

Time Preferences: Present-biased preferences

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Research Article

PROCRASTINATION, DEADLINES, AND PERFORMANCE: Self-Control by Precommitment

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Abstract—Procrastination is all too familiar to most people. People delay writing up their research (so we hear!), repeatedly declare they will start their diets tomorrow, or postpone until next week doing odd jobs around the house. Yet people also sometimes attempt to control their procrastination by setting deadlines for themselves. In this article, we pose three questions: (a) Are people willing to self-impose meaningful (i.e., costly) deadlines to overcome procrastination? (b) Are self-imposed deadlines effective in improving task performance? (c) When self-imposing deadlines, do people set them optimally, for maximum performance enhancement? A set of studies examined these issues experimentally, showing that the answer is “yes” to the first two questions, and “no” to the third. People have self-control problems, they recognize them, and they try to control them by self-imposing costly deadlines. These deadlines help people control procrastination, but they are not as effective as some externally imposed deadlines in improving task performance.

One of the causes for the apparent changes in preferences over time is changes in the saliency of the costs and benefits of the activity in question (Akerlof, 1991). For example, well in advance of actually taking on the responsibility of writing a book, the benefits of completing such a task loom large, and the costs seem small. Consequently, authors take on such tasks. But as the deadline draws closer, the saliency of the costs and benefits changes. Authors become increasingly aware of the costs (the time needed for completing the task), while the benefits become increasingly less clear.

Although such time-inconsistent preferences may form serious obstacles to following a planned course of action, they can be overcome. In addition to exercising willpower to resist temptation (Hoch & Loewenstein, 1991; Muraven & Baumeister, 2000), people can bind, or precommit, their own behavior (Prelec, 1989; Schelling, 1992; Strotz, 1956; Thaler & Shefrin, 1981; Wertenbroch, 1998). For example, people who want to diet, but recognize that crème brûlée will tempt them to deviate from their plan, can preempt temptation by going to a restaurant with a less tempting menu. A wealth of anecdotes describes examples of binding behaviors, including frequenting health retreats where some food types are not available, saving in non-interest-bearing Christmas clubs, or buying small packages of

Good resolutions are useless attempts to interfere with scientific laws. Their origin is pure vanity. Their result is absolutely nil.

—Oscar Wilde, *The Picture of Dorian Gray*

Wertenbroch and Ariely 2002: Introduction

- The paper was interested in the effectiveness of setting potentially costly deadlines as a way to overcome procrastination.
- To address this issue, the paper looked at tasks on which performance could be evaluated objectively.

Wertenbroch and Ariely 2002: Introduction

- Three questions on commitment devices to overcome procrastination:
 - Are people willing to self-impose costly deadlines to overcome procrastination?
 - Are self-imposed deadlines effective in improving task performance?
 - Do people set their deadlines optimally for maximum performance enhancement?

STUDY 1: THE FREE-CHOICE/NO-CHOICE STUDY

- Participants
 - a semester-long executive-education course at MIT
 - 99 professionals: most of whom participated in the class via interactive video
- One part of the course requirements was to write three short papers.
- A random assignment of sections to treatments
 - 2 sections, 2 conditions

STUDY 1: THE FREE-CHOICE/NO-CHOICE STUDY

- Students in **the no-choice section** (48 students) were given fixed, evenly spaced deadlines for the papers (a paper at the end of each third of the course).
- Students in **the free-choice section** (51 students) were given detailed instructions about setting their own deadlines.

STUDY 1: THE FREE-CHOICE/NO-CHOICE STUDY

- The free-choice condition:
 - Each student was free to choose the dates by which he or she wanted to hand in the short papers.
- Four external constraints were set regarding the dates:
 - first, students had to hand in their papers no later than the last lecture;
 - second, students had to announce the deadlines for submission prior to the second lecture;
 - third, the dates were final and could not be changed;
 - and fourth, the dates were binding, such that each day of delay beyond the deadline would cause a 1% penalty in the paper's overall grade.

STUDY 1: THE FREE-CHOICE/NO-CHOICE STUDY

- The free-choice condition:
 - There were no grade advantages for early submissions because the instructor would not provide grades or feedback on the assignments before the end of the course.
 - Explaining to the students that there would be no feedback before the end of the course was important because it eliminated incentives for students to hand in papers early in order to get feedback that they could use to improve subsequent papers.

STUDY 1: THE FREE-CHOICE/NO-CHOICE STUDY

- The free-choice condition:
 - The external incentives for the students in the free-choice section encouraged submission of all three papers on the last possible day.
 - By setting their deadlines as late as possible, the students would have the most time to work on the papers, the highest flexibility in arranging their workload, and the opportunity to learn the most about the topic before submitting the papers.
 - Students also had an incentive to set submission dates late because the penalty would be applied only to late submissions and not to early ones.

