

Lifting the Veil: The Benefits of Cost Transparency

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Lifting the Veil: The Benefits of Cost Transparency

Abstract

Firms do not typically disclose information on their costs to produce a good to consumers. However, we provide evidence of when and why doing so can increase consumers' purchase interest. Specifically, building on the psychology of disclosure and trust, we posit that cost transparency, insofar as it represents an act of sensitive disclosure, fosters trust. In turn, this heightened trust enhances consumers' willingness to purchase from that firm. In support of this account, we present six studies, conducted in the field and in the lab. A pre-registered field experiment indicated that diners were 21.1% more likely to buy a bowl of chicken noodle soup when a sign revealing its ingredients also included the cafeteria's costs to make it. Five subsequent online experiments replicated and extended this basic effect, providing evidence of when and why it occurs. Taken together, these studies imply that the proactive revelation of costs can improve a firm's bottom line.

Keywords: cost transparency, pricing, consumer behavior, field experiments

INTRODUCTION

Cost transparency refers to the disclosure of the costs to produce a good or provide a service. Although cost transparency is a strategy traditionally employed in the context of supplier-firm relationships, wherein the two-way sharing of cost information between parties facilitates collaboration on cost reduction measures (Lamming et al. 2002; Zhu 2004), we investigate its effects within the context of consumer-firm relationships. Information on the costs associated with providing goods and services is rarely shared with consumers, but we provide evidence of when and why voluntarily doing so can increase consumers' purchase interest. Specifically, building on the psychology of disclosure and trust, we posit that cost transparency, insofar as it represents an act of intimate disclosure, fosters trust. In turn, we propose that this heightened trust increases consumers' willingness to purchase from the transparent firm. In the sections that follow, we discuss our central predictions and highlight alternative accounts. Then, we present six experiments, conducted in the lab and in the field, that document the main effects of cost transparency, its underlying psychological drivers, and conditions that moderate its effects.

Cost, Operational, and Price Transparency

Cost transparency broadly refers to a firm's disclosure of the costs that the firm incurs to provide a given product or service. In the present research, we operationalize cost transparency as the practice of revealing the unit costs of production to consumers. An emerging trend, a handful of retail firms have begun to voluntarily instate cost transparency (Schlossberg 2015; Neilson and Mistry 2013). Our basic prediction, which we develop in this introduction and test in five of our six experiments, is:

Hypothesis 1 (H1): Cost transparency can increase purchase interest.

Cost transparency is related to, but distinct from two other forms of transparency that have been examined in prior work: operational transparency and price transparency. Next, we delineate what makes cost transparency distinct, setting up our hypotheses about the unique effects of cost transparency vis-a-vis these other forms of transparency.

Operational transparency refers to a firm's disclosure of its operating processes, not the costs associated with those processes (Buell et al. 2017). Specifically, operational transparency entails

disclosure of the “behind-the-scenes” work that the firm undertakes through its operating processes (Buell and Norton 2011). Research has shown that consumers prefer services that are operationally transparent relative to those that are not (Buell and Norton 2011). For example, the travel site Kayak.com is beloved in part because of its operational transparency: the site discloses in real-time which airlines it is searching. Operational transparency increases consumer perceptions of the effort required to create the product (or, in the case of Kayak, to generate the quote), in turn heightening their sense of gratitude and willingness to pay (Buell and Norton 2011; Chinander and Schweitzer 2003; Gershoff et al. 2012; Morales 2005).

Therefore, not only do these two forms of transparency – cost versus operational transparency – entail disclosure of different information (costs versus operational processes), we posit them to operate by means of different underlying psychological processes (by enhancing perceptions and appreciation of effort in the case of operational transparency; and, as delineated in the next section, by engendering trust in the case of cost transparency). Although the two are related in the sense that revealing the costs associated with producing a good sometimes necessitates revealing information about operational processes, we document that disclosing costs has a distinct and separable effect on customer purchase intentions. We posit that because costs are typically tightly-guarded secrets, cost transparency is different from operational transparency in that it typically conveys more sensitive information to consumers than operational transparency alone. Indeed, research documenting the beneficial effects of operational transparency has been conducted in contexts where the hidden work being revealed (e.g., chefs cooking in a kitchen, workers filling potholes, dating websites matching on dimensions of common interest, etc.) is in no way proprietary (Buell 2019).

What does it mean for information to be “sensitive”? In line with previous research, we define information to be sensitive if it is perceived as risky for the discloser to reveal, in the sense that it makes the discloser vulnerable to experiencing negative consequences (Derlega et al. 1993; Kelly and McKillop 1996; Laurenceau et al. 1998; Moon 2000). For example, disclosing information about one’s emotions and feelings is typically considered sensitive because it makes the discloser vulnerable to negative consequences such as embarrassment (Laurenceau et al. 1998). Analogously, a firm’s disclosure of cost

information reveals information about its profit margins, which could make the firm vulnerable to negative consequences, such as consumer ire or supplier price increases. By contrast, we posit that relative to cost information, information on operational processes is typically not perceived as particularly sensitive (although there may be cases in which operational processes are deemed sensitive; for example, when consumers are aware that the way a particular good is created is a trade secret). In sum, we predict cost transparency and operational transparency to differ in terms of the sensitivity of the information they entail. Specifically, we hypothesize:

Hypothesis 2A (H2A): Consumers deem it more sensitive for a firm to disclose its costs than for it to disclose its operational processes.

Cost transparency is also distinct from price transparency. Whereas cost transparency entails disclosing the firm-side *costs* inherent in a price, price transparency entails disclosing and delineating the firm-side *proceeds* inherent in a price; for example, by dividing a price into gross retail proceeds, royalties, and taxes (Carter and Curry 2010). Similarly, price partitioning refers to the common technique of revealing the price of the component parts of a product; for example, by dividing a product's price into its base price and shipping and handling (Bertini and Wathieu 2008; Morwitz et al. 1998). Price transparency and price partitioning have both been found to increase purchase intentions, and to do so via a cognitive process (Morwitz et al. 1998). Specifically, by dividing a price into several sub-components, each of which is necessarily smaller than the total price, small prices are made salient. The result is that these tactics cause consumers to perceive prices to be relatively low, in turn increasing purchase intentions. Again, cost transparency and price transparency entail disclosure of different information (costs versus proceeds inherent in a price) and with respect to increasing purchase intentions, we posit them to have different underlying mechanisms (enhanced trust for cost transparency and decreased price perceptions for price transparency, as delineated in the next section).

As with the distinction between cost transparency and operational transparency, here, too, we posit that the different mechanisms underlying the effect of price transparency and our predicted effect of cost transparency stems in part from differences in the perceived sensitivity of the disclosed information.

Specifically, we theorize that cost information, by virtue of the fact that it is typically a tightly-guarded secret, is perceived by consumers as more sensitive than price information, which is regularly disclosed in the context of customer-firm interactions:

Hypothesis 2B (H2B): Consumers deem it more sensitive for a firm to disclose cost information than for it to disclose price information.

Building on these hypothesized differences in the perceived sensitivity of disclosures about cost information, we next elucidate the theoretical underpinnings of our proposed process account of the effect of cost transparency on purchasing – namely that disclosing sensitive information engenders trust, and in turn, purchase interest.

Disclosure, Trust, and Liking

A substantial body of work in social psychology and allied fields suggests that disclosure of sensitive information is associated with heightened relationship quality (Laurenceau et al. 1998). Clever experimental studies have shown that this relationship can be causal: inducing people to make sensitive self-disclosures causes others to like them (Aron et al. 1997; Sedikides et al. 1999). To be sure, there is a point at which this relationship breaks down; disclosure and liking have a curvilinear relationship: those disclosing information that is moderate to highly sensitive are liked more than those who disclose information that is not very sensitive or that is extremely sensitive (Cozby 1972). Connecting this prior work to the present investigation, firms' disclosure of cost information may hit this "sweet spot" in terms of being sufficiently sensitive to foster liking, but not so sensitive as to be perceived as "too much information."

What mechanism drives the capacity for self-disclosure to increase liking? Previous theorizing has invoked trust: self-disclosure has been argued to foster trust, which in turn is thought to be an ingredient that produces liking (Collins and Miller 1994; Wheelless and Grotz 1977). Consistent with this account, self-disclosure is correlated with trust (Awad and Krishnan 2006; Malhotra et al. 2004). Experimental research goes further, providing causal evidence that abstaining from disclosure (for example, by opting out of answering survey questions) makes a person seem untrustworthy, in turn

reducing others' liking of them (John et al. 2016).

The present research is based on the notion that these relationship benefits of disclosure can manifest even when those disclosures are made by non-human entities; specifically, that they extend beyond person-to-person interactions to consumer-firm interactions. This premise stems from the theory of social response, which posits that in responding to a stimulus that has human-like characteristics, people reflexively draw upon the same social behaviors as they would in a human-to-human interaction (Nass and Moon 2000; Reeves and Nass 1996). Consistent with this account, when a non-human entity engages in self-disclosure – a prototypically human activity – it can produce benefits similar to those of person-to-person self-disclosure. For example, people like computers that “disclose” information, such as a computer that outputs a system message that it “rarely gets to use its full potential” (Moon, 2000). Thus, we posit that when a firm “self-discloses,” it can enhance its relationships with its customers, just as when people self-disclose.

Research has further suggested that self-disclosures are especially likely to engender trust when the disclosed information is sensitive in nature. For example, studies documenting that self-disclosure causes liking induce participants not simply to disclose, but to disclose *sensitive* information in particular (e.g., Aron et al. 1997; Sedikides et al. 1999). Similarly, it appears to be computers' disclosures of *sensitive* information that causes human users to like those computers (Moon 2000). Recent research goes further, by directly comparing the effect of disclosing sensitive information versus non-sensitive information on trust: participants expressed greater trust for a business leader who revealed a personal weakness (e.g. “I’m quite shy. I am nervous about public speaking”) relative to when that same leader revealed non-sensitive information (e.g. “I like to climb mountains in Colorado”) (Jiang et al. 2019).

Because costs are generally viewed as confidential, we posit that costs represent the type of sensitive information that previous research has found to lend itself to fostering trust and liking, in person-to-person disclosure. More comprehensively, therefore, we propose that akin to interpersonal disclosure, firm disclosure of cost information fosters consumers' trust, in turn increasing purchase interest. In this vein, one scenario study found that when a firm disclosed competitors' prices – even when

those prices were relatively low – it instilled trust in consumers and increased stated purchase interest relative to nondisclosure (Trifts and Häubl 2003). Insofar as revealing competitors' prices constitutes sensitive disclosure, this finding fits with the present perspective.

It is important to acknowledge that brands and firms fall into a bit of a middle ground, in that they are neither machinelike computers, nor people. However, we know that consumers form close ties with brands, and that norms of intrapersonal relationships inform these connections (Aggarwal 2004). Moreover, consumers regard brands as having multidimensional personalities, akin to human beings (Aaker 1997). Importantly, prior work suggests that perceptions of a brand's personality can directly influence perceived trustworthiness, which in turn builds a consumer's likelihood to purchase from a brand (Sung and Kim 2010). Accordingly, we predict:

Hypothesis 3 (H3): Cost transparency increases purchase interest by enhancing consumers' trust in the firm.

Consistently, we further posit that for disclosure to foster liking (via trust), it must be done voluntarily and proactively, as opposed to forcibly or reactively, by regulation or requirement. Indeed, although people are viewed as untrustworthy, and in turn, disliked, when they opt out of answering questions, this effect is restricted to cases in which that abstention is volitional, as opposed to incidental (as would be the case when, say, the abstention is the result of a computer glitch, John et al. 2016). Analogously, we propose that cost transparency needs to be voluntarily instated by the firm, as opposed to mandated, for it to enhance trust, and in turn, increase purchase interest. In this vein, firms that voluntarily disclose unsavory information – such as adverse side effects of their products – are seen as more trustworthy than when those disclosures come from a third-party, such as the news media (Fennis and Stroebe 2014). Thus, we predict:

Hypothesis 4 (H4): Cost transparency must be voluntarily instated in order for its benefit to be realized.

