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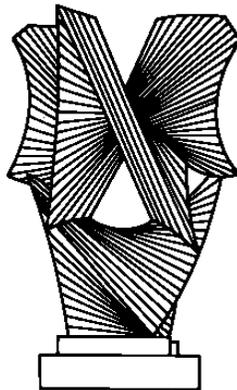
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## WILLPOWER TAXES

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## WILLPOWER TAXES

*Lee Anne Fennell\**

*Self-control and related concepts appear regularly in tax discussions, but often they are invoked hazily or blurred together with other aspects of choice over time. Despite the evident relevance of willpower to consumption patterns, wealth accumulation, and, ultimately, well-being, there is no consensus about whether and how heterogeneity along this dimension should factor into tax policy. There is support in the tax literature for such divergent responses as funneling more resources to low-willpower people, penalizing them for their lapses, and limiting their choices. Whether we should follow one of these approaches, or some other approach entirely, requires a careful analysis of willpower's workings and its connections to well-being. To begin such an analysis, I focus on three categories of costs associated with willpower problems: the failure costs of suboptimal choices, exercise costs stemming from the willpower exertion itself, and erosion costs that relate to changes over time in willpower levels as a result of patterns of exertions and outcomes. With this framework in mind, I consider the effects of existing and proposed tax policy measures on people with different self-control levels. I then consider some alternatives that would address heterogeneity in willpower through a menu of regulatory bundles designed to induce self-sorting.*

### INTRODUCTION

Willpower<sup>1</sup> matters to well-being. It also implicates activities—saving, spending, and earning—that fall squarely within the ambit of public finance. Yet there is no consensus about how this feature of human behavior

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\* Professor of Law, University of Chicago Law School. I am grateful to Anne Alstott, Ilan Benshalom, Victor Fleischer, William Gentry, Michael Graetz, Leandra Lederman, Richard McAdams, Jonathan Nash, Alex Raskolnikov, David Schizer, Warren Schwartz, Lawrence Zelenak, and participants in Columbia Law School's Tax Policy Colloquium, the University of Chicago Law School's Works in Progress series, the 2009 American Law and Economics Association meeting, and the 2010 Roundtable on Tax and Distributive Justice at the University of Colorado School of Law for very helpful comments and questions. I thank the Stuart C. and JoAnn Nathan Faculty Fund for financial support. Prisca Kim, Catherine Kiwala, and Eric Singer provided excellent research assistance. Portions of the analysis developed in this piece appeared in abbreviated form in Lee Anne Fennell, *Willpower and Legal Policy*, 5 ANN. REV. L. & SOC. SCI. 91 (2009).

<sup>1</sup> I use the terms "willpower" and "self-control" interchangeably here to refer (roughly) to one's personal efficacy in pursuing the consumption plan one deems best. Part I.A.1, *infra*, provides a more complete working definition.

should factor into tax policy. Would an ideal “willpower tax” place a heavier burden on those who exhibit a greater ability to optimally spread their consumption over time (just as income taxes place a heavier burden on those who evidence a greater ability to earn money), or would it operate like a sin tax on willpower lapses, placing additional burdens on those who exhibit low self-control? There is support in the tax and public finance literature for each of these approaches, as well as for the simpler expedient of directly limiting choices. In the background is a growing body of social science research suggesting that willpower exertions are literally taxing; at least in the short run, these exertions draw down a limited stock of cognitive resources.<sup>2</sup> Self-control issues present political complexities as well; more than most behavioral phenomena, willpower lapses touch nerves and evoke sharply inconsistent normative reactions.

The unresolved question of what to do about willpower surfaces regularly in key tax policy debates. Assumptions about self-control carry implications for the choice between consumption and income taxes,<sup>3</sup> bear directly on whether tax liability should be assessed on an annual or lifetime basis,<sup>4</sup> and feature prominently in analyses of public finance mechanisms that carry out intrapersonal transfers through the life cycle.<sup>5</sup> Further, willpower considerations inform philosophical questions relevant to tax policy, such as whether we should evaluate well-being in terms of entire lives or shorter temporal “slices,”<sup>6</sup> or from an ex ante or ex post perspective.<sup>7</sup> Many other high-profile legal and policy issues raise self-

<sup>2</sup> For a recent review of this literature, see Martin S. Hagger et al., *Ego Depletion and the Strength Model of Self-Control: A Meta-Analysis*, 136 PSYCH. BULL. 495 (2010); see also *infra* Part I.C.2.

<sup>3</sup> In this connection, see the following recent colloquy: Joseph Bankman & David A. Weisbach, *The Superiority of an Ideal Consumption Tax over an Ideal Income Tax*, 58 STAN. L. REV. 1413, 1444-48 (2006) [hereinafter Bankman & Weisbach, *Superiority*]; Daniel Shaviro, *Beyond the Pro-Consumption Tax Consensus*, 60 STAN. L. REV. 745, 784-85 (2007); Joseph Bankman & David A. Weisbach, *Reply, Consumption Taxation Is Still Superior to Income Taxation*, 60 STAN. L. REV. 789, 800-01 (2007) [hereinafter Bankman & Weisbach, *Reply*].

<sup>4</sup> See, e.g., Shaviro, *supra* note 3, at 774-76; Jeffrey B. Liebman, *Should Taxes Be Based on Lifetime Income? Vickrey Taxation Revisited* (December 2003) (unpublished manuscript, available at <http://www.ksg.harvard.edu/jeffreyliebman/vickreydec2003.pdf>) 32-37.

<sup>5</sup> Social Security is an obvious focus. See, e.g., Martin Feldstein, *The Optimal Level of Social Security Benefits*, 100 Q. J. ECON. 303 (1985); Louis Kaplow, *Myopia and the Effects of Social Security and Capital Taxation on Labor Supply*, NBER Working Paper No. 12452 (2006); Çağrı S. Kumru & Athanasios C. Thanopoulos, *Social Security and Self Control Preferences*, 32 J. ECON. DYNAMICS & CONTROL 757 (2008). In addition, progressive taxation produces intrapersonal as well as interpersonal redistribution—an effect that can be heightened or dampened through measures like age-based taxation. See, e.g., A. Mitchell Polinsky, *Imperfect Capital Markets, Intertemporal Redistribution, and Progressive Taxation*, in REDISTRIBUTION THROUGH PUBLIC CHOICE 229, 246-48, 250 (Harold Hochman ed., 1974); Lee Anne Fennell and Kirk J. Stark, *Taxation over Time*, 59 TAX L. REV. 1, 45-51 (2005).

<sup>6</sup> See Matthew D. Adler, *Well-Being, Inequality, and Time: The Time-Slice Problem and Its Policy Implications*, U Penn. Law School Paper No. 169 (2007), available at <http://lsr.nellco.org/upenn/wps/papers/169>.

<sup>7</sup> See Matthew D. Adler & Chris William Sanchirico, *Inequality and Uncertainty: Theory and Legal Applications*, 155 U. PA. L. REV. 279 (2006) (discussing “the ‘ex ante/ex post’ problem”). Although Adler and Sanchirico focus primarily on the wedge that uncertainty drives between the two points of evaluation, ex ante/ex post evaluative questions are raised in the tax realm by different consumption outcomes, including those generated by savings choices. See Alvin Warren, *Would a Consumption Tax Be Fairer Than an Income Tax*, 89 YALE L.J. 1081, 1097-1101 (1980); see also Mark Kelman, *Time Preference and Tax Equity*, 35 STAN. L. REV. 649, 654-56

control questions that are (or might be) addressed through tax and public finance instruments—including choices about welfare benefits,<sup>8</sup> consumer credit regulation,<sup>9</sup> and the treatment of “vice” products like cigarettes<sup>10</sup> or fatty foods.<sup>11</sup>

The significance of the topic has not gone unnoticed. In recent years, the tax and public finance literature has increasingly taken account of complexities of human behavior, including time-inconsistent preferences and self-control issues.<sup>12</sup> A large body of work has empirically examined and mathematically modeled many different aspects of the willpower question.<sup>13</sup> But the legal literature lacks a systematic and accessible framework for putting these pieces together to inform tax policy. This paper makes a start at constructing such a framework, placing particular emphasis on the issue of willpower heterogeneity.

The analysis here proceeds in four steps. Part I examines why and how willpower matters to well-being. This inquiry requires delving into how self-control works, how it is developed, how it is deployed, and the extent to which it can become depleted. It is also necessary to distinguish willpower from a welter of distinct but often conflated matters such as pure time preferences, risk preferences, and subjectively preferred but societally disfavored consumption plans. From this discussion, I distill three categories of costs associated with willpower problems: failure costs associated with suboptimal choices, exercise costs stemming from the willpower exertion itself, and erosion costs that relate to changes over time in willpower levels as a result of patterns of exertions and outcomes.<sup>14</sup>

With this framework in mind, I consider how tax policy might best respond to self-control problems, given heterogeneity in self-control levels. Part II abstracts from real-world difficulties in observing willpower levels

(1983); Bankman and Weisbach, *Superiority*, *supra* note 3, at 1441-44.

<sup>8</sup> Consider, for example, the practice of offering applicants a lump-sum “diversion” payment in exchange for forgoing future monthly Temporary Assistance for Needy Families (TANF) payments. *See, e.g.*, GRETCHEN ROWE & MARY MURPHY, *WELFARE RULES DATABASE: STATE TANF POLICIES AS OF JULY 2006* (2008), available at [http://www.urban.org/UploadedPDF/411686\\_welfare\\_databook06.pdf](http://www.urban.org/UploadedPDF/411686_welfare_databook06.pdf), at 32-35, tbl. A.1.A (detailing state diversion programs, some of which preclude future TANF receipt for two, three, or even four times as long as the period necessary to amortize the lump sum payment).

<sup>9</sup> *See, e.g.*, Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U.L. REV. 1373 (2004).

<sup>10</sup> *See, e.g.*, Ted O'Donoghue & Matthew Rabin, *Studying Optimal Paternalism, Illustrated by a Model of Sin Taxes*, 93 AM. ECON. REV. (papers and proceedings) 186 (2003); Jay Bhattacharya & Darius Lakdawalla, *Time-Inconsistency and Welfare*, Nat'l Bureau of Econ. Research, Working Paper No. 10345 (2004).

<sup>11</sup> *See, e.g.*, Jeff Strnad, *Conceptualizing the "Fat Tax": The Role of Food Taxes in Developed Economies*, 78 S. CAL. L. REV. 1221 (2005); Sarah McBride, *Exiling the Happy Meal*, WALL ST. J., July 22, 2008, A14 (listing measures and proposals to regulate fatty foods in a number of cities). Sweetened beverages have been a recent target of some (as yet unsuccessful) tax efforts. *See, e.g.*, Anemona Hartocollis, *Failure of State Soda Tax Plan Reflects Power of an Antitax Message*, N.Y. TIMES, July 2, 2010 (discussing a failed attempt at soda taxation in New York and similar efforts elsewhere).

<sup>12</sup> *See, e.g.*, EDWARD J. MCCAFFERY AND JOEL SLEMRD, EDS., *BEHAVIORAL PUBLIC FINANCE* (2006); *see also* sources cited *infra* Parts II and III (connecting self-control issues to tax policy questions).

<sup>13</sup> This literature is discussed and cited extensively *infra*. For a recent overview, *see* Lee Anne Fennell, *Willpower and Legal Policy*, 5 ANN. REV. L. & SOC. SCI. 91 (2009).

<sup>14</sup> *See infra* Part I.C.

to consider three basic approaches: compensatory payments, penalties for lapses, and restrictions on choice. In Part III, I examine how existing and proposed tax policy choices might (intentionally or not) generate or eliminate advantages or disadvantages for people with different willpower levels. Finally, in Part IV, I consider mechanisms that could reduce the informational burdens associated with willpower interventions. Specifically, I investigate whether it might be possible to induce taxpayers to self-sort into high-willpower and low-willpower groupings by offering a choice between two regulatory bundles that would be differentially attractive to the two groups.

Before beginning, a caveat is in order. My project here is a limited one. Willpower is not the only—or even necessarily the most important—cognitive feature that is relevant to tax policy. Willpower heterogeneity interacts with many other forms of heterogeneity (in ability, earning patterns, time preferences, consumption pattern preferences, and so on) in tremendously complex ways. Self-control problems also interact with—and potentially counteract—a variety of other cognitive biases and errors.<sup>15</sup> I do not attempt to model the interaction of these factors or to say anything prescriptive about what would be the best approach for tax policy, all things considered. Instead, I focus on just one piece of the puzzle and examine how and why it matters. Even within that narrow compass, my efforts here are necessarily tentative; much depends on empirical questions that have not yet received definitive answers. Nonetheless, laying out the relevant considerations and specifying their implications clears a path for future work.

## I. WILLPOWER AND WHY IT MATTERS

A common lament is that people behave myopically, saving too little, consuming too hastily, indulging in bad habits, and, in general, too heavily discounting the impact of their present choices on their future selves.<sup>16</sup> But this pattern is hardly universal. Indeed, some people have the opposite problem, hyperopia—an overweighting of the future relative to the present that manifests itself in behaviors like extreme miserliness or workaholism.<sup>17</sup>

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<sup>15</sup> See, e.g., Gregory Besharov, *Second-Best Considerations in Correcting Cognitive Biases*, 71 S. ECON. J. 12 (2004).

<sup>16</sup> See, e.g., David Brooks, *The Great Seduction*, N.Y. TIMES, June 10, 2008 (contending that it is now "considered normal to play the debt game and imagine that decisions made today will have no consequences for the future."). For an overview of myopia and discounting, see JONATHAN BARON, THINKING AND DECIDING 470-80 (3d ed. 2000).

<sup>17</sup> See, e.g., Ran Kivetz & Itamar Simonson, *Self-Control for the Righteous: Toward a Theory of Pre-commitment to Indulgence*, 29 J. CONSUMER RES. 199 (2002); Daniel Hamermesh & Joel Slemrod, *The Economics of Workaholism: We Should Not Have Worked on This Paper*, 8 B.E. J. OF ECON. ANALYSIS & POL., Article 3 (2008). <http://www.bepress.com/bejeap/vol8/iss1/art3>; George Loewenstein, *Anticipation and the Valuation of Delayed Consumption*, 97 ECON. J. 666 (1987); Lee Anne Fennell, *Hyperopia in Public Finance*, in

While these patterns could be produced by stable preferences (as for always consuming earlier rather than later, or vice versa), people often make choices about consumption that are at odds with what they claim to want for themselves.<sup>18</sup> We know that people grapple with intertemporal dilemmas, and that they do so with varying degrees of self-awareness and success.<sup>19</sup> Because self-control varies among individuals and can have marked effects on well-being over the life cycle, its relevance for public policy in general and tax policy in particular is intuitive. But to pin down precisely how and why it matters, we first need a working definition of willpower itself.

### A. Defining Willpower

Intertemporal decisionmaking is a vast and complex field of study,<sup>20</sup> and one in which terms have not always been used consistently.<sup>21</sup> Although definitions vary, I will use the term “willpower” in this paper to refer to one's personal efficacy in carrying out the consumption path that one (from a cool, reflective, composite, or long-run perspective)<sup>22</sup> deems to be the best of those that lie open. In other words, willpower operates within the gap between the consumption that one is tempted or habituated to undertake and some self-identified and otherwise attainable ideal.<sup>23</sup> Self-control problems must be carefully distinguished both from cognitive errors that keep people from recognizing what is best for them to do and from preferences, including time-related preferences, that cause behavior to diverge from what

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BEHAVIORAL PUBLIC FINANCE 141 (Edward J. McCaffery and Joel Slemrod, eds., 2006).

<sup>18</sup> See, e.g., B. Douglas Bernheim, *Do Households Appreciate Their Financial Vulnerabilities? An Analysis of Actions, Perceptions, and Public Policy*, in TAX POLICY AND ECONOMIC GROWTH 3 (1995) (investigating disparities between “target” and “actual” savings rates based on survey data and finding that “[t]he median baby boomer believes that it would be appropriate to triple his or her rate of saving for retirement”); Scott I. Rick et al., *Tightwads and Spendthrifts*, 34 J. CONSUMER RES. 767, 770 (2007) (presenting survey results in which many people self-report problems with underspending or overspending); George-Marios Angeletos, et al., *The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evidence*, in TIME AND DECISION 517, 517-18 (George Loewenstein et al., eds., 2003) (reviewing evidence on perceived undersaving).

<sup>19</sup> See, e.g., Ted O'Donoghue & Matthew Rabin, *Self-Awareness and Self-Control*, in TIME AND DECISION 217 (George Loewenstein et al., eds., 2003); text accompanying note 36, *infra*.

<sup>20</sup> For a concise intellectual history of intertemporal choice, see George Loewenstein, *The Fall and Rise of Psychological Explanations in the Economics of Intertemporal Choice*, in CHOICE OVER TIME (George Loewenstein & Jon Elster, eds., 1992). Work in this field has proliferated in recent years, generating numerous competing models for time-related choice. See, e.g., Shane Frederick et al., *Time Discounting and Time Preference: A Critical Review* in TIME AND DECISION 13 (George Loewenstein et al., eds., 2003).

<sup>21</sup> See, e.g., Frederick et al., *supra* note 20, at 61-62 & fig. 1.4; *id.* at 73 n. 42 (listing 19 different terms used in discussing choice over time).

<sup>22</sup> A two-self model is frequently used to capture the conflict that calls for the exercise of willpower. See *supra* note 29 and accompanying text.

<sup>23</sup> This notion of a “gap” between preferred and actual consumption appears regularly in the literature. See, e.g., David J. Laibson, *Hyperbolic Discount Functions, Undersaving, and Savings Policy*, NBER Working Paper No. 5635 (June 1996), at 2 (identifying a “sophisticated saver” with a known self-control problem with the following statement: “Regardless of which tax regime the government adopts, I expect to experience a large gap between my actual savings level and my normative savings level.”); John Ameriks, et al., *Measuring Self-Control Problems*, 97 AM. ECON. REV. 966 (2007) (studying an “expected-ideal (EI) gap” in people's consumption allocation choices).

observers might think is best. A few clarifications will help flesh out these distinctions.

First, willpower relates to individuals' subjective optimization efforts, and thus does not depend on societal judgments about the desirability of any particular consumption plan.<sup>24</sup> As a corollary of this point, low willpower can produce not only behavior we might identify as myopic (such as overspending), but also behavior that is hyperopic (such as oversaving).<sup>25</sup> Defining willpower in terms of subjective consumption goals rather than by reference to an objective benchmark enables us to draw a distinction between lapses of willpower and mere preferences. A unrepentant spendthrift (or overeater or drug user<sup>26</sup>) may exhibit consumption patterns that others would view as improvident, but unless she herself perceives that another consumption path would be better, her behavior cannot properly be viewed as a failure of willpower.<sup>27</sup>

Second, willpower is used here in a manner synonymous with self-control;<sup>28</sup> it therefore implies at least the intermittent existence of an internal would-be "controller" who purports to have superior insight into the best available consumption plan for the individual.<sup>29</sup> Time-inconsistent

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<sup>24</sup> To be sure, an observer might summarily attribute a lack of willpower to any individual who fails to achieve the consumption patterns that the observer herself deems normatively desirable. But a divergence between an observer's preferences and those of a chooser cannot be meaningfully conceptualized as a willpower issue unless dissonance is experienced by the chooser himself.

<sup>25</sup> Jon Elster, *Introduction* in *THE MULTIPLE SELF* 1, 6 (Jon Elster ed., 1985) (observing that "compulsive, rigid, rule-governed behavior can also be a form of weakness of will") (citing DONALD DAVIDSON, *ESSAYS ON ACTIONS AND EVENTS* 30 (1980)); *see also* sources cited in *supra* note 17.

<sup>26</sup> Even drug addiction can be modeled as the product of rational choice. *See* Gary S. Becker and Kevin M. Murphy, *A Theory of Rational Addiction*, 96 *J. POLIT. ECON.* 675 (1988). Of course, scholars have questioned the extent to which addiction actually fits the rational model. *See, e.g.,* Jonathan Gruber & Botond Köszegi, *Is Addiction "Rational"? Theory and Evidence*, 116 *Q. J. ECON.* 1261 (2001).

<sup>27</sup> However, the preferences that cause an individual to view a plan of extreme consumption as optimal might be viewed as "expensive tastes" that make a person less well off than she would be if she did not have them. For discussion of the distributive justice implications of expensive tastes, see Ronald Dworkin, *What is Equality? Part 2: Equality of Resources*, 10 *PHIL. & PUB. AFF.* 283, 301-04 (1981); Daniel Markovits, *How Much Redistribution Should There Be?* 112 *YALE L.J.* 2291, 2313-23 (2003). I thank Noah Zatz for suggesting this connection.

<sup>28</sup> Usages vary. *Compare* Hagger, et al., *supra* note 2, at 496 n.1 (listing "willpower" among the "terms often considered synonymous with self-control") with Roy F. Baumeister & Kathleen D. Vohs, *Willpower, Choice, and Self-Control*, in *TIME AND DECISION* 201, 202-04 (George Loewenstein et al., eds., 2003) (using "willpower" to refer to a particular theory of self-control).