STUDY 1: RESULT

- Each deadline was scored by taking its distance (number of days) from the last day of class, so that a score of zero indicates a planned submission on the last day of class.
- The mean deadlines were significantly earlier than the last possible deadline
 - 41.78 days before the end of the course for the first paper
 - 26.07 days before the end for the second paper
 - 9.84 days before the end for the third paper

STUDY 1: RESULT

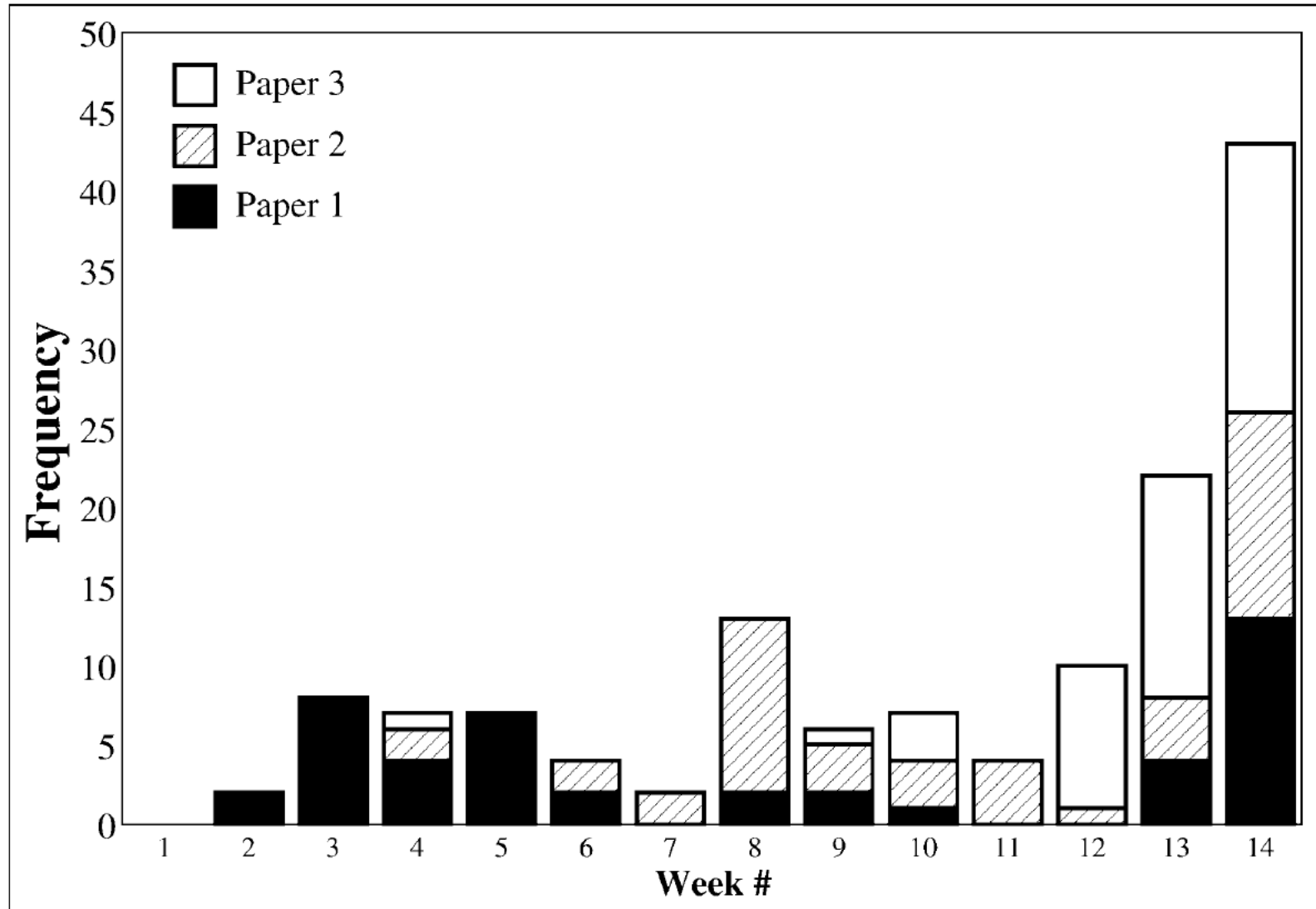


Fig. 1. Frequency distribution of the declared deadlines in Study 1 as a function of the week of class (Week 1 is the first week, and Week 14 the last week), plotted separately for the three papers.

STUDY 1: RESULT

- People are willing to self-impose deadlines to overcome procrastination, even when these deadlines are costly (our first question).
- The students could have chosen less binding private deadlines, but instead chose deadlines that involved more commitment and greater potential cost (a grade penalty for being late).
- It seems that they were willing to take the risk of losing grade points to apply the self-control mechanism of precommitment.

Higher grade?

- (a) If students do not have self-control problems, greater flexibility should lead to higher grades.
- (b) If students do have self-control problems, and if they both use deadlines to overcome these problems and set these deadlines optimally, greater flexibility should allow them to achieve higher grades.
- (c) If students do have self-control problems, and they use deadlines to overcome these problems, but do not set these deadlines optimally, greater flexibility might lead to lower grades.
- The grades in the no-choice section ($M = 88.76$) were higher than the grades in the free-choice section ($M = 85.67$).

