“Taxing Willpower”

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TAXING WILLPOWER

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A common lament is that people behave myopically, saving too little, consuming too hastily, indulging in bad habits, and, in general,太 heavily discounting the impact of their present choices on their future selves. But this pattern is hardly universal. Indeed, some people have the opposite problem, hyperopia—an over weighting of the future relative to the present that manifests itself in behaviors like extreme miserliness or workaholism. 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. We know that people grapple with intertemporal dilemmas, and that they do so with varying degrees of self-awareness and success.

Heterogeneity in the quality of self-control or "willpower"—defined here as one's personal effectiveness at carrying out the consumption plan that one deems best—can have marked effects on well-being over the life cycle. As such, its relevance for public policy in general and tax policy in particular is obvious.

The question of what to do about willpower is squarely implicated in debates about consumption and income taxes, bears directly on whether tax

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1See, 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).


3See, 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 L. 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).

4See, 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 50, infra.

5This simple definition leaves out some important nuances that will be developed below. See infra Part I.

6In 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)
liability should be based on lifetime or sublifetime income streams, and features prominently in analyses of public finance mechanisms that carry out intrapersonal transfers through the life cycle. Furthermore, how we think about willpower informs philosophical questions relevant to tax policy, such as whether well-being should be measured on a lifetime or sublifetime basis. Willpower heterogeneity also relates to a wide array of high-profile legal and policy issues, including social welfare policy, lending practices, and how or whether to tax or regulate products like fatty foods and cigarettes.

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. A large body of work has empirically examined and mathematically modeled many different aspects of the willpower question. But the legal literature lacks a systematic and accessible framework for putting these pieces together. This paper makes a start at constructing such a framework, with an emphasis on the issue of willpower

heterogeneity. 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 further work.

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. This discussion emphasizes the difficulty in inferring willpower levels from saving and spending behaviors.

Next, I consider how tax policy should respond to different self-control levels. Part II addresses the counterfactual case in which willpower levels are observable. This abstraction from real-world identification difficulties allows us to work toward a theoretical answer to the question of what tax policy ought to do about heterogeneity in self-control. I then examine in Part III how existing and proposed tax policy choices might (intentionally or not) generate or eliminate advantages or disadvantages for people of different willpower levels. Significantly, changing the way that savings or consumption is taxed cannot slice neatly between high-willpower and low-willpower types, although it may have differential impacts on the two groups.

Finally, in Part IV, I distill the basic elements of an evaluative framework from the preceding discussions and consider some possible policy directions. 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. Self-sorting, if feasible, would make willpower levels more observable to policymakers and could facilitate a theoretically appropriate treatment of willpower heterogeneity.

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 also interacts with many other forms of heterogeneity (in ability, earning patterns, time preferences, consumption pattern preferences, and so on) in tremendously complex ways. 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 to the overall picture.

Notwithstanding this narrow focus, addressing willpower's role in tax
policy is important. Self-control and related concepts appear regularly in tax discussions, but they are often invoked hazily or blurred together with other aspects of choice over time. More than many other behavioral phenomena, willpower lapses touch nerves and evoke sharply inconsistent normative reactions. Indeed, as we will see, there is support in the tax literature for such divergent responses as punishing people with low willpower levels, protecting them from themselves, and funneling more resources to them. 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.

I. WILLPOWER AND WHY IT MATTERS

A. A Brief Definition

Intertemporal decisionmaking is a vast and complex field, so it is best to begin with a conceptual sketch of willpower. Although definitions vary, I will use the term here to mean one's personal effectiveness in carrying out one's optimal available consumption plan ("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). Some complications embedded in this simple definition will be taken up below, but a few initial clarifications will help to lay the groundwork.

