When consumers penalize not so green products

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Abstract

To cash in on consumers’ willingness to pay higher prices for green products, several companies are promoting conventional products as green by highlighting a few green attributes. Through a theoretical lens, the authors investigate how consumers perceive such attempts. This research illustrates that not so green products make consumers sensitive to the monetary sacrifice associated with the purchase of such products. The current research shows that consumers have a negative attitude toward such products and they become concerned about the ethicality of the company when they encounter such products. Both implicit and explicit measures suggest that consumers notice the company’s motive behind such practices which, in turn, impacts their price perceptions.

Keywords

ethicality, green, greenwashed, price perceptions

1 | INTRODUCTION

Marketers often price a green product higher than a conventional product because of consumers’ willingness to pay a premium price for such products (e.g., Trudel & Cotte, 2009; Xu, Zeng, Fong, Lone, & Liu, 2012). For example, a European Commission (2013) study found that 77% of the participants were willing to pay more for green products. In the current research, a pilot study was conducted to examine this possibility. A small sample of participants (n = 21) were asked about their willingness to pay for green alternatives for three familiar products—tote bag, water bottle, and flash drive. On an average, participants were willing to pay higher (27–282%) for green alternatives.

To benefit from consumers’ willingness to pay more, some companies are joining the bandwagon by promoting conventional products as green merely by adding a few green attributes to an otherwise conventional product (The Economist, 2015). Given that considerable investment is required into creating products that are truly green, many companies have resorted to promoting conventional products as green by adding one or more green attributes to these products. Such a practice of communicating “greenness” by highlighting one or few green attributes has been termed as “greenwashing” (Shapely, 2009). There is widespread prevalence of this practice in industries ranging from soft drinks to electronics. Examples include some of the most trusted brands. Coca-Cola promoted Coca-Cola Life in green cans while replacing some of the sugar in its formulation with stevia (a plant-based ingredient) but without altering other ingredients. The fact that such greenwashed or not so green products are ubiquitous and growing becomes evident as one browses the shelves and Web sites of major retailers. Aquafina sells water in “ECO-FINA Bottle®,” which is a conventional plastic bottle made with 50% less plastic; Dasani water is sold in “Plant Bottle®,” which is again chemical laden plastic bottle made with 30% plant-based ingredients; Herbal Essences shampoo is promoted as “crafted with bio-renew” by adding an ingredient, histidine, that is derived from corn sugar but without ridding it of other chemicals found in conventional shampoos; and Huggies “pure and natural” diapers are purported as being made from organic cotton, but only their outer shells are cotton, with the inside surfaces that contact babies skin still being similar to conventional diapers. Similarly, in online retail—Fun II eco friendly journal notebooks are similar to conventional notebooks in all respects, but are promoted by highlighting that the notebooks are printed with soy ink; Rongta eco friendly receipt printers highlight a single eco-friendly attribute, that is, thermal printing technology when all other attributes are still like conventional printers.

Delmas and Burbano (2011) observe that such a practice of high-lighting on one or few green attributes (Shapley, 2009) is not only widely prevalent, but also growing. Even though more companies are trying to exploit consumers’ higher willingness to pay for green products by offering not so green or greenwashed products, academic research on this phenomenon is lacking. Empirical studies have so far not investigated how consumers perceive attempts to charge premium prices for such products. Little is known about how consumers perceive attempts to charge price premiums for products with only a few green attributes that are otherwise promoted as green, that is, greenwashed. The question of significance to such a practice is whether consumers are willing to pay price premiums for such products. This research focuses on how consumers perceive price premiums of green and greenwashed products differently under two...
different levels of motivation. It is proposed that when evaluating a greenwashed product, consumers are likely to engage in a systematic processing of the product’s price information even when they lack the motivation to process information. Such deliberate processing makes consumers sensitive to the monetary sacrifice associated with purchasing the product. The underlying mechanism that explains such differential evaluations is also tested. In Study 1, the authors show that consumers have a higher willingness to pay for green products but not for greenwashed products. In Study 2, the authors illustrate that greenwashed products trigger the use of price to assess monetary sacrifice which, in turn, impacts consumers’ willingness to purchase the product. In Study 3a, an Implicit Association Task (IAT) is used to show that consumers implicitly associate greenwashing practices with unethicality. Finally, in Study 3b, the mediating role of ethicality in the use of price as a signal of monetary sacrifice is empirically validated.

2 | CONCEPTUAL BACKGROUND

Past research has shown that consumers often use the green attributes of a product as a cue to infer a product’s quality (Trudel & Cotte, 2009). Newman, Gorlin, and Dhar (2014), however, found that consumers’ willingness to buy a green product decreases when they perceive that the manufacturer added green attributes to an environment-friendly product but, in doing so, compromised the quality of the product. Such effects manifest when consumers value strength-related attributes (vs. gentleness-related attributes), leading to a lower preference for green products (Luchs, Naylor, Irwin, & Raghu Nathan, 2010). These findings suggest that consumers are likely to scrutinize a product’s attributes to differentiate between a green product and its conventional alternatives. Similar scrutiny of green attributes was observed by Gershoff and Frels (2015). These authors show that consumers perceive green attributes to be important when assessing the greenness of the product. Hence, while companies may promote products with only a handful of attributes as green (i.e., greenwashed products), consumers are likely to scrutinize the product’s attributes to assess the greenness of such not so green products.