This prediction also helps to distinguish our account from a possible alternative account, rooted in the principle of dual entitlement (Kahneman et al. 1986): although consumers believe that firms are

entitled to make a profit, they also believe that they are entitled to a reasonable price. Hence, when consumers perceive a firm to be making unreasonably large profits, they are less willing to buy from the “offending” firm because they deem its prices unfair (Bazerman 1985; Kőszegi and Rabin 2006; Gneezy et al. 2014). However, because consumers do not routinely think about firms’ (often considerable) costs, they are prone to overestimating profits, and hence to erroneously conclude the firm to be taking unreasonably large profits. Thus, in making consumers more aware of firms’ costs, cost transparency may correct consumers’ false beliefs that profits are unreasonably large, causing consumers to perceive prices as fairer, in turn spurring purchase interest. By contrast, we posit price fairness to operate not by disabusing false beliefs about profitability (as in a price fairness account), but rather, via enhanced trust, which, unlike a price fairness account, requires the firm’s voluntary revelation of such costs. If there is something special about a firm’s voluntary disclosure of costs, above and beyond making prices seem fair, then additional variance in purchase interest should be explained via consumer trust in the firm.

Moreover, there is a situation in which these two accounts make different predictions regarding the effect of disclosing costs on purchase interest. Price fairness should foster purchase interest when consumers are prone to thinking firms are taking unreasonably high profits, as when prices are surprisingly high. Because consumers do not typically think about firms’ costs, when they encounter an unexpectedly high price, they are likely to infer the high price is a reflection of high margins (as opposed to high costs). By this account, when consumers encounter surprisingly low prices, they are less prone to infer unreasonably high profits; as a result, in such cases, revealing reasonable margins (via cost transparency), should have little or no effect on purchase interest. By contrast, if, as we posit, a firm’s voluntary revelation of its costs increases trust, then it should increase purchase interest both when prices are surprisingly high as well as when prices are surprisingly low. Thus, we hypothesize:

Hypothesis 5 (H5): The beneficial effect of cost transparency on purchase interest will arise even when prices are surprisingly low (in contrast to a price fairness account).

Overview of Experiments

We test these hypotheses across a variety of instantiations of cost transparency and across a

variety of brands and product categories, both in the lab and in the field. We begin with anecdotal field evidence consistent with the basic prediction that cost transparency increases sales. We then report six experiments. Study 1A is a field experiment showing that cost transparency can increase sales (H1). Study 1B replicates the effect in an incentive-compatible experiment, revealing the effects are not dependent on the specific cost structure from Study 1A (H1). Guided by our theoretical framework, Studies 2-5 shed light on when and why the beneficial effect of cost transparency emerges. Study 2 indicates that cost transparency is indeed perceived as a form of sensitive disclosure (H2A and H2B). Next, Study 3 shows that the effect of cost transparency on purchase interest is mediated by firm trustworthiness (H3). Study 4 demonstrates the critical role of the voluntary nature of the disclosure, showing that cost transparency boosts purchase interest only when instated voluntarily by the firm, as opposed to involuntarily (e.g. as required by law) (H4). Finally, Study 5 shows that cost transparency increases purchase interest even when prices are unexpectedly low – a result not predicted by a price fairness account (H5). Study 5 also provides converging evidence for the trust mechanism underlying our effect, showing that it accounts for the effect of cost transparency on purchase interest even when controlling for perceived price fairness.

We report all manipulations and measures. For all studies, we did not analyze the data until after data collection had been completed. We set the desired number of participants at the outset of each experiment. No data were excluded unless explicitly indicated.

ANECDOTAL EVIDENCE

On December 2, 2013, a privately-held online retailer launched a holiday gift shop with an email to its mailing list promoting a leather wallet offered in five colors (burgundy, black, grey, bone, and tan), priced at \$115.00. On January 28, 2014, in an effort to boost post-holiday sales, the retailer decided to add an infographic to the wallets' online product detail pages that included, among other information, the costs incurred to produce the wallet (the infographic is included in the Online Appendix). As the wallets differed only in color, the company intended to use the same infographic for every wallet in the line.

But what the company intended to do was not what actually happened. Serendipitously (for us at

least), the company inadvertently failed to introduce the infographic for two of the wallet colors (bone and tan). Thus, the infographic was implemented for only three of the five wallet colors (burgundy, black, and grey), a mistake that was overlooked for five weeks, creating a natural experiment enabling us to test the impact of cost transparency on sales.

We used a difference-in-differences approach to compare the daily sales between the treatment and control groups before versus after the infographic was introduced. By doing so, we isolated the effect of the infographic on the daily count of wallets sold in each category. We analyzed the sales performance of five color combinations over a 92-day period ($N = 460$) starting with the launch of the holiday gift shop on December 2, 2013 and ending on March 6, 2014. We did so by modeling the daily number of units sold per color combination as a function of the time period and treatment classification of the product group. When controlling for color popularity and stock-outs, there was a marginally significant interaction between time and treatment: specifically, the post-holiday sales decline was smaller in the treatment condition relative to the control (coefficient = 0.582; $p = 0.06$ two-tailed). The results are consistent with the idea that the infographic containing cost transparency buffered against the post-holiday sales decline. Under the most conservative assumption of full substitution – that all of the incremental customers who bought wallets under infographic exposure would have otherwise bought a wallet in the control condition in the absence of such exposure – the best estimate provided by the fully-specified version of this model is that the infographic, which included cost information, increased sales of the treated wallets by 22.0% (See Online Appendix for a detailed write-up of this anecdotal evidence).

Though consistent with our prediction that cost transparency can increase sales, this anecdotal evidence is not definitive. For one, the novelty of the infographic may have directed consumers' attention to the wallets, and so perhaps it was merely increased salience that spurred sales. Moreover, the infographic, in addition to providing cost information, also featured other information, notably favorable competitive benchmark information – competitors' markups were much higher than that of the target firm.

Therefore, as described next, Study 1A was a field experiment that provided a cleaner test of the

effect of cost transparency on sales. In addition, in the Online Appendix we report an online experiment that is a conceptual replication of the anecdotal field study with a more precise manipulation of cost transparency. Specifically, in this online experiment, MTurk workers saw a screenshot of the online retailer's wallet product view and indicated their interest in buying the wallet. For half of participants, the screenshot also contained the same cost transparency information as in the field study, but without the additional confounding information. We measured willingness to buy the wallet by asking: "Given the opportunity, how likely would you be to purchase this product?" (7-point response scale: 1 = Not at all likely to 7 = Very likely). Consistent with the anecdotal field evidence, willingness to buy was greater in the cost transparency condition relative to the control condition ($M_{cost} = 2.69$, $SD = 1.81$; $M_{control} = 2.26$, $SD = 1.72$; $t(322) = 2.20$, $p = 0.01$).

STUDY 1A: FIELD EXPERIMENT

Study 1A was a pre-registered field experiment in which we tested the effect of cost transparency on sales (H1).¹

Method

We partnered with the dining services organization of a large university in the Northeastern United States, identifying the costs of producing a 16-ounce bowl of chicken noodle soup priced at \$4.95, an item that was available for lunchtime purchase in the dining hall on a daily basis. Cost components included: chicken breast (\$0.21/bowl), chicken broth (\$0.12/bowl), noodles (\$0.26/bowl), carrots (\$0.07/bowl), celery (\$0.16/bowl), parsley (\$0.07/bowl), and labor (\$3.23/bowl).

Next to the chicken noodle soup, customers saw one of two different signs: control versus cost transparency. Both signs were titled "What goes into a 16 oz. (large) bowl of our Chicken Noodle Soup?" and both listed the chicken noodle soup components described above. However, the cost transparency (i.e., treatment) condition additionally included the cost of each component, as well as the total cost (i.e., the sum of the individual cost components) of \$4.12 (Figure 1). As per the requirement of our field

¹ Pre-registration: https://aspredicted.org/see_one.php?a_id=7937.

partner that the cost disclosures be truthful and comprehensive, we noted on the sign that the labor costs did not include the costs of benefits.

As described in the pre-registration, we ran the field experiment over five consecutive weeks, from January 22 to February 27, 2018, dividing each weekday lunch period into two single-hour shifts, from 11:30-12:30pm and from 12:35-1:35pm. Therefore, excluding holidays, during which the dining hall was closed, our period of analysis included the transactions from 50 hours of lunchtime sales ($N = 9,227$). Every day, we showed both signs, one per shift, and alternated which was shown in each shift. We included a five-minute changeover period between shifts, corresponding to the approximate throughput time of lunchtime customers in the cafeteria. This design feature enabled us to provide a clean link between the experimental manipulation that was on display when each diner was choosing their lunch and the sales that resulted from it.

Empirical Approach

We used logistic regression to model the probability that a given customer included a bowl of chicken noodle soup in their purchase, as a function of the signage condition, the time of day, and the day of week:

$$\Pr(CNS_{it}) = f(\delta_0 + \delta_1 TREATMENT_{it} + X_t + Z_t + \epsilon_{it})$$

We conducted this estimation with robust standard errors, clustered by day. Because we had a directional prediction – that cost transparency would increase the probability of chicken noodle soup purchases – we pre-registered and conducted one-tailed tests.

Results

As shown in Table 1, the cost transparency treatment was associated with an increase in the probability that a given customer purchased chicken noodle soup (coefficient = 0.198, $p = 0.04$ one-tailed). Relative to base rates, cost transparency was associated with a 21.1% increase in the probability of buying a bowl of chicken noodle soup, with the probability increasing from 2.3% to 2.8% per customer. These results provide converging evidence of the potential for cost transparency to increase sales.

However, while these results are consistent with our theorizing, there is a potential confound in the experiment. Specifically, the revealed cost of labor is higher than all other revealed costs. Moreover, the labor cost line item is accompanied by an asterisk, and a footnote that labor benefits are excluded. These caveats, while required by the field experiment partner, potentially confound the experiment; it is possible, for instance, that drawing additional attention to the labor costs, which without benefits represent 78% of the total cost of the soup, heightens our effect. Thus, Study 1B tests the effects of cost transparency using an incentive compatible online experiment in a setting with a more uniform cost structure.

STUDY 1B: INCENTIVE-COMPATIBLE LAB EXPERIMENT

This study tested whether cost transparency affects consumer behavior in a realistic, incentive-compatible context without drawing attention to labor costs and benefits as in Study 1A. Relative to Study 1A, in Study 1B we used a product with less variation in the magnitude of its different cost components (a backpack). Participants were shown the product view of two comparable backpacks, each sold by a different retailer (J. Crew versus Everlane). While J. Crew has not instated cost transparency on its website, Everlane has. Between-subjects, we varied whether we revealed this fact to participants: half of participants saw the cost transparency information that Everlane reveals alongside the backpack (for the other half of participants, this information was omitted, in which case participants did not encounter cost transparency). Then, participants indicated whether they wanted to enter a drawing for a \$50 gift card for J. Crew versus for Everlane. We predicted that the proportion of participants who chose the draw for the Everlane gift card would be increased when they encountered the firm's instated cost transparency.

Method

Design and Procedure. Participants ($N = 509$ MTurk workers, $M_{age} = 37.6$, 52% male) were randomized to one of two conditions varying in cost transparency: no transparency, which served as the control condition, versus cost transparency.

Regardless of condition, participants were told: "On the following pages, you will see screen shots from two different companies' websites. You will then be asked which company you would prefer

to buy from.” Participants subsequently saw a screenshot of two comparable backpacks, one available on each retailer’s website. In the cost transparency condition, participants were given additional information about the cost transparent retailer (Everlane). Under a ‘Cost Transparency’ header, the screenshot stated “See below for what it costs us to make the Modern Snap Backpack,” above an infographic denoting the costs of making the backpack. The infographic revealed a materials cost of \$12.92, a hardware cost of \$5.13, a labor cost of \$10.66, a duties cost of \$1.81, and a transport cost of \$5.83, for a total cost of \$36.35.

On the next page, we told participants (truthfully) that we would be conducting a draw for a \$50 gift card. Participants indicated whether, if they won, they would like a \$50 gift card for J. Crew versus for Everlane. To be able to notify the winner, at the end of the survey we asked participants to provide their email address (participants were told at this point that they would need to provide their email address to be entered into the draw; the percent of participants providing an email address was similar across conditions: $M_{\text{CostTransparency}} = 59.3\%$, $M_{\text{Control}} = 52.7\%$; $\chi^2 = 2.22$, $p = 0.14$ and the results hold when the dataset is restricted to those who provided an email address).

