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Tradeoff between time and money: The asymmetric consideration of opportunity costs

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ABSTRACT

This paper investigates how consumers make tradeoffs between time and money with and without reminders to consider the opportunity costs of these currencies and finds an asymmetric pattern in opportunity cost consideration on the part of consumers. When reminded about the opportunity costs of time and money, consumers act to save time but not money when they acquire an experiential possession, and they act to save money but not time when they acquire a material possession. Process tests show that when a consumer acquires a possession that is both material and experiential in nature, her focus shifts to the possession's experiential (material) features when she is reminded about her time's (money's) opportunity cost, and it is this shift in her mindset which leads her to favor saving time over money (saving money over time) to acquire the possession.

The rational actor paradigm of economics supposes that a consumer will consistently make optimal decisions after considering all information that is relevant to a decision. For example, every time a consumer spends money to acquire a product or service she is supposed to factor in the opportunity cost of her money along with the out-of-pocket cost of the transaction.

However, as recent research suggests, a consumer does not spontaneously consider the opportunity cost of money in her decisions, but does so only when she is explicitly reminded; see Frederick, Novemsky, Wang, Dhar, and Nowlis (2009) and Spiller (2011)). For example, Frederick et al. (2009) find that in a choice between a $399, 32 gigabyte iPod and a $299, 16 gigabyte iPod, the choice of the cheaper iPod increases from 37% to 71% when the price is reframed from "spend $299" to "spend $299 and save $100." One explanation is that, unlike the hypothetical rational actor, a consumer confines her thoughts only to the information that is at hand and neglects to consider what else she can do with her money (Kahneman and Frederick, 2002; Slovic, 1975).

In this paper we examine if a consumer shows a similar tendency to neglect the opportunity cost of time in her decision, and, if so, what are the implications of such opportunity cost neglect when the decision entails making a tradeoff between time and money. Time, like money, is a fungible currency to the extent that a consumer can use the same time to accomplish different activities. Therefore, if she cannot spontaneously account for the next best use of her time (just as she cannot for money), she may prefer to save time and spend money when she is reminded about her time's opportunity cost and, conversely, prefer to save money and spend time when she is reminded of her money's opportunity cost.

We conduct three studies and find that a consumer shows an asymmetric consideration of opportunity costs when she has to trade off between time and money, the direction of which depends upon the consumption context (i.e., whether she wishes to acquire an experiential or a material possession; Van Boven and Gilovich, 2003). Specifically, if she is acquiring an experience (e.g., a vacation, Study 1) she will prefer to save time (and sacrifice money), and if she is acquiring a material possession (e.g., an iPod, Study 2) she will prefer to save money (and sacrifice time). We argue that such asymmetric considerations arise because thinking of time and money activates different mindsets (Liu and Aaker 2008, Mogilner and Aaker 2009): when a consumer thinks about spending her time she adopts an experience-based/happiness seeking mindset, but when she thinks about spending her money she adopts a possession-based/value seeking mindset. Process tests (conducted in Study 3) confirm this underlying mechanism. When a consumer contemplates acquiring a product that she considers to be equally material and experiential (e.g., an iPhone, Study 3), reminding her to consider her time's opportunity cost increases the salience of the experiential features (and makes her favor saving time to saving money) but reminding her to consider her money's opportunity cost increases the salience of the material features (and makes her favor saving money to saving time).

The results have several implications for theory and practice. For theory, they contribute to research in the areas of (1) opportunity cost neglect, (2) the effects of fit and misfit frames therein (e.g., persuading a consumer to delay the acquisition of an experience in order to save money or persuading her to buy a more expensive material possession

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in order to save time), and (3) the different mindsets that are elicited by opportunity cost reminders in the context of acquiring experiential and material possessions. For practice, the results suggest that marketers are better served in reminding consumers about the opportunity cost of time when they are selling more upscale experiential packages, and conversely, in reminding consumers about the opportunity cost of money when they are selling lesser expensive material possessions to them.

1. Theory

Research from various streams such as probability judgments, affective forecasting, and intertemporal choice suggests that a consumer will respond only to the information that is presented to her, and will not spontaneously think about the indirect consequences of her choices (see Frederick et al., 2009, for a review). For example, Loewenstein and Prelec (1993) find that a consumer's decision to eat out changes once she is told that the (seemingly obvious) alternative option is to "eat at home." Therefore, it is not surprising that a consumer may neglect to consider the opportunity cost of money when making a purchase. However, the current research in the area of opportunity cost neglect presents only a partial view of the phenomenon because the research considers transactions that entail the sacrifice of money (a fungible currency) to obtain quality (a non-fungible currency). This implies that any opportunity cost consideration can only work in one direction (i.e., in favor of the cheaper/lower-quality option). In the Frederick et al. (2009) study, a consumer can use the $100 she has saved by buying the less expensive 16 gigabyte iPod to treat herself to an expensive dinner, but she cannot use the 16 gigabytes of sacrificed quality (32 gigabytes of the more expensive iPod minus 16 gigabytes of the cheaper iPod) to trade up to a higher-quality tablet computer in her next purchase.