2.1 | Product attributes and greenness

The attribute set of a product is generally evaluated in conjunction with its price when making a purchase decision. Whereas green attributes might be intrinsic to the product, price is an extrinsic cue that consumers use to make value judgments (Kirmani & Rao, 2000; Rao, 2005). Price, however, plays a dual role. Price is used by consumers to infer the quality of a product. The same price is also used to assess the monetary sacrifice made when purchasing the product (Suri & Monroe, 2003; Völckner, 2008). Further, the weights placed on the use of price in these roles depend on the nature of processing. A systematic processing of product attributes will increase the focus on price to assess monetary sacrifice, while heuristic processing will shift the focus away from monetary sacrifice. However, these differences in processing are contingent on the motivation to pay attention to product attributes. The cognitive miser logic explains why heuristic processing is favored when motivation to process information is lacking (Maheswaran & Chaiken, 1991). Processing effort is costly and therefore, people refrain from extensive processing of information when decisions can be made by relying on heuristics (Chaiken, 1980; 1987). Therefore, systematic processing of information requires sufficient motivation. When motivated to process information, consumers will scrutinize the product attributes and the high price of both green and greenwashed products will be perceived as high in monetary sacrifice:

H1: When consumers are motivated to process information, both green and greenwashed products will be perceived high in monetary sacrifice.

2.2 | Discrepancy in greenwashed products

While it is argued that sufficient motivation is a pre-requisite to systematic processing, there are exceptions. Maheswaran and Chaiken (1991) show that systematic processing may occur under conditions of low motivation. They demonstrate that otherwise less motivated participants engage in systematic processing of information when an initial claim about a product is inconsistent with a more detailed description of the product. They attribute the deliberate processing to the discrepancy between the promotional claim and the description of the product.

More recent findings suggest that consumers also evaluate green products more systematically even when conditions suggest a less motivated processing. Thøgersen, Jørgensen, and Sandager (2012) find that consumers engage in more systematic decision making when evaluating everyday green products compared to everyday conventional products. Using a low involvement product such as milk in a routine shopping context, these authors demonstrate that consumers spend significantly more time to acquire product-related information and to choose a green alternative. These findings suggest that motivation may not be the only variable guiding the style of information processing. Arguably, products with a few green attributes, promoted as green, may lend themselves to scrutiny even when motivation to process information is low because (1) such products are promoted as green alternatives to conventional products and (2) the apparent inconsistency between a few green attributes and the high price of such products.

The consequences of such deliberate processing of product attributes have also been examined. Miyazaki, Grewal, and Goodstein (2005) demonstrate that when an extrinsic cue such as high price is inconsistent with its intrinsic cues (i.e., a few green attributes in not so green products), consumers tend to pay more attention to the negative cue, which may lead to a less favorable evaluation of the product. For greenwashed products, the inconsistency arising from a few green attributes alongside a high price will be sufficient to encourage consumers to scrutinize the product information even when they might be less motivated to process such information. On scrutiny, consumers may realize that even though the product is being promoted as green, it has only a few green attributes. This leads them to perceive that the company is misleading them by attempting to charge a high price for an
otherwise conventional product, ultimately resulting in concerns about the motives of the company (Jones, 1991). Such ethical concerns arising from the incongruence between a few green attributes and a high price will prompt consumers to follow a systematic decision-making process even when there is less motivation to process information (Tan, 2002). Such scrutiny will lead consumers to use price more to assess monetary sacrifice involved in purchasing the greenwashed product. On the other hand, when consumers evaluate a product with all green attributes, no discrepancy surfaces and consumers will use price less to assess monetary sacrifice. Hence:

H2: When consumers are less motivated to process information, in comparison to a green product, a greenwashed product will be perceived high in monetary sacrifice.

Literature suggests that systematic processing of information occurs in conditions where consumers are unable to reach a judgment with confidence by relying only on heuristic processing (Chaiken, 1987). The authors concur with this view and argue that the discrepancy creates a context where heuristic processing does not enable consumers to evaluate a greenwashed product. Ethical concerns arising from a perceived attempt to sell an otherwise conventional product at a high price will lead consumers to scrutinize its price to infer a high monetary sacrifice associated with its purchase.

3 | OVERVIEW OF THE STUDIES

The authors conducted four studies to assess support for the predictions and to examine the underlying role of ethicality when consumers evaluate greenwashed products. Study 1 tests the effect of greenness on willingness to pay for green and greenwashed products. Study 2 tests the predictions (H1 and H2) by examining how an environment friendly product presented with either all green attributes or only one green attribute was perceived by participants with different processing goals (low vs. high motivation). Both products were advertised as green products. Study 3a employs an IAT to show how individuals automatically associate greenwashing with unethicality. Finally, Study 3b offers evidence for the mediating role of ethicality in product evaluations.