<sup>29</sup> *See, e.g.,* George Loewenstein, *Willpower: A Decision-Theorist's Perspective*, 19 *LAW & PHIL.* 51, 52 (2000) [hereinafter Loewenstein, *Willpower*] ("The concept of willpower suggests that there is some part of the self that needs to be controlled to do what another part of the self wants"); Elster, *supra* note 25, at 6 (1985) (explaining that "weakness of will" is a concept that "requires both that there is a conflict between two opposed wishes, and that the wish that the person himself judges to be the more decisive loses out"); Richard H. Thaler & Hersch M. Shefrin, *An Economic Theory of Self-Control*, 89 *J. POL. ECON.* 392, 393-94 (1981) (observing that the notion of self-control would be "paradoxical" without the concept of two selves) (quoting DONALD MCINTOSH, *THE FOUNDATIONS OF HUMAN SOCIETY* (1969)). The concurrent divided self that features in concepts of willpower can be distinguished from a series of temporally sequential selves. *See* Elster, *supra* note 25, at 14-15 (observing that if a person fails to do what he believes "is best, all things considered," the problem suggests "some split in the mind" or "a divided self" but "there is no need to talk about successive selves"). The two selves can be characterized in various ways. *See, e.g.,* Thaler & Shefrin, *supra* ("planner" and "doer"); Richard A. Posner, *Are We One Self or Multiple Selves? Implications for Law and Public Policy*, 3 *LEGAL THEORY* 23, 25 (1997) (discussing conflicts between the "future-oriented" or "adult" self and the "present-oriented" or "child" self); *see*

preferences<sup>30</sup> (which are often, but not always, explained by reference to hyperbolic discounting)<sup>31</sup> are not the same thing as willpower lapses, but are often symptomatic of them. To take a standard example, many people who would prefer \$105 in 366 days to \$100 in 365 days would turn down the chance for \$105 tomorrow in favor of \$100 today—even though the length of the delay and the difference in the rewards is identical in the two cases.<sup>32</sup> Such preference reversals may occur if the internal "controller" who initially selected the larger, later reward lacks the power to stop immediate consumption when it becomes available. However, if someone naively switches preferences as a choice approaches and neither foresees that this will occur nor understands that it undermines her own long-run plans, the problem does not, strictly speaking, implicate willpower. Similarly, forms of myopia or hyperopia that merely alter the perceived size of future rewards without producing any awareness of the distortion would not represent willpower shortfalls.<sup>33</sup>

Third, low willpower is distinct from, although entangled with, other cognitive and computational limits.<sup>34</sup> Such limits, along with imperfect information and uncertainty about the future, may cause people to guess wrong about the best available pattern of consumption and aim their willpower efforts at the wrong target. However, the increment of harm caused by the miscalculation cannot be attributed to low willpower.<sup>35</sup> One

also Ted O'Donoghue & Matthew Rabin, *Doing It Now or Later*, 89 AM. ECON. REV. 103 (1999) (modeling a "long-run perspective" in which each period is weighted equally); Drew Fudenberg & David K. Levine, *A Dual-Self Model of Impulse Control*, 96 AM. ECON. REV. 1449 (2006) (discussing past two-self models and presenting one in which a long-run self interacts with a series of short-run selves). A related idea is that of "hot states" and "cold states"; one might view the former as instances in which the long-range or "planner" self is given little deference. See George Loewenstein, *Emotions in Economic Theory and Economic Behavior*, 90 AM. ECON. REV. (papers and proceedings) 426, 428–29 (2000) (discussing the "hot/cold empathy gap" as an inability to predict this shift in internal control).

<sup>30</sup> Economic work on time inconsistency traces back to R.H. Strotz, *Myopia and Inconsistency in Dynamic Utility Maximization*, 23 REV. ECON. STUD. 165 (1955). For a helpful review of work on time discounting and time-inconsistent preferences, see Frederick et al., *supra* note 20.

<sup>31</sup> On hyperbolic discounting, see, e.g., GEORGE AINSLIE, *BREAKDOWN OF WILL* 32 & fig. 2B (2001) (describing and depicting hyperbolic discounting); David Laibson, *Golden Eggs and Hyperbolic Discounting*, 112 Q. J. OF ECON. 443 (1997) (modeling preference reversals using a quasi-hyperbolic discount function). For alternative explanations of preference reversals, see, e.g., Daniel Read, *Is Time-Discounting Hyperbolic or Subadditive?* 23 J. RISK & UNCERTAINTY 5 (2001); Ariel Rubinstein, "Economics and Psychology?" *The Case of Hyperbolic Discounting*, 44 INTERNAT'L ECON. REV. 1207 (2003).

<sup>32</sup> See, e.g., Frederick et al., *supra* note 20, at 25; O'Donoghue & Rabin, *supra* note 29, at 103 (discussing "present-biased preferences").

<sup>33</sup> See Elster, *supra* note 25, at 15-16 (observing that "myopia need not be a case of weakness of the will" and citing instances where people have consistently short-sighted preferences and do not perceive any intertemporal dilemma). Nonetheless, "myopia" and "hyperopia" are commonly used to reference self-acknowledged deviations from a better available consumption path.

<sup>34</sup> See B. Douglas Bernheim, *Taxing and Saving*, NBER Working Paper No. 7061 (March 1999) at 36 (distinguishing self-control issues from those involving bounded rationality, and explaining that the latter "arise from the complexity of intertemporal planning"). However, the two do interact. See *id.* at 38 (noting that self-control models involve complex interactions among current and future selves that "accentuate the problems associated with cognitive limitations").

<sup>35</sup> It is even possible that miscalculations and low willpower will offset each other. See, e.g., Besharov, *supra* note 15; Douglas Glen Whitman & Mario J. Rizzo, *Paternalist Slopes*, 2 NYU J. LAW & LIBERTY 411, 427-28 (2007). For example, people who erroneously believe that they should save more than is actually

of the areas in which people may miscalculate, of course, is in gauging their own future susceptibility to self-control problems. A person who does not recognize in advance the existence or extent of her willpower vulnerabilities can still suffer from low willpower.<sup>36</sup> All that is necessary is that the person have in mind a (subjectively) superior choice before failing to opt for it. While a miscalculation about willpower is not itself a failure of willpower, it can complicate remedial efforts.

Defining willpower in the way I have here makes failures of willpower deeply subjective, internal phenomena.<sup>37</sup> This understanding fits well with how most people understand the term, but it also raises issues for public policy. Because willpower lapses are observationally equivalent to intertemporal choices that are produced by preferences or errors, willpower can only be treated as a distinct phenomenon if it is possible to develop workable proxies, information-forcing mechanisms, or other tools to improve or substitute for direct observation. Even more fundamentally, however, we need to pinpoint the kinds of harms willpower problems cause before we can determine the policy relevance of willpower heterogeneity. The next sections explore that question.

### B. *Self-Control and Consumption Choices Over Time*

To understand the significance of willpower for well-being, it is necessary to step back and consider consumption over time more generally.

#### 1. The Life-Cycle Model

The dominant economic model for understanding consumption decisions over time is the permanent income hypothesis or the related life-cycle model (which, although they differ in some particulars, I will here refer to collectively as the "life-cycle hypothesis").<sup>38</sup> On this account, an

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necessary could be benefited by willpower lapses that move them closer to the correct target. *See, e.g.*, Besharov, *supra* note 15, at 12-13 (citing Matthew Rabin, *Comment*, in BEHAVIORAL DIMENSIONS OF RETIREMENT ECONOMICS 247 (Henry Aaron, ed., 1999)). Similarly, people may choose to remain "strategically ignorant" about actual risks if their inflated beliefs help to fortify their own willpower resolve. *See* Juan Carrillo & Thomas Mariotti, *Strategic Ignorance As a Self-Disciplining Device*. 67 REV. ECON. STUD. 529 (2000).

<sup>36</sup> *See, e.g.*, O'Donoghue & Rabin, *supra* note 19 (considering a spectrum of self-awareness that includes partial as well as full naivete about self-control problems); O'Donoghue & Rabin, *supra* note 29, at 104 (distinguishing those who are naive about their self-control problems from those who are sophisticated and recognize the problem in advance).

<sup>37</sup> This is not to say that the exercise of willpower might not be observable to some extent through neuroscience, only that it cannot be reliably inferred from behavioral outcomes. *See* sources cited in note 81; *cf.* B. Douglas Bernheim & Antonio Rangel, *Choice-Theoretic Foundations for Behavioral Welfare Economics*, in THE FOUNDATIONS OF POSITIVE AND NORMATIVE ECONOMICS: A HANDBOOK 155, 189 (Andrew Caplin & Andrew Schotter, eds., 2008) (noting the present inability to discern when a cognitive "mistake" occurs, and the authors' divergent views about the likely future role of neuroscience in making such judgments).

<sup>38</sup> *See* MILTON FRIEDMAN: A THEORY OF THE CONSUMPTION FUNCTION 25-31 (1957) (presenting the permanent income hypothesis); Franco Modigliani & Richard Brumberg, *Utility Analysis and the Consumption*

individual's consumption in a given period is not tied to that period's income alone, but rather represents an optimal consumption level given the person's lifetime earnings.<sup>39</sup> Whether income arrives steadily or irregularly, people calibrate their consumption in the same way—or so the story goes. This activity is referred to as "consumption smoothing" based on the commonplace assumption that optimal consumption is likely to be significantly smoother than earning patterns. If people experience diminishing marginal returns to consumption within each period and the height and shape of the marginal utility curve remains unchanged over the life cycle, people will tend to do best by spreading out their consumption rather than letting it track income or intentionally piling it into large heaps.<sup>40</sup> Of course, marginal returns to consumption are likely to be higher in some periods than others, so that perfect smoothing will not be optimal.<sup>41</sup> For example, if we examine matters at the household level, we would need to take into account periods in which dependent children are present.<sup>42</sup> It is also possible that certain large lumps of consumption will be so highly valued by some individuals that the opposite of consumption smoothing—consumption lumping—would be optimal.<sup>43</sup>

Despite these complications and the concomitant difficulty in discerning whether any particular real-world consumption pattern is optimal,<sup>44</sup> research suggests that actual consumption is more sensitive to the timing of income streams than would be predicted by the life-cycle model.<sup>45</sup> Although willpower shortfalls doubtless play a role, there are many other reasons why this might be the case. First, imperfect capital markets present liquidity constraints; thus, people are not always able to move money earlier in time.<sup>46</sup> Similarly, incomplete insurance markets may force people to push more money into the future as a precaution than they would if all

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*Function: An Interpretation of Cross-Section Data*, in POST-KEYNESIAN ECONOMICS 388 (Kenneth K. Kurihara ed., 1954) (presenting the life-cycle model). See also ALAN E.H. SPEIGHT, CONSUMPTION, RATIONAL EXPECTATIONS AND LIQUIDITY: THEORY AND EVIDENCE 52-53 (1989) (discussing these models and some differences between them).

<sup>39</sup> See, e.g., Modigliani & Brumberg, *supra* note 38, at 392 ("The rate of consumption in any given period is a facet of a plan which extends over the balance of the individual's life, while the income accruing within the same period is but one element which contributes to the shaping of such a plan."); ANGUS DEATON, UNDERSTANDING CONSUMPTION 26 (1992) (according to the life-cycle hypothesis, "consumption patterns are shaped by tastes and life-cycle needs, and not by the temporal pattern of life-cycle labor income").

<sup>40</sup> See, e.g., Fennell & Stark, *supra* note 5, at 8 & n.26.

<sup>41</sup> See, e.g., DEATON, *supra* note 39, at 5, 26.

<sup>42</sup> See *id.* at 5 (suggesting that because marginal utility of consumption is higher for a household that includes more people, "the life-cycle pattern of household consumption can be expected to have the same general shape as the life-cycle pattern of household size").

<sup>43</sup> See, e.g., Shaviro, *supra* note 3, at 765-66.

<sup>44</sup> See, e.g., Deborah M. Weiss, *Paternalistic Pension Policy: Psychological Evidence and Economic Theory*, 58 U. CHI. LAW REV. 1275, 1310-11 ("Any argument that a given savings level is or is not optimal must ultimately appeal to intuitions, such as that about the low likelihood that steeply declining lifetime consumption maximizes utility.").

<sup>45</sup> See, e.g., DEATON, *supra* note 39, at 87-103; Angeletos et al., *supra* note 18, at 534-36; Fennell & Stark, *supra* note 5, at 16-20.

<sup>46</sup> See, e.g., Polinsky, *supra* note 31, at 233-35; DEATON, *supra* note 39, at 162-63.

uncertainty could be adequately hedged.<sup>47</sup> Conversely, risk and uncertainty might at times push people toward consuming earlier than they would otherwise prefer. For example, one reason for consuming now rather than later is that one cannot be sure one will be alive later to engage in consumption.<sup>48</sup>

Even within the realm of cognition, more is going on than willpower. Hersh Shefrin and Richard Thaler's "behavioral life-cycle hypothesis," which incorporates widely observed cognitive phenomena not accounted for in the standard life-cycle model, takes into account not only time-inconsistent preferences but also features like optimism and mental accounting that may drive a wedge between optimal and actual consumption.<sup>49</sup> Some divergences from the life-cycle model's predictions stem from computational limits; faced with the enormous complexity of arranging one's lifetime consumption, people often resort to simple heuristics or rules of thumb.<sup>50</sup> Uncertainty can also interact with cognitive biases to produce choices that deviate from the predictions of the life-cycle model. People may mispredict how their marginal utility of consumption will change in the future—or how it might do so contingent on uncertain events, like changes in health status or the death of family members.<sup>51</sup> For

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<sup>47</sup> See, e.g., DEATON, *supra* note 39 at 34-37, 197; Christopher D. Carroll, *Buffer-Stock Saving and the Life Cycle/Permanent Income Hypothesis*, 112 Q.J. ECON. 1 (1997); KENNETH J. ARROW, *ESSAYS IN THE THEORY OF RISK-BEARING* 134-43 (1971). Shaviro, *supra* note 3, at 772-73. Borrowing constraints interact with risk. See DEATON, *supra* note 39, at 197 (describing "[t]he ability to borrow in bad times" as "in insurance device for at least some consumers, and if this mechanism is closed off, additional provision must be made for such eventualities"). More generally, the distributive work of taxation is only necessary because of incomplete insurance markets (here, for ability). Shaviro, *supra* note 3, at 757 (citing DANIEL SHAVIRO, *MAKING SENSE OF SOCIAL SECURITY REFORM*, 52 (2000)); see also David A. Weisbach, *Toward a New Approach to Disability Law*, 2009 U CHI. LEGAL FORUM 47, 74 ("Designing a tax system . . . is very much like designing an optimal insurance policy") (footnote omitted); Dworkin, *supra* note 27, at 314-23 (examining the implications of hypothetical insurance markets for skill).

<sup>48</sup> See, e.g., Kelman, *supra* note 7, at 660-69. Similarly, choosers who are uncertain about whether the person or entity offering them an intertemporal choice will really follow through on the delayed alternative as promised may find it safer to take a smaller reward immediately, even if they would prefer the larger, later reward. This seems to be the best explanation of the often-cited "puzzle" of people failing to buy energy efficient appliances whose higher initial cost would be more than repaid by cheaper operating costs. See George Loewenstein and Drazen Prelec, *Anomalies in Intertemporal Choice: Evidence and an Interpretation*, in *CHOICE OVER TIME* 119, 137-38 (George Loewenstein & Jon Elster, eds., 1992) (citing studies inferring high discount rates based on choices about consumer durables). Well acquainted with puffery and claims that turn out not to match up with their own experiences, consumers may find it safer to take the savings up front rather than count on them to materialize later. See, e.g., Bankman & Weisbach, *Superiority*, *supra* note 3, at (suggesting that the studies like those on energy efficient appliances often "involve choices in which the discount rate may be confounded by a lack of information").

<sup>49</sup> Hersh M. Shefrin & Richard H. Thaler, *The Behavioral Life-Cycle Hypothesis*, 26 ECON. INQUIRY 609 (1988).

<sup>50</sup> See, e.g., Russell Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CALIF. L. REV. 1051, 1075-81 (2000) (citing and discussing literature on this point).

<sup>51</sup> See, e.g., Kelman, *supra* note 7, at 669-70. Research supports a "projection bias" that limits people's ability to know how they will feel under different conditions, including quite common states such as hunger. George Loewenstein et al., *Projection Bias in Predicting Future Utility*, 118 Q. J. ECON. 1209 (2003); see also Timothy D. Wilson & Daniel T. Gilbert, *Affective Forecasting*, 35 ADVANCES IN EXPERIMENTAL SOC. PSYCH. 35: 345-411 (2003).

example, a young person who puts off expensive travel may be operating on the assumption that she will get the same amount of pleasure from traveling in her later years; if this turns out to be untrue, the delay will have made her worse off. Significantly, this is not a question of willpower, even though the pattern may look hyperopic. Rather, it stems from one's inability to determine one's optimal consumption plan under external constraints.

As the foregoing example suggests, the notion of a consumption plan that would maximize an individual's lifetime well-being within the bounds of external limits lurks in the background of willpower discussions. Explicitly developing this idea of an "optimal available consumption plan" or "OACP" offers a useful starting point for thinking precisely about what willpower lapses cost.

## 2. Anatomy of an OACP

Willpower has the intriguing property of mediating between a person's own best-laid plans and her ability to advance them. But sometimes those best-laid plans do not, in fact, represent a path to higher lifetime well-being. If our interest is in the effect of willpower heterogeneity on well-being, we would want to know how much willpower lapses cost individuals in lost utility over the life cycle. This requires filtering out the costs that come from aiming at the wrong target and netting out the gains that come from failing, through lack of willpower, to advance wrongheaded goals. In other words, willpower lapses produce disutility only to the extent that they interfere with an individual's pursuit of her OACP. An individual's OACP can be roughly defined as the most-preferred consumption plan that is available to that individual, given external constraints (such as budget and liquidity constraints and limits on risk reallocation). Individuals are also subject to the prevailing legal regime, which may withdraw certain desired choices and influence others through taxes, subsidies, or other mechanisms.<sup>52</sup> Both the individual's OACP and the individual's actual consumption pattern must fit within these constraints.

The question of willpower enters into the picture only within the range of freedom that these external constraints leave open. The more limited that compass, the less heterogeneity in willpower will matter.<sup>53</sup> At the extreme, imagine a person who has no ability to borrow money and earns only enough each day to keep body and soul together. Such a person's actual consumption pattern will hew closely to her OACP regardless of her

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<sup>52</sup> See Laibson, *supra* note 23, at 2 (distinguishing a person who cannot achieve optimal savings due to self-control problems from someone who rationally chooses the savings level that is optimal in light of a given "inefficient tax environment").

<sup>53</sup> Thus, as we will see, one response to willpower heterogeneity might be to toughen external constraints, as through legal restrictions that remove certain consumption options. See *infra* Parts II.C and III.D.

willpower level, because external constraints produce an OACP that is so tightly fitted to her survival needs that no other plausible pathway beckons. Likewise, loosening borrowing constraints will have different impacts on different individuals, depending on their willpower levels.<sup>54</sup> For some, it removes a binding constraint and makes possible a better approximation of the optimal lifetime consumption plan; for others, it merely facilitates a wider divergence from that plan.<sup>55</sup> Similarly, people with front-loaded life-cycle earnings (such as child actors or professional athletes) have more to lose from willpower lapses than those who receive money later in time, holding all else equal.<sup>56</sup>

A remaining question is what the term "optimal" means in the context of an OACP. To say that an optimal plan is one that is best by the individual's own lights gains us little ground if the individual has time-inconsistent consumption preferences. We must make some judgment about which of the "selves" is to be viewed as authoritative on the question.<sup>57</sup> Where short run impulses threaten to derail long range planning, it might seem reasonable to grant priority to the long-run self.<sup>58</sup> But the fact that people make mistakes not only in the direction of overconsumption but also in the direction of underconsumption may cast doubt on the planner's authority. Putting matters in terms of a thought experiment may help: the individual's OACP is that plan which an assembly of all temporal selves would accept as at least as desirable as any other alternative, assuming that the relevant bargains and side-payments among selves could be arranged.<sup>59</sup> In other words, one plan trumps another if the selves who get their way under it win

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<sup>54</sup> See, e.g., M. Keith Chen & Alan Schwartz, *Intertemporal Choice and Legal Constraints*, Yale L. & Econ. Res. Pap. No. 381 (April 2009), available at <http://ssrn.com/abstract=1396333>, at 4-5.

<sup>55</sup> See Laibson, *supra* note 31, at 465-67 (explaining how increased liquidity could actually be welfare reducing for consumers who would like to use illiquid assets, such as their homes, as commitment devices).

<sup>56</sup> See Thaler & Shefrin, *supra* note 29, at 401 (observing that athletes' "declining income stream creates a difficult self-control problem in the high-income years").

<sup>57</sup> See, e.g., JOEL FEINBERG, HARM TO SELF, 3 THE MORAL LIMITS OF THE CRIMINAL LAW 83 (noting difficulty in determining which self's preferences should have priority when both "appear to be equally voluntary"); Chrisoula Andreou, *Making a Clean Break: Addiction and Ulysses Contracts*, 22 BIOETHICS 25, 29-30 (2008) (analogizing granting priority to the choice preferred by most of the temporal selves to "mob rule"); Eric Rasmusen, *Internalities and Paternalism: Applying the Compensation Criterion to Multiple Selves Across Time*, draft at 15 (May 2008) available at <http://ssrn.com/abstract=1129824> (discussing literature on whether to privilege an earlier self who wishes to precommit and suggesting that "what is special about Self 0 is that he is making a choice about something before it becomes a present decision"); Glen Whitman, *Against the New Paternalism: Internalities and the Economics of Self-Control*, Policy Analysis No. 563, Cato Institute (2006) at 1, <http://www.cato.org/pubs/pas/pa563.pdf> (contending that "internality theory in its current form unjustifiably 'takes sides' when it chooses to favor some personal interests over others").

<sup>58</sup> Much work on time-inconsistent preferences adopts this perspective, whether explicitly or implicitly. See, e.g., Gruber & Köszegi, *supra* note 26, at 1287. For a critique, see Whitman, *supra* note 57.

<sup>59</sup> If the side payments were actually made, the results would be Pareto efficient, leaving no selves worse off and at least one self better off. See, e.g., Jay Bhattacharya & Darius Lakdawalla, *Time-Inconsistency and Welfare*, Nat'l Bureau of Econ. Research, Working Paper No. 10345 (2004), available at <http://www.nber.org/papers/w10345> (applying an intrapersonal Pareto criterion); O'Donoghue & Rabin, *supra* note 29, at 112-13 (discussing and critiquing the use of intraself Pareto efficiency to assess welfare). See also Whitman, *supra* note 57 (applying Coasean analysis to internal bargaining).

enough to compensate the selves who lose out.<sup>60</sup> The composite preferences that would emerge from this hypothetical bargain among selves form the conceptual baseline against which we can assess the well-being costs of willpower failures.

