

# Supersize My Chances: Promotional Lotteries Impact Product Size Choices

Nükhet Taylor  and Theodore J. Noseworthy  
York University

Ethan Pancer   
Saint Mary's University

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Promotional lotteries offer consumers a chance to win one of many prizes along with their purchase. Critically, as is often the case, these campaigns not only include an assortment of prizes but also an assortment of offerings that one can buy to enter the lottery—such as a small or an extra-large coffee. While companies regularly advertise that the objective odds of winning do not vary by the size of their product offerings, recent anecdotal evidence suggest that consumers behave as if it does. The net result is that consumers seem to be supersizing during promotional lotteries, and thus purchasing larger sized items. Eight studies (four core and four supplementary in Supporting information) and a single-paper meta-analysis confirm that the supersizing phenomenon is indeed real and provides evidence that this behavior is the manifestation of consumers elevating their sense of control. Specifically, supersizing serves to gain psychological control over the pursuit of a desirable, but seemingly unobtainable, outcome.

**Keywords** Product Size; Feelings of Control; Subjective Probability; Promotional Lottery

## Introduction

Many companies annually launch promotional lotteries, which offer consumers a predefined probability (e.g., one in four chances) to win a gradient of prizes, ranging from frequently won nominal prizes to the less obtainable valuable prizes. For example, Tim Hortons' *Roll-Up-The-Rim* campaign gives explicit odds of a 1-in-6 chance to win, with the prizes ranging from a hot beverage to a new car (Roll-Up-the-Rim Website, 2017). Similar promotional lotteries include Coca Cola's *Sip & Scan*, PepsiCo's *Win Every Hour*, M&M's *When We Win, You Win*, and Wendy's *Dip & Squeeze and Win*. The gradients in the prizes exist to elicit interest, but there is anecdotal evidence to suggest that these campaigns may be changing consumer behavior.

A recent article in the Huffington Post claimed that consumers are supersizing their product orders during Tim Hortons' *Roll-Up-The-Rim* campaign

(Yum, 2013). That is, purchases of larger products (e.g., an extra-large cup) seem to increase during the campaign relative to normal operations. The article goes on to suggest that, despite each cup disclosing the objective odds of winning, Tim Hortons customers behave as if larger sizes bring better odds (Yum, 2013). This speculation incited customers to catalogue the prize frequency and distribution across cup size (Roll Up the Stats Website, 2015). The results of over 14,000 crowdsourced reports reveal no statistical variation (Aspler, 2016). Yet despite this, the supersizing tendency persists. So much so that Tim Hortons has recently opted to explicitly convey the equal distribution of prizes in the contest FAQ/legal details.

There are several plausible accounts that may explain the supersizing tendency. Two possibilities relate to consumers inferring something about the price of larger items. The first is the somewhat rational belief that firms have ulterior motives and thus are housing the most elusive prizes in the most profitable options. We could even take this one step further without adopting a conscious lens, whereby consumers may implicitly feel more entitled to win better prizes when they contribute more

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Nükhet Taylor is a doctoral candidate in marketing at the Schulich School of Business at York University, 99 Ian Macdonald Boulevard, Toronto, Ontario, M3J 1P3. Theodore J. Noseworthy is an associate professor of marketing at the Schulich School of Business and a Canada Research Chair in Entrepreneurial Innovation and the Public Good. Ethan Pancer is an assistant professor of marketing at the Sobeys School of Business at Saint Mary's University, 923 Robie Street, Halifax, Nova Scotia. This research was partly funded by the Social Sciences and Humanities Research Council of Canada (SSHRC insights grants #435-2017-0835) awarded to the second author.

Correspondence concerning this article should be addressed to Nükhet Taylor at nagar17@schulich.yorku.ca.

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to the company's bottom line (equity theory; Adams, 1965), or may simply think it is fair to get better prizes for paying more to enter a lottery promotion (e.g., just-world theory; Lerner, 1980).