Dependent Measure. The dependent variable was the proportion of participants who preferred the cost transparent retailer’s gift card.

In this study as well as Studies 4 and 5, after the dependent measure, we included a comprehension check assessing whether participants correctly identified the condition-specific information they had seen. For each of these studies, we report the results using the full sample – i.e., regardless of whether participants passed the comprehension check – however, all reported results hold when restricting the dataset to those who passed the comprehension checks. This and all subsequent experiments included demographics (age, gender, education, income). The effects are substantively equivalent when these variables are taken into account.

Results

Choice. Participants were more likely to prefer the Everlane gift card when they saw this company’s instated cost transparency relative to when they did not ($M_{\text{CostTransparency}} = 70.8\%$, $M_{\text{Control}} =$

54.7%; $\chi^2 = 14.04, p < 0.01$). In sum, Study 1B provides converging evidence in support of H1: revealing cost transparency can affect consumers' choices.

STUDY 2: SENSITIVITY PERCEPTIONS (H2A, H2B)

In Study 2, we tested whether cost transparency is perceived as a sensitive disclosure. Recall that our process account is predicated on the idea that it is sensitive disclosures in particular that foster trust, and, in turn, liking (which we operationalize here as increased purchase interest). Therefore, in Study 2, we assessed whether consumers view firms' disclosure of costs as sensitive relative to other disclosures: operational transparency, price transparency, and competitor pricing.

We predicted that cost transparency would be viewed as more sensitive than both operational transparency and price transparency (H2A and H2B). We also predicted that disclosure of competitors' prices would be viewed as more sensitive than operational transparency and price transparency, though not as sensitive as cost transparency – a prediction stemming from research showing that disclosing competitors' prices increases trust (Trifts and Häubl 2003), consistent with our conceptual account.

Method

Based on how previous research has defined the construct of disclosure sensitivity (Derlega et al. 1993; Kelly and McKillop 1996; Laurenceau et al. 1998; Moon, 2000), participants ($N = 196$ MTurk workers, $M_{age} = 34.3$, 52% male) were told: “In this survey, we are interested in your judgments of the sensitivity of information that a company might divulge to consumers. By ‘sensitive’ we mean information that is risky for the company to disclose, in the sense of making it vulnerable to negative consequences arising from that disclosure.”

Next, participants rated the sensitivity of five different types of firm disclosures. Specifically, participants were asked, “How vulnerable, if at all, would a company be making itself if it disclosed to consumers...”: “the price of the products it sells?” (control); “the work it does to produce the products it sells?” (operational transparency); “the taxes included in the price of the products it sells?” (price transparency); “competitors' prices – i.e., what competitors charge consumers for the same products?” (competitor pricing); “the cost of producing the products it sells?” (cost transparency) (5-point response

scale: 1 = Not at all vulnerable, 2 = Somewhat vulnerable, 3 = Vulnerable, 4 = Very vulnerable, and 5 = Extremely vulnerable). Administration order was counterbalanced between-subjects.

Results

A repeated measures ANOVA revealed significant differences in perceived sensitivity as a function of disclosure type ($F(4, 780) = 47.94, p < 0.01$). Consistent with H2A and H2B, cost transparency ($M_{cost} = 3.28, SD = 1.11$) was perceived as more sensitive relative to every other type of disclosure – i.e., relative to transparency about product prices ($M_{control} = 2.11, SD = 1.35; t(195) = 10.76, p < 0.01$); the taxes included in a product's price ($M_{price_transparency} = 2.15, SD = 1.23; t(195) = 10.61, p < 0.01$); operational transparency ($M_{operational_transparency} = 2.59, SD = 1.17; t(195) = 7.02, p < 0.01$); and transparency about competitors' prices ($M_{competitor_prices} = 2.84, SD = 1.07; t(195) = 4.56, p < 0.01$). To the extent that the sensitivity of a disclosure affects the capacity to influence trust, these results lend credence to our account that a firm's disclosure of costs increases purchase intentions by increasing trust – a proposition we test directly in Study 3.

As for the other forms of transparency that we tested, revealing competitor prices was deemed the second-most sensitive form of disclosure; it was perceived as more sensitive relative to control ($t(195) = 6.83, p < 0.01$), price transparency ($t(195) = 7.12, p < 0.01$), and operational transparency ($t(195) = 2.38, p = 0.02$). Operational transparency was deemed the third-most sensitive form of disclosure; it was perceived as more sensitive relative to control ($t(195) = 4.49, p < 0.01$), and price transparency ($t(195) = 4.85, p < 0.01$). Finally, price transparency was the least sensitive form of disclosure; its perceived sensitivity was no different than control ($t(195) = 0.43, p = 0.67$).

STUDY 3: THE MEDIATING ROLE OF TRUST (H3)

The anecdotal evidence, and the results of Studies 1A and 1B, suggest that cost transparency can increase purchasing. Study 2 suggests that, consistent with our process account, consumers perceive costs as sensitive information relative to other types of information, namely, information on operational processes and pricing. In Study 3, we tested whether the effect of cost transparency on purchase intentions is mediated by consumer trust toward the firm (H3). In so doing, Study 3 also sought to replicate our

basic effect that cost transparency can increase purchase interest (H1).

Method

Design and Procedure. Participants ($N = 612$ MTurk workers, $M_{age} = 35.2$, 55.1% male) were randomized to one of two conditions varying in cost transparency: no transparency, which served as the control condition, versus cost transparency. In the control condition, participants were shown a graphic depicting the front and back of a chocolate bar package. We worked with a chocolate manufacturer and retailer to develop a package for a fictitious brand called “Cocoa Passion” with realistic cost information. In the control condition, a description of the bar, flavors, ingredients, and nutrition facts were listed on the packaging. In the cost transparency condition, the packaging also provided the following unit cost information on the six cost components: \$0.29 (beans), \$0.03 (sugar), \$1.39 (cocoa butter), \$0.17 (packaging), \$0.90 (labor), and \$0.11 (utilities). The total cost of these components, \$2.89, was also featured.

Dependent Measures. We first measured trust by asking: “How trustworthy would you consider the firm?” (7-point response scale: 1 = Not at all trustworthy to 7 = Very trustworthy (John et al. 2016)). On the subsequent screen, we measured willingness to buy by asking: “Given the opportunity, how likely would you be to purchase this product?” (7-point response scale: 1 = Not at all likely to 7 = Very likely).

Results

Willingness to Buy. Cost transparency increased willingness to buy relative to the control condition ($M_{cost} = 4.27$, $SD = 2.04$; $M_{control} = 3.74$, $SD = 2.00$ $t(610) = 3.26$, $p < 0.01$).

Trust in Firm. Trust was greater in the cost transparency condition relative to the control condition ($M_{cost} = 5.27$, $SD = 1.38$; $M_{control} = 4.82$, $SD = 1.38$; $t(610) = 4.02$, $p < 0.01$).

Mediation Analysis. Cost transparency predicted both trust ($\beta = 0.45$, $p < 0.01$) and willingness to buy ($\beta = 0.53$, $p < 0.01$). When trust and cost transparency were both included in the model predicting willingness to buy, trust remained significant ($\beta = 0.80$, $p < 0.01$), but cost transparency was reduced to non-significance ($\beta = 0.17$, $p = 0.21$), providing support for mediation. We used a bootstrap procedure to construct bias-corrected confidence intervals for the indirect effect based on 5,000 resamples (Preacher

and Hayes 2008). The 95% bias-corrected confidence interval excluded zero (0.18, 0.55), suggesting a significant mediation effect.

In sum, consistent with our anecdotal evidence, and Studies 1A and 1B, Study 3 indicated that cost transparency increased purchase interest, and that, consistent with H3, this effect was mediated by consumers' trust in the firm.

STUDY 4: VOLUNTARY DISCLOSURE (H4)

Taken together, the studies so far provide evidence that cost transparency represents a form of sensitive disclosure that can increase purchase interest, and that it does so by increasing consumer perceptions of a firm's trustworthiness. Stemming from this account, Study 4 tested the prediction that disclosure needs to be voluntary for cost transparency to increase purchase interest (H4). We assessed participants' propensity to purchase a shirt as a function of whether and why the firm had disclosed its costs. Specifically, in the required condition, the firm disclosed its costs because regulation required it. In the voluntary disclosure condition, the firm voluntarily disclosed its costs. In the control condition, no cost information was provided. Relative to the control condition, we predicted cost transparency to increase purchase interest only when instated voluntarily, and not when instated involuntarily.

Study 4 also tested whether a benefit of (voluntary) cost transparency can be observed using a simpler operationalization of cost transparency. Specifically, in the preceding experiments, we operationalized cost transparency by providing the costs associated with each component of producing the good, as well as the total cost (i.e., the sum of the individual cost components). In Study 4, we tested whether merely disclosing the total costs to create the good – absent disclosure of the individual components and their associated costs – can be sufficient to increase purchase interest.

Method

Design and Procedure. Participants ($N = 454$ MTurk workers, $M_{age} = 37.0$, 46% male) first indicated their gender and were then shown a simulated retail product page for a \$15 t-shirt (worn by a model of their same gender).

Between-subjects, we varied whether and why the retailer had disclosed its costs. In the

involuntary transparency condition, an infographic indicated that the total cost of manufacturing the shirt was \$6.70. Additional text stated: “Due to regulations in the country in which this brand is based, this t-shirt company is forced to disclose its costs to customers. If regulation didn’t require it, this company would choose to NOT disclose its costs to its customers.” The voluntary transparency condition included the same cost transparent infographic but provided a different rationale: “Due to the desire to be transparent to its customers, this t-shirt company voluntarily discloses its costs to its customers.” The control condition had no cost transparency information.

Dependent Measure. We measured willingness to buy by asking: “Given the opportunity, how likely would you be to purchase this shirt from this t-shirt company?” (7-point response scale: 1 = Not at all likely to 7 = Very likely).

Results

Willingness to Buy. A one-way ANOVA revealed significant differences in willingness to buy as a function of the transparency manipulation ($F(2, 453) = 3.95, p = 0.02$). Follow-up pairwise comparisons indicated that as predicted, willingness to buy was significantly higher in the voluntary transparency condition relative to both the control condition ($M_{voluntary} = 4.38, SD = 1.75; M_{control} = 3.92, SD = 1.88; t(298) = 2.22, p = 0.03$) and the involuntary transparency condition ($M_{involuntary} = 3.86, SD = 1.77; t(309) = 2.63, p < 0.01$). Willingness to buy was equivalent in the control and involuntary transparency conditions ($t(295) = 0.28, p = 0.78$).

In sum, consistent with H4, Study 4 suggests that for cost transparency to increase purchase interest, it must be done voluntarily.

STUDY 5: COST TRANSPARENCY VERSUS PRICE FAIRNESS (H5)

In Study 5, we tested the specificity of our trust-based account of cost transparency, namely that it explains variance not accounted for by perceptions of price fairness. Specifically, we measured perceived price fairness (the mediator implied by a cost salience account), and trust in the firm (our hypothesized mediator). We predicted that the positive effect of cost transparency on purchase interest would be mediated by trust, and that this mediation would hold controlling for perceived price fairness.

In addition, Study 5 exploited a circumstance in which these accounts make different predictions of the effect of cost transparency on purchase interest. When consumers encounter surprisingly low prices, they are unlikely to expect the firm to be making an unreasonably high profit. As a result, if the observed effects arise only by disabusing people of the belief that firms are ripping them off, then revealing reasonable margins should have little or no effect on purchase interest when prices are lower than expectations. By contrast, we predicted that a firm's voluntary revelation of its costs increases trust, and that this should subsequently increase purchase interest both when prices are surprisingly high as well as when prices are surprisingly low.

In Study 5, participants estimated the price of a travel package. Next, its actual price was revealed, which we manipulated to be either higher or lower than the participant's estimate. Participants were subsequently shown a screenshot from the tour operator's website, which included the content of the initial description. For half of participants, the screenshot also included transparency into the tour operator's costs of providing each part of the described experience. Hence, the study had a 2(Price: *higher than estimate* vs. *lower than estimate*) x 2(Cost transparency: *transparency* vs. *no transparency*) between-subjects design.

