The Effects of Hedonic Gift Card Rewards Versus Cash Rewards in a Sales Tournament: A Field Experiment

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ABSTRACT

Firms frequently use gift cards that can be spent on hedonic items to reward employees but minimal research has examined their performance effects relative to cash rewards. Our study investigates the effects of hedonic gift card rewards versus cash rewards in a sales tournament. We conducted a field experiment at a rug wholesaler where two consecutive three-month sales tournaments were held for its retailers. Retailers with similar prior year's rug sales were organized into competition groups of six or seven. The top three retailers in each competition group after each three-month tournament received either cash or gift cards to be distributed to their sales staff. We find that retailers have higher sales when they are competing for gift cards than cash in the second tournament but not in the first tournament. Moreover, the results are driven by the losers, and not the winners, of the first tournament. Specifically, tournament one losers who were competing for gift cards significantly increased sales from the first tournament to the second tournament compared to a non-significant change in sales for tournament one losers who were competing for cash. Of interest to both practice and theory, our results suggest that using hedonic gift card rewards as an incentive in a tournament may be more effective at sustaining effort relative to using cash rewards for those individuals unsuccessful in an initial competition.

I. INTRODUCTION

We examine the performance effects of using hedonic (i.e., fun and pleasurable) gift card rewards versus cash rewards in a tournament incentive scheme implemented over two consecutive tournament periods. There is a considerable and growing use of tangible rewards that have monetary value (e.g., travel, merchandise, and gift cards) to motivate and recognize good performance in organizations. A recent survey indicates about 75% of U.S. businesses use tangible rewards with estimated annual spending of nearly $77 billion (Incentive Federation Inc. 2013).[1] Further, of those firms using tangible rewards, almost 90% use gift cards (Incentive Research Foundation 2012). Proponents of tangible rewards claim they are more motivating than cash rewards because they are often hedonic in nature, can involve social recognition, and are more distinctive and memorable relative to other compensation elements (e.g., salary) (Jeffrey and Shaffer 2007).[2]

Although the use of tangible rewards is common in organizations, there are surprisingly few studies that examine their impact on performance. Moreover, the evidence in existing literature is mixed regarding the performance effects of tangible rewards relative to cash rewards, possibly due to differences in the design of the incentive scheme. For example, in lab experiments using tournament incentive schemes, Jeffrey (2009) reports tangible rewards lead to larger performance improvements than cash rewards, while Shaffer and Arkes (2009) find no effects of reward type on performance. In field experiments, Presslee, Vance, and Webb (2013) find that cash rewards lead to better performance than tangible rewards in a goal-based incentive

[1] In comparison, a similar but earlier survey conducted in 2007 indicated 34% of respondents used tangible rewards with estimated annual spending of $46 billion (Incentive Federation Inc. 2007).

[2] The extent to which a reward will be considered hedonic will likely vary by individual but research indicates that this variation is not necessarily a function of the value of the reward. For example Helion and Gilovich (2014) classify candy, music CDs, novels, and multi-colored pens as all being hedonic in nature, despite their relatively low monetary value, because their anticipated consumption or use is pleasurable.

scheme, whereas Alonzo (1996) reports the opposite result in a piece-rate incentive scheme. In an effort to provide more evidence of when and how reward type influence behavior in natural settings, we conduct a field experiment where winners in two consecutive sales tournaments received either cash rewards or gift card rewards that can be spent on hedonic items. We are not aware of any field experiments comparing reward type in tournament incentive schemes, and as noted earlier, lab experiments find mixed results in tournament incentive schemes. Moreover, we are unaware of any research that has examined the effects of reward type over multiple periods. Tournaments provide a strong test of theory regarding the effects of reward type on performance because social comparisons alone, inherent to the design of tournament schemes, through the provision of relative performance information, can also motivate effort (Ferris and Mitchell 1987; Tafkov 2013). In addition, tournaments repeated over multiple periods tend to be susceptible to effort reduction when losers give up and winners become complacent over time (Berger et al. 2013; Casas-Arces and Martinez-Jerez 2009). Thus, findings that reward type affects performance and that those effects persist beyond a single period, incremental to those of the tournament structure itself, would be compelling evidence of the efficacy of hedonic gift card rewards versus cash rewards.[3]

We conducted a field experiment at 54 home furnishings retailers that sell specialty area rugs supplied by a wholesale company (hereafter "the Company"). The Company was seeking ways to motivate independent retailers to increase their rug sales. We worked with the Company to design a tournament sales contest, first organizing the retailers into eight competition groups, with six or seven retailers that had similar prior year's rug sales in each group. Retailers

[3] As explained in the method section, we do not attempt to disentangle social comparison effects from reward type effects in our tournament schemes. Instead we rely on prior research documenting that the social comparison effects themselves can induce higher effort (e.g., Ferris and Mitchell 1987; Tafkov 2013). All tournaments employed in our study provided rewards (cash or gift cards) to winners.

competed against other retailers in their own competition group, and not against retailers in other groups, in two consecutive three-month tournaments. We then randomly assigned each competition group to one of the two reward-type conditions (four groups in each of the cash and gift cards conditions), holding the reward type assigned to a group fixed across the two consecutive tournaments. At the end of each three-month tournament, the top three retailers in each competition group in terms of rug sales dollars were awarded a prize equal to 15% of total sales, paid either in cash or gift cards from a set of choices. Within each three-month tournament, monthly feedback was provided to all retailers including their total sales and relative ranking to that point in the competition. Winners/losers of each three-month tournament were announced shortly after the end of the third month along with the final sales figure and relative ranking.

We rely on mental accounting theory to develop predictions about the effects of reward type on performance (Thaler 1985, 1999). We expect cash rewards to be recorded in a 'cash earnings' mental account together with other cash earnings such as salary (Jeffrey 2009; Thaler 1999). In contrast, gift card rewards are distinct from cash earnings and thus more likely to be 'recorded' in a mental account separate from cash earnings (Helion and Gilovich 2014; Presslee et al. 2013). Research shows that how individuals mentally account for sources of wealth affects how they use those resources (Thaler and Shefrin 1981; Thaler 1985). Rewards accounted for as cash earnings are more likely to be budgeted for practical and utilitarian purposes (e.g., groceries, housing), whereas the gift cards in our study are by design restricted to items with more hedonic attributes (Helion and Gilovich 2014; Thaler 1985). Because hedonic spending results in stronger positive affective responses, gift card rewards are likely to be more attractive and memorable than cash, thus inducing greater effort (McGraw, Shair and Todorov 2010). Accordingly, we first predict retailers competing for gift card rewards will outperform those

competing for cash rewards in the first tournament. We then predict that the effort reductions in the second tournament by losers and winners of the first tournament will be weaker with gift cards than cash rewards due to the greater attractiveness of gift cards versus cash rewards. Therefore, our final prediction is that the performance advantage of gift cards over cash rewards will be larger in the second tournament than in the first tournament.

We find that overall retailers competing for gift card rewards did not outperform their counterparts competing for cash rewards in the first tournament, but they did so in the second tournament. This result is attributable to the losers of the first tournament. Losers of the first tournament increase their performance in the second tournament if they are competing for gift cards, but they show no significant change in performance if they are competing for cash rewards. While on average we observe an overall decrease in performance between tournaments for winners of the first tournament, it does not differ between reward type conditions.

Our study makes three main contributions to the literatures on reward type and tournament incentive schemes. First, our results suggest that tangible rewards in the form of gift cards for hedonic items, when used in conjunction with repeated tournaments, may be an effective means of sustaining effort, particularly for those who lose an initial competition. As such our study provides evidence of *when* and *how* hedonic tangible rewards compared to cash rewards affect performance in naturalistic settings. Prior field research shows that cash rewards lead to better performance than tangible rewards in a bonus for goal attainment scheme (Presslee et al. 2013). However, Presslee et al.'s (2013) main finding demonstrates indirect effects of reward type on performance whereby the more attractive tangible rewards lead to the selection of less challenging performance goals relative to cash rewards, which in turn resulted in lower performance. Conversely, in tournament settings such as ours, effort is more likely to be directly

influenced by reward type. Second, we are aware of no other research showing that effort reduction in subsequent tournaments by losers of initial tournaments can be attenuated by the use of tangible rewards. As such, we provide an improved theoretical understanding of the factors that influence subsequent effort by poor performers in initial tournaments.[4] Finally, our findings are important from a practical perspective. The use of sales tournament schemes by organizations is common and our results show that hedonic tangible rewards, readily implementable in practice, can enhance performance in such settings.

The next section presents our research setting, theory and hypotheses. Following that we describe our research method, present our results, and conclude with a discussion of our findings and the implications.

II. RESEARCH SETTING, THEORY AND HYPOTHESES

Research Setting

To establish the context for our hypotheses, we first describe our research site and the two experiment conditions used in our research design. The Company is a privately owned wholesaler and distributor of area rugs to independent retailers in Canada and the United States, and has been in business for almost 30 years. The Company's operations manager approached the researchers for assistance in designing a one-off incentive scheme to increase the sales of the Company's rugs at select retailers. The Company hoped that the sales incentives would increase sales effectiveness that would continue when the incentive scheme was discontinued. Prior to implementing the incentive scheme in this study, the Company had never used sales incentives for its retailers.

