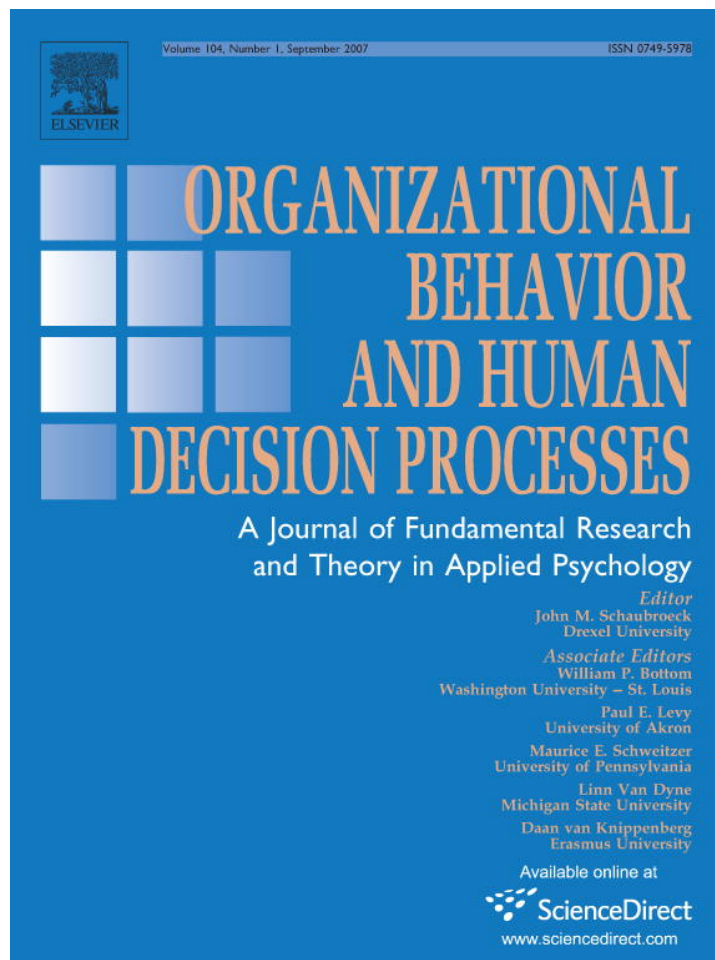


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When time is money: The effect of hourly payment on the evaluation of time

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Abstract

Empirical research shows decisions about time are often made differently than decisions about money, belying the oft-quoted maxim that “time is money”. However, there are organizational practices such as payment on the basis of time that can make the equivalence of time and money salient and are associated with an economic evaluation of time. Study 1 showed that people paid by the hour applied mental accounting rules to time that are typically only applied to money. Using data from a nationally representative survey, Study 2 documented that people paid by the hour weighed economic returns more strongly in making tradeoffs between time and money. Study 3 showed that participants’ prior exposure to hourly payment was associated with a greater willingness to trade more time for money and that participants randomly assigned to calculate their hourly wage rate expressed greater willingness to trade more time for money. The interaction of prior experience with whether or not participants calculated an hourly wage in predicting participants’ willingness to trade more time for money was fully mediated by the salience of economic criteria in participants’ decision-making.

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In an era where the demands of work have generated concern that people are overworked (Schor, 1992), pressed for time (Perlow, 1997), and their family and community life threatened by spillover from work (e.g., Paden & Buehler, 1995; Putnam, 2000; Repetti & Wood, 1997), understanding how people make decisions about how to spend their time is important. Some of the most influential theories in economics and organizational behavior, for instance agency theory (see Eisenhardt, 1989 for a review), proceed from the premise that people want to spend less time (and less effort) on work. As a consequence, organizations must monitor employees and offer financial inducements to ensure that people put in the time and effort necessary to further organizational

goals. Embedded within organizational strategies to pay people for their time is the idea that time and money can be traded off against each other (i.e., individuals provide their time to organizations in exchange for money). The tradeoffs between time and money are important and theoretically interesting because the decision-making literature has shown that in making choices involving money, people sometimes make decisions that do *not* maximize their expected utilities, at least as assessed by the pleasure of their experiences (Hsee, Zhang, Yu, & Xi, 2003; Tversky & Griffin, 1991).

The adage that ‘time is money’, first attributed to Franklin (1748/1961), is taken to be a truism in Western societies (Lakoff & Johnson, 1980). Usunier (1991), in a cross-cultural study of the meaning and perception of time, noted that “the United States is quite emblematic of the ‘time is money’ cultures, where time is an economic good. Since time is a scarce resource, or at least

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perceived as such, people should try to reach its optimal allocation, between competing ways of using it.” (p. 199).

However, empirical research shows that in some instances, time is *not* money, or at least decisions about time follow different rules than decisions about money. For instance, in a study of consumer behavior, LeClerc, Schmitt, and Dube (1995) found that people were more averse to uncertainty with time as contrasted with money. They concluded that because time is less fungible or substitutable than money, planning is more important for decisions about time and because uncertainty makes planning difficult, people are more averse to uncertainty in decisions about the allocation of time. Using a survey, Soman (2001) found that people do *not* mentally account for their time in the same way as they account for money. In a series of experiments, Soman also demonstrated that the seemingly irrational attention to non-recoverable past costs when making current decisions (the oft-observed “sunk cost” effect) did *not* emerge to the same extent when making choices about time as contrasted with money. The difference in decisions between time and money were not due to variations in rational decision-making but were attributable to the greater difficulty people had in mentally accounting for time. In a similar vein, Okada and Hoch (2004) reported that there were systematic differences in how people spend time versus money, and that these differences could be explained by the greater ambiguity in the value of time, which permitted more accommodation and rationalization.

This paper begins with the premise that organizational practices, such as how organizations pay their employees, may influence the psychological evaluation of time and the tradeoffs people make between time and money. We argue that exposure to some particular organizational practices will lead individuals to both mentally account for their time more like money and also to attend more to the economic evaluation of time in decisions that involve explicit tradeoffs between time and money.

Background and hypotheses

Evans, Kunda, and Barley’s (2004) ethnographic study of technical contractors provides one important clue as to what types of organizational practices might influence the psychological evaluation of time. The informants in Evans et al.’s (2004) study included engineers, software developers, technical writers, and information technology specialists who overwhelmingly sold their services to firms in exchange for an hourly wage. Being paid by the hour and the concomitant requirement to bill firms for the number of hours spent working (i.e., billable hours) led technical contractors to develop “an accountant’s appreciation for the microeconomics of time” (p. 19). Billing hours provided these contractors with extensive practice in accounting for their time and

its value. By being paid by the hour, “unlike salaried employees, contractors could put a precise value on every hour of the day—their hourly wage.” (p. 21).

