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**Effort Accounting:
People Prefer to Spend Hard-Earned Money on Long-Lasting Purchases**

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Abstract:

We demonstrate that consumers spend hard-earned money (more than easily-acquired money) on long-lasting items, including durable goods, warranties, and donations with long-term impact. We support these ideas using effort manipulations in four controlled experiments, and using credit transaction field data from over 100,000 consumers and spending increases following over 1,000 real-world lotteries.

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Consumers sometimes earn money through hard work and other times acquire money effortlessly. Previous research suggests that the source of money influences how it is spent, however little is known about how the amount of effort exerted to attain money influences spending. Across 5 studies, we demonstrated that acquiring money through higher effort influences spending. Specifically, consumers prefer to spend hard-earned money on long-lasting items, such as computers with warranties, durable goods, and donations with long-term impact (rather than only short-term impact).

We first examine financial transaction data from 392,564 consumers and 1,547 small-stakes lotteries to show that lotteries increase spending on non-durable goods more than durable goods. In Study 2, we manipulated whether economic stimulus payments were framed as easily-acquired gifts vs. hard-earned money, showing that people are more willing to spend money on computers without warranties and donations with only short-term impact when the stimulus money is framed as easily-acquired. Then, we conceptually replicated these results with money earned in high-effort vs. low-effort laboratory tasks and other effort manipulations. These effects were driven by consumers' subjective perceptions that they had less resource slack after earning money through substantial effort (though participants were aware their objective slack and future earning potential was equivalent).

In Study 1, we analyzed financial transaction data that tracks all bank account transactions from over 390,000 users and conducts small-stakes lotteries (\$40 to \$1000 per lottery win) among users. We predicted that people would be more likely to spend money attained via these lotteries (easily-acquired) on transitory non-durable goods rather than longer-lasting durable goods. As expected, we observed an increase in spending in the days following a windfall (i.e. lottery win). Critically, this increase in spending was much larger for non-durable goods (e.g., food from restaurants) than for durable goods (e.g., household appliances and electronics). We used the Bureau of Labor Statistics' definition of durable and non-durable good categories to classify each transaction. Then, we computed a mixed effects model (Mrkva et al., 2021; Westfall et al. 2014) estimating the increase in durable and non-durable purchases after a lottery windfall, while adjusting for variance associated with each user's spending patterns and for seasonal and weekly differences in purchases across users.

In Study 2, we directly manipulated effort framing and isolated the extent to which the dependent variable involved long-lasting vs. short-term outcomes. To do so, we manipulated whether an upcoming economic impact (stimulus) payment was described as easily acquired (similar to a "gift" sent from the U.S. government) or as hard-earned money that was earned through hard work, paid to the federal government via taxes, and then returned to eligible taxpayers ("hard-earned" condition). Following this manipulation of perceived effort, participants completed two dependent variables assessing their willingness to use the money on items with long-lasting vs. short-term outcomes. One dependent variable consisted a choice between donating \$20 to a charity focused on long-term impact vs. a charity focused on short-term impact (both would address an ongoing humanitarian crisis in Yemen, but with resources devoted more towards long-term vs. short-term relief). The decisions from a random subset of participants were implemented. The second dependent variable asked participants to choose whether they would prefer to use some of the stimulus money to purchase a \$1000 computer with no warranty but premium features (Intel i7 processor; 1 TB storage) or a \$1000 computer with a 3 year warranty but two features that were less advanced (Intel i5 processor; 0.5 TB storage). Participants completed both scenarios in random order to increase power in this and all subsequent studies.

Participants were more likely to donate to a charity with long-lasting impact in the “hard-earned condition” than in the “easily-acquired condition,” $z=2.79, p=.005$. Those in the “hard-earned condition” were also more likely to choose to spend \$1000 of their stimulus on a computer with a warranty but less premium features than were participants in the “easily-acquired condition,” $z=2.07, p=.038$.

In Study 3, we manipulated experienced effort using a “real effort task” commonly used in experimental economics (Gill and Prowse 2013). Participants were randomly assigned to the “high effort” or “low effort” task, which entailed moving sliders as fast as possible to a predetermined location (high effort condition) or fewer sliders at a leisurely pace to a predetermined location for the same amount of time (low effort condition). Following this effort manipulation, participants completed the same long-term vs. short-term impact donation decision as in Study 2. Participants were more likely to donate to a charity with long-lasting impact in the “high effort condition” than in the “low effort condition,” $z=4.61, p<.001$, conceptually replicating Study 2.

In Study 4, participants were randomly assigned to the “hard-earned” or “easily-acquired” condition. They imagined they worked hard overtime at work. In the “hard-earned condition” they received \$1,000 from this hard work. In the “easily-acquired condition”, their employer paid the same amount regardless of overtime, but they won a \$1,000 lottery. Then, participants completed the computer choice as in Study 2. Participants in the “hard-earned” condition were more likely to choose the computer with a warranty (53%) compared to those in the “easily-acquired” condition (44%), $z=3.66, p<.001$.

Study 5 investigated the proposed mediators. It was similar to Study 4, except that both conditions involved money earned at work (through very hard work vs. easy work). Following the effort manipulation and computer choice, we added measures of three potential mediators (perceived slack, wastefulness, and self-connectedness of the money) and included items to assess alternative explanations of our results (mood, unexpectedness, perceived wealth, future earnings potential).

Participants in the “high effort” condition were more likely to choose the computer with a warranty (50%) compared to those in the “low effort” condition (33%), $t(222)=6.19, p<.001$. According to a parallel mediation model testing the three potential mediators, these effects were partially mediated by perceived slack and desires to avoid waste (but not self-connectedness).

Consumers sometimes earn money through hard work and other times acquire money effortlessly. We argue that consumers put hard-earned and easily-acquired money into separate mental accounts and spend hard-earned money differently.

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