A total of 54 independent Canadian retailers participated in the study. Retailers were

[4] Prior research has largely focused on factors such as the expectancy of success (e.g., through percentage of winners) and reward structure (e.g., through flat versus graduated payouts) as key determinants of effort in tournament settings (e.g., Becker and Huselid 1992; Berger et al. 2013).

organized into eight competition groups comprising of between six or seven retailers per group with similar prior year sales (see Method section for details). Retailers competed only against other retailers in their assigned competition group so they are likely to perceive a reasonable chance of winning. If retailers were competing with other retailers who had significantly higher rug sales, the competition would not motivate these retailers because they would have a very low likelihood of winning. The eight competition groups were then randomly assigned to either the cash rewards condition or the gift card rewards condition.

There were two consecutive three-month tournament periods. Retailers within each competition group were ranked based on the cumulative invoice dollar value of the Company's rug products sold in their store during each three-month tournament period. The top three performers in a competition group received a reward (cash or gift cards) equal to 15% of cumulative sales for the three-month period. Providing rewards for the top three performers in each group represents 43% (50%) of the seven (six) retailers in the group. We chose a moderate proportion of winners to be consistent with prior research that suggests that too high a proportion of winners (e.g. 75%) can reduce effort because competitors perceive a high probability of winning (Orrison, Schotter, and Weigelt 2004; Harbring and Irlenbusch 2008) while too low a proportion of winners (e.g. 25%) can also have negative effects on effort since many competitors perceive a low probability of winning (Harbring and Irlenbusch 2008). Rewards were determined as a percentage of sales to create a graduated reward scheme where the value of the rewards increases with performance, which research suggests is more likely to motivate effort among top performers than a fixed reward scheme where all winners receive the same reward regardless of performance (Becker and Huselid 1992; Lynch 2005). These two design features, as well as having retailers with similar sales compete against each other, make it likely that our

tournaments induced sufficient effort from retailers, regardless of reward type, to avert any floor effects that would limit the ability of reward type to differentially motivate effort.

Theory and Hypotheses

Hedonic Tangible Rewards

As a means of motivating and rewarding good performance, many organizations use tangible rewards as an element of their compensation package (Long and Shields 2010). Distinct from employee recognition, tangible rewards have a non-trivial monetary value and come in various forms including merchandise, travel, or gift cards (Presslee et al. 2013).[5] Recent surveys of compensation practices by U.S. firms indicate about 75% of respondents use tangible rewards and of those users, almost 90% give gift cards to offer employees choice in how they can spend their reward (Incentive Federation Inc. 2013; Incentive Research Foundation 2012).

Despite the relatively widespread adoption of tangible rewards, surprisingly little research has examined their effects on performance. In particular, only a few studies have directly compared the use of tangible versus cash rewards where receipt of the rewards is contingent upon performance (e.g., bonus for goal attainment, tournament schemes, piece-rate schemes) and results are mixed. Shaffer and Arkes (2009) find no performance effects of reward type (cash rewards, tangible rewards, choice of cash versus tangible rewards) in a lab experiment where student participants solved anagrams. However, the generalizability of Shaffer and Arkes (2009) is limited by their use of a winner-take-all tournament scheme with only one individual eligible for a reward (value of $250) in each condition (in total, a small 3% of competitors won rewards), which may negatively impact motivation (see Harbring and Irlenbusch 2008). Also, there was a limited choice of tangible rewards (three possible items: Apple I-pod, Sirius satellite

[5] Recognition programs involve an acknowledgement, often public, of good performance (e.g., employee of the month) in the form of thank-you notes, plaques, company newsletter articles, token gifts, etc., but typically do not involve rewards with significant monetary value (Peterson and Luthans 2005).

radio receiver and 6 month subscription, Palm Tungsten E handheld organizer) raising the possibility that some participants did not find them attractive. Results from a lab experiment conducted by Jeffrey (2009) show that tangible rewards (candy bars or massages) result in a larger performance improvement than cash rewards of an equal value for working adult participants performing a word creation game. Participants were paid based on relative performance with graduated rewards that increase in value from \$2 (20^{th} percentile) to \$100 (95^{th} percentile) with performance. However, unlike our setting, Jeffrey (2009) did not employ repeated tournaments nor did he provide participants with any feedback while the task was on-going to permit social comparisons.[6]

We are aware of two field studies that have examined the performance effects of reward type. In a study conducted by BI Performance Services and Goodyear Tire and Rubber Co., sales associates at 900 outlets received either cash or tangible rewards (points redeemable for merchandise and travel items in a 200-page catalog) for every increment of 12 tires sold (Alonzo 1996). That study finds that sales outlets that received tangible rewards outperformed those that received cash rewards by 46%. However, outlets in the tangible rewards condition were not made aware of the specific monetary value of the available merchandise leaving open the possibility that they valued them higher than the cash awards available in the other condition. Moreover, Alonzo (1996) does not report descriptive details that would allow a comparison of the similarity of outlets in the two conditions (e.g., past sales, geographic location, etc.), which makes it impossible to rule out the alternative explanation that the findings are due to other differences between the two conditions. Presslee et al. (2013) find that call center employees eligible for cash rewards (ranging in value from \$100 to \$1,000) outperformed those eligible for

[6] Jeffrey's (2009) inferences regarding the performance effects of reward type are also weaker ($p = 0.12$) in reported analysis that controls for the significant effects of age (p. 150).

tangible rewards (points redeemable for merchandise and travel items in a 112-page catalog).[7] However, unlike the other studies discussed above which examine either tournament incentives or piece rate incentives, rewards in Presslee et al. (2013) were contingent upon goal attainment with employees selecting their own performance goal from a menu of three choices with the reward value increasing in goal difficulty. Compared to those eligible for cash rewards, employees eligible for tangible rewards were more committed to their chosen goal but selected less challenging goals. Reduced goal difficulty in turn leads to lower performance.

The equivocal findings reviewed above are likely attributable, in part, to differences in the incentive scheme employed in each setting. Specifically, incentive schemes where only a very small proportion of participants are rewarded (e.g., a winner-take-all scheme in Shaffer and Arkes 2009) are less motivating than those where a larger proportion of participants are rewarded (e.g., relative performance scheme with graduated rewards in Jeffrey 2009, piece-rate scheme in Alonzo 1996), which may create a floor effect that limits the ability of reward type to have differential effects on effort. Goal-based schemes as in Presslee et al. (2013) where competitors select their own performance goals lead to people selecting easier goals when faced with tangible rewards, which then negatively impact performance. Moreover, none of these prior studies use gift cards as tangible rewards, despite their popular use in practice (Incentive Research Foundation 2013) and none examine the effects of reward type over more than one period. Accordingly, there is considerable scope for further research focused on settings where performance differences may arise when cash versus tangible rewards are provided.

Reward Type and Performance in the First Tournament Period

We test the effects of reward types used in tournament incentives. A tournament

[7] Employees could choose their non-cash rewards from an extensive catalogue of choices including home electronics, barbeques, coffee makers, bicycles, etc. Many of the items in the catalogue were hedonic in nature.

represents a competition whereby individuals are rewarded based on their relative performance over a specified period of time (Hannan, Krishnan and Newman 2008). Because rewards are based on relative performance, tournaments represent an effective means of filtering out the effects of common uncertainty that can impact the performance of all competitors (Lazear and Rosen 1981). There is an extensive literature on tournament incentive schemes, which generally shows they have positive effects on effort and performance (Casas-Arce and Martinez-Jerez 2009; Matsumura and Shin 2006; Orrison, Schotter and Weiglt 2004).[8]

We rely on mental accounting theory to develop predictions regarding the effort and performance effects of cash versus hedonic gift card rewards.[9] Mental accounting refers to the coding, categorization and evaluation of outcomes (realized and potential) when making choices (Thaler 1999). Of particular relevance to our setting is the categorization process, which relates to the way in which both potential and realized financial transactions (e.g., revenues and expenses) are ascribed to particular mental accounts (Thaler 1985). Mental accounting theory offers that individuals categorize cash rewards to a different mental account than they do hedonic gift card rewards. Potential cash rewards, because of their similarity to other forms of cash earnings (e.g., salary), are likely to be categorized to a mental account that includes cash salary (Jeffrey 2009; Thaler 1999). Conversely, potential gift card rewards with hedonic properties are more likely to be categorized to a mental account distinct from cash earnings (Helion and Gilovich 2014; Thaler 1999). Consistent with individuals using different mental accounts for

[8] The use of tournaments to motive sales performance is common in practice (e.g., Berger et al. 2013; Casa-Arce and Martinez-Jerez 2009).

