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**Do Green Products Make Us Better People?**

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**Abstract**

Consumer choices reflect not only price and quality preferences but also social and moral values, as witnessed in the remarkable growth of the global market for organic and environmentally friendly products. Building on recent research on behavioral priming and moral regulation, we found that mere exposure to green products and the purchase of such products lead to markedly different behavioral consequences. In line with the halo associated with green consumerism, results showed that people act more altruistically after mere exposure to green products than after mere exposure to conventional products. However, people act less altruistically and are more likely to cheat and steal after purchasing green products than after purchasing conventional products. Together, our studies show that consumption is connected to social and ethical behaviors more broadly across domains than previously thought.

**Keywords**

moral regulation, consumption, decision making

In the past few decades, consumers have become increasingly attentive to social and ethical considerations in areas such as energy consumption, animal husbandry, and trade (Chen, 2001; Crane, 2001; Torjusen, Lieblein, Wandel, & Francis, 2001). This increased concern and feeling of responsibility for society has led to remarkable growth in the global market for environment-friendly products (Hunt & Dorfman, 2009). At the heart of this trend, which is often referred to as ethical consumerism or green consumption (Anderson & Cunningham, 1972; Kinnear, Taylor, & Ahmed, 1974), lies the assumption that purchasing choices express not only price and quality preferences (Monroe, 1976), but also norms, values, and beliefs (Caruana, 2007; Irwin & Baron, 2001). This assumption has motivated a stream of research focusing on identifying the “green consumer” by sociodemographic variables, personality measures, or values that are directly related to environmental consciousness (e.g., Schlegelmilch, Bohlen, & Diamantopoulos, 1996; Shrum, McCarty, & Lowrey, 1995).

What is not sufficiently understood is how green consumption fits into people's global sense of social responsibility and morality and affects behaviors outside the consumption domain. On the basis of recent theories in behavioral priming and moral regulation, we argue that mere exposure to green products and the purchase of such products will have markedly different effects on subsequent behaviors. Whereas mere exposure can activate concepts related to social responsibility and ethical conduct and induce corresponding behaviors, purchasing green products may produce the counterintuitive effect of licensing asocial and unethical behaviors by establishing moral credentials. Thus, green products do not necessarily make for better people.

### **Mere Exposure to Green Products**

A large literature on priming has reported that social behaviors can be primed by subtle environmental cues. For example, exposure to pictures of exclusive restaurants can improve

manners in a subsequent eating task (Aarts & Dijksterhuis, 2003). Similarly, priming “loyalty” through a benign verbal task can increase in-group favoritism and identification (Hertel & Kerr, 2001). These results are often interpreted as due to environmental cues activating associated norms and goals that solicit consistent behaviors. Recent research in the field of consumer behavior has demonstrated similar effects. Fitzsimons, Chartrand, and Fitzsimons (2008), for instance, showed that exposure to the Apple logo increased creativity. Given that green products are manifestations of high ethical standards and humanitarian considerations, we expected that mere exposure to green products would activate norms of social responsibility and ethical conduct and increase corresponding behaviors.

### **Purchase of Green Products**

Although previous studies tended to examine individuals’ moral reasoning and reactions to isolated events (e.g., Mazar, Amir, & Ariely, 2008), recent developments in moral psychology highlight the importance of a global sense of morality (e.g., Jordan, Mullen, & Murnighan, 2009; Zhong, Liljenquist, & Cain, 2009). These theories suggest that moral behaviors are figured into an implicit calculation of self-perception such that virtuous behaviors boost moral self-image and transgressions dampen it. The basic assumption is that people prefer to have a positive moral self but maintaining it often comes at a cost because social and ethical dilemmas usually involve conflicts of interest. Thus, people tend to be strongly motivated to engage in prosocial and ethical behaviors if their moral self is threatened by a recent transgression; they are least likely to scrutinize the moral implications of their behaviors and to regulate their behaviors right after their moral self has experienced a boost from a good deed. This implies that virtuous acts can license subsequent asocial and unethical behaviors.

Several studies have demonstrated this licensing effect. For example, Monin and Miller (2001) found that a previous gender-egalitarian act licensed subsequent gender-discriminatory behavior. Similarly, Sachdeva, Iliev, and Medin (2009) found that reminding people of their humanitarian traits reduced their charitable donations. Because purchasing green products affirms individuals' values of social responsibility and ethical consciousness, we predicted that purchasing green products would establish moral credentials, ironically licensing selfish and morally questionable behavior.