It might seem more straightforward to use objective measures of well-being to assess the costs of willpower lapses.<sup>61</sup> Yet presumably our reason for caring about willpower lapses as such (rather than merely as a subset of poor decisions that we might wish to regulate for other reasons) derives from the capacity of those lapses to undermine a person's own best-laid plans. While an OACP is a construct that real-world individuals do not and could not have full access to, willpower is only interesting to the extent that people can at least roughly identify the path that is best for them. If people are utterly misguided about what is best for them, then we are dealing not with a problem of self-control but rather with an entirely different set of issues that willpower-related policies cannot address.

### 3. Willpower Heterogeneity and Lifetime Well-Being

The life-cycle hypothesis makes strong implicit assumptions about the continuity of personal identity throughout life and the degree of resource sharing that occurs among a person's various temporal selves.<sup>62</sup> These assumptions break down for many reasons, as we have seen. In comparing the well-being of two people over their lifetimes,<sup>63</sup> we must examine not only their lifetime earnings, but also how well they can leverage those earnings into utility. This depends in turn on their ability to arrange consumption optimally within the life cycle,<sup>64</sup> which, among other things,

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<sup>60</sup> This would amount to the application of the Kaldor-Hicks efficiency criterion to the intrapersonal realm. See Rasmusen, *supra* note 57, at 15-21 (developing and applying an "intraself Kaldor-Hicks criterion"); see also O'Donoghue & Rabin, *supra* note 29, at 113 (constructing a "long-run perspective" based on "a (fictitious) period 0 where the person has no decision to make and weights all future periods equally").

<sup>61</sup> For a defense of an objective theory of well-being, see Daphna Lewinsohn-Zamir, *The Objectivity of Well-Being and the Objectives of Property Law*, 78 N.Y.U. L. REV. 1669 (2003).

<sup>62</sup> See Lawrence Zelenak, *Tax Policy and Personal Identity over Time*, 62 TAX LAW REV. 333, 348-51 (2009) (noting and critiquing assumptions underlying a lifetime approach to taxation). There are large philosophical questions surrounding the degree to which an individual remains relevantly "the same person" over the course of a lifetime. See e.g., DEREK PARFIT, REASONS AND PERSONS (1984); Shane Frederick, *Time Preference and Personal Identity*, in TIME AND DECISION 89 (George Loewenstein et al., eds., 2003); David Shoemaker, *Personal Identity and Ethics*, STANFORD ENCYCLOPEDIA OF PHILOSOPHY, available at <http://plato.stanford.edu/entries/identity-ethics> (last revised Mar. 5, 2008). For a discussion of the implications of identity over time for tax policy, see generally Zelenak; see also Adler, *supra* note 6, at 50-53.

<sup>63</sup> There is an antecedent question of whether the lifetime is right unit of analysis for evaluating and comparing well-being. See Adler, *supra* note 6; see also PARFIT, *supra* note 62, at 343-44 (examining the significance for distributive justice of personal identity over time) (quoting and discussing THOMAS NAGEL, MORTAL QUESTIONS 124-25 n.16 (1979)); Zelenak, *supra* note 62, at 342-33 (discussing Parfit's view of how matters of identity impact the analysis of distributive questions).

<sup>64</sup> Here it becomes relevant that well-being in different periods is not additively separable, meaning that we cannot simply add up each year's utility in isolation and examine the total. See Adler *supra* note 6, at 13-14; DEATON, *supra* note 39, at 15-17 (discussing the assumption of additive separability that is sometimes used in formal treatments and its shortcomings, as well as some ways that economists have built nonadditivity into

depends on willpower.

It is well understood that people with identical lifetime earnings but different earning patterns may have different consumption patterns and hence different lifetime utility levels.<sup>65</sup> What this paper hopes to emphasize is the following additional point: Two people with identical lifetime earnings and identical earning patterns (as well as identical external constraints on borrowing and insuring,<sup>66</sup> and identical computational and predictive capacities) could nonetheless experience very different levels of lifetime well-being owing to willpower-related differences in their ability to allocate consumption within the life cycle. It is these differences that I will explore here.

### C. *The Costs of Willpower Lapses*

Willpower lapses carry obvious costs when they cause people's consumption patterns to diverge from their OACPs. But we must also take into account the costs incurred (whether successfully or not) to prevent failures of will from happening.<sup>67</sup> Some recent scholarship helpfully explores the problem in terms of intrapersonal transaction costs that keep temporal selves from frictionlessly working out their differences.<sup>68</sup> As in the interpersonal case, intrapersonal transaction costs generate two potential problems. First is a concern that the conflict will never reach an efficient resolution—the higher valuing user will not get the entitlement.<sup>69</sup> Just as a

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models). Preferences for improvement over time and adaptive effects make utility sequences and patterns highly relevant to lifetime utility. See, e.g., DEATON, *supra* note 39, at 16 (explaining that "[a]dditivity rules out phenomena such as habit formation"); Adler *supra* note 6, at 13 (observing that, among other things, "[a]dditive separability rules out the possibility of an improvement effect – namely that a life where facts with respect to some aspect of well-being get better over time is better just by virtue of this improvement"). A large body of empirical work establishes that improving sequences are generally preferred over flat or declining ones. See, e.g., Frederick et al., *supra* note 20, at 28-29 (reviewing literature); Dan Ariely & Ziv Carmon, *Summary Assessment of Experiences: the Whole is Different from the Sum of Its Parts*, in TIME AND DECISION 327 (George Loewenstein et al., eds., 2003) (observing that "one of the most robust findings in research about assessment of experiences is the clear preference for improvement over time" and collecting citations to studies establishing this preference); George Loewenstein & Drazen Prelec, *Preferences for Sequences of Outcomes*, 100 PSYCH. REV. 91 (1993).

<sup>65</sup> See, e.g., Adler, *supra* note 6, at 52 (discussing this point and citing literature supporting it). The point is easiest to see if we imagine that income tends to be temporally "sticky," in the sense that it is consumed within (or relatively near) the period in which it is earned rather than being equally available throughout the life cycle.

<sup>66</sup> I refer here to initial limits on borrowing and insuring given income and earning patterns. Low-willpower people might experience a constriction (or, in some contexts, an expansion) of credit based on their observed patterns of spending and repaying. Similarly, insurance costs might go up if, for example, lack of willpower translates into impulsive risk-seeking behavior that insurers can observe.

<sup>67</sup> Cf. GUIDO CALABRESI, *THE COSTS OF ACCIDENTS* (1970). Calabresi emphasized that the costs of accident prevention and administrative costs, as well as the harms caused by the accidents themselves, must be taken into account. *Id.* at 26-31. I will not address administrative costs explicitly here, but the policy alternatives discussed in Parts III and IV, as well as private or self-administered approaches to willpower, should be assessed in light of this consideration.

<sup>68</sup> See, e.g., Whitman, *supra* note 57; see also Rasmusen, *supra* note 57 (analyzing potential intraself bargains); AINSLIE, *supra* note 31, at 105-16 (discussing intrapersonal bargaining).

<sup>69</sup> Guido Calabresi & Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1119 (1972).

factory might be forced to shut down when it would be efficient for it to continue operating, or allowed to continue when it would be efficient for it to shut down, an individual might, say, smoke when it is not efficient for her to do so (in terms of fulfilling her own lifetime preferences), or she might fail to smoke when it would be efficient for her to do so (if the pleasure from smoking actually outweighs the long-term risks).<sup>70</sup>

A second concern relates to the resources that are wasted in the course of transacting.<sup>71</sup> Just as wrangling among neighbors over the factory's operation consumes resources, so too does wrangling among selves. Even if the entitlement does ultimately reach the higher valuing user, resources will be dissipated in the transfer process.<sup>72</sup> These two categories of costs, which I will call “failure costs” and “exercise costs,” respectively, are examined in the following sections—along with a third category, “erosion costs,” that relates to the effects over time of patterns of willpower exertions and failures.<sup>73</sup>

## 1. Failure Costs

Willpower failures are both ubiquitous and varied. In some cases, these failures may impose no costs, or may actually confer benefits, if other errors have caused people to aim their willpower efforts at the wrong target.<sup>74</sup> In general, however, we think that willpower lapses move people away from their OACPs, typically by causing them to consume earlier than they (in their composite deliberative states) would prefer. People who are aware of their own propensity to consume too early may adopt personal financial rules or other precommitment mechanisms.<sup>75</sup> These approaches may enable them to attain better results than through unstructured consumption but may still fall short of the optimal plan (whether by undershooting, overshooting, or doing some of both).<sup>76</sup> For these reasons and others, people may actually consume later than they would prefer or ultimately consume less on a lifetime basis than they would prefer.<sup>77</sup>

Other willpower shortfalls involve choices among goods or activities.

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<sup>70</sup> See Whitman, *supra* note 57, at 4-5.

<sup>71</sup> See, e.g., RICHARD A. EPSTEIN, *CASES AND MATERIALS ON TORTS*, 706-07 (9th ed. 2008).

<sup>72</sup> See *id.*

<sup>73</sup> I introduced this taxonomy in prior work. See Fennell, *supra* note 13. Although I am unaware of this precise breakdown appearing elsewhere, the underlying ideas are not new; all three types of costs are well-recognized in the literature.

<sup>74</sup> This is one of several ways in which cognitive errors might offset each other. See generally Besharov, *supra* note 15.

<sup>75</sup> See, e.g., Thaler & Shefrin, *supra* note 29, at 397-98; GEORGE AINSLIE, *PICOECONOMICS* 142-73 (1992); Roland Bénabou & Jean Tirole, *Willpower and Personal Rules*, 112 *J. POL. ECON.* 848 (2004).

<sup>76</sup> See, e.g., Bénabou & Tirole, *supra* note 75 (discussing possibility that people will precommit to an underspending regime); AINSLIE, *supra* note 31, at 143-60.

<sup>77</sup> See, e.g., RICHARD H. THALER, *THE WINNER'S CURSE: PARADOXES AND ANOMALIES OF ECONOMIC LIFE* 118 (1992) (noting lower-than-expected rates of dissaving among the elderly).

For example, willpower is often exerted in the domains of food, tobacco, alcohol, and exercise not simply to rearrange a fixed quantum of consumption within the life cycle but rather to change the total amounts and mixes of the goods that are consumed. Thus, willpower failures may cause people to consume things they would prefer not to consume at all (such as cigarettes or mindless television shows) or fail to consume at all things that they would like to consume (such as a vacation to Alaska or a college education). People may also, over a lifetime or some subset of it, consume more or less of certain things (such as certain kinds of books or particular types of foods) than they would prefer.<sup>78</sup>

The costs of willpower failures may extend beyond the individual by impacting other people.<sup>79</sup> As discussed later, it may also have implications for the individual's ability to resist future temptations.<sup>80</sup>

## 2. Exercise Costs

Although much remains to be learned about the operation of willpower, a large and growing body of empirical research finds that it costs something in cognitive terms to exercise self control.<sup>81</sup> In one study, for example, hungry participants who had to resist a plate of freshly-baked chocolate chip cookies immediately before attempting a set of (unsolvable) puzzles gave up more quickly on the puzzles than those permitted to eat the cookies and those in a control condition involving no food at all.<sup>82</sup> From this and similar

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<sup>78</sup> Consumption choices can dramatically affect the lifetime budget line, as where choices are made early in life between working and loafing or between spending and saving. Thus, divergences from an initial OACP that are produced by willpower lapses may produce a more constrained OACP over time. Conversely, willpower skills developed early in life that alter consumption choices at young ages can expand the OACP over time.

<sup>79</sup> This could occur through any number of channels. Some activities, like smoking, have direct spillovers on others (second-hand smoke). Other activities may impact other individuals through avenues like health insurance premia, contingent on the pooling and pricing rules in place. See, e.g., Jay Bhattacharya & Neeraj Sood, *Health Insurance and the Obesity Externality*, in *THE ECONOMICS OF OBESITY: VOL. 17, ADVANCES IN HEALTH ECONOMICS AND SERVICES RESEARCH* 279 (Kristian Bolin & John Cawley, eds, 2007). Another intriguing possibility raised by recent empirical work is that certain effects like obesity could spread through social networks. See Nicholas A. Christakis & James H. Fowler, *The Spread of Obesity in a Large Social Network over 32 Years*, 357 *N. ENGL. J. MED.* 370 (2007); but see Ethan Cohen-Cole & Jason M. Fletcher, *Is Obesity Contagious? Social Networks v. Environmental Factors in the Obesity Epidemic*, 27 *J. HEALTH ECON.* 1382 (2008) (challenging the social networks explanation).

<sup>80</sup> See text accompanying notes 87-96, *infra* (discussing the impact of past willpower failures on the likelihood of future failures as a type of "erosion cost").

<sup>81</sup> This appears to be true in a basic physiological sense. Recent work has linked the exercise of willpower to the brain's use of glucose. See Matthew T. Gailliot & Roy F. Baumeister, *The Physiology of Willpower: Linking Blood Glucose to Self-Control*, 4 *PERSONALITY AND SOCIAL PSYCH. REV.* 303 (2007); Matthew Gailliot et al., *Self-Control Relies on Glucose as a Limited Energy Source: Willpower Is More Than a Metaphor*, 92 *J. PERSONALITY & SOC. PSYCH.* 325 (2007).

<sup>82</sup> Roy F. Baumeister et al., *Ego Depletion: Is the Active Self a Limited Resource?* 74 *J. PERSONALITY & SOC. PSYCH.* 1252 (1998). The subjects who had to resist the cookies were instructed to eat radishes instead, ostensibly as part of a study of taste. Other subjects were instructed to eat the cookies (or, alternatively, some chocolate candies) rather than the radishes. In both cases, the subjects were left alone with both kinds of food, so that those told to eat radishes could have sneaked some cookies instead. Interestingly, none did so—although some "radish condition" subjects went so far as to pick up and sniff the cookies. *Id.* at 1255.

studies, researchers have concluded that, in the short run at least,<sup>83</sup> willpower works like a muscle that can become fatigued with use.<sup>84</sup> More broadly, self-control seems to share a common, limited, depletable fund with other cognitive tasks, such as decisionmaking.<sup>85</sup> Although the empirical work in this area leaves some a number of important questions unanswered,<sup>86</sup> and ongoing work suggests some qualifications,<sup>87</sup> the notion that willpower exertions are taxing seems quite robust.<sup>88</sup>

If the stock of willpower is limited in the relatively short run, people may maximize overall intertemporal success by "giving in" to relatively innocuous temptations.<sup>89</sup> Thus, we may see in some willpower lapses the analogue of "rational ignorance" in the realms of decisionmaking and information gathering.<sup>90</sup> If successfully applying willpower simply costs too much in a given setting, whether because it reduces willpower in other domains or generally depletes mental and emotional resources that would otherwise be used to advance important personal or career goals, it might seem that people should "choose their battles" and exhibit occasional willpower lapses.<sup>91</sup>

<sup>83</sup> The long run story seems to be rather different. See *supra* note 101 and accompanying text.

<sup>84</sup> See, e.g., Baumeister et al., *supra* note 82, at 1255; Hagger et al., *supra* note 2 (providing a meta-analysis of studies). Other studies involved initial tasks like suppressing a particular thought (such as of a "white bear") or particular emotions (in reaction to sad and comic movies). Mark Muraven et al., *Self-Control as Limited Resource: Regulatory Depletion Patterns*, 74 J. PERSONALITY & SOC. PSYCH. 774 (1998). In each case, these acts worsened subsequent performance on a cognitive or endurance task. See *id.*; see also Baumeister & Vohs, *supra* note 28 (discussing studies).

<sup>85</sup> See, e.g., Baumeister et al., *supra* note 82; Kathleen D. Vohs, et al., *Making Choices Impairs Subsequent Self-Control: A Limited-Resource Account of Decision Making, Self-Regulation and Active Initiative*, 94 J. PERSONALITY & SOC. PSYCH. 883 (2008); see also Shiv & Fedorikhhin 1999.

<sup>86</sup> See, e.g., Eric J. Johnson, *Man, My Brain Is Tired: Linking Depletion and Cognitive Effort in Choice*, 18 J. CONSUM. PSYCHOL 14 (2008) (providing a concise overview of some of the literature's unanswered questions and ongoing debates); Hagger et al., *supra* note 2 (examining alternative explanations, moderating factors, and possible extensions of the depletion model).

<sup>87</sup> For example, Dewitte et al. (2009) found that self-control enhancement rather than depletion occurred when two tasks drawing on the same control processes followed each other in succession.

<sup>88</sup> See Emre Ozdenoren et al., *Willpower and the Optimal Control of Visceral Urges*, Working Paper, January 2008, available at <http://www-personal.umich.edu/~emreo/willpower.pdf> (discussing this literature and modeling willpower as a depletable resource that can be drawn down by previous willpower exercises).

<sup>89</sup> See Loewenstein, *Willpower*, *supra* note 29, at 61 (characterizing willpower as "a constrained resource" the efficient use of which requires that it "be allocated selectively between alternative uses"); Ozdenoren et al., *supra* note 88 (modeling this allocation process); Hagger et al., *supra* note 2, at 518 (discussing "conservation" of self-control reserves).

<sup>90</sup> See, e.g., HAROLD DEMSETZ, FROM ECONOMIC MAN TO ECONOMIC SYSTEM: ESSAYS ON HUMAN BEHAVIOR AND THE INSTITUTIONS OF CAPITALISM 21 (2008) ("Perfection in decision making is infinitely costly and consuming of time, so we are wise to accept a positive probability of error and even wiser to tolerate higher probabilities if the cost of reducing error is greater"); George J. Stigler, *The Economics of Information*, 69 J. POL. ECON. 213, 224 (1961) ("Ignorance is like subzero weather; by a sufficient expenditure its effects upon people can be kept within tolerable or even comfortable bounds, but it would be wholly uneconomic entirely to eliminate all its effects.").

<sup>91</sup> Loewenstein & O'Donoghue apply a "choosing your battles" approach to reduce another category of costs: those that come from self-imposed nonpecuniary penalties, such as fear and guilt, applied to willpower lapses. George Loewenstein & Ted O'Donoghue, *"We Can Do This the Easy Way or the Hard Way": Negative Emotions, Self-Regulation, and the Law*, 73 U. CHI. L. REV. 183, 186-87, 204 fig. 2; *id.* at 192-93, 206 fig. 4 (2006) (explaining and illustrating how "guilt-free zones" could assist in reducing certain costs associated with attempting to resist temptations that ultimately prove irresistible). Perhaps for these reasons, some exercise regimens and diets expressly contemplate "cheat days." I thank Leandra Lederman for this example.

However, the costs associated with exercising self-control on a given occasion represent only part of the story. Patterns of exertions over time can influence the costliness of later exertions, and a willpower success or failure in one instance may carry implications for the odds of succeeding or failing in later instances. For example, one of the primary mechanisms for reducing exercise costs is the use of personal rules.<sup>92</sup> What makes these rules effective is their ability to raise the stakes for any given lapse by bundling together a group of similar decisions.<sup>93</sup> But, as a result, a lapse may "set a precedent" and lead to further lapses.<sup>94</sup> Dieters, for example, may conclude after giving in to a piece of cake that "the diet is 'blown'" (at least for the day) and that there is no additional harm to eating as much as they like.<sup>95</sup> Thus, lapses that seem cost-justified on a given occasion may be dangerous, unless they can be psychologically firewalled off from later, similar occasions for which willpower will be needed.<sup>96</sup>

Alternatively, people might try to reduce exercise costs by making certain that tempting choices are simply unavailable.<sup>97</sup> This strategy, too, could backfire, if one's willpower level is mutable over time. The next section explains.

### 3. Erosion Costs

As the discussion above suggested, exercise costs (and, by extension, failure costs) may change over time as a result of patterns of exertions. Muscles not only become tired but can also get stronger with regular use; these same characteristics appear to apply to willpower.<sup>98</sup> If exerting willpower makes one better at it, then efforts to avoid temptations altogether may prove counterproductive. A related possibility is that willpower can be developed by employing particular techniques. For example, studies involving children and delayed gratification suggest that

<sup>92</sup> See, e.g., AINSLIE, *supra* note 31, at 112-13.

<sup>93</sup> See, e.g., *id.*; AINSLIE, *supra* note 75, at 142-73; Bénabou & Tirole *supra* note 75.

<sup>94</sup> See, e.g., George Ainslie, *Beyond Microeconomics: Conflict Among Interests in a Multiple Self as a Determinant of Value*, in THE MULTIPLE SELF 133, 147 (Jon Elster ed., 1985); Bénabou & Tirole, *supra* note 75, at 851-56; Roland Bénabou & Jean Tirole, *Self-Knowledge and Self-Regulation: An Economic Approach*, in THE PSYCHOLOGY OF ECONOMIC DECISIONS, VOL. 1, RATIONALITY AND WELL-BEING 137, 151-59 (Isabelle Brocas and Juan Carrillo eds, 2003).

<sup>95</sup> C. Peter Herman & Janet Polivy, *Dieting as an Exercise in Behavioral Economics*, in TIME AND DECISION 459, 467-71 (George Loewenstein et al., eds., 2003).

<sup>96</sup> See, e.g., Ainslie, *supra* note 94, at 148-49. An interesting question prompted by this line of reasoning is whether tax policy could itself structure opportunities for "controlled lapses." Cf. Fennell, *supra* note 17, at 151-52 (discussing the possibility that tax refunds offer such a bounded exception); Loewenstein & O'Donoghue, *supra* note 91, 192-93, 206 fig. 4 (discussing and depicting the effects of "guilt-free zones").

<sup>97</sup> For the potential gains that might come from reducing one's choice set, see, e.g., Gul & Pesendorfer, *supra* note 198.