[9] We assume that sales performance is sensitive to effort and discussions with management at the Company support this assumption. We also believe that although rewards are based on group sales performance (i.e., the retail sales team) developing our theory of the performance effects of reward type at the individual level is appropriate. That is, we can think of no obvious reasons why reward type would differentially affect behaviors sometimes observed in group incentive schemes such as free-riding, mutual monitoring or mentoring (Welbourne, Balkin and Gomez-Mejia 1995). As such, we expect reward type will affect group sales performance at the retail outlets by impacting the sales effort of individual salespeople.

different types of rewards, Presslee et al. (2013) report that employees at their research site considered tangible rewards as more distinct (separate) from other sources of income compared to cash rewards of an equivalent value.[10]

The different mental accounting used to record potential cash versus gift card rewards is likely to influence effort. Research on mental budgeting find that people discipline their spending by using different mental accounts to set up budgets and track expenses for different categories of expenditures (Cheema and Soman 2006; Heath and Soll 1996). Cash rewards that are categorized in a cash earnings mental account are more likely to be budgeted for necessities and utilitarian items (Thaler and Shefrin 1981). Conversely, hedonic gift card rewards are likely categorized into a less utilitarian mental account and budgeted for luxuries and hedonic items. Indeed, Helion and Gilovich (2014) find that individuals in their experiment were more likely to purchase hedonic items when paid in gift cards as opposed to cash of an equal amount. All the gift card rewards in our research setting are, by design, used to purchase items with hedonic attributes. Research shows that items with hedonic attributes (e.g., dinner at a nice restaurant) lead to a stronger positive affective response than more utilitarian items (e.g., groceries) of equal value (McGraw, Shafir and Todorov 2010; Shaffer and Arkes 2009). The stronger affective response associated with how gift card rewards can be used is likely to make them more attractive and memorable than cash rewards and as a result, induce more effort to attain them.[11,12]

[10] This result holds for each of the three reward levels ($100, $350, $1,000) in Presslee et al. (2013).
[11] Presslee et al. (2013) provide evidence consistent with tangible rewards being more attractive than cash rewards of an equal market value. Controlling for ability, employees at their research site were more committed to attaining self-selected performance goals when rewards were paid in tangible items versus cash.
[12] The different mental accounting of gift card rewards versus cash rewards could also lead to a larger perceived gain from gift card rewards than cash rewards, which motivates more effort under gift card rewards. Cash rewards are added to a mental account which has a larger referent value because it includes other forms of large cash earnings such as salary (Jeffrey 2009; Thaler 1999). In contrast, gift card rewards are added to a separate mental account which likely has a smaller referent value. A gain from gift card rewards relative to the smaller referent value of the related mental account will be perceived to have greater value than a gain from cash rewards relative to the larger referent value of the cash earnings mental account (Kahneman 2003; Thaler 1999). This reflects the "psychophysical

Moreover, there is evidence that because goods or services with hedonic attributes are harder to justify purchasing, individuals are willing to work harder to earn them in order to alleviate guilt associated with their consumption (Kivetz and Simonson 2002).[13]

Proponents of cash rewards argue that the greater exchange value and fungibility of cash represents its key motivational advantage over gift card rewards (Offenberg 2007; Waldfogel 1993). Indeed, prior research indicates that when people are jointly evaluating cash versus tangible rewards, people focus on the fungibility of the rewards and thus indicate a preference for cash (Hein and Alonzo 1998; Jeffrey 2009; Shaffer and Arkes 2009). However, when people are separately evaluating cash versus hedonic tangible rewards, which is the setting we use, people focus on the affective characteristics of the rewards and thus prefer hedonic tangible rewards (Shaffer and Arkes 2009).

Given the discussion above, our first prediction regarding the effect of hedonic gift card versus cash rewards in the first tournament period is as follows:

H1: In the first tournament period, performance is better when retailers are competing for hedonic gift card rewards than cash rewards.

Reward Type, Giving Up, and Complacency in the Second Tournament Period

A potential problem observed in multi-period tournament settings is that individuals often reduce their effort in subsequent tournaments. For individuals who have fallen far behind the leaders, they may reduce effort (i.e., "giving up effect') or adopt riskier task strategies that negatively impact performance in the later stages of the competition because their expectancy of winning is low (Berger et al. 2013; Casas-Arces and Martinez-Jerez 2009; Hannan et al. 2008).

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principal (Weber-Fechner law) that the difference between $10 and $20 seems bigger than the difference between $1,000 and $1,010" (Thaler 1999, p. 185).

[13] Kube, Marechal and Puppe (2012) suggest that providing tangible rewards instead of cash rewards results in employees reciprocating with higher effort and performance because they appreciate the time and effort management invests in selecting the tangible rewards. We think reciprocity is unlikely to explain any observed reward type effects in our setting since the Company (wholesaler), rather than the retailer, selected the gift card rewards for the retailer's sales staff.

For individuals who are far ahead of fellow competitors, they may become complacent and reduce their effort (i.e., "complacency effect") in subsequent tournaments because they perceive a high expectancy of winning even with a lower effort level (Berger et al. 2013; Casas-Arces and Martinez-Jerez 2009). Although the tournament used at our research setting has features that may mitigate giving up (i.e., moderate proportion of winners, retailers with similar sales compete against each other) and complacency (i.e., graduated reward scheme where the reward is 15% of sales in a tournament period), we believe there is still scope for reward type to influence performance across the two repeated tournaments in our setting, as described below.

We expect that the different mental accounting of gift card versus cash rewards will reduce the giving up effect by first tournament losers as well as the complacency effect by first tournament winners in the second tournament when rewards are in the form of hedonic gift cards rather than cash. The greater attractiveness and memorability of hedonic gift card rewards versus cash rewards that are likely to be budgeted for utilitarian items will sustain more effort and decrease the likelihood of first tournament losers giving up as well as first tournament winners becoming complacent in the second tournament. Our second hypothesis is as follows:

H2a: Losers in the first tournament period decrease their performance less in the second tournament period when competing for hedonic gift card rewards than cash rewards.

H2b: Winners in the first tournament period decrease their performance less in the second tournament period when competing for hedonic gift card rewards than cash rewards.

Given that H1 predicts that performance is better under gift card rewards than cash rewards in the first tournament period, and H2 predicts that performance reductions in the second tournament period are smaller under gift card rewards than cash rewards, it follows that the performance advantage of gift card rewards over cash rewards will be larger in the second

tournament period than in the first tournament period. As such, our third hypothesis predicts an interactive effect between the type of reward and the tournament period on performance as follows.

H3: The extent to which performance is better when retailers are competing for hedonic gift card rewards than cash rewards is larger in the second tournament period than in the first tournament period.

III. METHOD

Participating Retailers and Procedures

The Company initially identified 66 Canadian retailers to participate in the study, of which 54 were finally included in the study. The Company included only Canadian retailers to avoid differences between the Canadian and U.S. economies that might influence sales. The Company excluded retailers with no associated sales representatives because communication with these retailers was more difficult. The Company also excluded large retailers with multiple locations because these retailers tended to have their own sales incentives and would be less interested or motivated by the Company's incentive program. The 66 retailers were contacted by the Company by email two weeks before the study began to provide general information about the sales competition; retailers who were not interested in participating were asked to notify the company by email. Of the 66 retailers, 59 retailers agreed to participate in the sales competition. However, in the year prior to the study (2012), five of these retailers had sales that were, on average, more than three times greater than the average sales of the other 54 retailers. To avoid the potentially large impact these five retailers may have had on the results of the tournaments, they were not assigned to either of the reward type conditions.

The remaining 54 retailers were assigned to competition groups of retailers with similar prior year sales in the following manner. The Company first ranked all participating retailers based on their prior year's (2012) total rug sales. Retailers were then organized into eight

competition groups comprising of between six or seven retailers per group based on their sales ranking. Retailers ranked first to seventh formed the first group, retailers ranked eighth to fourteenth formed the second group, and so on. The eight competition groups were then randomly assigned to either the cash rewards condition or the gift card rewards condition (see "Independent Variable" sub-section for details). Each reward type condition had three competition groups with seven retailers each and one competition group with six retailers (i.e., 27 retailers in each condition).

After retailers were assigned to their respective conditions and one week before the study began, the Company sent a second email to each retailer with more detailed information about the sales competition and their assigned condition. This second email also included links to two videos. The first video provided general information on the Company and the area rugs distributed by the Company. The second video provided information on how sales personnel could use a small rack of rug samples as part of their sales pitch to customers.[14] Each retailer had a unique link to the two videos. A software program captured the number of times a retailer accessed the video on how to use the small rack of rug samples.

During each three-month tournament period, the Company provided each retailer with their cumulative rug sales performance and ranking vis-à-vis the other retailers in their competition group at the end of each month and also at the end of the three-month tournament. A sample of the emails sent to retailers with feedback on their rug sales and ranking is provided in Appendix 1. At all times, the identities of all retailers in each tournament group were kept anonymous and each retailer's sales performance was known only to that retailer. The end-of-

[14] The Company provided retailers with a small rack of about 50 mini-rug samples for free to assist them in selling and marketing the rugs. Each rack is also equipped with a banner, catalogues and brochures that provide information about sizing of rugs, the materials used in various rugs, and cleaning options

month feedback was sent within 18 days of the following month and the rewards were sent to the winning retailers within 90 days of the end of the tournament.