One of the intriguing findings in Evans et al.’s (2004) study was that even though their informants considered the increased flexibility of when and how long to work as one of the important benefits of contracting, few of the people actually behaved as if they had flexibility. Indeed, Evans et al. reported that the contractors worked longer hours as contingent workers than they did as salaried employees (p. 23). Evans et al. concluded, “When contractors used an economic metric as the sole measure of time, they often discounted the worth of other activities whose economic value was difficult to calculate” (p. 22). Thus, in a context where the monetary aspects of time were continually salient, many contractors gravitated towards deciding to work more rather than fewer hours as they were “acutely aware that every hour they failed to work was lost compensation” (p. 21).

Discounting the worth of activities whose economic value was difficult to evaluate, the idea used by Evans et al. (2004) to explain why contractors gravitated towards spending more time on work, corresponds nicely with research on the influence of *evaluability*—how easy or difficult it is to evaluate attributes—in decision-making (Hsee, 1996; Hsee et al., 2003). Specifically, Hsee (1996) has proposed that when the value of an attribute is hard to assess in comparison to another attribute that is easy to evaluate, people “have to base their evaluation chiefly on the easy-to-evaluate attribute alone” (p. 249). By far the easiest attribute to evaluate is money; and therefore, Hsee et al. (2003) argued that economic criteria “urge[s] decision-makers to focus on economic calculus and choose the option that entails the greatest (perceived) economic gains” (p. 16).

Okada and Hoch (2004, p. 321) reasoned similarly when they argued that time’s ambiguous value produces differences in how people make decisions about time as contrasted with money and when they conjectured that people practiced in selling their time would be more precise in the valuation of time and, therefore, make decisions about time more similar to decisions about money. We posit, therefore, that any organizational practices that make it easier for people to more precisely value their time will tend to make time more like money and influence how people make tradeoffs between time and money. Two organizational practices that seem particularly likely candidates for influencing the ease of economically evaluating the value of time are the practice of billing time and payment by an hourly wage.

Because the practice of billing time lacks widespread use beyond the professions of technical contracting, law and consulting, it was less ideal for a first set of studies exploring the influence of organizational practices on the economic evaluation of time (Evans et al., 2004; Kaveny, 2001; Yakura, 2001). Instead, we began our research by

focusing on the organizational practice that virtually all of the contractors in the Evans et al. ethnography shared: The payment for their services through an hourly wage. With more than half (59%) of all workers in the United States paid by the hour (Mellor & Haugen, 1986), documenting the impact of payment through an hourly wage would speak to the experience of a large segment of the working population.

In the present investigation, we sought to examine whether exposure to hourly payment or making one's hourly wage more salient was associated with the economic evaluation of time and therefore would influence how people might make tradeoffs between time and money. We predicted that hourly workers would be more likely to use the same mental accounting rules for time and money, demonstrating that Soman's (2001) finding of different accounting rules for time and money held more strongly for people not paid by the hour. Based upon Hsee and colleagues' (Hsee, 1996; Hsee et al., 2003) evaluability theory and Evans et al.'s (2004) observations, we also hypothesized that because being paid by the hour would make hourly paid workers more likely to be economic evaluators of time, they would obviously find the use of time for paid work easier to assess through an economic metric than non-paid activities. And because of this difference in ease of evaluation, paid activities would be favored over alternative activities that did not provide compensation. Consequently, we predicted that exposure to hourly payment would be associated with an increased willingness to trade more time for more money, and that, following the preceding logic, this effect would be mediated by the salience of economic criteria in the decision-making process.

Study 1

The mental accounting literature provided the starting point for our first study. The tendency for individuals to track costs that are relevant to a particular expense and 'assign' these costs to the relevant mental account are well documented (e.g., Heath, 1995; Heath & Soll, 1996; Thaler, 1980, 1985, 1999). Recent research, however, has revealed that people tend not to use the same mental accounting heuristics associated with money for making decisions about time (Soman, 2001). For instance, Soman gave participants scenarios where they had to choose between a preferred option (e.g., attending a rock concert) for which they had incurred a small expense (in time or money) and a less-preferred option (e.g., attending a theater performance) for which they had incurred a large expense (again, in either time or money). Soman showed that participants paid more attention to sunk costs when the expense was in money compared to when the sunk cost was time.

To further test whether time investments followed the same mental accounting principles documented for money, Soman (2001) generated eight statements that described the features of the mental accounting model both in terms of money and in terms of time. Soman showed that people surveyed in a shopping mall endorsed these statements for money significantly more than they did for time. He presented this evidence as a demonstration that people evaluate the resource of time in a different way than they evaluate the resource of money.

In the present study, we surveyed people in the adult, full-time labor force using Soman's (2001) statements to see if employees paid by the hour would exhibit a tendency to endorse the same mental accounting rules for both time and money. Of course, some of Soman's studies used student subjects and because it is reasonable to conjecture that students, to the extent they had any work experience at all, had probably been in jobs that paid by the hour, one might argue that Soman's observed differences between time and money already speak, therefore, to the effect of hourly payment. However, we believe comparing adults in the labor force that were and were not paid on an hourly basis would provide a more revealing comparison. That's because students in their day-to-day lives are oriented more around school and associated social activities than they are around work, and their social identities are bound up with being students. Because we argue that hourly paid employees tend to use economic criteria more in making decisions about time and see time and money as more equivalent, we would expect them to apply the same mental accounting rules for money to their time. Consequently, we predicted that hourly workers would be more likely to endorse the same statements of mental accounting for time as for money than would be their non-hourly counterparts.

Method

Participants

Eight-eight people waiting for a commuter train were approached to participate in an anonymous questionnaire about work attitudes; 86% of those approached agreed to fill out the survey. Due to time constraints of the data collection venue, only measures and demographic information directly related to the hypothesis were collected.

Measures

Independent variable. At the end of the survey, participants indicated whether or not they were paid at work by their "time (e.g., by the hour)". A total of 11 respondents indicated that they were paid by time and 54 respondents indicated they were not paid by time. Because 10 participants did not respond to the question, they were excluded from the analysis.

Dependent variables. Participants rated their endorsement of eight different statements associated with mental accounting generated by Soman (2001) that were asked for both money and time on a 1 (*Strongly Disagree*) to 9 (*Strongly Agree*) Likert scale (e.g., “If I have wasted money [time] on a particular activity or item, I try to save it on another activity or item”). The eight items exhibited acceptable reliability for both money ($\alpha = .78$) and time ($\alpha = .82$), and were treated as separate composite measures of endorsement of the mental accounting model. The correlation between these measures of mental accounting for money and time was significant, $r(63) = .53, p < .0001$.

