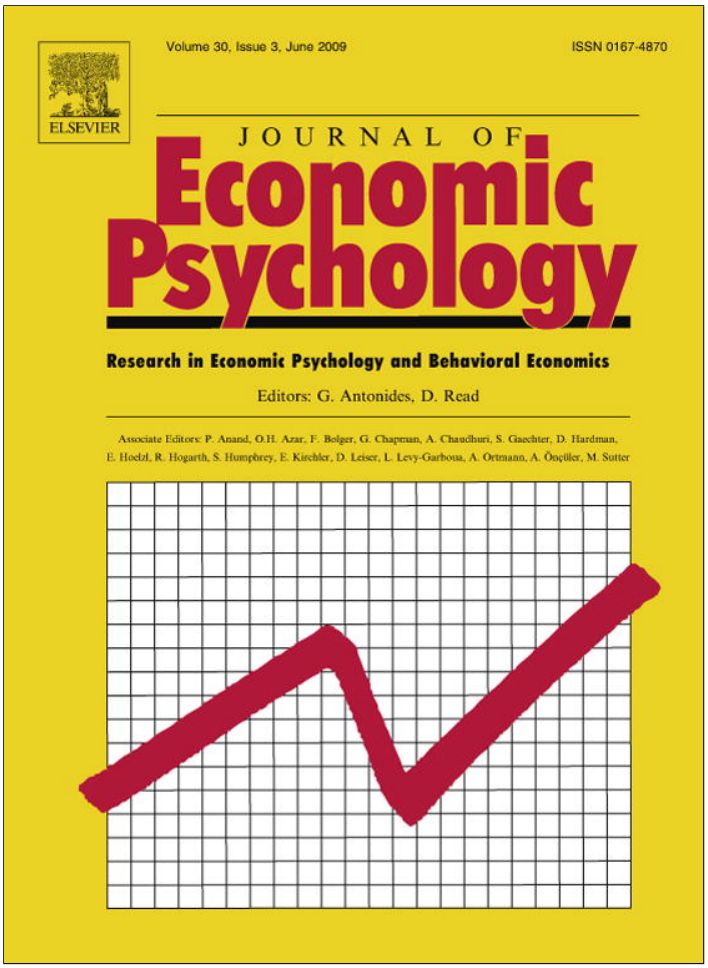

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Economic evaluation: The effect of money and economics on attitudes about volunteering

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ABSTRACT

Recent research shows that hourly payment affects decisions about time use in ways that disfavor uncompensated activities such as volunteering. This paper extends that argument by showing that the activation of money and economics as aspects of a person's self-concept is one mechanism possibly producing these results. Study 1 showed that employed adults explicitly primed to think about their *own* time in terms of money were less willing to volunteer compared to those primed to think about *another* person's time in terms of money, illustrating the importance of the self-concept in the economic evaluation of time. Mediation analyses showed that participants' view of themselves as economic evaluators fully accounted for both the effect of the manipulation and variation in prior experience with hourly payment on willingness to volunteer. Study 2 showed the undergraduates supraliminally primed with either money or economic concepts were less willing to volunteer their time. The findings suggest that economic evaluation is one causal mechanism affecting attitudes about time use.

1. Introduction

Recent research suggests that people who are compensated with an hourly wage make different decisions about using their time than do people whose pay is not as explicitly time-dependent (DeVoe & Pfeffer, 2007a, 2007b). The argument is that when people paid by the hour think about their time in terms of money, they are more likely to adopt an economic evaluation lens when making decisions about spending time and, in particular, will devalue uncompensated activities. The fact that under conditions of hourly payment people primarily use economic criteria for decisions about time use stands in contrast to much research showing that people generally make decisions about money and time differently (e.g., LeClerc, Schmitt, & Dube, 1995; Okada & Hoch, 2004; Soman, 2001).

As one example of this phenomenon, Evans, Kunda, and Barley (2004) found that technical contractors, who sold their services by the hour, became economic evaluators of time. With money and opportunity costs salient, contractors devalued non-compensated time and acted as if they were constrained in their decisions about taking time off from work. DeVoe and Pfeffer (2007a) found that people in a nationally representative sample who were paid by the hour (compared to those not paid by the hour) or those in an experimental setting who were randomly assigned to calculate their approximate hourly wage rate (compared to those who did not) weighed the economic returns of spending time more strongly in making explicit

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tradeoffs between time and money, in that they were more willing to give up their free time to earn more money. Additionally, in a study investigating both attitudes and behaviors, DeVoe and Pfeffer (2007b) reported that people paid by the hour (compared to those not paid by the hour) or those who calculated their hourly wage rate (compared to those who did not) spent less time volunteering and were less willing to volunteer their time.