4 | STUDY 1: ARE CONSUMERS WILLING TO PAY MORE FOR GREENWASHED PRODUCTS?

4.1 | Stimuli and procedure

One hundred eleven participants (46.6% female, M_{age} = 36.81 years) recruited from Amazon’s Mechanical Turk were randomly assigned to a single factor between subject design with two conditions of greenness (green vs. greenwashed). All participants were told that the purpose of the study was to elicit their opinions about new green products that a renowned retailer was introducing in local markets. Next, they were presented with an article informing participants of green products using the format and structure of popular publications like The Washington Post (see Appendix A). Participants were then assigned to one of the two conditions of greenness in which they evaluated three focal green products presented in a random order—mattress, detergent, and fry pan.

Before evaluating a focal product, participants were presented with a reference green product from that product category. The description of the reference product included a product image, price (mattress: $249.99, detergent: $14.99, fry pan: $21.99), product attributes, and its green rating that was kept the same for all reference green products (This product scored 95 out of 100 on a green scale by a well-respected Consumer Rating Magazine). After reviewing each reference product, participants were presented with the focal product that matched the category of the reference product. The greenness conditions were varied by the number of green attributes for the focal product. In the green condition, all four product attributes were green while in the greenwashed condition, only one of the four attributes was described as green (see Appendix B). Participants indicated perceived greenness for the focal product (“Compared to the (mattress, detergent, fry pan) shown earlier (which scored 95 out of 100), how would you rate this new (mattress, detergent, fry pan) on greenness?” 0 = not at all green, 100 = completely green) and their willingness to pay for the product.

4.2 | Results

Eight participants were excluded from the analysis due to a failure to follow instructions. There was a significant difference in perceptions of greenness for all three products between the green and greenwashed conditions. Products in the green condition (M_{mattress} = 82.92, SD = 19.28; M_{detergent} = 81.87, SD = 18.57; M_{fry-pan} = 78.50, SD = 21.12) were perceived greener compared to the same products in the greenwashed condition (M_{mattress} = 51.06, SD = 33.76, t(71) = 4.96, p < 0.001; M_{detergent} = 40.06, SD = 37.06, t(71) = 6.12, p < 0.001; M_{fry-pan} = 50.91, SD = 32.69, t(71) = 4.27, p < 0.001).

Willingness to pay was significantly higher for green products compared to greenwashed products (see Table 1 for cell means). Significant differences were observed in willingness to pay for all three products between the two conditions of greenness. For mattress, participants in the green condition were willing to pay higher for the green mattress than for the greenwashed mattress (t(71) = 4.20, p < 0.001). A similar pattern of results was observed for the other two products

(Detergent [t(71) = 4.01, p < 0.001]; Fry pan [t(71) = 2.83, p < 0.01]).

4.3 | Discussion

Results from this study demonstrate that genuinely green products indeed command price premiums but participants are unwilling to pay high prices for products that have only a few green attributes (greenwashed products). Arguably, consumers indicate a lower willingness to pay for greenwashed products because they focus more on the monetary sacrifice associated with such products. This prediction is tested in Study 2.
TABLE 1  Study 1: Willingness to pay ($) 

<table>
<thead>
<tr>
<th>Product</th>
<th>Green</th>
<th>Greenwashed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Mattress</td>
<td>256.54</td>
<td>52.57</td>
</tr>
<tr>
<td>Detergent</td>
<td>13.08</td>
<td>3.61</td>
</tr>
<tr>
<td>Fry pan</td>
<td>20.83</td>
<td>4.55</td>
</tr>
</tbody>
</table>

*p < 0.01; **p < 0.001.

5 | STUDY 2: DOES GREENWASHING IMPACT PERCEIVED MONETARY SACRIFICE?

5.1 | Method

5.1.1 | Pretest

All-in-one inkjet printer was selected as stimulus for this study. A pretest sample of undergraduate students (n = 18, 55 % female) ranked attributes of a printer in order of importance such as resolution (print, copy, and scan), print speed, duplex printing, connectivity, cartridge refills, ink cartridges, packaging, and materials used. Participants were also asked the acceptable price limits, the average price, and highest and lowest prices for a conventional all-in-one printer (Monroe, 2003). Based on this information, a promotion flyer was created for an all-in-one printer promoted as green (Printer name: Envyo, priced at $399.99) with either one (greenwashed) or all six (green) eco-friendly attributes.

5.1.2 | Stimuli and procedure

Sixty undergraduate students (58% female, M_age = 21.53) participated in the main study for extra credits. Participants were randomly assigned to one of the four conditions in a 2 (motivation: low, high) × 2 (greenness: green, greenwashed) between-subjects design.