Pilot Study

To establish tour package prices that were higher and lower than expectations, we conducted a pre-test ($N = 626$ Mturk workers, $M_{age} = 37.7$, 52.5% male) in which participants read the description of a travel package for a guided six-night trip to Washington, D.C. consisting of: admissions and guided tours for a list of popular sites and attractions, 6 nights of accommodations, select breakfasts, lunches, and dinners, bottled water on excursions, welcome and farewell receptions, and gratuities. Participants estimated the total price of the tour. The average estimate was \$1,306.25 ($SD = \$1,438.05$), with a 25th percentile estimate of \$750.00 and a 75th percentile estimate of \$1,600.00.

Method

Design and Procedure. We created a simulated online tour website called "D.C. Tours," which featured a description of the six-night travel package described above. Based on the distribution of

participant price estimates in the pre-test, the D.C. Tours website priced the tour at either \$750.00 or \$1,600.00, and either provided a description of the tour package or a description of the tour package with cost transparency.

The tour package was described and a new set of participants ($N = 1,202$ MTurk workers, $M_{Age} = 34.6$, 47.1% male) estimated its price ($M = \$1,349.73$, $SD = \$1,044.33$). Those whose estimates were between \$750.00 and \$1,600.00 ($N = 513$, $M_{Age} = 37.5$, 45.2% male) were randomly assigned to one of four experimental conditions. Those whose estimates were not within this range ($N = 689$, $M_{age} = 34.8$, 48.6% male) were excluded from further participation; they were directed to a demographics page.

Price Manipulation. Participants retained in the study were reminded of their estimate, and based on random assignment, were either told that the actual price of the travel package was \$750.00 (lower than their estimate) or \$1,600.00 (higher than their estimate).

Cost Transparency Manipulation. Participants were shown a screenshot from the “D.C. Tours” website. Those randomly assigned to the control condition were told: “On its website, shown below, the tour operator lists each component of the tour. That is, prospective clients can see each component of the tour.” The screenshot featured a photo of the U.S. Capitol building, reiterated the price, as assigned above, and the features included in the travel package.

The other half of participants, randomly assigned to the cost transparency condition, were told: “On its website, shown below, the tour operator voluntarily posts their costs of providing each component of the tour. That is, prospective clients can see how much each component costs the tour operator. Below, you can see how much it costs the tour operator to provide each component, in red beside each component.” Participants in this condition saw a website that was identical to those in the control condition, except for the addition of costs for each component, and the total cost. Costs were scaled identically as a percentage of tour price in both price conditions, such that total costs were equal to 80% of the quoted price, and the company in both cases earned a gross profit margin of 20%.

Dependent Measures. On the following screens, participants were asked: “How likely would you be to buy this tour?” (Willingness to buy: 1 = Not at all likely to 7 = Very likely); “How trustworthy is

this tour operator?" (Trust: 1 = Not at all trustworthy to 7 = Very trustworthy); and "How fair is the price of the tour?" (Price fairness: 1 = Not at all fair to 7 = Very fair (Bolton et al. 2003)). Administration order was counterbalanced between-subjects.

Results

Willingness to Buy. A 2(Price: *higher than estimated* vs. *lower than estimated*) x 2(Cost transparency: *transparency* vs. *no transparency*) ANOVA on willingness to buy revealed, not surprisingly, a main effect of price: willingness to buy was higher when prices were lower than expected relative to when they were higher than expected ($F(1, 509) = 74.76, p < 0.01$). More importantly, there was a main effect of cost transparency ($F(1, 509) = 11.67, p < 0.01$): willingness to buy was higher in the presence of cost transparency. The interaction was not significant ($F(1, 509) = 0.33, p = 0.57$), indicating that cost transparency increased willingness to buy both when prices were higher than participant estimates ($M_{cost} = 3.72, SD = 2.00; M_{control} = 3.06, SD = 1.80; t(253) = 2.79, p < 0.01$) and lower than participant estimates ($M_{cost} = 5.06, SD = 1.83; M_{control} = 4.59, SD = 1.90; t(256) = 2.03, p = 0.04$) (Figure 2). This latter result – that cost transparency increased willingness to buy even when prices were surprisingly low – is noteworthy because it is inconsistent with a price fairness account, whereas it is consistent with our trust-based account of cost transparency.

(Insert Figure 2 about here)

Trust. A 2(Price: *higher than estimated* vs. *lower than estimated*) x 2(Cost transparency: *transparency* vs. *No transparency*) ANOVA on trust revealed a main effect of price: trust was higher when prices were lower than expected relative to when they were higher than expected ($F(1, 509) = 15.95, p < 0.01$). More importantly, there was a main effect of cost transparency ($F(1, 509) = 19.82, p < 0.01$), such that trust was higher in the presence of cost transparency. The interaction was not significant ($F(1, 509) = 0.57, p = 0.45$), indicating that cost transparency increased trust both when prices were low ($M_{cost} = 5.64, SD = 1.13; M_{control} = 5.17, SD = 1.08; t(256) = 3.44, p < 0.01$) as well as when prices were high ($M_{cost} = 5.21, SD = 1.35; M_{control} = 4.90, SD = 1.23; t(253) = 1.84, p = 0.05$).

Price Fairness. A 2(Price: *higher than estimated* vs. *lower than estimated*) x 2(Cost transparency:

transparency vs. no transparency) ANOVA on price fairness revealed a main effect of price: prices were perceived as fairer when they were lower than expected relative to when they were higher than expected ($F(1,509) = 137.33, p < 0.01$). There was also a main effect of cost transparency ($F(1, 509) = 8.27, p < 0.01$). Importantly, the interaction was significant ($F(1, 509) = 9.94, p < 0.01$). Cost transparency did not increase price fairness relative to the control condition when prices were lower than expected ($M_{cost} = 6.19, SD = 1.13; M_{control} = 6.22, SD = 0.97; t(256) = 0.24, p = 0.81$). Cost transparency only increased price fairness when prices were higher than expected ($M_{cost} = 5.23, SD = 1.44; M_{control} = 4.56, SD = 1.47; t(253) = 3.70, p < 0.01$). In other words, consistent with the dual entitlement account, the positive effect of cost transparency on price fairness was contingent on price.

Mediation Analysis. Cost transparency predicted trust in the firm ($\beta = 0.39, p < 0.01$), price fairness perceptions ($\beta = 0.32, p = 0.01$) and willingness to buy ($\beta = 0.57, p < 0.01$). First, we tested whether trust mediated the effect of cost transparency on willingness to buy even when controlling for price fairness perceptions. We used a bootstrap procedure to construct bias-corrected confidence intervals for the indirect effect based on 5,000 resamples, with transparency as the independent variable, trust as the mediator, price fairness as a covariate, and willingness to buy as the dependent variable (Preacher and Hayes 2008). The 95% bias-corrected confidence interval excluded zero (0.03, 0.18). Thus, trust explains variance in the relationship between cost transparency and increased purchase interest beyond that accounted for by price fairness alone, consistent with H5.

Moderated Mediation Analysis. As an additional test of our conceptual model, we also conducted a moderated mediation analysis, with cost transparency as the independent variable, trust and price fairness as the two mediators, and willingness to buy as the dependent variable. Consistent with our account, our price moderated the effect of cost transparency on trust and price fairness. A 5,000-sample bootstrap analysis revealed that the 95% bias-corrected confidence interval of the indirect effect via trust excluded the zero for both participants who saw the low price (0.07, 0.32), and for those who saw the high price (0.01, 0.27). The test of the equality of both indirect effects was not significant as the 95% bias-corrected confidence interval included zero (-0.22, 0.10), indicating that the indirect effect was not

attenuated by the cost transparency manipulation. For price fairness, the indirect effect excluded the zero only for participants who saw the high price point (0.20, 0.71), but not for those who saw the low price point (-0.19, 0.15). The test of the equality was significant as the 95% bias-corrected confidence interval excluded zero (0.17, 0.78), indicating that the indirect effect via price fairness was attenuated by cost transparency.

In sum, Study 5 shows that price fairness is partly responsible for the effect of cost transparency on purchase interest, specifically when prices are higher than expected. Importantly, however, it does not fully explain the effect of cost transparency on purchase interest. Consistent with our theoretical account, and with H5, additional variance is explained by perceived firm trustworthiness, and the benefit of cost transparency persists when prices are surprisingly low.

GENERAL DISCUSSION

We began with anecdotal field evidence consistent with the basic prediction that cost transparency increases sales (H1). We then reported six controlled experiments. Study 1A was a pre-registered field experiment showing that cost transparency can increase sales, and Study 1B was an incentive-compatible experiment that provided converging evidence (H1). Four subsequent experiments (Studies 2-5) shed light on when and why the beneficial effect of cost transparency emerges. First, we showed that cost transparency is indeed perceived as a form of sensitive disclosure (H2A and H2B). Study 3 went further, showing that the capacity for cost transparency to increase purchasing is mediated by perceived firm trustworthiness (H3). Next, Study 4 showed that for cost transparency to boost purchase interest, it needs to be instated voluntarily (H4). Finally, Study 5 showed that cost transparency increases purchase interest even when prices are unexpectedly low (H5) – a result not predicted by a price fairness account. Study 5 also provided converging evidence for the trust mechanism underlying our effect, showing that it accounts for the effect of cost transparency on purchase interest even when controlling for perceived price fairness.

Attesting to its robustness, the beneficial effect of cost transparency on purchase interest emerged

under different instantiations of cost transparency; for example, when only total costs were revealed (Study 4), as well as when they were further broken down into their constituent cost components. We also demonstrated the effect relative to different baselines; for example, relative to no transparency (Studies 3 and 4) and relative to the disclosure of inputs, as in our field experiment. Further, we demonstrated the effect across a variety of different brands and product and service categories, including wallets, chicken noodle soup, chocolate, travel packages, and t-shirts. Finally, the beneficial effect of cost transparency emerged for both modest gross profit margins (17% in Study 1A) as well as for larger ones (55% in Study 4).

Opportunities for Future Research

It is noteworthy that cost transparency engendered trust despite the fact that participants could not verify whether the costs were accurate. In this vein, future research might explore when cost transparency engenders suspicion as opposed to trust, and more broadly, when it might undermine, as opposed to enhance, sales. For example, prior literature suggests that trustworthiness is related to the credibility of the source, particularly in the context of online retailers communicating with consumers (Trifts and Häubl 2003). It could also be that when costs are implausibly low, suspicion overrides any trust-associated benefit of disclosure, quashing or potentially reversing the positive effects of cost transparency. On the flip side, it could be that extremely high margins override the trust benefit of disclosure; indeed, perceived benevolence is a component of trust (Rotter 1967; Rousseau et al. 1998), and hence, if firms are taking extremely high margins, this could undermine the capacity for cost disclosures to enhance trust. While we show the positive effect of cost transparency at margins as low as 17% and as high as 55%, future research could examine whether the effect would hold at extremely low and extremely high margins.

It could also be that the effects of cost transparency are moderated by a consumer's prior relationship with a brand. For instance, when consumers view firms transactionally as opposed to relationally, cost transparency may be met with suspicion toward the numbers as opposed to trust toward the disclosure. Building on past research examining how consumer-brand relationship contracts are formed (Smit et al. 2007; Aaker, Fournier and Brasel 2004), the benefits of cost transparency may be

particularly likely to emerge for newer brands (when the consumer has not yet formed an impression of the brand), thereby making their subsequent interactions with that brand more malleable to the influence of cost transparency. Indeed, in all of our studies, the firm implementing cost transparency was novel or relatively unknown.

Central to our account is the notion that cost transparency is a form of sensitive disclosure. Therefore, future research might investigate factors that modulate whether cost transparency is perceived as a sensitive disclosure, and in turn, its effectiveness. For example, different types of costs may be perceived as differentially sensitive, and in turn, may have different effects on purchasing. As another possibility, stemming from the comparative nature of human judgment (Fox and Tversky 1995; Hsee 1996; Ariely et al. 2003), perceived sensitivity may be affected by whether other firms disclose – or do not disclose; or similarly, whether a given firm implements cost transparency on some versus all of its products. Indeed, prior research suggests that a given disclosure is perceived as more revelatory if others abstain from making the same disclosure (Acquisti, John, & Loewenstein, 2012).