Sample Characteristics

As shown in Table 1, average annual rug sales in 2012 were $2,890 (n = 27, standard deviation = $1,907) in the cash rewards condition and $2,761 (n = 27, standard deviation = $1,334) in the gift card rewards condition and are not significantly different between the two conditions (p = 0.774).[15] Unit sales per month averaged 17.6 (standard deviation = 12.7) in the cash condition and 16.6 (standard deviation = 8.4) in the gift card condition and the difference is not significant (p = 0.74). Of the participating retailers in the two reward type conditions, 70% (38 out of 54) were in English-speaking provinces while the remaining 30% (16 out of 54) were in a French-speaking province (Quebec). The number of French-speaking versus English-speaking retailers does not differ significantly across conditions (Pearson Chi-Square = 1.42, p = 0.233). All communications with French-speaking retailers were translated by a professional translator and then verified by a second independent translator. Finally, based on responses to our post-experiment survey, the cash and gift card conditions were similar in terms of the number of full-time (respectively 4.3 versus 4.6) and part-time sales staff (respectively 0.3 versus 0.8) and the percentage of male sales staff (respectively 56% versus 60%).

Insert Table 1 about here

Independent Variable

As discussed earlier, retailers were first organized into competition groups of retailers with similar rug sales. Each competition group was then randomly assigned to either the cash rewards condition or the gift card rewards condition. Retailers in both conditions participated in two consecutive sales tournament periods. Each tournament period comprised of three months

[15] All p-values are two-tailed unless otherwise stated.

(March to May 2013, and June to August 2013). Rug sales by retailers are seasonal in nature, with higher sales in the fall and winter seasons. The Company chose to implement the sales competition during spring and summer where sales tended to be lower to motivate higher sales in those seasons.

The top three retailers in each competition group received a prize equal to 15% of the total invoice dollar value of rugs sold during each 3-month tournament period, in the form of cash or gift cards.[16] As such, participating retailers know the monetary value of the gift card rewards, which is similar to the monetary value of the cash rewards. However, this would work against our hypotheses. We worked with the Company to select gift cards that would have hedonic properties and be attractive to sales staff at the retailers. The Company asked winning retailers to indicate their sales staff's choice of gift cards from twelve locations that included popular bookstores, cinemas, food and beverage establishments, and retail shops.[17] Average payouts across both reward type conditions were $204 and $201 respectively for the first and second tournaments. Cash and gift cards for each tournament period were distributed about 3 months after the end of each tournament period. Communications sent to the retailers by the Company repeatedly informed them that the cash and gift card rewards should be equally distributed among the sales staff responsible for the rug sales.[18]

[16] Performance contingent cash and gift cards rewards are both subject to personal income tax in Canada. Both require the recipient to claim the reward as taxable earnings. Thus, the tax treatment does not differ across the two reward type conditions.

[17] Gift card locations include: *Starbucks, Tim Horton's, Chapters, Cineplex, Marble Slab, Future Shop, Best Buy, EB Games, The Keg, Bath and Body Works, The Body Shop,* or *Bon Appetit* (usable at *Kelsey's, Montana's, Swiss Chalet, Harvey's,* and *Milestones* restaurants).

[18] We did not have full control over how retailers actually distribute the prizes because in certain cases, cash checks and gift cards were sent to a single retail store representative for distribution to their sales staff, rather than directly to the sales staff. However, all but one winning retailer in the cash rewards condition and all but one winning retailer in the gift card rewards condition distributed rewards equally to their sales staff. Further, winning retailers in the cash (gift card) rewards condition distributed the rewards to on average 3.0 (3.2) salespeople. This evidence suggests there were no systematic differences in how retailers distributed the two reward types.

Dependent, Control and Other Measures

We used the total rug sales dollars for the three months in each tournament period as well as the ranked total rug sales dollars as the dependent variables. The Company indicated that the retailers and retail market for home furnishings in French speaking province of Quebec were distinct from other provinces; such that retailers in Quebec may respond differently to the sales competition compared to retailers in other provinces. Retailers in Quebec tended to be smaller and owner-operated, and the retail market is more interior-designer focused.[19] Therefore, we controlled for whether the retailer is in Quebec or not. We also controlled for the number of times the retailer accessed the link to the video on how to use the small rack of rug samples since the Company intended this video to be helpful in improving sales.

Retailers were invited by the company to complete a brief survey at the end of the second tournament. The link to the survey was provided in emails to retailers after the end of the second tournament. The survey contained questions on the size of the retail store, the nature of compensation and incentives for sales personnel in the store, the attractiveness of the Company's tournament incentives, etc.

IV. RESULTS

Hypothesis 1

Our first hypothesis predicts that sales for retailers competing for gift card rewards will be higher than sales for retailers competing for cash rewards in the first tournament. We use total sales for the three-month period covering the first tournament as the dependent variable, with reward condition (*RewardType*: Gift cards = 1, Cash = 0), retailer language (*Language:* French = 1, English = 0), the cumulative number of times the retailer viewed the video on how to use the

[19] The average annual rug sales in 2012 were $3,633 for English speaking retailers and $2,817 for French speaking retailers; this difference is not significant (p = 0.242).

small rack of rug samples (*VideoViews*) during the first tournament period, and prior year sales (March to May 2012) as independent variables. Because of the potential for extreme observations to influence our inferences in both tournament periods, we use OLS regressions, robust regressions, and rank regressions to test our hypotheses.[20] Robust regression analysis applies a lower weighting to extreme observations but does not drop them from the analysis. For the rank regressions we ranked all retailers across the two reward type conditions according to their total sales for the tournament period with a lower numeric rank indicating higher sales.

Descriptive results for the first tournament (March to May 2013) are shown in Table 2, Panel B; median sales for the cash condition are higher than those for the gift card condition ($437 versus $368), contrary to H1. Table 3 (Panels A – C) presents the results of the regression models for the first tournament. *RewardType* is not significant in any of the models with all p-values > 0.29.[21] Overall, results from the first tournament do not support H1.[22] However, results from additional analysis (not tabulated) show that for tournament one losers, performance in tournament one is better in the gift card rewards condition than in the cash rewards condition (OLS: one-tailed p = 0.028; Robust regression: one-tailed p = 0.101; Rank regression: one-tailed p = 0.037). Conversely for tournament one winners, performance in tournament one does not differ significantly between reward conditions (all p-values > 0.136). Thus it appears that for weaker performing retailers, gift cards were more motivating than cash rewards in sustaining

[20] Because results within a tournament are not independent, we also use robust standard errors clustered on tournament group (n = 8) (Peterson 2008).

[21] Parametric and non-parametric analysis (not tabulated) shows that March to May 2012 sales do not differ between the two reward type conditions (all p-values > 0.190).

[22] We also examine models in which the dependent variable is the difference between sales during the first tournament period minus sales during March to May in the prior year. Similar to our main results, H1 is not supported. *RewardType* is not significant in the OLS regression (not tabulated: B=67.84, one-tailed p=0.42), the robust regression (not tabulated: B=-185.44, p=0.36), and the rank regression (not tabulated: B=1.25, p=0.72). Models in which the dependent variable is the percentage change in sales in the first tournament period from March to May in the prior year show similar results, where *RewardType* is not significant in the OLS regression, the robust regression, and the rank regression (all one-tailed p values > 0.151).

effort during the tournament even though they were ultimately unsuccessful.

Insert Tables 2 and 3 about here

It may be that our failure to find overall support for H1 is because the first tournament was not salient enough in the minds of sales staff at the participating retailers. This is the first time the Company has used a sales tournament and they had no direct contact with sales staff at retailers, which are independent from the Company. We expect that the announcement of winners and losers upon the completion of the first tournament may have resulted in an overall stronger motivation to succeed in the second tournament vis-à-vis the social comparison effects inherent to the provision of relative performance information (Tafkov 2013). In turn this higher level of overall motivation would have increased the likelihood of observing the predicted effects of reward type on performance in the second tournament.

Hypothesis 2

Our second hypothesis predicts that losers and winners of the first tournament will exhibit a smaller decrease in effort in the second tournament when competing for gift cards than when competing for cash rewards. To test H2, we use the change in performance (*SalesChange*) as the dependent variable and with one exception, the same set of independent variables as used to evaluate H1. Instead of using prior year sales as a control variable, we use sales from the first tournament since they should impound current factors affecting sales in the second tournament (e.g., local competitive environment, economic conditions).We employ the same three regression analysis techniques as described above for H1. We conduct separate analyses for losers of the first tournament (H2a) and winners of the first tournament (H2b).

Descriptive results for *SalesChange* for tournament one losers are shown in Table 4, Panel A. Consistent with H2a, the median *SalesChange* for tournament one losers competing for

cash rewards is $0 compared to a median positive change of $202 for tournament one losers competing for gift card rewards. The regression analyses results shown in Table 4, Panels B – D, show that *RewardType* has a significant effect on the change in performance between tournaments for losers of the first tournament in the expected direction (all one-tailed p-values < 0.029).[23] For losers of the first tournament, those competing for gift card rewards show a significantly larger improvement in performance from the first tournament to the second tournament, relative to cash rewards retailers. Consistent with H2a, losers of the first tournament were considerably less likely to reduce effort when they were competing for gift card rewards rather than cash rewards.