Yet another alternative is that this supersizing tendency has something to do with control. This can be looked at in two ways: The first is the pursuit, or effort to gain control over an elusive outcome. People commonly engage in tactics or rituals to enhance the subjective odds of winning a chance outcome (Keinan, 1994, 2002; Langer, 1975). This is especially true when the desired outcome is embedded amongst nominal, less valuable alternatives—emphasizing insurmountable odds (Yan & Muthukrishnan, 2014). This is a fundamental characteristic of promotional lotteries. If consumers are looking for subjective tactics to feel more in control of an improbable outcome (Keinan, 1994, 2002; Langer, 1975), it is possible that they find this in physically larger products. This proposition follows recent evidence that casino gamblers are more likely to play larger slot machines, because they believe that larger machines are more likely to win (Fong, Fong, Chark, & Chui, 2018). Such biased perceptions of likelihood have been shown to reflect a person's efforts to gain subjective control—referred to as “psychological control” (Sprott, Brumbaugh, & Miyazaki, 2001, p. 974). The second way of looking at this phenomenon is via compensating for a loss of control. For example, Dubois, Rucker, and Galinsky (2011) found that when consumers feel a lack of control, they can compensate by affirming status in larger offerings.

Regardless of the motivation that underscores the phenomenon, we surmise that consumers are not rejecting or ignoring explicit information about their overall odds of winning, but rather they are engaging in a behavior that subjectively adjusts those odds in their favor.

### Overview of Studies

Across four main and four supplementary studies in Supporting information, we establish the supersizing tendency during promotional lotteries (study 1) and explore contributing factors (see Table 1). Our findings suggest that price-related inferences cannot fully account for the supersizing phenomenon (study 2), and subsequently provide evidence that choosing larger products may serve as a means of subjectively increasing psychological control over an elusive outcome (studies 3 and 4). The four supplementary studies in Supporting information provide

further support for this conclusion and rule out other alternative explanations (see Table 1 and Appendix S1). Finally, we verify the supersizing tendency during promotional lotteries using a single-paper meta-analysis.

Of course, from a rational standpoint (e.g., Expected-Utility Theory; Bernoulli, 1738), if the goal is to *objectively* maximize one's chances of winning, consumers should generally repeat the purchase of the smallest product offering and enter the lottery twice for an equivalent price. Yet if the goal is to gain a *subjective* sense of control over seemingly insurmountable odds, then supersizing may serve an adaptive function.

## Study 1

### Method

Study 1 set out to experimentally validate the supersizing phenomenon. Undergraduate students ( $N = 206$ ; 59% female;  $M_{\text{age}} = 18.90$ ) were assigned at random to one of two conditions (Lottery vs. No Lottery). Participants in the lottery condition were given the introductory information about a *Roll-Up-The-Rim* Tim Hortons contest, and learned that each available cup gave them a 1-in-6 chance of winning a prize during the campaign. Participants were also shown explicit frequency information of each prize (adapted from Tim Hortons branding material). Participants in the no lottery condition were not informed of any ongoing lottery or related details. All participants were then asked to imagine visiting a Tim Hortons store to purchase a cup of coffee. They were asked to select one of four available cups: small, medium, large, or extra-large (Appendix A).

### Results and Discussion

A logistic regression on cup size choice revealed a marginal effect of lottery presence,  $LL = 31.25$ ;  $\chi^2(3) = 7.31$ ,  $p = .065$ ,  $\phi = .18$ . Consistent with the supersizing anecdote, this effect was exclusively driven by variations in the extra-large choice,  $LL = 10.86$ ;  $\chi^2(1) = 4.41$ ,  $p < .05$ ,  $\phi = .14$ . Specifically, participants in the lottery condition were more likely to choose the extra-large (8%) compared to participants in the no lottery condition (1.9%),  $Wald = 3.52$ ,  $\beta = 1.51$ ,  $SE = .80$ ,  $p = .059$ ,  $OR = 4.52$ . Reliable choice shifts for other product sizes were not observed,  $ps > .14$ . The results suggest that consumers are indeed more likely to supersize during a promotional lottery, which is primarily driven by an increased tendency to purchase the largest product size.

