al., 1999) helps explain the preference reversals demonstrated in this set of experiments: The valuable attribute of fungibility can only be evaluated and sought when the JE condition makes it apparent.

Further evidence in support of the value-seeking portion of this hypothesis comes from Experiment 2. The luxuriousness of the non-cash incentive significantly affected incentive choice during JE. When compared with the hedonic non-cash incentive, the cash incentive provided a value-seeking rationale, and participants were more likely to choose the cash. However, when paired with the utilitarian non-cash incentive, the rationale for the cash is not as strong. Thus, participants were indifferent between the cash and utilitarian non-cash incentives.

Finally, we acknowledge that comparisons between JE and SE also could be characterized as comparisons between choice and prediction, because in JE participants must choose between at least two options, whereas in SE only one option is presented for each participant's prediction concerning how much he or she would like it. However a benevolent employer who has to decide whether employees would be happier with cash or non-cash incentives is confronted with this same situation. The employer can find out what comparable companies' employees have chosen when given several options (JE). Alternately, the employer can try to ascertain employee satisfaction at various firms which have differed in the type of awards or bonuses they have offered to their workers (SE). Employers might also note that during choice, employees are in the JE mode, whereas in consumption, they are in the SE mode. During SE, participants report a preference for the non-cash award; however, during JE, participants prefer the cash award. Although offering employees cash incentives may be more economically rational, evidence from this paper and other published reports suggest that non-cash incentives may ultimately make employees more satisfied.

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