Although the authors explained the results in terms of how a specific practice, hourly payment, changed people's thinking about their time in terms of money, there are a number of distinct psychological processes that might plausibly explain the reported findings and it is useful to distinguish among them. For instance, it could be that people paid by the hour face a very different set of decision circumstances than salaried employees who, for the most part, do not have the same opportunities to trade time for money. Moreover, when individuals are experimentally exposed to their hourly wage rate, the salience of the equation of time with money, the activation of deliberative thinking through the process of calculating their hourly wage, and the priming of the concept of money could all be plausible mechanisms that affect their attitudes and preferences.

Although it is possible that experience with hourly payment and experimental exposure to an hourly wage rate may produce differences in attitudes about using time through theoretically distinct mechanisms, in the present paper we sought to uncover a common psychological process. Specifically, we argue that one important psychological mechanism through which experimental or demographic exposure to an hourly wage rate can affect attitudes about time use is by activating the concepts of money and economics as they are related to the self.

2. Background

The literature on priming suggests that money and economic concepts negatively affect pro-social behavior. For instance, Kay, Wheeler, Bargh, and Ross (2004) have shown that exposing undergraduate students to business-related objects is sufficient to produce less cooperative behavior. Vohs, Mead, and Goode (2006) found that people primed with the idea of "money" both requested less help and offered less help on an experimental task, put more physical distance between themselves and others, and when given a choice, preferred to be alone more than those who were exposed to neutral primes.

In their most recent reviews of the priming literature, Wheeler, DeMarree, and Petty (2005, 2007) argued that primes affect behavior by inducing changes in the self-concept. Markus and Wurf (1987) distinguished between the chronic self-concept (aspects of the self represented in long-term memory) and the active self-concept (the subset of the chronic self-concept that is either consistently or temporarily active). Some dimensions may be consistently part of the active self-concept, whereas others may become active when aspects of the context increase their accessibility. Building upon the large literature that attests to the importance of the self-concept in guiding action, we sought to test whether one way in which exposure to one's hourly wage rate promotes an economic evaluation of time is by making the concepts of money and economics a more salient component of the active self-concept.

Although prior research has examined individual differences in the love for money (i.e., Luna-Arocas & Tang, 2004; Tang, Tang, & Luna-Arocas, 2005) and recognized the important role of an "economic self" in human behavior (Lea & Webley, 2005), we focus specifically on the psychological activation of economic evaluation within the self-concept framework. Specifically, we conceptualize hourly payment as an organizational practice that consistently makes salient the monetary value of one's time and serves to make a portion of one's chronic self-concept related to economic evaluation more frequently accessible to the active self-concept. To test this argument, we used a convenience sample of employed participants where we could experimentally manipulate exposure to one's hourly wage rate and assess prior experience with hourly payment.

We manipulated exposure to thinking about one's time in terms of an hourly wage by having some people calculate their own approximate hourly wage rate while others calculated an hourly wage rate for a random other. This manipulation allowed us to explicitly vary whether the calculation of an hourly wage rate was relevant to the self-concept while holding constant the salience of an hourly wage and money. Moreover, we tested whether calculating one's own hourly wage rate along with prior experience with hourly payment affected attitudes towards time by activating the concepts of money and economics as it is related to the self (i.e., self-reported propensity towards thinking of one's self as an economic evaluator when making decisions). In Study 2, we directly primed the concepts of either money or economics in a less explicit manner to see if each produced a similar causal effect on attitudes about spending time that was observed in Study 1.

In both studies we examine the outcome variable of attitudes toward spending time volunteering that has been used in prior work as an indicator of the economic evaluation of one's time. This measure is consistent with the outcome variables of communal behavior and cooperation that have been investigated in previous research. Because volunteering one's time is a communal behavior (Putnam, 2000), we would expect to see that people who economically evaluate their time would be less willing to volunteer. If an economic evaluation of time leads people to deemphasize activities that lack financial compensation (as opposed to social or intrinsic rewards), we predicted this would be exhibited in responses to the measure of willingness to volunteer. Since volunteering has been defined as discretionary work done without pay (Tilly & Tilly, 1994), it is an activity that ought to be the most directly affected by the economic evaluation of time.

3. Study 1

One of the puzzles from earlier research is how and why exposure to hourly payment might have an effect on preferences and decisions. That is because individuals, as part of daily life, are frequently getting reminded about economic criteria and

the fact that time is money. One possible answer to the puzzle is this: because priming effects are more pronounced when they are from a first rather than a third person perspective (Marx & Stapel, 2006; Wheeler, DeMarree, & Petty, 2007, 2001), a critical aspect of how exposure to an hourly wage rate affects attitudes about spending time is by activating the concepts of money and economics in a manner that implicates the self-concept. Thus, we wanted to see whether having people explicitly think about their time in terms of money differed from having people think about someone else's time in terms of money.