Results

Recall that Soman (2001) found that people endorsed the statements of the mental accounting model more for money than for time. In order to test whether participants paid by the hour differed from those not paid on the basis of time in the way they thought the mental accounting model applied to time and money, we conducted a 2 (endorsement of mental accounting model: money versus time) \times 2 (hourly status: hourly versus non-hourly) ANOVA with repeated measures on the first factor. Results indicated a significant factor by hourly status interaction, Wilks's $\Lambda = .92, F(1, 61) = 5.54, p = .02, \eta_p = .083$. As shown in Fig. 1, the mental accounting patterns documented by Soman were replicated among non-hourly workers but not for hourly workers, who viewed time and money more similarly.

Follow-up *t*-tests indicated that hourly participants' endorsement of the mental accounting model for money ($M = 6.07, SD = 1.94$) did not differ significantly from non-hourly participants ($M = 6.24, SD = 1.16$), $t(61) = .40, ns, \eta_p = .003$. Hourly participants, however, were more likely to endorse the mental accounting model for time ($M = 6.33, SD = 1.56$) than their non-hourly counterparts ($M = 5.47, SD = 1.38$), $t(62) = -1.84, p = .07$,

$\eta_p = .052$. Soman did not actually use the items as a scale, although as noted above, they do exhibit acceptable reliability. Therefore, we also looked at each of the eight statements individually. We found that for each of the eight statements, the average endorsement of hourly workers for each time item was directionally higher than the average endorsement of non-hourly paid participants (sign test, $p < .008$). By contrast, the average endorsement of hourly participants for each money item was higher than the average endorsement of non-hourly participants in only two of the eight items (sign test, $p = .29$). These results again show that the difference between hourly and non-hourly paid participants was in how they thought about time, not money, with the hourly paid individuals being more likely to endorse a mental accounting model for time than their non-hourly paid counterparts.

Discussion

Soman's (2001) finding that people tend to endorse the mental accounting model primarily for money and not for time only held for non-hourly paid participants. Importantly, hourly participants were more likely than their non-hourly counterparts to endorse the mental accounting model for time as well, and thus, appeared to think about their time in the same way they thought about money. Our results suggest that hourly paid workers appeared to be economic evaluators of their time in that they extended the mental accounting rules typically used for money to time. This result is highly consistent with Evans et al.'s (2004) finding that 86% to 91% of the hourly contractors in their study were economic evaluators of time—apprising time solely through a metric of economic value.

It is worth noting that the participants we sampled endorsed the mental accounting model for time more than the participants in Soman's (2001) original sample. Although this type of variation may have occurred

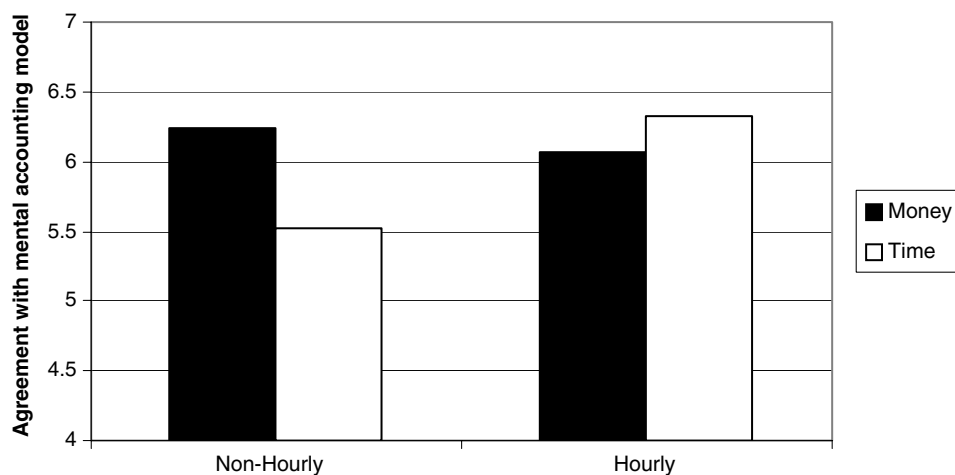


Fig. 1. Endorsement of mental accounting model for money and time by hourly status.

because we sampled a different population, the context in which we elicited participants' endorsements may have made the economic value of time particularly salient and meaningful. Whereas, Soman sampled people in a shopping mall, we sampled people as they were waiting for a commuter train, almost certainly to go to work. Waiting to catch a train to or from work may by itself bring to mind the monetary aspects of time. However, whatever the reason for the difference in the means between our sample and Soman's, it is important to recognize that an overall tendency for our participants to more strongly endorse the mental accounting model for time should make it more difficult for us to detect differences across hourly and non-hourly workers, but we were nonetheless able to do so with the moderate effect size.

Although the results of Study 1 were consistent with our hypothesis about the effect of hourly payment, the sample size, the potential lack of representativeness of the sample, and the absence of controls for the many ways in which hourly and non-hourly workers differ were all serious limitations in generalizing from these results. For instance, it is entirely possible that individuals who account for their time like money choose to work in jobs that pay by the hour, or that non-hourly people equated time with money but exhibited differences across the mental accounting model measures because they held different behavior preferences in how they spend their time (i.e., prefer not to save time).

Another reason why hourly paid workers accounted for their time like money may stem from the fact that how they allocated their time was directly tied to their monetary compensation. Therefore, a logical extension of our argument was to see if hourly paid employees make different decisions about their time when the time-money tradeoff is made explicit to both hourly and non-hourly paid people. So, since there is some suggestion from the results of Study 1 that hourly payment was associated with the economic evaluation of time, we next sought to investigate how people's willingness to trade their time for money would be influenced by the economic evaluation of time in a hypothetical context where time spent on work was directly tied to compensation for all respondents.

Study 2

In Study 2, we drew upon publicly available survey data where respondents were asked whether or not they would choose to trade more of their time for money. The wording of the question coupled the use of time for work directly with earning more money. This hypothetical question highlights the real life tradeoffs inherent in time's finite character as a resource, but simultaneously affords a subjective assessment of how respondents

would make this tradeoff regardless of the real world constraints that might affect such decisions. Additionally, demonstrating that hourly workers make different decisions about their time when faced with an explicit tradeoff between time and money would provide additional insight and evidence into respondents' evaluation of time.

As in the prior study, our measure of exposure to hourly payment was whether or not in their current job the respondent was paid by the hour. Admittedly, this was likely to be a noisy measure of a person's total exposure to hourly payment during his or her working life, and it may be that total experience with being paid by the hour, not just current experience, affects the extent to which people are economic evaluators of time. Because people paid by the hour differ in many ways from those not paid by the hour, we controlled statistically for a number of other variables that might affect respondents' willingness to trade more time for money (e.g., earnings, marital status, education, and so forth).

