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Thinking about time as money decreases environmental behavior

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ABSTRACT

Surprisingly, Americans are no more likely to engage in environmental behavior today than 20 years ago. A novel explanation for this pattern may lie in the increased tendency to see time as money. Using large-scale survey data, we show that people are less likely to engage in environmental behavior if they are paid by the hour, a form of compensation that leads people to see their time as money. Using experimental methodology, we show that making the economic value of time salient reduces environmental intentions and behavior. This occurs in part because thinking about the economic value of time creates awareness of the opportunity costs associated with environmental behavior. We mitigate these effects by reframing environmental behavior as an act consistent with self-interest. Together, this research suggests that viewing time as money shapes environmental decisions, potentially shedding light on patterns of environmental behavior across time and around the world.

Introduction

Despite high profile environmental campaigns, Americans are no more likely to engage in environmental behavior today than they were 20 years ago (Morales, 2010). One surprising explanation for the stagnation of environmental behavior may lie in the increased value that individuals place on their time. Although the number of hours people work has remained relatively constant over the last five decades (Aguiar & Hurst, 2009), Americans report feeling that their time is more valuable than ever before (Carroll, 2008). Research suggests that being paid by the hour leads people to see their time as financially valuable (DeVoe & Pfeffer, 2007a, 2007b), and the proportion of the workforce paid by the hour increased significantly in the 1980s and 1990s (Hamermesh, 2002; CPS Survey), maintaining these gains through 2012 (Bureau of Labor Statistics, 2013). A growing body of research demonstrates that reminding people how much money their time is worth can have far-reaching effects on the decisions they make about their time (DeVoe & Pfeffer, 2010), pointing to a novel explanation for the limited impact of environmental campaigns on everyday behavior.

Research suggests that hourly-wage workers are chronically oriented to think of their time as money, leading them to devalue uncompensated activities and spend less time volunteering (DeVoe & Pfeffer, 2007a, 2007b). Consistent with the notion that thinking about time as money can have far-reaching effects on thoughts and behavior, simply asking people to calculate their hourly wage in the lab decreases willingness to volunteer without compensation (DeVoe & Pfeffer, 2007a, 2007b, 2010). Of course, volunteering often carries a significant time cost, which might seem particularly unappealing when time is seen as money. Going beyond past research, we propose that environmental behaviors—even those that require mere moments such as recycling—might also be affected by thinking about the monetary value of one's time.

Why would putting an economic value on time undermine environmental behavior? Prior work has demonstrated that reminding individuals how much their time is worth makes money-related concepts more relevant to the self and leads individuals to focus on their own needs and goals as opposed to the needs and goals of others (Pfeffer & DeVoe, 2009; Vohs, Mead, & Goode, 2006, 2008). Researchers have argued that this ability to focus on others is a necessary condition for both prosocial and pro-environmental behavior (Allen & Ferrand, 1999; Geller, 1995; Schwartz, 1977). We propose that thinking about time as money, which leads individuals to focus on personal pursuits, will decrease engagement in environmental behaviors.

Specifically, research on the structure of values suggests that values are organized in a circumplex fashion, whereby certain values and goals are psychologically consistent with one another, and other values and goals stand in conflict with one another. Relevant to our research, Shalom Schwartz's classic work on human values demonstrates that "community" values, which entail trying to help others outside of one's own in-group, stand in stark opposition to values related to "power" and "achievement" (Schwartz, 1977, 1992, 2009). For example, research has demonstrated that the value of financial success is 192 degrees in opposition to values

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related to community, with 180 degrees representing perfect opposition (Grouzet et al., 2005). In an experimental demonstration of this phenomenon, individuals primed with statements related to financial success were less likely to help others during an in lab task (Maio, Pakizeh, Cheung, & Rees, 2009). Together with work showing that reminders of money reduce engagement in prosocial behaviors (Vohs et al., 2006, 2008), these studies suggest that there is a motivational conflict between values related to money and values supportive of prosociality. This research suggests that thinking about time as money may result in the suppression of the self-transcendent component of an individual's motivational system that allows individuals to focus on the needs of others. Thus, we propose that thinking about time as money, which may lead individuals to desire compensation for their work, and to prioritize personal goals, will decrease engagement in everyday environmental behaviors.