Table 1  
Summary of the Studies

Study	Primary purpose(s)	Primary findings	Remarks
Study 1	To explore the impact of a promotional lottery on consumers' size choices	<i>Overall Model Significance:</i> $\chi^2(3) = 6.95$ , $p = .07$ <i>Supersizing<sup>a</sup>:</i> Lottery: 8% vs. No Lottery: 1.9%, $\chi^2(1) = 4.41$ , $p = .036$	Promotional lotteries impacted consumers' choice behaviors, primarily by increasing their tendency to supersize
Study 2	To test price-related explanations, such as equity theory, just-world theory, and inferences of ulterior motives. Specifically, we test whether keeping price constant, independent of product size, would eliminate the supersizing tendency	<i>Overall Model Significance:</i> $\chi^2(3) = 8.94$ , $p = .03$ <i>Supersizing:</i> Lottery: 59.4% vs. No Lottery: 44.7%, $\chi^2(1) = 4.11$ , $p = .041$	When price is held constant across product sizes, promotional lotteries still impacted consumers' choice behaviors by increasing their tendency to supersize. This result suggested that price-related explanations cannot entirely account for the supersizing tendency
Study 3	To explore the impact of product sizes on consumers' perceived likelihood of winning. We examine likelihood judgments of winning a nominal versus a grand prize based on the product sizes	<i>Nominal Prize:</i> No impact of product sizes on perceived likelihood of winning, $p > .99$ <i>Grand Prize:</i> $M_{\text{large}} = 6.29$ vs. $M_{\text{small}} = 3.97$ , $p < .001$ $M_{\text{large}} = 6.29$ vs. $M_{\text{medium}} = 3.56$ , $p < .001$ $M_{\text{medium}} = 3.97$ vs. $M_{\text{small}} = 3.56$ , $p = .53$	The largest product alternative increased perceived likelihood of winning the grand prize compared to medium and small size options. Given that inflated likelihood judgments in a lottery context indicate psychological control (Sprott et al., 2001), this suggested that there was a link between supersizing and psychological control
Study 4	To explore the impact of feelings of control on consumers' supersizing tendency. We also test the relationship between supersizing and psychological control through mediation analyses	<i>Overall Model Significance:</i> $\chi^2(6) = 13.14$ , $p = .041$ <i>Supersizing:</i> Lottery: 22.5% vs. No Lottery: 7%, $\chi^2(1) = 8.03$ , $p = .004$ Lottery: 22.5% vs. Lottery-High Feelings of Control: 9.8%, $\chi^2(1) = 5.04$ , $p = .025$ No Lottery: 7% vs. Lottery-High Feelings of Control: 9.8%, $p = .52$	Choosing the largest product allowed consumers to gain psychological control over in a lottery context. Specifically, there was an indirect effect of psychological control on likelihood judgments through size choice (95% CI: $-0.71$ , $-0.09$ ). Critically, participants whose psychological control was elevated prior to seeing the lottery stimuli were as optimistic about their chances of winning as those in the baseline who tended to supersize
Supplementary Study 1	To explore the impact of pursuing a nominal versus a grand prize during promotional lotteries. Specifically, we focus consumers' motivation toward winning a grand prize versus a nominal prize, and compare size choices to a no lottery condition	<i>Overall Model Significance:</i> $\chi^2(4) = 23.79$ , $p < .001$ <i>Supersizing:</i> Lottery-Grand Prize: 38.5% vs. No Lottery: 9.4%, $\chi^2(1) = 13.48$ , $p < .001$ Lottery-Grand Prize: 38.5% vs. Lottery-Small Prize: 6.7%, $\chi^2(1) = 12.19$ , $p < .001$ No Lottery: 9.4% vs. Lottery-Small Prize: 6.7%, $p = .62$	The findings complement the results of Studies 3 and 4. Participants who pursued the grand prize supersized their product choices. However, pursuing a nominal prize did not alter size choice. This suggests that a semantic association account, whereby consumers would associate the size of the prize to the size of the product, could not explain the supersizing tendency