### **Overview of the Experiments**

We conducted three experiments to test our predictions. Experiment 1 established that people attach higher social and ethical values to green than to conventional consumerism. Experiment 2 demonstrated that mere exposure to green products and purchase of green products have opposing effects on altruistic behavior. Finally, Experiment 3 extended the licensing effect of purchasing green products to clear ethical violations: cheating and stealing money. Together, these studies suggest that consumption is more tightly connected to the social and moral self than previously thought.

### **Experiment 1: Impressions of Green Consumers**

Fifty-nine students (32 female, 27 male) from the University of Toronto volunteered for a 5-min survey. They were randomly assigned to rate either a person who purchases organic foods and environmentally friendly products or a person who purchases conventional foods and products. They used a 7-point scale (1 = *not at all*, 7 = *very*) to indicate how cooperative, altruistic, and ethical they thought such a person is.

As expected, participants rated a person who purchases green products more highly than a person who purchases conventional products. Specifically, a person who purchases green products was

rated as more cooperative ( $M = 4.75$ ,  $SD = 1.37$ , vs.  $M = 3.62$ ,  $SD = 1.76$ ),  $t(57) = 2.76$ ,  $p = .008$ ,  $p_{\text{rep}} = .956$ ; more altruistic ( $M = 5.07$ ,  $SD = 1.01$ , vs.  $M = 3.36$ ,  $SD = 1.23$ ),  $t(57) = 5.81$ ,  $p < .001$ ,  $p_{\text{rep}} > .986$ ; and more ethical ( $M = 5.55$ ,  $SD = 1.44$ , vs.  $M = 3.36$ ,  $SD = 1.70$ ),  $t(57) = 5.35$ ,  $p < .001$ ,  $p_{\text{rep}} > .986$ .

## **Experiment 2: Priming and Licensing**

Experiment 1 confirmed that people attach higher social and moral values to green than to conventional consumerism. This finding leads to two markedly different predictions: On the basis of research on behavioral priming, we predicted that mere exposure to green products would increase subsequent altruistic conduct; however, on the basis of recent theories on moral regulation, we predicted that purchasing green products would reduce subsequent altruism because it establishes moral credentials. Experiment 2 tested these predictions using a one-shot anonymous dictator game.

One hundred fifty-six students (95 female, 61 male) from the University of Toronto volunteered for an hour-long experiment in exchange for class credit. Participants were randomly assigned to one condition of a 2 (store: conventional vs. green)  $\times$  2 (action: mere exposure vs. purchase) between-participants design.

Upon arrival, participants were led to a cubicle equipped with a computer and informed that they were going to engage in a number of unrelated tasks. They were first assigned to one of two online stores that carried a mix of green and conventional products but differed in the ratio of these two types of products: The green store carried nine green and three conventional products; the conventional store carried nine conventional and three green products (see Fig. 1). The stores did not differ in number of products, product categories, or price. Participants in the mere-exposure condition were asked to rate each of the products on the aesthetics of the design and the

informativeness of the description. Participants in the purchase condition were invited to select products that they would like to purchase. They were told that they could fill their baskets (maximum of one item per product) with up to \$25 worth of items and that 1 out of 25 students would be randomly chosen to actually receive the products in his or her basket.<sup>1</sup>

**Little Things Store**

**Announcements**













None at this time

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**Shopping Basket**

The table in the middle of this page is your shopping basket. Increase the quantity by clicking on the "+" sign. Decrease the quantity by clicking on the "-" sign. You can buy only 1 of each item.

Click on a product name to see a picture and get more details.

	Price	Quantity	Subtotal
 Seventh Generation - Liquid Laundry Detergent	\$8	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Tide - Liquid Laundry Detergent	\$8	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Energizer - Rechargeable Batteries	\$5	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Avalon Organics - Shampoo	\$5	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Stonyfield Farm - Organic Yogurt	\$5	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Speed Stick - Deodorant Stick	\$4	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Tom's of Maine - Natural Deodorant Stick	\$4	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 NOMA - Compact Fluorescent Light Bulb	\$4	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Back to Nature - Macaroni and Cheese Dinner	\$4	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Organic Kettle Chips	\$3	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Bounty - Kitchen Paper Towels	\$2	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Seventh Generation - Kitchen Paper Towels	\$2	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
<b>TOTAL</b>			<b>\$0</b>

**Check-Out**

When you are done shopping, press the "Check-Out" button below.