Insert Table 4 about here

Descriptive results for *SalesChange* for tournament one winners are shown in Table 4, Panel A. Consistent with complacency effects (i.e., reduced effort) (Berger et al. 2013), the median *SalesChange* for tournament one winners is a negative change of $259 (cash = -$349; gift card = -$129) and this decrease in performance of tournament one winners in tournament two is marginally significant (p = 0.09).[24] However, results from regression analyses shown in Table 4, Panels E – G, show that *RewardType* is not significant (all one-tailed p-values > 0.454), providing no support for H2b.[25] Overall, our results indicate that H2 is supported for Tournament 1 losers but not for Tournament 1 winners. Thus, gift card rewards seem more effective than cash at sustaining the motivation of tournament losers rather than winners.

[23] Models in which the control variable is prior year change in sales (instead of first tournament sales) show similar results, where *RewardType* is significant in the OLS regression, the robust regression, and the rank regression for first tournament losers (all one-tailed p values < 0.075).

[24] Given that retailers were instructed to distribute rewards equally among the sales staff responsible for the rug sales, we acknowledge that it is possible that some first tournament winners reduced their effort in the second tournament because they believed that equal distribution was unfair.

[25] Models in which the control variable is prior year change in sales (instead of first tournament sales) show similar results, where *RewardType* is significant in the OLS regression (one-tailed p value = 0.034), but insignificant in the robust regression (one-tailed p-value = 0.199) and the rank regression (one-tailed p-value = 0.168) for first tournament winners.

Hypothesis 3

Our third hypothesis predicts that the performance advantage of gift cards over cash rewards would be higher in the second tournament than in the first tournament. To test H3, we conduct a multi-level regression with tournament round as a repeated measure (i.e., Tournament 1 sales, Tournament 2 sales). As reported in Table 5, Panel A, there is a positive and marginally significant *Reward Type x Tournament Round* ($p = 0.078$) interaction indicating the effect of gift card (versus sales) on sales performance is more positive in the second tournament, consistent with H3. Given that our results indicate that H2 is supported for Tournament 1 losers but not Tournament 1 winners, we also conduct separate multi-level regressions for Tournament 1 winners (Table 5, Panel B) and Tournament 1 losers (Table 5, Panel C). Consistent with our results for H2a and H2b, we find that the *Reward Type x Tournament Round* ($p = 0.19$) interaction is not significant for Tournament 1 winners, but it is positive and significant for Tournament 1 losers ($p = 0.03$).

Insert Table 5 about here

We next analyze sales in the second tournament. Descriptive results in Table 2, Panel D show that median sales for the second tournament (June to August 2013) are higher for retailers competing for gift card versus cash rewards (respectively $795 and $329). The overall average reward payouts in tournament two increased in the gift card condition compared to tournament one ($181.09 versus $141.89) while the payouts decreased in the cash condition ($221.26 versus $271.33). [26]

[26] We also examine models in which the dependent variable is the difference between sales during the second tournament minus sales during June to August in the prior year. *RewardType* is not significant in the OLS regression (not tabulated: B=470.96, one-tailed p=0.25) and the rank regression (not tabulated: B=-7.74, one-tailed p=0.18), but it is significant in the robust regression (not tabulated: B=481.71, one-tailed p=0.06). Models in which the dependent variable is the percentage change in sales in the second tournament period from June to August in the prior year show similar results, where *RewardType* is significant in the OLS regression, the robust regression, and the rank regression (all one-tailed p values < 0.043).

Table 6 (Panels A – C) summarizes the results of our regression analyses for the second tournament. Given our results in H2, we include an additional binary variable indicating whether the retailer won or lost the first tournament (*WinLoseT1,* 0 = lose, 1 = win) and we interact it with *RewardType*. As shown in Table 6, *RewardType* is significant in all models (all one-tailed p-values < 0.01) in the predicted direction with retailers competing for gift card rewards outperforming their counterparts competing for cash rewards.[27] However, the *RewardType x WinLoseT1* interaction is also significant in each model (all one-tailed p-values ≤ 0.10), requiring that we interpret the main effect of *Reward Type* in the context of this interaction. Results (not tabulated) show that in the second tournament, losers of the first tournament competing for gift card rewards significantly outperformed losers of the first tournament competing for cash rewards (all one-tailed p-values < 0.01). Conversely, for tournament one winners, performance in tournament two does not differ between reward type conditions (all one-tailed values > 0.22). Thus, support for H3 is only observed for retailers who lost the first tournament and not for retailers who won the first tournament.

Insert Table 6 about here

Additional Analysis

As described earlier, we conducted a survey to gather information related to retailers' perceptions of the sales competitions and the related rewards. At the Company's request we designed the survey to be answered in five minutes or less, which limited the number of questions we could include. We asked a representative of the sales team at each retail location to indicate the extent to which sales staff: (1) found competing with other stores *fun*; (2) were *motivated* to be one of the top three stores in the competition; (3) found the *incentives attractive*;

[27] Parametric and non-parametric analysis (not tabulated) shows that June to August 2012 sales do not differ between the two reward type conditions (all p-values > 0.21).

and (4) would have *rather received cash* rewards (gift card rewards condition only). Each question used an 11-point scale with endpoints labeled "not at all" (1) and "extremely" (11). In total we received 16 usable responses for a response rate of about 30%.[28] We attribute the relatively low response rate to the fact that we did not have direct contact with representatives of the sales team at any point during the study and because retailers' management had no incentive to complete the survey. Results for these measures are summarized in Table 7.

Insert Table 7 about here

Inter-items correlations among the first three questions are all highly significant (all p-values < 0.001). Results from an exploratory factor analysis (not tabulated) indicate the three items load highly (all loadings ≥ 0.81) on one construct, the eigenvalue is 2.50, the explained variance is 83%, and the Cronbach's Alpha is 0.96 (Stevens 1996). Accordingly we treat the three items as a single construct, which we label *Reward Attractiveness*. We compare the results between the two reward type conditions using both the simple average of the three items and the factor scores for *Reward Attractiveness*. Results of t-tests (not tabulated) show that both the simple average and the factor scores are higher in the gift card rewards condition than the cash rewards condition (both one-tailed p-values < 0.065). This is consistent with differences in the mental accounting for the two types of rewards rendering gift card rewards more attractive than cash rewards, even though the monetary value of the rewards was relatively low. Moreover, these results are consistent with prior research showing that when separately evaluating cash

[28] Of the 16 responses, one was received from a retailer that lost both tournaments, six were from retailers that won one of the two tournaments, and 9 were from retailers who won both tournaments. Given this distribution of respondents it is possible that the results for these questions may not generalize to retailers who were unsuccessful in the tournaments. However, our analysis of H2 is consistent with losers of the first tournament eligible for gift card rewards finding them more attractive and working harder to attain them in the second tournament relative to retailers eligible for cash rewards.

versus tangible rewards, retailers anticipate greater enjoyment from tangible rewards (Shaffer and Arkes 2009).

Responses for the fourth item in Table 7, *Rather Receive Cash Rewards,* are consistent with prior research indicating that when given the choice between cash and tangible rewards, retailers pursuing gift cards (n=9) consistently indicate they would prefer cash (Jeffrey 2009; Shaffer and Arkes 2009). Analysis (not tabulated) shows that the mean of 8.11 is significantly above ($p < 0.01$) the scale mid-point (6) indicating a stronger preference for cash. Thus our results in support of H2a and H3 do not appear attributable to retailers in the gift card rewards condition having a preference for tangible rewards.

The Company also provided us with sales data for the 54 retailers included in our study for the three months immediately following the conclusion of the second tournament (September – November 2013). We use this additional data to further evaluate the similarity of the retailers in our two reward type conditions. Results (not tabulated) based on the approach used to test our hypotheses show no significant differences in sales between conditions during the post-experiment period (all p-values > 0.50). We interpret these results as further evidence that the observed effects of reward type on performance seem unlikely to be attributable to unobserved differences between the reward conditions.

V. DISCUSSION

Recent surveys of compensation practices indicate a growing use of tangible rewards to motivate and reward performance in organizations (Incentive Federation Inc. 2007, 2013). However, empirical evidence regarding the effects of tangible rewards relative to cash on behavior is limited and results are equivocal (Jeffrey 2009; Presslee et al. 2013; Shaffer and Arkes 2009). In an effort to further our understanding as to when tangible rewards may induce

better performance than cash rewards, we conduct a field experiment at 54 retail outlets eligible for either cash or hedonic gift card rewards based on sales of rugs supplied by the Company that provided the sales incentives. After partitioning the retailers into competition groups based on historical sales data, we randomly assigned them to one of the two reward type conditions. Retailers compete with others in their competition group in two consecutive three-month tournaments. The top three performers in each competition group received either cash or gift card rewards (15% of sales) based on cumulative relative sales performance for the three-month period. Contrary with our first prediction overall, retailers competing for gift card rewards did not outperform those competing for cash rewards in the first tournament but additional analysis shows hypothesis one is supported when we focus on only the weaker performing retailers (i.e., the losers). In keeping with our second hypothesis, losers competing for gift card rewards exhibit less effort reduction, but instead increased their performance to a larger extent, during the second tournament compared to the cash rewards retailers. This result in combination with the results of our additional analysis for hypothesis one suggests reward type may attenuate the 'giving up' effects documented in previous field research examining sales tournaments (e.g., Casa-Arces and Martinez-Jerez 2009). However, winners competing for gift card rewards did not decrease their sales to a smaller extent than winners competing for cash rewards. Lastly, partially consistent with our third prediction, we find that the performance advantage of gift card over cash rewards is larger in the second tournament than in the first tournament for retailers who lost in the first tournament, but not for retailers who won in the first tournament.