Table 1  
Continued

Study	Primary purpose(s)	Primary findings	Remarks
Supplementary Study 2	To replicate the findings of Supplementary Study 1 using a different prize structure. Specifically, we adapted to a monetary reward context, where the grand prize was \$1 million and the nominal prize was \$20	<i>Overall Model Significance:</i> $\chi^2(6) = 12.85$ , $p = .045$ <i>Supersizing:</i> Lottery-Grand Prize Focus: 32.1% vs. No Lottery: 10.4%, $\chi^2(1) = 6.94$ , $p = .008$ Lottery-Grand Prize Focus: 32.1% vs. Lottery-Small Prize Focus: 12.5%, $\chi^2(1) = 4.84$ , $p = .028$ No Lottery: 10.4% vs. Lottery-Small Prize Focus: 12.5%, $p = .76$	The results of Supplementary Study 1 were replicated even when the structure of the lottery was altered and the desirability of the nominal prize was enhanced. This supports the notion that the supersizing phenomenon may have something to do with pursuing a prize that is both highly desirable and unlikely
Supplementary Study 3	To test the impact of the physical size of the grand prize, such that better prizes are not necessarily larger in physical size. Here, we adapted the grand prize to a bar of gold and the nominal prize to a meal combo	<i>Overall Model Significance:</i> $\chi^2(4) = 8.87$ , $p = .064$ <i>Supersizing:</i> Lottery-Grand Prize Focus: 40.4% vs. No Lottery: 18.8%, $\chi^2(1) = 5.58$ , $p = .018$ Lottery-Grand Prize Focus: 40.4% vs. Lottery-Small Prize Focus: 20%, $\chi^2(1) = 5.01$ , $p = .025$ No Lottery: 18.8% vs. Lottery-Small Prize Focus: 20%, $p = .88$	Results of Supplementary Studies 1 and 2 are replicated even when the physical size of the grand prize is altered to be significantly smaller than prior studies. This suggests that physical size of the grand prize cannot reliably explain the supersizing phenomenon
Supplementary Study 4	To examine the impact of the desirability of the grand prize. We also generalize our findings to a novel dependent variable—the size of the product a participant would draw when asked to draw the winning “cup” for either a desirable or undesirable grand prize	<i>Measured Size of the Product</i> (square centimeters): $M_{\text{desirable}} = 64.61$ vs. $M_{\text{undesirable}} = 52.97$ , $p < .05$	When participants imagined the grand prize to be desirable, they drew larger products. This reinforced the notion that supersizing during promotional lotteries is linked to a motivational component

Note. <sup>a</sup>Supersizing defined as choosing the largest available product size. See Appendix S1 (MDA) for the reporting and analyses for all size choice shares.

## Study 2

Although the results of study 1 support the basic supersizing phenomenon, by design, product size almost always has an embedded confound with price (i.e., larger products are more expensive). This leaves several possibilities discussed previously—ulterior motives, equity theory, or just-world beliefs. One way to see whether supersizing during promotional lotteries extended beyond these possibilities was by holding the price constant.

### Method

Participants ( $N = 190$ ; 45% female;  $M_{\text{age}} = 35.5$ ) were recruited through Amazon MTurk and assigned at random to one of two conditions (Lottery vs. No Lottery). All participants were told that, for a limited time, Starbucks was conducting a

promotion where *all product sizes are equally priced*. Consistent with similar promotional campaigns (e.g., McDonald’s *Dollar Drink Days*), the price was chosen to reflect the cost of a small cup of coffee. This did raise the concern that we may be encouraging supersizing due to the larger option being perceived as a deal. If so, supersizing should occur independent of whether there was a promotional lottery on top of the pricing campaign. However, if this is not about perceived equity or a just-world belief, then participants should supersize to a significantly greater extent when there is an active lottery on top of the price promotion. The administration of the lottery and control conditions followed the procedures described in study 1, which, by virtue of using the Starbucks brand, was modified to selections of Short, Tall, Grande, or Venti (Appendix B).

### Results and Discussion

Consistent with the notion of pursuing a deal, 99 of the 190 participants (52.1%) chose the Venti cup. More importantly, a logistic regression on the cup size selected yielded a significant effect of lottery presence,  $LL = 32.97$ ;  $\chi^2(3) = 9.32$ ,  $p < .05$ ,  $\phi = .22$ . Specifically, participants in the lottery condition were more likely to choose the Venti (59.4%) compared to participants in the no lottery condition (44.7%),  $Wald = 4.08$ ,  $\beta = .59$ ,  $SE = .29$ ,  $p < .05$ ,  $OR = 4.52$ . Furthermore, although only directionally observed in study 1 (due to relatively low exploratory power), participants in the lottery condition were less likely to choose the Tall cup (5.2%) compared to participants in the no lottery condition (18.1%),  $Wald = 6.84$ ,  $\beta = 1.39$ ,  $SE = .53$ ,  $p < .01$ ,  $OR = .25$ . Given that medium (or Starbucks 'Tall') was the majority baseline choice selection in each study, the drop in choice share for this selection reflects the bulk of the upgrade to the extra-large offering. Reliable choice shifts for other product sizes were not observed,  $ps > .67$ . The results of study 2 suggest that consumers' increased interest in the largest product alternative during promotional lotteries goes beyond just-world beliefs, perceptions of equity, or other more rational inferences based on price (e.g., ulterior motives).

