Consumers Commit the Planning Fallacy For Time But Not For Money

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Individuals consistently believe that their optimistically biased predictions of project durations are accurate, while simultaneously acknowledging their tendency to make biased predictions. This planning fallacy is typically studied in the domain of time expenditures; consumers make plans for money expenditures as well, but the literature often conflates money misprediction with time misprediction. In three studies, we find that the planning fallacy is absent or much reduced for money relative to time, using both self-reported tendencies and actual predictions and expenditures. We hypothesize that this cross-resource difference exists because consumers constrain money expenditures more successfully than they constrain time expenditures in order to meet their predictions.

[to cite]:

[url]:
http://www.acrwebsite.org/volumes/14379/volumes/v36/NA-36

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This will reduce a for these later choices, and hence the relative change to the weight vector. Thus, even with randomized or zeroed initial weights, and randomized ATC presentation of randomly defined options, a stabilizing dominance structure for the attribute weights should eventually arise.

H1: Repeated ATC choices will evolve a stabilized attribute importance weight hierarchy.

Additional behaviors predicted by this model reflect the outcomes of such choice-driven evolution of attribute hierarchies. First, if the evolution process spreads out weights in a manner consistent with how those attributes favored an earlier choice, it can make an individual more satisfied with that earlier choice:

H2: Repeated ATC choices can result in preference amplifications on re-evaluation.

Conversely, if the evolution process spreads out weights in a manner inconsistent with how those attributes favored an earlier choice, it can make an individual less satisfied with the earlier choice, and indeed reverse preference directionality:

H3: Repeated ATC choices can result in preference switches/(de-)acquisitions on re-evaluation.

Findings and Future Directions

Support for H1-H3 is provided by a series of six simulation experiments, each using 25 products randomly defined either within-domain (i.e., on all of the same attributes) or sharing definitions for only a sub-set of general attributes. For H1, simulations using five-attribute products beginning with random initial weights evolved dispersed and stable dominance hierarchies within 10 binary ATC iterations ($H_1: \sigma_{init} < \sigma_{final}; F(4, 4) = 56.7453, p < 0.001$). Similar dominance evolution for only shared attributes evolved when ATC choices were simulated for products across different domains. For H2 and H3, valuation computations using initial versus evolved weights showed that, even if the weight evolution process occurred over different product domains, initial preferences could be amplified in some cases ($= 44\%$ of pairs, $\max(|\text{increase}|)=187\%$) and switched in others ($=15\%$ of pairs, $\max(|\text{reversal}|)=213\%$), depending on the degree to which the sequence of ATC decisions conforms to either the preconditions of H2 or H3.

The low iteration requirements for these simulations suggest practical behavioral tests. Currently under design are repeated cross-domain ATC tasks measuring effects on confidence, WTP, difficulty judgments, distortion, switching propensity, and direct measurement of attribute weights using conjoint analysis techniques. Broader implications of H2-H3 for taste acquisition, “lifestyle marketing”, and personality stability are also under study.

Reference


**Consumers Commit the Planning Fallacy for Time but not for Money**

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The planning fallacy is defined as: “The tendency to hold a confident belief that one’s own project will proceed as planned, even while knowing that the vast majority of similar projects have run late” (p. 366, Buehler, Griffin, & Ross, 1994). Because individuals plan for money as well as time, discussions of the planning fallacy often conflate underestimating time costs with underestimating money costs. Kahneman and Tversky (1979), Buehler and colleagues (1994), and others use both cost overruns and schedule overruns as motivating examples of the fallacy, but most subsequent research examines the fallacy only as it pertains to time (though see Ulkumen, Thomas, & Morwitz, 2008, for work on duration-based budgets rather than project-based budgets). We consider the extent to which consumers underestimate time and money expenditures and find that the planning fallacy for money is absent or considerably reduced relative to the planning fallacy for time.

The planning fallacy is usually attributed to using singular data about the plan under consideration to the neglect of distributional data regarding other similar plans (Kahneman & Tversky, 1979; see Buehler, Griffin, & Ross, 2002, for a review), but there is nothing inherently different about using singular vs. distributional data for time or money. Recent research has considered the extent to which time is perceived more flexibly than money (e.g., Okada & Hoch, 2004; Zauberman & Lynch, 2005). To the extent that predictions of money expenditures are either less biased (due to less flexible perceptions) or more binding (due to greater ability or willingness to constrain costs) than predictions for time expenditures, the planning fallacy will be more pronounced for time than for money. Kruger and Evans’s (2005) study 1 provides preliminary suggestive evidence by showing that participants who listed everyone on their holiday shopping list (compared to those who did not) estimated that their holiday shopping would require 40% more days, 96% more hours, but only 9% more money. We test the cross-resource difference in the planning fallacy directly using self-reported susceptibility to the planning fallacy and measures of actual and predicted expenditures.