First, willpower relates to individual preference-based optimization efforts; as such, it does not turn on societal judgments about the objective desirability of any particular consumption plan. As a corollary of this point, low willpower can produce not only in behavior we might identify as myopic (such as overspending), but also behavior that is hyperopic (such as oversaving). Second, willpower is used here in a manner synonymous with self-control; it therefore implies at least the intermittent existence of an internal would-be "controller" who has superior insight into the best-

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15 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) Some difficulties stem from inconsistent use of terms, or the sheer profusion of terms used to describe a variety of similar, overlapping, and distinct time-related concepts. See id. at 61-62 & fig. 1.4; id. at 73 n. 42 (listing 19 different terms used in discussing choice over time).
16 Jon Elster, Introduction in THE MULTIPLE SELF 1, 6 (Jon Elster ed., 1985) ("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 2.
available long-run consumption plan for the individual.\textsuperscript{18} Thus, lack of willpower is distinguishable from an unconflicted preference for consuming sooner (or later).\textsuperscript{19} Third, low willpower is distinct from cognitive and computational limits that impede one's ability to identify one's OACP.\textsuperscript{20} Rather, it is best defined as a factor that produces a gap between one's (by assumption, known) OACP and one's actual consumption.\textsuperscript{21} Finally, it is apt that the word willpower includes both a term that connotes an endowment or ability ("power") and a term that connotes effort or choice ("will"). People vary along both dimensions—how easy they find it to achieve their OACP and how hard they try to do so.

B. Self-Control and Choice Over Time

Willpower has the intriguing property of mediating between a person's own best-laid plans and her ability to advance them. But it is only one factor that influences how people make choices over time. Self-control problems must be carefully distinguished both from cognitive errors that

\textsuperscript{18}See, e.g., George Loewenstein, Willpower: A Decision-Theorist's Perspective, 19 LAW & PHIL. 51, 52 (2000) ("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 16, 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 & Hersh 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 16, 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). 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).

\textsuperscript{19}More subtly, it is distinguishable from time-inconsistent preferences that are unaccompanied by any internal conflict about the inconsistency or about the acts that it produces. See text accompanying notes \_49, infra. It is questionable, however, whether such "unconflicted" time-inconsistent preferences represent a significant phenomenon.

\textsuperscript{20}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"). The best policy responses to problems in deriving one's OACP are likely to be different than those that would be best for addressing willpower problems, however; hence I abstract away from that problem here. But it is worth noting that even high-willpower people may fall short of their true OACPs simply because they are aiming at the wrong target.

\textsuperscript{21}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. 955 (2007) (studying an "expected-ideal (EI) gap" in people's consumption allocation choices).
keep people from recognizing what is best for them to do and from preferences that cause behavior to diverge from what observers might think is best. To see where willpower fits in, and to gain a fuller understanding of the OACP that featured in the definition above, it is necessary to step back and examine more generally the question of consumption over the life cycle.

1. The Life-Cycle Hypothesis

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"). On this account, people'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. 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 earnings 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. Of course, marginal returns to consumption are likely to be higher in some periods than others, so that perfect smoothing will not be optimal. For example, if we examine matters at the household level, we would need to take into account periods in which dependent children are present.

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23 See, e.g., Modigliani & Brumberg, supra note 22, 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").

24 For discussion of this point, see, e.g., Fennell & Stark, supra note 8, at 8 & n.26.


26 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").
consumption lumping—would be optimal.\footnote{See, e.g., Shaviro, supra note 6, at 765-66.}

Despite these complications and the concomitant difficulty in discerning whether any particular real-world consumption pattern is optimal, research suggests that actual consumption is more sensitive to the timing of income streams than would be predicted by the life-cycle model.\footnote{See, e.g., DEATON, supra note 23, at 87-103; Angeletos et al., supra note 3, at 534-36; Fennell & Stark, supra note 8, at 16-20.} 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.\footnote{See, e.g., DEATON, supra note 23, at 162-63.} Even if borrowing were financially costless, mental energy is required to move money around in the life cycle; hence, earning patterns always constrain to some degree, if only through inertia. Similarly, incomplete insurance markets may force people to push more money into the future as a precaution than they would if all uncertainty could be adequately hedged.\footnote{See, e.g., id. 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 6, at 772-73. Borrowing constraints interact with risk. See DEATON, supra note 23, 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 can be viewed as made necessary only due to incomplete insurance markets (here, for ability). Shaviro, supra note 6, at 757 (citing DANIEL SHAVIRO, MAKING SENSE OF SOCIAL SECURITY REFORM, 52 (2000)); David A. Weisbach, A Welfarist Approach to Disability, University of Chicago Law School, John M. Olin Law and Economics Working Paper No. 355 (August 2007), at 35; see also Ronald Dworkin, What is Equality? Part 2: Equality of Resources, 10 Phil. & PUB. AFF. 283, 314-25 (1981) (examining the implications of hypothetical insurance markets for skill).}