We employed the manipulation used by DeVoe and Pfeffer (2007a,b) where economic evaluation was experimentally manipulated by having employed people explicitly consider the value of their time in terms of money by calculating their own approximate hourly wage rate based on three questions about their annual income, the number of hours worked per week, and the number of weeks they worked per year. As a control condition, DeVoe and Pfeffer simply asked participants the same three questions, but did not have participants calculate their approximate hourly wage rate using that information. One benefit of this control condition was that it elicited information about participants' time and money in a manner that was normatively equivalent in both conditions.

However, this manipulation confounds participants' exposure to their approximate hourly wage rate with the activity of conducting a mathematical calculation that may by itself prime economic evaluation. For instance, it is unclear whether the effect of the manipulation was due to the salience of the monetary value of one's time or simply the activity of calculating any hourly wage rate. Besides the additional fatigue that might result from such a calculation, recent work suggests that merely doing calculations (i.e., calculus problems) diminishes the amount of money people donate to specific individuals in need because a more deliberative rather than affective psychological state is activated (Small, Loewenstein, & Slovic, 2007). Thus, we wanted participants in the control condition to do a comparable hourly wage rate calculation, but only have participants in the treatment condition explicitly think about their *own* time in terms of money.

The key aspect of our manipulation is that participants in both conditions do a comparable mathematical calculation about time and money, but only participants in the "calculate own hourly wage" condition are asked to explicitly think about their *own* time in terms of money. This design permits us to extend the work of DeVoe and Pfeffer (2007b) by testing what drives the framing effect on people's willingness to volunteer. Based upon research showing that priming effects are strongest when they are made self-relevant (Marx & Stapel, 2006; Wheeler et al., 2001), we predicted that having people calculate their own hourly wage rate would diminish their willingness to volunteer more so than their counterparts' calculating the hourly wage rate of someone else. Additionally, we compare the manipulation's effect to the effect of participants' prior experience with hourly payment and tested whether the self-reported propensity towards thinking of one's self as an economic evaluator in decision making mediated the effect of both the manipulation and prior experience with hourly payment on willingness to volunteer.

4. Method

4.1. Participants

Participants were recruited from a nation-wide database maintained by the Stanford Graduate School of Business. The pool consists of participants from all over the country, recruited online via Craigslist and similar sites. The pool contains approximately 15,000 registered participants and represents a large variety of people with different demographic characteristics. Sessions were opened for individuals interested in participating in a survey about their work experiences. A total of 66 participants completed an online questionnaire in exchange for a $5 gift certificate to an online retailer.

4.2. Procedure

After reading a consent form, participants were told that the researchers were conducting a survey on how Americans think about their time and that they would respond to demographic questions about their jobs so that comparisons could be made with national survey estimates. This introduction provided a rationale for asking participants to respond to detailed questions concerning their earnings and work hours that comprised the experimental manipulation. After the introduction, participants were randomly assigned to one of two experimental conditions. Subsequent to the manipulation, participants responded to the Likert measures and at the end of the experiment provided answers to demographic questions.

4.3. Manipulation

In the control condition participants were asked to use three pieces of information that were supplied to them to answer two questions. Specifically, participants read information about average annual earnings in the US ("Annual earnings before taxes or other deductions: $42,288"), the number of hours typically worked per week ("Number of hours usually worked per week in a year: 40 hours"), and the number of weeks most people worked ("Number of weeks worked in a year: 50 weeks"). Participants were told they should feel free to use scratch paper or a calculator on their computer in responding to the two questions. Participants were asked to multiply the number of weeks worked in the prior year by the average number of hours worked per week in the prior year. Then participants were asked to take the annual salary and divide it by the total number of hours worked. Participants were told that this number was "an approximate hourly wage (i.e., the amount of money earned per hour)".

In the calculate own hourly wage condition, participants provided their own information for the identical statements as in the control condition (annual salary, hours worked per week, and number of weeks worked) and then used that information to calculate their own approximate hourly wage. Participants were told that this number was their "approximate hourly wage (i.e., the amount of money you earn per hour)".[1]

4.4. Measures

4.4.1. Prior experiences with hourly payment

At the end of the survey, participants were asked on a 1 (*none*) to 7 (*all*) scale "Out of the total amount of experience you have had working, what percentage of these experiences were you paid by time (e.g., by the hour)?" This measure was used by DeVoe and Pfeffer (2007a) to measure participants' approximate total experience over their working lives with hourly payment.

4.4.2. Willingness to volunteer

Participants responded to the same five survey questions used by DeVoe and Pfeffer (2007b) designed to tap their willingness to volunteer their time (e.g., "I am willing to volunteer for an organization I care about without financial compensation for me", "Even for an organization I care about, I am unwilling to work without getting paid", "I'm unlikely to undertake any type of work without being paid", "Volunteering is a worthwhile use of my time even if I do not get paid", and "Without some financial compensation, it is not worth doing volunteer work") on a 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) scale. Relevant items were reverse scored so that higher values indicated a greater willingness to do volunteer activities. The scale achieved acceptable reliability (Cronbach's $\alpha = .79$).

