

Contents lists available at [ScienceDirect](#)

Journal of Economic Psychology

journal homepage: www.elsevier.com/locate/joep

Awareness of low self-control: Theory and evidence from a homeless shelter ☆

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ARTICLE INFO

Article history:

Received 7 March 2015

Received in revised form 31 August 2016

Accepted 26 February 2017

Available online 2 March 2017

JEL classification:

D14

D9

PsycINFO classification:

3920

Keywords:

Self-control

Consumer behavior

Surveys

Commitment devices

Awareness

Sophistication

Quasi-hyperbolic discounting

ABSTRACT

Survey measures of self-control provide a potential low-cost alternative to incentivized elicitation. However, asking respondents to introspect on their self-control problems may instead measure their awareness of them, especially in populations with low self-control. We illustrate this with the Ameriks, Caplin, Leahy, and Tyler (2007) survey, which captures self-control problems through the deviation between self-reported ideal and predicted behavior (Expected Deviation, ED). Previous empirical evidence from high income or highly educated populations correlates larger ED with worse outcomes. We theoretically show that the reverse will be true in settings where awareness can play a large role: when self-control is low and costly commitment devices are available. We empirically show that, for residents of a homeless shelter, ED is positively correlated to savings in shelter lock-boxes, a costly commitment device. This correlation is stronger for those likely to experience more self-control problems: individuals with past addiction problems.

Published by Elsevier B.V.

1. Introduction

A large number of studies in economics and psychology have suggested that self-control is an important determinant of real-life outcomes. Higher measures of self-control have been found to be correlated with better personal finances (e.g. less credit card debt, [Meier & Sprenger, 2010](#)), less substance abuse, higher educational attainment, and less criminal offenses (e.g. [Moffitt et al., 2011](#); [Tangney, Baumeister, & Boone, 2004](#)). Though incentivized measures of self-control are preferred by economists due to explicit incentives for subjects to truthfully reveal preferences, survey methods remain more appealing for large scale use due to their low cost and ease of implementation ([Falk, Becker, Dohmen, Huffman, & Sunde, 2016](#)).

☆ We thank David Huffman, Andrew Caplin, Isa Hafalir, David Danz, the audience at the Stanford Institute for Theoretical Economics, ESA (Florida), and University of Pittsburgh and CMU lab meetings for their useful comments. We thank Tomomi Tanaka for her permission to use the data. Katherine Yoon and Erin Carbone provided valuable RA work. All errors are our own.

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However, truthfulness aside, the informativeness of some survey measures may be arguable since it requires subjects to introspect on their self-control problem. For example, the widely used Self Control Scale (Tangney et al., 2004), asks respondents to rate whether statements such as “I’m good at resisting temptation” or “I refuse things that are bad for me” accurately describe them.¹ Indeed, there is evidence that the self is not the best judge of one’s own self-control: Duckworth and Kern’s (2011) meta-study of self-control measures finds that while measures obtained from self-reports are correlated with measures from delayed gratification tasks ($r = 0.15$), this correlation is significantly higher for measures from informant-reports ($r = 0.21$).

To address this issue, we attempt to elucidate theoretically and empirically the role of awareness in a self-control survey and how this affects the predictive validity of survey responses on actual behavior. To do this, we look for a quantitative self-control measure that can be directly tied to the outcome variable. We therefore focus on Expected Deviation (ED), which is introduced by Ameriks, Caplin, Leahy, and Tyler (2007).² This method presents survey respondents with a specific scenario and asks respondents to state their ideal and predicted actions therein. The difference between the ideal and predicted behavior is then used as a measure of the self-control problem. ED is unique in that it directly asks respondents to formulate what all self-control measures are attempting to capture: the temptation to deviate from one’s ideal course of action. So far empirical evidence on the ED survey, collected from financially and academically successful populations (Ameriks et al., 2007; Wong, 2008), have shown a negative correlation with outcomes. This supports the idea that ED captures the variation of self-control in the population. However, this may not always be true. We theoretically show that when we allow for the possibility that the variation in ED is driven by differences in awareness, we will see a positive correlation between ED and outcomes when costly commitment devices are available. In addition, the positive correlation strengthens with the severity of the self-control problems. We then provide empirical evidence consistent with this theory from lockbox savings in a homeless shelter, where we find that larger ED predicts larger savings, especially among those who are homeless due to addiction.³