Remember your TOTAL basket value cannot be over \$25.

If you don't want to buy anything, please check-out with an empty basket.

[Continue](#)

**Little Things Store**

**Announcements**













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 Tide - Liquid Laundry Detergent	\$8	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Energizer - Disposable Batteries	\$5	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Pantene Pro-V - Shampoo	\$5	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Danone - Danissimo Yogurt/Energizer -	\$5	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Speed Stick - Deodorant Stick	\$4	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Tom's of Maine - Natural Deodorant Stick	\$4	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Duralflex - Incandescent Light Bulb	\$4	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Kraft - Macaroni and Cheese Dinner	\$4	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Pringles Chips	\$3	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Bounty - Kitchen Paper Towels	\$2	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
 Seventh Generation - Kitchen Paper Towels	\$2	0 <input type="button" value="+"/> <input type="button" value="-"/>	\$0
<b>TOTAL</b>			<b>\$0</b>

**Check-Out**

When you are done shopping, press the "Check-Out" button below.

Remember your TOTAL basket value cannot be over \$25.

If you don't want to buy anything, please check-out with an empty basket.

[Continue](#)

**Figure 1: Screen shots of (a) the green store and (b) the conventional store used in Experiments 2 and 3.**

Participants then engaged in an ostensibly unrelated “interpersonal interaction” task in which they were led to believe that they had been randomly paired with another person in a different room; in actuality, there was no such person. Participants were assured that their identity would be kept confidential. The experimenter explained the rules of an anonymous dictator game in which an initiator has money (\$6) to allocate between him- or herself and a recipient. The initiator keeps whatever money he or she does not offer; the recipient can choose to accept or reject the offer, but this choice affects only the recipient's own payoff. Participants were told that they had been randomly assigned to the initiator's role (even though they all played that role) and were assured that they would walk away with any amount of money they kept for themselves. Neither store type (conventional vs. green) nor action (mere exposure vs. purchase) had a significant main effect on the amount of money offered,  $F(1, 152) = 0.06, p = .806, p_{rep} = .271$ , and  $F(1, 152) = 0.27, p = .603, p_{rep} = .427$ , respectively. However, there was a significant interaction,  $F(1, 152) = 4.45, p = .037, p_{rep} = .897$ . Participants who were merely exposed to the green store shared more money ( $M = \$2.12, SD = \$1.40$ ) than those who were merely exposed to the conventional store ( $M = \$1.59, SD = \$1.29$ ),  $F(1, 152) = 2.85, p = .094, p_{rep} = .824$ . This pattern reversed in the purchasing conditions: Participants who had purchased in the green store shared less money ( $M = \$1.76, SD = \$1.40$ ) than those who had purchased in the conventional store ( $M = \$2.18, SD = \$1.54$ ),  $F(1, 152) = 1.69, p = .195, p_{rep} = .728$ .

The significant interaction supported our predictions. Green products embody social considerations, so that mere exposure to them increases subsequent prosocial behavior. However, acting upon one's values establishes moral credentials that can subsequently license deviating

behavior. Given the growth of the green-product market and the interconnectedness of people's everyday behavior, it is important to determine the limits of such a licensing effect. Experiment 2 showed a decrease in altruistic behavior, which can be undesirable from a welfare perspective, but is not necessarily immoral. Next, we tested whether purchasing green products can establish enough moral capital to encourage clear transgressions, such as lying and stealing.

### **Experiment 3: Licensing Lying and Stealing**

Ninety undergraduate students (56 female, 34 male) from the University of Toronto volunteered for this experiment in exchange for \$5 Canadian. Participants were randomly assigned to one of two stores (conventional vs. green). Upon arrival, each participant was seated at a desk equipped with a computer and one envelope containing \$5 in various denominations. Participants were informed that they were going to engage in a number of unrelated tasks.