Yet, there are many instances where a consumer has to make a tradeoff between two fungible currencies, time and money, and studying these tradeoffs is important because, unless she is aware of the next best use of her time and money, it is likely that a "save money" frame will bias her towards saving money (and sacrifice time) and a "save time" frame will bias her towards saving time (and sacrifice money). For example, consider the following two scenarios:

Scenario A	Scenario B
Imagine that you are on a vacation and waiting to take a train to go to a ski resort. You have a choice between Train A that costs $26 and takes 45 min and Train B that costs $10 and takes 3 h to reach the destination.	Imagine that you want to buy an iPod and you are getting ready to drive to the store. You have a choice between Store A that is a 5-min drive and sells the iPod for $199.99 and Store B that is an 80-min drive and sells the iPod for $129.99.

If Train A's (Store A's) choice is framed as "reach in 45 min and save 2 h and 15 min" ("reach in 5 min and save 75 min") the consumer is likely to focus more on saving her time and prefer Train A (Store A). On the contrary, if Train B's (Store B's) choice is framed as "spend $10 and save $16" ("spend $129.99 and save $70") then the same consumer is likely to focus more on saving her money and prefer Train B (Store B).

1.1. An asymmetric consideration of opportunity costs

Although time and money are both fungible currencies and therefore conceivably susceptible to the same degree of opportunity cost neglect, we propose that such neglect may not be symmetrical because thinking of time and money will evoke distinctly different mindsets and the distinction will be further exaggerated depending upon the consumer's intention underlying the purchase (see Punj, 2012 for an asymmetric consideration of time and money opportunity costs based on a consumer's income level). For example, research suggests that when a consumer thinks about how she can spend her time, she tends to concentrate on the experience that she will get in return and how that experience will make her happy (Mogilner and Aaker, 2009). On the contrary, when she thinks about what she can do with her money, she tends to think about her possessions and how she can get the best value for her money (Mogilner and Aaker, 2009). One straightforward implication, therefore, is that when a consumer is reminded to consider the opportunity cost of her time, she is likely to adopt an experience-based/happiness seeking mindset but when she is reminded to consider the opportunity cost of money she is likely to adopt a possession-based/value seeking mindset.

The different mindsets evoked when thinking about how best to spend time and money is likely to be exaggerated by the consumption context, that is, whether the purchase is made with the intention of enjoying a life experience (an experiential purchase) or with the intention of adding to her material possessions (a material purchase; Van Boven and Gilovich, 2003). Research shows that when a consumer acquires a life experience, she considers that purchase to be unique to herself and is immune to counterfactual thinking (what else she could have done with her time and money) and the regret and disappointment that usually accompany the counterfactual thoughts (Van Boven and Gilovich, 2005). The opposite is true when a consumer acquires a material possession. Here, she is more likely to compare what she is getting relative to what others have, what else she could have had, and if she could have acquired the possession at a better price (Carter and Gilovich, 2010).

These findings have three implications for our research. The first implication is that, in the context of acquiring an experience, a consumer will favor saving time to saving money when she is reminded to consider the opportunity of her time, but she will *not* favor saving money to saving time when she is reminded about the opportunity cost of money. In our example, and assuming that the vacation is considered to be an experiential acquisition (see Study 1), this would mean that our hypothetical consumer is more likely to pay the higher price and take the faster train to her vacation destination when she is reminded to consider the opportunity cost of her time (the time is better spent enjoying the vacation and not sitting in the train), but she is *not* likely to take the slower train and save money when she is reminded to consider the opportunity cost of her money.

The second implication is that, in the context of acquiring a material possession, a consumer will favor saving money to saving time when she is reminded to consider the opportunity of her money, but she will *not* favor saving time to saving money when she is reminded about the opportunity cost of time. In our example, and assuming that the iPod is considered to be a material purchase (see Study 2), this would mean that our hypothetical consumer is likely to make the longer drive to save money on the iPod purchase when she is reminded to consider the opportunity cost of her money (getting a better deal on the iPod is worth making the longer drive) but she is *not* likely to take the shorter drive to the more expensive store when she is reminded to consider the opportunity cost of time.

The third implication is that, in the context of acquiring a possession that is considered to be both material and experiential in nature (e.g., an iPhone, see Study 3), reminding a consumer to consider the opportunity costs of time or money may change how she views the acquisition and ultimately affect how she makes her choice. When she is reminded about her time's opportunity cost she may focus more on the experiential characteristics of the possession and favor saving time over money in order to acquire it. On the other hand, when she is reminded about her money's opportunity cost she may focus more on the material characteristics of the possession and favor saving money over time in order to acquire it.

The above discussions lead to the following three hypotheses:

H1. When a consumer is acquiring an experiential possession, she will favor saving time over money when she is reminded to consider the opportunity of her time, but she will not favor saving money over time when she is reminded to consider the opportunity cost of money.

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