Special Session Summary  Consumers’ Evaluation of Time

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SESSIO N OVERVIEW

The fact that time is becoming an increasingly scarce resource among consumers has been known for some time now. A special issue on “Consumption of Time” published in the Journal of Consumer Research in March 1981 urged researchers to study how consumers’ time perceptions influence decision making. We have made considerable progress since and are now aware that the concept of time is sensitive to various perceptual and contextual factors. Much research has been dedicated to explaining how consumers experience the passage of time and use that experience as an input into their judgments and decision making. More recently, the field has focused increased attention to studying time as an important resource that consumers actively evaluate vis-à-vis other resources such as money. A cursory look at the last few issues of JCR seems to suggest that at least one research paper per issue considers the effects of time as a variable in some form or the other. This session therefore was timely (yes, we said it) in that it brought together three papers that highlight important aspects of how time is experienced, perceived, and valued, and how that influences decisions and choices.

In the first presentation, Vicki Morwitz and Priya Raghubir examined how people’s perception of time systematically deviates from actual time as a result of the nature of the temporal experience. Their work demonstrated that consumers do not consider all delays to be equal, even when total elapsed time is held constant. In the second presentation, Lance Erickson and Narayan Janakiraman explored the effects of unexpected delays on consumers’ time/money tradeoffs. They proposed that the timing of the communication of a delay can have differential effects on consumers depending on whether they have been required to put down a deposit or have been offered a rebate. Finally, Erica Mina Okada and Stephen Hoch explained why people seem more willing to waste time than money by showing systematic differences in the way that people ex ante spend time versus money and ex post differences in how they evaluate decision outcomes experienced after spending time or money.

“Biases in the Perception of Experienced Time”

Priya Raghubir, University of California – Berkeley
Vicki G. Morwitz, New York University

In many marketing contexts, consumers’ time perceptions can influence their purchase likelihood and satisfaction (e.g., perceptions of time one is waiting in a line, on the phone, or in traffic to purchase a product or service, a delay in the loading of a web page, etc.). We suggest that perceived time systematically deviates from actual time, and that the direction and magnitude of these deviations is contingent on the nature of the temporal experience. If this is true, then marketers in some situations can use this knowledge to influence their consumers’ time perceptions. In some instances, marketers wish to reduce consumers’ perceptions of elapsed time (e.g., waiting lines, web down-load times), while in others, they may wish to increase elapsed time perceptions (e.g., amusement park rides, experiential services). In yet other situations, marketers may simply wish to be aware of how the execution of their decisions influences consumers’ perceptions of elapsed time (e.g., design of TV/radio advertisements). This research examines the antecedents behind biases in expected and experienced time.

We propose that characteristics of the Delay, Goal, and Perceivers affect time perceptions. Delay characteristics examined include (i) number of delays, (ii) the length of each delay, (iii) the nature of delays (continuous or discrete) and (iv) the timing of delays (early versus late). The first set of experiments examines the effects of number, length, and nature of delay on time perceptions. The second set incorporates delay timing and goal characteristics, specifically the proximity to a goal and whether or not the goal has been achieved. Perceiver characteristics examined include individual differences on attitudinal and behavioral variables such as punctuality, what time of day the person operates best (night or day), driving speeds (at different speed limits), whether they set their watches ahead, and their attitudes to and behavior during time changes (at start and end of DST).

Overall, we propose that the underlying reason for biases in time estimation is because people inappropriately estimate mean using the variance of a temporal sequence. The number and nature of delays both affect the variance of speed across a time period. Specifically, we expect that estimates of experienced stopping time would regress to the mean when experienced. This would lead to a single long delay being underestimated and multiple short delays being overestimated. This would imply that people would prefer a single discrete form of delay rather than multiple short ones. However, when stopping time was not experienced, then the number of delays would be used as a cue to estimate overall stopping time. This would lead to a reversal of the effects: people would prefer multiple short delays compared to a single discrete form of delay. However, irrespective of whether time was experienced or not, we expected that continuous delays characterized by a short-term drop in speed would be perceived to be the longest. This is because for these delays neither the cue of a single stopping time length, nor the cue of a finite number of stops is easily available. The uncertainty (variance) associated with the absence of these cues translates into higher estimated delay time.