To provide an initial test of this hypothesis, we analyzed data from a large-scale, nationally representative survey (Study 1). We then investigated the causal relationship between thinking about time as money and intentions to engage in environmental behavior (Study 2). In Study 3, we moved beyond self-report to examine whether seeing one's time as money would decrease the likelihood of recycling, a prototypical form of environmental behavior. In Study 4, we explored a mechanism for this effect—the spontaneous recognition of the opportunity costs associated with environmental behavior. Because reminders of money can lead individuals to prioritize their own needs and goals, we attempted to mitigate the negative effects of thinking about time as money by reframing environmental behavior as an act consistent with self-interest (Study 5).

Across these studies, we follow the reporting standards proposed by Simmons, Nelson, and Simonsohn (2011) to maximize transparency: we report the decision rule regarding each sample size, all data exclusions, the results with and without data exclusions, every condition that was run and every measure that was given. Due to the changing norms in our field, we pre-registered the hypotheses of Studies 4 and 5 and rewrote the consent form to enable us to post the data from these studies online (osf.io/p7xme); data from our earlier studies are available upon request from the first author.

Study 1

Method

Participants

In Study 1, we analyzed data from Wave 18 of the British Household Panel Survey (BHPS). The British Household Panel Survey was established in 1999 at the University of Essex. The purpose of the survey is to further understanding of social and economic change at the individual and household level in Britain. The BHPS is a nationally representative sample consisting of over 5000 British households, and approximately 10,000 individual interviews of adults 16 years of age and above.

We analyzed the most recent wave of the BHPS (Wave 18), as this was this first wave that included measures of both hourly-wage status and environmental behavior.

Because past research shows that individuals who are paid by the hour are more likely to see their time as money (DeVoe & Pfeffer, 2007a, 2007b, 2010), we predicted that hourly (vs. salaried) workers would report engaging in fewer environmental behaviors.

Measures

Respondents reported whether or not they were paid by the hour (4128 respondents were salaried and 2802 were paid hourly), as well as how often they typically engage in eight pro-environmental behaviors, which we averaged to create an index of engagement in environmental behavior ($\alpha = .67$; See Appendix A for BHPS survey items and variable names). Participants answered these questions on a 1–5 scale ranging from 1 = *Always* to *5 = Never*; we reverse-scored the items such that positive coefficients would represent greater self-reported engagement in environmental behavior. Another valid response to these items was "I cannot do this," and this response was re-coded to missing in our analyses.

Covariates

We used the same set of covariates as previous research on the effects of hourly vs. salaried payment (monthly income, number of hours worked, marital status, age, education, and number of children and other people in the home; Devoe, Lee, & Pfeffer, 2009). We also controlled for gender given the robust finding that women are more likely to engage in environmental behavior (Zelezny, Chua, & Aldrich, 2000).

Results and discussion

First, we wanted to explore whether hourly-wage workers reported decreased self-reported engagement in environmental behavior. We obtained an average score for participants on self-reported frequency of engagement in environmental behavior. We used this average score to conduct a regression analysis between hourly-wage status (0 = Non-hourly, 1 = Hourly) and self-reported engagement in environmental behavior.

As predicted, hourly (vs. salaried) workers reported less frequent engagement in environmental behaviors, $r(6930) = -.08$, $p < .001$, $CI_{95}[-.13, -.07]$. This relationship held after controlling for our set of covariates, $\beta = -.06$, $p < .001$, $CI_{95}[-.11, -.04]$ (Table A).

Summary of results

In Study 1, we found initial support for the hypothesis that thinking about time as money is associated with reduced engagement in everyday acts of environmental behavior. While these results are consistent with our hypothesis, the correlational nature of these data precludes causal claims. Building on this evidence, we conducted an experiment investigating whether making the economic value of time salient would decrease environmental intentions.

Study 2

Method

Participants

We chose a target sample size of approximately 200 participants based on prior research using an identical manipulation (Pfeffer & DeVoe, 2009). We succeeded in recruiting 193 undergraduates at the University of British Columbia (UBC) in exchange for course credit. Nine participants failed to complete our manipulation due to confusion (5 in the experimental condition and 4 in the control condition), leaving a total of 184 participants (77.6% female; $M_{age} = 19.68$, $SD = 2.39$). Our critical results are robust to the inclusion/exclusion of these participants, $ps < .05$.

Procedure

After providing informed consent, participants were randomly assigned to an hourly-wage or control condition. Next, participants reported their intentions to engage in environmental behaviors and rated the worthwhileness of these behaviors (in that order). Participants then completed additional measures tangential to