More broadly, future research could investigate how firms' disclosure of other types of sensitive information affects trust and performance. Like costs and profits, there are many categories of information that are privately held by companies and are traditionally considered taboo when communicating with customers. For example, disclosing confidential information regarding internal algorithms may fly in the face of conventional wisdom and practice. One might even envision situations in which price and operational transparency may be seen as particularly sensitive, such as when they are the basis of competitive advantage, or when a unique production process is being disclosed.

Finally, future research might also explore additional, complementary mechanisms of the beneficial effect of cost transparency on purchasing. For example, in addition to trust, the literature hints that firm disclosures can increase purchase interest via increased perceptions of firm competence (Trifts and Häubl 2003). Such an explanation is consistent with research on environmental disclosures: when companies voluntarily reveal their emissions, customers perceive that the company must be performing well relative to industry competitors. As a result, the firm's market share increases, regardless of the

firm's actual relative performance (Kalkanci et al. 2016).

Limitations

From a practical standpoint, there are several caveats a firm would need to consider before deciding to reveal its costs. For one, firms may not want to disclose costs if cost structure is a competitive advantage. Moreover, a firm's suppliers may not allow the firm to make public the costs associated with certain components. Thus, there could be strategic risks or contractual barriers to disclosure.

Even if firms have the desire to disclose costs, it may be infeasible for them to do so. The present research focuses on a set of contexts where unit costs can be readily calculated and explained. However, disclosing the unit costs associated with the production of a single good might be infeasible for companies that are not vertically integrated. And, for goods and services that are dependent on high fixed costs (e.g., research and development, overhead, constant labor costs), imputing unit costs may be complicated or confusing to consumers. For example, imputing research and development costs on a per unit basis in a pharmaceutical context may require many assumptions, and potentially customer education on how the sales of successful pharmaceuticals subsidize the production costs of less popular products and the costs of early-stage trials (and failures).

Conclusion

In closing, we note that although firms typically treat their costs as tightly-guarded secrets, the present research points to a potential upside of revealing them. Just as when people reveal sensitive information, when firms do so, it can engender trust and deepen the relationships among companies and consumers. We welcome further research into these dynamics, which may open the door to improved outcomes for consumers and firms alike.

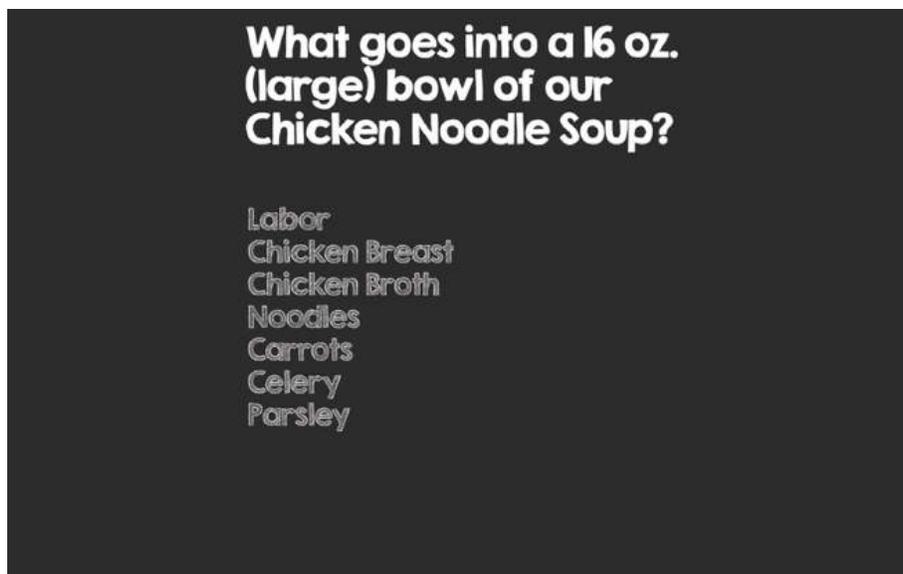
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	Purchased Chicken Noodle Soup
Transparency	0.198** (0.115)
Monday indicator	0.307 (0.312)
Tuesday indicator	0.355 (0.349)
Wednesday indicator	0.376 (0.362)
Thursday indicator	0.241 (0.347)
Constant	-4.423*** (1.038)
Observations	9,227
Adjusted R-squared	0.036

Table 1: Field experiment (Study 1A). Probability of a diner purchasing chicken noodle soup, attributable to the treatment condition, modelled by logistic regression. Model also includes time fixed effects. $*p < 0.10$, $**p < 0.05$, $***p < 0.01$, one-tailed. Robust standard errors, clustered by day, are shown in parentheses.



(A) Control sign



(B) Cost transparency sign (Treatment condition)

Figure 1: Study 1A stimuli – i.e., the signs that were placed beside the chicken noodle soup in the control (A) versus treatment (B) conditions.

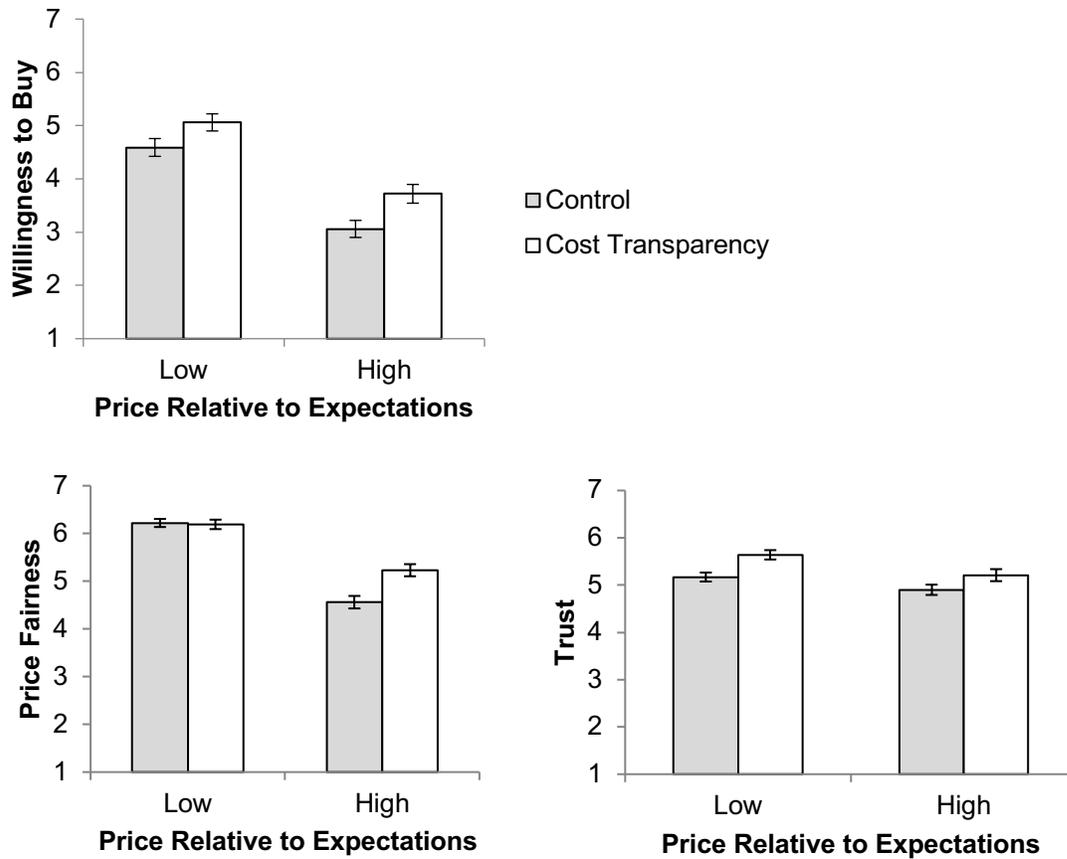
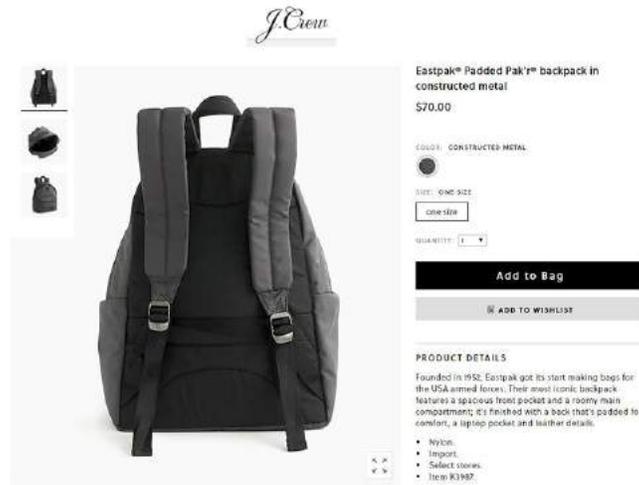
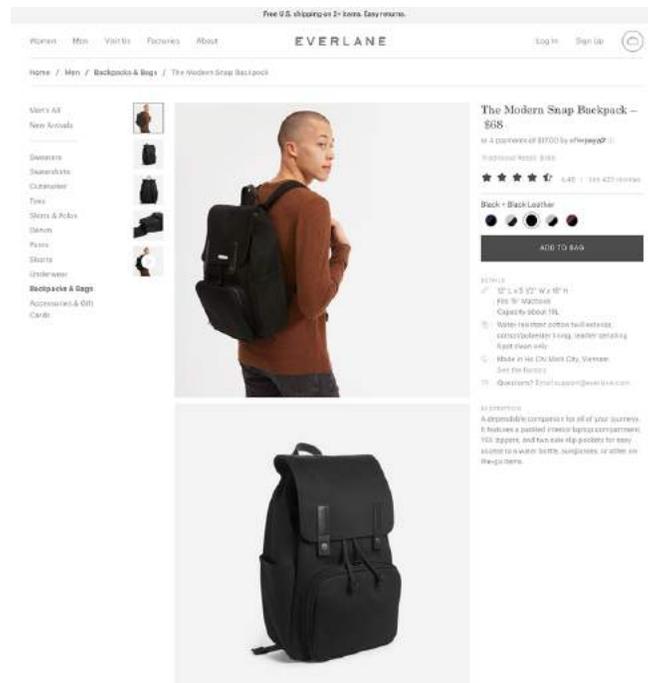


Figure 2: The positive effect of cost transparency on purchase interest held across prices, as did the positive effect on trust. The positive effect on price fairness perceptions manifested only when price was higher than expectations (Study 5).

APPENDIX



(A) J. Crew screenshot



(B) Everlane screenshot

Appendix Figure 1: Screenshots from the J. Crew (A) and Everlane (B) websites (Study 1B). Participants were shown both screenshots and asked whether they would prefer to enter a lottery for a \$50 gift card to J. Crew or Everlane. Some participants were additionally randomly assigned to view the cost transparency infographic associated with Everlane, as shown in Appendix Figure 2.



Appendix Figure 2: Cost Transparency infographic (Study 1B).



Appendix Figure 3: Chocolate package designs presented as stimuli. All participants saw the same 'front' packaging (A), and either control (B) or cost transparency (C) 'back' packaging (Study 3).

The Men's V
\$15

COLOR: NAVY BLUE

SELECT SIZE (WHAT SIZE AM I?)

XS S M L XL

CHOOSE QUANTITY

- 1 +

ADD TO BAG

Pin it

What goes into the production of The Men's V?

TOTAL COST OF MANUFACTURING

\$6.55

Appendix Figure 4: Example of the simulated t-shirt website in the treatment condition – i.e., where total cost was disclosed (screens were matched to the gender of the participant) (Study 4). In the control condition, the graphic simply omitted the cost transparency information in the bottom right corner.