In the first task, they were randomly assigned to make purchases in either the conventional or the green-product store, as in Experiment 2. Afterward, they engaged in an ostensibly unrelated visual perception task in which a box divided by a diagonal line was displayed on the computer screen (Mazar & Ariely, 2009). Participants were told that on each trial they would see a pattern of 20 dots scattered inside the box. The pattern would stay on the screen for 1 s, and the task was to press a key to indicate whether there were more dots on the left or right side of the diagonal line. Participants were paid 0.5¢ for each trial on which they indicated there were more dots on the left and 5¢ for each trial on which they indicated there were more dots on the right. The dots were always arranged such that one side clearly had more dots than the other side (15 vs. 5, 14 vs. 6, 13 vs. 7); thus, it was fairly easy to identify the correct answer. We emphasized that it was important to be as accurate as possible because the results would be used in designing future experiments.

Before the actual task, participants were given a 30-trial practice round (without pay) in which they could see their cumulative hypothetical earnings at the top of the screen, updated after each trial. The purpose of this practice round was for participants to experience that their pay would be based on the key presses, regardless of whether or not the answers were correct. Thus, once real pay was involved, there would be a clear dilemma between reporting the correct answer and lying to earn more money.

The round with real pay consisted of 90 trials. On 40% of the trials, there were more dots on the right than on the left side (36 trials). Consequently, if participants were 100% accurate, they could make \$2.07 in a task that lasted about 5 min. At the end of the 90th trial, participants saw a summary screen that showed the total amount of money they had earned and instructed them to pay themselves by taking out the corresponding amount from the provided envelope. Thus, in addition to having the opportunity to lie, participants could steal to increase their payoff.<sup>2</sup>

We found a significant difference between conditions in performance on the dots task,  $t(79) = 2.26$ ,  $p = .027$ ,  $p_{\text{rep}} = .913$ . Participants who had purchased in the conventional store identified 42.5% ( $SD = 2.9\%$ ) of trials as having more dots on the right side; this percentage was not significantly different from the actual percentage (i.e., 40%),  $t(37) = 1.66$ ,  $p = .106$ ,  $p_{\text{rep}} = .811$ . Participants who had purchased in the green store, however, identified 51.4% ( $SD = 2.67\%$ ) of trials as having more dots on the right side—which suggests that they were lying to earn more money. Participants in the green-store condition earned on average \$0.36 more than those in the conventional-store condition.

As noted, independently of deciding to lie, participants could steal by taking more money from the envelope than shown on the summary screen. Results for this measure were consistent with those for task performance: Participants in the green-store condition stole \$0.48 more from the

envelope than those in the conventional-store condition ( $M = \$0.56$ ,  $SD = \$0.13$ , vs.  $M = \$0.08$ ,  $SD = \$0.14$ ),  $t(79) = 2.55$ ,  $p = .013$ ,  $p_{\text{rep}} = .942$ . Altogether, participants in the green-store condition left the experiment with on average  $\$0.83$  ( $SD = \$0.23$ ) more in their pockets than did participants in the conventional-store condition,  $t(70) = 3.55$ ,  $p < .001$ ,  $p_{\text{rep}} > .986$ .

## **General Discussion**

People do not make decisions in a vacuum; their decisions are embedded in a history of behaviors. In three studies, we considered prosocial and ethical decision making in the context of past consumer behaviors and demonstrated that the halo associated with green consumerism has to be taken with reservations. Although mere exposure to green products can have a positive societal effect by inducing prosocial and ethical acts, purchasing green products may license indulgence in self-interested and unethical behaviors.

Our findings extend previous research on priming and licensing in two important ways. First, we explored the relationship between priming, as mere exposure, and other more deliberative cognitive processes (Bargh, 2006). In the specific case of green products, people can be primed on many occasions in their everyday lives, for example, while watching a green-product advertisement on television, walking by an organic store, or actually purchasing green products. Do all of these encounters have the same effect? By explicitly contrasting mere exposure with purchasing, we explored the complex interaction between two possible processes (priming and licensing). Our findings suggest that not all exposures have the same priming effect and that other processes (i.e., licensing) can negate or even replace the priming effect.

Second, in previous research, moral credentials and the behaviors they licensed were typically in the same domain (e.g., gender-egalitarian acts licensed gender-discriminatory behaviors in Monin & Miller, 2001; reminders of humanitarian traits reduced charitable donations in

Sachdeva et al., 2009). We examined the licensing effect across seemingly unrelated domains (i.e., purchasing, altruism, and honesty). Together, our studies suggest that prosocial and ethical acts may contribute to a more general sense of moral self than previously thought, licensing socially undesirable behaviors in distant domains.

