

How incentive framing can harness the power of social norms

Alicea Lieberman*, Kristen E. Duke, On Amir

University of California, San Diego, United States



ARTICLE INFO

Keywords:

Social norms
Incentives
Information leakage
Framing
Behavior change

ABSTRACT

Incentives are an increasingly common tool used by organizations, managers, and policymakers to change behavior. We propose that more than just motivating behavior for monetary reasons, incentives also have an important, undiscovered consequence: they leak information about social norms. Four experiments reveal that framing an incentive as a surcharge, as compared to a discount, signals that the incentivized behavior is both more socially approved and more common. These implied norms lead individuals to experience emotions consistent with a desire to conform, motivating them to perform the incentivized behavior. Moreover, by shifting social norms, we find that incentives can influence behavior not only in the moment, but also downstream when there is no longer an active incentive. Further, merely being exposed to a surcharge (vs. discount) incentive—even without being financially affected by it—can increase performance of the behavior. These findings offer a novel perspective on the consequences of different incentive frames, while contributing to both organizational policy and practice by expanding the social norms messaging toolkit.

1. Introduction

Social norms influence behavior in powerful ways and can serve as a tool for large-scale behavior change. Indeed, perceptions of what is desirable or typical in a given context (Miller & Prentice, 1996) can drive behavior change at both the individual level (e.g., increasing recycling; Cialdini, Reno, & Kallgren, 1990), and the organizational level (e.g., improving group cohesion and performance; George & Jones, 1997; De Jong, Bijlsman-Frankema, & Cardinal, 2014; Stewart, Courtright, & Barrick, 2012), as individuals are deeply motivated to gain and maintain acceptance from their peers (Barker, 1993; Cialdini, Kallgren, & Reno, 1991; Perkins & Berkowitz, 1986). Social norms often evolve organically over time as individuals learn what is approved of and what is common in a community (Ehrhart & Naumann, 2004; Feldman, 1984; Miller & Prentice, 1996; Paluck & Shepherd, 2012). They can also be influenced through multiple channels, such as the personality characteristics (Gonzalez-Mulé, DeGeest, McCormick, Seong, & Brown, 2014) or shared interactions of a group (Bettenhausen & Murnighan, 1985; Hackman, 1992). Commonly, efforts to shift social norms involve explicit messaging campaigns that state which behaviors are most normative. Such campaigns have successfully altered a wide range of behaviors, including decreasing binge drinking (Haines & Spear, 1996), influencing healthy food choices (Robinson, Thomas, Aveyard, & Higgs, 2014), and increasing hotel towel re-use (Goldstein, Cialdini, & Griskevicius, 2008). However, such direct approaches also

come with other risks, as advertising can irritate people (Aaker & Bruzzone, 1985) or even cause them to avoid an ad altogether (Speck & Elliott, 1997). In this paper, we investigate whether social norms can be communicated indirectly using a simple tool commonly used by organizations, managers, and policymakers: small monetary incentives. In particular, we propose that the framing of an incentive can influence people's beliefs about how approved of and how common the incentivized behavior is, leading to important behavioral consequences.

Monetary incentives can be framed in a negative or positive light: either as additional costs one must pay for behaving in an undesired manner (i.e., a surcharge) or as costs deducted for engaging in a desired manner (i.e., a discount). For example, companies may charge higher premiums on health insurance plans for employees with unhealthy lifestyle behaviors such as smoking (Abelson, 2011; CMS, 2013), or may offer their employees discounts on insurance premiums for healthy lifestyle behaviors such as participating in wellness programs (Kff, 2016). Customers may also pay surcharges or earn discounts when shopping, as when paying 5-cent charges for using plastic bags (National Conference of State Legislatures, 2017) or earning 5-cent discounts for bringing their own reusable bags (Target, 2017). Surcharge and discount incentives are increasingly common tools for behavior change, predicated on the idea that incentives are motivating for their monetary value (DellaVigna & Pope, 2017). However, we propose that incentives also have an important signaling value. Specifically, we demonstrate that people who encounter an incentive framed as a

* Corresponding author at: Rady School of Management, University of California, San Diego, San Diego, CA 92093-0553, United States.

E-mail address: alicea.lieberman@rady.ucsd.edu (A. Lieberman).

surcharge infer that the targeted behavior is both more approved of and more common than when the incentive is framed as a discount. The prospect of violating this perceived norm elicits embarrassment and guilt, two negative, self-conscious emotions associated with the desire to conform to perceived norms. In turn, these anticipated emotional reactions drive individuals to carry out the encouraged behavior. Thus, the current research proposes social norm leakage as a novel consequence of incentive framing, and further, proposes that this leakage plays a key role in the power of incentives to change behavior.

In addition to eliciting norm-related emotions and changing behavior in the moment, this framework also implies two additional novel predictions. Namely, because people strive to emulate social norms, exposure to an incentive can influence their behavior not only initially, but also downstream when there is no longer an active incentive. Furthermore, because of this norm signaling, merely learning about the existence of an incentive (as when seeing it written on a sign) can affect whether an individual carries out the behavior, even when the incentive does not financially impact them directly. In this manner, our research contributes to the organizational behavior and policy literatures by offering a deeper understanding of how and why incentives affect behavior, and by providing novel insights on how to effectively frame such policies to capitalize on the power of social norms.

1.1. Information leakage from policies

Past work suggests that the decision to enact certain policies may provide insight into which behaviors are prescribed within a given community (Lapinski & Rimal, 2005). In a similar way, we propose that in addition to the enactment of an incentive policy revealing information about organizational or community expectations, how that incentive is framed also conveys important social norm information that can influence people's perceptions, beliefs, and actions. We find support for this notion in the information leakage literature.

Information leakage is the phenomenon in which the structure of a policy, choice set, or other feature of the environment signals information to individuals (McKenzie, 2004; Sher & McKenzie, 2006), and has been used to explain certain framing effects. Consider the default effect, in which people tend to stick with the default (or “do nothing”) option of a choice set (Johnson & Goldstein, 2003). An information leakage account proposes that this choice arises, in part, because individuals interpret an organization's selection of a default as an implicit recommendation—that is, people perceive that the institution implementing the policy recommends that people perform the default action (McKenzie, Liersch, & Finkelstein, 2006). In this way, the structuring of a choice set can provide a subtle cue for decision-makers about how the choice architect expects them to behave (e.g., Krijnen, Tannenbaum, & Fox, 2017)—the “right” choice. The framing of a policy may also leak information about a company or policymaker's attitudes toward those affected. For example, Tannenbaum, Valasek, Knowles, and Ditto (2013) demonstrate that disincentive policies (e.g., increased premiums for being overweight), can lead people to infer that the company imposing the policy holds negative attitudes toward the targeted individuals (e.g., overweight employees), while positive incentives (e.g., decreased premiums) do not lead to such inferences.

In a similar manner, we suggest that the framing of an incentive can influence people's perceptions of the expected or “right” behavior. In particular, we propose that incentive framing can affect perceptions of injunctive norms: what people perceive to be the approved behavior—that is, what one “ought” to do (Cialdini et al., 1990, 1991). In other words, incentive framing can suggest to individuals what behaviors are approved of and accepted in a given context, projecting an expectation of compliance (Fehr & Schurtenberger, 2018). This idea follows from work on policy framing. Policymakers can frame policies to either encourage a desirable behavior or to discourage an undesirable behavior, a choice that can influence the likelihood that the policy will be accepted by its stakeholders (Evers, Inbar, Blanken, &

Oosterwijk, 2016). Disadvantaging policies (e.g., punishments imposed on individuals who act in an undesired way) tend to be more accepted when the incentivized behavior is considered obligatory, such as required community service (Evers et al., 2016). In contrast, advantaging policies (e.g., rewards offered for acting in a desired way) tend to be more accepted when the incentivized behavior is viewed as optional, such as voluntary community service (Evers et al., 2016). This idea converges with related notions from the morality and economics literatures. Specifically, using social dilemma games, Mulder (2008) finds that punishments (vs. rewards) can signal that a behavior is morally obligatory (vs. voluntary). Similarly, Fehr and Fischbacher (2004) find that people punish others who violate cooperation norms, suggesting that sanctions may serve as a form of norm enforcement. Together, these findings suggest that the framing of a policy may signal something about the social expectations of the targeted behavior.

In our framework, surcharges are much like disadvantaging policies: they are penalties imposed on individuals who act in an undesired way, and thus should be more accepted when the behavior they incentivize is perceived as relatively obligatory. Organizations are more likely to enact policies supported by their constituents, and prior research demonstrates that messages are the most persuasive when designed to reflect normative ideations already accepted by the group (Payne, 2001). Analogously, we propose that the most effective incentives will be those designed to resonate with their target audience by reflecting ideas already accepted by the community. Accordingly, we suggest that the presence of a surcharge signals that the targeted behavior is more of an obligation, an action one ought to do (i.e., an injunctive norm). In contrast, discounts are advantaging policies that benefit individuals who act in a desired way. Thus, they should be more accepted when they incentivize a behavior that is perceived as relatively voluntary, signaling that the behavior is not necessarily a social “ought.” In this way, the framing of an incentive may leak that the behavior is more of an injunctive norm.

Note that it is possible for individuals to construe surcharges as a form of punishment, and discounts as a form of reward. However, in our framework, surcharges are simply additional costs, and discounts are simply cost deductions. Thus, while surcharges may be viewed as a form of punishment relative to discounts, we suggest that surcharges will signal that the targeted behavior is more normative regardless of whether or not people construe them as explicit punishments, reducing potential concerns of reactance or anger (e.g., Balliet, Mulder, & Van Lange, 2011). Employees, customers, and other individuals may not necessarily perceive surcharges as punishments (and discounts as rewards)—they may instead perceive them as cost passing tactics (i.e., that the organization or retailer is passing on the cost of supplying additional products or services to the employee or customer) or, either explicitly or implicitly, as merely small incentives designed to nudge behaviors. Thus, while construing a surcharge as a punishment would likely only strengthen the signal that the incentivized behavior is a social norm, our theory suggests that this signal will remain even if people do not view the incentive in this light. Indeed, we demonstrate that surcharges (vs. discounts) still project stronger social norms and serve as stronger drivers of behavior even when adjusting for the extent to which individuals perceive these incentives as punishments and rewards.

We further propose that the framing of an incentive can signal not only what behavior is most approved of, but also what behavior is most common—that is, the descriptive norm (Cialdini et al., 1990, 1991). Often, people's perceptions of the approved behavior are consistent with how most people tend to behave—that is, injunctive and descriptive norms often (although do not always) converge (Eriksson, Strimling, & Coultas, 2015; Lapinski & Rimal, 2005). Thus, framing an incentive as a surcharge (vs. a discount) may signal not only that performing the incentivized behavior is more approved of and more expected (an injunctive norm), but also that it is more typical (a descriptive norm).

In addition to the common linkage between injunctive and descriptive norms, a rational account would also suggest that surcharges would likely only be successfully enacted in contexts where the incentivized behavior is already common, and thus few people would incur the extra charge. To illustrate our logic, consider a coffee shop that imposes a 10-cent surcharge on customers who do not bring their own mugs. If bringing a mug were uncommon, then many customers would be required to pay this additional charge. Because customers are motivated to avoid paying an extra cost, even if it is small, implementing a surcharge when the incentivized behavior is uncommon may result in customers choosing to go to another shop, making it unlikely that a store would enact, or maintain, such a policy. Thus, the existence of a surcharge may suggest that few people behave in the undesired way (i.e., few people must pay the charge), signaling that the desired (i.e., incentivized) behavior is more common—a stronger descriptive norm.¹ On the other hand, consider a coffee shop that offers a 10-cent discount to customers who bring their own mugs. It is highly unlikely that a shop owner would offer this policy when the behavior is already common, as it would unnecessarily pay people for a behavior they are already performing.² Said another way, because people are more likely to accept policies that are aligned with their perceptions of the targeted behavior (Evers et al., 2016), a shop owner is unlikely to enact a policy that is misaligned with the community's beliefs, and further, a misaligned policy is unlikely to stay enacted. Thus, we predict our proposed process should apply equally at both the enactment and maintenance stages of policy implementation. Thus, together, our theorizing suggests that surcharges (vs. discounts) leak that the incentivized behavior is more approved of and more common. Next, we draw on social norms research to propose that these inferences carry important consequences for how individuals behave.

