Aligning Consumers Around Low-Carbon Competitiveness

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This study identifies which affective and cognitive factors influence consumers’ behavioral change with regard to environmental decisions. It hypothesizes that eliciting incidental guilt is more effective in changing consumer behavior than eliciting incidental shame. Results suggest that consumers’ environmental decisions may be misattributed, and informed by an individual’s incidental emotional state.

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was randomly generated by the computer. In condition C, there was no mention of anchor origin included in the instructions, but the anchors were presented in red and participants had to re-type the value. In the final condition D, the anchor appeared as a comparative question, as in the traditional paradigm.

Each respondent made 6 judgments. Because each value generated in Condition A was a two digit number, the judgments were chosen such that the range of possible answers was naturally bounded between 0 and 100. Three of the questions asked for a percent estimate, and three of the questions asked for estimates where the only possible answers would be between 0 and 100. Specifically, the six items were:

1. Is the percentage of American adults who have a passport higher or lower than that number?
2. Is the number of U.S. senators who have law degrees higher or lower than that number?
3. Is the percentage of adults in the world who are Christian higher or lower than that number?
4. Last year, was the average interception return in the National Football League higher or lower than that number of yards?
5. Among all Major League Baseball players currently playing, is the percentage who are married higher or lower than that number?
6. During the last century in the U.S., is the number of years in which Michael was the most common name for baby boys higher or lower than that number?

To compare the strength of an anchor's influence on the estimates across conditions, we regressed numeric judgments against anchor values and measured the size of the coefficient. For the transparently random anchor condition A, there was a small but significant positive relationship between anchor and estimate; $b_A=.08$, SE=.03, $p<.01$. For conditions B and C the anchor interaction term also predicted the estimates in a positive direction, and the relationship is slightly steeper than in condition A, $1; b_B=.11$, SE =.05, $p<.01$, and $b_C=.13$, SE =.05, $p<.01$. Finally, condition D, which closely mirrors the traditional comparative anchoring paradigm, showed the strongest effect of anchor on the estimate, $b_D=.25$, SE =.05, $p<.01$. In a secondary analysis, we also observed an interaction between question type and anchoring effect. There was markedly less anchoring for items involving a percentage response than items involving a count, even though for both types all responses ranged from 0 to 99.

In sum the values ranged from a small (but significant) value of 0.08 in the “dollar bill” condition to 0.25 in the “standard” paradigm. Conditions B and C yielded similar results and the results were intermediate. These findings suggest that in the standard paradigm, inference plays a very substantial role in generating the anchoring effect, and increases the size of the effect threefold.

Key Results

- Condition A–Anchor is generated by participants and transparently irrelevant. Effect: $b=.08$
- Condition B–Instructions explain that anchors are “randomly generated”. Effect: $b=.11$
- Condition C–Anchor is presented in odd font/color and had to be retyped. Effect: $b=.13$
- Condition D–Anchor included in the comparative question. Effect: $b=.25$

All $p$’s $<.01$

Selected References


Aligning Consumers Around Low-carbon Competitiveness: Evidence from an Online Experiment

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Behavioral change in consumer demand is not only critical in determining the size of an individual’s carbon footprint, but also motivates business leaders to respond to increased climate-awareness among consumers by supplying lower carbon products. Thus, many public and non-profit organizations are concerned with creating credible and reliable messages that will help motivate consumers to change their consumption decision-making and to reduce their carbon footprint. This study addresses an important question of how
behavioral economics could encourage more environmentally sustainable consumer behavior. The goal of this study is to improve the ways in which government and non-profit organizations communicate consumption and climate-related information to consumers.

What are the factors that influence change in consumer behavior? First of all, a consumer’s need for more information in part confirms what the standard economic theory of the rational choice model predicts: consumers should have access to sufficient information to make optimal, informed decisions about available options (Bord et al. 2000; Viscusi & Zeckhauser, 2006; Fischer, 2008). However, providing more information to the public does not necessarily change the consumer’s environmentally significant behavior. Among the many reasons for the difficulty in behavioral change, including cognitive and motivated biases that distort how people process information, recent research found that emotions could powerfully influence individual processing of information and decision-making related to climate change (Leiserowitz, 2007).