Study 1 systematically manipulated the delay at three levels: single continuous delay, single discrete delay, and multiple discrete delays. The cover story involved a traffic scenario. Participants were given a scenario about a person who drives to the supermarket to purchase microwave popcorn, then drives to the video store and picks up a video, and then drives home. In the single continuous delay condition, the driver was required to stop at a stop light behind a long line of cars that inched their way up to the stop sign, in the single discrete delay condition, the analog was a traffic light at which the driver stopped and then proceeded, and in the multiple discrete delay condition, there were three stop signs. We matched length of wait times (120 seconds), route distance (2.3 miles @ 25 mph speed), actual duration (5.52 minutes), and the semantic descriptions of delays (82-87 words). Three studies were conducted: two paper-and-pencil based scenario studies (within- and between-subjects), and a between-subjects computerized experiment where the scenarios were visually presented in real time on a computer screen. Participants estimated the time and distance of the journey. In all studies, the single discrete delay was perceived to be faster than the single continuous delay. The perceived duration for the multiple discrete delays varied as a function of whether time was experienced or not, as predicted. These results have interesting implications for marketers. For example most software programs...
and web pages appear to give information about delays using a semi-continuous visual measure such as a bar filling up towards 100 percent. Our results suggest that such techniques lengthen rather than shorten perceived time.

The second set of studies examines time perceptions for journeys that vary in the variance of the speed across the journey (holding mean speed constant) in the presence as well as absence of delays. Continuing with the traffic scenario analogy, we manipulate the variance of speed via the nature of the driving (weaving between lanes with varying speed, or driving at a constant speed), and the salience of this delay via its timing (shortly after the journey began or near its end). As with the previous set of experiments, the studies were within and between subjects, paper-and-pencil as well as computerized studies where time was experienced. Data collection for the studies is complete, and analysis is in progress. Time permitting, we will discuss the main findings from related research that examines the effect of goal characteristics: specifically time perceptions for equal length periods prior to and after achieving a goal such as driving to a desired destination versus driving back home. Preliminary results from three studies suggest that perceived time is longer when approaching a goal compared to after achieving a goal: It is faster getting back home.

“The Effects of Unexpected Delays on Consumers’ Time/ Money Tradeoff Decisions”
Narayan Janakiraman, University of Arizona
Lance-Michael Erickson, University of Arizona

Consumers often make tradeoffs between waiting longer and paying more to enjoy the benefit(s) of a product. A common scenario where time is explicitly traded for money is the case where one chooses different shipping modes (and hence waiting times) based on shipping costs. The way that consumers make these tradeoffs has traditionally been studied using temporal discounting, which suggests that for certain types of benefits (such as hedonic, addictive, etc.) people are less willing to wait longer and are more willing to pay more to enjoy the benefit sooner. For other types of products (such as retirement savings), consumers show restraint and are more willing to wait longer to enjoy the benefit. Other researchers have taken a different approach to this issue, suggesting that time as a cost is more ambiguous than money and thus time-money tradeoffs will be difficult for consumers to evaluate consistently.

A particular aspect of these tradeoffs that has not been examined is the extent to which the tradeoffs are influenced by new information about the tradeoff variables that is presented to the consumer after choosing an option but before realizing the benefit. Sellers and consumers routinely face this issue when they find that delivery schedules must be adjusted. Our study explores the effects of information that suggests that time until delivery has increased from when the consumer has made their original decision. The likelihood that this consumer will switch to an alternative product option depends in part on how they perceive the anticipated delay. Often marketers use one of two strategies to dissuade consumers from switching due to unanticipated delays — requiring consumers to pay a deposit (sunk money) or by offering a price decrease to compensate for the additional delay. We expect that the effect of the two strategies depends in part on when the delay is communicated to consumers. If consumers are immediately informed of the delay we expect that offering consumers a small compensation for anticipated delays will be a better strategy than requiring a deposit. Two different aspects drive consumer perceptions and hence decisions:

1) fairness of compensation for elapsed wait (and hence inclusion of sunk time) and 2) growing salience of sunk cost of money. Specifically, we suggest that consumers experience time as a continuous cost—from the moment they agree to wait a certain period before receiving a product benefit they begin “paying” the time component cost of the transaction. Unlike money, elapsed time can never be recovered and consumers incorporate it thusly into time money calculations.

We have conducted a series of experiments where subjects were asked to imagine a hypothetical situation with two options: one where they pay more money for less time to get an item, and another where they pay less money but spend more time to get the item. Participants were told to imagine that they had chosen the less time option. They were then presented with new information that suggested a time delay. The delay was either presented immediately or after some time had elapsed waiting for the product. A subset of the participants were informed that they would be charged less due to the delay, while another subset of consumers were required to put down a small deposit of money upfront and were not offered a price decrease. Participants were asked whether they would prefer to stick with the original chosen option or switch to the alternative option.

In cases where the additional delay does not change how the two alternatives are ordered, rational economics would suggest that consumers should stick with their original option. However, we find significant deviations from economically rational behavior that exhibit the patterns that we anticipated. In the case where consumers are informed of the delay one day after the original transaction, we find a significant portion who will forego a deposit to switch to the alternative option, and we also find a significant portion who view a price decrease as sufficient compensation for the delay. We find the opposite pattern when consumers are informed of the delay after two weeks. In this case, deposits are more effective at keeping people from switching to the alternative option, whereas a price decrease is often viewed as insufficient compensation for the additional delay—suggesting that people are incorporating their sunk waiting time into their decision. We are currently in the process of replicating these findings in a real-world setting using data gathered from the furniture industry.