Evaluability theory (Hsee, 1996; Hsee et al., 2003) suggests that people will choose to trade more of their time for more money because it is easier to evaluate the additional value of more money in comparison to the additional value of more time. The results reported by Evans et al. (2004) suggests that mentally accounting for time in terms of money (i.e., an economic evaluation of time) will amplify these evaluability effects. Specifically, when people mentally account for time like money, economic criteria become even more prominent in decisions. Therefore, spending time on activities that are not easily evaluable in economic terms will be devalued as people make tradeoff decisions. Moreover, with economic criteria as focal in this economic evaluation of time, only time for things that can be easily evaluable along economic dimensions will be given the appropriate weight in the decision-making process. Consequently, we predicted that as economic evaluators, hourly workers would choose to spend their time on activities that can more easily be assigned value in economic terms—paid activities—and therefore would be more willing to trade more time for money than their non-hourly counterparts.

Data and method

This study used the May 2001 Current Population Survey (CPS) Work Schedule Supplement. This was the most recent CPS dataset to include an item assessing peoples' willingness to trade more of their time for money. Although Shank (1986) has examined the relationship between a number of demographic variables and people's willingness to trade more of their time for money from the 1985 CPS, this was the first time to our knowledge where the effect of hourly status on this tradeoff has been examined. The Work Schedules and

Work at Home Supplement questions were asked of all applicable persons age 15 years and older. The file contains information on a host of job and personal characteristics. Extensive documentation of the survey may be obtained through CPS's webpage (<http://www.bls.census.gov/cps>).

Measures

Independent variable. We created a dummy variable for the respondents' hourly status based on the CPS variable PEERNHRY, where 0 indicated non-hourly status and 1 indicated hourly status. All other values were treated as missing. The demographic associations with this variable have been extensively documented by Mellor and Haugen (1986).

Dependent variable. Respondents' preferences for spending more time on paid work were assessed with a single item on the CPS, the variable PESRW. The CPS interviewer asked the respondent if they "had a choice" at their main job, would they: "Work fewer hours but earn less money", "Work the same hours and earn the same money", or "Work more hours but earn more money". We coded responses into a measure where "less money" was coded as -1, "same money" was coded as 0, and "more money" was coded as 1. Thus, higher values on our main dependent measure indicate a respondents' willingness to spend more time on paid work.¹

Control variables. Several control variables measured the characteristics of the job that would be expected to affect choices about trading time for money: weekly earnings (PTERNWA), number of hours actually worked at all jobs (PEHRACTT), and sector of main job (PEIOICOW). The original values for sector were recoded so that private-for profit was the baseline category, one dummy variable indicated Government sector (Federal, State, and Local collapsed) and the other dummy variable indicated Private-Nonprofit. Self-employed people and respondents without pay were not included in the independent variable of hourly status and so were excluded from the analysis. The major occupation categories (PRMJOCGR) were coded into three dummy variables (i.e., "Managerial and Professional, Technical, Sales and Support Occupations"; "Production, Craft, Repair, Operators"; and "Farming, Forestry and Fishing Occupations") with "Service Occupations; Production, Craft, Repair, Operators" as the baseline category.

Several control variables measured characteristics of individuals that might be expected to affect their pre-

Table 1
Demographic characteristics and willingness to trade more time for more money by hourly status in May 2001 CPS

Variables	Non-hourly (n = 5086)	Hourly (n = 7829)
Gender (% female)	45.8%	50.8%
Age (M)	41.8 yrs	38.0 yrs
Education (%)		
High school drop out	5.0%	18.2%
High school graduate	21.7%	38.0%
Some college	16.6%	20.9%
Postgraduate degree holders	16.7%	2.3%
Marital Status (% married)	66.6%	51.1%
Number of children (M)	.72	.65
Weekly income (M)	\$875.8	\$473.0
Family income (%)		
<\$25,000	9.1%	23.3%
\$25,000-\$49,000	24.6%	35.1%
\$50,000 or more	66.3%	41.5%
Number of hours worked (M)	42.8 h	36.5 h
Class of work (%)		
Private-for profit	70.4%	80.8%
Government	22.8%	13.2%
Private-Nonprofit	6.8%	6.0%
Occupation (%)		
Managerial and Professional, Technical, Sales and Support	74.8%	48.8%
Service	10.0%	18.7%
Production, Craft, Repair, Operators	13.7%	30.3%
Farming, Forestry, and Fishing	1.5%	2.3%
Preference for trading time (%)		
Fewer hours, less money	9.4%	5.8%
Same hours, same money	73.6%	62.1%
More hours, more money	17.0%	32.1%

ferred allocation of time: age (PRTAGE), gender (PESEX), marital status (PEMARITL), and number of children (PRNMCHLD). Total household family income in the past 12 months (HUFAMINC) was assessed at 14 different levels from 1 (*Less Than \$5000*) to 14 (*75,000 Or More*).² The education categories (PEEDUCA) 31–46 were coded into four dummy variables with high school dropouts (31–38) as the baseline category and dummy variables for some college (40), college graduates (41–43), and postgraduate degree holders (44–46).

Results

The major demographic differences between hourly and non-hourly workers are reported in Table 1.

¹ Treating this variable as an ordinal response modeled with ordered logit resulted in equivalent findings for the effects of hourly status as treating this variable as a linear response estimated with ordinary least squares regression.

² Removing the assumption of linearity by treating household family income as $k - 1$ dummy variables did not change the findings for hourly status in our regression analysis.

The two variables most relevant to the tradeoff between time and money were respondents' current earnings and numbers of hours spent on work. On average, hourly workers earned less per week ($M = 472.97$, $SD = 322.60$) than non-hourly ($M = 875.78$, $SD = 572.03$), $t(12913) = 51.05$, $p < .0001$, $\eta_p = .168$; and hourly workers worked fewer hours per week ($M = 36.53$, $SD = 12.41$) than non-hourly ($M = 42.81$, $SD = 12.15$), $t(12591) = 27.97$, $p < .0001$, $\eta_p = .058$. By themselves, of course, these two differences associated with hourly status suggest that hourly workers may be more willing to trade more of their time for money simply because they earn less and work fewer hours than their non-hourly counterparts. Thus, including control variables for differences between hourly and non-hourly workers was critical to testing our hypothesis about the effects of hourly payment.

The bottom of Table 1 shows the frequency of responses for hourly and non-hourly workers across the three different levels of the dependent variable. A contingency test for independence across hourly status on this variable indicated highly significant differences between hourly and non-hourly workers, $\chi^2(2, N = 10620) = 316.10$, $p < .0001$. Whereas, 32.1% of hourly workers indicated that they would trade more of their time for more money, only 17.1% of non-hourly workers did so. This finding is consistent with our hypothesis, but can potentially be explained by other differences associated with hourly status.