4.4.3. Self as an economic evaluator

Participants responded to three items tapping the extent to which they emphasized economic criteria in decision making (i.e., "It is essential that my everyday choices reflect monetary considerations", "When making everyday decisions, my first priority is to consider what will most enhance my monetary situation", and "When making important decisions (i.e., job choices), I primarily consider monetary criteria") using a 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) Likert scale. These items exhibited good reliability (Cronbach's $\alpha = .88$) and were used as a composite measure of participants' view of the self as an economic evaluator in decision making.

4.4.4. Covariates

At the end of the study, participants responded to a set of demographic questions. Since prior experiences with hourly payment and an individuals' willingness to volunteer are associated with various demographic characteristics such as gender and income, we sought to control for variables identified in prior research as being associated with willingness to volunteer (DeVoe & Pfeffer, 2007b). Specifically we controlled for the individual characteristics of age, gender (1 = female), and marital status (1 = married). We controlled for participants' education by including two dummy variables for some college and college/postgraduate degree holders, with high school degree or less as the baseline category. Also, we controlled for participants' annual salary before taxes or other deductions.

5. Results

Table 1 reports the means, standard deviations, and intercorrelations among the predictor variables. Many of the relationships observed in this sample mirror what prior research by DeVoe and Pfeffer (2007b, Study 1, p. 788), documented with samples designed to be nationally representative of the US population. With the exception of marital status (which was unrelated to degree of hourly payment in our sample but was negatively associated with hourly payment in prior work), being paid by the hour exhibited the same direction of associations with the covariates employed in this study that were observed in a nationally representative survey. Additionally, all of the predictor variables exhibited the same associations with willingness to volunteer that were observed in the nationally representative survey with the predictor variables and the outcome variable of actually volunteering (as assessed by a time diary methodology). This provides us some confidence that demographic characteristics and empirical relationships observed in this convenience sample were similar to what we would observe in a random sample of the US population.

5.1. Willingness to do volunteer activities

The OLS regression in Table 2 (middle column) models participants' responses to the willingness to volunteer measure using all of the control variables as covariates. Participants who were randomly assigned to calculate their own hourly wage were less willing to volunteer ($M = 4.74$, SE = .22) than participants in the control condition ($M = 5.38$, SE = .21), $\beta = -.26$,

[1] Although it is possible respondents who had more experience being paid by the hour would find it slightly more difficult to provide their annual income, all participants assigned to in the calculate own hourly wage condition were able to provide an estimate of their annual salary.

Table 1
Descriptive statistics and intercorrelations of predictor variables in Study 1

Variables	Mean	SD	1	2	3	4	5	6	7	8
1. Age	35.31	9.29	–							
2. Gender (1 = female)	.59	.50	−.07	–						
3. Marital status (1 = married)	.72	.45	.17	.03	–					
4. Some college	.21	.41	.16	.10	−.02	–				
5. College/postgraduate degree	.21	.46	−.08	−.16	−.02	−.80**	–			
6. Yearly salary	47,453.23	31,928.72	.19	−.32*	.09	−.11	.28*	–		
7. Prior experience with hourly	4.10	2.61	−.16	.36**	.01	.25+	−.24+	−.45**	–	
8. Condition (1 = own hourly)	.50	.50	.17	.02	−.11	−.03	−.01	−.06	−.14	–

+ $p \leqslant .10$.
* $p \leqslant .05$.
** $p \leqslant .01$.

Table 2
Predicting willingness to volunteer and self as an economic evaluator in Study 1

Predictors	Willingness to volunteer β	Self as an economic evaluator β
Age	.19	−.18
Gender (1 = female)	.31*	−.17
Marital status (1 = married)	.03	−.05
Education (relative to "High school degree or less")		
Some college	.45*	−.22
College/postgraduate degree	.53*	−.30
Yearly salary	−.23	.19
Prior experience with hourly payment	−.34*	.41*
Condition (1 = calculate own hourly wage)	−.26*	.31*
Degrees of freedom error	48	48
F-value	2.29*	1.86+
R^2	.28	.24

Note: Values indicate standardized beta coefficients from OLS regressions. Positive values indicate a greater willingness to volunteer or a greater view of the self as an economic evaluator in decision making.
+ $p \leqslant .10$.
* $p \leqslant .05$.

$t(48) = -2.00$, $p = .05$. Similarly, prior experience with hourly payment was negatively associated with participants' willingness to volunteer, $\beta = -.34$, $t(48) = -2.22$, $p = .03$.