1.2. Social norms and their consequences

As social animals, people's behaviors are strongly shaped by their perceptions of social norms (Ajzen & Fishbein, 1980; Asch, 1951; Fishbein & Ajzen, 1975)—both how one ought to and is expected to behave (injunctive norms) and how most others behave (descriptive norms; Cialdini & Trost, 1998; Cialdini et al., 1990, 1991; Goldstein et al., 2008). While injunctive and descriptive norms are often congruent (Lapinski & Rimal, 2005), they are conceptually distinct, and both types of norms provide important information about how to act in a given setting (e.g., Cialdini et al., 1991). Thus, while we primarily focus on injunctive norms throughout this paper, we also measure and report descriptive norms. Notably, research suggests that it is

¹ Note that a related, but alternative, logic would also make the same prediction. Specifically, individuals may infer that there is a standard, baseline outcome to which adjustments can be made (and they may assume that it is more efficient to set baselines in a way that adjustments are rare). In this case, surcharges and discounts would serve as adjustments that arise when behavior does not align with the baseline outcome. As such, the presence of a surcharge could suggest that needing to pay this charge (i.e., not performing the desired behavior) deviates from the standard baseline behavior and, thus, is rare. Similarly, the presence of a discount could suggest that performing the desired behavior (and earning this benefit) deviates from the standard baseline behavior and, thus, is rare. This inference process can help explain why individuals infer that performing the desired behavior (and avoiding the charge/earning the discount) is more common under a surcharge than a discount. We thank an anonymous reviewer for this suggestion.

² A related practical argument would suggest that if it is effortful for a shop owner to collect a surcharge, it is less practical to impose this policy when many customers would be charged (i.e., when the desired behavior is rare), while it is similarly impractical to offer a discount when many customers would earn it (i.e., when the desired behavior is common). This logic suggests another pathway through which incentive framing could signal descriptive norms surrounding the incentivized behavior. We thank the review team for these insights.

perceptions of the norm, more so than the *actual* norm, that influence behavior (Berkowitz, 2004). Accordingly, many social norm interventions aimed at changing a community norm do so by attempting to shift the subjective perceptions of the norm (Tankard & Paluck, 2016), which can change behaviors even when the behavior is not performed by the majority (Goldstein et al., 2008). Thus, throughout the paper when discussing a “norm,” we are alluding to this subjective perception of the norm.

Given the well-established power of social norms, they are featured as a key construct in many behavior change models (e.g., Ajzen, 1991; Fishbein & Yzer, 2003). This provides reason to suspect that if surcharges leak stronger social norms than discounts, they will also lead to greater behavior changes. Drawing on individuals' fundamental desire to fit in with their peers, we propose that by shifting perceptions that a behavior is more normative, surcharges (vs. discounts) will also better motivate behavior. Moreover, this increased motivation should be strongest among individuals who have the highest tendency to conform to social norms (Bearden & Rose, 1990). That is, we predict that the superior effectiveness of surcharges over discounts will be moderated by the extent to which individuals tend to conform to their peers.

One key mechanism by which social norms influence behavior is through anticipated emotions. Past research demonstrates that violating a perceived social norm can elicit self-conscious emotions (e.g., Hareli & Parkinson, 2008; Keltner & Anderson, 2000), which include embarrassment, guilt, shame, and pride. Self-conscious emotions are unique in so far as they all involve a heightened awareness and evaluation of the self (e.g., Tangney & Fischer, 1995), resulting from appraisals of one's own actions. As a result, self-conscious emotions help individuals maintain or improve their social status and avoid group rejection (Keltner & Buswell, 1997; Tracy & Robins, 2004).

In the current research, we focus on the two self-conscious emotions that are action-oriented and motivate social behavior, and thus most relevant to the contexts we investigate: embarrassment and guilt (see Appendix A for a discussion of shame and pride, two other self-conscious emotions that share some conceptual features with embarrassment and guilt). Embarrassment often arises when violating a perceived social convention, typically in the presence of an external audience (Keltner & Buswell, 1997), and leads to concern that a social mishap may threaten the individual's social identity or position within a social group. Accordingly, embarrassment motivates appeasement behaviors designed to elicit reconciliation with others and signal a commitment to upholding social norms (Keltner, Young, & Buswell, 1997).

Guilt involves an appraisal of personal responsibility for a specific action or choice (Duke & Amir, 2018; Lewis, 1971; Tracy & Robins, 2004), and results when individuals feel that their behavior falls short of appropriate, desired conduct (Baumeister, Stillwell, & Heatherton, 1994). Like embarrassment, guilt also arises when people perceive themselves as violating social conventions (Fehr & Schurtenberger, 2018; Keltner & Buswell, 1997; Tangney & Dearing, 2002), and this emotion motivates atonement behaviors aimed at amending the social harm imposed (e.g., Lindsay-Hartz, de Rivera, & Mascolo, 1995).

Thus, we propose that because surcharges (vs. discounts) signal that the incentivized behavior is more desired, expected, and common to perform, the prospect of failing to uphold this norm will lead to the anticipation of embarrassment and guilt. In order to prevent these negative feelings and their associated consequences, individuals will be more motivated to perform the behavior. Said another way, anticipated embarrassment and guilt may serve as a key pathway through which incentive framing affects behavior. These self-conscious emotions of embarrassment and guilt have been intimately linked to social norms violations; accordingly, in the remainder of this paper, we refer to them as “norm-related emotions.”

Critically, a key consequence of this social norm mechanism is the possibility for behavior change to linger and carry over to later instances where incentives are not in place, but where the same social norms are expected. Indeed, past work has documented that efforts to

shift social norms can have long-lasting effects (Neighbors, Larimer, & Lewis, 2004; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). In this research we posit that because surcharges leak information about social norms, they hold the power to have an extended impact on individuals' perceptions and behaviors. We further propose that it is the presence of a surcharge, even when it is not experienced directly, that signals that a behavior is more normative—affecting anyone who is simply exposed to the incentive. In other words, experiencing or merely observing an incentive at one point in time can shift perceptions of social norms and thus influence behaviors after the incentive is no longer in place, as well as in other similar locations without active incentives. In this way, everyday incentives used by employers, policymakers, and marketers may have a surprising and previously undiscovered impact on individuals' future actions.

1.3. A note on loss aversion

Social norms are not the only mechanism through which incentives can change behavior; individuals are undoubtedly also motivated by incentives for their pure monetary value. Further, the framing of an incentive can influence how individuals react to and value it. Prior research suggests that losses are more impactful and perceived as larger than equivalent gains, an asymmetry termed “loss aversion” (Kahneman, Knetsch, & Thaler, 1991; Kahneman & Tversky, 1979). In some situations, people may evaluate the presence of an incentive in comparison to a situation with no incentive at all. In this case, they may perceive the payment of a surcharge as a potential loss, and the receipt of a discount as a potential gain (Thaler, 1980; Tversky & Kahneman, 1986). With this idea in mind, some research uses loss aversion to describe why individuals might react more strongly to surcharges than to discounts (Homonoff, 2015; Nasiry & Popescu, 2011; Poortinga, 2017). However, attributing surcharges' motivational power entirely to loss aversion requires that individuals value losses to be substantially higher than gains. For example, Homonoff (2015) evaluates surcharge and discount incentives in the field and calculates a loss aversion coefficient between 5 and 14, which is quite high relative to other observed measures (~2; Abdellaoui, Bleichrodt, & Paraschiv, 2007; Camerer, 2005). This suggests that another mechanism might be at play—which we propose is the leakage of social norms. In this research, we also offer predictions and demonstrate evidence for several important consequences that would not be predicted by valuation of the incentives (as a result of perceiving them as losses or gains; i.e., loss aversion), and instead would only arise if incentive framing leaked social norms. We discuss these differences in each study and return to the psychology of loss aversion in the General Discussion.

2. Overview of studies

Four studies test our proposed account. Study 1 demonstrates that surcharges (vs. discounts) heighten expectations to conform to an environmentally friendly behavior and increase the perceived prevalence of that behavior—thus leaking both an injunctive and a descriptive norm. Further, it finds that failing to conform under a surcharge (vs. discount) elicits stronger norm-related emotions which, in turn, increase one's intention to perform the incentivized behavior. Study 2 conceptually replicates these findings in a new context and provides further process evidence of a social norms account by demonstrating that exposure to a surcharge at one location influences intentions to engage in the focal behavior in another similar location where no incentive is offered. Study 3 provides additional evidence that the social information leaked by surcharges is a key driver of their ability to motivate behavior by demonstrating that one's likelihood of engaging in a behavior incentivized with a surcharge (vs. a discount) is moderated by individual differences in sensitivity to social influence. That is, the motivational power of surcharges over discounts is driven by those individuals who care the most about conforming to the expectations of

their peers. Finally, Study 4 provides behavioral evidence supporting the notion of carryover effects. Specifically, it shows that exposure to a surcharge (vs. a discount) at one point in time increases incidence of the encouraged behavior at a second point in time when no incentive is offered. Moreover, we find that this effect holds even among individuals who merely witnessed the incentive at the earlier point in time and were not financially affected by it. In all studies, we predetermined sample size and report all data exclusions (if any), all manipulations, and all measures.

3. Study 1: surcharges leak stronger social norms and increase behavioral intentions

Study 1 investigated the decision to bring a reusable mug to a coffee shop, a behavior incentivized by either a surcharge or a discount. This context mirrors a growing real-world phenomenon: organizations increasingly offer surcharge or discount incentives to encourage reuse behaviors. For example, in early 2018, several UK Starbucks shops launched a trial “latte levy,” requiring customers to pay a surcharge if they did not bring a reusable mug (The Guardian, 2018). In contrast, US Starbucks shops offer a 10-cent discount for customers who bring reusable mugs (Starbucks Coffee Company, 2017). Study 1 examined whether framing the incentive as a surcharge (vs. a discount) signals that bringing a reusable mug is more of a social norm which, in turn, increases people's anticipated self-conscious emotions and intention to perform the incentivized behavior.

3.1. Method

Three hundred two Mechanical Turk workers (43.4% female, $M_{age} = 34.6$ years, $SD_{age} = 11.9$ years) participated. Participants were randomly assigned to one of two conditions (incentive framing: surcharge vs. discount) in a between-subjects design. All participants read, “Imagine that you have just moved to a new town, Newbury, and are looking for opportunities to get to know your new neighborhood and your new neighbors! You see a flyer for your local coffee shop and decide to go check it out!” On the next page, participants saw a flyer for “Newbury Bean House,” with text varying by condition (see Appendix A for stimuli). For those in the discount condition, the sign read, “Customers will get a 10-cent discount for bringing their own mugs!” while those in the surcharge condition read, “Customers will be charged 10 cents for not bringing their own mugs!”

Participants then responded to two items in randomized order, capturing their perceptions of the injunctive norm: “Most people at this shop think that everyone ought to bring their own reusable coffee mug” and “Most people at this shop think that I should bring my own reusable coffee mug” (1 = No, definitely not to 7 = Yes, definitely). These items were adapted from prior research investigating perceived injunctive norms (Smith-McLallen & Fishbein, 2008; White, Smith, Terry, Greenslade, & McKimmie, 2009), and were averaged to form a single scale ($r = 0.83$). Participants then provided their perceptions of the descriptive norm, answering: “Out of every 100 customers, how many do you think bring their own reusable mug?” (0–100).

