



Analysis

Does Pricing Nature Reduce Monetary Support for Conservation?: Evidence From Donation Behavior in an Online Experiment

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ABSTRACT

Ecosystem services valuation attempts to determine the monetary value of the benefits provided by the natural world. Prior research has shown that making monetary value salient fosters self-interested behavior in experimental settings (Vohs, Mead, and Goode, 2006), reduces the intrinsic value ascribed to pro-social activities such as volunteering (Pfeffer and DeVoe, 2009), and reduces the efficacy of environmentally relevant interventions (Steinhorst, Klockner, and Matthies, 2015). These findings raise concern that ecosystem service valuation information might adversely impact individual's pro-environmental behaviors. This study uses an experimental framework to determine whether ordinary citizens' exposure to valuation information, such as one might encounter in a news article or fundraising materials, might influence an individual's contribution to a natural resource conservation fund. The study is implemented with 250 participants from across the United States. We find that participants who receive a "natural resource description plus valuation" treatment donate a statistically significant lower dollar amount of their experimental earnings on average than those who read the narrative alone. Based upon this evidence, we assert that ecosystem service valuation information has the potential to negatively impact financial support for the exact resources the information is designed to promote.

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1. Introduction

The natural world passively provides the human world with services such as pollination, groundwater filtration, flood control, air quality maintenance, climate regulation, recreation, and aesthetic enjoyment. The practice of ecosystem services valuation monetizes the value of these benefits. Such methods of 'pricing nature' are aimed at ensuring that the value of environmental resources are included in decision-making processes typically dominated by economic concerns.

Although the economic valuation of natural resources is often relied upon to communicate the importance of natural resources to policy makers and the public, the practice remains controversial (Schroter et al., 2014). Critiques arise not only due to concerns about the proper methods for obtaining accurate figures (Diamond and Hausman, 1994; Hausman, 2012; Zhang and Li, 2005; Kenter et al., 2015; Klain et al., 2014; Carson et al., 2001; Portney, 1994), but also because the exercise seeks to put a price tag on resources which some deem to be incompatible with monetary value (Foster, 1997; Grove-White, 1997; Pearce,

1998; Matulis, 2014). A common concern amongst these critics is that the use of monetary value in the context of the natural world may lead to commodification of nature (Gómez-Baggethun and Ruiz-Pérez, 2011; Spash, 2015; Hahn et al., 2015) or that use of monetary incentives has the potential to crowd-out environmental norms of behavior (Neuteleers and Engelen, 2015; Rode et al., 2014; Frey et al., 1996).

Motivation crowding theory (Frey and Jegen, 2001) provides a theoretical backdrop for the concerns expressed by those regarding economic valuation of natural resources as problematic. The theory has been and continues to be applied within many domains. For example, motivation crowding was explored in Gneezy and Rustichini's (2000) study comparing the incidence of late pick-ups of children from day care facilities under a monetary fine condition and a social norm condition. Rather than acting to decrease the frequency of late pick-up, implementation of the fine was found instead to increase the behavior. Falk and Szech (2013) found that participants in a laboratory experiment were more likely to trade a mouse's life for money when the transaction was performed through the use of a market. Both authors interpret their findings as a crowding out of social norms by the introduction of market mechanisms. Research has also demonstrated deleterious effects of motivation crowding on environmental norms of behavior. Frey et al.

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(1996) found that offering monetary compensation for the siting of a noxious facility reduced public acceptance of the facility. The explanation for such an effect is that receiving monetary compensation reduces an individual's ability to receive satisfaction from acting altruistically.

Some of the work related to motivation crowding in the environmental domain asserts that activation of self-interest can sometimes play a role. Steinhilber et al. (2015) found that underscoring cost savings (self-interest condition) in an electricity use study created significantly less positive spillover in pro-environmental behavior than did an appeal to environmental values. Calling attention to self-interested decision-making is thought to degrade societal norms important to the promotion of the public good. Research suggests that monetization exercises prompting individuals to act as consumers, in which self-interest is the norm, rather than as citizens, create conditions for the encouragement of competitive rather than cooperative behavior (Ovaskainen and Kniivila, 2005).

Although we find the possibility of crowding out compelling in the context of economic valuation, we assert that there may be an alternative explanation. We suggest that economic valuation may serve simply as a monetary prime, especially when the information is encountered by individuals unfamiliar with economic valuation of the non-market value of natural resources. If individuals are unaccustomed to processing such economic valuation information, the dollar values provided are likely to act primarily as monetary priming. Priming occurs when exposure to a particular prompt provokes a later response due to a non-conscious memory from the first event. Priming with money has been shown to reduce other-regarding behavior in an experimental setting (Pfeffer and DeVoe, 2009; Reutner and Wänke, 2013), implying that priming effects could adversely affect pro-environmental behaviors even in the absence of tension arising from the monetization or commodification of environmental resources.