To manipulate motivation, a vignette was created, which informed the participants that, “This survey is conducted by a nationally renowned firm. It is conducting a survey with a group of participants in distant markets (local city) about a product that it will soon begin marketing. Since you are part of a large (selected) group of respondents your opinions are relevant (highly relevant) and will be kept anonymous and averaged across all participants (will be weighed heavily in the decisions about the products).” In high motivation conditions (n = 30), participants were also told that completed surveys will be entered in a lottery with $50 cash prizes for three winners (e.g., Suri & Monroe, 2003).

Following this presentation, participants were provided with the description of the design and manufacturing approach of either a firm that engaged in green practices or a firm that engaged in greenwashing with respect to manufacturing the printer (see Appendix C). Participants in the green condition read that “the company created this printer from ‘ground up’ as an environmentally friendly product. All its components and replacement parts are designed and manufactured with extreme care for the environment,” whereas participants in the greenwashed condition read that “the company created this printer as an environmentally friendly product with a cutting-edge technology. All its components and replacement parts are designed and manufactured with the same quality as conventional models.” Participants were then asked to evaluate a promotion flyer describing the stimuli and indicate their perception of monetary sacrifice (dependent variable). In addition, participants also indicated their willingness to purchase the printer and preference for green products (covariate).

5.1.3 | Measures

Participants evaluated perceived monetary sacrifice (α = 0.90) associated with purchasing the printer ([1] “Advertised sale price is:” [2] “Sale price for this printer is:” [1] = very low, 9 = very high), and [3] “The printer is:” [1] = very cheap, 9 = very expensive] and also indicated their willingness to purchase the printer (‘0’ = definitely not purchase; ‘100’ = definitely purchase). Nine point scales were used to assess personal preference for green products: (I make special effort to buy products in bio-degradable packages, I would switch from usual brands and buy environmentally safe products even if I have to give up some effectiveness (Shrum, McCarty, & Lowrey, 1995). Attitudes toward communications of eco-friendly products (I generally feel a sentimental attachment to eco-friendly products, I get bored when other people talk to me about the eco-friendly products they own, I do not pay much attention to "green" advertisements in magazines—reverse coded [α = 0.81]) were also measured.

5.2 | Results

As expected, motivation to process information was significantly different between the two motivation conditions (M_high = 5.59 vs. M_low = 4.37; t(58) = 3.01, p < 0.01), but not between the two greenness conditions (t(117) = 0.49, p > 0.60). The greenwashed product was perceived to have fewer green attributes than the green product (M_greenwashed = 4.76 vs. M_green = 6.19; t(58) = 2.95, p < 0.01) and overall, participants perceived the printer’s price to be high (M = 7.10; one sample t-test against scale midpoint, t(59) = 36.91, p < 0.001).

5.2.1 | Perceptions of sacrifice and willingness to purchase

An ANCOVA using preference for green products as a covariate showed a significant motivation * greenness effect on perceived sacrifice (F(1, 55) = 4.75, p < 0.05) with no significant effects of the covariate. There were also main effects of motivation and greenness on perceived sacrifice (F(1, 55) = 5.22, p < 0.05). Participants in the high motivation conditions perceived no significant difference between the two printers on monetary sacrifice (M_green = 7.4, M_greenwashed = 7.1;
F(1, 27) = 0.40, p > 0.50). On the other hand, in low motivation conditions, the perceptions of sacrifice were higher for the greenwashed printer (M\text{green} = 5.8, M\text{greenwashed} = 7.0; F(1, 29) = 7.27, p < 0.05; see Figure 1). These results suggest that when motivation to process information was high, the high price of both printers was perceived high in monetary sacrifice. However, when the motivation to process information was low, the price of the greenwashed printer was perceived to be much higher compared to that of the green printer. This is in line with the predictions that perceptions of monetary sacrifice diverge in low motivation conditions (H1 and H2 supported).

Similarly, there was a significant main effect of greenness (F(1, 55) = 5.38, p < 0.05) and a motivation × greenness interaction effect (F(1, 55) = 5.09, p < 0.05) on willingness to purchase the printer. In low motivation conditions, willingness to purchase the green printer was significantly higher than that for the greenwashed printer (M\text{greenwashed} = 55.93, M\text{green} = 74.13; F (1, 29) = 12.94, p < 0.001). However, when motivation to process information was high, there were no effects of greenness on willingness to pay (M\text{greenwashed} = 61.86, M\text{green} = 61.40; F (1, 27) = 0.01, p > 0.90). In other words, when motivation to process information was high, purchase intentions were not significantly different for the greenwashed and green printers. On the contrary, a greenwashed printer was associated with a lower purchase intention in low motivation conditions (F(1, 29) = 3.78, p = 0.06).

5.3 | Discussion

These results suggest that under high motivation, both green and greenwashed printers are scrutinized. Hence, consumers use the high price of the printer to assess the monetary sacrifice involved in purchasing the printer. On the other hand, in low motivation conditions, the evaluations of green and greenwashed products diverged. Perceptions of monetary sacrifice associated with the price were higher for the greenwashed compared to the green printer. Hence, for the greenwashed printer, the price–monetary sacrifice relationship was salient irrespective of consumers’ motivation to process information.