5.2. Self as an economic evaluator

The OLS regression in Table 2 (far right column) models participants' responses to the view of the self as an economic evaluator measure using all of the control variables as covariates. Participants who were randomly assigned to calculate their own hourly wage reported themselves to be more of an economic evaluator in decisions ($M = 4.59$, SE = .30) than participants who calculated the hourly wage rate of some other person ($M = 3.60$, SE = .29), $\beta = .31$, $t(48) = 2.31$, $p = .03$. Similarly, prior experience with hourly payment was positively associated with participants' view of the self as an economic evaluator in decisions, $\beta = .41$, $t(48) = 2.63$, $p = .01$.

5.3. Mediational analyses

We conducted mediational analyses to see whether and to what extent participants' reports of themselves as economic evaluators in decisions mediated the effect of both the manipulation and participants' prior experience with hourly payment on their willingness to volunteer (Baron & Kenny, 1986). Importantly, these analyses afford an assessment of whether the same underlying psychological mechanism drives the effect of both the manipulation and the demographic variations in experience with hourly payment.

5.3.1. Mediation of the manipulation

The measure of willingness to volunteer was first regressed on experimental condition and then also on view of the self as an economic evaluator in decision making. The upper half of Fig. 1 reports the standardized regression coefficient paths for this mediation analysis with the all the covariates entered simultaneously into the model. The effect of the manipulation was initially statistically significant, $t(48) = -2.00$, $p = .05$, and became nonsignificant when the view of the self as an economic

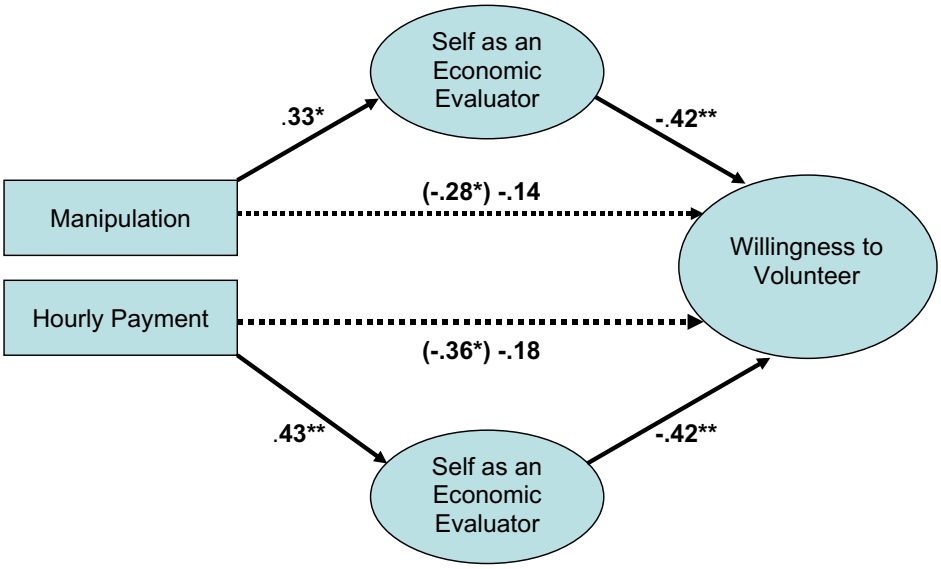

Fig. 1. Mediation of the manipulation and hourly payment on willingness to volunteer. *Note*: Manipulation was dummy-coded (0 = other hourly; 1 = own hourly). Hourly payment was a continuous variable where higher values indicated greater prior experience with hourly payment. Path coefficients are standardized OLS regression coefficients where values in parentheses are the coefficients prior to the inclusion of the self as an economic evaluator measure into the predictive equation. $^{*}p \leqslant .05$, $^{**}p \leqslant .01$.

evaluator in decision making was entered into the predictive equation, $t(47) = -1.03$, ns. The effect of the view of the self as an economic evaluator in decision making was statistically significant, $t(47) = -3.40$, $p = .001$. These results indicated that the effect of the experimental manipulation of calculating one's own or another's hourly wage on participants' willingness to volunteer was mediated by the extent to which participants viewed themselves as economic evaluators in their decision making ($z = -1.97$, $p = .05$).

5.3.2. Mediation of prior experience with hourly payment

The measure of willingness to volunteer was first regressed on prior experiences with hourly payment and then also on view of the self as an economic evaluator in decision making. The lower half of Fig. 1 reports the standardized regression coefficient paths for this mediation analysis with the all the covariates entered simultaneously into the model. The effect of prior experience with hourly payment was initially statistically significant, $t(48) = -2.22$, $p = .03$, and became nonsignificant when the view of the self as an economic evaluator in decision making was entered into the predictive equation, $t(47) = -1.09$, ns. As already reported above, the effect of the view of the self as an economic evaluator in decision making was statistically significant, $t(47) = -3.40$, $p = .001$. These results indicated that the effect of prior experience with being paid by the hour on participants' willingness to volunteer was mediated by the extent to which participants viewed themselves as economic evaluators in their decision making ($z = -2.14$, $p = .03$).