Prior research has shown that making economic value salient reduces the intrinsic value ascribed to such things as leisure time (DeVoe and House, 2012) and volunteering (Pfeffer and DeVoe, 2009). Whillans and Dunn (2015) provide evidence that these effects can occur in the context of environmentally relevant behavior as well. The researchers determined that hourly workers are less likely to engage in pro-environmental behavior because hourly payment creates a “time is money” frame. Even when economic value is not explicitly addressed, priming with money in an experimental setting can cause participants to be less other-regarding (Bauer et al., 2012; Reutner and Wänke, 2013; Zhou et al., 2009; Vohs, 2015; Caruso et al., 2013; Vohs et al., 2006). Self-interest activation and the triggering of financial norms have been identified as potential sources of these decreases in pro-social behavior (Stern, 2000; Whillans and Dunn, 2015).

Considering the potential adverse effects of monetary priming on pro-social behavior, we conduct an economic experiment designed to examine the effects of exposure to monetization information on a specific pro-social behavior, donations to conservation organizations. We focus specifically on the effect such information has on a layperson, an individual unfamiliar with the use of economic valuation of natural resources. Participants in our study are United States residents, randomly assigned to receive either a control (no economic valuation information) or a treatment (economic valuation information) resource description. We offer participants the opportunity to donate any amount from their experimental compensation to one or all of three nationally-recognized conservation organizations, the Sierra Club, the Nature Conservancy, and the United States National Park Service.¹ Based upon our review of the literature, we expect that those in the experimental condition (valuation information) will donate fewer dollars on average than those in the control group. Although we do not explicitly alter any underlying incentive system to simulate crowding-out conditions, we

¹ The target natural resource organizations did not sponsor this research, nor do the researchers have any relationship with the organizations. Organizations were chosen to provide a variety of options to participants.

expect that donation behavior will nonetheless diminish simply as a result of monetary priming.

2. Methods

2.1. Overview

This experiment was conducted in August 2014 and approved by the Institutional Review Board at the PI's home institution. All experimental work for this project was conducted online through the use of Amazon Mechanical Turk (MTurk) and Qualtrics (Provo, UT). Participants were randomly assigned to either a control condition (no valuation information) or a treatment condition (valuation information) to ensure that no systematic difference exists between participants in the two groups. In the control condition, participants receive a qualitative description of the abundant natural resources inherent to the United States' public lands and the benefits the lands provide. The treatment includes similarly worded text as well as monetary values associated with many of the natural features described.

After reading the text, participants were given the opportunity to donate any portion of their experimental earnings to a conservation organization before completing a survey.

After making their donation decision, participants completed an attitudinal and demographic survey. Much of the survey was designed as part of a separate research program. The survey portion of interest to this work queried participants about their market attitudes, environmental attitudes, financial stress, attitudes toward national parks and visitation history, willingness to be taxed to support national parks, and finally, a few demographic questions.

2.2. Participant Recruitment

United States residents of at least 18 years of age were recruited through the use of Amazon Mechanical Turk (MTurk), an online labor market in which hirers post small work tasks, Human Intelligence Tasks (HITs). Workers find tasks they like on a voluntary basis, accomplish them, and are paid from the hirer's account automatically upon completion. Companies use this to out-source various online tasks to the global online market. Behavioral researchers currently use this technology in order to reach a much more representative sample than a single regional university in a single country. MTurk provides other benefits as well (Mason and Suri, 2011), including speed, a high number of respondents, no duplication, and automated and tracked payments. Prior research has demonstrated that MTurk is comparable to in-person experiments for behavioral research (Crump et al., 2013) and a number of priming experiments have been successfully implemented using the platform (Vohs, 2015). Participants were offered \$20.20 for their participation.² The study was estimated to take participants no >30 min to complete.

2.3. Experimental Procedure

After accepting the work through the MTurk site, participants were directed to an online survey hosted by Qualtrics. The first page of the survey explained the basic expectations of the study and allowed individuals the opportunity to exit if they did not wish to participate. Only participants providing informed consent are included in our sample.

² A two-part payment approach was chosen to provide for variability in participant behavior within the experiment. The MTurk site requires requesters to list an amount of compensation in association with a task when first creating the HIT. The study was advertised as paying \$0.20, yet made it clear in the visible short description that the true payoff was \$20.20. This approach was necessary to allow for participants to donate a portion of their earnings. Participants are told that the \$20.20 is theirs simply for participating in the study. They are not made aware of the opportunity to donate until the donation is solicited.

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