STUDY 2: THE PROOFREADING STUDY

- Proofread three texts due on certain dates over 21 days:
 - Paid \$0.10 per correction
 - Lose \$1/day if late
- 60 students participated in the study, randomly assigned to the three experimental conditions
 - [A] Even-spaced deadlines: one due every 7 days
 - [B] End deadline: all three due after 21 days
 - [C] Self-imposed deadlines within 3-week window

STUDY 2: THE PROOFREADING STUDY

- The results showed that participants in this condition [c.] chose to space out their proofreading tasks, thus showing a preference for self-imposing costly deadlines.

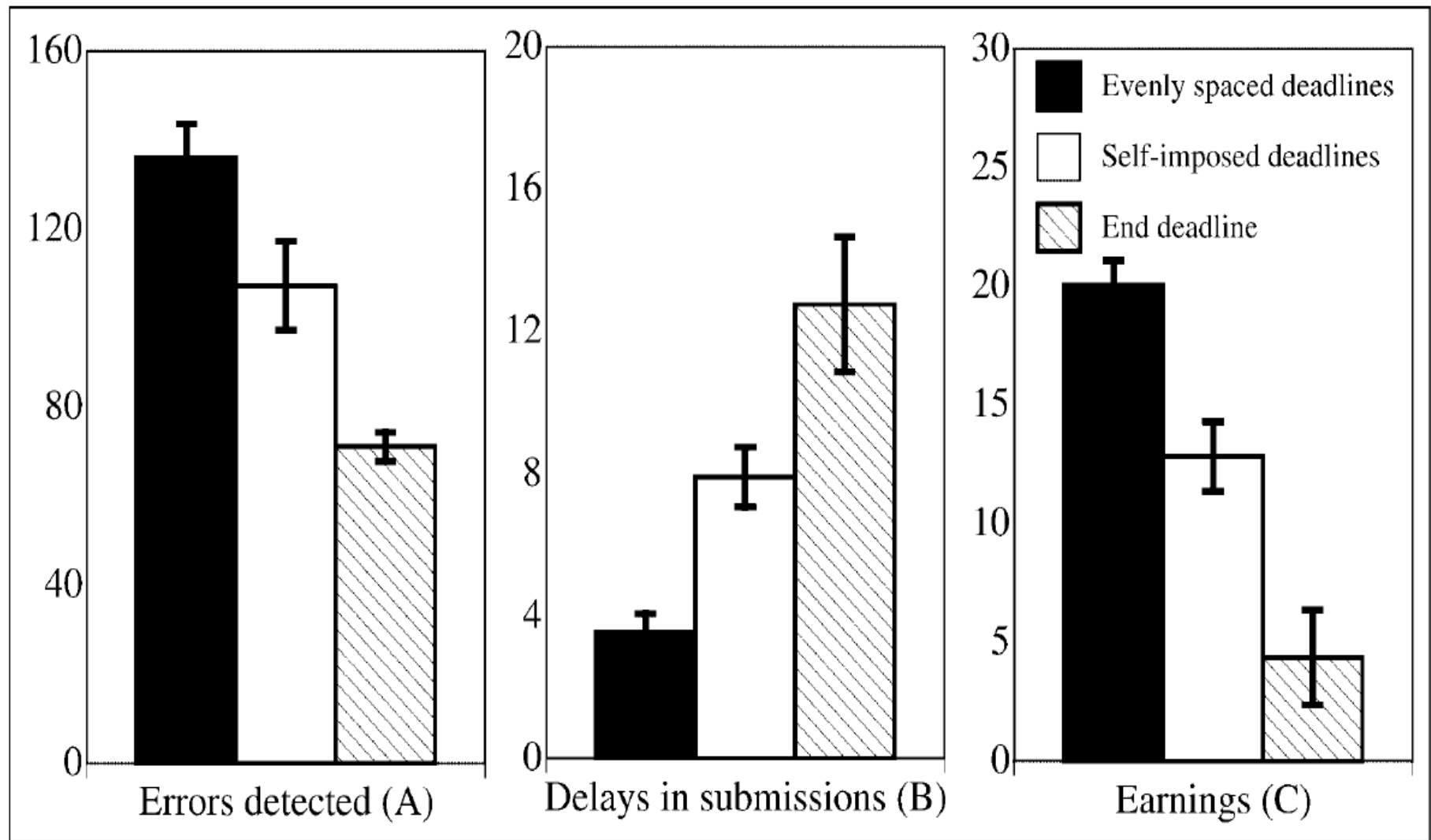


Fig. 2. Mean errors detected (a), delays in submissions (b), and earnings (c) in Study 2, compared across the three conditions (error bars are based on standard errors). Delays are measured in days, earnings in dollars.

Wertenbroch and Ariely 2002:

- Are people willing to self-impose costly deadlines to overcome procrastination? >> YES
- Are self-imposed deadlines effective in improving task performance? >> YES
 - Self-control Problem: $\beta < 1$
 - Sophistication: $\hat{\beta} < 1$
- Do people set their deadlines optimally for maximum performance enhancement? >> NO
 - Partial naivete: $\beta < \hat{\beta}$
- This paper is a support for $(\beta, \hat{\beta}, \delta)$ model with partial naivete.