In order to see whether the effect of being paid by the hour influenced respondents' willingness to trade more time for money net of other factors that might be associated with hourly status and with the time-money tradeoff, we conducted regression analyses using a number of variables as covariates as reported in Table 2.

As the full regression model in Table 2 shows, holding constant a wide set of demographic characteristics related to individuals and their jobs, hourly payment was associated with a greater willingness to trade more time for money in comparison to workers not paid by the hour, $\beta = .04$, $t(5839) = 3.00$, $p = .003$. With regard to the other demographic characteristics, both weekly earnings, $\beta = -.09$, $t(5839) = -5.13$, $p < .0001$, and the number of hours worked per week, $\beta = -.06$, $t(5839) = -4.48$, $p < .0001$, were associated with a decreased willingness to trade more time for money, as one might expect. Working in the government sector in comparison to the for-profit sector was associated with an increased willingness to trade more time for money, $\beta = .03$, $t(5839) = -2.35$, $p = .01$, but none of the dummy variables for occupation were significant. In comparison to respondents without a high school degree, each level of education was associated with less willingness to trade more time for money (ps range from .09 to .0001). Additionally, family income, $\beta = -.09$, $t(5839) = -6.14$, $p < .0001$, age, $\beta = -.14$,

Table 2
Predicting tradeoff to spend more time for money in Study 2

Predictors	β
Hourly status (0 = non-hourly; 1 = hourly)	.04**
Number of hours worked per week	-.06**
Income earned per week	-.09**
Class of work dummies (relative to private-for profit)	
Government	.03*
Private-Nonprofit	-.02
Major occupation dummies (relative to Service)	
Managerial and Professional, Technical, Sales and Support	.00
Production, Craft, Repair, Operators	-.02
Farming, Forestry, and Fishing	.00
Education (relative to "High school drop out")	
High school graduate	-.05*
Some college	-.03+
College degree	-.06*
Postgraduate degree holders	-.07**
Family income	-.09**
Age	-.14**
Gender (0 = male; 1 = female)	-.10**
Marital Status (0 = not married; 1 = married)	-.05**
Number of children	.01
<i>df</i> error	5839
Adjusted R^2	.10**

Note. Values indicate standardized beta coefficients from OLS regressions. Positive values indicate a greater willingness to work more hours and earn more money.

* $p < .05$

** $p < .005$.

$t(5839) = -10.25$, $p < .0001$, being female, $\beta = -.10$, $t(5839) = -7.82$, $p < .0001$, and being married, $\beta = -.05$, $t(5839) = -3.44$, $p = .001$, were all associated with a decreased willingness to trade more time for money.

With such a large sample size, some might note that statistical significance is less informative and that effect size may be of more relevance and interest. We note that the size of the effect of being paid by the hour was comparable to the actual number of hours spent working in predicting the willingness to trade more time for money.

Discussion

Using a nationally representative sample of employed people, the results of Study 2 provide support for our hypothesis that hourly payment increases people's willingness to trade more of their time for money. Holding constant a wide set of demographic differences associated with hourly status, hourly workers were more willing to trade more of their time for money than non-hourly workers. Although current hourly status may be a noisy proxy for respondents' exposure to hourly payment, it nevertheless explained a unique amount of variance and had effects that were

comparable in magnitude to other important job characteristics such as hours worked and earnings. Beyond idiosyncratic preferences, the primary determinants of a person's willingness to trade more of their time for money should be how much money they earn and how much time they spend working. The method of payment, however, also influenced people's decisions about how this tradeoff should be made, and, consistent with our hypothesis about the economic evaluation of time, being paid by the hour appeared to make the economic payoffs of this tradeoff more important.

Although the hypothetical framing of the tradeoff meant that all respondents, not just those paid by the hour, could hypothetically trade more time for money, one limitation in interpreting the results of the survey was that the question may have elicited more of a counterfactual response from non-hourly workers (who cannot in fact, normally trade more time for money) and conversely, hourly workers may have perceived this question as more realistic. Although such a potentially different experience of the question is not ideal for making comparisons, this difference does not by itself imply that hourly workers should be willing to trade *more* of their time for *more* money than non-hourly workers.

Obviously, the cross-sectional nature of the evidence for our hypothesis limits our ability to speak to the causal role of exposure to hourly payment. As with Study 1, it is entirely possible that people who are willing to trade more of their time for money simply select into jobs that pay with an hourly wage or there may be some unobserved heterogeneity between hourly and non-hourly workers that explains the present finding that is unrelated to exposure to payment with an hourly wage but that was not captured by our control variables. To address these issues, our next study sought to both measure people's prior exposure to hourly payment and to experimentally manipulate people's exposure to hourly payment by randomly assigning people to calculate their approximate hourly wage rate. If having people calculate their hourly wage rate induces those with little experience with hourly payment to behave similarly to those with extensive experience, we would have even stronger evidence for the causal role of being paid by the hour. Indeed, showing that by simply providing information that facilitates the equation of time with money influences people's preferences to trade more of their time for money would be strong evidence that mental accounting is affected by hourly payment.

Study 3

If exposure to hourly payment plays a role in people's willingness to trade more of their time for money, we

predicted that the greater prior exposure an individual had to hourly payment over the course of their working life, the more willing they would be to trade more time for money. Moreover, if it is evaluability that affects this tradeoff, and what hourly payment does is make the economic value of time more salient and explicit, then it is possible that people with little or no prior exposure to hourly payment who calculate their approximate hourly wage rate would exhibit a similar willingness to trade more time for money as their counterparts with extensive prior exposure to hourly payment. In Study 3, we used a convenience sample of employed participants where we could assess prior exposure to hourly payment and experimentally manipulate exposure to knowing their hourly wage rate by having participants calculate their approximate hourly wage rate as part of the study. Additionally, Study 3 afforded us the opportunity to directly measure the psychological variable we have hypothesized to be driving the effects of hourly payment on people's willingness to trade more of their time for money, the increased salience of economic criteria in decision-making.

Method

Participants

Participants were recruited from a nation-wide database maintained at a private university to respond to several questions about their work experiences. A total of 62 participants (39 of whom were women) completed an online questionnaire in exchange for a \$5 gift certificate to an online retailer. Participants' ages ranged from 19 to 67 ($M = 37.92$, $SD = 12.03$) and 58.1% held either a college and/or advanced degree. The vast majority of participants held their principal job in the private-for-profit sector (71.0%).

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.