### Study 3

If the supersizing phenomenon is not due to a price confound, the next obvious question is whether larger product choices have something to do with psychological control. One way of measuring psychological control is by examining consumers' perceived likelihood of winning (Sprott et al., 2001). That is, if supersizing is a means of exercising psychological control over a low probability event, consumers may associate larger products with better odds of winning. Crucially, this should only occur for the most elusive and desirable prize, given the frequency of less desirable, nominal alternatives (Yan & Muthukrishnan, 2014).

### Method

Participants were recruited from Amazon MTurk ( $N = 240$ , 50% female,  $M_{Age} = 36.1$ ) and were assigned at random to one of six conditions in a 2 (Prize: Small vs. Large)  $\times$  3 (Product Size: Small vs. Medium vs. Large) between-subjects factorial design. All participants read that Lays Chips was

conducting a promotional campaign, whereby each bag of Lays purchased comes with a 1-in-8 chance of winning a prize. The prizes and frequency information were listed in ascending order to eliminate potential order effects that could increase the saliency of the grand prize (Appendix C). Participants were then shown all three sizes of Lays chips, but were asked at random to rate only one. For example, participants in the medium product size/small prize condition were asked, "How likely is it that a medium bag of Lays Chips will win the soft drink prize?" (1 = *not likely at all*, 11 = *very likely*).

### Results and Discussion

A two-way ANOVA on likelihood as a function of Prize and Product Size revealed an intuitive main effect of the Prize; participants believed they were more likely to win a soft drink ( $M = 6.18$ ,  $SD = 2.81$ ) than a car ( $M = 4.64$ ,  $SD = 3.11$ ),  $F(1, 234) = 18.05$ ,  $p < .001$ ,  $\eta^2 = .46$ . This was qualified by a significant Prize  $\times$  Product Size interaction,  $F(2, 234) = 5.61$ ,  $p < .005$ ,  $\eta^2 = .28$ . Simple effects revealed no difference across product sizes on perceived likelihood of winning the soft drink,  $p = .99$ . However, participants' perceived likelihood of winning the car did vary by product size,  $F(2, 234) = 10.62$ ,  $p < .001$ ,  $\eta^2 = .08$ . Specifically, participants perceived a greater likelihood of winning the car with the purchase of the large chip bag ( $M = 6.29$ ,  $SD = 3.54$ ) relative to the purchase of the small ( $M = 3.97$ ,  $SD = 2.68$ ),  $F(1, 234) = 13.09$ ,  $p < .001$ ,  $\eta^2 = .05$ , or medium bags ( $M = 3.56$ ,  $SD = 2.29$ ),  $F(1, 234) = 18.13$ ,  $p < .001$ ,  $\eta^2 = .07$ . The medium and small did not differ,  $p = .53$ . These results converged with study 1 to show that lottery supersizing corresponds with biased inferences of chance, and these inferences are restricted to the chance of winning the grand prize. Although the grand prize often appears unreachable (Yan & Muthukrishnan, 2014), these results show that consumers are more optimistic about winning if they enter the lottery with the largest product size.

### Study 4

Study 3 revealed that consumers associate the largest product alternative with the best odds of winning the grand prize. Following evidence that subjective increases in one's perceived probability of winning a low probability event reflects a need for psychological control (Sprott et al., 2001), the results suggest an inherent connection between

supersizing and control. If so, we should be able to observe predictable changes by increasing participants' sense of control prior to engaging in the lottery. Specifically, prior research suggests that people who feel in greater control are optimistic about winning in general (Fast, Gruenfeld, Sivathanan, & Galinsky, 2009), and thus should not feel the need to engage in subjective tactics. This suggests that putting consumers in an elevated sense of control prior to entering the lottery, should attenuate, if not erase, the supersizing tendency.