<sup>98</sup> See, e.g., Loewenstein, *Willpower*, *supra* note 29, at 56-57; Siegfried Dewitte et al., *Self-Control Performance Enhances Self-Control Performance at Similar Tasks* (April 2006); Ozdenoren et al., *supra* note 88, at 24-25.

people can be taught skills that enhance their ability to wait, such as pretending they are looking at a picture of a treat rather than the actual treat, or distracting themselves from the temptation.<sup>99</sup>

The idea that willpower can be “built up,” or, alternatively, that it can atrophy or erode, has received attention in the literature.<sup>100</sup> In recent experimental work, Muraven et al. found evidence of a willpower “strength training” effect among participants who were assigned to practice certain self-control tasks, such as maintaining good posture, over a two week period in between two experimental sessions.<sup>101</sup> Conversely, if failing to exercise willpower erodes the stock of self-control that can be accessed on future occasions, then the long-run strategy for minimizing failure costs and exercise costs may involve incurring more of both than could be justified based on a short-run evaluation.<sup>102</sup>

Additional empirical work might be directed not only at investigating the longer-term effects of exercising willpower, but also the broader cultural spread of willpower norms. For example, although different age cohorts exhibit different savings behaviors and monetary attitudes,<sup>103</sup> we know little about the intergenerational or societal transmission of willpower.

#### D. Understanding Willpower Heterogeneity

Although intertemporal struggles are universal, willpower problems do not affect everyone to the same degree. This is due in part to circumstances unrelated to willpower itself, such as opportunities for temptation, but individuals also differ in how they respond to the same circumstances. Put

<sup>99</sup>For an overview of this literature, see Walter Mischel, et al., *Sustaining Delay of Gratification over Time: A Hot-Cool Systems Perspective*, in TIME AND DECISION 175, 183-87 (George Loewenstein et al., eds., 2003).

<sup>100</sup> See, e.g., Bailey Kuklin, *Self-Paternalism in the Marketplace*, 60 U. CIN. L. REV. 649, 667 (1992) (raising and countering the argument that precommitment would “undermine self-discipline and thwart the goals of moral strength and virtue”); id. at 666 & n.36 (discussing the related argument that placing alternatives out of reach will deprive consumers of learning opportunities and the related strengthening of “moral fiber” and connecting this point to Mills’s “moral muscles argument” against paternalism”); Jonathan Klick & Gregory Mitchell, *Government Regulation of Irrationality: Moral and Cognitive Hazards*, 90 MINN. L. REV. 1620, 1626-27 (2006) (suggesting that paternalistic policies present a variety of “cognitive hazards” and could “undercut personal incentives to invest in cognitive capital”).

<sup>101</sup> Mark Muraven, et. al., *Longitudinal Improvement of Self-Regulation Through Practice: Building Self-Control Strength Through Repeated Exercise*, 139 J. SOC. PSYCH. 446 (1999). The study found that participants who had exercised certain forms of self-control were less vulnerable to depletion effects. The authors concluded that, “[i]t is good to exert self-control on a regular basis because in the long run, these exercises will strengthen self-control and make a person less susceptible to the depleting effects of a single exertion.” *Id.* at 456; see also Hagger et. al., *supra* note 2, at 518 (discussing and citing additional literature on self-control “training” effects).

<sup>102</sup> Some critics of interventions premised on cognitive shortfalls, including self-control, have emphasized the possibility that these efforts would have unintended effects on learning or internal controls. See, e.g., Klick & Mitchell, *supra* note 100, at 1631-32; Whitman & Rizzo, *supra* note 35, at 430-33; see also Benabou & Tirole, *supra* note 94, at 155-56 (noting possibility that self-control might not develop as well under “tight external constraints”).

<sup>103</sup> For analyses of generational differences in views about money, see, e.g., PETER K. LUNT & SONIA M. LIVINGSTONE, *MASS CONSUMPTION AND PERSONAL IDENTITY* 101-32 (1992); Teresa R. Daniel, *Delay of Consumption and Saving Behavior: Some Preliminary, Empirical Outcomes*, in ADVANCES IN ECONOMIC PSYCHOLOGY 171, 180 (Gerrit Antonides, W. Fred Van Raaij & Shlomo Maital eds., 1997).

in the terms introduced above, people with self-control problems operate in an intrapersonal environment marked by high transaction costs, while people with high levels of willpower operate in an intrapersonal transaction cost environment that more closely approximates the Coasean ideal.<sup>104</sup>

Alternatively, we might say that people have low willpower when their exercise costs are unusually high relative to the efficacy of those exertions in reducing failure costs. While everyone may suffer spikes in exercise costs from time to time, people with low willpower levels may have chronically elevated exercise costs due to some kind of vulnerability or past erosion of willpower, or they may simply lack skills that would lower those exercise costs systematically, such as the use of distraction techniques or personal rules.<sup>105</sup>

Another way of looking at the problem would posit some sort of communication breakdown between the "controller" self and the acting self.<sup>106</sup> The controller self cannot broker a deal between the current acting self and various future selves because the acting self has become unreachable or unamenable to bargaining, perhaps as a result of strong visceral influences.<sup>107</sup> While such communication breakdowns may happen occasionally to everyone, we might regard those for whom they are especially pronounced and frequent as having low willpower levels.

## II. THREE APPROACHES TO WILLPOWER

How might tax policy best respond to willpower heterogeneity? I will start by setting aside practical difficulties in observing willpower levels and consider the question at the level of theory. Three divergent responses come to mind. First, we might funnel resources to low-willpower types to compensate them for their lower utility levels. Second, we might attempt to turn low-willpower types into high-willpower types by using penalties or subsidies to reprice gaps between their actual consumption patterns and their OACPs. Third, we might try to directly deliver consumption outcomes to the low-willpower crowd that more closely approximate those of the high-willpower group by blocking or forcing certain consumption choices. These strategies—compensation, repricing, and choice reduction—do not exhaust the policy choice set, but they do offer useful starting points.

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<sup>104</sup> See *supra* note 68. This binary classification is a simplification; people obviously occupy a continuum with respect to willpower and also exhibit variation within their own lives.

<sup>105</sup> See text accompanying notes 92-99, *supra*.

<sup>106</sup> See Elster, *supra* note 25, at 6 (positing some "breakdown of internal communication").

<sup>107</sup> See generally George Loewenstein, *Out of Control: Visceral Influences on Behavior*, 64 *ORG. BEHAV. & HUM. DEC. PROC.* 272 (1996). The idea that future selves are represented in willpower struggles, albeit imperfectly, is an implication of the "two self" model that is often used to model self-control problems. See, e.g., Zelenak *supra* note 62, at 368 n.164 ("fiduciary" role of long-run self); THOMAS C. SCHELLING, *CHOICE AND CONSEQUENCE* 94 (1984) (positing that absent future selves might have an "attorney" present).

Elements of each can be seen in existing and proposed tax policies, as I will discuss in Part III.

### A. *Compensating for Low Willpower*

An equity-based rationale for reducing tax burdens on low-willpower individuals can be approached from either of two directions.<sup>108</sup> First, willpower might be considered an element of ability,<sup>109</sup> which is generally taken to be the proper theoretical target of taxation.<sup>110</sup> As a draw against a stock of cognitive resources, willpower may substitute for the exercise of other abilities in the paid labor market. On this account, exertions of willpower are a form of nonmarket production, akin to untaxed production that occurs within the home.<sup>111</sup>

Second, willpower levels may work as amplifiers or dampeners in converting marketable talents and skills into well-being over the life cycle. Holding income constant,<sup>112</sup> low-willpower people are less able to achieve the consumption plan that they deem best and are consequently less well off than their high-willpower counterparts. If tax policy's distributive goals are benchmarked to lifetime well-being, then those goals cannot be achieved without somehow accounting for differences in willpower.<sup>113</sup> But it is not obvious which way this heterogeneity would cut. As Daniel Shaviro has observed, the fact that myopia keeps some individuals from acting as good consumers in translating income into utility could support either

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<sup>108</sup> An efficiency-based rationale might also apply if it turns out that low-willpower people have more elastic labor supply than others. Cf. Michael Kremer, *Should Taxes Be Independent of Age?* (2001) (unpublished manuscript), available at <http://www.economics.harvard.edu/faculty/kremer/papers.html>.

<sup>109</sup> A distinct argument would be that willpower signals something about ability. The related idea that savings might serve as an "indicator good" has been explored. See Bankman and Weisbach, *Superiority*, *supra* note 3, at 1453-55; Emmanuel Saez, *The Desirability of Commodity Taxation Under Non-Linear Income Taxation and Heterogeneous Tastes*, 83 J. PUB. ECON. 217, 227-28 (2002). I will not discuss this possibility here, since using a particular trait as an indicator makes sense only when it is more readily observable than the real variable of interest—which is likely not the case here.

<sup>110</sup> For discussion of this point, see, e.g., Lawrence Zelmanek, *Taxing Endowment*, 55 DUKE L.J. 1145 (2006); Shaviro, *supra* note 3, at 752 (explaining that according to the optimal income tax literature, "the attribute of interest is ability, whether or not exercised" but noting that this is still "one turtle shy" of the ultimate focus of tax policy—the "effect on social welfare"). For an interesting analysis of how personal attributes other than ability relate to tax progressivity, see Jeff Strnad, *The Progressivity Puzzle: The Key Role of Personal Attributes*, John M. Olin Program in Law and Economics Working Paper 293 (August 2004), available at <http://ssrn.com/abstract=10289> (examining the implications of "materialism" and "work affinity" for the tax rate structure).

<sup>111</sup> On the distributive effects of untaxed household production, see Chris William Sanchirico, *Progressivity and Potential Income: Measuring the Effect of Changing Work Patterns on Income Tax Progressivity*, 108 COLUM. L. REV. 1551 (2008).

<sup>112</sup> The possibility that willpower may itself correlate with income or wealth levels is discussed below. See notes 170-174 and accompanying text.

<sup>113</sup> Indeed, the capacity to wring more lifetime welfare out of a given income stream would seem to be just as relevant to tax policy's distributive goals as the talents and skills that produce the income stream in the first place. Yet, tax policy does not ordinarily respond to heterogeneity in one's skill *as a consumer*. See Shaviro, *supra* note 3, at 758; see also Warren, *supra* note 7, at 1096-97 (rejecting realized utility as an appropriate tax base).

redistribution toward the myopes (based on their lower total utility and their potentially higher marginal utility) or, alternatively, shifting money *away* from the myopes and toward those who are better able to generate utility with the same resources.<sup>114</sup> Where one comes out on this question depends both on empirical assessments about marginal utility and on the social welfare function in use.<sup>115</sup>

Either of these approaches might point in the direction of a tax policy that compensates for low willpower. A principal counterargument would be one of moral hazard. Because compensating people for low willpower levels reduces the cost associated with being a low-willpower type, we might expect to see more people of this type emerge over time. The size of the response depends in part on the respective roles of effort and endowment in producing willpower. If, as suggested above, the exercise of willpower always requires at least some effort, then people might be expected to shift their limited energies to other endeavors if self-control no longer produces large marginal gains. A wrinkle here is that exertions of effort that take place in the labor market are already taxed, so it is possible that we already have inefficiently large expenditures of effort on untaxed factors like willpower.<sup>116</sup>

Although the issues are complex, a concern remains that compensation for low willpower levels would only serve to exacerbate the condition that led to compensation in the first place.<sup>117</sup> The design challenges resemble those in other settings where social arrangements can influence the "exchange rate" at which money is translated into utility. In the disability context, for example, changing certain features of the social environment (such as the pervasive use of stairs) could change the amount of marginal utility that a person with a disability gets out of the marginal dollar.<sup>118</sup>

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<sup>114</sup> Shaviro, *supra* note 3, at 785.

<sup>115</sup> See *e.g.*, *id.* A utilitarian social welfare function would focus on marginal utility alone, in an effort to bring the largest amount of utility out of each dollar. See, *e.g.*, Weisbach, *supra* note 47, at 73. In contrast, if society's distributive goals involve providing at least a threshold amount of well-being for each individual, people who are less good at translating money into utility will need more resources to reach that threshold, and thus might receive transfers whether their marginal utility is higher or lower than that of other people. See *id.* (exploring this point in the context of people with disabilities).

<sup>116</sup> Yet another consideration is that low willpower can manifest itself not only in choices between consumption and savings but also in choices between leisure and labor. To the extent that low-willpower people work less than high-willpower people, the existing tax system already offers them a break. Yet even if myopic low-willpower people are more ready to substitute leisure for labor, other things equal, they might also find themselves more frequently in binds (assuming imperfect liquidity) requiring work just for survival. It is even possible that they would strategically engineer such binds to force themselves to work. See Peter Diamond & Botond Köszegi, *Quasi-Hyperbolic Discounting and Retirement*, 87 J. PUB. ECON. 1839, 1841, 1859 (2003) (discussing such "strategic undersaving"). People with low willpower might also respond to their known propensities by locking themselves into jobs that do not offer much flexibility. Finally, some low-willpower people are hyperopic and would presumably be less ready to substitute leisure for labor.

<sup>117</sup> Cf. Bankman and Weisbach, *Reply*, *supra* note 3, at 800-01 (making this point about low savings levels, which might be indicative of myopia).

<sup>118</sup> See Weisbach, *supra* note 47, at 65-66, 98 (discussing the social model of disability and the stairs example, as well as the possibility that the latter may have public goods characteristics).

Similarly, restructuring societal arrangements to make things easier on those with low willpower could change the degree to which earned income translates into utility for those individuals. Such arrangements might include the in-kind distribution of tools (such as precommitment devices) for better leveraging of utility, or a greater degree of intrapersonal redistribution from the low-willpower person's low-marginal-utility states to her high-marginal-utility states.<sup>119</sup>

In a different vein, John Roemer suggests an interesting way to dodge moral hazard concerns while pursuing equality of opportunity: basing distributive outcomes not on an individual's absolute level of effort, but rather on how her effort ranks within the effort distribution that obtains for her relevant comparison group.<sup>120</sup> Thus, if Person A and Person B are members of two different groups that exhibit different effort distributions, and both A and B are in the 95th percentile in terms of effort for their respective groups, then both would be deemed to have tried equally hard under Roemer's theory and would be entitled to equal outcomes—even though A's absolute level of effort might be lower or higher than B's.<sup>121</sup> Whatever one may think of the proposal as a general approach to distributive justice, there is an interesting "power equalization" feature at its heart that has traction in combating moral hazard concerns: society rewards individuals whose efforts exceed those of their reference group.<sup>122</sup>

Applying the idea to the present context, we might seek to direct resources in a manner that benefits relatively high-willpower individuals within low-willpower groups. If we did not have to worry about "imitators"—high-willpower individuals who would try to slip into low-willpower groups<sup>123</sup>—then such a plan would combine movement of resources to low-willpower individuals with rewards for exerting willpower effort. Significantly, however, rewarding willpower effort (even within low-willpower groups) means placing at a relative disadvantage those who exhibit less willpower. Thus, although I have included this approach under the rubric of compensating for low willpower, it incorporates strains of a quite opposite approach, to which I now turn.

### B. Repricing Willpower Lapses

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<sup>119</sup> This analysis emphasizes a point that was glossed over in the earlier textual discussion about the marginal utility of money for high- and low-willpower people, respectively: For a low-willpower person, the marginal utility derived from a given dollar depends crucially on when it is received—how near or far from the person's optimal point of consumption. *See also* Part IV.C.2 (discussing intrapersonal redistribution).

<sup>120</sup> JOHN E. ROEMER, *EQUALITY OF OPPORTUNITY* (1998).

<sup>121</sup> *Id.* at 14-15.

<sup>122</sup> As Roemer explains, the group as a whole might have less incentive to improve its distribution, but because individual members within it have an incentive to rise to the top of the group, the distribution would be expected to improve as well. *Id.* at 35.

<sup>123</sup> *See* Weisbach, *supra* note 47, at 85-87 (discussing problem of "mimicking" in the disability context).

Policymakers might respond to the fact that low-willpower people are less well off than high-willpower people by attempting to (further) deter people from willpower lapses. A system of rewards and penalties based on how well people manage intertemporal dilemmas could lead to fewer low-willpower types and more high-willpower types. Because "sin taxes" can be characterized as a rough attempt to enact this idea, much of the analysis of this approach will be taken up below in the course of discussing those instruments.<sup>124</sup> But some initial observations will help to highlight considerations that apply to this approach even in the counterfactual case where willpower levels are observable.<sup>125</sup>

One issue involves the possibility that penalties will fail to deter willpower lapses. Individuals who do not stick to their OACPs are already made worse off as a result. Since low-willpower people seem to be acting irrationally—failing to do what is in their best interest—it is not clear how responsive they will be to additional disincentives.<sup>126</sup> Yet, sometimes the problem with existing disincentives is not that they are too low, but rather that they are temporally misplaced.<sup>127</sup> Thus, policy instruments that move penalties to the temporal point at which willpower must be applied, thus raising the price of a lapse in currency that will not be discounted, could offer fresh traction on intertemporal dilemmas.<sup>128</sup>

There is another problem, however. If low-willpower individuals do not respond to the price change that the government has introduced, then they will be made even worse off than before, relative to high-willpower people.<sup>129</sup> They must not only pay the new, higher price associated with the willpower lapse (now) but also suffer the effects of the lapse in their own lives (later). This result is difficult to justify on distributive grounds. Of course, if certain kinds of willpower lapses produce especially large externalities, shifting people away from them could make good policy sense regardless of how they impact people's own well-being.<sup>130</sup> In that case, however, the policy justification would lie in the externalities themselves,

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<sup>124</sup> See *infra* Part III.C

<sup>125</sup> As discussed below, a central difficulty is in avoiding distorting the choices of people without willpower problems. But even if we know an individual suffers from low willpower, there may still be difficulties in pricing lapses appropriately.

<sup>126</sup> Cf. DEMSETZ, *supra* note 90, at 25-26 (critiquing Robert Frank's suggestion of a progressive consumption tax as an antidote to competitive consumption by asking "If the wealthy cannot discipline themselves to reduce expenditures on luxury goods, why do they react sensibly to a tax-imposed increase in the cost of a unit of stature?").

<sup>127</sup> See Loewenstein & O'Donoghue, *supra* note 91, at 189 (observing that future punishments or reward designed to deter vice "are generally likely to be ineffective for the very reason that people succumb to vices in the first place—because people tend to put disproportionate weight on costs and benefits that are immediate relative to those that are delayed, and more generally have a hard time fully attending to future consequences").

<sup>128</sup> Imposing a tax on the present self may be easier said than done, however. See Whitman & Rizzo, *supra* note 35, at 428-29 (noting if a person subjected to a sin tax is able to borrow or has accumulated savings, a later self can be made to pay the tax).

<sup>129</sup> See *id.* at 190; Strnad, *supra* note 11, at 1254; text accompanying notes 193-196, *infra*.

<sup>130</sup> See generally Russell Korobkin, *Libertarian Welfarism*, 97 CAL. L. REV. 1651 (2009).

not in concerns about willpower; the justification would apply with equal force to decisions made by people who hold consistent preferences for the externality-producing choice.

Finally, even if people do respond to governmentally engineered price changes, the fact that willpower lapses may substitute for each other makes the net effect unclear. Unless a policy mechanism can capture the entire universe of lapses, additional willpower exertions in one realm may be matched by additional or more severe lapses in another realm.<sup>131</sup> For example, penalizing people for a failure to save money might lead to better savings habits but worse health habits.<sup>132</sup> An even broader concern is raised by the fact that willpower may draw on a general store of cognitive powers, so that increasing the application of willpower may diminish effectiveness in other decisional or attentional realms.<sup>133</sup> For example, perhaps tightly controlling certain aspects of discretionary consumption means paying less attention to the details of one's mortgage or performing less effectively on the job.

### C. Closing the Willpower Gap

A third approach would seek to close the utility gap between high-willpower people and low-willpower people by blocking or mandating particular choices.<sup>134</sup> Our discussion above established that willpower can only operate within the space that is left open by the framework of external constraints. The tighter those constraints, the less willpower matters. A complete ban on borrowing, or strict limits on consumption choices would make self-control less relevant. Similarly, forced savings or mandatory spending would constrain the available choice set. If applied across the board to people who vary as to willpower but are otherwise identical, such constraints would squeeze out some of the differences in well-being that willpower presently generates. Indeed, intelligently formulated restrictions could do more than that; to the extent they replicated what well-informed people without willpower problems would choose, they could raise overall well-being levels for low-willpower people without a corresponding drop in well-being for high-willpower people.

Directly improving well-being by limiting choice has some advantages over applying penalties to willpower shortfalls. Even if changing the prices of lapses alters the extent to which they occur, the effort of engaging in self-

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<sup>131</sup> A recent paper examining the possibility that willpower exercised in one realm may leave less for use in another realm is Ozdenoren et al., *supra* note 88.

<sup>132</sup> *See id.* at 17-19 (modeling the case where willpower has alternative uses).

<sup>133</sup> *See supra* note 85 and accompanying text.

<sup>134</sup> Mandatory retirement savings programs are a prominent real-world example. *See infra* Part III.D.

control would remain.<sup>135</sup> Not so if a choice is simply placed out of reach.<sup>136</sup> An even more compelling advantage of placing choices out of reach is that the individual will never be required to bear both the cost of the lapse itself and an additional societal penalty.<sup>137</sup> Moreover, unlike a transfer of funds to people who exhibit low willpower, these direct well-being improvements do not present an obvious moral hazard in inducing willpower reductions.

Nonetheless, the costs of limiting choice may be prohibitively high. When applied to people without willpower problems, such constraints bite into the ability to rearrange consumption without conferring offsetting benefits. Even if constrained choice sets could be selectively applied to those who struggle with self-control issues, information problems would remain. Unless OACPs are fully observable, it would not be clear which choices should be removed.<sup>138</sup> Another concern is that a reduced choice set, by eliminating the need to exert willpower, could weaken the development or that trait.<sup>139</sup> Whether or not we should worry about such a result depends in part on whether we view the quality of willpower as something valuable in itself for a culture to inculcate,<sup>140</sup> or as merely instrumental to achieving OACPs (and hence dispensable if OACPs can be achieved through other means).