Past research has shown that certain stimuli lead to an implicit (or automatic) activation of attitudes toward an object (Greenwald & Banaji, 1995). It is logical to argue that encountering a product with only a few green attributes that is promoted as a green product, triggers an automatic concern about the ethicality of the firm manufacturing the product. Such an automatic and implicit association of greenwashing with unethicality could explain the divergent evaluations of green and greenwashed products when consumers are otherwise less motivated. A heightened concern for ethicality may lead to a systematic processing of the price information, in turn, leading to the conclusion that the price is high in monetary sacrifice. Study 3a shows evidence for this possibility through an IAT.

6 | STUDY 3A: ARE GREENWASHED PRODUCTS UNETHICAL?

In this study, an Implicit Association Test (IAT), a tool used for demonstrating implicit associations between concepts, was employed (Greenwald, McGhee, & Schwartz, 1998). The IAT has been used extensively to elicit relationships that may not be otherwise discovered by explicit measures that are prone to biases (Brunel, Tietje, & Greenwald, 2004). This study was designed to demonstrate the implicit association of greenwashing (green) with unethicality (ethicality) of the firm. When consumers assess green (greenwashed) products, they may be motivated to explicitly express a positive (negative) relationship between
ethicability and green claims (Fisher, 1993; Griskevicius, Tybur, & Van den Bergh, 2010). The aim of this study was to illustrate that consumers automatically associate unethicality with a firm manufacturing greenwashed product. An implicit association between greenwashing and unethicality lends greater confidence to measure ethicability explicitly in Study 3b and test the mediating effect of ethicability on perceptions of monetary sacrifice.

6.1 | Method

6.1.1 | Stimuli
Following the established IAT procedure (Luchs et al., 2010), four categories of words were used: (1) words and phrases describing an ethical company/the practices of an ethical company (“cares about the environment,” “sustainable development,” “green company,” “socially responsible”); (2) words and phrases describing a less ethical, self-interested company (“profit at all costs,” “exploitative,” “selfish,” “self-centered”); (3) words and phrases associated with green products (e.g., “manufactured with no environmental harm,” “completely eco-friendly,” “healthy,” “completely recyclable,” “using biodegradable ingredients only”); and (4) words and phrases associated with greenwashed products (e.g., “limited protection of environment,” “somewhat healthy,” “somewhat ecologically aware,” “partly organic”).

6.1.2 | Participants and procedure
Forty-three undergraduate students participated in this study for extra course credit and responded to the instruments on computers running response time software. The task required classifying stimuli from the four categories as the words/phrases were shown in the middle of their computer screens with category labels displayed at the top of the screen. Consistent with procedure adopted by Greenwald et al. (1998), participants completed seven blocks of trials, five of which were practice blocks. Stimuli from all four categories (self-interested company words/phrases, ethical company words/phrases, green product words/phrases, and greenwashed product words/phrases) were presented for classification in blocks 3, 4, 6, and 7 for a total of 200 trials per participant across these four blocks. Block 4 was the hypothesis-inconsistent block. In this block, the category labels contrasted “Self-Interested Company or Green Product” versus “Ethical Company or Greenwashed Product.” Block 7 was the hypothesis-consistent block where the category labels included “Ethical Company or Green Product” and “Self-Interested Company or Greenwashed Product.” An implicit association between higher (lower) ethicability and green (greenwashing) should be reflected in faster response time (lower response latencies) in hypothesis consistent block than the hypothesis inconsistent block.

6.2 | Results and discussion
A final sample of 40 participants who satisfied all criteria was used for the revised IAT scoring algorithm (Greenwald, Nosek, & Banaji, 2003). Next, two difference scores reflecting the difference in response latencies between the blocks that were consistent with the hypothesis and those that were inconsistent were calculated. The difference score uses test blocks 7 and 4, and the second uses practice blocks 6 and 3 (see Table 2). Next step was to divide each difference score by the pooled standard deviation of response latencies for the associated blocks and average the quotients. The resultant measure is termed the “IAT D effect” (Greenwald et al., 2003).

Response times were significantly faster in the hypothesis-consistent blocks than those in the hypothesis-inconsistent blocks (F(1, 39) = 41.44, p < 0.001, D = 100). Mean response time when participants classified stimuli in the hypothesis-consistent categories (i.e., pairing words describing less ethical, self-interested companies with words about greenwashing) was 1295 milliseconds in block 7, compared with 1727 milliseconds in the hypothesis-inconsistent categories (i.e., pairing words describing ethical companies with words about greenwashing) in block 4.

These results are in line with the prediction that consumers implicitly associate lower ethicability with greenwashed products compared to green products. Given the existence of an automatic association of unethicality with greenwashed products, the next study was designed to investigate whether ethicability will mediate the effect of greenwashing on perceptions of monetary sacrifice observed in Study 2. Perceived monetary sacrifice was different between green and greenwashed products in the earlier study only when consumers’ motivation to process information was low. Hence, the low motivation condition became the focal condition to examine whether ethicability concerns mediate the evaluations of these products.