On the following page, participants read, “Take a moment to think about how you would feel if you did NOT bring your own coffee mug to this shop.” They then responded to 10 items capturing their anticipated guilt and embarrassment, in randomized order (1 = Not at all to 7 = Very much). Five items ($\alpha = 0.95$) were drawn from the guilt subscale from the State Shame and Guilt Scale (Marschall, Sanftner, & Tangney, 1994) and slightly altered to capture anticipated (vs. in-the-moment) emotions. These items were, “I would feel remorse, regret”; “I would feel tension about something I have done”; “I would not be able to stop thinking about something bad I have done”; “I would feel like apologizing, confessing”; and “I would feel bad about something I have done.” Five items ($\alpha = 0.94$) were designed to capture anticipated embarrassment, based on Keltner and Buswell (1997)'s description of

the characteristics and psychological experience of embarrassment. These items were, “I would feel awkward”; “I would feel foolish”; “I would feel self-conscious”; “I would feel nervous”; and “I would feel worried.”

On the next page, participants reported their intention to conform to the incentivized behavior, answering: “How likely would you be to bring your own reusable mug to this shop?” (1 = Not at all to 7 = Very). Finally, participants provided demographic information.

3.2. Results

3.2.1. Injunctive norms

In line with our predictions, participants perceived significantly higher injunctive norms regarding reusable mug use in the surcharge condition ($M = 5.73$, $SD = 1.26$) than in the discount condition ($M = 5.01$, $SD = 1.44$; $t(300) = 4.65$, $p < .001$, 95% $CI_{\text{difference}} = [0.42, 1.03]$, $d = 0.31$).

3.2.2. Descriptive norms

Participants also expected that significantly more customers would bring a reusable mug in the surcharge condition ($M = 60.66$, $SD = 21.72$) than in the discount condition ($M = 49.53$, $SD = 23.40$; $t(300) = 4.28$, $p < .001$, 95% $CI_{\text{difference}} = [6.02, 16.25]$, $d = 0.49$), indicating a stronger descriptive norm.

3.2.3. Norm-related emotions

As predicted, participants who read about a surcharge (vs. discount) also anticipated feeling guiltier (surcharge: $M = 3.20$, $SD = 1.71$ vs. discount: $M = 2.66$, $SD = 1.75$; $t(300) = 2.70$, $p = .007$, 95% $CI_{\text{difference}} = [0.15, 0.93]$, $d = 0.31$) and more embarrassed (surcharge: $M = 3.63$, $SD = 1.75$ vs. discount: $M = 2.76$, $SD = 1.75$; $t(300) = 4.32$, $p < .001$, 95% $CI_{\text{difference}} = [0.47, 1.26]$, $d = 0.50$) for failing to bring their own mug. The guilt and embarrassment scales were highly correlated ($r = 0.92$) and were accordingly combined to form a single scale for the serial mediation analysis.

3.2.4. Intention

Importantly, participants indicated significantly higher intention to bring their own mug in the surcharge condition ($M = 5.44$, $SD = 1.45$) than in the discount condition ($M = 4.80$, $SD = 1.68$; $t(300) = 3.57$, $p < .001$, 95% $CI_{\text{difference}} = [0.29, 1.00]$, $d = 0.41$; see Fig. 1).

3.2.5. Serial mediation

To test whether the higher intention in the surcharge (vs. discount) condition was driven by participants' norm perceptions and anticipated emotions, we conducted a serial mediation analysis with 5000 bootstrapped samples (Hayes, 2013, model 6). Incentive framing (surcharge vs. discount) was the predictor, perceived injunctive norms was the first mediator, norm-related emotions served as the second mediator, and intention to bring a reusable mug was the dependent variable. The serial mediation confirmed the predicted path: the surcharge boosted norm perceptions, heightening norm-related emotions which, in turn, increased intention (serial paths $a_1 \times d_{21} \times b_2 = 0.04$, $SE = 0.02$, 95% $CI: [0.02, 0.08]$; see Appendix A for model). We also find significant patterns when replacing the injunctive norms measure with the descriptive norms measure (see Appendix A).

3.3. Discussion

Study 1 demonstrates that surcharges (vs. discounts) lead individuals to perceive that conforming to an incentivized behavior is both more of an injunctive and descriptive norm. Consistent with our predictions, and with prior research that norm violations elicit embarrassment and guilt (e.g., Hareli & Parkinson, 2008), these norm perceptions increased anticipated embarrassment and guilt for failing to carry out the incentivized behavior. This, in turn, increased participants' intention to bring a reusable mug under a surcharge (vs. under a discount).

Appendix A presents a conceptual replication of these results and addresses one alternative explanation by changing the description of the incentives. In Study 1, the surcharge was imposed on participants for *not performing* a behavior (i.e., not bringing a reusable mug), while the discount was offered for *performing* a behavior (i.e., bringing a reusable mug). In the experiment presented in Appendix A, both incentives are designed such that the highlighted behavior involves *performing* a behavior (i.e., “Customers will get a 10 cent discount for bringing their own bags” and “Customers will be charged 10 cents for using our bags”). Even in this case, participants still perceived stronger injunctive and descriptive norms and anticipated stronger norm-related emotional reactions under surcharges relative to discounts.

Importantly, our theory suggests that surcharges (vs. discounts) more strongly influence behaviors because they leak social

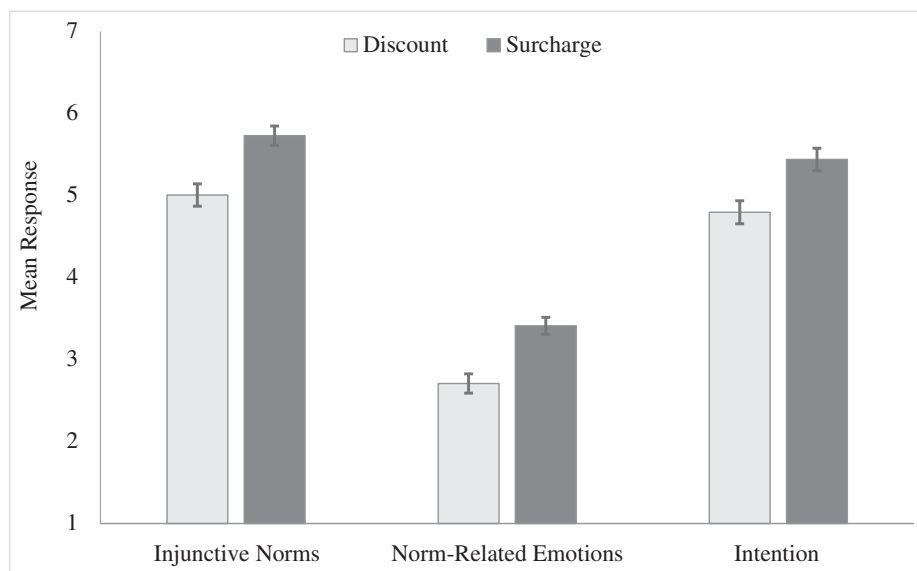


Fig. 1. The effects of incentive framing on perceived injunctive norms, embarrassment and guilt (averaged), and intention to bring a reusable bag, Study 1. Error bars represent ± 1 SE around the means.

norms. Thus, we predict that incentive framing should influence behaviors not only in the location offering the financial incentive, but also in other locations that do *not* offer any incentives, but where a similar norm might be expected. We test this conjecture in Study 2.

4. Study 2: surcharges increase downstream behavioral intentions

Study 2 replicated the effect of incentive framing on social norm perceptions and anticipated norm-related emotions in a different, increasingly common, context. To encourage reusable bag use, surcharges and discounts are being implemented by organizations (Target, 2017) as well as state and local policymakers (National Conference of State Legislatures, 2017). A recent archival study investigating the effectiveness of such policies found that while a bag discount had little impact on behavior, a bag surcharge tripled reusable bag use—an effect the researcher attributed primarily to loss aversion (Homonoff, 2015).³ Study 2 provides deeper insight into this finding, presenting evidence that leaked social norms may contribute to this greater effectiveness of surcharges over discounts.

Further, Study 2 investigated whether the social norms signaled via surcharges at one location would carry over to another nearby location with the same reference group, but where no incentives were offered. We predicted that a surcharge at one store would signal the neighborhood norm of bringing reusable bags, and thus bringing bags would also be perceived as the norm at another local store frequented by the same community members—even though there was no financial incentive to bring bags to this other location. As a result, we predicted that participants exposed to a surcharge (vs. discount) at one location would be more inclined to bring their own reusable bags to the second store where there was no financial incentive.

4.1. Method

Six hundred two Mechanical Turk workers (47.2% female, $M_{\text{age}} = 35.8$ years, $SD_{\text{age}} = 12.0$ years) participated. Participants were randomly assigned to one of two conditions (incentive framing: surcharge vs. discount) in a between-subjects design. All participants read, “Imagine that you have just moved to a new town, Newbury, and are looking for opportunities to get to know your new neighborhood and your new neighbors! You need groceries for the week and decide to go grocery shopping! Your new neighborhood has two local stores that are both very popular among your neighbors. You head to one of these neighborhood stores to do your shopping for the week.” On the next page, participants were told that as they entered the neighborhood store they saw a sign. The sign presented the store’s bag policy with text varying by condition. In the discount condition the sign indicated, “Customers will get a 10-cent discount for bringing their own bags!” while the sign in the surcharge condition read, “Customers will be charged 10 cents for not bringing their own bags!” (see Appendix A for stimuli).

Participants then responded to the two injunctive norm measures from Study 1 ($r = 0.85$), in randomized order: “Most people at this shop think that everyone ought to bring their own reusable bags” and “Most people at this shop think that I should bring my own reusable bags” (1 = No, definitely not to 7 = Yes, definitely). They

³ Note that Homonoff (2015) also discusses the possibility of the enactment of government-imposed taxes or surcharges signaling a shift in social norms. She collected measures pre- and post-policy implementation and found no significant differences. However, most of the measures categorized as social norms in that work diverge from the definitions of injunctive and descriptive norms used in the present research. The items that were more aligned with our definition were directionally consistent with our theorizing.

then responded to the descriptive norm measure from Study 1: “Out of every 100 customers, how many do you think bring their own reusable bags?” (0–100). On the following page, participants reported their anticipated guilt and embarrassment in the same manner as Study 1.

On the next page, participants read, “The following weekend you need to go grocery shopping for the upcoming week. You decide to check out the second neighborhood store. This store does not offer an incentive for bringing reusable bags but otherwise is similar to the first store, carries similar inventory, and most of your neighbors shop at both locations.” They then reported their perceptions of “the norm” at this incentive-less store, answering, “What do you think “the norm” (standard) is for customers at this neighborhood store?” (to bring reusable bags; to not bring reusable bags). This measure was meant to capture whether inferred social norms would carry over from the first store to the second store. Thereafter, they reported their intention, answering, “How likely would you be to bring your own reusable bags to this neighborhood store?” (1 = Not at all to 7 = Very). Finally, participants provided demographic information.

4.2. Results

4.2.1. Injunctive norms

In this context, participants again perceived significantly higher injunctive norms regarding reusable bag use in the surcharge condition ($M = 5.99$, $SD = 1.11$) than in the discount condition ($M = 5.22$, $SD = 1.48$; $t(600) = 7.26$, $p < .001$, 95% $CI_{\text{difference}} = [0.57, 0.99]$, $d = 0.59$).

4.2.2. Descriptive norms

Participants also expected that significantly more customers would bring reusable bags in the surcharge condition ($M = 68.93$, $SD = 20.60$) than in the discount condition ($M = 52.67$, $SD = 23.42$; $t(600) = 9.04$, $p < .001$, 95% $CI_{\text{difference}} = [12.72, 19.79]$, $d = 0.74$), indicating a stronger descriptive norm.

4.2.3. Norm-related emotions

Participants who read about a surcharge (vs. discount) again anticipated feeling guiltier (surcharge: $M = 2.97$, $SD = 1.70$ vs. discount: $M = 2.60$, $SD = 1.64$; $t(600) = 2.70$, $p = .007$, 95% $CI_{\text{difference}} = [0.10, 0.63]$, $d = 0.22$) and more embarrassed (surcharge: $M = 3.39$, $SD = 1.75$ vs. discount: $M = 2.86$, $SD = 1.67$; $t(600) = 3.77$, $p < .001$, 95% $CI_{\text{difference}} = [0.25, 0.80]$, $d = 0.31$) for failing to bring their own bags.