#### D. Taking Stock

Table 1 summarizes how the three basic approaches to willpower heterogeneity surveyed above—directing resources toward low-willpower individuals, penalizing willpower lapses, and forcing better choices—interact with the three costs of self-control problems introduced earlier—failure costs, exercise costs, and erosion costs. The entries in the table

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<sup>135</sup> Ian Ayres has suggested that “commitment contracts” under which people stand to lose significant amounts of staked money would “take a future choice off the table” and thereby reduce the costs of exercising self-control—although he acknowledges this is “pure speculation.” IAN AYRES, *CARROTS AND STICKS* 162 (2010). Because such contracts do not actually remove choice but instead only reprice lapses, it seems questionable that they could entirely short-circuit the self-deliberation associated with exercising self-control. However, perhaps very large potential forfeitures would lead people to create and heed bright-line rules that would reduce exercise costs considerably. See *supra* note 92 and accompanying text.

<sup>136</sup> We would need to know, however, whether the deprivation itself produces any sort of depletion effect, even aside from the exercise of willpower. See Fennell, *supra* note 13, at 99-100.

<sup>137</sup> Note, however, that one response to this “double payment” problem would involve holding the fines in trust for the individual’s later self, or making the fines into a kind of forced insurance purchase. See Strnad, *supra* note 11, at 1254. Thus, we can understand at least some “penalty” schemes as containing elements of forced decisions. See text accompanying note 196 *infra*.

<sup>138</sup> To the extent that people have access to their own OACPs (or some approximation), however, they might provide input into the construction of the choice set, as through a voluntary precommitment mechanism. Precommitment will be discussed further in Part IV.

<sup>139</sup> See, e.g., Posner, *supra* note 29, at 32 (“[s]ocial security prevents the younger self from selling the older self down the river, although at the same time it weakens the future-oriented self by reducing the benefits of thrift”)

<sup>140</sup> See *id.* at 29-30 (noting potential cultural influences on “the relative strength of one’s present-oriented and future-oriented selves” and observing that public policies, such as those that tax particular choices or reallocate resources intertemporally, affect the opportunity sets existing within a society).

assume idealized, error-free applications of the strategies; later, I take up the informational burdens that each approach entails, which raise the risk of mistakes.

Table 1. Strategies and Costs

	Compensation	Penalties/Subsidies	Constricting Choice
Failure Costs	lower per failure but more failures	higher per failure but fewer failures	eliminated
Exercise Costs	lower in short run	higher in short run	eliminated
Erosion Costs	higher	lower or negative	higher

First, consider the compensation strategy. Compensating for low willpower reduces the cost of each failure; the stakes of doing a poor intertemporal job are lessened through societal transfers. We might expect the transfers to also reduce exercise costs; after all, people presumably only exercise willpower to avoid failure, and the stakes of failure have now been lowered. This looks like a cost savings. With exercise efforts reduced, however, failures become likely, even if each is made less costly by societal transfers.<sup>141</sup> Hence, we would expect more failures, making the net effect on failure costs ambiguous. Further, because buffering failure reduces the marginal returns to willpower, there may be erosion costs associated with willpower atrophy over time.

Penalizing willpower lapses takes exactly the opposite approach.<sup>142</sup> Here, failure costs are amplified by the penalty itself, making failure even more painful than before. One would expect people to react by increasing their efforts to resist failure. This will increase exercise costs, but will also presumably reduce failure costs. When failure does occur, however, it produces a triple whammy: exercise costs, ordinary failure costs, and the added penalty.<sup>143</sup> Erosion costs are avoided; if anything, the increased exercise of willpower induced by the penalty should help to build up

<sup>141</sup> See Bankman & Weisbach, *Superiority*, *supra* note 3, at 1447 (suggesting that nontaxation of savings in an effort to help myopic people would lead to an undoing of that help through further myopic behavior).

<sup>142</sup> We can say the same of subsidizing willpower successes. Even though a subsidy sounds less punitive than a tax, it still treats those who fail to engage in the preferred conduct worse in relative terms and hence effectively penalizes their choices. On the general point that taxes and subsidies are flip sides of each other, see Saul Levmore, *Carrots and Torts*, in *CHICAGO LECTURES IN LAW AND ECONOMICS 203* (Eric A. Posner ed., 2000). A recent paper modeling the effects of savings subsidies in the presence of self-control problems is Per L. Krusell et al., *Temptation and Taxation* March 2005), available at <http://ssrn.com/abstract=519502>. See also Weiss, *supra* note 44, at 1298-99 (noting that a subsidy for savings could correct for a myopic discount rate).

<sup>143</sup> In addition to governmental penalties, people often self-inflict nonpecuniary penalties like guilt and regret, and might also be subject to shaming or stigma penalties from society or from their reference group. See, e.g., Loewenstein & O'Donoghue, *supra* note 91; Glaeser, *supra* note 211, at 135. All of these penalties have the same effect of increasing the costs of failure. When the deterrent does not work, people incur failure costs that have been accordingly amplified.

willpower over the longer run. Again, the overall effects on well-being are uncertain; we would need to know how sensitive people are to penalties, how expensive willpower is to exercise, and how likely it is to fail even when exercised to the best of a person's ability.

The third approach, forcing particular choices, cleanly avoids both exercise costs and failure costs. Returning to our transaction cost analysis, it would be as if an omniscient judge simply awarded the entitlement to the higher valuing user in a land use dispute, thus side-stepping the costs and risks of relying on bargaining. Yet we might have concerns about erosion costs, especially if the "judge" will not always be there to make the right choice for our various selves. Moreover, failure costs and exercise costs would continue to exact a higher price in utility from low-willpower people in any sphere in which the forced choice did not operate.

The entries in Table 1 gloss over some additional costs that would be present in any real-world willpower intervention. In particular, it is worth considering the informational burdens presented by the various approaches. Even if we could identify low-willpower people, this would not resolve problems surrounding the determination of OACPs or the appropriate levels at which to set any penalties or subsidies—and these determinations would be essential to keeping error costs low under either a repricing or choice elimination strategy. The strategy of compensating low-willpower people requires little information beyond willpower levels, but presents heightened incentive problems. Further, to the extent we cannot observe or find workable proxies for willpower levels, we must worry not only about people losing their willpower in fact, but also about people pretending to do so.

### III. WILLPOWER AND TAX IN THE REAL WORLD

The discussion above abstracted away from the identification problems that beset efforts to address willpower in the real world. In this Part, I take a different tack. Rather than ask in an idealized manner what society ought to do about willpower heterogeneity, I ask what impacts, whether intended or unintended, existing and proposed tax policy decisions might have on people of varying willpower levels. As we will see, some approaches have the effect of directing resources to low-willpower people, others have the effect of penalizing willpower lapses, and still others operate by blocking or forcing choices. I will also consider the role of "choice architecture" that seeks to shape decisions without the use of force or of overt negative or positive incentives.<sup>144</sup>

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<sup>144</sup> See RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 11-13 (2008).

### A. Lifetime and Sublifetime Tax Periods

A perennial question in tax policy that has received significant recent attention involves the length of the tax period.<sup>145</sup> William Vickrey's proposal of lifetime averaging would make the taxpayer's lifetime the taxable period, with annual collections based on a running average.<sup>146</sup> Variations on this theme, such as averaging over a shorter span of years, have appeared in the literature,<sup>147</sup> and some limited averaging provisions have appeared in the tax code.<sup>148</sup> Lengthening the tax period is often recommended on grounds of horizontal equity. Within a progressive system, people with fluctuating earnings will face higher marginal rates during high earning years and lower marginal rates during low earning years. The highs are not counterbalanced by the lows, however, and these fluctuating earners are disadvantaged by the tax system relative to people who earn the same aggregate amount in a steady pattern.<sup>149</sup> If we believe that both ability and ability to pay are more closely keyed to multiyear or lifetime earnings than to annual earnings, longer tax periods seem sensible.

But using a longer tax period also means treating equivalently people who earn in different patterns within that longer period. According to the life-cycle hypothesis, different earning patterns should have no impact on well-being, because people can simply rearrange money within the life cycle to fund whatever consumption pattern is optimal. As we have seen, matters are not quite so simple. Another way of framing the question of the appropriate tax period is to ask whether all of the "selves" that make up an individual's life should be considered part of the same taxable unit.<sup>150</sup> When tax or benefit policies place family members or others into units, what seems most important is the expectation that resources will be shared among the members.<sup>151</sup> If resources will in fact be shared between two people, it is administratively wasteful to tax one of them only to make redistributive payments to the other. More controversially, principles of

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<sup>145</sup> Shaviro, *supra* note 3; Fennell & Stark, *supra* note 5; Lily L. Batchelder, *Taxing the Poor: Income Averaging Reconsidered*, 40 HARV. J. ON LEGIS. 395 (2003); Neil H. Buchanan, *The Case Against Income Averaging*, 25 VA. TAX REV. 1151 (2006); Liebman, *supra* note 4.

<sup>146</sup> William Vickrey, *Averaging of Income for Income-Tax Purposes*, 47 J. POL. ECON. 379 (1939).

<sup>147</sup> See, e.g., Batchelder, *supra* note 145.

<sup>148</sup> See, e.g., IRC § 1301 (permitting farming and fishing income to be spread over the preceding three taxable years at the taxpayer's election); former IRC §§ 1301-05, repealed by the Tax Reform Act of 1986, Pub. L. No. 99-514, §§ 141(a), 100 Stat. 2085, 2117; see also Richard Schmalbeck, *Income Averaging After Twenty Years: A Failed Experiment in Horizontal Equity*, 1984 DUKE L.J. 509 (describing and critiquing income averaging provisions).

<sup>149</sup> See Vickrey, *supra* note 146, at 379; Fennell & Stark, *supra* note 5, at 28 & tbl. 1.

<sup>150</sup> See Zelenak, *supra* note 62, at 361-62.

<sup>151</sup> See *id.* at 361 (observing that if economic identification or responsibility represents the principle upon which taxable units are formed, "a similar argument could be made for treating a younger self and an older self as a single tax equity unit, even if their status as separate persons is conceded").

horizontal equity might be thought to constrain the degree to which two resource-sharing units with the same total earnings should be treated differently based on how their earnings are divided up among their respective members.<sup>152</sup>

In exploring whether temporal selves should be grouped together for tax purposes, then, we might want to examine how resource sharing works among them.<sup>153</sup> We want to know not only whether the selves are able to share resources (i.e., free of external constraints on borrowing or saving), but also whether they are willing to do so (a question of willpower). What impact does the choice of tax period have on high-willpower and low-willpower people, respectively? The answer turns out to be more complicated than it might seem at first, and is best approached with an example. Table 2 shows the wage earnings<sup>154</sup> of four people, A, B, C, and D over a four-year period, ignoring interest. As indicated in parentheses, A and C are high-willpower individuals, whereas B and D are low-willpower individuals. Assume that all four individuals have an OACP that would involve perfect smoothing of consumption over the years, and that borrowing is unavailable. Suppose further that the self-control problems experienced by the low-willpower individuals, B and D, involve a kind of "income inertia" such that income tends to be consumed very near the point at which it is earned.

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<sup>152</sup> The desire to treat equal-earning couples equally clashes irreconcilably with the desire to treat equal-earning individuals equally regardless of marital status, if a progressive tax rate schedule is in place. See, e.g., Henry E. Smith, *Intermediate Filing in Household Taxation*, 72 S. CAL. L. REV. 145, 147 (1998) ("marriage neutrality, couples neutrality, and progressive rates are incompatible"). If members of a married couple "take turns" as the primary breadwinner, then grouping their incomes together for tax purposes over short temporal periods would have much the same effect as taxing each of them as individuals and lengthening the time period over which tax liability is calculated. While it is unlikely that many households exhibit this precise pattern, it is worth noting that grouping different people together may substitute in some degree for the grouping together of different temporal selves.

<sup>153</sup> The interaction between interpersonal and intrapersonal groupings would also require attention. It would be technically challenging (at best) to continue with the policy of grouping together different people into taxable units while also attempting to group together different temporal selves, given that people do not stay in the same household configurations throughout their lifetimes. See Zelenak, *supra* note 62, at 356 (discussing Vickrey's recognition of and approach to this problem in the context of his lifetime averaging proposal).

<sup>154</sup> Saving and investment income is ignored in this simple example.

Table 2: Four Earners

	Year 1	Year 2	Year 3	Year 4	Total
A (high willpower)	10	10	10	10	40
B (low willpower)	10	10	10	10	40
C (high willpower)	20	0	20	0	40
D (low willpower)	20	0	20	0	40

A tax that is based on the entire period would treat all four individuals equally. But are they equally well off? Taxpayers A and B are in exactly the same position on both an annual and whole-period basis; they would be taxed equivalently regardless of which of these tax periods is chosen. Taxpayer A would have the ability to rearrange her income into a different consumption pattern, but because her earnings happen to fall into the same pattern as her OACP, she need not do so. Taxpayer B's low willpower renders him unable to rearrange his earnings into a better consumption pattern, but again, this does not matter because his earning pattern happens to match up with his OACP.

What about C and D? C can easily (and we will assume, costlessly) rearrange her earnings to match her OACP. Despite her fluctuating earning pattern, she is, in terms of consumption possibilities, in exactly the same position as A and B. D, however, lacks the willpower necessary to rearrange his earnings to match his OACP. His earnings "stick" and are consumed where they fall, which, unhappily, does not turn out to be his optimal pattern. Consider now how the choice of tax period affects the four individuals. Annual taxation would treat A and B (steady earners) better than C and D (uneven earners) within a progressive tax system. That would mean treating C, who is relevantly like A and B, differently. Whole-period taxation would treat all four alike. This would remove the artificial distinction that the annual tax system draws between A and B on the one hand, and C on the other, but it would also sweep D, who seems to be relevantly different, into the same tax category. We might think that D would prefer this; it would mean his fluctuating earnings are taxed the same way as the steady earnings of A and B. The annual tax period taxed his fluctuating earnings more heavily, and we might think that the last thing D needs is a heavier tax burden.

But the story is not so clear-cut. The tax system does not just redistribute among different people, it also redistributes intrapersonally through the life cycle. At times, it does this in very obvious ways (as through payroll taxes and Social Security benefits). Less recognized is the fact that the application of progressive rates to annual periods throughout the life cycle moves money from higher income selves to lower income selves.<sup>155</sup> An annual tax system thus places one's current self in the same distributive relationship with one's own poorer and richer selves as with all poorer and richer (temporal versions of) other people.<sup>156</sup> And D may need redistribution from his other selves even more than he needs a tax break. C, however, can do just fine without intrapersonal redistribution. Under an annual tax system, C would cross-subsidize the tax system's regularization of D's income by being part of the pool of fluctuating earners to whom higher tax rates are applied.

Of course, earning patterns are not necessarily exogenous. Another way of looking at the story is to suppose that taxing fluctuating earners more heavily will induce more people to become regular earners. This is usually viewed as a distortion, and another reason for favoring lifetime taxation.<sup>157</sup> But if many people struggle with self-control problems, further inducing them to take up earning patterns that are likely to more closely match their OACPs could be valuable. The lifetime tax period would not have that effect, although it might still encourage people to develop more willpower. D in our story could improve his situation by being more like C under a lifetime system, or by being more like B under an annual system. Which move is the more achievable goal for people with self-control problems may bear on our choice of tax periods.

There are many additional issues that I can only touch on briefly here. First, not all self-control problems take the form I have posited of income inertia. It is also possible for people to act hyperopically and push consumption too far away from the point at which money is earned. Second, not everyone wants to smooth out their consumption. If people wish to pile up consumption into heaps and alternate them with periods of low consumption, for example, then D's willpower problems would interfere less with that OACP than would B's. Third, borrowing adds new wrinkles, both by opening up additional vistas for self-control problems and by making it possible for people to smooth consumption backwards. Yet the example helpfully emphasizes the potential role of intrapersonal

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<sup>155</sup> For discussion of this point, see, e.g., Polinsky, *supra* note 5, at 229-33; Fennell & Stark, *supra* note 5, at 42-45. This assumes that taxes are used to provide goods and services that are spread among the community on some basis other than the amount of current-year taxes paid. See Zelenak, *supra* note 62, at 368 n.165.

<sup>156</sup> The textual statement assumes the same structure of tax rates persists over time, which will not necessarily be the case. In this respect, at least, the current self's distributive relationship with its contemporaries may differ from that which it enjoys with past and future selves (whether one's own, or those of others).

<sup>157</sup> See, e.g., Shaviro, *supra* note 3, at 767; Fennell & Stark, *supra* note 5, at 32-33.

redistribution within an annual tax system. It would be possible to do even more intrapersonal redistribution through the tax system by employing mechanisms like age-based taxation,<sup>158</sup> or by simply altering the timing of tax collection.<sup>159</sup> I will consider below the possibility of allowing people opt into particular tax timing regimes based, among other things, on their preferences for intrapersonal redistribution.<sup>160</sup>

### B. *Income Taxes and Consumption Taxes*

Closely allied conceptually to the question of the appropriate tax period is the question of whether an income or a consumption tax should be used.<sup>161</sup> If we take the lessons of the life-cycle hypothesis to heart, an optimal tax system would leave individuals free to arrange both labor and consumption in any temporal pattern they choose.<sup>162</sup> Just as annual taxation can distort earning patterns, taxing savings—which an income tax does, but a consumption tax, at least in its "prepaid" form, does not—can distort consumption patterns.<sup>163</sup> In addition, the results are often deemed unfair to savers.<sup>164</sup>

If we were to simply eliminate the tax on all savings without changing anything else, the tax system would become less progressive, assuming people with high labor incomes save more than people with low labor incomes.<sup>165</sup> But, as proponents of the consumption tax have emphasized,

<sup>158</sup> See Polinsky, *supra* note 5, at 150; Fennell & Stark, *supra* note 5, at 47-49.

<sup>159</sup> See, e.g., Polinsky, *supra* note 5, at 249 (discussing the possibility that households could defer tax payments without changing the present value tax liability); Shaviro, *supra* note 3, at 761-62 (distinguishing annual tax liability from annual cash flow settlement); Fennell & Stark, *supra* note 5, at 58-63 (discussing the potential for altering collection protocols).

<sup>160</sup> See *infra* Part IV.C.3.

<sup>161</sup> See Shaviro, *supra* note 3, at 748-49; see also Zelenak, *supra* note 62, at 333, 351-54.

<sup>162</sup> See Shaviro, *supra* note 3, at 788 (noting the implications of the permanent income hypothesis for the choice of tax base as well as for the choice of tax period).

<sup>163</sup> On this account, choices about when to consume are no different than choices between different goods. See, e.g., Shaviro, *supra* note 3, at 765 (analyzing "earlier consumption" and "later consumption" as two goods); Bankman & Weisbach, *Superiority*, *supra* note 3, at 1423-27 (analogizing the choice to one between prunes and figs). Like any other tax that applies different rates to different commodities, a tax on savings adds a distortion to the labor-leisure distortion that already exists. See A.B. Atkinson & J.E. Stiglitz, *The Design of Tax Structure: Direct versus Indirect Taxation*, 6 J. PUB. ECON. 55 (1976); Bankman & Weisbach, *Superiority*, *supra* note 3, at 1414-19. The conclusion that the results are unambiguously less efficient is based on the assumption that the new distortion to consumption timing piles on top of, without in any way alleviating, the original labor-leisure distortion. See, e.g., Shaviro, *supra* note 3, at 783. This assumption is based, in turn, on the claim that a tax on savings distorts labor just as much as a wage tax. See Bankman & Weisbach, *Superiority*, *supra* note 3, at 1422 (asserting that a tax on income from savings "distorts work effort in exactly the same manner as if the work had been taxed directly"). If people are myopic, this assumption might not hold true; the deferred tax on savings would have less of an impact on labor than would the immediate wage tax. See, e.g., Kaplow, *supra* note 5, at 2 (observing that "taxes on capital – or, equivalently, differential taxes on future consumption – are ordinarily levied in the future, raising the possibility that they may have less of an effect on the current labor supply of myopic individuals").

<sup>164</sup> For a discussion of this argument and the sort of example used to make it, as well as a counterargument, see Kelman, *supra* note 7, at 653-58.

<sup>165</sup> In other words, savings might be characterized as a "luxury good" that is predominantly available to the wealthy. See, e.g., Bankman & Weisbach, *Superiority*, *supra* note 3, at 1428; Christopher D. Carroll, *Why Do the*

the change could be made distributively neutral by making the tax on labor income more progressive, so that each wage class continues to bear the same relative burden as under a system in which savings as well as earnings were taxed.<sup>166</sup> The distributive effects would be different within wage classes than they are presently, but the system as a whole would not have to become less progressive between wage classes.<sup>167</sup> If it were possible to undertake such a distributively neutral shift,<sup>168</sup> how would high- and low-willpower people, respectively, fare?

If we think that wage levels are positively correlated with willpower levels, then a progressive rate structure would already (on average) deliver relief to low-willpower groups. Not taxing savings would then reward (or at least not punish) those relatively high-willpower individuals within low-willpower groups, much like Roemer's notion of rewarding effort that is relatively high within a given reference group.<sup>169</sup> Such an approach would have the attractive characteristic of not deterring individuals from exerting willpower effort while at the same time directing more resources (through the progressive rate structure) to those in low-willpower groups. The argument depends, however, on the empirical assumption that willpower levels correlate with wage levels. There is some evidence that impatience is inversely related to cognitive ability,<sup>170</sup> which in turn would be expected to correlate with wage income. While impatience is not the same thing as low willpower, low willpower is one reason that impatient behaviors may at times be observed.<sup>171</sup> But there is also significant heterogeneity in savings behaviors within wage income levels, which might at least be suggestive of willpower heterogeneity.

Would wealth levels (at a given wage level and life stage) offer a better

*Rich Save So Much?*, in DOES ATLAS SHRUG? 465, 481 (Joel B. Slemrod ed., 2000).