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Experience the Nation's Cap

The Grand Tour: \$750/guest

6 days of guided tours to the Smithsonian, Ford's Theater, Senate, Mount Vernon, major monuments, & Newseum

6 nights of accommodations

6 breakfasts, 2 lunches and 3 dinners

Bottled or potable water on excursions

Welcome and farewell receptions

Gratuities to porters, waiters, guides and drivers for all group activities

(A) \$750 (lower than estimated) price, no cost transparency

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Experience the Nation's Cap

The Grand Tour: \$750/guest Our Cost: \$900/guest

6 days of guided tours to the Smithsonian, Ford's Theater, Senate, Mount Vernon, major monuments, & Newseum

Tickets: \$60/guest Guides: \$41/guest

6 nights of accommodations

Accommodations: \$300/guest

6 breakfasts, 2 lunches and 3 dinners

Breakfasts: \$29/guest Lunches: \$18/guest Dinners: \$42/guest

Bottled or potable water on excursions

Water: \$1/guest

Welcome and farewell receptions

Receptions: \$49/guest

Gratuities to porters, waiters, guides and drivers for all group activities

Gratuities: \$90/guest

(B) \$750 (lower than estimated) price, with cost transparency

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Experience the Nation's Cap

The Grand Tour: \$1,600/guest

6 days of guided tours to the Smithsonian, Ford's Theater, Senate, Mount Vernon, major monuments, & Newseum

6 nights of accommodations

6 breakfasts, 2 lunches and 3 dinners

Bottled or potable water on excursions

Welcome and farewell receptions

Gratuities to porters, waiters, guides and drivers for all group activities

(C) \$1,600 (higher than estimated) price, no cost transparency

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Experience the Nation's Cap

The Grand Tour: \$1,600/guest Our Cost: \$1,280/guest

6 days of guided tours to the Smithsonian, Ford's Theater, Senate, Mount Vernon, major monuments, & Newseum

Tickets: \$128/guest Guides: \$87/guest

6 nights of accommodations

Accommodations: \$640/guest

6 breakfasts, 2 lunches and 3 dinners

Breakfasts: \$52/guest Lunches: \$28/guest Dinners: \$69/guest

Bottled or potable water on excursions

Water: \$2/guest

Welcome and farewell receptions

Receptions: \$100/guest

Gratuities to porters, waiters, guides and drivers for all group activities

Gratuities: \$107/guest

(D) \$1,600 (higher than estimated) price, with cost transparency

Appendix Figure 5: Stimuli used in Study 5.

Lifting the Veil: The Benefits of Cost Transparency
ONLINE APPENDIX

FULL WRITE-UP OF ANECDOTAL EVIDENCE

On December 2, 2013, a privately-held online retailer launched a holiday gift shop with a single email to its mailing list, promoting a leather wallet offered in five colors (burgundy, black, grey, bone, and tan) and priced at \$115.00. At the end of January, in an effort to boost post-holiday sales, the retailer decided to add a cost transparency infographic to the online product detail pages of each of the wallet's five color combinations. As the wallets differed only in color, the company intended to use the same infographic for every wallet in the line.

But what the company intended to do was not what actually happened. Serendipitously (for us at least), the company inadvertently failed to introduce the infographic for two of the wallet colors (bone and tan). Thus, the infographic was implemented for only three of the five wallet colors (burgundy, black, and grey), a mistake that was overlooked for five weeks, creating a natural experiment enabling us to test the impact of cost transparency on sales.

Procedure

Operationalization of Cost Transparency. Along with the total cost to produce the wallet, the infographic broke the total cost into its components, delineating the specific costs associated with the given materials and processes required to produce and import the wallet: leather (\$14.68), construction (\$38.56), duties (\$4.26) and transportation (\$1.00). The infographic also included additional benchmark information stating that the wallet had a 1.9x markup, compared to the 6x markup charged by a competitor (Online Appendix Figure 1).



Online Appendix Figure 1: Stimuli from firm described in anecdotal evidence. Portions of this graphic have been recreated from the original, both to protect the identity of the retailer, and to improve the legibility of the text.

Empirical Approach. The inadvertent provision of cost information for some, but not all, of the

wallet colors served as an exogenous shock that created sets of comparable treatment (cost transparent) and control (nontransparent) products (i.e., wallets). This treatment provides a conservative test of cost transparency since customers browsing multiple wallet colors may have been exposed to the infographic and (correctly) inferred that the same cost information applied to all colors. While the benefits of the infographic likely accrued to both groups, our identification comes from the fact that every customer who browsed wallets in the treatment group was exposed to the infographic, while customers who browsed wallets in the control group may not have been exposed.

We used a difference-in-differences approach to compare the daily sales between the treatment and control groups before versus after the infographic was introduced. By doing so, we isolated the effect of cost transparency on the daily count of wallets sold in each category. We analyzed the sales performance of five color combinations over a 92-day period ($N = 460$) starting with the launch of the site on December 2, 2013 and ending on March 6, 2014. The infographic was introduced on January 28, 2014.

We estimated the following linear fixed effect specification, using a Newey West estimator for standard errors that accounts for autocorrelation and heteroskedasticity within colors with a small number of products (Newey and West 1987; Schaffer 2010):¹

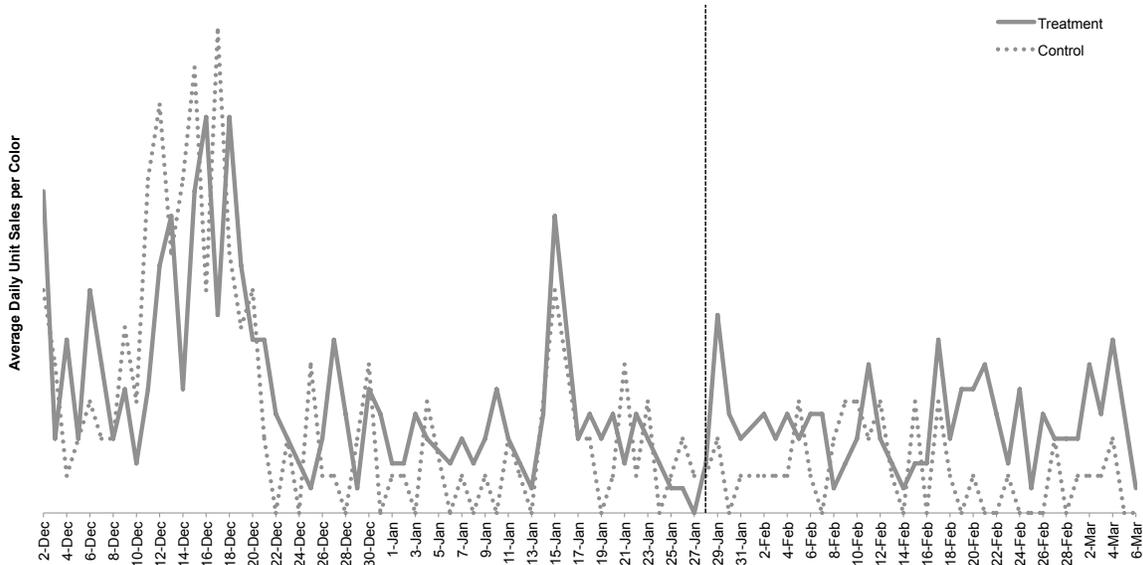
$$COUNT_{c,t} = f \left(\begin{array}{l} \alpha_0 + \alpha_1 POST_t + \alpha_2 POST_t \times TREATMENT_c + \alpha_3 VIEWS_{c,t} + \alpha_4 VIEWS_{c,t}^2 + \\ \alpha_5 NOVIEWS_{c,t} + \alpha_6 NOVIEWS_{c,t-1} + \alpha_7 NOSALE_{c,t-1} + \beta_c + \epsilon_{c,t} \end{array} \right)$$

In the specification above, $COUNT_{c,t}$ represents the count of wallets sold for color c on day t . $POST_t$ is a dummy variable denoting observations after the introduction of the infographic. Although the cost transparency treatment is subsumed by the color fixed effect (i.e., burgundy, black, and gray color fixed effects perfectly identify the wallets that received the cost transparency treatment), $\beta_c \cdot POST_t \times TREATMENT_c$ is a dummy variable that specifically highlights observations in the cost transparency treatment conditions after the introduction of the infographic and is the focal independent variable of our analysis.

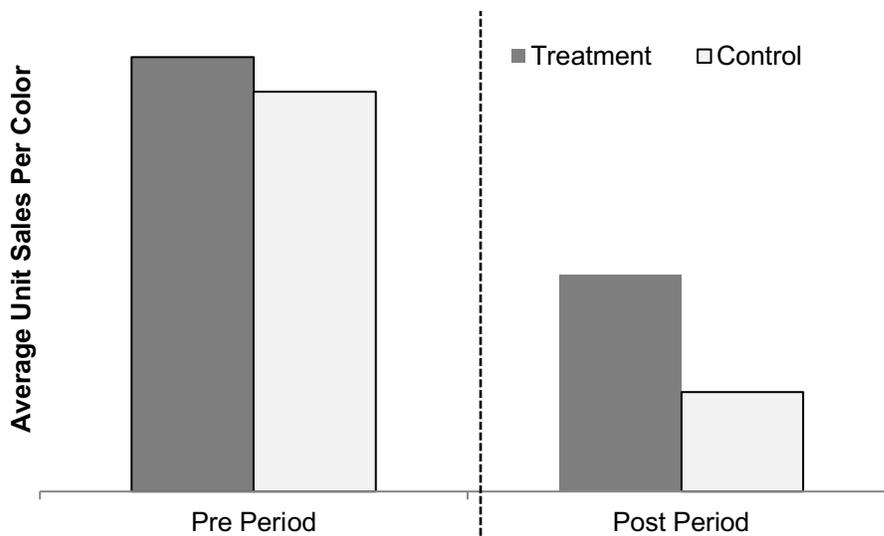
Because cost transparency was implemented by wallet color, and there were only five colors, we also controlled for possible confounders: a proxy for time-varying color popularity – the number of views each wallet color’s page received; and a proxy for time-varying inventory levels – for a given color on a particular day, the complete absence of both page views and sales. Controlling for these variables was important because they could be independently correlated with both the treatment and outcome.

In the case of popularity, more popular colors (which are viewed by customers more frequently) could happen to have received the treatment. Popularity would also be logically correlated with sales (popular items sell better). Hence, the model includes variables representing the number of views each wallet color’s page received ($VIEWS_{c,t}$) as well as the square of this number ($VIEWS_{c,t}^2$), to accommodate a non-linear relationship between page views and online sales (sales rise in page views at a diminishing rate). By controlling for daily page views, we account for time-varying differences in the item’s popularity; for example, if a particular wallet’s color made it an especially attractive Christmas gift.

¹ We did not use clustered standard errors because clustering requires a large number of clusters – far more than the five product colors we have in our dataset – to approach the true variance of the error term. Using a Newey West estimator enabled us to leverage our fairly long panel of sales data on each wallet color to generate a consistent estimator that accounts for the autocorrelation and heteroskedasticity within each wallet.



(A)



(B)

Online Appendix Figure 2: Anecdotal Field Evidence. Average daily unit sales by treatment versus control, collapsed across days (Panel A). Dashed vertical line indicates the date the cost transparency infographic was added. Average daily unit sales by treatment versus control (Panel B). Sales figures withheld to protect confidential company information.

Similarly, we also included inventory proxies as covariates to control for the effect of stock-outs. Stock-outs are negatively correlated with sales, because a company cannot sell items it does not have in inventory, and stock-outs are also plausibly correlated with the treatment, since some colors are likely to be more popular than others, and may therefore be more prone to stock-outs. Although the company did not keep historical records of its inventory position over time, two sets of variables proxy for the effects of stock-outs. The first reflects the page view implication of stock-outs, capturing the complete lack of page views on any given day ($NOVIEWS_{c,t}$), as well as on the preceding day ($NOVIEWS_{c,t-1}$). When the

product was out of stock on the company’s website, a “SOLD OUT” message blacked out the product on search results pages, reducing the likelihood that a customer would view the page. The second proxy variable reflects the sales implication of stock-outs, capturing the complete absence of sales on the preceding day ($NOSALE_{c,t-1}$).

By controlling directly for each item’s time-varying popularity, as well as proxies for the retailer’s daily inventory position on each item, our focal coefficients distinctly reveal the effect of cost transparency on the probability of converting a browser to a buyer, holding constant these time-varying factors.

Results and Discussion

Online Appendix Figure 2 above depicts the average daily unit sales as a function of the treatment over the period of analysis (units are withheld to protect confidential company data). Overall, sales declined over the period, reflecting diminished demand in the post-holiday season. More importantly however, there was an interaction between time and treatment: specifically, the post-holiday sales decline was smaller in the treatment condition relative to the control condition. Cost transparency therefore helped sales by serving as a buffer against the post-holiday sales decline.