4.2.4. Norm perceptions at the incentive-less store

Even though the second neighborhood store had no incentive for reusable bag use, participants still perceived stronger norms of usage in the surcharge (vs. discount) condition, as predicted. Significantly more surcharge participants perceived that the “norm” was to bring bags (vs. not bring bags) to this store (47.83%) than did discount participants (32.34%; $\chi^2(1, N = 602) = 15.03$, $p < .001$, 95% $CI_{\text{difference}} [7.58\%, 23.11\%]$, $\phi = 0.16$).

4.2.5. Intention at the incentive-less store

In line with our theorizing, participants who had learned about a surcharge at one store in town were significantly more likely to bring their own reusable bags to the second neighborhood store that did *not* offer an incentive ($M = 4.43$, $SD = 2.00$) than were those who had learned about a discount at the first location ($M = 4.07$, $SD = 1.93$; $t(600) = 2.26$, $p = .02$, 95% $CI_{\text{difference}} = [0.05, 0.68]$, $d = 0.18$; see Fig. 2).

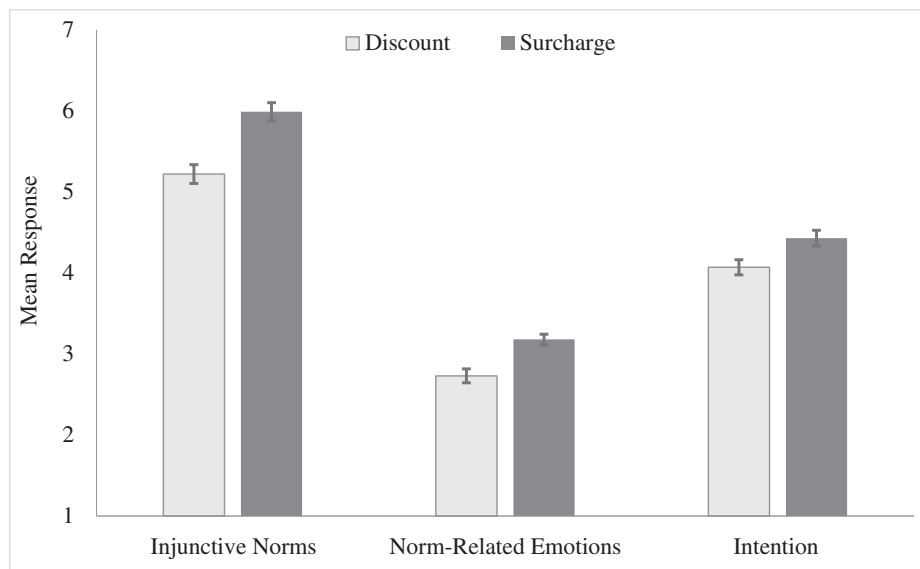
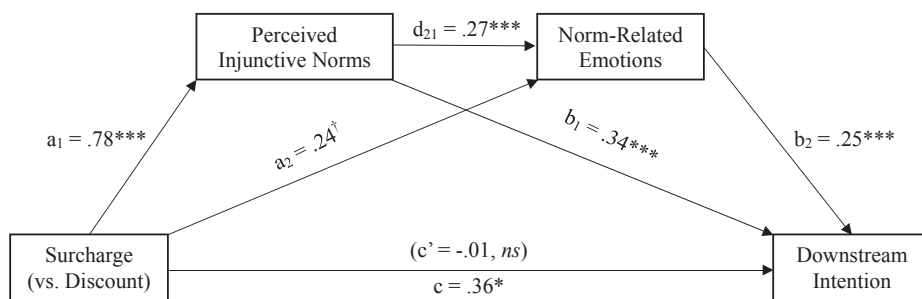


Fig. 2. The effects of incentive framing on perceived injunctive norms, embarrassment and guilt (averaged), and intention to bring a reusable bag, Study 2. Error bars represent ± 1 SE around the means.

4.2.6. Serial mediation

To test whether the higher downstream intention in the surcharge (vs. discount) condition was driven by participants’ norm perceptions and anticipated emotions at the first grocery store, we conducted a serial mediation analysis with 5000 bootstrapped samples (Hayes, 2013, model 6). Incentive framing (surcharge vs. discount) was the predictor, perceived injunctive norms at store 1 was the first mediator, norm-related emotions at store 1 served as the second mediator (r = 0.88), and intention to bring reusable bags to store 2 was the dependent variable. The serial mediation confirmed the predicted causal path: the surcharge boosted norm perceptions at store 1, heightening norm-related emotions which, in turn, increased intention at store 2, where no incentive was offered (serial paths $a_1 \times d_{21} \times b_2 = 0.05$, SE = 0.02, 95% CI: [0.03, 0.09]; see Fig. 3). Consistent with Study 1, we find significant patterns when replacing the store 1 injunctive norms measure with the store 1 descriptive norms measure (see Appendix A for model).



4.3. Discussion

Study 2 again finds that surcharges project stronger injunctive and descriptive norms than do discounts in a context that reflects a growing policy trend: the use of small financial incentives to encourage reusable bag use. Moreover, a broad implication of a social norms account is the potential for carry over effects. Study 2 demonstrated that participants who saw a surcharge at one neighborhood store perceived that bringing a bag was more socially normative at that store and anticipated feeling stronger norm-related emotions for failing to bring a bag there. This, in turn, led them to perceive reusable bags as more normative at another

local store where no incentive was in place, and increased their intention to bring a bag to this other incentive-less location. An important feature of this study is that both locations belonged to the same general community, so it would be reasonable to expect social norms to transfer between the locations. Thus, while it is not necessary for both locations to have the exact same clientele for our effects to hold, our theorizing suggests that carry over effects are most likely to arise when the locations, at the very least, belong to similar communities.

In the next study, we investigate a new behavior and provide further support for a social norms account by testing whether individuals’ susceptibility to social influence moderates their intention to comply with surcharge (vs. discount) incentives.

5. Study 3: the tendency to conform to norms moderates responses to incentives

Study 3 had three key goals. First, to provide further support for a

Fig. 3. The effects of incentive framing on downstream intention to bring reusable bags, through perceived injunctive norms and norm-related emotions, in Study 2. The path coefficients are unstandardized betas. The value in parentheses indicates the direct effect of surcharges on downstream intention after accounting for the two mediators. Norm-related emotions are an average of guilt and embarrassment. *** p < .001; ** p < .01; * p < .05; † p < .10.

norms-based account, we tested whether intention to comply with a surcharge (vs. discount) is moderated by an individual’s tendency to conform to the norms of their peer group. Prior research suggests that individuals vary in the extent to which they are sensitive to information about what others are doing (e.g., Lennox & Wolfe, 1984). This individual difference in sensitivity to perceived norms has been shown to moderate the influence of social pressure on individuals’ tendency to conform (Bearden & Rose, 1990). We posited that surcharges would again lead to greater behavioral intention relative to discounts, driven by the social norm information they leak. Thus, we predicted that the gap in intention to carry out the targeted behavior under a surcharge

should be larger among individuals who have the strongest tendencies to conform to peer influence.

Second, we generalized to a new context and behavior. Specifically, we investigated whether our theory extends to situations where the incentivized behavior is not inherently moral. Some prior work suggests that punishments (vs. rewards) can signal whether morally driven behavior is obligatory and can influence judgments of an individual's moral character (Mulder, 2008, 2016). It is possible that individuals may construe surcharges as punishments, and this construal could lead them to draw inferences about the morality of the behavior. However, note that at their core, surcharges are simply costs imposed (while discounts are costs removed) for behaving in a certain manner. Also note that while injunctive norms may signal what "should be done" and thus carry a moral flavor, this is distinct from whether the behavior itself is perceived as moral or immoral. Thus, diverging from prior research, in our framework it is not necessary to perceive the behavior as moral, nor the incentives as punishments/rewards. Therefore, this experiment tested whether we would still observe our effects in a social context that is divorced from moral concerns, while testing and controlling for the extent to which participants view the incentives as punishments or rewards.

Finally, this study provides further evidence that our results diverge from a pure loss aversion account by testing whether perceived norms and behavioral intentions remained different between conditions even when the value of the discount was twice that of the surcharge. Across several domains, a loss (e.g., a surcharge) has been estimated to carry approximately twice the weight of an equally valued gain (e.g., a discount; Abdellaoui et al., 2007; Camerer, 2005). Thus, under a loss aversion account, offering a discount twice the value of a surcharge should be similarly motivating. However, even with this asymmetric structure, we expected that participants who were exposed to a surcharge would still perceive greater injunctive and descriptive norms, anticipate stronger norm-related emotional responses for failure to conform, and be more likely themselves to conform to the incentivized behavior.

5.1. Method

Eight hundred Mechanical Turk workers from the United States (43.5% female, 0.3% other, $M_{\text{age}} = 33.8$ years, $SD_{\text{age}} = 10.6$ years) participated the day before the American holiday of Thanksgiving. Participants were randomly assigned to condition (incentive framing: surcharge vs. discount) in a between-subjects design. They then viewed a flyer for a Thanksgiving Turkey Trot 5k Run, where dressing up like a turkey was optional but encouraged. Participants in the discount [surcharge] condition read, "Participants who do the 5k [not] dressed in a turkey costume will receive \$4 off [pay an additional \$2 on] their race ticket" (see Appendix A for stimuli).

After reading the scenario, participants responded to a measure of injunctive norms surrounding the incentivized behavior: "How much do you think it's an expectation to dress up for the race?" (1 = Not at all to 7 = Very much). Next, we captured their anticipated emotional reactions. Whereas in Studies 1 and 2 we measured anticipated embarrassment and guilt in multi-item scales that implicitly measured these focal emotions, this study assessed whether participants would explicitly report anticipating feeling guilt and embarrassment. Specifically, participants indicated how embarrassing it would be to not dress up for the race and how guilty they would feel if they did not dress up for the race (1 = Not at all to 7 = Very much). Next, they responded to an additional item designed to capture their perceptions of the normative behavior: "What do you think 'the norm' (standard) is for other participants?" with choice options: "To dress in a turkey costume" and "To not dress in a turkey costume.."

Participants then imagined that several of their friends decided to run with them, and responded to three items assessing their intention to dress up. These items were adapted from previous research measuring

behavioral intentions (Moon, Chadee, & Tikoo, 2008): "Given a choice, my friends will choose to dress up in a turkey costume for the run"; "There is a strong likelihood that I will dress up in a turkey costume for the run"; and, "I will recommend to my friends that we dress up in turkey costumes for the run" (1 = Do not agree at all to 7 = Agree completely). These items demonstrated high internal consistency ($\alpha = 0.89$) and were averaged together to create an index of behavioral intention.

In order to properly address alternative explanations, we followed the method used by Mulder (2008) by assessing perceived incentive size and using it as a covariate in all analyses. Discount [surcharge] participants answered, "How big does \$4 off for dressing up [a \$2 charge for not dressing up] feel?" (1 = Not at all to 7 = Very).

Next, we assessed whether participants viewed the discount and surcharge as a reward and punishment, respectively. We posit that surcharges (vs. discounts) will project stronger social norms regardless of whether individuals view them as punishments or rewards. As such, participants allocated 100 points across a set of potential reasons why the race organizers would offer \$4 off for dressing up [charge \$2 for not dressing up], with the most points given to the reasons they think are most likely. The potential reasons were: "they want to reward participants for dressing up"; "they want to punish participants for not dressing up"; "they want to make more money"; "they care about how much spirit people show"; "they expect participants to want to show spirit"; and "a different reason."