Risk and uncertainty may also push people toward consuming earlier. 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.\footnote{See, e.g., Kelman, supra note 9, at 660-69.}

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.\footnote{Hersh M. Shefrin & Richard H. Thaler, The Behavioral Life-Cycle Hypothesis, 26 ECON. INQUIRY 609 (1988).} 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.\footnote{[cites].} 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, not because it is available sooner, but because it is surer.\textsuperscript{34}

Uncertainty may also interact with cognitive biases to produce choices that deviate from the predictions of the life-cycle model. People cannot be certain how their marginal utility of consumption might change in the future—for example, one may wonder whether consumption at a later time will be less valuable due to the death of a spouse or a decline in one's health.\textsuperscript{35} Mispredictions are very likely in this context.\textsuperscript{36} Consider a young person who puts off expensive travel without realizing that she will get less pleasure from traveling in her later years. 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 true OACP.

2. An Optimal Available Consumption Plan (OACP)

In formulating a consumption plan, people face a lifetime budget constraint, which, setting aside gifts, inheritances, and the possibility of dying in debt, is equal to their lifetime income. The term "available" in the optimal available consumption plan refers not only to this very basic constraint, but also to all of the other factors mentioned above, apart from personal self-control efforts, that limit the ability of an individual to engage in the kind of idealized consumption smoothing assumed by the life-cycle hypothesis. Individuals are also subject to the prevailing legal regime, which may withdraw certain desired choices and influence others through taxes, subsidies, or other mechanisms.\textsuperscript{37} 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.\textsuperscript{38} At the extreme, imagine a person who has no ability to borrow money and earns only

\textsuperscript{34} 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, \textit{Anomalies in Intertemporal Choice: Evidence and an Interpretation}, in \textit{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. [cite]; see also Bankman & Weisbach, \textit{Superiority}, supra note 6, 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").

\textsuperscript{35} See, e.g., Kelman, supra note 9, at 669-70.

\textsuperscript{36} On the difficulties in predicting future utility, see, e.g., George Loewenstein et al., \textit{Projection Bias in Predicting Future Utility}, 118 Q. J. ECON. 1209 (2003); [Wilson & Gilbert].

\textsuperscript{37} See Laibson, supra note 21, 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").

\textsuperscript{38} 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.
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 willpower level, because external constraints produce an OACP that is so tightly fitted to her survival needs that no other plausible pathway beckons. Similarly, because borrowing constraints often keep people from moving large amounts of money earlier in the life cycle, 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.

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 either resort to an objective perspective or make some judgment about which of the "selves" is to be viewed as authoritative on the question. Where short run impulses threaten to derail long range planning, it might seem reasonable to grant priority to the long run "planner" self. 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.

The composite preferences

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39 See Thaler & Shefrin, supra note 18, at 401 (observing that athletes' "declining income stream creates a difficult self-control problem in the high-income years").


41 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 1467, 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, unpublished manuscript on file with author, Oct. 6, 2008 draft, at 7-9 available at http://www.rasmusen.org/papers/internality-rasmusen.pdf (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").

42 Thaler & Shefrin, supra note 18 (modeling the interaction between "planner" and "doer" selves).

43 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 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). See also Whitman, supra note 41 (applying Coasean analysis to internal bargaining).

44 This would amount to the application of the Kaldor-Hicks efficiency criterion to the intrapersonal realm. See Rasmusen, supra note 41, at 9-12 (developing and applying an "intraself Kaldor-Hicks criterion").
that emerge from this hypothetical bargain among selves, even if difficult to reliably identify in practice, form the conceptual baseline against which we can assess an individual's exertions of willpower.