7 | STUDY 3B: DOES ETHICABILITY MEDIATE PERCEIVED MONETARY SACRIFICE?

Results from the IAT suggest that ethicability concerns arise automatically when consumers evaluate greenwashed products. This study measured ethicability under conditions of low motivation to validate the mediating role of ethicability in perceptions of monetary sacrifice.

7.1 | Method

7.1.1 | Stimuli and procedure
Fifty-nine participants (49% female, Mean age = 35 years) from Amazon’s Mechanical Turk sample were recruited to participate in this online study for a small monetary compensation. Participants were randomly assigned to one of the two conditions in a single factor (greenness: green vs. greenwashing) between-subjects design. The vignette from Study 2 was used to create a low motivation to process information condition. Participants were then provided with the printer descriptions adapted from Study 2 to manipulate the perceived greenness of the product (green vs. greenwashing).

Participants indicated their perceptions of monetary sacrifice (same as in Study 2), ethicability of manufacturer (“This printer manufacturer is more ethical than an average manufacturer” [1 = strongly disagree, 7 = strongly agree]), and the perceived eco-friendliness of the printer (“The eco-friendliness of the advertised printer was:” 0 = not eco-friendly at all, 100 = completely eco-friendly).
TABLE 2  Study 3A: Sequence of trial blocks for IAT

<table>
<thead>
<tr>
<th>Block</th>
<th>Number of Trials</th>
<th>Function</th>
<th>Items Assigned to Left-Key Response</th>
<th>Items Assigned to Right-Key Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>Practice</td>
<td>Green product</td>
<td>Greenwashed product</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>Practice</td>
<td>Self-interested company</td>
<td>Ethical company</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>Practice</td>
<td>Green product or self-interested company</td>
<td>Greenwashed product or ethical company</td>
</tr>
<tr>
<td>4</td>
<td>40</td>
<td>Hypothesis-inconsistent test block</td>
<td>Green product or self-interested company</td>
<td>Greenwashed product or ethical company</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>Practice</td>
<td>Greenwashed product</td>
<td>Green product</td>
</tr>
<tr>
<td>6</td>
<td>20</td>
<td>Practice</td>
<td>Greenwashed product or self-interested company</td>
<td>Green product or ethical company</td>
</tr>
<tr>
<td>7</td>
<td>40</td>
<td>Hypothesis-consistent test block</td>
<td>Greenwashed product or self-interested company</td>
<td>Green product or ethical company</td>
</tr>
</tbody>
</table>

The italicized text is for blocks of the IAT that were used in data analysis.

7.2 | Result and discussion

Four participants who did not follow instructions were excluded from the analysis and excluding them did not change the pattern of results. The printer in the green condition (M<sub>green</sub> = 90.52, SD = 12.88) was perceived eco-friendlier than that in greenwashed condition (M<sub>greenwashed</sub> = 67.09, SD = 26.97; F(1, 53) = 14.86, p < 0.01).

To assess whether ethicality mediated the effect of greenness on perceptions of sacrifice, a mediation analysis with 5000 bootstrapped samples was conducted (PROCESS, SPSS macro model 4; Hayes, 2013). Greenness was used as the independent variable, ethicality as the mediator, and perceptions of monetary sacrifice as the dependent variable. Greenness significantly predicted ethicality (β = 1.41; 95% CI = 0.63–2.20), and ethicality significantly predicted perceived sacrifice (β = −0.23; 95% CI = −0.45 to −0.02). As expected, ethicality mediated the relationship between level of greenness and perceptions of sacrifice (indirect effect = −0.33; 95% CI = −0.76 to −0.03). These results indicate that ethicality concerns arise when consumers process greenwashing claims and this increase in ethicality concerns translates into a perception of high monetary sacrifice.

8 | GENERAL DISCUSSION

8.1 | Theoretical contribution

This research examined how consumers use attributes in evaluating green products. Understanding the impact of number of green attributes in a product on the processing of the accompanying price information is important as it helps explain why consumers are often more likely to pay high prices for truly green products but not for those with only a few green attributes (greenwashed products). Evidence from four studies lends support to the conceptualization that consumers pay more attention to monetary sacrifice when evaluating greenwashed products.

Research suggests that systematic decision making requires cognitive effort that individuals are willing to expend only when they are motivated to process information (Street, Douglas, Geiger, & Martinko, 2001). Hence, one may argue that when consumers are not sufficiently motivated, they may not be able to tell greenwashed products from genuinely green products. In line with extant models of information processing, this research finds that when consumers are motivated to process information, price is used more to assess monetary sacrifice for both green and greenwashed products. However, a noteworthy exception to the motivation account of information processing is observed when consumers’ motivation to process information is low. Findings from this research suggest that a scrutiny of price information can occur even under low motivation conditions. The results show that under such conditions, the evaluations of green and greenwashed products diverge. For a genuinely green product, participants used its price less to assess monetary sacrifice. This association was observed in the pilot study and Study 1. Hence, genuinely green products are likely to command price premiums (Laroche, Bergeron, & Barbaro-Forleo, 2001). On the other hand, products with only a few green attributes when promoted as green (i.e., greenwashed products) lead consumers to scrutinize product-related information and use the price to assess monetary sacrifice (Suri & Monroe, 2003). Hence, not so green or greenwashed products seem to provide an exceptional context where deliberate scrutiny of price information occurs even when sufficient motivation might be lacking (Studies 1 and 2).