Next, participants completed the Attention-to-Social-Comparison-Information (ATSCI) scale ($\alpha = 0.88$; Lennox & Wolfe, 1984), measuring one's tendency to conform to the behaviors of others. This scale includes items such as, "At parties I usually try to behave in a manner that makes me fit in" and "It's important to me to fit into the group I'm with" (see Appendix A for full scale). We predicted that this measure would moderate participants' responses to surcharges versus discounts, such that the incentive framing would influence only the individuals who care the most about fitting in. Finally, participants provided demographic information.

5.2. Results

5.2.1. Norm perceptions

Supporting the idea that participants indeed perceived a stronger injunctive norm of dressing up in the surcharge condition, surcharge (vs. discount) participants reported that there was a significantly stronger expectation that runners would dress up (surcharge: $M = 5.44$, $SD = 1.44$ vs. discount: $M = 4.55$, $SD = 1.59$; $b = 0.99$, $t(797) = 9.22$, $p < .001$, 95% $CI_{\text{difference}} = [0.78, 1.20]$, $d = 0.66$). Participants were also significantly more likely to report that "the norm" was to dress up like a turkey for the race rather than not dress up (surcharge = 80.0% vs. discount = 64.7%; $b = 0.94$, $z = 5.53$, $p < .001$, 95% $CI [9.24\%, 21.46\%]$, $\phi = 0.17$).

5.2.2. Norm-related emotions

Surcharge participants anticipated feeling more embarrassed (surcharge: $M = 3.20$, $SD = 1.74$ vs. discount: $M = 2.59$, $SD = 1.67$; $b = 0.73$, $t(797) = 6.12$, $p < .001$, 95% $CI_{\text{difference}} = [0.50, 0.97]$, $d = 0.43$) and guiltier than discount participants (surcharge: $M = 3.18$, $SD = 1.95$ vs. discount: $M = 2.79$, $SD = 1.59$; $b = 0.54$, $t(797) = 2.90$, $p = .004$, 95% $CI_{\text{difference}} = [0.28, 0.80]$, $d = 0.29$) for not dressing up, consistent with the previous studies.

5.2.3. Intention

In line with our predictions, surcharge participants indicated significantly higher intention to dress as a turkey ($M = 4.48$, $SD = 1.78$) than did discount participants ($M = 4.29$, $SD = 1.80$; $b = 0.41$, $t(797) = 3.43$, $p < .001$, 95% $CI_{\text{difference}} = [0.18, 0.65]$, $d = 0.23$). Thus, the surcharge again more strongly motivated intention to engage in the incentivized behavior.

5.2.4. Moderation by conformity tendency

We next examined intention to dress in a turkey costume as a

function of condition (surcharge vs. discount), individual tendency to conform to others' behavior, and their interaction, in a linear regression with incentive size perceptions as a covariate.⁴ We mean-centered conformity tendency and effect-coded condition (1 vs. -1 for surcharge vs. discount) for proper interpretation of the main effects (Aiken & West, 1991). This analysis revealed a significant main effect of condition ($b = 0.20$, $t(795) = 3.35$, $p < .001$, 95% CI = [0.08, 0.32], $d = 0.22$), whereby surcharge participants reported significantly higher intentions, and a significant main effect of conformity tendency ($b = 0.38$, $t(795) = 5.04$, $p < .001$, 95% CI = [0.23, 0.53], $d = 0.34$), whereby individuals higher in conformity were more likely to dress up, qualified by a significant interaction ($b = 0.18$, $t(795) = 2.47$, $p = .01$, 95% CI = [0.04, 0.33], $d = 0.21$).

To examine this interaction, we conducted a floodlight analysis (Spiller, Fitzsimons, Lynch, & McClelland, 2013), applying the Johnson-Neyman procedure to identify the range(s) of conformity tendency (ranging in value from 1 = low to 6 = high) for which the simple effect of condition was significant. This analysis revealed that there was a significant positive effect of being in the surcharge condition on intention for any value of conformity tendency greater than 3.24 (71.25% of participants; $b = 0.26$, $t = 1.96$, $p = .05$), but no effect for any value of conformity tendency less than 3.24. Thus, participants who tend to conform to their peers' expectations were significantly more likely to dress up under the surcharge than under the discount, but participants who are less influenced by their peers' expectations were equally likely to dress up in both conditions. See Fig. 4 for this pattern and Table 1 for regression results.

Table 1
Linear regressions predicting behavioral intention, Study 3.

	(1)	(2)	(3)
Condition	0.21*** (0.06)	0.20*** (0.06)	0.20*** (0.06)
Perceived incentive size	0.38*** (0.04)	0.35*** (0.04)	0.35*** (0.04)
Conformity tendency		0.38*** (0.08)	0.38*** (0.08)
Conformity tendency × condition			0.18* (0.07)
Constant	4.38*** (0.06)	4.38*** (0.06)	4.38*** (0.06)
# Observations	800	800	800
R ²	0.13	0.15	0.16

Note: Standard errors in parentheses. Levels of significance: * $p < .05$, ** $p < .01$, *** $p < .001$. Condition is effect-coded (i.e., 1 = Surcharge, -1 = Discount) to allow for interpretation of the main effects. All continuous variables (Perceived Incentive Size, Conformity Tendency) are mean-centered for the same goal.

“they want to reward participants for dressing up” (surcharge: $M = 25.71$, $SD = 22.46$ and discount $M = 33.56$, $SD = 22.52$), suggesting that participants viewed both incentives primarily as rewards. Consistent with expectations, participants assigned more points to the

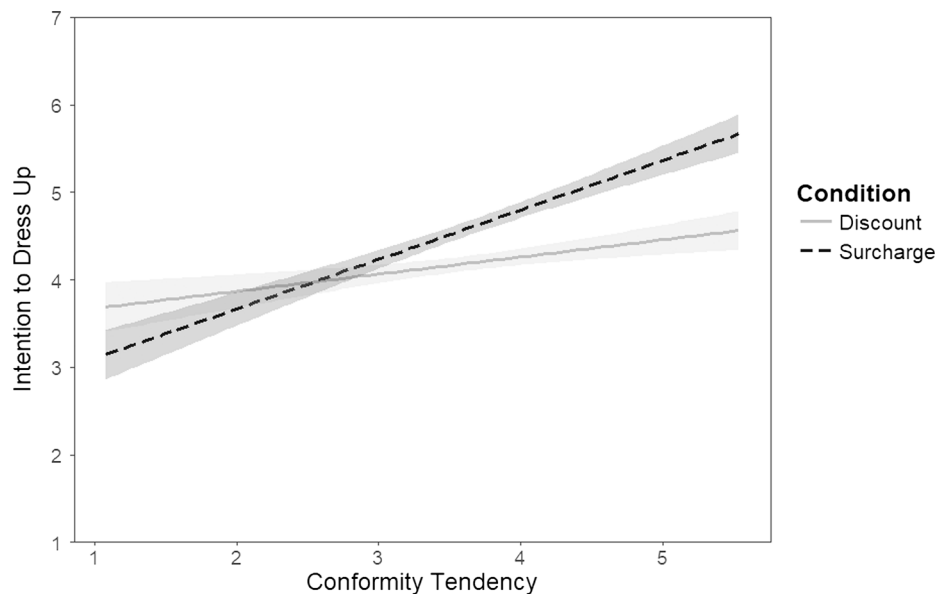


Fig. 4. Regression-predicted intention to dress up by incentive condition, moderated by conformity tendency, Study 3. Note: Incentive size perceptions was included as a covariate: regression-predicted values were computed at the mean level of incentive size perceptions. Shaded areas reflect ± 1 SE.

5.2.5. Perceived purpose of incentive

Finally, to test whether participants perceived different reasons for the surcharge versus discount incentives, we examined how they allocated “points” to each rationale.⁵ In both conditions, participants allocated the greatest number of points on average to the rationale that

reward rationale in the discount than the surcharge condition ($b = 8.76$, $t(743) = 5.25$, $p < .001$, 95% CI_{difference} = [5.48, 12.03], $d = 0.39$). Further, while participants in both conditions assigned few points overall to a punishment motive, surcharge participants assigned more points to punishment ($M = 6.59$, $SD = 12.91$) than did discount participants ($M = 2.72$, $SD = 7.44$; $b = 4.58$, $t(743) = 5.94$, $p < .001$, 95% CI_{difference} = [3.07, 6.10], $d = 0.44$). Importantly, the effect of condition on behavioral intention remains significant when controlling for both of these point allocations ($p < .001$ and neither allocation significantly predicted intention, $ps > 0.26$), suggesting these motives alone are not entirely responsible for participants' responses. This pattern further suggests that people may view surcharges more as punishments relative to discounts, but that overall, they are not

⁴ Without the covariate, the main effect is directionally consistent but marginal ($b = 0.10$, $t(796) = 1.57$, $p = .12$) and the interaction remains significant ($b = 0.20$, $t(796) = 2.45$, $p = .01$), with the floodlight analysis revealing a similar pattern.

⁵ Note that 6% of participants did not allocate a total of 100 points and were not included in the analyses of point allocations, although including them does not change the pattern nor the significance of the results.

considered a strong form of punishment, at least in this context. Point allocations for the other rationales are included in [Appendix A](#).

5.3. Discussion

Study 3 shows that under a surcharge loss-equated at half the size of a discount, participants were still more likely to perceive stronger social norms and anticipate stronger emotional reactions to violating these norms, which led to higher intentions to carry out the incentivized behavior. Further, this effect was moderated by conformity tendencies: participants who tend to conform to their peers expressed higher intention to engage in a behavior incentivized with a surcharge than with a discount, but participants low in the tendency to conform expressed equal intention across incentive frames. This finding further corroborates the role of norm leakage in the influence of incentives on behavior.

This study also demonstrates that surcharges and discounts may align with a punishment and reward frame, but that it is unlikely we need to be concerned with some of the downsides of punishments such as reactance (e.g., [Balliet et al., 2011](#)), at least in this context. Further, these findings suggest that surcharges (vs. discounts) signal social norms not only in contexts where the incentivized behavior may be construed as moral (e.g., green behaviors like reusable mug and bag usage), but also in contexts where the incentivized behavior has no moral flavor (e.g., dressing up). A pretest verified this assumption, finding that participants did not judge others who fail to conform to an incentive in this context as immoral (see [Appendix A](#) for details). However, a clear limitation of this study is its hypothetical nature. Therefore, in Study 4, we test whether exposure to an incentive can influence real behavior, particularly once the incentive is removed.

6. Study 4: surcharges change downstream behaviors

Study 4 investigated a new domain, health promotion, and assessed whether exposure to a surcharge incentivizing a behavior at one point in time could influence whether individuals would carry out that behavior in the same location, but when the incentive was no longer in place. Participants were given an opportunity to make a purchase and were offered an incentive, framed either as a surcharge or a discount, for using hand sanitizer before purchasing. We tested if participants who initially witnessed a surcharge (vs. discount) were more likely to spontaneously carry out the encouraged behavior at a second point in time, when no incentive was present.

This design also allowed us to examine the downstream consequences of merely being exposed to these incentive policies, without necessarily being monetarily impacted by the incentives. All participants learned about the presence of a surcharge or a discount, but some chose not to purchase the item associated with this incentive. Thus, these individuals heard about the policy, but were not financially affected by it. We tested whether these individuals still exhibited an increased tendency to carry out the initially incentivized behavior under a surcharge (vs. discount), consistent with our norms account.

6.1. Method

Two hundred ninety-four undergraduates (56.4% female; 0.7% other; 4.8% undisclosed; $M_{\text{age}} = 21.2$ years, $SD_{\text{age}} = 2.2$ years) from a large West Coast University participated in a laboratory study in return for course credit.⁶ Participants were randomly assigned to condition (incentive framing: surcharge vs. discount) in a between-subjects design. Participants came into the lab, signed in, and were given \$0.50 as

⁶ One participant was excluded because she wished to use the hand sanitizer, but had a cut on her hand and thus could not; a second participant was excluded because the research assistant did not inform this participant about the chance to take a cookie.

a thank-you for their participation in the study.