**Studies 1a and 1b**

In studies 1a and 1b, we measure consumers’ beliefs about their own time and money expenditure predictions. In study 1a, 1113 online panelists reported the severity and frequency with which they committed the planning fallacy for time spent on “major projects” or money
spent on “major purchases”. Participants reported a greater planning fallacy for time than for money as assessed by both severity (t(1111)=5.13, p<.0001; M_{Time}=8.417, M_{Money}=7.723 on 13-point scales) and frequency (t(1111)=7.50, p<.0001; M_{Time}=2.939, M_{Money}=2.284 on 6-point scales). In study 1b, 151 online panelists reported the severity and frequency with which they committed the planning fallacy for time or money on “major shopping trips”. We replicated the effect for frequency (t(1549)=3.476, p=.0005; M_{Time}=2.442, M_{Money}=2.199 on 6-point scales) but not severity (t(1549)<1, p=.3771; M_{Time}=4.224, M_{Money}=4.171 on 7-point scales).

Study 2
If consumers commit the planning fallacy for time but not for money, forming more time plans will be associated with having less time than expected, whereas forming more money plans will not be associated with having less money than expected. One hundred five participants reported their propensity to form time or money plans for the short- and long-runs and how much they agreed with the statement “I often find I have less [time / money] at the end of the [day / month] than I expect”; resource was varied between subjects, time span was varied within subjects. Individuals with high propensities to form time plans report having less time than expected (r_{short-run}=.398, p=.003; r_{long-run}=.399, p=.003), but individuals with high propensities to form money plans do not report having less money than expected (r_{short-run}=.046, p>.5; r_{long-run}=-.217, p>.1). These cross-resource differences are significant (p’s<.02).

Study 3
In study 3, we measure actual cross-resource differences in the planning fallacy using predicted and actual time and money expenditures. Ninety-three undergraduate participants completed up to ten online surveys. In survey 1, they described four plans they recently formed (short- and long-run plans for time and money), and how much time or money they expected to spend on each. Every other day for 16 days, participants reported in surveys 2-9 whether they completed each of their short-run plans and, if so, how much time or money they spent on it. Seven to eight weeks later, participants reported in survey 10 the same measures for their long-run plans. Plans that did not have an identified goal or endpoint (e.g., “I plan to stay caught up in my studies daily” has no completion date) were excluded from our analyses. We used log(actual expenditures / expected expenditures) as our dependent variable to allow cross-resource comparisons in the same metric. For uncompleted time plans, we took participants’ last report of not completing their plan as a conservative proxy for their actual completion time.

Thirty-six participants had useable plans of all four types. A 2 (time, money) x 2 (short-run, long-run) repeated measures ANOVA indicated a main effect of resource (F(1,35)=18.57, p<.0001); neither the effect of horizon nor the interaction approached significance (p’s>.4). Participants underestimated their time expenditures (M_{Log(AActual/Expected)}=.522, indicating 41% underestimation) and overestimated their money expenditures (M_{Log(AActual/Expected)}=-.173, indicating 18% overestimation). A similar analysis using only participants who completed all four plans (N=21) showed similar results (Time: M_{Log(AActual/Expected)}=.175, indicating 16% underestimation; Money: M_{Log(AActual/Expected)}=-.189, indicating 21% overestimation; F(1,20)=3.32, p=.0832).

Discussion
In three studies, we demonstrated that consumers commit the planning fallacy for time but not for money, that they acknowledge this difference, and that individuals who form more time plans have less time than expected whereas individuals who form more money plans do not have less money than expected. We have not yet explored boundary conditions or tested the process behind these differences. One explanation we are currently examining is that because it may be easier to constrain money expenditures than time expenditures, money expenditure predictions are just as optimistic as time expenditure predictions but are self-correcting because actual money expenditures are constrained to meet the optimistic predictions whereas actual time expenditures are not.

References