<sup>166</sup> See, e.g., Bankman & Weisbach, *Superiority*, *supra* note 3, at 1428-30. Indeed, efficiency gains from the system might be used to underwrite a more progressive tax system than the one we have currently. See *id.*

<sup>167</sup> See *id.* at 1439-40 (explaining that switching to a "replicating wage tax" from an income tax "will redistribute from spenders to savers" within wage classes).

<sup>168</sup> Maintaining distributive neutrality while eliminating a tax on savings would require placing a higher tax rate on a narrower base, a move that might well prove politically impossible. Cognitive work suggests that how a tax burden is presented and framed determines how it is evaluated. See, e.g., Jonathan Baron & Edward J. McCaffery, *Masking Redistribution (or Its Absence)*, in BEHAVIORAL PUBLIC FINANCE 85 (Edward J. McCaffery & Joel Slemrod, eds., 2006).

<sup>169</sup> See text accompanying notes 120-123, *supra*.

<sup>170</sup> See Thomas Dohmen, et al., *Are Risk Aversion and Impatience Related to Cognitive Ability?* 100 AM ECON. REV. 1238, 1257 (2010) (finding, based on tests administered to a sample of over 1,000 people age 17 and older living in Germany, "that people with lower cognitive ability are ... significantly more impatient" after "controlling for personal characteristics, educational attainment, income, and liquidity constraints"). An earlier study of 92 Chilean high school students generated similar results. See Daniel J. Benjamin et al., *Who Is "Behavioral"? Cognitive Ability and Anomalous Preferences*, Working Paper (2006), available at <http://ssrn.com/abstract=675264>.

<sup>171</sup> See text accompanying note 33 *supra* (defining willpower and distinguishing it from stable time preferences). For another take on the connection between intelligence and self-control, see Posner, *supra* note 29, at 28-29 (observing that "as imagination is a component of intelligence, a more intelligent person will be more future-oriented than will a less intelligent one" but also noting a countervailing factor—the intelligent person's ability to "develop rationalizations that may deceive the future-oriented self").

gauge of willpower levels? Presumably, the relationship between wealth accumulation and willpower is nonrandom, and there is some empirical evidence connecting the two.<sup>172</sup> The contours of the relationship are not entirely straightforward, however. For one thing, self-control problems can manifest in both oversaving and undersaving.<sup>173</sup> Consumption timing preferences (as distinct from willpower) can explain some differentials in savings behavior, as can differences in earning patterns and in inherited wealth. Nonetheless, the relative accumulation of wealth at any given income level and life-cycle stage offers at least a weak informational signal about willpower. However, this information might be taken into account in ways other than an income on savings and investments.<sup>174</sup>

Thus far, I have been using as my model for the consumption tax what is sometimes termed the "prepaid" version, which simply taxes labor income and does not tax any savings or investment income. Operating on the premise that earned income will be consumed sooner or later, such a tax collects upfront for the consumption that will inevitably follow, without regard to when consumption actually occurs. Another possibility is a "postpaid" consumption tax under which tax liability for a given period is based on actual consumption within that period. If a postpaid system were made progressive, as Edward McCaffery has advocated,<sup>175</sup> it would have some interesting implications for willpower analysis. McCaffery views savings used for consumption smoothing as legitimately nontaxable, but advocates taxing savings that enable consumption above this "smoothing" baseline.<sup>176</sup> He bases his normative case for this approach primarily on its heavier taxation of those whose consumption horizons are expanded by

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<sup>172</sup> See, e.g., John Ameriks et al., *Wealth Accumulation and the Propensity to Plan*, 118 Q. J. ECON. 1007, 1039 (2003) (finding a correlation between planning behaviors and wealth accumulation based on survey and accounting data collected from TIAA-CREF participants and positing that "effortful self-control" may be involved); Ameriks, et al., *supra* note 23 (in a study involving the hypothetical allocation of ten "dream restaurant night[s]" over two years by a sample of TIAA-CREF participants, finding results that "suggest[] that the average overconsumer accumulates some 20 percent less than one with no self-control problem, while the average underconsumer accumulates some 25 percent more"). For an interesting complication, see Ozdenoren et al., *supra* note 88, at 10 (suggesting that poverty may cause impatience).

<sup>173</sup> See Ameriks, *supra* note 172; see also Rick et al., *supra* note 18. Not only may people oversave due to miserliness, they may also do so as a result of excessive rule-following prompted by their own propensities to undersave. See text accompanying notes 75-77, *supra*.

<sup>174</sup> Bankman and Weisbach have noted that even if some marginal tax on savings were supported by the "indicator good" argument, there is no particular reason to think that applying the *same* marginal tax to savings as to labor income would be warranted. Bankman & Weisbach, *Reply*, *supra* note 3, at 801; see also Deborah Weiss, *Can Capital Tax Policy Be Fair? Stimulating Savings Through Differentiated Tax Rates*, 78 CORNELL L. REV. 206, 228-29 (discussing separate tax schedules for capital and wage income, as well as the possibility of separate capital tax schedules applicable to different wage groups). Another alternative would be a periodic wealth tax, which has sometimes been discussed as a possible adjunct to a consumption tax. See, e.g., John K. McNulty, *Flat Tax, Consumption Tax, Consumption-Type Income Tax Proposals in the United States: A Tax Policy Discussion of Fundamental Tax Reform*, 88 CAL. L. REV. 2095, 2182 (2000) ((citing the Meade Report, J.E. MEADE, INSTITUTE FOR FISCAL STUDIES, *THE STRUCTURE AND REFORM OF DIRECT TAXATION* (1978)). In Part IV.C.4, I will consider another possible way to incorporate information about wealth accumulation into a tax system.

<sup>175</sup> Edward J. McCaffery, *A New Understanding of Tax*, 103 MICH. L. REV. 807 (2005).

<sup>176</sup> *Id.* at 815-16.

what is, to them, a windfall, as where one generation is able to consume at a much higher level than their earnings would otherwise permit, due to the savings and bequests of the prior generation.<sup>177</sup> But it would have the additional effect of encouraging people to smooth their own consumption through the life cycle—a feature that McCaffery also views as attractive.<sup>178</sup>

Notice that in this regard a progressive postpaid tax would present the flip side of the horizontal equity concerns that Vickrey raised about annual taxation. Instead of taxing more heavily those who earn unevenly, as annual taxation does, McCaffery's proposal would tax more heavily those who *spend* unevenly. The progressive rate structure effectively penalizes consumption that occurs in large lumps; the lower marginal rate applied to the valleys between these lumps will not counterbalance the tax effects of these spending spikes. Thus, the rate structure rewards smooth consumption (although McCaffery proposes brackets wide enough that the smoothing need not be perfect to reap those rewards).<sup>179</sup> Because such a tax system favors one consumption pattern over another, it would be expected to produce distortions in the direction of that pattern. Of course, if one believes that the smooth consumption pattern is normatively superior,<sup>180</sup> these shifts would be viewed not as distortions but rather as desirable corrections.

Can we view the postpaid progressive consumption tax as an example of penalizing low willpower in an effort to produce higher willpower? Clearly, low-willpower people would be less able to conform their consumption to a specified pattern than would high-willpower people, assuming that the two groups do not systematically vary with respect to how closely their earning patterns already approximate it (or along other relevant dimensions such as access to capital). The distributive results would be unattractive to the extent that low-willpower people failed to achieve the requisite degree of smoothing and suffered from higher tax burdens as a result. Would there be a countervailing benefit for those members of the low-willpower population who responded to the incentive and engaged in a greater degree of consumption smoothing? Perhaps, but we would need to know more.

As I have emphasized already, we do not know what the (pre-tax) OACP of any particular person or group of people looks like, so it is difficult to infer whether observed uneven consumption is a product of low willpower, mere preferences, or other constraints.<sup>181</sup> If OACPs typically

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<sup>177</sup> *Id.* at 870.

<sup>178</sup> *Id.* at 882-84.

<sup>179</sup> *Id.* at 882-83; see also *id.* at 874 tbl 2.

<sup>180</sup> McCaffery takes this view. See *id.* at 884 ("It is prudent and good to live within one's means, to borrow sensibly in youth and to save responsibly in middle age.").

<sup>181</sup> The tax system is one input into the calculation that determines what someone's OACP is, and heavily taxing uneven consumption could therefore turn smooth consumption into one's OACP where it would not have

involve very smooth consumption, then penalizing uneven consumption might encourage many people to do a better job of achieving their OACPs. But where OACPs involve lumpy, uneven consumption, penalizing that uneven consumption would introduce a deadweight loss: people with lumpy OACPs who switched to a smooth pattern would suffer diminished utility without delivering any revenue to the tax system.

Notwithstanding these criticisms, the approach that is embodied in McCaffery's proposal has a venerable history. The postpaid progressive consumption tax aspires to operate as a welfare enhancing Pigouvian tax on certain kinds of consumption choices that are thought to be harmful to society or to the people making them. We see this same approach in a broad range of taxes and subsidies for activities that are disfavored or favored on normative grounds.

### C. *Sin Taxes (or Virtue Subsidies)*

While we usually think that taxes work better the less they distort behavior, some taxes (and subsidies)<sup>182</sup> intentionally reprice behavior in the hope of aligning it more closely with the social optimum. Pigouvian taxes are designed to correct for externalities—costs that would not otherwise be taken into account in the decisionmaker's calculus.<sup>183</sup> In a world of zero transaction costs, the opportunities for bargaining would cause every cost to be taken into account.<sup>184</sup> In many real-world contexts, however, external costs are unlikely to be internalized by the parties imposing them. The same principle can be applied in the case of *internalities*, or costs that one temporal self imposes on other selves.<sup>185</sup>

Translating Pigouvian taxes designed for externalities into the intrapersonal context presents a problem, however: it will typically be much less clear that an *unaccounted for* cost has actually been imposed on

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been such before. Because we want to examine whether some other consumption pattern would have delivered more lifetime utility in the absence of the behavioral influence of the tax, we are interested in people's pre-tax OACPs in the context of the present discussion.

<sup>182</sup> The two tools mirror each other. Although I will focus on the taxes, there may be instances where a subsidy would be preferred. For analysis of these alternatives, see generally Levmore, *supra* note 142.

<sup>183</sup> Pigou advocated taxes or subsidies to close the gap between the private and social payoffs of an act. A.C. PIGOU, *THE ECONOMICS OF WELFARE* 172-203 (4<sup>th</sup> ed. 1962) [1932]. Thus, the actor would be taxed in an amount equal to the marginal cost of the external harm inflicted (or receive a subsidy equal to the marginal external benefits provided). See, e.g., Maureen L. Cropper and Wallace E. Oates, *Environmental Economics: A Survey*, 30 J. ECON. LIT. 675, 680 (1992) (defining Pigouvian taxes).

<sup>184</sup> R.H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960). For this reason, a cost imposed on another party is not necessarily an externality. We must examine whether the actor took the impacts in question into account, as by agreeing to pay for the costs or refusing a payment to cease. See, e.g., DUKEMINIER ET AL. PROPERTY 44 (6<sup>th</sup> ed. 2006).

<sup>185</sup> See, e.g., R.J. Herrnstein, et al., *Utility Maximization and Melioration: Internalities in Individual Choice*, 6 J. BEHAV. DECISION-MAKING 149, 150 (1993) (defining "internality" as "a within-person externality"); Ted O'Donoghue & Matthew Rabin, *Optimal Sin Taxes*, 90 J. PUB. ECON. 1825 (2006) (applying Pigouvian analysis to internalities). Willpower lapses are only one possible source of internalities; selves may impose costs on other selves without even realizing that they are doing so. See, e.g., Herrnstein et al, *supra*, at 154.

another party.<sup>186</sup> The question is not whether a given temporal self causes another self to suffer some observable harm, but rather whether the acting self did so without taking into account the impact on the later self. To know whether this is the case, we need some idea of the transaction cost environment surrounding the individual's internal deliberations.<sup>187</sup> One might reasonably argue that some individuals approach a Coasean state in which different temporal selves frictionlessly transact.<sup>188</sup> This assumption is indeed implicit in the life-cycle model. People who are consistently capable of making perfect intertemporal tradeoffs are no doubt the exception, but many people do regularly take the effects on other selves into account in their decisionmaking. For example, someone may choose to eat a bowl of ice cream fully recognizing and accepting the likely impact on her weight and health.<sup>189</sup> If the current self is already internalizing all the costs of the decision, a tax generates rather than corrects a distortion.<sup>190</sup> A heavy tax on ice cream might induce a shift to, say, chewing gum, producing a reduction in the person's lifetime well-being and raising no revenue for the government—a deadweight loss.

Some additional concerns about repricing conduct have already been raised above.<sup>191</sup> Not only may a tax fail to properly match the impacts of the conduct in question, especially when nonlinearities are present,<sup>192</sup> it imposes especially heavy burdens on those with the lowest stocks of willpower by adding an external penalty to the costs of willpower failure.<sup>193</sup> If the tax is accurately set to match the damage that the activity does to a

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<sup>186</sup> See Whitman, *supra* note 57, at 1 (criticizing current versions of internality theory for "ignor[ing] the possibility of within-person bargaining and other private solutions to self-control problems").

<sup>187</sup> On this question, and the difficulty of getting good information about it, see Ainslie, *supra* note 94, at 139, 166-70; see also Whitman, *supra* note 57, at 6-13 (analyzing intrapersonal bargaining opportunities and potential breakdowns in them).

<sup>188</sup> On the other hand, the inability to enter into binding contracts with one's other selves arguably makes the transaction cost environment less accommodating than in the interpersonal case. See Whitman, *supra* note 57, at 9-10 (noting this and other differences between the transaction cost problems faced by different selves and different people).

<sup>189</sup> See *id.* at 11 (discussing an example in which the choice to eat a Twinkie is fully internalized). To be sure, full internalization of this sort confronts some difficulties, including the fact that future impacts tend to be intangible. See Scott Rick & George Loewenstein, *Intangibility in Intertemporal Choice* (2008), available at SSRN: <http://ssrn.com/abstract=1082056>. Delayed effects are also typically uncertain, and frequently depend on complex interactions with other decisions that are difficult to predict. See, e.g., *id.*; Drazen Prelec & R.J. Herrnstein, *Preferences or Principles: Alternative Guidelines for Choice*, in STRATEGY AND CHOICE 319, 322-24 (Richard J. Zeckhauser, ed., 1991) (describing "temporal mismatch," "saliency mismatch," and "scale mismatch," all of which can interfere with individuals' efforts to pursue their long-run objectives).

<sup>190</sup> See, e.g., Whitman *supra* note 57, at 11.

<sup>191</sup> See *supra* Part II.B.

<sup>192</sup> See, e.g., Strnad, *supra* note 11, at 1244 (discussing complexities associated with nonlinear impacts). To be sure, the same problem with nonlinearity exists when taxes attempt to correct for externalities. However, measurement difficulties may be especially acute for internalities.

<sup>193</sup> See *id.* at 1254; cf. Loewenstein & O'Donoghue, *supra* note 91, at 183 (explaining that when negative emotions associated with giving into temptation fail to prevent the lapse, "people, in effect, pay twice for their indulgences: they incur the material negative consequences that result, and they also experience negative emotions as a result of their lapse"); *id.* at 190 (explaining that "interventions [that] involve manipulating immediate emotions such as guilt and fear . . . run into exactly the same problems as do the self-control strategies under discussion: when they don't succeed in altering behavior, they merely impose additional costs on people").

future self, then those who choose to pay and continue suffer twice as much harm as they would in the absence of the tax.<sup>194</sup> One way around this difficulty is to let the later self receive the tax proceeds collected from the earlier self; the money will then compensate her for her earlier self's bad decisions.<sup>195</sup> Where the actions of the earlier self produce a risk of harm rather than a certainty, we might treat the tax payments as insurance premiums that go toward treating the problems that the later self may develop.<sup>196</sup>

At this point, we can reframe the policy intervention as a forced purchase of insurance bundled with the good in question, or as a withdrawal of a previously available choice (buying Good X on its own). The idea of withdrawing choices outright is well-represented among implemented and proposed policies, as the next section explains.

#### D. Forced and Forbidden Intertemporal Choices

Social Security offers a good example of a mandated intertemporal tradeoff, and its interactions with myopic decisionmaking have received significant attention.<sup>197</sup> While forcing people to allocate money to later periods might be justified on a number of grounds, including control of the externalities from widespread poverty among the elderly, some of the advantages relate directly to self-control. Placing hard constraints on choice sets offers a way around the costs associated with low willpower. Not only does such an approach keep people from making unfortunate intertemporal tradeoffs through a lapse of willpower, it also avoids the less dramatic problem of people burning up limited cognitive resources in refraining from such a lapse.<sup>198</sup> Thus, Social Security produces results that might resemble

<sup>194</sup> Strnad *supra* note 11, at 1254. As noted above, it might actually be a "triple-whammy" if exercise costs are unsuccessfully incurred as well. See text accompanying note 143, *supra*. Guilt and other nonpecuniary penalties could raise the cost even higher. See Loewenstein & O'Donoghue, *supra* note 91, at 183.

<sup>195</sup> See Bhattacharya & Lakdawalla, *supra* note 59. This requires, of course, that the earlier self actually bear the burden of the tax—which may not be the case if borrowing or savings are available. See Whitman & Rizzo, *supra* note 35, at 428-29.

<sup>196</sup> See Strnad, *supra* note 11, at 1255.

<sup>197</sup> See, e.g., Weiss, *supra* note 44, at 1298-99; Feldstein, *supra* note 5; Kaplow, *supra* note 5; Kumru & Thanopoulos, *supra* note 5; Helmuth Cremer, et al., *Forced Saving, Redistribution, and Nonlinear Social Security Schemes*, CESifo Working Paper No. 2325 (2008), available at <http://ssrn.com/abstract=1145182>; Ayşe İmrohoroğlu, et al., *Time-inconsistent Preferences and Social Security*, 118 Q.J. OF ECON. 745 (2003); Diamond & Köszegi, *supra* note 108; LOUIS KAPLOW, *THE THEORY OF TAXATION AND PUBLIC ECONOMICS* 291-301 (2008). Social Security embodies just one possible design approach to a mandatory retirement savings program. See Blog Posting of Dan Ariely, <http://danariely.com/2010/09/25/want-people-to-save-force-them/> (Sept. 25, 2010) (discussing Chile's legally mandated retirement savings program, in which 11% of salary must be channeled to a retirement account, but employees retain some choice as to the risk level).

<sup>198</sup> The idea that exercising self-control is costly is often explicitly included in economic models of intertemporal choice. See, e.g., Faruk Gul and Wolfgang Pesendorfer, *Temptation and Self-Control*, 69 *ECONOMETRICA* 1403, 1420 (2001) ("utility penalty" from the exercise of self control); Shefrin & Thaler *supra* note 49, at 612 ("psychic cost" of willpower); Ozdenoren et al., *supra* note 88 (modeling the depletion effects of exercising willpower).

those brought about by willpower without any exertion of self-control, saving people the costs of avoiding temptation.<sup>199</sup>

A variety of other policies similarly operate to foreclose particular choices or to remove particular products from the market. Regulatory controls on prices<sup>200</sup> and on product attributes withdraw choices or buffer their negative effects.<sup>201</sup> These restrictions could have the effect of allocating more surplus to the consumer, or they might simply drive away suppliers in ways that remove options from the consumer's choice set. Consider, for example, tighter limits on mortgage lending. If regulatory limits placed certain kinds of loans out of reach, people need not exert willpower to keep themselves from taking on that type of debt; the price-product bundle is unavailable. As in the case of Social Security, this choice withdrawal has two potential benefits. First, it means that people will not make certain kinds of borrowing choices. Second, it means that people will not waste the cognitive energy that it takes to resist those borrowing choices.

These advantages come with some significant downsides, however. First, the "energy savings" benefit might not prove advantageous over the long run, if taking too many decisions away from individuals causes willpower to atrophy over time.<sup>202</sup> Given how little we know about the precise operation of willpower, we cannot be sure whether the short run conservation advantages of avoiding the exertion of willpower will outstrip the long-run "strength training" advantages of regularly making such exertions. Second, blocking decisions obviously impedes autonomy—including that of high-willpower people who do not want or need to have the choice taken from them. Indeed, the blocked choice may be an integral part of the OACPs of many people, and while blocking it off may help certain low-willpower individuals achieve their OACPs, that gain comes at the cost of thwarting the ability of higher willpower people to pursue their OACPs.<sup>203</sup>

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<sup>199</sup> See Kumru & Thanopoulos, *supra* note 5, at 774-75 (noting the effects of Social Security in reducing the costs of exercising willpower, as well as the possibility that it could reduce self-control efforts among the young).

<sup>200</sup> It is worth noting that limits on prices, such as interest rate caps on consumer loans, take exactly the opposite approach of an intrapersonal Pigouvian tax. Rather than aim to reduce the harm caused by an activity by raising its price (and thus deterring participation), such reforms try to reduce the harm caused by an activity by lowering its price, even though this move would also be expected to increase demand. See, e.g., Richard Posner, Becker-Posner Blog, *Have We Lost the Moral Values That Undergird a Commercial Society?* June 15, 2008 (critiquing an argument by David Brooks in favor of increased lending by churches and foundations by observing that if the loans are made available "at lower interest rates than payday loans, the former payday borrowers will borrow more").

<sup>201</sup> Bans on certain product attributes might also be recast as repricings. For example, tar and nicotine levels might be regulated or alcohol content limited in an effort to protect consumers. Because consumers can counter the restriction by consuming more of the product, a possible effect is simply to raise the cost of consumption, as with a sin tax.

<sup>202</sup> See *supra* Part I.C.3 (discussing "erosion costs").