In the first phase of the study, participants proceeded one at a time to a room where a research assistant (RA) and a confederate waited, both of whom were neither informed about the study's purpose nor informed about the hypotheses. During each participant's interaction in this room, a confederate sat at a computer facing the participant and was instructed to appear to be working, but also to periodically glance at the participant. The confederate's presence was intended to increase participants' perceptions that they were in a social setting with a member of their reference group (another college student). The RA, seated behind a table, asked the participants to view two school t-shirts hanging on the wall. Participants indicated which t-shirt they thought best represented the school community. This interaction was designed to subtly encourage participants to think about their social environment, while also masking the true focus of the study.

Next, the RA drew participants' attention to the table in front of them, which held several packs of gum and four signs (see [Appendix A](#) for materials). One sign announced a sale on chewing gum, with a picture of the gum and its price (45 cents in the discount condition, and 40 cents in the surcharge condition).⁷ A second sign informed participants of an incentive related to the gum, the text of which varied by condition. In the discount condition, this sign read, "You'll get a 5 cent discount if you use hand sanitizer! Help protect yourself and keep [school name] safe for everyone!" In the surcharge condition, this sign instead read, "You'll pay a 5 cent surcharge if you don't use hand sanitizer! Help protect yourself and keep [school name] safe for everyone!" A third and fourth sign on the table were intended to present a rationale for the incentive. One sign included a picture of people holding hands and read, "We're all in this together! Stop Germs from Spreading. Clean your Hands." The other sign had a picture of a toilet and someone using hand sanitizer and read, "Public keyboards can contain more germs than a toilet seat! Protect yourself & others!" The hand sanitizer was located on a separate table in the room.

To initiate this brief interaction, the RA said,

"We have Extra gum for sale at a special low price – 1 for 45 [40] cents! In addition, we are letting all lab participants know we're making an effort to reduce the spread of germs across campus. As it turns out, public keyboards can be one of THE dirtiest surfaces and a key way in which germs are spread. So, to encourage participants to protect themselves and reduce the spread of germs across campus, the lab is offering a 5 cent discount [charging an additional 5 cents] on the price of the gum for participants who use the hand sanitizer [don't use the hand sanitizer] before purchasing."

The RA recorded whether or not the participant purchased the gum (yes/no), whether or not they used hand sanitizer (yes/no), and the number of pumps of hand sanitizer they used.⁸

Participants were then taken to the computer lab where they completed 30 minutes of filler survey material and unrelated studies (more details are in [Appendix A](#)), as in a typical session in the lab. Embedded in a filler survey, participants answered on a 10-point scale, "Out of every 10 participants, how many do you think used the hand sanitizer before coming to the computer lab?" and provided demographic information.⁹

⁷ The price of the gum was structured so that the eventual price would be the same in both conditions: it cost 40 cents for all participants who used the hand sanitizer (after a 5-cent discount; or without a 5-cent surcharge) and 45 cents for participants who did not (without a 5-cent discount; or after a 5-cent surcharge).

⁸ Of participants who used the hand sanitizer, nearly all used exactly 1 pump (89.4%). The number of pumps participants used was equal across conditions ($\chi^2(2, N = 179) = 2.06, p = .36$).

⁹ Participants also responded to the ATSCI scale. This measure did not

After this half hour of unrelated studies, participants returned individually to the same room used during phase 1 of the study. The RA handed the participants a sheet of paper and asked them to complete a “memory test” as the final part of the study. The paper had a picture of the two t-shirts on it from phase 1 and asked participants to circle the shirt they had voted for. This task was designed to justify why participants needed to return to the original room. When finished, participants handed their sheet to the RA and signed out of the lab session. On the table near the exit (across the room from the RA) was a tray of cookies along with a bottle of hand sanitizer. The RA dismissed each participant, telling them, “Thank you very much; you are free to go! There were extra cookies available from an earlier event here, so you can take one on the way out!” Thus, during the entirety of this second interaction, there was no mention of the hand sanitizer. The RA surreptitiously recorded whether the participant used the hand sanitizer (yes/no) as they left the lab.¹⁰

6.2. Results

6.2.1. Phase 1

Participants purchased gum at equal rates in both conditions (surcharge: 58.5% vs. discount: 54.4%, $\chi^2(1, N = 294) = 0.50, p = .48$, 95% $CI_{\text{difference}} [-15.31\%, 7.25\%]$, $\phi = 0.04$). It turns out that the calibration of the incentives led to a ceiling effect on phase 1 hand sanitizer usage among participants who purchased gum (surcharge: 94.2% vs. discount: 96.3%; $\chi^2(1, N = 166) = 0.38, p = .54$, 95% $CI_{\text{difference}} [-6.00\%, 10.20\%]$, $\phi = 0.05$) and equal usage among those who did not (discount: 16.4% vs. surcharge: 16.4%, $\chi^2(1, N = 126) < 0.001, p > .99$, 95% $CI_{\text{difference}} [-13.02\%, 13.32\%]$, $\phi < 0.001$).

6.2.2. Phase 2

The focus of this experiment was on phase 2 hand sanitizer usage. As predicted, even with the incentive no longer in place, surcharge participants were significantly more likely to spontaneously use the hand sanitizer in phase 2 (19.7%) than were discount participants (10.2%; $\chi^2(1, N = 294) = 5.24, p = .02$, 95% $CI_{\text{difference}} [1.39\%, 17.84\%]$, $\phi = 0.13$). Thus, encountering an incentive framed as a surcharge at one point in time nearly doubled the proportion of participants who carried out the encouraged behavior later on, when it was no longer incentivized—and not even mentioned.

Importantly, the effect of condition on hand sanitizer usage in phase 2 was driven by the participants who had not purchased any gum in phase 1 (43.5% of participants). These individuals were merely exposed to either a surcharge or discount, and were not financially affected by it. Yet, even among these participants, those who had observed a surcharge in phase 1 were significantly more likely to spontaneously use the hand sanitizer in phase 2 (36.1%) than were those who had observed a discount (16.4%; $\chi^2(1, N = 128) = 6.44, p = .01$, 95%

(footnote continued)

moderate behavior in this experiment; we suspect this is the case because this individual difference scale was presented completely divorced of any social context. Further, the scale leans toward descriptive norm items, for which we found no effect in this experiment. This may serve as further evidence of the important role of injunctive norms in driving behavior in this setting.

¹⁰ The RA also recorded how many pumps of hand sanitizer participants used. As in phase 1, of participants who used the hand sanitizer, nearly all used exactly one pump (88.6%) and the number of pumps used was equal across conditions ($\chi^2(2, N = 44) = 0.72, p = .70$). The RA also recorded whether the participant took a cookie and whether the participant took napkins with their cookies. Participants were equally likely across conditions to take a cookie (discount: 71.4% vs. surcharge: 65.3%, $\chi^2(1, N = 294) = 1.27, p = .26$), and to take a napkin (discount: 53.7% vs. surcharge: 51.7%, $\chi^2(1, N = 294) = 0.12, p = .73$). Thus, exposure to the incentive in phase 1 influenced only the specific behavior that was incentivized, and not other behaviors.

$CI_{\text{difference}} [4.48\%, 34.48\%]$, $\phi = 0.22$). This pattern suggests that merely being exposed to a surcharge, even while not being financially affected by it, can leak social norm information and significantly alter behavior thereafter.

6.2.3. Survey measure: Descriptive norm

Participants perceived similar rates of hand sanitizer usage by their peers in both conditions (surcharge: $M = 5.80, SD = 3.17$ vs. discount: $M = 5.74, SD = 3.31$; $t(278) = 0.17, p = .87$, 95% $CI_{\text{difference}} = [-0.83, 0.70]$, $d = 0.02$), contrary to our expectations. However, participants' estimates of others' behavior was reflective of their own actual usage: participants who used hand sanitizer reported thinking that significantly more of their peers also did so ($b = 4.05, t(278) = 12.87, p < .001$, 95% $CI_{\text{difference}} = [3.43, 4.67]$, $d = 1.55$).

6.3. Discussion

Study 4 provides behavioral evidence that exposure to a surcharge (vs. discount) can leave a lingering impact: the use of surcharges (vs. discounts) to encourage hand sanitizing doubled the proportion of individuals enacting this behavior at a later point in time, when no incentive was in place and the behavior was not even mentioned. Further, this effect arose even among individuals who were not financially impacted by the original incentives, providing evidence that mere exposure to an incentive frame can leave lasting impressions even on individuals who do not experience the surcharges or discounts themselves.

Despite the social nature of our effect, we did not find that surcharge participants perceived a significantly stronger descriptive norm of hand sanitizer use. This result may be explained by false consensus, the phenomenon in which people's egocentric tendencies lead them to expect similarities between themselves and others and overestimate the commonality of their own behaviors (e.g., Mullen et al., 1985; Ross, Greene, & House, 1977). Indeed, participants may very well have inferred that others had simply behaved just as they had (Tankard & Paluck, 2016). As this question was asked directly after their own usage (or non-usage) of the hand sanitizer, this item may not be a clean measure of a perceived descriptive norm, as it is possible that they were merely projecting their own behavior onto their peers.

7. General discussion

Shifting social norms is a valuable organizational tool, as norms can influence talent and performance (Swaab & Galinsky, 2015) and even organizational productivity, spontaneity, and success (De Jong et al., 2014; George & Jones, 1997; Stewart et al., 2012). Across four studies, we demonstrate that framing an incentive as a surcharge, as compared to a discount, leaks stronger injunctive and descriptive social norms, signaling both greater social expectations to perform and higher prevalence of the incentivized behavior. The prospect of violating these perceived social norms if one fails to perform the incentivized behavior elicits higher anticipated emotional reactions of embarrassment and guilt which, in turn, increase one's likelihood of carrying out the perceived normative behavior.

Importantly, this framework implies a set of novel predictions as to the function and consequences of incentives. First, we show that incentives framed as surcharges have a lingering effect, influencing behaviors even in locations and at times when no incentive is in place (Studies 2 and 4), an effect mediated by perceived norms and norm-related emotions (Studies 1 and 2). Second, because their framing leaks information about social norms, surcharges can cause people to anticipate feeling embarrassed and guilty if they fail to perform the incentivized behavior (Studies 1–3). Third, by invoking norms, incentives framed as surcharges (vs. discounts) can influence downstream behaviors of both individuals who were previously financially affected by the incentive as well as those who merely observed the incentive

(without being financially affected by it; Study 4). Finally, we find that surcharge (vs. discount) incentives impact people differently depending upon their individual sensitivity to social norms, with surcharges most strongly affecting the individuals who care the most about conforming to their peers (Study 3).

We show the robustness of our findings by demonstrating that they hold across a range of domains and contexts, including both moral (e.g., “green” behaviors like bringing reusable grocery bags) and non-moral contexts (e.g., dressing up for a themed event), as well as for both hypothetical and real behaviors. Further, our results persist both when there is and when there is not a plausible cost-passing justification for the incentive. That is, people may perceive that retailers implement surcharges when they want to pass along the cost of providing a material product (e.g., the cost for them to provide plastic grocery bags), or the cost of providing additional services (e.g., additional minutes of childcare; Gneezy & Rustichini, 2000). However, we find that surcharges leak stronger social norms and have similar consequences for behavior in contexts both with (e.g., when supplying grocery bags or coffee cups) and without (e.g., when encouraging individuals to dress in costume or use hand sanitizer) the potential for cost-passing, increasing the application of our findings.

7.1. Theoretical contributions

The present work makes notable theoretical contributions to research on social norms and organizational behavior, incentives, and policy. First, we contribute to the organizational behavior and social norms literatures by introducing a novel tool that can be used to harness the well-established power of norms to effectively change behaviors across many domains (e.g., Berkowitz, 2004; Cialdini & Trost, 1998; Cialdini et al., 1990; Larrick, Soll, & Keeney, 2015). Prior research suggests that individuals infer social norms via several channels, including the behavior of other individuals, the behavior of groups, and signals from institutions, such as organizational rules or public policies (Tankard & Paluck, 2016). In this work, we demonstrate that the framing of incentives is a novel channel through which injunctive and descriptive social norms are leaked, signaling the approved behaviors in a community, as well as how others tend to behave. More broadly, our work opens the door to investigate whether other features of organizations and the marketplace have the potential to similarly signal social norm information, and thus potentially serve as tools for changing behaviors.