To model survey responses as well as savings with and without commitment devices, our theoretical section (Section 2) utilizes the standard quasi-hyperbolic discounting model (Laibson, 1997; Phelps & Pollak, 1968).⁴ This widely used model of self-control conceptualizes an individual as a collection of different selves that are strategically interacting; commitment is modeled as allowing the earlier selves to use strategies to make the deviations from the earlier selves’ optimal plan costly or infeasible (Carrillo & Dewatripont, 2008). We rewrite O’Donoghue and Rabin’s (2001) representation of partial awareness to isolate awareness (α) from self-control (β). After exploring how α and β drive survey responses, we use a simple three-period model to illustrate an environment with costly withdrawal-side commitment devices (Ashraf, Gons, Karlan, & Yin, 2003). These devices, such as the 529 college savings account or the lockbox at a homeless shelter, restrict withdrawal but require deposits to be made in the first place. Since subjects have to first invest costly effort into activating the commitment device, partial naïveté leads to suboptimal investment of effort and, subsequently, suboptimal savings. This echoes the insight from O’Donoghue and Rabin (2003) that “if people are naïve, then they won’t fully recognize the commitment value of certain savings instruments” (p. 233).

In Section 3 we provide a contribution to empirical evidence of predictive validity of self-control surveys by administering the ED survey to an understudied population: the homeless in America. Our subject pool provides an important complement to the existing population where the ED survey has been administered: the top 15% income bracket in the US (Ameriks et al., 2007) and students at a highly selective university (Wong, 2008). Given the many correlations between self-control and life outcomes,⁵ it is likely that these high-status populations have relatively higher self-control than the homeless population, leaving less room for awareness to make a difference. Awareness is likely to matter much more among our population of interest, a sizeable portion of which has characteristics linked to low self-control (e.g. 36.8% stated that they are homeless due to addiction, another third reported dropping out of high school). Indeed, Linardi and Tanaka (2013) estimated a β of 0.6 among the sheltered homeless while β estimates are generally greater than 0.85 in a review by Frederick, Loewenstein, and O’Donoghue (2002) that include studies using more standard subject pools. The shelter environment provides a rare opportunity to see not only how the homeless population responds to a commitment device, but also differences within subpopulations as a function of challenges in self-control.

We find that, among the homeless, larger ED predicts larger savings in the commitment savings account offered at the shelter; in addition, our tests for heterogeneity consistently suggest that the correlation is stronger for those experiencing more self-control problems and those facing higher stakes.⁶ To understand what is driving the correlation between ED and

¹ There are far fewer survey measures of self-control in economics. The patience measure in the Global Preference Survey (Falk et al., 2015, 2016): “Are you a person willing to give up something today to benefit in the future?” comes close to one.

² This is called the EI Gap (Expected-Ideal gap) in Ameriks et al. (2007) and Expected Delay in Wong (2008).

³ Addiction has been widely related to higher discount rates: this is the case for both alcohol (Bjork, Hommer, Grant, & Danube, 2004) and illicit drugs (Petry, 2003).

⁴ Quasi-hyperbolic discounting is one of the most frequently used models of self-control; it is analytically tractable and is especially suitable to study awareness. Other well-known models of self-control include Thaler and Shefrin’s (1981) planner-doer model, Fudenberg and Levine’s (2006) dual-self model, Gul and Pesendorfer’s (2004) temptation model, and Benhabib and Bisin’s (2005) internal commitment model.

⁵ In Ameriks et al. (2007), respondents have a median net-worth of \$500k (in 1998 USD), placing the sample in the top 15% US income bracket (Kennickell, 2003). The homeless population, on the other hand, may be in the bottom 95%, with the national rate of homelessness being 20 people per 10,000 (Sermons & Witte, 2011). Erdem and Can (2013) finds a much higher prevalence of present bias among low-income populations.

⁶ O’Donoghue and Rabin (1999c) show that procrastination in saving for retirement increases with principal. Consistent with their findings, we find that ED-saving correlations are higher for those experiencing positive income shocks (thus having more principal from which to save) or are randomly offered additional incentives to save.

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