Drawing on the recent theoretical and empirical developments in the study of emotions, this research project is designed to test whether incidental emotions such as guilt and shame can elicit different degrees of pro-environmental consumption behavior. Due to the difficulty in observing consumer behavioral change directly, it is important to identify dependent variables that are strong predictors of behavioral change in environmental decision-making: i) consumer’s willingness-to-pay (WTP) for more pro-environmental products, ii) consumer’s perceived self-efficacy, measured by their willingness to address the climate change problems, and to act on their intentions. Given the two dependent variables, it was hypothesized that consumers who know their own carbon footprint to be higher than the national average are more likely to show higher measures of pro-environmental consumption behavioral predictors. It was also hypothesized that eliciting guilt prior to calculating carbon footprint is more effective in changing consumer behavior than eliciting shame.

One hundred participants were recruited using the subject pool at the Harvard Decision Science Lab, which ensured a reasonably representative subject population. A general introduction informed the subjects about the experimental procedure. Participants were notified that they would be asked to answer two different surveys that are unrelated. The format of the two surveys differed in order to enhance the “unrelatedness” of the two surveys.

In the first survey, all participants were randomly assigned to one of three different emotion conditions of the survey (guilt, shame, and control). The first two groups of participants were asked to complete the emotion induction exercise, which consists of a directed-writing task designed to manipulate their emotions. This study replicated the guilt and shame elicitation method developed and administered by Shaver et al. (1987) and Tangney (1996: p. 1259). This exercise asked participants to “describe in detail the one situation that has made you feel the most [guilty/ashamed].” In order to help participants bring up memories of the emotional experience more vividly, additional prompts were given. Questions included “Why did it happen? Describe as much detail as you can what you were feeling and thinking. How did you respond? What did you say, if anything, and how did you say it? What are the physical signs of guilt you showed, if any?” Participants in the control group received a set of neutral questions asking them to describe their emotions that they feel at the moment. These incidental emotions were unrelated to the subsequent questions asked in the second part of the survey.

The second part of the survey included measurement of one’s own carbon footprint, using a link to a publicly available carbon footprint calculator. After reporting one’s own carbon footprint, participants were also asked to compare their carbon footprint with the U.S. average of national carbon emissions, and then to report whether their footprint was above, or below, average. After completing this task, participants were asked to report their WTP for environmentally friendly products in percentage terms, as well as their PSE. Calculating one’s own carbon footprint was designed to improve the external validity of this study by realistically measuring one’s culpability.

Results from this study demonstrate that the mean dependent variables (WTP and PSE) differed for consumers who had done three different writing tasks (guilt, shame, and control). That is, consumers who received guilt induction had statistically significantly higher ratings of both WTP and PSE measures, compared to those who received shame induction. Also, the differences in WTP and PSE between guilt and shame conditions were more pronounced in the low-carbon group than in the high-carbon group. It is also important to note that the level of carbon footprint could be a boundary condition for the influence of emotional states on environmental decisions; unlike what was hypothesized, high-carbon consumers were not particularly different in their decisions from low-carbon consumers.

References
Hiding Guilt

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Consider Jane who is shopping for a present for a friend’s birthday party that evening. She gets distracted and ends up shopping for a new pair of jeans for herself. She hears an announcement, that the store will close in 5 minutes, and that customers need to make their way to the check out. She buys her new jeans, but did buy a present. Jane feels guilty about this transgression. Will this affect Jane’s liking of her new jeans? This paper investigates whether feeling guilty affects the liking of the product that reminds people of a transgression. We propose that guilty people, compared to non-guilty people, will evaluate the jeans less favorably, but only if the jeans are visible after the transgression. Why? Because people believe that seeing the jeans will interfere with effective affect regulation efforts, therefore reducing their evaluation of the reminder. Our results provide the first insight into why people adopt covert coping behaviors, such as hiding the tainted product in the closet (Dahl, Honea, and Manchanda 2003).