Second, the current research also adds to the policy and morality literatures by building on previous work suggesting that the structure of a law or policy can lead to inferences about the morality of a behavior. Specifically, using social dilemma games, Mulder (2008) finds that participants judge violators as more immoral in a setting where punishments are given for non-compliant behaviors than when rewards are given for compliant behaviors, which she suggests occurs because punishments signal that a behavior is morally obligatory. While injunctive norms may convey a moral principle, we suggest that this diverges from whether a behavior is inherently moral (e.g., donating to charity), from moral concerns (e.g., if I do not perform this behavior, others will think I am a bad person), and from moral judgments (e.g., that someone who does not behave in this manner is morally unfit). Thus, the current research expands this previous work on the roles of policy framing and morality by demonstrating that surcharges leak general injunctive and descriptive social norms, not just moral norms, across a broader context of consumer and organizational behaviors. Further, we demonstrate that while surcharges and discounts map on to punishments and rewards and indeed may be perceived as such in some contexts, this is certainly not always the case and is not a necessary component of our theory. This suggests that policy framing may not be limited to a punishment/reward domain and may have larger implications than has been investigated in prior research (Evers et al., 2016; Mulder, 2008, 2016).

Finally, this work contributes to the incentives literature by demonstrating that the framing of an incentive has greater implications than previously believed, and by illustrating the potential behavioral ripple effects of incentives. Prior research investigating surcharges has attributed their superior effectiveness over discounts mainly to loss aversion (Homonoff, 2015; Nasiry & Popescu, 2011; Poortinga, 2017), under the assumption that surcharges are perceived as losses and discounts as gains. However, loss aversion draws on the monetary valuation of the incentive itself. Accordingly, loss aversion can help describe responses to active incentives in which an individual is directly impacted by the feeling of a monetary loss. However, our research demonstrates several important consequences that would not be predicted by this monetary valuation asymmetry, and instead would only arise if incentive framing does indeed leak social norms. First, we demonstrate that failing to carry out the incentivized behavior led individuals to anticipate emotions associated with the violation of a social norm (e.g., embarrassment and guilt). Second, mere exposure to a surcharge at one point in time led to downstream changes in behavior where the incentive was not in place—even among people who merely observed the incentive and were not monetarily impacted by it, an outcome consistent with research demonstrating that shifts in perceived social norms can lead to lasting behavioral effects (Neighbors et al., 2004; Schultz et al., 2007). Third, even with loss-equated incentives, individuals responded more strongly to a surcharge because of the social norm information it carried. Finally, individuals who exhibited a natural propensity to be influenced by peer expectations responded more strongly to surcharges than discounts, while individuals who cared less about conforming to peer expectations responded similarly to both—a result that would not be predicted by individuals merely responding to the financial value of the incentives. In summary, our findings offer novel evidence of an important undiscovered consequence of incentives.

7.2. Managerial implications

Incentives are a popular organizational tool used to encourage engagement in a wide variety of behaviors, ranging from environmentally friendly actions (e.g., using renewable energy, purchasing a hybrid car, and recycling) to health-related behaviors (e.g., wellness programs that offer incentives for smoking cessation, weight loss, and management of chronic diseases; Cigna, 2017). Thus, in addition to the theoretical contributions of this research, our work carries key practical implications relevant to organizational behavior.

First, our findings suggest that the manner in which organizations and policymakers frame these incentives may shift perceptions of social norms, leading to carryover behaviors and potentially habit formation (Ouellette & Wood, 1998)—even once the incentive ends. Specifically, we demonstrate that incentive policies framed as surcharges have the potential to influence behaviors downstream both in the same location as well as carry over to other locations where similar social norms are expected.

Second, framing an incentive as a surcharge can give managers a “bigger bang for their buck.” Thus, managers wishing to best incentivize positive workplace behaviors may consider that the way they frame a policy may have a larger impact than previously realized. For example, if they choose to frame an incentive as a surcharge, in the right context, they may successfully signal that a behavior is more normative. This could better motivate organizational citizenship behaviors such as meeting attendance, corporate social responsibility activities such as volunteering, or uptake of flexible work hours. However, it is important to consider whether employees will perceive such surcharges as aligned with the community and organizational beliefs or as unjust, a possibility that could elicit reactance. A further consideration is that surcharges (if perceived as “stick” policies) may increase perceptions that a person or behavior is viewed negatively by the organization or policymaker, potentially stigmatizing certain

groups and increasing distaste for the policy (Tannenbaum et al., 2013). The current studies examining small-scale surcharge and discount incentives (e.g., 10 cents) did not find evidence for these concerns, but they should be considered.

Finally, our findings suggest that signaling a social norm through the framing of an incentive may influence a larger audience than would be expected by a financial-motivation account, as individuals who are not motivated by a 5-cent, 10-cent, or even two-dollar incentive may still care about conforming to what they perceive to be a social norm. Further, the framing of the incentive may spill over to a larger audience by influencing individuals who observe the incentive but are not directly financially impacted by it. Indeed, we demonstrate that merely encountering a surcharge (and not directly experiencing it) led to greater incidence of the previously incentivized behavior. In sum, our findings suggest a new lever for influencing norm perceptions, with the potential to influence a wider audience and cause behaviors to linger and carry over to locations where no incentive is in place.

7.3. Limitations and directions for future research

While this investigation outlined robust support for our account, naturally the power of surcharges is not without limits. Our theorizing rests on people inferring that the surcharge is acceptable and put in place by a reasonable policymaker. Thus, an important boundary condition for our work may be that the incentive has to seem legitimate and justified. Beginning to impose an extra charge that goes against any established, well-known group norms or that seems unfair may provoke reactance, and would likely not have the intended effect on perceived norms or behavior (Payne, 2001; Shah, Bettman, Ubel, Keller, & Edell, 2014; Thaler, 1980). Thus, future research could investigate whether the perceived appropriateness of the incentive moderates the impact of incentive framing on perceived social norms and behavioral responses.

An additional potential boundary condition concerns the magnitude of the incentives. In the present research, we investigated relatively small pricing incentives (a few cents to a few dollars). It is possible that at larger incentive values, the motivational superiority of surcharges over discounts may cease to exist, or may even reverse, or that financial considerations might dwarf the social norms mechanism we identified. Further research could explore such possibilities. Future research could also examine whether incentivizing a behavior affects other different, but related, behaviors. For example, if framing an incentive as a surcharge encourages an individual to bring her own bags to the grocery store, it may serve as a self-signal (Bem, 1972) that she cares about the environment, leading to potential shifts in her environmental attitudes and other environmentally friendly behaviors (Poortinga, Whitmarsh, & Suffolk, 2013; Thomas, Poortinga, & Sautkina, 2016). On the other hand, increases in environmentally responsible behaviors such as using fewer plastic bags may give individuals license to misbehave in other ways (Karmarkar & Bollinger, 2015; Khan & Dhar, 2006), pointing to an interesting potential avenue for research.

Furthermore, the current research investigated potential spillover effects of exposure to an incentive at one point in time. Specifically, we find that exposure to a surcharge (vs. discount) can lead individuals to carry out the encouraged behavior at a later point in time when no incentives are in place. However, the time scale of our studies was relatively short (a 30-minute gap in consequential Study 4 and a hypothetical 1-week gap in scenario Study 2). Future research may wish to examine longer-term interventions and test potential longer-lasting impacts of initial exposure to surcharge incentives. Finally, we examine differences in the psychology of loss and gain frames and how they invoke norm inferences, leading to differential effects on emotions and behavior. It is possible that this psychology could contribute to the general phenomenon of loss aversion; however, specific work would be needed to test this conjecture, providing a potential avenue for future research.

In sum, our studies add to the growing body of knowledge about the

nature of incentives and the inferences people draw from them by demonstrating that merely framing an incentive as a surcharge, rather than a discount, can influence perceived social norms and lead to meaningful changes in behavior. With this knowledge, careful consideration should be given to the behavioral nudges we use in management, marketing, policy-making, economics, psychology, and beyond, as the mere framing of incentives is more powerful than previously realized.

Conflict of interest

The authors declared that there is no conflict of interest.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.obhdp.2018.12.001>.

References

- Aaker, D. A., & Bruzzone, D. E. (1985). Causes of irritation in advertising. *Journal of Marketing*, 49(2), 47–57.
- Abdellaoui, M., Bleichrodt, H., & Paraschiv, C. (2007). Loss aversion under prospect theory: A parameter-free measurement. *Management Science*, 53(10), 1659–1674.
- Abelson, R. (2011). The smokers' surcharge. *The New York Times*. < <http://www.nytimes.com/2011/11/17/health/policy/smokers-penalized-with-health-insurance-premiums.html> > .
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Asch, S. E. (1951). Effects of group pressure on the modification and distortion of judgments. In H. Guetzkow (Ed.), *Group leadership and men* (pp. 177–190). Pittsburgh: Carnegie Press.
- Balliet, D., Mulder, L. B., & Van Lange, P. A. (2011). Reward, punishment, and cooperation: A meta-analysis. *Psychological Bulletin*, 137(4), 594–615.
- Barker, J. R. (1993). Tightening the iron cage: Concertive control in self-managing teams. *Administrative Science Quarterly*, 38(3), 408–437.
- Baumeister, R. F., Stillwell, A. M., & Heatherton, T. F. (1994). Guilt: An interpersonal approach. *Psychological Bulletin*, 115(2), 243–267.
- Bearden, W. O., & Rose, R. L. (1990). Attention to social comparison information: An individual difference factor affecting consumer conformity. *Journal of Consumer Research*, 16(4), 461–471.
- Bem, D. J. (1972). Self-perception theory. *Advances in Experimental Social Psychology*, 6, 1–62.
- Berkowitz, A. D. (2004). The social norms approach: Theory, research, and annotated bibliography. < http://www.alanberkowitz.com/articles/social_norms.pdf > (retrieved January 19, 2018).
- Bettenhausen, K., & Murnighan, J. K. (1985). The emergence of norms in competitive decision-making groups. *Administrative Science Quarterly*, 30(3), 350–372.
- Camerer, C. F. (2005). Three cheers—psychological, theoretical, empirical—for loss aversion. *Journal of Marketing Research*, 42(2), 121–133.
- Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology: Vol. 24*, (pp. 201–234). San Diego: Academic Press.
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58(6), 1015–1026.
- Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity and compliance. In D. T. Gilbert, & S. T. Fiske (Eds.), *The handbook of social psychology: Vol. 2, 4th ed.*, (pp. 151–192). York: McGraw-Hill.
- Cigna (2017). Wellness programs and incentives. < <https://www.cigna.com/health-care-reform/wellness-and-incentives> > .
- CMS (2013). Overview: Final rule for health insurance market reforms. < <https://www.cms.gov/CCIIO/Resources/Files/Downloads/market-rules-technical-summary-2-27-2013.pdf> > .
- De Jong, Bart A., Bijlsman-Frankema, K. M., & Cardinal, L. B. (2014). Stronger than the sum of its parts? The performance implications of peer control combinations in teams. *Organization Science*, 25(6), 1703–1721.
- DellaVigna, S., & Pope, D. (2017). What motivates effort? Evidence and expert forecasts. *Review of Economic Studies*, 85(2), 1029–1069.
- Duke, K., & Amir, O. (2018). Guilt dynamics: Consequences of temporally separating decisions and actions. *Journal of Consumer Research* (in press).
- Ehrhart, M. G., & Naumann, S. E. (2004). Organizational citizenship behavior in work groups: A group norms approach. *Journal of Applied Psychology*, 89(6), 960–974.
- Eriksson, K., Strimling, P., & Coultas, J. C. (2015). Bidirectional associations between descriptive and injunctive norms. *Organizational Behavior and Human Decision*