This research also sheds light on the underlying mechanisms that explain why systematic processing may be resorted to in conditions of low motivation. When an otherwise conventional product is promoted as green, the incongruence between its otherwise high price and only a few green attributes becomes salient. This heightens consumers’ concerns about the ethicality of the firm, leading them to scrutinize the monetary sacrifice associated with the purchase.

Past research suggests that consumers often feel that, in some categories, making the product green dilutes its performance (Luchs et al., 2010). Arguably, such concerns are likely to make consumers focus more on the monetary sacrifice involved in the purchase. Given the dual role of price as an indicator of quality and of monetary sacrifice, a higher assessment of monetary sacrifice logically indicates a lower weight placed on using price as a signal of quality (Suri & Monroe, 2003). This research used the relationship between monetary sacrifice and value that has been well established in the literature (Teas & Agarwal, 2000; Xia & Suri, 2014). A higher monetary sacrifice suggests a decreased perceived value of the product.

8.2 | Managerial implications

This research puts into perspective the attempt by companies to promote conventional products as green by adding a few green attributes.
Perhaps, such a practice exists because companies believe that consumers may not be able to discern between green and greenwashed products. This research concludes that demanding a premium price for a product with a few green attributes will invite scrutiny from consumers. Such scrutiny can occur even in conditions where sufficient motivation might be lacking. When read in conjunction with other findings (Thøgersen et al., 2012), the results from this research indicate that green products, by their very nature, will trigger consumers to examine product information thoroughly. Hence, it is necessary for marketing practitioners to be mindful of this and design truly green products.

Further, this research also demonstrates that endorsing the product with a few green attributes does not create a green perception for the product. Gershoff and Frels (2015) found that consumers categorize attributes of a green product. Using feature centrality and categorization frameworks, these authors show that green attributes that are central to the functioning of a product are perceived to contribute more to the perception of greenness. The current research qualifies their findings by demonstrating that one or a few central green attributes, even if they are key, do not contribute to the perceptions of the product being green. Consumers systematically evaluate the attributes and differentiate between comprehensively green products and their greenwashed counterparts. Adding few green attributes to an otherwise conventional product does not help product evaluations. Furthermore, concerns about ethicality of the company may extend beyond the negative evaluation of the greenwashed product. This needs to be investigated in future research.

In sum, this research may be the first to elicit how consumers use attributes of a product in conjunction with the price information to evaluate products promoted as green. Such products invite scrutiny from consumers. On scrutiny, when the product attributes fail to vindicate the green claim, consumers become ethically concerned about the company. When going green backfires: How firm intentions shape the evaluation of socially beneficial product enhancements. Journal of Consumer Research, 41(3), 823–839.

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APPENDIX A

Information presented in Study 1

By Washington Post, October 16

WASHINGTON—The green wave is here and every company seems to be keen to join the green bandwagon. With an increasing number of consumers insisting on buying products that are not harmful to the environment, companies have realized the need to offer green products. More green products are entering the market these days than ever in the past.

Across industries, companies are investing in development of products that can be promoted as environment friendly. As one skims through the shelves of major retailers, one finds a plethora of products that are green alternatives to conventional products. Some of these products are bottom up green in that they are made through fundamental changes in design and manufacturing. Such products are free from ingredients harmful to the environment. Some products are additionally made through manufacturing processes that are an improved to reduce the harmful impact on the environment.

With so many products being promoted as green, an average consumer does recognize the wave. With green alternatives being offered in every product category, the environment conscious consumer has several alternatives to traditional products. However, given the high costs of producing green products, one wonders if all of these products offered at a marginal premium over conventional products are genuinely green. Some of these products may well be traditional products with only a hint of green! While there is no shortage of green products in the market, not so green products have also made their way to the shelves. In such a situation, a savvy consumer should carefully evaluate a product before making her choice.
**APPENDIX B**