6. Discussion

Prior experience with hourly payment diminished willingness to volunteer in the same way as having participants randomly assigned to think about their own time in terms of money. Importantly, the experimental manipulation compared participants who thought about their time in terms of money to those who thought of someone else's time in terms of money. Consequently, the resulting differences across experimental conditions could not be attributable to differential activation of deliberative thinking or the mere salience of economic evaluation because all participants in this study calculated an hourly wage rate and so were equally deliberative and equally exposed to an activity that caused them to equate money with time.

Most importantly in light of the self-concept's importance in economic evaluation, we were able to demonstrate that the diminished willingness to volunteer resulting from exposure to the manipulation and prior experience with hourly payment were completely mediated by differences in the extent to which participants viewed themselves as economic evaluators in their decision making. These findings provided evidence of a common mediating process for both calculating one's own hourly wage rate for time and prior experience with hourly payment.

Because having individuals calculate their own hourly wage rate makes both money and the connection between time and money explicit, our results are open to an alternative interpretation of social desirability. It could be that calculation of one's own hourly wage and prior experience with hourly payment both lead people to believe that emphasizing money and economics in their decisions is socially desirable and normatively appropriate and that this explanation, not the psychological activation of economic evaluation as a part of one's self-concept, accounts for the observed results. Thus, if we psy-

chologically activated the concepts of money and economics in a more subtle and less conscious manner, concerns about the process relying on a social desirability mechanism would be ameliorated.

We have conceptualized economic evaluation as the emphasis placed on both money and economics ideas and concepts in decisions, but presumably the activation of money and economic concepts in decisions could have different effects on preferences for spending time. Although Vohs et al. (2006) have shown priming the concept of money diminishes pro-social behavior, it has yet to be shown whether priming the concept of economics would have the same effect. In our second study, we employed one of the non-conscious priming techniques used by Vohs et al. where we could replicate the effect of priming money on the measure of willingness to volunteer outcome and also examine whether priming economics would have the same effect as priming money.

7. Study 2

We have argued that exposure to an hourly wage decreases one's willingness to volunteer by activating an economic evaluation of time. The existing literature speaks to the variety of ways primes can influence behavior (Bargh & Chartrand, 2000). By having participants actively calculate their hourly wage rate, we were explicit in priming economic evaluation in that participants were fully aware that they were being asked to think about the monetary aspects of their time. In Study 2 we sought to demonstrate that priming money and economic concepts supraliminally—in a manner where participants are unlikely to be aware that the task activates economic evaluation—would produce similar effects on time use attitudes. Priming money and economic concepts to assess their impact on time use attitudes among undergraduate students accomplishes several important goals. First, it can further confirm the causal link shown in Study 1 between economic evaluation and willingness to volunteer. Second, it can demonstrate that the psychological process of economic evaluation can occur without the explicit monetization or pricing of one's time. Finally, it allows us to see if activating the concepts of money and economics have similar effects on time use attitudes.

8. Method

8.1. Participants

Two hundred and sixty undergraduate students were recruited from an electronic mailing list maintained by the Stanford Graduate School of Business. Students were recruited to join the mailing list through campus flyers and school newspaper ads in exchange for earning money. Participants responded to an email announcing a mass testing session in which they would fill out a number of questionnaires in exchange for $20.

8.2. Manipulation

In order to directly prime money and economics so that participants would not consciously recognize the relationship between the activation of the concept and the experimental task, we used a well-developed priming technique known as the scrambled sentence test (Bargh & Chartrand, 2000; Costin, 1969; Srull & Wyer, 1979; Vohs et al., 2006). Participants were randomly assigned to de-scramble 30 sets of five words into correct sentences with only four words (e.g., is outside cold desk it = it is cold outside).

In the neutral prime conditions, none of the sentences related to either money or economics. In the money prime condition, 15 of these sentences related to money (e.g., salary paying high desk a = a high paying salary). The 15 money-related sentences served as a supraliminal prime of the salience of money and wealth (i.e., "raise", "cheque", "capital", "profits", "revenues", "dollar", "lottery", "wealthy", "financially", "deep pockets", "afford", "finances", "money", "pays", and "salary"). In the economics prime condition, 15 of these sentences included terms taken from the index of an economics textbook (Kreps, 2004). The 15 economics-related sentences served to prime concepts frequently used in economics (i.e., "wages", "competition", "incentives", "transactions", "surplus", "efficiency", "revenue", "utility", "equilibrium", "cost", "taxes", "trade", "price", "free market", and "deficit").

8.3. Willingness to volunteer

Participants responded to the same 5-item measure of willingness to volunteer as in the prior study except this time they responded to the items on a 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) scale. Relevant items were reverse scored so that higher values indicated a greater willingness to do volunteer activities (Cronbach's $\alpha = .83$).