- Processes*, 129, 59–69.
- Evers, E. R. K., Inbar, Y., Blanken, I., & Oosterwijk, L. D. (2016). When do people prefer carrots to sticks? A robust ‘matching effect’ in policy evaluation. *Management Science*, 63(12), 4261–4276.
- Fehr, E., & Fischbacher, U. (2004). Social norms and human cooperation. *Trends in Cognitive Sciences*, 8(4), 185–190.
- Fehr, E., & Schurtenberger, I. (2018). Normative foundations of human cooperation. *Nature Human Behaviour*, 2, 458–468.
- Feldman, D. C. (1984). The development and enforcement of group norms. *Academy of Management Review*, 9(1), 47–53.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fishbein, M., & Yzer, M. C. (2003). Using theory to design effective health behavior interventions. *Communication Theory*, 13(2), 164–183.
- George, J. M., & Jones, G. R. (1997). Organizational spontaneity in context. *Human Performance*, 10(2), 153–170.
- Gneezy, U., & Rustichini, A. (2000). A fine is a price. *Journal of Legal Studies*, 29(1), 1–17.
- Goldstein, N. J., Cialdini, R. B., & Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *Journal of Consumer Research*, 35(3), 472–482.
- Gonzalez-Mulé, E., DeGeest, D. S., McCormick, B. W., Seong, J. Y., & Brown, K. G. (2014). Can we get some cooperation around here? The mediating role of group norms on the relationship between team personality and individual helping behaviors. *Journal of Applied Psychology*, 99(5), 988–999.
- Hackman, J. R. (1992). Group influences on individuals in organizations. In M. D. Dunnette, & L. M. Hough (Eds.). *Handbook of industrial and organizational psychology* (pp. 199–267). Palo Alto, CA: Consulting Psychologists Press.
- Haines, M., & Spear, S. F. (1996). Changing the perception of the norm: A strategy to decrease binge drinking among college students. *Journal of American College Health*, 45(3), 134–140.
- Hareli, S., & Parkinson, B. (2008). What’s social about social emotions? *Journal for the Theory of Social Behaviour*, 38(2), 131–156.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York: Guilford Press.
- Homonoff, T. A. (2015). Can small incentives have large effects? The impact of taxes versus bonuses on disposable bag use. Working paper. Wagner Graduate School of Public Service, New York University.
- Johnson, E. J., & Goldstein, D. (2003). Do defaults save lives? *Science*, 302(5649), 1338–1339.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *The Journal of Economic Perspectives*, 5(1), 193–206.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 66(3), 497–527.
- Karmarkar, U. R., & Bollinger, B. (2015). BYOB: How bringing your own shopping bags leads to treating yourself and the environment. *Journal of Marketing*, 79(4), 1–15.
- Keltner, D., & Anderson, C. (2000). Saving face for Darwin: The functions and uses of embarrassment. *Current Directions in Psychological Science*, 9(6), 187–192.
- Keltner, D., & Buswell, B. N. (1997). Embarrassment: Its distinct form and appeasement functions. *Psychological Bulletin*, 122(3), 250–270.
- Keltner, D., Young, R. C., & Buswell, B. N. (1997). Appeasement in human emotion, social practice, and personality. *Aggressive Behavior*, 23(5), 359–374.
- kff (2016). *Employer health benefits survey*. < <https://www.kff.org/report-section/eHBS-2016-summary-of-findings/> > .
- Khan, U., & Dhar, R. (2006). Licensing effect in consumer choice. *Journal of Marketing Research*, 43(2), 259–266.
- Krijnen, J. M. T., Tannenbaum, D., & Fox, C. R. (2017). Choice architecture 2.0: Behavioral policy as an implicit social interaction. *Behavioral Science & Policy*, 3(2), i–18.
- Lapinski, M. K., & Rimal, R. N. (2005). An explication of social norms. *Communication Theory*, 15(2), 127–147.
- Larrick, R. P., Soll, J. B., & Keeney, R. L. (2015). Designing better energy metrics for consumers. *Behavioral Science & Policy*, 1(1), 63–75.
- Lennox, R. D., & Wolfe, R. N. (1984). Revision of the self-monitoring scale. *Journal of Personality and Social Psychology*, 46(6), 1349–1364.
- Lewis, H. B. (1971). Shame and guilt in neurosis. *Psychoanalytic Review*, 58(3), 419–438.
- Lindsay-Hartz, J., de Rivera, J., & Mascolo, M. F. (1995). Differentiating guilt and shame and their effects on motivation. In J. P. Tangney, & K. W. Fischer (Eds.). *Self-conscious emotions: The psychology of shame, guilt, embarrassment, and pride* (pp. 274–300). New York: Guilford Press.
- Marschall, D., Sanftner, J., & Tangney, J. P. (1994). *The state shame and guilt scale*. Fairfax, VA: George Mason University.
- McKenzie, C. R. M. (2004). Framing effects in inference tasks—and why they are normatively defensible. *Memory & Cognition*, 32(6), 874–885.
- McKenzie, C. R. M., Liersch, M. J., & Finkelstein, S. R. (2006). Recommendations implicit in policy defaults. *Psychological Science*, 17(5), 414–420.
- Miller, D. T., & Prentice, D. A. (1996). The construction of social norms and standards. In E. T. Higgins, & A. W. Kruglanski (Eds.). *Social psychology: Handbook of basic principles* (pp. 799–829). New York, NY, US: Guilford Press.
- Moon, J., Chadee, D., & Tikoo, S. (2008). Culture, product type, and price influences on consumer purchase intention to buy personalized products online. *Journal of Business Research*, 61(1), 31–39.
- Mulder, L. B. (2008). The difference between punishments and rewards in fostering moral concerns in social decision making. *Journal of Experimental Social Psychology*, 44(6), 1436–1443.
- Mulder, L. B. (2016). When sanctions convey moral norms. *European Journal of Law and Economics*, 1–12.
- Mullen, B., Atkins, J. L., Champion, D. S., Edwards, C., Hardy, D., Story, J. E., & Vanderklok, M. (1985). The false consensus effect: A meta-analysis of 115 hypothesis tests. *Journal of Experimental Social Psychology*, 21(3), 262–283.
- Nasiry, J., & Popescu, I. (2011). Dynamic pricing with loss-averse consumers and peak-end anchoring. *Operations Research*, 59(6), 1361–1368.
- National Conference of State Legislatures (2017). State plastic and paper bag legislation: Fees, taxes, and bans. < <http://www.ncsl.org/research/environment-and-natural-resources/plastic-bag-legislation.aspx> > .
- Neighbors, C., Larimer, M. E., & Lewis, M. A. (2004). Targeting misperceptions of descriptive drinking norms: Efficacy of a computer-delivered personalized normative feedback intervention. *Journal of Consulting and Clinical Psychology*, 72(3), 434–447.
- Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin*, 124(1), 54–74.
- Paluck, E. L., & Shepherd, H. (2012). The salience of social referents: A field experiment on collective norms and harassment behavior in a school social network. *Journal of Personality and Social Psychology*, 103(6), 899–915.
- Payne, R. A. (2001). Persuasion, frames, and norm construction. *European Journal of International Relations*, 7(1), 37–61.
- Perkins, H. W., & Berkowitz, A. D. (1986). Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. *International Journal of the Addictions*, 21(9–10), 961–976.
- Poortinga, W., Whitmarsh, L., & Suffolk, C. (2013). The introduction of a single-use carrier bag charge in Wales: Attitude change and behavioural spillover effects. *Journal of Environmental Psychology*, 36, 240–247.
- Poortinga, W. (2017). Results of a field experiment to reduce coffee cup waste. Summer report to Bewley’s Tea & Coffee UK Ltd. working paper. Welsh School of Architecture and School of Psychology, Cardiff University.
- Robinson, E., Thomas, J., Aveyard, P., & Higgs, S. (2014). What everyone else is eating: A systematic review and meta-analysis of the effect of informational eating norms on eating behavior. *Journal of the Academy of Nutrition and Dietetics*, 114(3), 414–429.
- Ross, L., Greene, D., & House, P. (1977). The “false consensus effect”: An egocentric bias in social perception and attribution processes. *Journal of Experimental Social Psychology*, 13(3), 279–301.
- Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychological Science*, 18(5), 429–434.
- Shah, A. M., Bettman, J. R., Ubel, P. A., Keller, P. A., & Edell, J. A. (2014). Surcharges plus unhealthy labels reduce demand for unhealthy menu items. *Journal of Marketing Research*, 51(6), 773–789.
- Sher, S., & McKenzie, C. R. M. (2006). Information leakage from logically equivalent frames. *Cognition*, 101(3), 467–494.
- Smith-McLallen, A., & Fishbein, M. (2008). Predictors of intentions to perform six cancer-related behaviours: Roles for injunctive and descriptive norms. *Psychology, Health and Medicine*, 13(4), 389–401.
- Speck, P. S., & Elliott, M. T. (1997). Predictors of advertising avoidance in print and broadcast media. *Journal of Advertising*, 26(3), 61–76.
- Spiller, S. A., Fitzsimons, G. J., Lynch, J. G., Jr, & McClelland, G. H. (2013). Spotlights, floodlights, and the magic number zero: Simple effects tests in moderated regression. *Journal of Marketing Research*, 50(2), 277–288.
- Starbucks Coffee Company (2017). *Cup and materials*. < www.starbucks.com/responsibility/environment/cups-and-materials > .
- Stewart, G. L., Courtright, S. H., & Barrick, M. R. (2012). Peer-based control in self-managing teams: Linking rational and normative influence with individual and group performance. *Journal of Applied Psychology*, 97(2), 435–447.
- Swaab, R. I., & Galinsky, A. D. (2015). Egalitarianism makes organizations stronger: Cross-national variation in institutional and psychological equality predicts talent levels and the performance of national teams. *Organizational Behavior and Human Decision Processes*, 129, 80–92.
- Tangney, J., & Dearing, R. L. (2002). *Shame and guilt*. New York: Guilford Press.
- Tangney, J. P., & Fischer, K. W. (1995). *Self-conscious emotions: The psychology of shame, guilt, embarrassment, and pride*. New York, NY: Guilford Press.
- Tankard, M. E., & Paluck, E. L. (2016). Norm perception as a vehicle for social change. *Social Issues and Policy Review*, 10(1), 181–211.
- Tannenbaum, D., Valasek, C. J., Knowles, E. D., & Ditto, P. H. (2013). Incentivizing wellness in the workplace: Sticks (not carrots) send stigmatizing signals. *Psychological Science*, 24(8), 1512–1522.
- Target (2017). *Corporate responsibility: Sustainability*. < <https://corporate.target.com/corporate-responsibility/sustainability/sustainable-products> > .
- Thaler, R. H. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior & Organization*, 1(1), 39–60.
- The Guardian (2018). Starbucks trials 5p takeaway cup charge in attempt to cut waste. < <https://www.theguardian.com/business/2018/feb/26/starbucks-5p-takeaway-cup-charge-london> > .
- Thomas, G. O., Poortinga, W., & Sautkina, E. (2016). The Welsh single-use carrier bag charge and behavioural spillover. *Journal of Environmental Psychology*, 47, 126–135.
- Tracy, J. L., & Robins, R. W. (2004). Putting the self into self-conscious emotions: A theoretical model. *Psychological Inquiry*, 15(2), 103–125.
- Tversky, A., & Kahneman, D. (1986). Rational choice and the framing of decisions. *Journal of Business*, 59(4), S251–S278.
- White, K. M., Smith, J. K., Terry, D. J., Greenslade, J. H., & McKimmie, B. M. (2009). Social influence in the theory of planned behaviour: The role of descriptive, injunctive, and ingroup norms. *British Journal of Social Psychology*, 48(1), 135–158.