Manipulation

Participants in both conditions responded to three questions about the prior year: how much they earned before taxes or other deductions, how many hours they usually worked per week, and how many weeks they worked. Those assigned to the control condition proceeded directly to the dependent measures, whereas, participants in the "calculate hourly" condition were presented with two additional questions which asked them to calculate their approximate hourly wage. Partic-

Participants were told they should feel free to use scratch paper or a calculator on their computer in responding to these two questions. Participants in the calculate hourly condition were asked to multiply the number of weeks worked in the prior year (answer provided in the second question of the survey) by the average number of hours worked per week in the prior year (answer provided in the third question of the survey). Then participants were asked to take their yearly salary in the prior year (answer provided in the first question of the survey) and divide it by the total number of hours they worked during the year (the calculated answer provided in the fourth question of the survey). Participants were told that this number was their “approximate hourly wage (i.e., the amount of money you earn per hour).”

Measures

Prior exposure to 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 item assessed participants’ approximate total experience over their working lives with hourly payment.

Willingness to spend more time on paid work. Participants were asked to suppose they could change the way they spend their time, spending more on some things and less on others, and rated how much time they would spend on “paid work” using a 1 (*Spend much less*) to 7 (*Spend much more*) Likert scale.

Salience of economic criteria in decision-making. Participants were asked to rate their agreement on three items tapping the extent to which they considered economic criteria to be primary when making everyday decisions (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 choice), I primarily consider monetary criteria”) using a 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) Likert scale. These items exhibited good reliability (Cronbach’s $\alpha = .77$) and were used as a composite measure of the salience of economic criteria in decision-making.

Approximate hourly wage rate. Participants’ responses to how much they earned before taxes or other deductions, how many hours they usually worked per week, and how many weeks they worked were used to calculate their approximate hourly wage rate. This was computed for all participants, not just those in the condition where they had to do the calculation themselves as part of the experimental manipulation.

Results

Table 3 reports the means, standard deviations, and intercorrelations among the study variables. Participants had an average approximate hourly wage of \$26.18 per hour and this wage rate was not significantly correlated with any of the other variables. Although participants were randomly assigned to condition, there was a tendency for participants with less prior exposure to hourly payment to be in the control condition. However, a contingency test showed that assignment to condition and the frequency of participants at each of the seven levels of prior exposure to hourly payment did not differ from what we would expect by chance, $\chi^2(6, N = 60) = 10.04, ns$.

To test the effect of both prior exposure to hourly payment and the effect of calculating an hourly wage, we followed the regression procedures outlined by Aiken and West (1991) where participants’ reports of prior exposure to hourly payment were mean centered to reduce multicollinearity. Participants’ approximate hourly wage was included in the model as a covariate and the regression analysis used the mean-centered variable of prior exposure to hourly payment, experimental condition (control = 0; calculate hourly = 1), and the cross product of prior exposure to hourly payment and condition provided the interaction term for the model.

The left hand column of Table 4 in model I reports the full regression model predicting willingness to spend more time on paid work. Prior exposure to hourly payment was associated with a greater willingness to spend more time on paid work, $\beta = .56, t(53) = 2.55, p = .01$. Although there was no main effect of calculating an hourly wage, there was a significant interaction between the experimental condition and prior hourly experience, $\beta = -.45, t(53) = -2.12, p = .04$.³

Fig. 2 decomposes the interaction between experimental condition and prior exposure to hourly payment at one standard deviation above and below the sample mean for prior exposure. The figure indicates that having people with minimal prior exposure to hourly payment calculate their hourly wage rate increased their willingness to spend more time on paid work; whereas, people with extensive prior exposure to hourly payment expressed a willingness to spend more time on paid work regardless of whether or not they calculated their hourly wage rate.

³ Using current hourly status instead of total prior exposure resulted in a similar main effect for hourly status on willingness to spend more time on paid work, $\beta = .54, t(55) = 3.21, p = .002$, and the experimental condition by current hourly status interaction term was directionally similar to the prior exposure to hourly payment by condition interaction term but not significant, $\beta = -.27, t(55) = -1.50, p = .14$. It appears that total prior exposure to hourly payment gave us the additional precision and variance we needed to detect the interaction.

Table 3
Intercorrelations of variables in Study 3

Variables	Mean	SD	1	2	3	4	5
1. Prior exposure to hourly payment	4.93	2.10	—				
2. Condition	.50	.50	-.35**	—			
3. Salience of economic criteria	4.67	1.31	.27*	-.03	—		
4. Time on paid work	4.37	1.33	.07	.11	.47**	—	
5. Approx. hourly wage	26.18	40.45	-.07	.16	.05	.13	—

* $p < .05$.

** $p < .01$.

Table 4
Predicting willingness to spend more time on paid work (Model I) and salience of economic criteria in decision-making (Model II) in Study 3

Predictors	Model I	Model II
Approx. hourly wage rate	.13	.07
Prior exposure to hourly payment	.56*	.70**
Condition	.11	.09
Prior exposure \times Condition	-.45*	-.46*
Degree of freedom error	52	53
F-value	1.89	2.77*
Adjusted R^2	.06	.11

Note. Values indicate standardized beta coefficients from OLS regressions. Positive values indicate a greater willingness to spend more time on paid work or a greater use of economic criteria in everyday decision-making.

* $p < .05$.

** $p < .01$.

Salience of economic criteria in decision-making

We next used the same regression model to predict the salience of economic criteria in participants' decision-making (right hand column of Table 4 in Model II). Prior exposure to hourly payment was associated with a greater salience of economic criteria, $\beta = .70$, $t(52) = 3.23$, $p = .002$, there was no main effect of calculating an hourly wage, and there was again a significant interaction with experimental condition, $\beta = -.46$, $t(52) = -2.20$, $p = .03$.

Mediational analysis

We considered the mediating role of the use of economic criteria in decision-making in explaining the interaction of prior exposure to hourly payment and experimental condition in predicting willingness to spend more time on paid work.

Regression analyses were conducted to determine whether the interaction effect on willingness to spend more time on paid work was mediated by the extent to which economic criteria were salient in decision-making (i.e., mediated moderation; Baron & Kenny, 1986). Willingness to spend more time on paid work was first regressed on prior experience with hourly payment, experimental condition, and prior exposure to hourly payment \times condition and then also on the salience of

economic criteria in decision-making. Fig. 3 reports the standardized regression coefficient paths for this mediated moderation analysis.

The prior experience with hourly payment \times condition interaction was initially significant, $t(53) = -2.21$, $p < .05$, and became nonsignificant when the salience of economic criteria was entered, $t(51) = -1.27$, *ns*. The effect of salience of economic criteria was significant, $t(51) = 3.01$, $p < .005$. This pattern of effects indicated that the prior experience with hourly payment \times condition interaction was fully mediated by the extent to which participants considered economic criteria to be salient in their decision-making, ($z = -1.97$, $p < .05$, by Goodman test).