Our findings make three primary contributions to the academic and practitioner literatures related to reward-type and tournament incentives. First, to the best of our knowledge, we are the first to demonstrate in a field setting that hedonic tangible rewards can result in better

performance than cash rewards in a tournament incentive scheme. Given that prior research has shown cash incentives result in better performance under a bonus for goal attainment scheme, our results suggest tournament schemes may be better suited for the use of hedonic tangible rewards. For example, hedonic tangible rewards may be more effective at sustaining motivation and effort under tournament schemes given the uncertainty about the level of performance required to earn the reward. Conversely, under bonus for goal attainment schemes there is minimal uncertainty regarding the performance required to earn the reward (i.e., the goal level) and it may be easier to justify giving up when goal attainment becomes unlikely and the rewards relate to 'hedonic' non-necessary items. We observe positive performance effects of hedonic tangible rewards even though the value of the rewards used in our study was relatively low, and despite the well documented finding that tournament incentive schemes more generally have positive effects on effort and performance (Hannan et al. 2008; Harbring and Irlensbusch 2008). As such we believe our findings provide convincing evidence that hedonic tangible rewards can induce better performance, incremental to the positive social comparison effects inherent to the design of tournament schemes.

Second, our evidence indicates that hedonic tangible rewards may be an effective means of sustaining effort in repeated tournament settings for individuals who performed poorly in initial competitions. Indeed we find no evidence that losers in the first tournament competing for hedonic tangible rewards reduced effort in the second tournament. To the contrary, we find losers improved performance significantly in response to losing the first tournament. This result is important from a theoretical perspective as it sheds new light on how the problem of effort reduction by losers, often observed in tournament settings, can be moderated by the type of rewards individuals are competing for. Finally, our results are of practical importance to

designers of compensation schemes given the relative ease with which tangible rewards can be used in many organizations. However, of equal importance to practice, our findings also suggest that the effectiveness of hedonic tangible rewards may be contingent upon the nature of the incentive scheme with which they are coupled.

Our study's limitations provide several opportunities for further research examining the effects of reward type on motivation and performance. First, we apply an individual level theory to explain retailer (group) level performance differences. Although we do not believe that there is a theoretical basis for expecting that reward type would differentially affect behaviors at the group level than the individual level, future research that captures individual level tournament performance would be helpful in testing the legitimacy of our application of mental accounting theory. Second, although our evidence is consistent with individuals working harder for hedonic tangible rewards relative to cash, it is an empirical question as to whether or not this result would hold for rewards of a larger value. It could be that when the monetary value of rewards is relatively low, the memorability and attractiveness of hedonic tangible rewards are more salient since the cash reward offers limited opportunities even for utilitarian spending. However, when rewards are sufficiently large in value, the utilitarian purposes for which cash is often spent (e.g., education, health care, housing) may become more motivating because there is more cash available to make these important expenditures or investments.[29] Future research in field settings with larger reward values would be helpful in addressing this possibility. Third, we examine performance over just two, relatively short duration tournaments, leaving open the possibility that longer term, the effectiveness of hedonic tangible rewards in mitigating giving up effects by tournament losers could be limited. Further research in settings with multiple repeated

[29] It may also be that as cash rewards become larger, individuals may be more likely to spend some of the earnings on non-utilitarian items thereby increasing the attractiveness of the total cash rewards.

tournaments or longer duration tournaments is needed to examine the longevity of the effects we observe across the two tournaments. Finally, despite our ability to randomly assign tournament groups to the reward type conditions, we cannot rule out the possibility that subsequent to the beginning of the study, unobserved changes occurred at the retailer level that influenced our results either within or between the two tournaments (e.g., the hiring of more capable sales staff, new competitors entered the market, etc.). Our analysis of post-study sales suggests this is unlikely but research using lab experiments with tightly controlled task environments would still be useful as a means of building on our key findings. Despite the foregoing limitations, overall we believe our study makes an important contribution to the burgeoning literature on the performance effects of tangible rewards.

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Table 1: Comparison of Reward Conditions

	Means (Standard Deviation)		
Full-Year 2012	**Total Sales**	**Unit Sales**	**Price/Unit**
Cash (n=27)	$2,890 (1,907)	17.6 (12.7)	$165
Gift cards (n=27)	$2,761 (1,334)	16.6 (8.4)	$166

	Percent English Speaking
Cash (n=27)	77%
Gift cards (n=27)	63%

	Means		
Demographics	**Full-Time Sales Staff[1]**	**Part-Time Sales Staff[1]**	**Percentage Female[1]**
Cash (n=7)	4.3	.3	56%
Gift cards (n=9)	4.6	.8	60%

[1]All amounts as per the post-experiment survey administered following the second tournament.

Table 2: Descriptive Statistics for Tournament Results

Panel A: Total Sales Both Tournaments (March to August 2013)

2012	Mean (Standard Deviation)	Bottom Quartile	Median	Top Quartile	Range
Cash (n = 27)	$1,819 (1,674)	$615	$1,541	$2,104	$0 - $6,856
Gift cards (n = 27)	$1,298 (1,050)	$447	$ 946	$1,882	$0 - $3,456
2013					
Cash (n = 27)	$1,668 (2,240)	$447	$ 627	$2,049	$0 - $8,637
Gift cards (n = 27)	$1,338 (1,116)	$308	$1,177	$2,051	$0 - $4,246

Panel B: Tournament 1 Sales (March to May 2013)

2012	Mean (Standard Deviation)	Bottom Quartile	Median	Top Quartile	Range
Cash (n = 27)	$908 (1,348)	$129	$318	$1,215	$0 - $6,121
Gift cards (n = 27)	$476 (490)	$ 0	$288	$ 813	$0 - $1,556
2013					
Cash (n = 27)	$935 (1,208)	$228	$437	$815	$0 - $3,831
Gift cards (n = 27)	$619 (652)	$159	$368	$904	$0 - $2,457
2013: Tournament 1 Winners					
Cash (n = 12)	$1,809 (1,383)	$631	$1,123	$3,194	$437 - $3,831
Gift cards (n = 13)	$945 (769)	$318	$670	$1,525	$129 - $2,457
2013 Tournament 1 Losers					
Cash (n = 15)	$236 (170)	$0	$288	$348	$0 - $487
Gift cards (n = 14)	$316 (311)	$0	$231	$506	$0 - $947

Panel C: Tournament 1 Payouts[1]

	Mean (Standard Deviation)		
	Cash	Gift Cards	Total
1st Place	$398.10 ($206.60)	$209.93 ($142.46)	$304.01 ($192.63)
2nd Place	$252.83 ($216.90)	$160.99 ($103.80)	$198.32 ($164.89)
3rd Place	$163.31 ($175.70)	$72.18 ($74.55)	$112.68 ($129.08)
Overall	$271.33 ($207.53)	$141.89 ($115.37)	$204.03 ($175.37)

Payout
*Total Payout [n=25] = $5,101
*Cash Payout [n=12] = $3,256
*Tangible Payout [n=13] = $1,845

Table 2: continued

Panel D: Tournament 2 Sales (June to August 2013)

	Mean (Standard Deviation)	Bottom Quartile	Median	Top Quartile	Range
2012					
Cash (n = 27)	$912 (831)	$189	$725	$1,460	$0 - $3,070
Gift cards (n = 27)	$821 (1,012)	$154	$343	$1,241	$0 - $3,456
2013					
Cash (n = 27)	$733 (1,172)	$ 0	$329	$974	$0 - $4,806
Gift cards (n = 27)	$719 (638)	$129	$795	$966	$0 - $2,466
2013 Tournament 1 Winners					
Cash (n =12)	$1,475 (1,458)	$522	$1,063	$1,505	$329 - $4,806
Gift cards (n =12)	$1,207 (571)	$839	$1,024	$1,497	$468 - $2,466
2013 Tournament 1 Losers					
Cash (n = 15)	$139 (174)	$0	$119	$258	$0 - $517
Gift cards (n = 15)	$328 (363)	$0	$248	$795	$0 - $966

Panel E: Tournament 2 Payouts[2]

	Mean (Standard Deviation)		
	Cash	Gift Cards	Total
1st Place	$302.63 ($286.47)	$256.09 ($104.30)	$279.35 ($201.13)
2nd Place	$247.61 ($248.71)	$161.06 ($48.57)	$204.33 ($172.22)
3rd Place	$113.55 ($79.15)	$126.11 ($40.52)	$119.83 ($58.60)
Overall	$221.26 ($218.72)	$181.09 ($85.72)	$201.18 ($163.75)

Payout

*Total Payout [n=24] = $4,828
*Cash Payout [n=12] = $2,655
*Tangible Payout [n=12] = $2,173

[1] There is no significant difference in payout across condition at rank level (i.e., 1st place cash vs. 1st place tangible) ($p > 0.32$) or overall ($p = 0.12$).
[2] There is no significant difference in payout across condition at either rank level (i.e., 1st place cash vs. 1st place tangible) ($p > 0.26$) or overall ($p = 0.16$)).