9. Results

A one-way analysis of variance was conducted to evaluate the effect of the primes on participants' willingness to volunteer. The omnibus ANOVA was significant, $F(2, 258) = 3.76$, $p < .05$. The number of participants, means, and standard deviations in each condition are reported in Table 3.

Table 3
Willingness to volunteer as a function of prime condition in Study 2

Condition	*n*	Mean	SD
Neutral prime	131	4.18_a	.65
Money prime	56	3.92_b	.96
Economics prime	73	3.94_b	.70

Note: Means not sharing a letter subscript differ at a p-level of .05 according to LSD post hoc tests. Higher values indicate a greater willingness to volunteer.

Follow-up tests were conducted to evaluate pairwise differences among the means using LSD post hoc comparisons. Participants primed with money ($M = 3.92$, $SE = .96$) or economics ($M = 3.94$, $SE = .70$) were both significantly less willing to volunteer in comparison to participants in the neutral prime condition ($M = 4.18$, $SE = .65$), both $ps < .05$. Importantly, participants primed with money and economics did not differ from each other, $t(127) = -.14$, ns.

10. Discussion

Using a supraliminal priming manipulation that prior literature has established as an effective way to activate psychological concepts without participants' conscious awareness (Bargh & Chartrand, 2000), Study 2 showed that priming either money or economics were functionally similar in diminishing participants' willingness to volunteer their time. Using an attitudinal measure of volunteering, this is a direct replication of Vohs et al.'s (2006) findings that priming money leads to a diminished propensity to help others, with the important extension that priming economic concepts had the same effect as priming money. Moreover, by priming the psychological concepts of money and economics we obtained effects on the measure of willingness to volunteer that were similar to those observed for prior experience with hourly payment and calculating one's own hourly wage rate.

11. General discussion

Building upon recent research documenting the effect of being paid by the hour on decisions about time use such as volunteering, we investigated the psychological activation of money and economics to the self-concept as a theoretical mechanism to explain these findings. In Study 1, we found that participants' prior experience with hourly payment and experimentally manipulating employed participants to think about their time in terms of money were both associated with a diminished willingness to volunteer. Importantly, both the manipulation and prior experience with hourly payment affected willingness to volunteer through participants' view of themselves as economic evaluators in their decision making. These results suggest that the activation of economic evaluation was a common mediating process that affected people's willingness to volunteer their time.

In Study 2, we manipulated economic evaluation by directly priming the concepts of money and economics supraliminally among a student sample. Results showed that priming either money or economics significantly diminished participants' willingness to volunteer in comparison to their counterparts primed with a neutral stimulus. These findings showed money and economics were functionally similar in affecting willingness to volunteer and further confirmed the proposed causal link between economic evaluation and willingness to volunteer. Taken together, these studies showed that economic evaluation can be activated by having people explicitly consider the value of their own time in terms of money, by prior experience with hourly payment, and by subtly reminding people about money and economic concepts.

These results have important theoretical implications for understanding how the psychological activation of economic evaluation can play a powerful role not just in how people make decisions about their time but also how they view themselves as decision makers. Specifically, the present work has highlighted the important role the active self-concept plays in determining how and when people economically evaluate their time, in that calculating one's own wage rate has a larger effect on willingness to volunteer than doing the identical calculation for some unidentified other person.

The role of the self-concept in economic evaluation raises several interesting questions for future research. It is plausible to argue that the more one's self-concept is tied to work, the greater the effect of being paid by the hour on decisions about spending time. Similarly, given that exposure to an hourly wage appears to increase the degree to which people view themselves as economic evaluators, other attitudes and behaviors outside the domain of time use may also be affected.

Consistent with our theoretical account of the importance and role of economic evaluation in decision making is evidence that the study of economics is associated with a greater focus on self-interest and a de-emphasis on the value of serving the interests of others (e.g., Gandal, Roccas, Sagiv, & Wrzesniewski, 2005). While there is evidence of both selection and training effects within the study of undergraduate economics (Frank, Gilovich, & Regan, 1993), highly consistent with our theoretical perspective of economic evaluation are results demonstrating that individuals with economics training are less likely to be influenced by non-monetary considerations, such as the fairness norm in the ultimatum game (Carter & Irons, 1991). One way in which educational training in economics is likely to influence attitudes and behavior is the degree to which economic evaluation becomes more central to one's active self-concept.

Furthermore, our theoretical perspective complements Evans et al. (2004) and others in highlighting that the economic evaluation of time may not only press people to spend more time on paid activities but also lead them to spend less time on work that does not directly compensate them with money. Putnam (2000) has emphasized the importance of volunteering for its link to social participation and civic engagement. Additionally, participation in volunteer activities can afford important individual benefits, such as greater subjective and objective well-being (Wilson & Musick, 1999). This raises the intriguing question of whether the diminished volunteering promoted by economic evaluation might be in any way inconsistent with individuals' preferences or expected satisfaction. Understanding whether and how economic evaluation influences choices and the consequences of those choices is a critical question for future research.