The secondary goal of this study was to explore how psychological control relates to supersizing. There are two plausible ways to look at this. The first is that promotional lotteries activate a need to gain psychological control (i.e., to increase one's subjective odds of winning, Sprott et al., 2001). This proposition fits the notion that larger objects are perceived as more valuable and instrumental in goal pursuit (Peetz & Soliman, 2016), and fits with recent evidence that casino gamblers tend to believe that larger slot machines offer better odds of winning (Fong et al., 2018). If true, we should find product size choices to predict consumers' perceived chances of winning the grand prize. The second way to look at this phenomenon is that supersizing is the result of consumers compensating for a lack of control by pursuing objects that convey status (Dubois et al., 2011). This would suggest that need for status predicts size choices. To explore these possibilities, we revisited the initial Tim Hortons context from study 1.

### Method

Participants ( $N = 257$ ; 52% female;  $M_{\text{Age}} = 36.05$ ) were recruited from Amazon MTurk and were assigned at random to one of three conditions. Two conditions served to test changes in feelings of control within a lottery context (Baseline Lottery vs. High Control Lottery), and the third (No Lottery) condition served as a baseline to test for supersizing. Participants in the lottery conditions read the promotion information used in study 1. Participants in the high feelings of control condition were asked to write down an instance in which they had complete control over a situation (Whitson & Galinsky, 2008). For consistency, participants in the other two conditions were asked to write down a neutral experience (i.e., a shopping experience; Mittal & Griskevicius, 2014). All participants then made their choice selection. Participants in the two lottery conditions rated the likelihood of winning the grand prize with their current purchase (1 = *not likely at*

*all*, 11 = *very likely*), and responded to a four-item need for status scale (see Appendix S1; Dubois et al., 2011). All participants then rated the extent to which the context made them feel in control (anchored: 1 = *no control*, 7 = *total control*; Nasco & Marsh, 1999).

### Results and Discussion

**Manipulation check.** A one-way ANOVA on perceived control yielded a significant omnibus effect,  $F(2, 254) = 22.28, p < .001, \eta^2 = .15$ . Pairwise comparisons confirmed that participants in the high control lottery condition felt more in control ( $M = 5.55, SD = 1.53$ ) than did participants in baseline lottery condition ( $M = 4.37, SD = 2.09$ ),  $F(1, 254) = 21.27, p < .001, \eta^2 = .07$ . Moreover, consistent with the notion that a lottery puts consumers in a low state of control (Skinner, 1996), participants felt more in control when there was no lottery ( $M = 6.00, SD = 1.24$ ) relative to the baseline lottery condition ( $M = 4.37, SD = 2.09$ ),  $F(1, 254) = 41.70, p < .001, \eta^2 = .14$ . Critically, by elevating participants' sense of control prior to the lottery, we were almost able to erase the sensation of a loss of control ( $M_{\text{High control lottery}} = 5.55, SD = 1.53$  vs.  $M_{\text{No lottery}} = 6.00, SD = 1.24$ ),  $F(1, 254) = 3.07, p = .081, \eta^2 = .01$ . This finding supports the notion that increasing participants' sense of control can shield them from losing control in upcoming tasks (Mittal & Griskevicius, 2014).

**Size choice.** A logistic regression on the cup size selected yielded a significant effect of lottery presence,  $LL = 36.64; \chi^2(6) = 12.72, p < .05, \phi = .23$ . Specifically, participants in the baseline lottery condition were more likely to choose the extra-large cup (22.5%) compared to participants in both the no lottery condition (7%), Wald = 7.50,  $\beta = 1.35, SE = .49, p < .01, OR = 3.86$ , and the high control lottery condition (9.8%), Wald = 4.79,  $\beta = .99, SE = .45, p < .05, OR = 2.68$ . Participants in the high control lottery condition were just as likely to choose the extra-large (9.8%) compared to participants in the no lottery condition (7%),  $p = .51$ . Significant variations across conditions for other product sizes were not observed,  $ps > .26$ . These results once again replicated the supersizing tendency, and further attenuated the effect by elevating participants' level of control prior to the promotional lottery.