“Spending Time vs. Spending Money”
Erica Mina Okada, University of Washington
Stephen J. Hoch, University of Pennsylvania

Benjamin Franklin (1748) said, “Remember time is money,” implying that time is valuable just like money. A moral interpretation might be that time should be spent wisely. An economic interpretation might be that the value of one’s time can be expressed in monetary terms as an opportunity cost, often represented by one’s after-tax wage rate (Becker 1965). Either way, both time and money are exchange mediums. People can acquire products by paying hard cash or expending effort, but typically there is a trade-off between the two currencies. Consumers generally pay a premium for convenience and incur temporal transaction costs in the process of information search and uncertainty reduction (Carlson and Gieseke 1983; Marmorstein, Grewal and Fishe 1992; Stigler 1961), or as an additional cost in the form of delays (Taylor 1994).

But there are reasons to suggest that consumers do not treat time and money in the same fashion, even if normatively they should. In economics, an individual’s hourly wage rate w is a commonly used benchmark for one’s opportunity cost, and accordingly one should be indifferent between paying w in cash and spending an hour of time working in order to acquire a product. One systematic deviation from this assumption is the under-weighting of opportunity costs (Thaler 1980, 1999) which leads individuals to
work one hour for even though they are only willing to pay in cash to spare the expenditure of their own effort. People fail to calculate the opportunity costs of time when unstated (Neumann and Friedman 1980) and underestimate them when prompted (Hoskin 1983). Another deviation from the model is that people’s perceived valuation of time is not as precise as \( w \). This ambiguity in the value of time is the focus for our research.

A key difference between temporal and monetary currencies is that the opportunity cost of money is easy to assess, whereas the opportunity cost of time is more ambiguous. Opportunity cost captures the concept of the next best use for a resource. The question is: what is the next best thing that one can do with the money or time if one chooses not to spend it on the item at hand? Money has a readily exchangeable market, is highly liquid and fungible, and can be saved. A dollar is a dollar no matter the transaction type and so what comes to mind as the next best use for money remains fairly constant across situations. In contrast, the range of the second best uses for one’s time is variable. Time is not as readily exchangeable; it is perishable and despite some ability for postponement cannot be inventoried easily for later use. People may be more practiced and therefore reliable at spending money than bartering time for goods. At the same time, people have plenty of opportunities each and every day to spend (or waste) their time, but the transactions may be more ad hoc and informal than those involving money.

Consumers are likely to be more adaptable in what they believe their time is worth and what constitutes an acceptable implicit wage rate. The greater ambiguity of the value of time likely supports what Hsee (1995, 1996) has called elastic justification, allowing individuals to be more opportunistic in their valuation of time. We believe that people have a much easier time living with wasting time than wasting money, a view supported by Soman’s (2001) finding that sunk costs involving expenditures of time are more easily ignored than expenditures of money. And if consumers have an easier time self-justifying losses of time, then we might expect that they are more willing to take risks when making temporal compared to monetary investments.

In a series of five experiments we provide evidence that it is the inherent ambiguity in the value of time that supports/justifies a different spending pattern than that observed with money. The first two studies examine ex post expenditures of time versus money. Study 1 shows that satisfaction with an acquisition is less sensitive to the consumption experience when people pay in time than in money as people have an easier time accepting bad outcomes when they pay with time. The experiment provides direct evidence that people flexibly adjust the value of their temporal inputs to be congruent with the realized outcome. Basically you should get what you pay for, so if the outcome is positive (negative) people infer a higher (lower) value of the time that they expended in the acquisition. This kind of flexible valuation is harder to do with money. Note that these results cannot be explained by a cognitive dissonance story since the need for dissonance reduction should be greater after spending money (Soman 2001). Study 2 shows that when people pay using a fictional currency with a volatile exchange rate (suggesting ambiguity in value) their ex post evaluations of positive and negative outcomes are more like those made when paying with time, again suggesting that the ambiguity in the value of the currency sustains the observed pattern.

The remaining studies examine ex ante expenditures of time and money. Studies 3 and 4 utilize simple, equal expected value lotteries of both monetary and non-monetary outcomes. When people spend money, they display the standard pattern of increasing risk aversion to higher variance (higher risk, higher reward) gambles. When paying with time, the pattern completely reverses and respondents are willing to pay more time for higher variance gambles. The final study uses multi-attribute products, either average on all attributes or strong on some and weak on others, and again demonstrates that people are willing to take more risks when paying with time rather than money, presumably because they can more easily adjust the value of their temporal expenditures to whatever is the realized outcome. The greater ambiguity in the value of time allows people to be more creative in their motivated reasoning (Kunda 1990) about ex post and ex ante decisions involving time.