Discussion

The more prior exposure participants had to hourly payment, the more willing they were to trade more of their time for money. With a more direct measure of prior exposure to hourly payment, we conceptually replicated the finding of Study 1 where respondents' current hourly status was used as a proxy for respondents' exposure to hourly payment. Having participants calculate their approximate hourly wage significantly affected the relationship between prior exposure to hourly payment and the willingness to trade more time for money. Specifically, participants with minimal prior exposure to hourly payment who calculated their approximate hourly wage exhibited a similarly high willingness to trade more time for money as participants who had extensive exposure to hourly payment. Importantly, this interaction was fully mediated by the extent to which participants indicated that economic criteria were salient in their decision-making. Although hourly and non-hourly workers may differ on some third unmeasured variable that explains differences in their willingness to trade more time for money, the data revealed that merely having participants with little or no prior exposure to hourly payment calculate their approximate hourly wage was sufficient to invoke an increased willingness to trade more time for money, and this result was due to the salience of economic criteria in decision-making.

Future research will need to assess whether the influence of current hourly status, the variable that we used in Studies 1 and 2, differs substantively in its effects from the total prior exposure to hourly payment that we assessed in Study 3. Indeed, assessing total prior exposure to hourly payment may offer a fruitful way to disentangle the confounding role of job content associated with hourly work beyond experimentally manipulating hourly payment. By tracking prior exposure to hourly payment, future research could compare individuals holding the identical salaried job and potentially still document differences in the economic

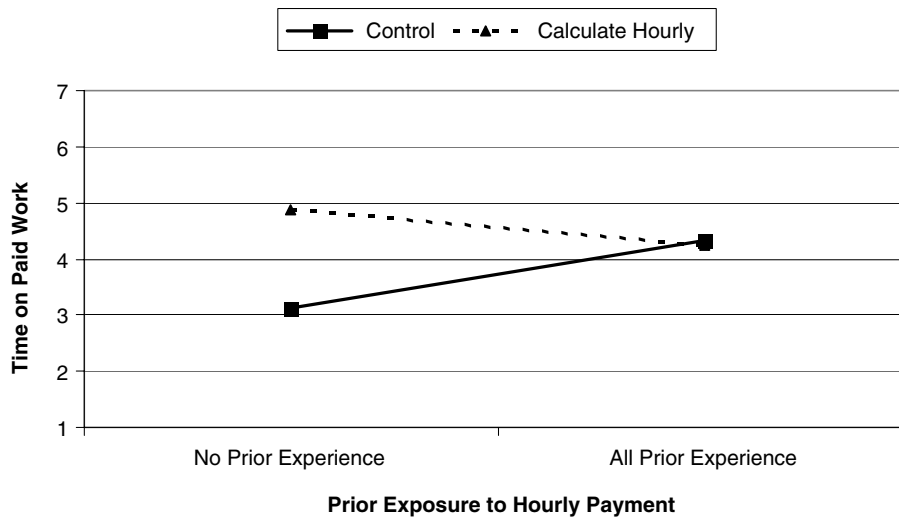


Fig. 2. Willingness to spend more time on paid work by prior exposure to hourly payment and condition.

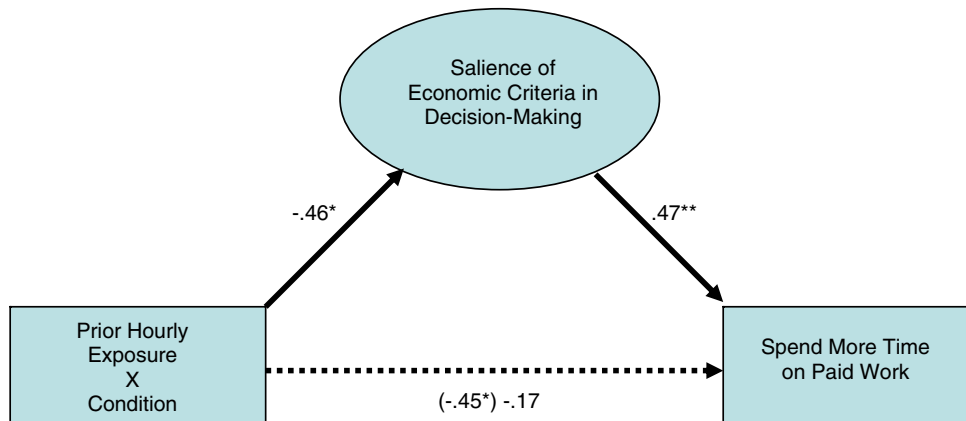


Fig. 3. Mediation of the prior exposure to hourly payment by condition interaction on willingness to spend more time on paid work.

evaluation of time based on prior exposure to hourly payment.

Nonetheless, our experimental findings indicate that hourly payment affects the economic evaluation of time. Moreover, the present experimental finding eliminates the obvious alternative explanation that differences among hourly and non-hourly workers were due only to inherent differences that caused differential selection of people into jobs that pay by the hourly rather than our hypothesis that exposure to hourly payment caused these differences.

General discussion

We tested the hypothesis that exposure to the organizational practice of hourly payment would lead individuals to both mentally account for their time more like money and weigh the economic returns of how they allocated their time more heavily in tradeoffs between time

and money. Although previous research has documented that people treat time differently than money, we showed that people paid by the hour were more likely to be economic evaluators of their time. While prior research has documented the tendency for people to endorse rules associated with the mental accounting for money but not for time, we showed that this was only true for people not paid by the hour.

Consistent with the hypothesis that hourly payment increases the tendency for people to be economic evaluators of time, we showed, using a nationally representative survey of the US workforce, that hourly workers expressed a greater willingness to trade more of their time for money holding constant a wide set of control variables. Moreover, we replicated this finding with a convenience sample by showing that the more prior exposure to hourly payment participants had, the more willing they were to trade more of their time for money. And, participants with little or no prior exposure to hourly payment were more willing to trade their time for

money when they performed the task of calculating their hourly wage rate. Thus, salience of one's hourly pay rate induced non-hourly paid people to express a willingness to trade more of their time for money similar to those with extensive hourly pay experience. Additionally, we showed that the interaction of prior exposure to hourly payment and calculating an hourly wage on participants' willingness to trade their time for money was fully mediated by the increased salience of economic criteria in decision-making.

Taken together, these studies suggest that exposure to hourly payment increases the economic evaluation of time and, therefore, identifies a common organizational circumstance under which people are likely to treat their time as similar to money and are more likely to evaluate time based upon economic criteria. Furthermore, given that participants with little or no prior experience with hourly payment can be made to express preferences like participants with extensive experience with hourly payment merely by providing them with information that facilitates the equation of time with money (i.e., their hourly wage rate), this gives us more confidence that hourly payment does play a causal role in decisions about the allocation of time.