**Exploring the phenomenon.** We conducted two separate models to test whether a need for status was driving supersized choice or whether supersized choice was driving enhanced psychological control (i.e., perceived likelihood of winning). We

first conducted a mediation analysis with the need for status as a mediator and choice size as the dependent variable (Hayes, 2012; Model 4; bootstrapped with 10,000 draws). The results yielded no significant effects (all CIs, reversed or otherwise, included 0). We then ran our second model with size choice as the mediator and likelihood judgments as the dependent variable. As illustrated in Figure 1, there was no direct effect of feelings of control on likelihood judgments (95%CI:  $-1.26, .57$ ). Given that higher feelings of control usually accompany greater perceived likelihood of winning (Fast et al., 2009), the lack of a direct effect makes sense. However, only participants in the baseline lottery condition are predicted to derive their likelihood ratings from their choice selection. Accordingly, there was a significant indirect effect of feelings of control on likelihood judgments through size choice (95%CI:  $-.71, -.09$ ). In other words, unlike the general optimism expressed by participants in the high control condition, the optimism felt by participants in the baseline lottery condition toward winning the grand prize was tethered to the product size they selected. Furthermore, reversing the order of this mediation analysis yielded insignificant results (95% CI:  $-.12, .04$ ). Finally, given the scaling issues with a dichotomous mediator, we also ran separate regression analyses (Herr, 2006). The results were consistent (see Appendix S1).

Overall, the results support the notion that the act of supersizing during promotional lotteries may lend a sense of control over a desirable and objectively uncontrollable outcome. Interestingly, supersizing led participants in the baseline lottery condition to be just as optimistic as participants who were put in an elevated sense of control. However, participants who were put in an elevated sense of control did not supersize their selections. This supports the notion that the act of supersizing afforded a sense of psychological control.

### Single-Paper Meta-Analysis

To assess the overall effect of promotional lotteries on supersizing, we conducted a single-paper meta-analysis (McShane & Böckenholt, 2017) on all studies that explored choice as the core-dependent variable (three main and three supplementary studies in Supporting information). The results confirmed that, relative to when there was no lottery, promotional lotteries led to an average increase in supersizing of 16.4% (95%CI: 8.84, 24.03), which corresponds to a small to medium effect size,  $d = .29$ . We also found a high level of heterogeneity across the studies,  $I^2 = 94.16$  (95%CI: 91.34, 96.06; see Appendix S1). This seemed to be predominantly due to variations across brands (Tim Hortons, Starbucks, McDonalds), and due to the characteristics of the samples or geographic location (students from a Canadian University vs. online sample from United States).

### General Discussion

Promotional lotteries account for over \$1.8 billion in annual marketing expenditures in the United States alone (Smith, 2009). McDonald's *Monopoly* and Tim Hortons' *Roll-up-the-Rim* are but two examples of a prevalent industry practice. Our findings suggest that consumers do indeed tend to supersize their product choices during lottery promotions (study 1). This behavior persists even when prices are held constant, and thus explanations relating to perceived equity, just-world beliefs, or firm motives could not account for the effect (study 2). This led us to explore psychological control as a possible explanatory mechanism. We found that consumers tend to believe that the largest product offers the best odds of winning the grand prize (study 3). Finally, we found that the act of supersizing elevates psychological control (i.e., perceived likelihood of winning), and thus the supersizing effect could be eliminated by simply elevating consumers'

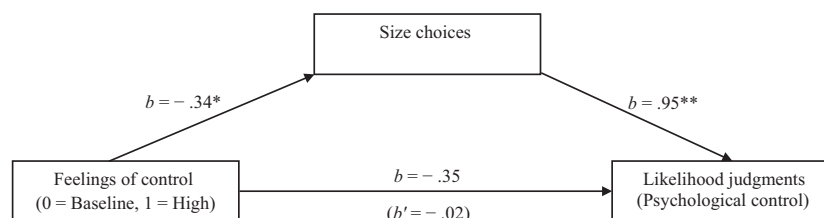


Figure 1. Mediation analysis in study 4

Note. Unstandardized betas are reported with superscript: \* = ( $p < .01$ ) and \*\* = ( $p < .001$ ).

general sense of control (study 4). Four supplementary studies in Supporting information provided additional evidence in support of this result (see Appendix S1 and Table). Taken as a whole, our findings support the notion that supersizing during promotional lotteries allows consumers to gain psychological control over a low probability outcome.