<sup>203</sup> For a general critique of libertarian paternalism based on its tendency to burden more rational individuals in order to provide benefits to those who are less rational, see Gregory Mitchell, *Libertarian Paternalism Is an*

*E. Sticky Defaults*

An in-kind form of repricing that tries to overcome the difficulties associated with withdrawing choices outright is the notion of “nudging” through default selections.<sup>204</sup> In the realm of intertemporal choice, such nudges generally amount to making the more patient or farsighted choice the default. The Obama administration has embraced this approach in the context of retirement planning,<sup>205</sup> following research that shows how automatic participation in 401(k) programs can keep procrastination from eroding the potential savings of employees.<sup>206</sup> Such default selections aspire to an “asymmetric paternalism” that helps those who need it without imposing large costs on those who do not.<sup>207</sup> While advocates of such policies recognize that opting out does impose a cost, they suggest that expenditures can be kept to a minimum, as with Thaler and Sunstein’s “one-click paternalism.”<sup>208</sup> Moreover, in cases where it is impossible to avoid having *some* default,<sup>209</sup> there will inevitably be costs associated with opting out.

The usual reason for advocating a small nudge (an easy opt-out procedure) over a forceful shove (a more difficult procedure for opting out) is to avoid imposing costs on those who rationally disprefer the default. But in deciding how sticky to make a given default, we should worry not only about people who rationally choose to opt out, but also about those who *irrationally* opt out. Like a tax or subsidy, a default alters the relative prices of making a particular choice, but the differential is collected in hassle and

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*Oxyoron*, 99 NW. U. L. REV. 1245, 1269-75 (2005).

<sup>204</sup> See generally THALER & SUNSTEIN, *supra* note 144.

<sup>205</sup> See, e.g., Ron Lieber, *Savings Accounts for All: Simple, but Not Easy*, N.Y. TIMES, Mar. 7, 2009 (discussing the president’s proposal, which would require employers to direct deposit a portion of workers’ earnings into an IRA unless the worker opts out). Additional applications might include default selections designed to foster more annuitization. See, e.g., Ron Lieber, *The Unloved Annuity Gets a Hug from Obama*, N.Y. TIMES, Jan. 30, 2010 (referencing William Gale et al., *Increasing Annuitization of 401(k) Plans with Automatic Trial Income*, Brookings Retirement Security Project, No. 2008-2 (June 2008), available at [http://www.brookings.edu/~media/Files/rc/papers/2008/06\\_annuities\\_gale/06\\_annuities\\_gale.pdf](http://www.brookings.edu/~media/Files/rc/papers/2008/06_annuities_gale/06_annuities_gale.pdf)).

<sup>206</sup> See, e.g., James Choi et al., *Passive Decisions and Potent Defaults*, in ANALYSES IN THE ECONOMICS OF AGING 59 (David Wise, ed., 2005) (modeling impacts of 401(k) defaults); James Choi et al., *For Better or for Worse: Default Effects and 401(k) Savings Behavior* in PERSPECTIVES IN THE ECONOMICS OF AGING 81, 83 (David Wise, ed., 2004) (finding in a study of three large firms “that automatic enrollment has a dramatic impact on participation rates” leading to enrollments in excess of 85 percent, whereas previous enrollments at those firms “ranged from 26 to 43 percent after six months of tenure ... and from 57 to 69 percent after three years of tenure”).

<sup>207</sup> See Colin Camerer et al., *Regulation for Conservatives: Behavioral Economics and the Case for “Asymmetric Paternalism,”* 151 U. PA. L. REV. 1211, 1212 (2003) (“A regulation is asymmetrically paternalistic if it creates large benefits for those who make errors, while imposing little or no harm on those who are fully rational.”); see also Ted O’Donoghue & Matthew Rabin, *Procrastination in Preparing for Retirement*, in BEHAVIORAL DIMENSIONS OF RETIREMENT ECONOMICS 125, 150 (Henry J. Aaron ed., 1999) (presenting the equivalent concept of “cautious paternalism”).

<sup>208</sup> THALER & SUNSTEIN, *supra* note 144, at 248-49.

<sup>209</sup> To take one of Thaler and Sunstein’s examples, cafeteria designers must put food in *some* order; they might therefore consciously select an arrangement that encourages patrons to make healthier selections. THALER & SUNSTEIN, *supra* note 144, at 1-6; see also *id.* at 86 (noting the potential for “required choice” approaches in some contexts).

effort, rather than in dollars. Just as people may make an undesirable temporal choice under a regime in which those choices are taxed, people may opt out even when they shouldn't. An unheeded sin tax makes the "sinner" worse off than before (enduring both the bad results of the habit and the tax),<sup>210</sup> similarly, an unheeded nudge leaves the opter-out worse off than before (enduring both the hassle of opting out and the bad results of the choice). However, in the sin tax context the money collected could, at least in theory, go toward easing the plight of the later selves (as by using cigarette tax revenues to fund the treatment of lung cancer). The costs of opting out are simply lost.<sup>211</sup>

A default's impact is only partly a function of inertia, however; some of the default's effects flow from conveying information or advice about what is best in the long run.<sup>212</sup> In this respect, the default choice resembles other efforts to educate decisionmakers.<sup>213</sup> Such approaches are largely orthogonal to the question of willpower (which assumes knowledge of a better long-term plan than the current self wishes to undertake).<sup>214</sup> But educational efforts could produce a culture in which certain kinds of consumption and savings patterns receive higher levels of approval and status, and this could potentially influence the development and deployment of willpower. More interestingly, some instruments for imparting financial advice, such as financial planning software, might also offer platforms from which precommitments could be undertaken.

#### IV. SELF-SORTING TOWARD SELF-CONTROL

As the discussion to this point has suggested, informational burdens make addressing willpower heterogeneity very difficult. In this last part, I will consider the potential to lower informational burdens by inducing self-selection. After considering the government's potential role in offering precommitment devices, I will consider an approach that relies on self-sorting into tax and regulatory regimes designed to be differentially attractive to high-willpower and low-willpower populations.

##### A. *Precommitment Strategies*

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<sup>210</sup> See Strnad *supra* note 11, at 1254.

<sup>211</sup> Cf. Edward L. Glaeser, *Paternalism and Psychology*, 73 U. CHI. L. REV. 133 (2006) (observing that the "psychic tax" that soft paternalism imposes through stigmatizing certain behaviors "provides no revenue") (citing Loewenstein & O'Donoghue, *supra* note 91, at 190).

<sup>212</sup> See, e.g., Choi et al., *supra* note 206, at 70 (discussing defaults as providing "implicit advice"); THALER & SUNSTEIN, *supra* note 144, at 35, 83.

<sup>213</sup> For example, the question of financial literacy education has recently attracted a great deal of attention. For a skeptical view, see Lauren E. Willis, *Against Financial-Literacy Education*, 94 IOWA L. REV. 197 (2008).

<sup>214</sup> See *id.* at 239-40 (distinguishing self-control efforts from education).

The potential role of precommitment in managing self-control problems is well known and has been thoroughly and interestingly discussed in the literature.<sup>215</sup> Given the way I have defined willpower shortfalls here (as distinct from persistent time preferences or unexpected and unregretted preference reversals), precommitment will nearly always be at least a theoretical possibility. Precommitment avoids two primary problems that generally accompany societal attempts to address self-control issues. First, because precommitment is always self-imposed, autonomy concerns are lessened. They are not, however, eliminated—we still must decide when a particular self is entitled to make decisions that are binding on other selves, and under what conditions those later selves can undo things.<sup>216</sup> Second, precommitment relies on the self-identification of those with low willpower and hence avoids problems of overbroad application of a policy that bans or reprices particular alternatives. Precommitment can also be tailored in a variety of ways, either to foreclose future choices or to price them.<sup>217</sup>

A threshold question for tax policy is whether *governmental* precommitment mechanisms are necessary. Some private precommitment devices exist, of course. People can avail themselves of self-exclusion policies offered by casinos,<sup>218</sup> use financial products that embed illiquidity or constrain consumption,<sup>219</sup> pour their money into relatively illiquid repositories like houses,<sup>220</sup> make purchase decisions in ways that intentionally ration access to “vice” goods,<sup>221</sup> and even enter into agreements to forfeit money if they break their promises to themselves.<sup>222</sup>

<sup>215</sup> See, e.g., Thomas C. Schelling, *The Intimate Contest for Self-Command*, 60 PUBLIC INTEREST 94 (1980); THOMAS C. SCHELLING, *Ethics, Law, and the Exercise of Self-Command*, in CHOICE AND CONSEQUENCE 83 (1984); JON ELSTER, ULYSSES UNBOUND 29–34 (2000); AINSLIE, *supra* note 75, at 125-44; BARON, *supra* note 16, at 480-81. An unmet demand for commitment features prominently in many economic models of self-control problems. See, e.g., Laibson, *supra* note 23; Kaplow, *supra* note 5, at 4-5; İmrohoroglu, et al., *supra* note 197.

<sup>216</sup> See text accompanying notes 57-60, *supra*.

<sup>217</sup> See text accompanying notes 252- 251, *infra*.

<sup>218</sup> See, e.g., TIM HARFORD, THE LOGIC OF LIFE 61 (2008) (discussing self-exclusion policy offered by Harrah’s casinos); Harrah’s Entertainment, Responsible Gaming, <https://www.harrahs.com/harrahs-corporate/about-us-responsible-gaming.html>.

<sup>219</sup> See, e.g., AYRES, *supra* note 135, at 169 (2010) (noting popularity of a liquidity-constrained bank account introduced by a rural Mindanao bank in the Philippines); Amanda Swift King & John T. King, *Golden Eggs versus Plastic Eggs: Hyperbolic Preferences and the Persistence of Debit*, J. ECON. FIN., Online First (Sept. 24 2009) DOI 10.1007/s12197-009-9107-1, available at <http://www.springerlink.com/content/k3230537r4835062/> (observing that consumers may use debit cards as precommitment devices). Soon, credit cards will allow consumers to set spending limits. See Ron Lieber, *Your Card Has Been Declined, Just as You Wanted*, N.Y. TIMES, Aug. 13, 2010); MasterCard Worldwide, *News Release: Citi to Implement MasterCard inControl* (Aug. 17, 2010), [http://www.mastercard.com/us/company/en/newsroom/pr\\_citi\\_to\\_implement\\_mc\\_inControl.html](http://www.mastercard.com/us/company/en/newsroom/pr_citi_to_implement_mc_inControl.html); see also DAN ARIELY, PREDICTABLY IRRATIONAL: THE HIDDEN FORCES THAT SHAPE OUR DECISIONS 124-26 (2008) (recounting efforts to generate bank interest in such devices); Angela K. Littwin, *Beyond Usury: A Study of Credit Card Use and Preference Among Low-Income Consumers*, 86 TEX. L. REV. 451, 478-80 (2008) (discussing potential for “self-directed credit cards”).

<sup>220</sup> See Laibson, *supra* note 31.

<sup>221</sup> An interesting example of this approach is the choice to purchase smaller packages of a vice good, which requires giving up volume discounts. See Klaus Wertenbroch, *Consumption Self-Control by Rationing Purchase Quantities of Virtue and Vice*, 17 MARKETING SCI. 317 (1998).

<sup>222</sup> See, e.g., StickK, <http://www.stickk.com> (offering “commitment contracts” under which individuals can choose to stake money that will go to others (including disliked charities) if the commitment is broken); Michael

With few exceptions, however, such devices are vulnerable to unraveling through additional private transactions.<sup>223</sup> For example, a person might lock up resources to render them inaccessible until a future date, but their future availability would then provide a basis upon which some other private entity would extend credit.<sup>224</sup>

Tax policy already incorporates some precommitment opportunities. Consider, for example, the tax treatment of early withdrawals from IRAs or 401(k)s,<sup>225</sup> or the withholding system's accommodation of excessive advance tax payments.<sup>226</sup> But there is room for much more innovation in the governmental provision of precommitment products.<sup>227</sup> Setting up such mechanisms would entail administrative costs that might be viewed as a form of in-kind redistribution to low-willpower types.<sup>228</sup> However, these transfers would avoid the identification and incentive problems of other compensatory schemes. Just as providing assistive devices in kind to people with disabilities can make those individuals better off without attracting "mimickers,"<sup>229</sup> a precommitment product that is valuable to low-willpower people but valueless to high-willpower people would make targeted assistance to the former group self-enforcing.

Precommitment can only reach true self-control problems—where a person knows the best course of action and wishes to bind herself to take it. It is no good as a remedy for time preferences that society wishes people did not have, nor does it help the individual who lacks insight into the best course of action. Moreover, if the precommitting self is not acting in the composite interests of the self over time, precommitment can generate error costs.<sup>230</sup> An additional underbreadth problem could result if people do not

B. Abramowicz and Ian Ayres, *Compensating Commitments: The Law and Economics of Commitment Bonds That Compensate for the Possibility of Forfeiture* (May 20, 2010), available at <http://ssrn.com/abstract=1612396>.

<sup>223</sup> See, e.g., Laibson, *supra* note 23, at 27 (explaining that private interventions designed to implement desired savings plans "are vulnerable to third party arbitrage").

<sup>224</sup> See, e.g., Laibson, *supra* note 23, at 27; Laibson *supra* note 31, at 461 (explaining how instantly available credit makes illiquid goods like houses less effective as precommitment devices); Gruber & Köszegi, *supra* note 26, at 1286 (observing that if one company offered a precommitment drug that caused pain whenever the person taking it smoked, another company would have an incentive to devise an antidote that would stop the pain). Legal interventions might take the form of limiting unraveling of precommitment devices rather than direct governmental provision of them. See Laibson, *supra* note 23, at 27 (noting the potential for outlawing the arbitrage opportunities that threaten to unravel private precommitments).

<sup>225</sup> See, e.g., Weiss, *supra* note 44, at 1313-14; Chen & Schwartz, *supra* note 54, at 5.

<sup>226</sup> A large majority of U.S. taxpayers engage in overwithholding or make excessive interim tax payments; similarly, most EITC recipients fail to take advantage of the advance payment option. Although precommitment is far from the only possible explanation for these behaviors, it may well play a role. For an overview of the literature on this question, see, e.g., Fennell, *supra* note 17, at 148-52. I thank Ilan Benshalom for comments on this point.

<sup>227</sup> See, e.g., Chen & Schwartz, *supra* note 54, at 5 (proposing state provision of "[t]otally illiquid savings vehicles).

<sup>228</sup> See Mitchell, *supra* note 203, at 172-75.

<sup>229</sup> See Weisbach, *supra* note 47, at 87-89.

<sup>230</sup> For example, a projection bias could cause an earlier self to commit to a course of action that would turn out to be a mistake. Botond Köszegi and Matthew Rabin give the example of a woman who plans to deliver her child without anesthesia, but then requests anesthetics while in labor. Botond Köszegi & Matthew Rabin, *Revealed Mistakes and Revealed Preferences*, in *THE FOUNDATIONS OF POSITIVE AND NORMATIVE ECONOMICS*

fully appreciate the future self-control problems they will encounter. Here, the problem is not that people are unaware of their OACPs or how to achieve them; they simply underestimate the difficulty of exerting willpower at the crucial moment of decision.<sup>231</sup> Hence, they might fail to engage in precommitment even when it would generate significant gains. Although this lack of self-awareness might seem like a daunting problem, there may be ways to surmount it.

One approach would be to make precommitment mandatory without placing any limits on the content of the choice. David Laibson's "advance notification game," which would require that "consumers choose their consumption level one-period before the consumption actually takes place" represents an interesting elaboration of this idea.<sup>232</sup> As long as the deciding self's interests are aligned with the individual's composite preferences, mandatory pre-decision approaches could help close the utility gap that self-control problems introduce.<sup>233</sup> On the other hand, the requirement to decide in advance deprives people of the opportunity to adjust their consumption plans in light of newly learned information.<sup>234</sup> While the tradeoff may be worth it for people with self-control problems,<sup>235</sup> it could impose a net cost on those with high willpower.

Another strategy is to offer choices that operate as precommitments for sophisticates, but that also attract naifs for independent reasons.<sup>236</sup> For example, O'Donoghue and Rabin explain how an opt-in tax and subsidy system for making an unhealthy food (potato chips) more expensive and a healthy food (carrots) less expensive would attract not only sophisticates who wish to precommit to the repricing scheme, but also health-conscious

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193, 206-07 (Andrew Caplin & Andrew Schotter, eds., 2008). This preference reversal could either represent a failure of willpower or a response to an earlier inability to predict pain levels; if the latter, enforcing the woman's initial preference would reduce her well-being. *See id.*

<sup>231</sup> *See* O'Donoghue & Rabin, *supra* note 29 (examining effects of naiveté about self-control problems); O'Donoghue & Rabin, *supra* note 19 (analyzing the effects of partial recognition of willpower problems).

<sup>232</sup> Laibson, *supra* note 23, at 21-22. As Laibson explains, the idea would "work like a bank account that requires advance notification for withdrawals." *Id.* at 21. In another article, Laibson shows how illiquid goods such as houses might implement such a game, if turning these goods into currency requires time and effort. Laibson, *supra* note 55, at 446-51. Easy availability of credit to borrow against those goods undoes these gains, however. *Id.* at 461-67.

<sup>233</sup> *See* Laibson, *supra* note 23, at 21-22.

<sup>234</sup> *See* Laibson, *supra* note 55, at 467 (noting that "being able to consume in unforeseen emergencies" might offset the losses that liquidity imposes on those who would like to commit not to consume). Put a different way, option value is lost when decisions must be made early.

<sup>235</sup> For example, Laibson concludes based on his model that "[a]ll selves would be willing to pay 9/10 of one year's income ... to induce the government to implement one of the proposed savings schemes." Laibson, *supra* note 23, at 30.

<sup>236</sup> *See* O'Donoghue & Rabin, *supra* note 10 (tax and subsidy schemes that encourage the consumption of healthy food); Chen & Schwartz, *supra* note 54 (illiquid savings instruments that attract sophisticates for the precommitment and naifs for the higher interest rate). Another intriguing approach would actually leverage the time biases of naifs to encourage precommitment. Recent work has argued, for example, that allowing people to auction off the right to receive a set amount of money if they fail to meet self-set goals could attract hyperbolic discounters by making a lump of cash available upfront for taking on the challenge. *See* AYRES, *supra* note 135, at 60; Abramowicz & Ayres, *supra* note 222, at 13-15.

but willpower-challenged naifs.<sup>237</sup> The naifs assume they will want to eat only carrots in the future and elect the scheme simply because it makes their preferred consumption cheaper, yet when temptation arises, the scheme assists them in sticking to their plans.<sup>238</sup> This line of analysis suggests that government could take the idea of precommitment a step further by consciously devising menu options for individuals to select among.

### B. Self-Sorting Into Different Tax Regimes

The idea of allowing people to elect into different tax or regulatory regimes is not new. For example, the tax code already allows married people to choose between filing jointly and separately, and permits certain forms of self-classification for business entities.<sup>239</sup> A number of tax provisions implicitly or explicitly allow taxpayers to choose when tax payments will be made, and the potential for further choice along these lines has been noted.<sup>240</sup> Self-selection has also received recent theoretical attention as a way of improving the targeting of a variety of social policies,<sup>241</sup> including those specifically addressing self-control issues.<sup>242</sup> Rather than have policymakers categorize people based on some observable characteristic, as in Akerlofian tagging,<sup>243</sup> people effectively tag themselves. Such self-sorting can harness private information and partition

<sup>237</sup> O'Donoghue & Rabin, *supra* note 10, at 189-90.

<sup>238</sup> *Id.* Note that the election between tax regimes in this context is just a weaker form of requiring advance notification of consumption. In effect, one chooses a consumption plan that one can later escape by paying a higher price. O'Donoghue & Rabin also discuss a more explicit version of this preplanning notion—nonrefundable coupons for purchasing certain goods. *Id.* at 190.

<sup>239</sup> See, e.g., Erzo F.P. Luttmer & Richard J. Zeckhauser, *Schedule Selection by Agents: From Price Plans to Tax Tables*, NBER Working Paper No. 13808 (February 2008), available at <http://www.nber.org/papers/w13808>, at 2; Heather M. Field, *Choosing Tax: Explicit Elections as an Element of Design in the Federal Income Tax System*, 47 HARV. J. ON LEGIS. 21 (2010).

<sup>240</sup> For example, taxpayers can prepay (or overpay) taxes through the withholding and estimated tax systems, can choose between a currently taxable Roth IRA and a tax-deferred traditional IRA, and can decide when to sell assets and realize a gain or loss. Other mechanisms for accelerating or deferring tax payments at the taxpayer's election have also been contemplated. See, e.g., Polinsky, *supra* note 5, at 249 (discussing a plan in which households could choose to defer a portion of their tax payments); Lee Anne Fennell, *Death, Taxes, and Cognition*, 81 N.C. L. REV. 567, 649-52 (2003) (discussing estate tax prepayment); Jerry Gleeson, *Congress Mulls "Prepaid" Estate Tax*, REGISTERED REP., May 14, 2010, available at [http://registeredrep.com/wealthmanagement/estateplan/congress\\_mulls\\_prepaid\\_estate\\_tax\\_0514/](http://registeredrep.com/wealthmanagement/estateplan/congress_mulls_prepaid_estate_tax_0514/).

<sup>241</sup> See Luttmer & Zeckhauser, *supra* note 239, at 17-25 (modeling and estimating the gains that might be achievable with income tax schedule selection); Alex Raskolnikov, *Revealing Choices: Using Taxpayer Choice to Target Tax Enforcement*, 109 COLUM. L. REV. 689 (2009) (suggesting that tax enforcement could be targeted more effectively by offering taxpayers a choice between two enforcement regimes that would be differentially attractive to differently motivated taxpayers); Weisbach, *supra* note 47, at 93-99 (discussing use of differentially attractive packages to redistribute toward people with disabilities).

<sup>242</sup> Susanna Estaban, & Eiichi Miyagawa, *Optimal Menu of Menus with Self-Control Preferences*, Columbia University Department of Economics Discussion Paper No. 0405-11 (December 2004), available at <http://digitalcommons.libraries.columbia.edu/econ.dp/54> (modeling how sellers might gain from offering consumers multiple menus to select among, where some consumers have self-control problems and would prefer a menu with fewer choices); O'Donoghue & Rabin, *supra* note 10, at 189-90 (discussing the potential for sorting into "type-specific optimal tax schemes").