In Online Appendix Table 1, Column (1) presents the base specification in which the daily number of units sold per color combination is modeled as a function of the time period and treatment classification of the product group. Once confounds are controlled, the treatment effect of cost transparency emerges as significant. Specifically, the positive treatment effect is demonstrated in Column (2) when controlling for color popularity (coefficient = 0.579; $p < 0.10$ two-tailed); in Column (3) when further controlling for the page view implications of stock-outs (coefficient = 0.660; $p < 0.05$ two-tailed); and in Column (4) when further controlling for the sales implications of stock-outs (coefficient = 0.579; $p < 0.10$ two-tailed).

Under the most conservative assumption of full substitution – that all of the incremental customers who bought wallets in the treatment condition would have otherwise bought a wallet in the control condition in the absence of the treatment – we calculate that the cost transparency infographic increased daily unit sales on a per-color basis by 22.0% relative to average sales across the period of observation.² As a robustness test of the significance of the effect, we perform an additional analysis, which is described below.

Robustness Check

To account for the substitution patterns among wallets in the treatment and control categories, we create an additional set of specifications that capture the daily percentage of all wallets sold that correspond with the treatment category, $TSALES_PCT_t$. Importantly, we note that the ratio of wallets sold in the treatment and control conditions was time-invariant prior to the introduction of cost transparency.

To facilitate our analysis, we also created an aggregated set of control variables consistent with those described above, which reflect total page views and total page views squared in each category, $TVIEWS_t$, $TVIEWS^2_t$, $CVIEWS_t$, and $CVIEWS^2_t$, the percentage of colors in each category with no visits, $TNOVIEWS_t$ and $CNOVIEWS_t$, the one-day lagged percentage of colors in each category with no visits, $TNOVIEWS_{t-1}$ and $CNOVIEWS_{t-1}$, and the one-day lagged percentage of colors in each category with no sales, $TNOSALE_{t-1}$ and $CNOSALE_{t-1}$. We estimate the following linear specification with robust standard errors:

² Given that sales in the control and treatment conditions are not completely independent, customers may substitute a purchase of one wallet color for another. Hence, the magnitude of the effects calculated through conventional difference-in-difference calculations would be overstated if any substitution occurs. The conservative estimate of a 22.0% increase in sales assumes 100% substitution. If on the other hand, every incremental customer who purchased a wallet in the treatment condition would have not purchased a wallet in the absence of the treatment (i.e., 0% substitution), then cost transparency increased sales by 44.0%. Therefore, under both conservative and liberal assumptions about substitution, the cost transparency treatment had a significant positive effect on sales.

$$TSALES_PCT_t = f \left(\begin{array}{l} \gamma_0 + \gamma_1 POST_t + \gamma_2 TVIEWS_t + \gamma_3 TVIEWS_t^2 + \gamma_4 CIEWS_t + \gamma_5 CIEWS_t^2 + \\ \gamma_6 TNOVIEWS_t + \gamma_7 CNOVIEWS_t + \gamma_8 TNOVIEWS_{t-1} + \gamma_9 CNOVIEWS_{t-1} + \\ \gamma_{10} TNOSALE_{t-1} + \gamma_{11} CNOSALE_{t-1} + \epsilon_t \end{array} \right)$$

The results of this supplemental analysis are shown in Online Appendix Table 2. In all columns, the variable of interest is the coefficient on $POST_t$, which indicates the change in the percentage of sales coming from colors in the treatment category after the introduction of cost transparency. In Column (1) the base specification reveals that the percentage of wallets sold in the treatment category, relative to the sales of all wallets, rises 12.6% following the introduction of cost transparency (coefficient = 0.126; $p < 0.01$ two-tailed).

Columns (2-4) reveal that this significant increase in sales percentage is robust to the inclusion of controls for the number of times products in the treatment and control conditions were visited during the day, the percentage of colors in each category that received no visits on the focal or preceding day, and the percentage of colors in each category that resulted in no sales on the previous day. The best estimate provided by the fully-specified version of this model (Column 4), is that cost transparency increased the percentage of total sales represented by the treated wallets by 15.7% ($p < 0.01$ two-sided).

	(1)	(2)	(3)	(4)
	Daily Unit Sales	Daily Unit Sales	Daily Unit Sales	Daily Unit Sales
Post	-0.945*** (0.273)	-0.921*** (0.258)	-0.959*** (0.257)	-0.850*** (0.238)
Post × Treatment	0.523 (0.331)	0.579* (0.330)	0.660** (0.328)	0.582* (0.311)
Views		0.0591* (0.0312)	0.0488 (0.0316)	0.0451 (0.0302)
Views ²		-0.0002* (0.0001)	-0.0002 (0.0001)	-0.0002 (0.0001)
No views			-0.321** (0.153)	-0.300** (0.152)
Lagged no views			-0.158 (0.180)	-0.113 (0.183)
Lagged no sale				-0.460*** (0.142)
Observations	460	460	460	460
Adjusted R-squared	0.044	0.069	0.075	0.091

Online Appendix Table 1: Field Evidence. Units sold on a daily basis, by transparency condition. Treatment variable subsumed by fixed effects estimation. Fixed effects coefficients withheld to protect confidential company information. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, two-tailed. Robust Newey West standard errors, accounting for autocorrelation and heteroskedasticity within colors, shown in parentheses.

	(1)	(2)	(3)	(4)
	Treatment Sales %	Treatment Sales %	Treatment Sales %	Treatment Sales %
Post	0.126*** (0.047)	0.117** (0.048)	0.138*** (0.051)	0.157*** (0.052)
Treatment: Visits		0.002 (0.007)	0.004 (0.008)	0.001 (0.008)
Treatment: Visits ²		-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Control: Visits		-0.008** (0.003)	-0.005 (0.004)	-0.005 (0.004)
Control: Visits ²		0.000* (0.000)	0.000 (0.000)	0.000 (0.000)
Treatment: No visits %			0.131 (0.130)	0.181 (0.131)
Control: No visits %			0.140 (0.095)	0.128 (0.093)
Treatment: Lagged no visits %			-0.070 (0.116)	-0.021 (0.116)
Control: Lagged no visits %			0.142 (0.095)	0.149 (0.096)
Treatment: Lagged no sales %				-0.169 (0.105)
Control: Lagged no sales %				-0.077 (0.068)
Constant	0.662*** (0.030)	0.713*** (0.058)	0.608*** (0.085)	0.681*** (0.090)
Observations	92	92	92	92
Adjusted R-squared	0.063	0.114	0.134	0.165

Online Appendix Table 2: Daily percentage of wallet sales attributable to the treatment condition (as a percentage of all wallets sold). Robust standard errors shown in parentheses.

ONLINE MTURK EXPERIMENT: REPLICATION OF ANECDOTAL EVIDENCE

The anecdotal evidence, a natural experiment involving a real online retailer, provides preliminary evidence of cost transparency's capacity to boost sales. Cost transparency was applied to some, but not all wallets, which provided a natural experiment opportunity to exploit. However, the

information presented for the treatment versus control wallets differed in additional ways beyond our conceptual definition of cost transparency: the treatment wallets also included competitive benchmarks. This study addresses this imprecision in an online experiment using the same interface as the anecdotal evidence but modified to distill the critical ingredients of cost transparency which we posit to be causally responsible for boosting purchase interest.

Method

Design and Procedure. Participants ($N = 322$, $M_{age} = 36.8$, 51% male) completed this experiment on Amazon's Mechanical Turk (Mturk) in exchange for a small fixed payment. Participants were randomly assigned to one of two experimental conditions: no transparency, which served as our control condition, or cost transparency. In the control condition, participants saw a screen shot of the nontransparent wallets from the anecdotal evidence. In the cost transparency condition, the product page also included nearly identical cost information as the field study: materials (\$11.00), hardware (\$3.60), labor (\$38.56), duties (\$4.21) and transportation (\$1.00). Notably, unlike the anecdotal evidence, the infographic did not include the sum of the costs or competitive benchmark information and is therefore a purer representation of cost transparency.

Dependent Measures. Participants indicated their willingness to buy the wallet by responding to the item: "Given the opportunity, how likely would you be to purchase this product?" (7-point response scale; 1 = Not at all likely to 7 = Very likely).

Results

Willingness to buy. Consistent with the anecdotal evidence, willingness to buy was greater in the cost transparency condition relative to the control condition ($M_{cost} = 2.69$, $SD = 1.81$; $M_{control} = 2.26$, $SD = 1.72$; $t(322) = 2.20$, $p = .014$).

COST VERSUS OPERATIONAL TRANSPARENCY

In this study, we ascertain whether revealing costs improves purchase interest above and beyond merely showing the operational steps to produce a good. Control participants were simply shown a t-shirt and indicated their willingness to buy it. In the operational transparency condition, participants were informed of the steps that went into making the shirt. Finally, in the cost transparency condition, participants were additionally informed of the cost associated with each of the steps. For robustness, orthogonal to transparency, we also manipulated the price (holding costs constant): the t-shirt was priced at \$10, \$15, or \$20. The study was therefore a 3x3 between-subjects design.

Method

Design and Procedure. Participants ($N = 272$, $M_{age} = 31.5$, 62% male) completed this experiment on Mturk in exchange for a small fixed payment. Participants first indicated their gender. Then, they were told that they would see a simulated retail website page for a product and would be asked to indicate their purchase interest. Next, participants were randomly assigned to one of nine experimental conditions of the 3 (Transparency: Control, Operational, Cost) x 3 (Price: \$10, \$15, \$20) between-subjects design. The prices were comparable to other similar t-shirts found online at the time of the experiment, and our displayed costs were informed by a company that invokes cost transparency on its website (Everlane 2014).

In the control condition, participants saw a baseline interface depicting a model (same gender as participant) wearing the t-shirt, the name of the product, price, and available colors and sizes. The experimental conditions also included an infographic entitled "What goes into the production of our Women's [Men's] V?" and depicting six operational steps: cotton, cutting, sewing, dyeing, finishing, and transport (See Online Appendix Figure 3). The cost transparency condition additionally displayed the unit cost of each of the six operational steps (i.e., \$2.75, \$0.35, \$1.35, \$0.50, \$1.25, and \$0.50, respectively).

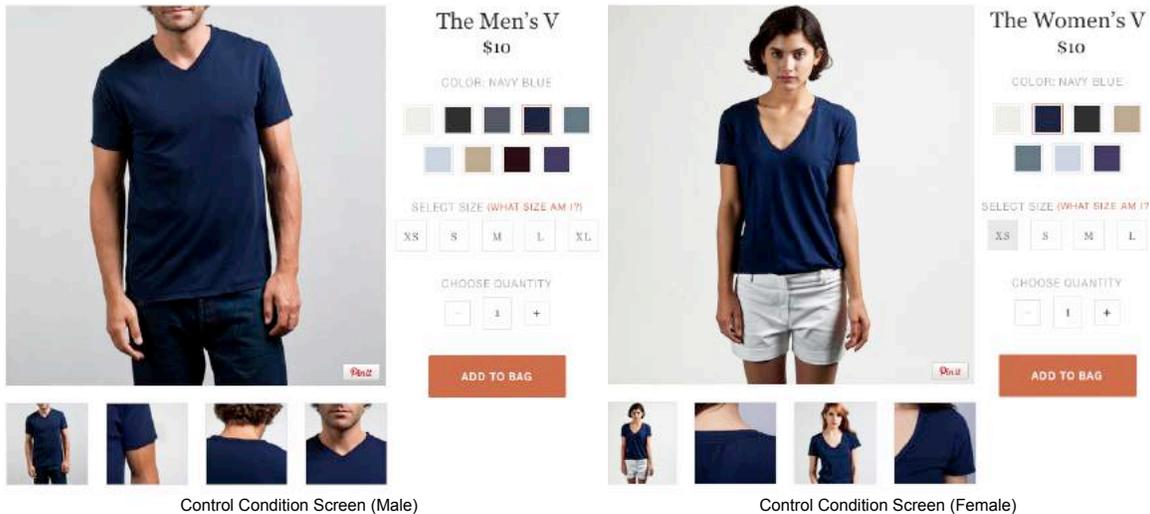
Dependent Measures. Participants indicated their willingness to buy the t-shirt using the same

item as Study 1B. We also included a series of exploratory measures as an initial investigation of mechanism.³

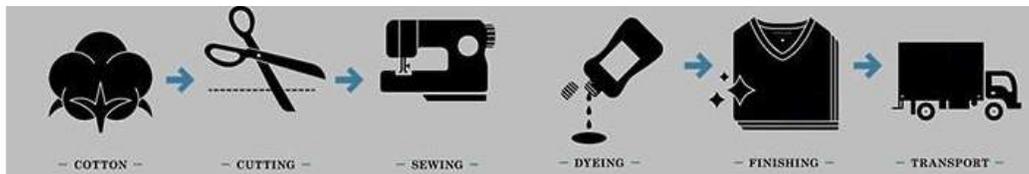
Results

We conducted a 3 (Price: \$10, \$15, \$20) x 3 (Transparency: Control, Operational, Cost) analysis of variance (ANOVA) on willingness to buy. Not surprisingly, there was a main effect of price: willingness to buy decreased as price increased ($F(2, 263) = 12.29, p < 0.01$). More importantly, there was a main effect of transparency ($F(2, 263) = 4.69, p = 0.01$). Specifically, willingness to buy was greater in the cost transparency condition relative to both the control condition ($M_{control} = 3.31, SD = 1.87; M_{cost} = 4.16, SD = 1.98; t(177) = 2.95, p < 0.01$) and the operational transparency condition ($M_{operational} = 3.57, SD = 1.80; t(180) = 2.10, p = 0.04$). There was no interaction between transparency and price ($F(4,263) = 0.64, p = 0.64$).