The influence of promotional lotteries on supersizing behavior offers implications for marketing practice and public policy. While supersizing likely improves a company's bottom line, the question remains whether marketers *should* exploit these campaigns. From a public policy perspective, supersizing may have undesirable consequences. Considering that many promotional lotteries occur in a food context, supersizing more during lotteries could be contributing to obesity rates (Chandon & Wansink, 2007). In fact, a recent report in *The Guardian* disclosed that those who succumb to supersizing get an extra 55% more calories on average—an asymmetric increase over the nominal fee to upgrade (Boseley, 2017). These calories add up to an average individual weight gain of about 2.2 kgs (5lbs) each year. Young people aged 18–24 take the brunt of this distribution, consuming 750 additional calories a week on average from supersizing. Concerns about overconsumption are also linked to the environment. For example, public spaces around Tim Hortons' franchises are frequently littered with used disposable cups during the promotion (King, 2016). This encouraged the franchise to actively engage in an antilittering campaign, and explicitly printing "Do Not Litter" on their cups. Thus, there may be unanticipated reputational and societal costs. Given the obvious negative implications of supersizing, more research is needed to explore whether changing the structure of promotional lotteries can ameliorate this tendency. For instance, would giving consumers a choice of scratch tickets with each purchase, and thus separating odds of winning a prize from the product, reduce the supersizing during promotional lotteries?

#### *Exploration and Future Research*

In the spirit of a research report, other alternative accounts for our phenomenon were explored. For example, consumers often use semantically related physical features to grasp abstract concepts (Lakoff & Johnson, 1980; Noseworthy, Murray, & Di Muro, 2018; Sundar & Noseworthy, 2014). In the current context, it may be that consumers are mapping (or associating) small products to small prizes and large products to large prizes. However, we were not able to empirically support this possibility (Appendix S1,

pp. 8–10), and we were able to replicate the supersizing effect with prizes that were not physically large (e.g., a bar of gold; Appendix S1, p. 11). We also considered that desirability or elusiveness of a prize could independently impact supersizing tendency. While we were not able to support these possibilities (Appendix S1, pp. 8–11), we did support that people would have to desire the grand prize for the supersizing effect to manifest (Appendix S1, p. 12). These attempts suggested that supersizing manifests when consumers are chasing something that is both unlikely and desirable.

Future work could focus on how different ways of entering a lottery can influence subjective judgments of winning. For example, would someone be more likely to enter a state lottery draw if playing an optional second line of numbers yielded a larger ticket? Furthermore, given the link between control and dominance (Hui & Bateson, 1991), it would be interesting to see if this effect was more or less prevalent for dominant brands in a category (Bagga, Noseworthy, & Dawar, 2016). Future research may also explore whether this effect extends to attributes that do not necessarily relate to size, but rather other design choices. For example, research finds that when consumers seek control, they prefer product designs that reinforce boundaries and structure (e.g., opaque packages, bounded logos) rather than products that emphasize openness (e.g., transparent packages, unbounded logos, Cutright, 2011). It would be interesting for future research to explore whether these design elements may shift product preferences in promotional lottery contexts. Future research could also explore whether the extent to which consumers value their money when entering a promotional lottery can alter the desirability of the prizes included in the campaign, and the possible downstream consequences of these inferences (cf. Galoni and Noseworthy, 2015). Certainly more research is needed in this area.

## **Appendix A**

### **Reward Structure and Stimuli for Study 1**

In line with the current company practice of Tim Hortons, the rewards and specific frequency information was conveyed. We utilized an actual ad that was prepared by Tim Hortons to convey the prizes. The same promotional lottery ad and cup stimuli were used in study 4. The same rewards and frequency information was also used in study 2, but conveyed in bullet points.





Example of Cup Stimuli Used in Study 1



Appendix B  
Stimuli Used in Study 2



Appendix C  
Stimuli Used in Study 3



### Representation of Prize Structure in Study 3

Inside every bag of Lays Classic chips, consumers can find out whether or not they won one of the prizes listed below:

- 10 million soft drinks of your choice
- 2,500 free movie tickets
- 100 Honda Accord 2018

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### Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

- Appendix S1.** Methodological detail.
- Appendix S2.** Reporting of supplementary studies.
- Appendix S3.** Single-paper meta-analysis.