<sup>243</sup> George A. Akerlof, *The Economics of "Tagging" as Applied to the Optimal Income Tax, Welfare Programs, and Manpower Planning*, 68 AM. ECON. REV. 8 (1978).

the population in ways that facilitate tailored treatment of the subgroups. Willpower offers a paradigm case in which self-selection is feasible. By definition, willpower deficits involve a level of self-awareness about the best available plan coupled with an incapacity to carry it out. People in this position will uniquely value policy instruments that can bring outcomes into line with their preferences.

For such self-sorting to generate benefits, however, it is necessary that the alternatives not only be differentially attractive to groups of people who vary along a dimension relevant to policy, but also capable of delivering better-tailored policy treatments to each of those groups. Thus, as Alex Raskolnikov has explained in another tax context, the alternatives must be designed to accomplish two goals: effectively separating the population into groups for purposes of differential treatment ("separating") and actually applying appropriately different treatment to the groups ("targeting").<sup>244</sup> Not every feature of the respective bundles needs to serve both objectives.<sup>245</sup> For example, some aspects of a given package might be included to repel people with particular characteristics without delivering any special benefits to those who are not repelled.<sup>246</sup> Similarly, a feature that would be attractive to both groups can be included in one of the bundles, as long as it is mixed with enough other differentially attractive elements that sort the population. Nonetheless, both goals must be kept in mind in composing the alternatives.<sup>247</sup>

Could we devise alternative tax and regulatory packages that would harness private information about willpower levels and thus split the taxpaying population along willpower lines? The sections below explore this question.

## 1. Selecting Sin Taxes

The simplest version of a self-sorting idea would just involve making precommitment products available to those who want them. If retaining the option value of changing one's mind later is more valuable to those with high willpower, then the net benefit of such a device would be greater for those with self-control problems. Here, the good provided in kind operates both as a screening mechanism and as a benefit bestowed selectively on the screened group. Alternatively, people might be required to select between different tax schedules, with the choice serving as a kind of precommitment.

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<sup>244</sup> Raskolnikov, *supra* note 241, at 739-40 (distinguishing "separating" from "targeting").

<sup>245</sup> *See id.*

<sup>246</sup> *See, e.g.,* Estaban & Miyagawa, *supra* note 242, at 3 (explaining that sellers might "decorate" one menu with tempting items that would be irrelevant for one consumer group but aversive to another group with particular self-control problems).

<sup>247</sup> *See* Raskolnikov, *supra* note 241, at 740 n. 206 (counseling caution in adding features that pursue one goal at the expense of the other).

Many variations on tax and subsidy schemes might be devised to operationalize this idea.

For example, Jay Bhattacharya and Darius Lakdawalla have suggested that smokers could voluntarily purchase “smoking licenses” that would commit their future selves to cigarette taxes.<sup>248</sup> More elaborate regulatory choices might also be offered. Consider, for example, another O'Donoghue and Rabin idea: in order to purchase cigarettes, people would be required to obtain a special photo ID that would cost \$5,000 and would entitle its bearer to 2,500 tax-free packages of cigarettes.<sup>249</sup> Only those who planned to smoke a great deal would get their money's worth out of the license, and hence it would be expected to attract those who had rationally decided to pursue a cigarette addiction,<sup>250</sup> but not those who planned to smoke only a little and then quit. If we assume that many of those in the latter category would experience unforeseen willpower problems that would cause them to experience utility-diminishing addictions, then the expensive license would provide a valuable deterrent without getting in the way of any rationally planned addiction.<sup>251</sup>

Variations on this basic approach could permit low-willpower people to remove options from their own choice sets, force better intertemporal decisions, or penalize (reward) themselves for making bad (good) choices over time. One wrinkle that the discussion above already hinted at is this: making the program more attractive to people who do not recognize their own self-control problems (thus addressing the problem of underinclusion) may reduce the ability of the program to target only those with low willpower (creating a problem of overinclusion). To return to O'Donoghue and Rabin's dietary tax and subsidy scheme, we would expect high willpower people who happen to prefer carrots to potato chips to opt into the regime, just as we would expect low-willpower naifs with those preferences to do so.<sup>252</sup> This overinclusion will not present a problem if the only benefit we are seeking to provide is in-kind precommitment opportunities (e.g., for healthier eating), but it could complicate efforts to target additional benefits to those (and only those) with low willpower.<sup>253</sup>

## 2. Choosing Patterns of Intrapersonal Redistribution

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<sup>248</sup> Bhattacharya & Lakdawalla, *supra* note 59; *see also* Lee Anne Fennell, *Revealing Options*, 118 HARV. L. REV. 1399, 1482-85 (presenting a variation on this theme that would allow smokers to choose their own tax level and create options for their later selves to exercise).

<sup>249</sup> O'Donoghue & Rabin, *supra* note 10, at 190. *See also id.* (noting that “[i]f there were concerns that this scheme would prevent optimal experimentation, we could also issue a one-time ‘learner’s permit’ allowing a person to purchase up to 10 packs of cigarettes”).

<sup>250</sup> *See* Becker & Murphy, *supra* note 26.

<sup>251</sup> *See* O'Donoghue & Rabin, *supra* note 10.

<sup>252</sup> O'Donoghue & Rabin, *supra* note 10, at 186, 189-90.

<sup>253</sup> *See infra* Part IV.B.3.

The intrapersonal redistribution that is built into the present annual taxation system is likely to be more attractive to those who are less able to rearrange money within the life cycle, while those who are good at spreading their consumption optimally would prefer lifetime averaging.<sup>254</sup> As a first cut, we might imagine policymakers allowing taxpayers to present themselves *either* as separate annual temporal entities with respect to tax burdens and distributive considerations, *or* as fully integrated lifetime entities for whom burdens and benefits should be calculated on a life-cycle basis. Yet neither characterization is likely to be systematically accurate for either of our populations of interest. High-willpower people who lack liquidity would be extremely interested in intrapersonal redistribution that moves money earlier in the life cycle, but quite disinterested in intrapersonal redistribution that moves money later in the life cycle. Conversely, low-willpower people (in their composite reflective states) would not want any redistribution that expands their early-life consumption opportunities beyond their OACP. However, they would be quite interested in redistribution to those spots in the life cycle that they would, left to their own devices, have a tendency to leave depleted.

Although hyperopic low-willpower people present a complication, we might generalize and say that forward (later in time) intrapersonal redistribution will typically be more attractive to those who know they have low willpower and wish to precommit, while backwards (earlier in time) intrapersonal redistribution will be more attractive to those with high willpower. Because it is possible to use tools like age-specific taxation or flexible tax payment options to increase or decrease the amount of intrapersonal redistribution that occurs in either direction, people might be given a choice about how to allocate their tax burden (and benefit payments) over the life cycle.<sup>255</sup> There are, of course, many nonwillpower-related considerations that would cabin the degree to which this approach could be implemented. For example, we would not want to allow even the highest willpower individual to take all of her expected Social Security benefits in early adulthood, given both the moral hazard concerns regarding future taxpaying and the externalities associated with unalleviated poverty late in life. Nonetheless, offering some degree of choice about the extent and direction of the flow could prove useful for both high-willpower and low-willpower individuals.

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<sup>254</sup> This preference is sensitive to the collection method in place. See Liebman, *supra* note 4, at 31-50 (analyzing the impact of averaging on taxpayers with different earning patterns); see also Shaviro *supra* note 3, at 762-63 (discussing Vickrey's criterion regarding the relationship between the tax due in a given period and the income in the prior period under lifetime averaging and noting its "poor intellectual fit" with the system's assumption that taxes should not be sensitive to earning patterns).

<sup>255</sup> See *supra* note 240 and accompanying text.

### 3. Targeting Low Willpower with Tax Menus

The alternatives discussed thus far roll together the functions of separation and targeting—the targeted treatment applied to the separated groups is the very thing that makes the separation effective.<sup>256</sup> Suppose, however, that we wished to further address the utility gap between high-willpower and low-willpower people through a compensatory tax strategy.<sup>257</sup> Redistribution from low-willpower people to high-willpower people cannot proceed on such a self-separating basis; because everyone likes receiving redistributive payments, redistribution (the targeted treatment) cannot itself serve as a separating mechanism. If we wanted to include such redistribution, we would need to devise packages that are capable of performing the separating work in a manner robust enough to withstand the introduction of a universally valued element into one of the packages. In other words, we have to insert something into the low-willpower bundle that is more aversive to high-willpower people than the added money is attractive, without making it so aversive as to drive off low-willpower individuals.

To fix ideas, consider the following two tax packages, which offer an example of how such an approach might work.

Table 3: Two Packages

	Package One	Package Two
Intrapersonal Redistribution	Skews Earlier	Skews Later
Other Provisions	Flexible Tax Payment Terms	Customized Borrowing and Spending Restrictions
Tax Rates	Higher	Lower

Each of these packages would begin with a progressive wage tax that bases ultimate tax burdens on an entire lifetime of earnings. However, tax collections and the payment of benefits would be arranged so as to consciously carry out a fair measure of intrapersonal redistribution. This

<sup>256</sup> See text accompanying notes 244-247, *supra*.

<sup>257</sup> What follows is an analytic investigation into this possibility, not a normative endorsement of such a compensatory approach. Before rejecting this form of redistribution, however, the implicit redistributive effects of alternative approaches should be examined. See Mitchell, *supra* note 203, at 1269-75 (critiquing the redistributive element embedded in libertarian paternalism). Even seemingly neutral policies, such as those that withdraw choices across the board, have the effect of burdening higher-willpower people in order to benefit lower-willpower people. See *supra* note 203 and accompanying text.

redistributive element would be timed differently under the two packages, however. In Package One, intrapersonal redistribution would operate primarily to move money to earlier points in the life cycle. This feature would be especially attractive for liquidity constrained people who have a high degree of willpower, because it would relax an outside constraint that impedes optimization. Because Package Two would skew intrapersonal redistribution in the opposite direction, it would be expected to attract lower-willpower people who desire assistance in moving money later in the life cycle.

In addition, each package offers some additional provisions that we might expect high- and low-willpower people to find differentially attractive. Package One taxpayers are granted flexible tax repayment terms that permit them to shift payment for some of their lifetime tax burden into their later years, which would further help to relieve liquidity constraints.<sup>258</sup> Package Two taxpayers might also find the flexibility attractive in theory, but their self-control problems would make deferring a tax burden dangerous for them. Instead, Package Two taxpayers are subject to customized borrowing and spending restrictions,<sup>259</sup> as well as carefully scheduled tax payments. The restrictions should be attractive to low-willpower individuals as a form of precommitment that helps to advance their OACPs, but high-willpower individuals will likely view the limits as aversive intrusions, given their ability to achieve their OACPs on their own.

If the features contained in the first two rows in Table 3 were effective enough in separating the two populations, it might be possible to add some modest measure of redistribution to the treatment mix, as indicated in the third row. The extent to which this would be possible is an open question. Obviously, a primary concern with a "choose your tax regime" plan is that people will attempt to obtain more favorable treatment than the plan's design intends to give them. Thus, it is possible that some people without self-control problems would accept Package Two's (for them) aversive and unnecessary restrictions on borrowing and consumption in order to get the lower tax rate. Not only would this produce redistribution in the wrong direction, it would also involve deadweight loss (the unwanted restrictions).<sup>260</sup> The opposite classification problem could also result: those

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<sup>258</sup> See, e.g., Polinsky, *supra* note 5, at 249.

<sup>259</sup> While it would be possible to permit taxpayers some degree of choice as to how these limits would work, and customization to account for health, wealth, family, and lifestage factors could be readily incorporated, it is probably unrealistic to suppose that taxpayers could enlist the government's help in following any consumption pattern they happen to prefer. A particular concern is whether the program could offer any help to the hyperopic oversaver. It would be theoretically possible to let such a person precommit to a "sensible" spending plan that capped the amount of savings as well as the amount of spending in each period, but it is unclear whether support for such an approach would exist. Despite some excellent theoretical work on the topic, concerns about hyperopia have received very little attention in the policy realm.

<sup>260</sup> On the other hand, the low tax rate might attract some people who lack knowledge of their own self-control problems and thereby provide the benefits of precommitment to those who would otherwise not seek them

who are naive about their severe self-control problems might elect Package One in order to avoid restrictions on their borrowing and consumption and end up much worse off—more heavily taxed and yet unable to actually move money optimally within the life cycle. Both possibilities raise the question of whether some limits could or should be placed on the choice of plan.

There are a variety of possibilities in this regard. The softest approach would be simply to have a different default package apply depending on wealth or savings levels (relative to others in one's income band and life cycle stage) and allow people to opt out if they chose. Other alternatives would make information about wealth accumulation give rise to presumptions of varying strengths about the appropriate classification; those presumptions might be rebutted with sufficient evidence of saving and spending patterns. But such a presumption-based approach undercuts the notion of self-selection, imposes new informational and administrative burdens, and would quickly become unacceptably intrusive.

Another alternative would be to incorporate information about wealth explicitly into Package Two's design, so that the tax advantages (but not the other features) would be phased out as accumulated wealth increases. For example, when a certain threshold of wealth is reached (which would vary based on age),<sup>261</sup> the tax schedules for the two packages would become identical. However, people opting for Package Two would still be able to receive the in-kind benefits of borrowing and spending restrictions and forward-skewed intrapersonal redistribution. In effect, this approach would involve “tagging” people who opt for Package Two depending on their wealth accumulation levels<sup>262</sup> and then customizing the treatment that they receive based on that information. Wealth might seem like an unpromising basis for tagging, given that it is mutable. But complete immutability is not required for tagging to produce gains,<sup>263</sup> and, as discussed below, some of the program details contemplated here would make strategizing difficult. It is also perhaps notable that wealth is already used as a tag of sorts when asset thresholds are employed as criteria for certain social welfare programs.<sup>264</sup>

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out. See text accompanying notes 236-237.

<sup>261</sup> There is evidence that self-control problems fall with age, see Ameriks et al., *supra* note 23, but wealth accumulations at older ages would continue to reflect the impacts of willpower exercised at earlier ages. The idea that capital taxation might be varied by age is raised in James Banks & Peter A. Diamond, *The Base for Direct Taxation*, MIT Department of Economics Working Paper No. 08-11 (2008) at 59, available at <http://ssrn.com/abstract=1112821>.

<sup>262</sup> See Akerlof, *supra* note 243.

<sup>263</sup> See *id.* at 15-16 (discussing and modeling cases of endogenous group membership—situations where “people, by some effort or with some loss of utility, may alter their characteristics, thereby becoming members of a tagged group”); see also Kyle D. Logue & Joel B. Slemrod, *Genes as Tags: The Tax Implications of Widely Available Genetic Information*, 61 NAT’L TAX J. 843, 849 (2008).

<sup>264</sup> See, e.g., Robin Boadway et al., *Agency and the Design of Welfare Systems*, 73 J. PUB. ECON. 1, 2 (1999) (listing “asset wealth” among the “personal characteristics” used to determine eligibility, and connecting the

The rationale for building in information about wealth could rest in part on an assumed correlation between wealth levels and willpower levels, holding income and life stage constant.<sup>265</sup> But we might also think that willpower lapses are more damaging for those with less available wealth as a buffer. Thus, even if a person's asset classification offers only a weak signal of willpower, that information may still provide a sensible basis for withdrawing the benefits of a lighter tax schedule—the only piece of Package Two's treatment that operates at cross-purposes with the packages' separation function.<sup>266</sup>

Of course, introducing a wealth criterion presents a new worry: that high- and low-willpower people alike might shun savings in order to qualify for lower tax rates under that plan. Introducing thresholds or breakpoints between net worth classes presents additional concerns—that people will have a strong incentive to alter their wealth accumulation behavior to stay in the more lightly taxed group, and that people who differ only slightly in their holdings but lie on opposite sides of the dividing line will be unfairly and arbitrarily subjected to different tax treatment. These latter concerns could be ameliorated somewhat by adding a "phase out" range to soften the cliff effect, as well as by resetting the breakpoints regularly based on criteria that are undisclosed in advance and produced through some element of randomization.<sup>267</sup>

The broader concern that people will shun savings could be addressed in some measure by the binding limits on borrowing and spending that come with Package Two. Given those limits, people choosing Package Two cannot consistently enjoy high earnings without also accumulating wealth that, over time, will move them into higher asset brackets. Choosing Package Two, then, means voluntarily ceding a large measure of control over the means through which one might ordinarily attempt to game the system. Of course, people would continue to have control over their earnings, and they could certainly reduce their wealth indirectly (and thus qualify for lower rates) by reducing their earnings. But this is nothing more than an observation that a tax on labor earnings may disincentivize labor, and the same would be true of any tax on labor earnings even if wealth were not made part of the picture.

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eligibility determination process to Akerlof's idea of "tagging"); David A. Weisbach and Jacob Nussim, *The Integration of Tax and Spending Programs*, 113 YALE L.J. 955, 999-1000, 1008-10 (2004) (discussing asset limits in the food stamp program).

<sup>265</sup> See *supra* notes 172-173 and accompanying text.

<sup>266</sup> See text accompanying notes 244-247, *supra* on targeting v. separating.

<sup>267</sup> Cf. Jonathan Nash, *Allocation and Uncertainty: Strategic Responses to Environmental Grandfathering*, 36 ECOLOGY L.Q. 809, 815-28 (2009) (advocating "retrospective allocation" mechanisms that introduce uncertainty into grandfathering schemes in an effort to reduce strategic behavior). For further analysis of how the use of categorical information (tagging) might be combined with income where there is heterogeneity among those within categories, see Ritva Immonen et al., *Tagging and Taxing: The Optimal Use of Categorical and Income Information in Designing Tax/Transfer Schemes* 65 ECONOMICA, n.s., 179 (1998).

The overall program could be designed to build in some additional protections against strategic behavior. For example, we might tinker with the revocability of the choice among packages. If the choice were made irrevocable (for a time) or if changes required incurring costs, then a high-willpower person might not find it worthwhile to sneak into the Package Two ranks even if her wealth level is presently low enough to deliver her a tax break; as her wealth accumulates, she will eventually end up paying tax rates that are just as high as under Package One, but will still be stuck with the annoying borrowing and spending limits and intrapersonal redistribution that runs in the wrong direction. It is still possible that a high-willpower person would gain enough in tax breaks during low earning years to make this gambit worthwhile, but the extra liquidity that she can get through Package One's flexible tax repayment terms may prove even more attractive. It would be unworkable to lock people into their package choice for all time, but shorter limits and penalties for shifting could keep people from finding it profitable to opportunistically "package surf."

Would all this design effort be worthwhile? The answer is far from clear. Enabling both high-willpower and low-willpower people to better approximate their OACPs seems quite attractive, as does the potential to reduce "exercise costs" and "failure costs" simultaneously. It is also possible that treating willpower more selectively and surgically could forestall more socially costly initiatives that would block certain consumption choices for high-willpower types as well as low-willpower types. But there are many other considerations that would bear on the feasibility and desirability of such an alternative, including administrative costs<sup>268</sup> and concerns about unwarranted governmental leverage over personal decisions.<sup>269</sup> Moreover, there could be unwanted effects on the inculcation of willpower and related values throughout society ("erosion costs"), if we let people opt out of controlling important aspects of their own consumption paths. The interaction of this approach with other measures designed to address externalities would also require attention.

My point in sketching this example is not to advocate it, nor even to provide a comprehensive review of its merits, but rather to provide a

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<sup>268</sup> See Field, *supra* note 239, at 22-30 (discussing the added burdens of complexity and administration that may be associated with tax provisions that allow for explicit elections).

<sup>269</sup> For example, we might worry that low income people would feel pressured by lower tax rates into letting the government take over their personal financial choices. The extension of flexible repayment terms and early life-cycle liquidity to the Package One taxpayers would help to counter that concern. In addition, both of the tax schedules would presumably have a zero bracket and would interact with existing programs like Temporary Assistance to Needy Families (TANF) and the Earned Income Tax Credit (EITC) in ways that would keep low income people from being forced into a desperate bargain with the government. But this merely shifts our concern up the income scale: perhaps middle class people would find Package Two's lower rates irresistible. There is, in fact, no way to structure an incentive without having it attract some people who would not otherwise choose that alternative. Hence, we must ultimately decide whether greater governmental control over personal saving and spending decisions seems legitimate.

starting point for thinking about how willpower differences might be addressed through policy. Governmental decisions already implicate willpower, as we have seen, and it is entirely possible that additional interventions will be in the offing. In considering these alternatives, we would do well to consider whether and how the potential for self-selection could deliver benefits at lower cost. Indeed, one potential take-away lesson is the difficulty in engineering strategy-proof mechanisms for moving money between people of different willpower levels and the comparatively greater traction that intrapersonal transfers and tools might provide.

#### CONCLUSION

Tax policy grapples with numerous dimensions of human heterogeneity.<sup>270</sup> This paper has intentionally focused on just one narrow slice—variations in willpower. My analysis has necessarily filtered out much that is important and relevant to devising tax policy. But I hope to have added an accessible account of how and why willpower heterogeneity matters to tax policy, a framework for evaluating policy efforts, and some ideas about how self-selection might be employed to advance the treatment of willpower heterogeneity. As modeling and empirical work continues on cognitive features, including willpower, it will become increasingly important to understand how these lessons map onto real and proposed tax systems. Mechanisms that can induce populations to self-sort into groups that share cognitive traits can make for less intrusive and more tailored social policy. I hope that the ideas presented here will lead to further work along these lines.

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<sup>270</sup> For a recent examination of some of the complexities that heterogeneity introduces, see Louis Kaplow, *Optimal Policy with Heterogeneous Preferences*, Harvard Law and Economics Discussion Paper No. 617 (July 2008) available at <http://ssrn.com/abstract=1170048>.

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