In sum, this study shows that disclosing costs can improve purchase interest above and beyond merely showing the operational steps to produce a good, and that this effect holds across different prices (and hence, profit margins).

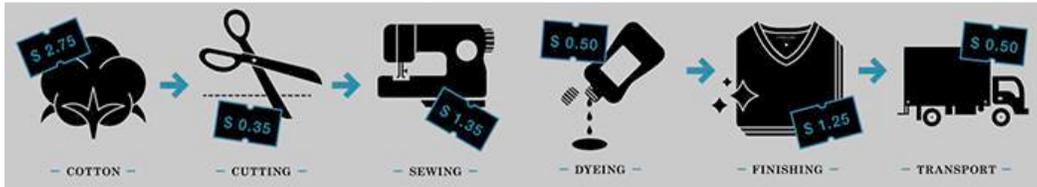


(A) Gender-matched screenshots



(B) Operational transparency

³ A few of these measures assessed trust in the firm. We found that cost transparency significantly increased trust. However, because these measures of trust were exploratory, part of a battery of many other exploratory measures, we do not emphasize the trust findings here (the significance levels rise above .05 when correcting for familywise error). Instead, we ran confirmatory experiments in which we: a) measure and show that trust mediates the effect of cost transparency on purchase interest and b) guided by previous research showing that for disclosure to increase trust, it must be perceived as voluntary, manipulated whether costs were disclosed voluntarily versus merely to comply with regulations.



(C) Cost transparency

Online Appendix Figure 3: Panel A depicts the simulated t-shirt website for all conditions (screens were matched to the gender of the participant). Participants either saw no additional infographic (control), the additional operational transparency infographic (Panel B; operational transparency condition), or the additional cost transparency infographic (Panel C).

Additional Measures

1. How likely would you be to purchase from this website in general, either this item or another?
2. What was the price of the product you saw?
3. How much do you think it cost to make this shirt?
4. How attractive do you find this product?
5. How reasonable is the price of this product?
6. My feelings toward this retailer can best be described as: (very unsatisfied - unsatisfied).
7. If it were made available to me, over the next year, my use of this retailer would be: (very infrequent - very frequent).
8. This item is well made.
9. This item is one that would make me feel good.
10. This item is a good product for the price.
11. This item would make a good impression on other people.
12. This item is too expensive.
13. This item has consistent quality.
14. This item would not last a long time.
15. This site appears more trustworthy than other sites I've visited.
16. The site represents a company or organization that will deliver on promises made.
17. My overall trust in this product website is: (very low - very high).
18. My overall believability of the information on this site is: (very low - very high).
19. This site represents a company that engages in ethical business practices.
20. This site represents a company that pays its workers a fair wage.

VOLUNTARY VERSUS REQUIRED TRANSPARENCY

This study tests an implication of our theoretical account: disclosure needs to be voluntary for cost transparency to increase purchase interest. To test this implication, in this study participants were shown a simulated retail website page for each of two different firms, the target firm and a competitor firm, each selling a comparable t-shirt. Participants were asked from which firm they would prefer to buy the t-shirt. We assessed participants' propensity to choose the target firm as a function of whether and why it had disclosed its costs, and whether and why the competing firm had disclosed its costs.

Specifically, in the required versus nontransparent condition, the target firm had disclosed its costs because regulation required it, whereas the competitor had made no such disclosure. In the voluntary versus nontransparent condition, the target firm had voluntarily disclosed its costs, whereas the competitor had made no such disclosure. We also included a third, voluntary versus required condition to

test whether the benefit of voluntary disclosure might be augmented in a context in which the competitor disclosed its costs due to a requirement.

We predicted that participants would prefer to buy from a firm that does *not* disclose its costs relative to one that does so due to a requirement. In other words, we thought participants would generally avoid purchasing from the target firm in the required versus nontransparent condition. Second, consistent with the preceding studies, we predicted that compared to a nontransparent firm, participants would prefer to buy from a firm that voluntarily discloses its costs. In other words, we thought participants would generally prefer to purchase from the target firm in the voluntary versus nontransparent condition. Finally, we predicted that the tendency to purchase from a firm that voluntarily discloses its costs would be augmented in a context in which the competing firm only does so due to a requirement. In other words, we thought participants would be even more likely to choose the target firm in the voluntary versus required condition relative to the voluntary versus nontransparent condition.

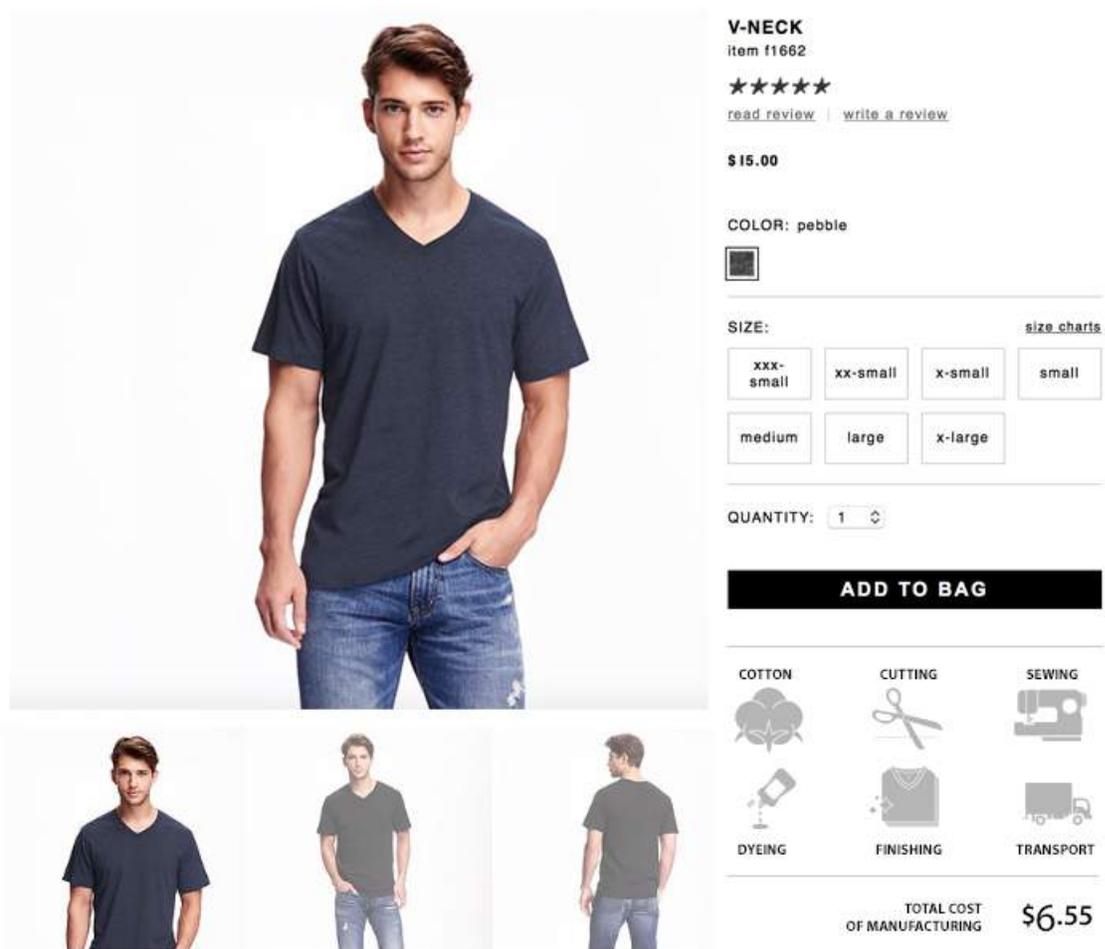
Method

Design and Procedure. Participants ($N = 617$, $M_{age} = 35.2$, 56% male) completed this experiment on Mturk for a small fixed payment. Participants first indicated their gender. Then, they were shown two similar simulated retail website pages for two different retailers, target Brand A and competitor Brand B, and told that the retailers operated in different countries but were selling a comparable t-shirt for \$15.

Between-subjects we varied whether and why Brand A had disclosed its costs, as well as whether and why Brand B had disclosed its costs (See Online Appendix Figure 4). Specifically, in the required versus nontransparent condition, Brand A's page featured an infographic indicating that the total cost of cotton, cutting, sewing, dyeing, finishing, and transport was \$6.70 and participants were told that "Due to regulations in the country this brand is based in, the company is forced to disclose its costs to customers. If regulation didn't require it, this company would choose to NOT disclose its costs to its customers." By contrast, Brand B's page contained no such information. In the voluntary versus nontransparent condition, Brand A's page featured voluntary transparency, which consisted of the same infographic as when it had been voluntary, but included a different rationale: "Due to the desire to be transparent to its customers, the company voluntarily discloses its costs to its customers." By contrast, Brand B's page contained no such information. Finally, in the voluntary versus involuntary condition, Brand A's page featured voluntary cost transparency, whereas Brand B's page featured required cost transparency.

Between-subjects we also counterbalanced the ascription of brands to target versus competitor brand status, which produced four parallel conditions: (target) Brand B voluntary versus (competitor) Brand A nontransparent; Brand B required versus Brand A nontransparent; Brand B voluntary versus Brand A required. The effects were invariant to counterbalancing; therefore, we collapse across this independent variable in the results.

Dependent Measures. Participants indicated from which firm they would prefer to buy the t-shirt by responding to the item: "Given the opportunity, from which firm would you purchase this t-shirt?" (Choices: Brand A and Brand B).



Online Appendix Figure 4: Example of the simulated t-shirt website (screens were matched to the gender of the participant) accompanied by disclosure of the total cost to produce the t-shirt (\$6.55). The cost transparency disclosure was identical regardless of whether the disclosure was framed as voluntary or involuntary.

Results

First, participants generally avoided buying from a firm that involuntarily discloses its costs compared to one that does not disclose its costs. Specifically, in the involuntary versus nontransparent condition, only 35% chose the target brand, which had involuntarily disclosed its costs ($\chi^2 = 17.89, p < 0.01$ against an indifference point of 50%). Second, participants generally preferred to buy from a firm that voluntarily discloses its costs compared to one that does not disclose its costs. Specifically, in the voluntary versus nontransparent condition, 63% chose the target brand, which had instated voluntary cost transparency ($\chi^2 = 13.12, p < 0.01$ against an indifference point of 50%). Finally, the preference to buy from a firm that voluntarily discloses its costs was heightened when compared to one that does so only because regulation requires it. Specifically, in the voluntary versus involuntary condition, 82% chose the target brand. This propensity to choose the voluntarily cost transparent brand is significantly higher than that in the voluntary versus nontransparent condition (i.e., 82% against 63%, $\chi^2 = 18.51, p < 0.01$).