### **Declaration of Conflicting Interests**

The authors declared that they had no conflicts of interests with respect to their authorship and/or the publication of this article.

### **Funding**

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### **Notes**

1. Participants received only the products they purchased even if they did not spend all of the \$25.
2. Nine participants failed to pay themselves. They were excluded from analyses.

### **References**

- Aarts, H., & Dijksterhuis, A. (2003). The silence of the library: Environmental control over social behavior. *Journal of Personality and Social Psychology, 84*, 18–28.
- Anderson, W.T., & Cunningham, W.H. (1972). The socially conscious consumer. *The Journal of Marketing, 36*(3), 23–31.
- Bargh, J.A. (2006). What have we been priming all these years? On the development, mechanisms, and ecology of nonconscious social behavior. *European Journal of Social Psychology, 36*, 147–168.

- Caruana, R. (2007). A sociological perspective of consumption morality. *Journal of Consumer Behaviour*, 6, 287–304.
- Chen, C. (2001). Design for the environment: A quality-based model for green product development. *Management Science*, 47, 250–263.
- Crane, A. (2001). Unpacking the ethical product. *Journal of Business Ethics*, 30, 361–373.
- Fitzsimons, G.M., Chartrand, T.L., & Fitzsimons, G.J. (2008). Automatic effects of brand exposure on motivated behavior: How Apple makes you "think different." *Journal of Consumer Research*, 35, 21–35.
- Hertel, G., & Kerr, N.L. (2001). Priming in-group favoritism: The impact of normative scripts in the minimal group paradigm. *Journal of Experimental Social Psychology*, 37, 316–324.
- Hunt, N., & Dorfman, B. (2009, January 28). How green is my wallet? Organic food growth slows. *Reuters*. Retrieved February 20, 2009, from <http://www.reuters.com>
- Irwin, J.R., & Baron, J. (2001). Response mode effects and moral values. *Organizational Behavior and Human Decision Processes*, 84, 177–197.
- Jordan, J., Mullen, E., & Murnighan, J.K. (2009). *On the pendulum of moral action: Contrasting effects of own and others' past moral behavior on future moral behavior*. Manuscript submitted for publication.
- Kinnear, T.C., Taylor, J.R., & Ahmed, S.A. (1974). Ecologically concerned consumers: Who are they? *Journal of Marketing Research*, 38, 20–24.
- Mazar, N., Amir, O., & Ariely, D. (2008). The dishonesty of honest people: A theory of self-concept maintenance. *Journal of Marketing Research*, 45, 633–644.

- Mazar, N., & Ariely, D. (2009). *"What the hell": Continuous temptations and escalation of dishonesty*. Unpublished manuscript, Rotman School of Management, University of Toronto, Toronto, Ontario, Canada.
- Monin, B., & Miller, D.T. (2001). Moral credentials and the expression of prejudice. *Journal of Personality and Social Psychology*, *81*, 33–43.
- Monroe, K.B. (1976). The influence of price differences and brand familiarity on brand preferences. *Journal of Consumer Research*, *3*(1), 42–49.
- Sachdeva, S., Iliev, R., & Medin, D.L. (2009). Sinning saints and saintly sinners: The paradox of moral self-regulation. *Psychological Science*, *20*, 523–528.
- Schlegelmilch, B.B., Bohlen, G.M., & Diamantopoulos, A. (1996). The link between green purchasing decisions and measures of environmental consciousness. *European Journal of Marketing*, *30*(5), 35–55.
- Shrum, L.J., McCarty, J.A., & Lowrey, T.M. (1995). Buyer characteristics of the green consumer and their implications for advertising. *Journal of Advertising*, *24*(2), 71–82.
- Torjusen, H., Lieblein, G., Wandel, M., & Francis, C.A. (2001). Food system orientation and quality perception among consumers and producers of organic food in Hedmark County, Norway. *Food Quality and Preference*, *12*, 207–216.
- Zhong, C.-B., Liljenquist, K.A., & Cain, D.M. (2009). Moral self-regulation: Licensing & compensation. In D. De Cremer (Ed.), *Psychological perspectives on ethical behavior and decision making* (pp. 75–89). Charlotte, NC: Information Age.