Table 3: Tournament 1 Analysis (March to May 2013)[1]

Panel A: OLS Regression (n = 54)

Model: $SalesMarchtoMay2013^{2}_{i} = \beta_0 + \beta_1 RewardType^{3}_{i} + \beta_2 Language^{4}_{i} + \beta_3 VideoViewsMarchtoMay2013^{5}_{i} + \beta_4 MarchtoMaySales2012_i^{6} + e_i$

	Coefficient	t-statistic	p-value
Constant	690.04	3.31	**0.013**
Reward Type	-313.26	-1.12	0.299
Language	-52.68	-0.22	0.834
VideoViewsMarchtoMay2013	184.15	1.60	0.155
MarchtoMaySales2012	0.16	2.44	**0.045**
Adjusted R^2	12.8%		

Panel B: Robust Regression (n= 54)[7]

Model: $SalesMarchtoMay2013_i = \beta_0 + \beta_1 RewardType_i + \beta_2 Language_i + \beta_3 VideoViewsMarchtoMay2013_i + \beta_4 MarchtoMaySales2012_i + e_i$

	Coefficient	t-statistic	p-value
Constant	284.24	3.09	**0.003**
Reward Type	19.76	0.19	0.425*
Language	-178.18	-1.57	0.123
VideoViewsMarchtoMay2013	215.63	5.94	**< 0.001**
MarchtoMaySales2012	0.06	0.80	0.430

Panel C: Rank Regression (n = 54)[8]

Model: $SalesRankMarchtoMay2013_i = \beta_0 + \beta_1 RewardType_i + \beta_2 Language_i + \beta_3 VideoViewsMarchtoMay2013_i + \beta_4 MarchtoMaySales2012_i + e_i$

	Coefficient	t-statistic	p-value
Constant	29.10	13.34	< 0.001
Reward Type	2.05	0.41	0.696
Language	3.89	0.97	0.362
VideoViewsMarchtoMay2013	-3.45	-2.10	**0.074**
MarchtoMaySales2012	-0.01	-3.68	**0.008**
Adjusted R^2	16.2%		

Table 3: continued

[1] All p-values are two-tailed except for *Reward Type,* which is one-tailed when the coefficient is consistent with our directional prediction. One-tailed p-values are indicated with *.
[2] Total sales March to May 2013.
[3] Reward Type: 0 = cash; 1 = gift cards.
[4] Language: 1 = French; 0 = English
[5] Number of times the video link on how to use the small rack of rug samples was accessed by the retailer March to May 2013.
[6] Total sales March to May 2012.
[7] Robust regression analysis weights extreme observations that do not follow the same pattern as other observations lower than the traditional OLS regression; however, robust regression does not drop these extreme observations from the analysis.
[8] Sales rank based on relative sales performance across all retailers with a lower rank indicating higher sales.

Table 4: Analysis of Sales Change from Tournament 1 to Tournament 2[1]

Panel A: Descriptive Statistics

	Sales Change (Tournament 2 – Tournament 1)				
	Mean (Standard Deviation)	Bottom Quartile	Median	Top Quartile	Range
Tournament 1 Losers[2]					
Cash (n = 15)	<$42> (300)	<$348>	$ 0	$159	<$487> - $517
Gift cards (n = 14)	$311 (474)	$ 0	$202	$576	<$409> - $1,376
Tournament 1 Winners[2]					
Cash (n = 12)	<$402> (1,154)	<$1,285>	<$349>	$512	<$2,937> - $ 975
Gift cards (n = 13)	<$127> (742)	<$ 392>	<$129>	$339	<$1,613> - $1,084

Panel B: OLS Regression for Tournament 1 Losers (n=29)

Model: $SalesChange^3_i = \beta_0 + \beta_1 RewardType_i + \beta_2 Language_i + \beta_3 VideoViewsMarchtoAugust2013_i + \beta_4 MarchtoMaySales2013_i + e_i$

	Coefficient	t-statistic	p-value
Constant	0.46	0.01	0.997
Reward Type	394.79	2.63	**0.017***
Language	-36.85	-0.29	0.783
VideoViewsMarchtoAugust2013	114.97	0.82	0.437
MarchtoMaySales2013	-35.44	-1.18	0.275
Adjusted R^2	25.5%		

Panel C: Robust Regression for Tournament 1 Losers (n=29)

Model: $SalesChange_i = \beta_0 + \beta_1 RewardType_i + \beta_2 Language_i + \beta_3 VideoViewsMarchtoAugust2013_i + \beta_4 MarchtoMaySales2013_i + e_i$

	Coefficient	t-statistic	p-value
Constant	-49.29	-0.27	0.791
Reward Type	334.29	1.99	**0.029***
Language	42.47	0.19	0.852
VideoViewsMarchtoAugust2013	146.13	0.93	0.360
MarchtoMaySales2013	-0.25	-0.64	0.526

Table 4: continued

Panel D: Rank Regression for Tournament 1 Losers (n=29)

Model: $RankSalesChange^4_i = \beta_0 + \beta_1 RewardType_i + \beta_2 Language_i + \beta_3 VideoViewsMarchtoAugust2013_i + \beta_4 MarchtoMaySales2013_i + e_i$

	Coefficient	t-statistic	p-value
Constant	27.86	8.26	**< 0.001**
Reward Type	-10.72	-2.57	**0.018***
Language	-1.95	-0.63	0.549
VideoViewsMarchtoAugust2013	-2.78	-0.64	0.542
MarchtoMaySales2013	0.01	1.27	0.244
Adjusted R^2	26.7%		

Panel E: OLS Regression for Tournament 1 Winners (n=25)

Model: $SalesChange^3_i = \beta_0 + \beta_1 RewardType_i + \beta_2 Language_i + \beta_3 VideoViewsMarchtoAugust2013_i + \beta_4 MarchtoMaySales2013_i + e_i$

	Coefficient	t-statistic	p-value
Constant	265.47	0.55	0.589
Reward Type	31.12	0.07	0.472*
Language	-155.06	-0.38	0.709
VideoViewsMarchtoAugust2013	-23.27	-0.26	0.797
MarchtoMaySales2013	-0.32	-1.76	**0.093**
Adjusted R^2	1.0%		

Panel F: Robust Regression for Tournament 1 Winners (n=25)

Model: $SalesChange_i = \beta_0 + \beta_1 RewardType_i + \beta_2 Language_i + \beta_3 VideoViewsMarchtoAugust2013_i + \beta_4 MarchtoMaySales2013_i + e_i$

	Coefficient	t-statistic	p-value
Constant	723.96	2.09	0.050
Reward Type	23.01	0.07	0.470*
Language	-481.95	-1.64	0.116
VideoViewsMarchtoAugust2013	19.21	0.30	0.767
MarchtoMaySales2013	-0.87	-6.57	**< 0.001**

Table 4: continued

Panel G: Rank Regression on Winners (n=25)

Model: $RankSalesChange^4_i = \beta_0 + \beta_1 RewardType_i + \beta_2 Language_i + \beta_3 VideoViewsMarchtoAugust2013_i + \beta_4 MarchtoMaySales2013_i + e_i$

	Coefficient	t-statistic	p-value
Constant	23.90	1.73	0.127
Reward Type	-1.00	-0.12	0.454*
Language	4.95	0.59	0.572
VideoViewsMarchtoAugust2013	0.68	0.43	0.679
MarchtoMaySales2013	0.01	0.51	0.626
Adjusted R^2	5.3%		

[1]See Table 3 for variable definitions and descriptions of regression analysis techniques. All p-values are two-tailed except for *Reward Type,* which is one-tailed when the coefficient is consistent with our directional prediction. One-tailed p-values are indicated with *. OLS regressions (Panels B, D, E, and G) are robust clustered on tournament group.
[2]Losers (winners) did not (did) finish in the top three in their competition group in the first tournament.
[3]*SalesChange*: Tournament 2 sales – Tournament 1 sales.
[4]*RankSalesChange*: rank of Tournament 2 sales – Tournament 1 sales. Lower values indicate more positive (less negative) changes.

Table 5: Repeated Tournament Results (March to May & June to August 2013)

Panel A: Multilevel Model Analysis (n=108)

	Model 1	Model 2
Fixed Effects		
Intercept		**923.62 (241.37; p<0.01)**
Reward Type		-314.98 (305.70; p=0.303)
Round		**-212.55 (53.44; p<0.01)**
Reward Type * Round		**288.80 (164.14; p=0.078)**
Language		-134.55 (186.11; p=0.470)
Video Views		55.76 (66.15; p=0.399)
2012 Sales		0.01 (0.04; p=0.818)
Covariance Estimates		
Retailer	627,162*** (457,411)	590,870*** (470,840)

Panel B: Multilevel Model Analysis (Only Tournament 1 Winners; n=50)

	Model 1	Model 2
Fixed Effects		
Intercept		**1,964.42 (611.92, p<0.01)**
Reward Type		-838.88 (595.89, p=0.16)
Round		**-401.00 (126.11, p<0.01**)
Reward Type * Round		278.73 (213.43, p=0.19)
Language		**-438.43 (258.72, p=0.09)**
Video Views		-4.92 (63.40, p=0.94)
2012 Sales		-0.01 (0.07; p=0.95)
Covariance Estimates		
Retailer	881,878*** (674,066)	733,088*** (586,121)

Table 5: continued

Panel C: Multilevel Model Analysis (Only Tournament 1 Losers; n=58)

	Model 1	Model 2
Fixed Effects		
Intercept		**272.66 (54.13; p<0.01)**
Reward Type		**142.36 (66.13, p=0.03)**
Round		-36.90 (70.76; p=0.60)
Reward Type * Round		**347.02 (156.59, p=0.03)**
Language		**-256.69 (102.96, p=0.01)**
Video Views		-43.96 (93.10, p=0.64)
2012 Sales		0.01 (0.02; p=0.65)
Covariance Estimates		
Retailer	39,394*** (30,134)	23,803*** (17,036)

[1]All p-values are two-tailed. In Panel A, Coefficients are shown and in brackets are standard errors and p-values. 2012 sales are for the relevant 3-month period. Video views are the total views at the end of each tournament round. Analysis was conducted using robust clustered based on tournament group.