Consumers engage in affect regulation to alleviate feelings of guilt, such as suppressing unwanted thoughts and feelings about the event (Tice and Bratslavsky 2000). Different strategies exist for this process (Gross 1998). The strategy chosen depends not only on the effectiveness of the tactic; but also on people’s metacognitive intuitions regarding the perceived effectiveness of the strategy (Loewenstein 2007). Therefore, having the object involved in the transgression subsequently in sight, may be perceived as interfering with this process, and result in a devaluation of the object.

Method

One hundred participants were randomly assigned to dyads. In the no-guilt condition, one member of each dyad was presented with a black pen and two green pens and asked to choose one and give another pen to the other dyad member. In the guilt-condition, the dyad member that was allowed to choose a pen was informed that participants with a green pen would have to stay 20 minutes longer than participants with a black pen. We expected participants to choose the black pen and to feel guilty. This is exactly what happened. Participants in the not guilty condition were not given a choice, nor were they aware of any differences in the timing of their condition. Participants were assigned to one of the four conditions of a 2 (guilt: guilt, no guilt) X 2 (pen visibility: visible, not visible) design. There were two different color pens: green and black. Participants were informed that if they chose the green pen, they would not have to do an extra task, but that the person next to them would have to stay for an extra 20 minutes. However, if they chose the black pen, they would have to stay instead. A manipulation check confirmed that participants in the guilty condition felt more guilty than those in the not guilty condition.

Following the guilt manipulation, participants were required to complete a second consumer choice task. During this task the pen was either removed, and participants completed the choices on a computer (not visible) or the pen was placed in a clear plastic pen holder beside the computer. Finally, participants evaluated the perceived cognitive difficulty of the consumer choice task, and evaluated the pen (0=very bad, 100=very good) as part of a general survey of the lab experience.

Results

Guilt Compliance Rate. Overall, 87% of participants in the guilt condition chose the ‘leave early’ pen. Therefore, the analysis comprised of 87 participants.

Pen Evaluation. A 2 (guilt: guilt, no guilt) X 2 (pen visibility: visible, not visible) ANOVA conducted on participants pen evaluation revealed a significant interaction (F(1, 83)=5.70, p<.02). Guilty participants rated the pen less favorably when the pen was in sight (M=66.96) compared to out of sight (M=81.74). In contrast, in the non-guilty participants, participants rated the pen more favorably when visible after the pen choice task (M=82.25), compared to when the pen was removed from sight (M=67.38).

Perceived Difficulty. A 2 (guilt: guilt, no guilt) X 2 (pen visibility: visible, not visible) ANOVA conducted on participants perceived difficulty revealed a significant interaction (F(1, 83)=3.70, p<.05). Guilty participants rated found the binary choice task more difficult when the pen was visible, compared to the not visible condition. The perceived difficulty suggests that guilty participants with a visible reminder were engaged in more effortful affect regulation, which is cognitively taxing (Richards and Gross 2000).

Discussion

We show that guilt may result in a less favorable evaluation of a reminder object when in sight. We propose that this occurs because guilty participants believe that a visible reminder interferes with attempts at affect regulation. Our current work examines whether the effect is driven by the pen in sight (interfering with affect regulation ‘haunting effect’) or the pen removed from sight (allowing for successful regulation). We did not include a subsequent measure of guilt in the present study. Alternatively, the reminder may merely support intuitive beliefs that thought suppression is an effective strategy for regulating guilt, regardless of whether there is an actual reduction in experienced guilt. If this is the case, we might expect a misattribution of anger to the reminder object due to perceptions of goal inhibition. Hence, we are also investigating how people monitor their progress when affectively regulating. To sum, our results suggest that hiding a guilt ridden reminder—a seemingly unusual reaction—may in fact be an adaptive strategy for guilt regulation.