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Eating dogfood: Examining the relative roles of reason and emotion☆

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ABSTRACT

Psychologists have described the working of the human brain as a combination of two systems – a dual process model. One system is intuitive and automatic (System 1) and the other is reflective and rational (System 2). To determine what insights this model has for stigma – such as fears of food contamination – we elicited the willingness-to-pay for two foods: a sandwich made of dog food and fat-free ice cream. We find critical evidence of a dual process decision making process in which the absence of cognitive load allows the participants to deliberate over the health benefits of either food. In addition, in the case of the sandwich, there is an emotional component in which the positive emotion of surprise can partially offset the negative emotion of disgust. This has notable implications for addressing food safety fears related to contamination as well as the food neophobia related to unfamiliar foods, processing, or preparation.

1. Introduction

Psychologists describe stigma as a negative characteristic that typically pervades and dominates an otherwise acceptable entity; a "spoiled identity" when applied to humans, although the basic idea can also be applied to goods and technology.[1] One of the distinguishing characteristics of stigma from the perspective of behavioral economics is the strong influence of emotion. Thus, the pioneering work in psychology on stigma by Rozin and colleagues focused on the emotions of disgust and fear as key underlying factors (see for example, Fallon et al., 1984; Rozin et al., 1985, 1986). These imaginative studies utilized a large number of stimuli ranging from juice contaminated by contact with a sterilized cockroach to Hitler's sweater in hypothetical experiments that employ a rating scale that ranged from "like extremely" (200 points) to "dislike extremely" (0 points). For example, dipping a sterilized cockroach into a glass of juice lowered the average rating of the juice by more than 100 points. Based on this research, Rozin (2001) has identified five properties of stigma. First, stigma is viewed as the result of direct contact. Second, stigma appears to be permanent (does not go away by itself). Third, stigma appears to be insensitive to dose. Fourth, the exact source of risk is usually unknown. Fifth, people tend to medicalize the risk.

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[1] The literature on stigma in the social sciences is vast: see, among others, Crocker et al. (1998), Fothergill (2003), Goffman (1963), Link and Phelan (2001, 2006), Loury (2003), and Moffitt (1983).

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Thus psychologists, such as Rozin and his colleagues, have argued that stigma is irreversible, often persistent, and cannot be forgotten (see also Fischhoff, 2001). However, it is also possible that stigma such as that resulting from cyanide poisoned Tylenol, mad cow disease, terrorist events such as a dirty bomb, or hazardous waste sites, can eventually be forgotten. If so, reminding people of the source of stigma could be the worst possible approach to eliminate what may be an over-response to the actual level of risk. A prior study of Superfund (hazardous waste) sites appears to confirm the latter view (Messer et al., 2006). This study examined sales of more than 30,000 homes over a 30-year period near three hazardous waste sites that had been stigmatized by qualifying for the USEPA Superfund Program. The authors found that nearby property values declined in response to media reports of bad news, but surprisingly, also in response to media reports of good news about progress in cleanup activity (i.e., "all news is bad news").

However, as often is the case in observational studies, it is difficult to infer causality from correlation. Hence, we decided to bring stigma to the laboratory, where we can exploit the power of randomization. Of course, the key problem in moving stigma into the laboratory is to find a stigmatized commodity that can be valued using a demand-revealing mechanism, but not one that is so stigmatized that no one will consume the commodity. In this study, gourmet dog food and non-fat ice cream were used as two such commodities to induce strong but not overpowering emotional responses. Because some pet owners are willing to pay a premium for human grade ingredients, perfectly safe and healthful canned chicken is available that is stigmatized simply by being labeled as dogfood. Thus, gourmet cooked canned chicken thighs for dogs were used in the study. Similarly, even though low fat ice cream is not stigmatized and has obvious health benefits, it engenders a "yuk" response from many who prefer the creamy flavor and texture of "real" ice cream.

In the case of the chicken dog food, the thighs were prepared by removing the skin, flaking and placing the pieces in a serving bowl so that the chicken could be used as any canned chicken would be for making sandwiches. As part of a "lunch experiment" the respondents were offered the opportunity to purchase or be compensated to eat a chicken sandwich with their choice of bread and accouterments in three stages where more information was given and values were obtained at each of three stages beginning with a "canned chicken sandwich," followed by stages where either ingredients (chicken meat, chicken broth, kosher, no preservatives, and Kosher for Passover) or brand information (Evanger Super Premium for Dogs Whole Chicken Thighs) was revealed. The order of the second and third stage information was reversed in a subset of the sessions. Note that only the brand information revealed that the chicken was dogfood. In a subset of sessions we put the participants under cognitive load by asking them to look up (and memorize) the calorie content of eight food items on Google search. As part of the lunch experiment, participants were also given the opportunity to purchase or be compensated for eating vanilla ice cream following a similar design where initially they were only told the flavor of the ice cream, and then the brand (Walmart Fat Free Vanilla Flavored Ice Cream) and the ingredients were revealed.

The results show that the order in which information is given matters. When the ingredient information preceded the brand information, the value of the sandwich as measured by the Becker, Degroot, Marschak (BDM) Mechanism (Becker et al., 1964) was lower compared the situation where the ingredient information followed the brand information, suggesting that it was not purely the informational content of the ingredient information that changed subjects' valuations. In addition, the knowledge of the ingredients (which are Kosher and arguably healthy) raised the value of the sandwich but only when deliberation could occur (i.e., when no cognitive load was present). Similarly, in the case of ice cream, the negative effect of brand information (i.e., that the ice cream is non-fat) was smaller in the situation when deliberation can occur.

We interpret these results as evidence of a dual process model underlying the decision making process.[2] The absence of cognitive load allows the participant to deliberate his/her decision more carefully and increases the strength of a rational (utility) component versus the emotional component of the decision making process. Providing nutritional information about the dogfood, as it appeals to the rational component of the decision making process, can therefore partially offset the emotional stigma effect in case of dogfood. In the case of ice cream, the expected utility calculation incorporates the health and weight control benefits of non-fat ice cream. In other words, that the expected utility calculation will raise the value of the ice cream when respondents have time to consider health benefits that may be ignored in the purely feelings/emotion based valuation. In addition, order matters: the positive emotion of surprise over the existence of Kosher dogfood raises the valuation, and offsets the negative emotion of fear/disgust to a considerable degree.

Section 2 applies a theoretical model as developed by Mukherjee (2010) and Loewenstein (2005, 2007) that incorporates emotion into a standard utility model to motivate the experiment. Details of the experimental design are presented in Section 3. Results are presented in Section 4 and conclusions in Section 5.

2. A model of stigma

2.1. Two systems

To understand stigma, emotion must be accounted for. A schematic of the dual process model of decision-making that incorporates emotion and has a long history in psychology is shown in Fig. 1. Loewenstein (2005, 2007) and Mukherjee

[2] We are not unique in our interpretation of stigma as part of a dual processing model. Pryor et al. (2004), also propose a dual processing model, applied to HIV and other stigmatizing conditions.