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References

Bargh, J. A., & Chartrand, T. L. (2000). The mind in the middle: A practical guide to priming and automaticity research. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 253–285). New York: Cambridge University Press.

Baron, R. M., & Kenny, D. (1986). The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Carter, J. R., & Irons, M. D. (1991). Are economists different, and if so, why? *The Journal of Economic Perspective, 5*, 171–177.

Costin, F. (1969). The scrambled sentence test: A group measure of hostility. *Educational and Psychological Measurement, 29*, 461–468.

DeVoe, S. E., & Pfeffer, J. (2007a). When time is money: The effect of hourly payment on the evaluation of time. *Organizational Behavior and Human Decision Processes, 104*, 1–13.

DeVoe, S. E., & Pfeffer, J. (2007b). Hourly payment and volunteering: The effect of organizational practices on decisions about time use. *Academy of Management Journal, 50*, 783–798.

Evans, J., Kunda, G., & Barley, S. R. (2004). Beach time, bridge time, and billable hours: The temporal structure of technical contracting. *Administrative Science Quarterly, 49*, 1–38.

Frank, R. H., Gilovich, T., & Regan, D. T. (1993). Does studying economics inhibit cooperation? *Journal of Economics Perspectives, 7*, 159–171.

Gandal, N., Roccas, S., Sagiv, L., & Wrzesniewski, A. (2005). Personal value priorities of economists. *Human Relations, 58*, 1227–1252.

Kay, A., Wheeler, S. C., Bargh, J. A., & Ross, L. (2004). Material priming: The influence of mundane physical objects on situational construal and competitive behavioral choice. *Organizational Behavior and Human Decision Processes, 95*, 83–96.

Kreps, D. M. (2004). *Microeconomics for managers*. New York: W.W. Norton & Company.

Lea, S. E. G., & Webley, P. (2005). In search of the economic self. *Journal of Socio-Economics, 34*, 585–604.

LeClerc, F., Schmitt, B. H., & Dube, L. (1995). Waiting time and decision making: Is time like money? *Journal of Consumer Research, 22*, 110–119.

Luna-Arocas, R., & Tang, T. (2004). The love of money, satisfaction, and the protestant work ethic: Money profiles among university professors in the USA and Spain. *Journal of Business Ethics, 50*, 329–354.

Markus, H., & Wurf, E. (1987). The dynamic self-concept: A social psychological perspective. *Annual Review of Psychology, 38*, 299–337.

Marx, D. M., & Stapel, D. A. (2006). It depends on your perspective: The role of self-relevance in stereotype-based underperformance. *Journal of Experimental Social Psychology, 42*, 768–775.

Okada, E. M., & Hoch, S. J. (2004). Spending time versus spending money. *Journal of Consumer Research, 31*, 313–323.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.

Small, D. A., Loewenstein, G., & Slovic, P. (2007). Sympathy and callousness: The impact of deliberative thought on donations to identifiable and statistical victims. *Organizational Behavior and Human Decision Processes, 102*, 143–153.

Soman, D. (2001). The mental accounting of sunk time costs: Why time is not like money. *Journal of Behavioral Decision Making, 14*, 169–185.

Srull, T. K., & Wyer, R. S. (1979). The role of category accessibility in the interpretation of information about persons: Some determinants and implications. *Journal of Personality and Social Psychology, 37*, 1660–1672.

Tang, T., Tang, D., & Luna-Arocas, R. (2005). Money profiles: The love of money, attitudes, and needs. *Personnel Review, 34*, 603–618.

Tilly, C., & Tilly, C. (1994). Capitalist work and labor markets. In N. Smelser & R. Swedberg (Eds.), *Handbook of economic sociology* (pp. 283–313). Princeton, NJ: Princeton University Press.

Vohs, K. D., Mead, N. L., & Goode, M. R. (2006). The psychological consequences of money. *Science, 314*, 1154–1156.

Wheeler, S. C., DeMarree, K. G., & Petty, R. E. (2007). Understanding the role of the self in prime-to-behavior effects: The active self-account. *Personality and Social Psychology Review, 11*, 234–261.

Wheeler, S. C., DeMarree, K. G., & Petty, R. E. (2005). The roles of the self in prime-to-behavior effects. In A. Tesser, J. V. Wood, & D. Stapel (Eds.), *On building defending, and regulating the self: A psychological perspective* (pp. 245–272). New York: Psychology Press.

Wheeler, S. C., Jarvis, W. B., & Petty, R. E. (2001). Think unto others: The self-destructive impact of negative racial stereotypes. *Journal of Experimental Social Psychology, 37*, 173–180.

Wilson, J., & Musick, M. A. (1999). The effects of volunteering on the volunteer. *Law and Contemporary Problems, 62*, 141–168.