Table 6: Tournament 2 Analysis (June to August 2013)[1]

Panel A: OLS Regression (n = 54)

Model: $SalesJunetoAugust2013_i = \beta_0 + \beta_1 RewardType_i + \beta_2 WinLoseT1^2{}_i + \beta_3 RewardType\ x\ WinLoseT1 + \beta_4 Language_i + \beta_5 VideoViewsMarchtoAugust2013_i + \beta_6 JunetoAugustSales2012_i + e_i$

	Coefficient	t-statistic	p-value[3]
Constant	192.69	2.28	**0.057**
Reward Type	507.95	3.86	**0.003***
WinLoseT1	1,280.76	1.63	**0.073***
RewardType x WinLoseT1	-1,075,55	-1.40	**0.100***
Language	-315.46	-2.12	**0.072**
VideoViewsMarchtoAugust2013	-0.89	-0.01	0.989
JunetoAugustSales2012	0.05	0.56	0.600
Adjusted R^2	24.6%		

Panel B: Robust Regression (n = 54)

Model: $SalesJunetoAugust2013_i = \beta_0 + \beta_1 RewardType_i + \beta_2 WinLoseT1_i + \beta_3 RewardType\ x\ WinLoseT1 + \beta_4 Language_i + \beta_5 VideoViewsMarchtoAugust2013_i + \beta_6 JunetoAugustSales2012_i + e_i$

	Coefficient	t-statistic	p-value
Constant	137.88	0.86	0.393
Reward Type	518.18	2.67	**0.010***
WinLoseT1	616.25	2.99	**0.004***
RewardType x WinLoseT1	-660.94	-2.31	**0.026***
Language	-304.51	-1.83	**0.073**
VideoViewsMarchtoAugust2013	43.91	0.95	0.346
JunetoAugustSales2012	0.08	0.99	0.328

Panel C: Rank Regression (n = 54)

Model: $SalesRankJunetoAugust2013_i = \beta_0 + \beta_1 RewardType_i + \beta_2 WinLoseT1_i\ \beta_3 RewardType\ x\ WinLoseT1 + \beta_4 Language_i + \beta_5 VideoViewsMarchtoAugust2013_i + \beta_6 JunetoAugustSales2012_i + e_i$

	Coefficient	t-statistic	p-value
Constant	36.65	2.31	**< 0.001**
Reward Type	-12.51	-3.61	**0.005***
WinLoseT1	-19.09	-2.11	**0.036***
RewardType x WinLoseT1	18.01	2.03	**0.041***
Language	7.50	2.62	**0.035**
VideoViewsMarchtoAugust2013	-0.74	-0.67	0.524
JunetoAugustSalesRank2012	-0.01	-1.47	0.184
Adjusted R^2	33.7%		

Table 6: continued

[1]See Table 3 for variable definitions and descriptions of the regression analysis techniques. All p-values are two-tailed except for *Reward Type, WinLoseT1, and RewardType x WinLoseT1* which are one-tailed when the coefficients are consistent with our directional predictions. One-tailed p-values are indicated with *. OLS regressions (Panels A and C) are robust clustered on tournament group.

Table 7: Survey Responses[1]

Questions	Means (Standard Deviations) Cash (n = 7)	Gift Cards (n = 9)
Fun competing with other stores	4.86 (2.97)	7.22 (2.39)
Motivated to be one of the top three stores	4.71 (3.04)	7.33 (2.54)
Incentives attractive	6.29 (2.92)	7.66 (2.69)
Rather have received cash rewards	NA	8.11 (1.17)

[1] All questions used an 11-point response scale with endpoints labeled "not at all" (1) and "extremely" (11). Only those in the tangible rewards condition responded to the question about "Rather have cash rewards". Of the 16 surveys collected, nine were collected prior to the start of tournament 2 and seven were collected at the end of tournament 2.

Appendix 1: Sample email providing feedback on sales and sales ranking performance

Interim monthly feedback (provided twice during each 3-month competition period)

Dear [retailer contact name],

[Retailer name] is competing anonymously with 6 other stores with similar levels of [company name] product sales. [***Cash condition has the following additional sentences here:*** The top 3 of the 7 stores in your competition group will receive a cash prize equal to 15% of the total invoice dollar value of [company name] products sold during each 3-month competition period. The cash prize should be equally distributed among the sales staff who are responsible for [company name] product sales.] [***Giftcard condition has the following additional sentences here:*** The top 3 of the 7 stores in your competition group will receive a prize in the form of gift cards worth 15% of the total invoice dollar value of [company name] products sold during each 3-month competition period. The prize should be equally distributed among the sales staff who are responsible for [company name] product sales. Sales staff would be able to choose their gift cards from the following locations: *Starbucks, Tim Hortons, Chapters, Cineplex, Marble Slab, Future Shop, Best Buy, EB Games, The Keg, Bath and Body Works, The Body Shop, or Bon Appetit* (usable at *Kelsey's, Montana's, Swiss Chalet, Harvey's, and Milestones*).] As at the end of Month 2 (April) of the first competition period (March – May 2013), your store is ranked 3rd out of the 7 stores in your competition group. Your store's sales performance and ranking to date are as follows.

Interim Sales Competition Ranking: Month 1/Month 2

	Rank: End of Month 1 (March)	Rank: End of Month 2 (April)
Retailer A	1st	1st
Retailer B	2nd	2nd
Your store (insert name)	3rd [Cumulative total invoice dollars of [company name] products sold to date = $xxx]	3rd [Cumulative total invoice dollars of [company name] products sold to date = $xxx]
Retailer C	4th	4th
Retailer D	5th	5th
Retailer E	6th	6th
Retailer F	7th	7th

Please forward this information about the sales competition to all sales staff who are responsible for [company name] product sales. As a reminder, our product knowledge video can be viewed at [insert link].

Thank you,

[name of company representative]

Appendix 1 continued

End of competition feedback (provided at the end each 3-month competition period)

Dear [retailer contact name],
[Retailer name] is competing anonymously with 6 other stores with similar levels of [company name] product sales. The first competition period (March – May 2013) has ended. Congratulations, for the first competition period, your store finished 3rd out of the 7 stores in your competition group! Your store's sales performance and final ranking for the first competition period are as follows. [***Cash condition has the following additional sentences here:*** As a result, your store has won a cash prize equal to 15% of the total invoice dollar value of [company name] products sold in your store during the competition period. Your store's cash prize, that should be divided equally among the sales staff who are responsible for [company name] product sales, is $_____. Please email us at [email address] the with the names/emails/contact telephone number of sales staff who are eligible for the cash prize and we will provide each sales staff with information on how they can collect the cash prize.] [***Giftcard condition has the following additional sentences here:*** As a result, your store has won a prize in the form of gift cards worth 15% of the total invoice dollar value of [company name] products sold in your store during the competition period. Your store's prize, that should be divided equally among the sales staff who are responsible for [company name] product sales, is $_____. Please email us at [email address] with the names/emails/contact telephone number of sales staff who are eligible for the prize and we will provide each sales staff with information on how they can collect the prize. Sales staff would be able to choose their gift cards from the following locations: *Starbucks, Tim Hortons, Chapters, Cineplex, Marble Slab, Future Shop, Best Buy, EB Games, The Keg, Bath and Body Works, The Body Shop, or Bon Appetit* (usable at *Kelsey's, Montana's, Swiss Chalet, Harvey's, and Milestones*).]

	Final Sales Competition Ranking		
	Rank: End of Month 1 (March)	Rank: End of Month 2 (April)	Final Rank: (March – May)
Retailer A	1st	1st	1st
Retailer B	2nd	2nd	2nd
Your store (insert name)	3rd [Cumulative total invoice dollars of [company name] products sold to date = $xxx]	3rd [Cumulative total invoice dollars of [company name] products sold to date = $xxx]	3rd [Cumulative total invoice dollars of [company name] products sold to date = $xxx]
Retailer C	4th	4th	4th
Retailer D	5th	5th	5th
Retailer E	6th	6th	6th
Retailer F	7th	7th	7th

Please forward this information about the sales competition to all sales staff who are responsible for [company name] product sales. The second competition period runs from June to August 2013. As a reminder, our product knowledge video can be viewed at [insert link].
Thank you,
[name of company representative]