The results of the present investigation may help shed light on the intriguing paradox Evans et al. (2004) identified among contingent workers, who despite having flexibility over the amount of hours worked, behaved as if they had very little discretion over how they allocated their time. Our results suggest that one explanation for this paradox is that exposure to hourly payment leads individuals to economically evaluate their time, weighing the economic returns of time more heavily when presented with the tradeoff of time and money. So, for instance, even though people often desire the flexibility to spend less time on work, an hourly payment system may decrease the likelihood workers will actually make decisions about their time use consistent with those preferences.

Implications for future research

The fact that having people calculate their hourly wage rate made people with little or no experience with hourly payment make tradeoffs more similar to their counterparts with extensive experience with hourly payment is an intriguing finding with a number of implications, particularly if replicated. Some information systems automatically calculate and print equivalent hourly wages on pay stubs even for people not paid by the hour. It would be useful to study differences in time-money associations, the mental accounting for time and money, and how people make decisions about allocating their time using the implementation of such systems as natural experiments.

Additionally, there are other organizational practices that can make people consider time primarily based upon whether it provides economic payoffs that may have effects similar to the ones we have documented for hourly pay, even though the practices are not directly tied to how people are paid. A clear example is billing and/or accounting for time at work. Consistent with this possibility is a recent ethnographic study by Yakura (2001) that documented how time's economic value was emphasized in a consulting firm, possibly because of the need to bill time and allocate it to specific clients and projects.

Finally, it is also worth considering how organizational practices such as hourly payment may have some self-fulfilling effects. For example, if hourly payment systems lead people to treat time more similarly to money in mental accounting and be more willing to trade more of their time for money, empirical observation will show that people are primarily motivated by extrinsic incentives. Such observations would then operate to confirm the underlying logic of an hourly payment system—people act as if time is money—not because of its *a priori* truth but because such behaviors were induced by existing organizational practices (Ferraro, Pfeffer, & Sutton, 2005; Schwartz, Schuldenfrei, & Lacey, 1981).

Recently, the vast majority of scholarship on time has focused on how little of it people in the United States think they have for their life outside of work—what Schor (1992) termed the plight of the “over-worked American.” More than ever it seems how we evaluate time holds profound consequences for individuals, organizations, and society. We believe that this literature can be enriched by a deeper consideration of why people feel compelled to spend so much of their time on activities that provide economic payoffs even as they complain about their choices. Although, attempts to maximize the efficiency of people's time at work in order to better manage time are valuable (e.g., Perlow, 1997, 1998), we have argued that organizational practices may play a role in how people evaluate their time. We need to understand more about what organizational practices affect decisions about time and time use, and how such practices have these effects. Evaluability and salience are two important theoretical ideas that can guide such explanations, but they are not the only concepts or theoretical perspectives that ought to be considered.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.obhdp.2006.05.003](https://doi.org/10.1016/j.obhdp.2006.05.003).

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: testing and interpreting interactions*. Newbury Park, CA: Sage.
- 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.
- Eisenhardt, K. M. (1989). Agency theory: an assessment and review. *Academy of Management Review*, *14*, 57–74.
- 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.
- Ferraro, F., Pfeffer, J., & Sutton, R. I. (2005). Economic language and assumptions: How theories can become self-fulfilling. *Academy of Management Review*, *30*, 8–24.
- Franklin, B. (1748/1961). Advice to a young tradesman. In L. W. Labaree & W. J. Bell (Eds.), *The papers of Benjamin Franklin: January 1, 1745, through June 30, 1750* (Vol. 3, pp. 306–308). New Haven, CT: Yale University Press.
- Heath, C. (1995). Escalation and de-escalation of commitment in response to sunk costs: the role of budgeting in mental accounting. *Organizational Behavior and Human Decision Processes*, *62*, 38–54.
- Heath, C., & Soll, J. B. (1996). Mental budgeting and consumer decisions. *Journal of Consumer Research*, *23*, 40–52.
- Hsee, C. K. (1996). The evaluability hypothesis: an explanation for preference reversals between joint and separate evaluations of alternatives. *Organizational Behavior and Human Decision Processes*, *67*, 247–257.
- Hsee, C. K., Zhang, J., Yu, F., & Xi, Y. (2003). Lay rationalism and inconsistency between predicted experience and decision. *Journal of Behavioral Decision Making*, *16*, 257–272.
- Kaveny, M. C. (2001). Billable hours in ordinary time: a theological critique of the instrumentalization of time in professional life. *Loyola University Chicago Law Journal*, *33*, 173–220.
- Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.
- LeClerc, F., Schmitt, B. H., & Dube, L. (1995). Waiting time and decision making: is time like money? *Journal of Consumer Research*, *22*, 110–119.
- Mellor, E. F., & Haugen, S. E. (1986). Hourly paid workers: who they are and what they earn. *Monthly Labor Review*, *109*, 20–26.
- Okada, E. M., & Hoch, S. J. (2004). Spending time versus spending money. *Journal of Consumer Research*, *31*, 313–323.
- Paden, S. L., & Buehler, C. (1995). Coping with the dual-income lifestyle. *Journal of Marriage and Family*, *57*, 101–110.
- Perlow, L. A. (1997). *Finding time: How corporations, individuals and families can benefit from new work practices*. Ithaca, NY: Cornell University Press.
- Perlow, L. A. (1998). Boundary control: the social ordering of work and family in a high-tech corporation. *Administrative Science Quarterly*, *43*, 328–357.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.
- Repetti, R. L., & Wood, J. (1997). Effects of daily stress at work on mothers' interactions with preschoolers. *Journal of Family Psychology*, *11*, 90–108.
- Schor, J. B. (1992). *The overworked American: The unexpected decline of leisure*. New York: Basic Books.
- Schwartz, B., Schuldenfrei, R., & Lacey, H. (1981). Operant psychology as factory psychology. *Behaviorism*, *6*, 229–254.
- Shank, S. E. (1986). Preferred hours of work and corresponding earnings. *Monthly Labor Review*, *109*, 40–44.
- Soman, D. (2001). The mental accounting of sunk time costs: why time is not like money. *Journal of Behavioral Decision Making*, *14*, 169–185.
- Thaler, R. H. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization*, *1*, 39–60.
- Thaler, R. H. (1985). Mental accounting and consumer choice. *Marketing Science*, *4*, 199–214.
- Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, *12*, 183–206.
- Tversky, A., & Griffin, D. (1991). Endowment and contrast in judgments of well-being. In F. Strack, M. Argyle, & N. Schwartz (Eds.), *Subjective well-being: An interdisciplinary perspective* (Vol. 21, pp. 101–118). Oxford: Pergamon Press.
- Usunier, J. G. (1991). Business time perceptions and national cultures: a comparative survey. *Management International Review*, *39*, 197–217.
- Yakura, E. K. (2001). Billables: the valorization of time in consulting. *American Behavioral Scientist*, *44*, 1076–1095.