Advertisement text presented in Study 1

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Component</th>
<th>Level of Greenness</th>
<th>Greenwashing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fry pan</td>
<td>Headline</td>
<td>“Green Non-Stick Fry Pan”</td>
<td>“Green Non-Stick Fry Pan”</td>
</tr>
<tr>
<td></td>
<td>Attribute descriptions</td>
<td>(1) Coating is heat resistant up to 850°F and no harmful fumes, peeling, or flaking of the coating</td>
<td>(1) Coating is heat resistant up to 850°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Ceramic coating provides excellent nonstick cooking without the toxins</td>
<td>(2) Printed on synthetic materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) Made with nonstick technology; a material free from PFOA</td>
<td>(3) Made with nonstick technology; a material free from PFOA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) Printed on recycled materials</td>
<td>(4) Soft handles made of comfy, easy to grip, and stay cool silicone</td>
</tr>
<tr>
<td>Mattress</td>
<td>Headline</td>
<td>“Green Mattress”</td>
<td>“Green Mattress”</td>
</tr>
<tr>
<td></td>
<td>Attribute descriptions</td>
<td>(1) Made from 100% pure natural latex</td>
<td>(1) Dunlop latex foam with a synthetic cover</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Careful construction guarantees, no ozone depleters, and low emission for indoor air quality</td>
<td>(2) Our latex foam keeps your mattress cooler and more comfortable than regular memory foam</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) The natural properties of latex reduce motion transfer and provide an undisturbed night’s sleep</td>
<td>(3) The natural properties of latex reduce motion transfer and provide an undisturbed night’s sleep</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) Organic cotton surface provides soft and luxurious feeling</td>
<td>(4) Cotton surface provides soft and luxurious feeling</td>
</tr>
<tr>
<td>Laundry detergent</td>
<td>Headline</td>
<td>“Natural Laundry Detergent”</td>
<td>“Natural Laundry Detergent”</td>
</tr>
<tr>
<td></td>
<td>Attribute descriptions</td>
<td>(1) 100% biodegradable detergent to help the environment</td>
<td>(1) Our laundry detergent is highly concentrated and contains synthetic fragrances and ingredients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Our laundry detergent is highly concentrated and contains eco-friendly ingredients</td>
<td>(2) Our natural laundry detergent is ideal for those with skin allergies or sensitivities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) This laundry detergent has never been tested on animals</td>
<td>(3) Independently tested</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) Our natural detergent is ideal for those with skin allergies or sensitivities</td>
<td>(4) Active laundry detergent which eliminates odors completely</td>
</tr>
</tbody>
</table>

**APPENDIX C**

Description text for Study 2

**Descriptions of manufacturing firms**

**Greenwashed**

ENVYO is a leading manufacturer of printers and digital cameras that consistently tops Consumer Reports rankings. The company decided to develop new green products that are eco-friendly and technologically cutting-edge printers.

Its designers strive to provide consumers with ergonomically and technologically superior products that are also kind to the Earth. “Balancing quality and performance come first,” says a senior executive. Its senior management is always on the lookout for opportunities to make their products more cost effective, competitive, and profitable. Advances in technology and materials have enabled ENVYO to produce this eco-friendly printer that has the same level of quality as conventional models.

**Green**

ENVYO is a leading manufacturer of printers and digital cameras that consistently tops Consumer Reports rankings. The company decided to develop new green products that are eco-friendly and technologically cutting-edge printers. The company created this printer from “ground up” as an environmentally friendly printer. All its components and replacement parts are designed and manufactured with extreme care for the environment.

Its designers strive to provide consumers with ergonomically and technologically superior products that are also kind to the Earth. “Quality and performance come first,” says a senior executive. Its senior management is always on the lookout for opportunities to reduce environmental impacts. This eco-friendly printer is better for the environment because it contains no lead, mercury, cadmium, or other toxic substances. Advances in technology and materials have allowed this firm to produce this eco-friendly product from ground up.

**Descriptions of greenness attributes of a printer**

ENVYO all-in-one eco-friendly printer (sale price: $399.99)

GW = greenwashed, G = green

Speed (GW & G)

Print your 4” × 6” photos in as little as 45 seconds with this new eco-friendly printer. Its PC-free printing lets you print directly from PictBridge-enabled cameras without needing a computer.

Energy requirement

GW: Energy Star compliant.

G: Manufactured with renewable energy.

Manufacturing
GW: Produced using advanced technology.
G: Produced sustainably using renewable energy.

Ink cartridge
GW: Non-water solvent base inkjet ink cartridges are UV resistant.
G: Ink cartridge uses black tea dregs for print the black and white prints and chemical-free dyes from vegetables and minerals for color printing.

Printer body
GW: Compact, fairly attractive, and does not feel too junky in its construction, despite being all plastic.
G: 83% of printer body made from recycled water and soda bottles. Our "ecological plastic" emits less carbon dioxide over the course of its life than traditional alternatives.

Paper
GW: Includes 200 sheets of our 94 bright papers.
G: 200 sheets of our special paper made with 100% postconsumer waste (PCW), mixed with sugar cane, bamboo, hemp, and fruit plants including lemon, mango, banana, and coffee plants.

Additional features include: Prints up to 33 ppm* in black, up to 27 ppm* in color/copy resolution up to 1200 x 1200 dpi with Windows Vista and 19,200 x 19,200 dpi with scanner utility for clear, clean copies. / USB 2.0 connectivity; PC and Mac compatible/Flatbed scanner with 48-bit color and 8.5" x 11.7" scan area; scan resolution up to 1200 x 2400 dpi optical.