Defining the OACP in terms of the individual's own (composite) preferences rather than by reference to an objective benchmark has important implications. Notably, it enables us to draw a distinction between true lapses of willpower and entrenched temporal preferences. Suppose that a person has an abiding desire to always consume as early as possible, and that all of her selves agree that this plan is best. Many people would view this consumption pattern as improvident, but because it brings the individual the largest amount of utility over time and gives rise to no conflicting desires, it cannot properly be viewed as a failure of willpower. Indeed, even addiction can be modeled as a product of rational choice. As this example suggests, a problem with using such a subjective measure is that it becomes impossible in practice to distinguish lapses in willpower from rationally enacted temporal preferences, except insofar as we accept the word of the individual on the question. Still, it is useful to distinguish consumption patterns that an individual's composite self rejects (lapses of willpower) from consistently preferred but idiosyncratic consumption patterns.

Time-inconsistent preferences (which are often, but not always, explained by reference to hyperbolic discounting) generally indicate self-control problems. It seems likely that most preference reversals are produced in part by an internal "controller" who has insight into the person's OACP but who lacks the power to stop immediate consumption when the choice point draws near. However, if someone naively switches preferences as a choice nears and neither foresees that this will occur nor understands that it undermines her OACP, the problem does not, strictly speaking, implicate willpower. Similarly, myopia or hyperopia that simply distorts the relative size of future rewards without offering the actor any insight into the distortion does not call for the exercise of willpower—although the

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45 However, the preferences that make this plan 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 Dworkin, supra note 30, at 301-04; Daniel Markovits, How Much Redistribution Should There Be? 112 YALE L.J. 2291, 2313-23 (2003). I thank Noah Zatz for suggesting this connection.


47 Another problem crops up if, notwithstanding the optimality of the consumption plan from the individual's perspective, it leaves her in some periods with so few resources that a societal response is triggered. See text accompanying note 254, infra.

48 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 recent review of work on time discounting and time-inconsistent preferences, see Frederick et al., supra note 15.

49 See Elster, supra note 16, 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).
terms are often used, as I will use them here, to reference a distortion that a person recognizes as a divergence from her optimal available consumption path. Of course, a person may have self-control problems without recognizing in advance the existence or extent of those problems. All that is necessary conceptually is that the person be able to correctly identify the maximizing choice before failing to opt for it.

3. Personal Identity and Resource Sharing

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. Put a different way, it assumes that individuals occupy an intrapersonal bargaining environment characterized by zero transaction costs. When those assumptions break down—due to self-control issues or otherwise—it becomes necessary to examine how well-being might be affected.

There are large philosophical questions surrounding the degree to which an individual remains relevantly "the same person" over the course of a lifetime. The answers to these questions carry important policy implications. For example, we cannot meaningfully pursue distributive objectives without knowing whether the right unit of analysis is an entire human life or a temporal segment of such a life. Even if we conclude that the lifetime is the correct unit of analysis, additional problems await. It seems fairly clear that well-being in different periods is not additively separable. That is, we cannot just add up each year's utility in isolation and examine the total; things like sequences and adaptive effects make the order and pattern in which consumption occurs matter greatly to one's lifetime well-being.

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50 See, e.g., O'Donoghue & Rabin, supra note 4 (considering a spectrum of self-awareness that includes partial as well as full naivete about self-control problems); Ted O'Donoghue & Matthew Rabin, Doing It Now or Later, 89 AM. ECON. REV. 103, 104 (1999) (distinguishing those who are naive about their self-control problems from those who are sophisticated and recognize the problem in advance).

51 See notes ___ infra and accompanying text (discussing the transaction cost environment surrounding intrapersonal bargains).

52 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 Lawrence Zelenak, Tax Policy and Personal Identity over Time, TAX LAW REV. (forthcoming), draft dated September 5, 2007 on file with author; see also Adler, supra note 9, at ___.

53 See Adler, supra note 9; Parfit, supra note 52, at 343-44 (quoting and discussing THOMAS NAGEL, MORTAL QUESTIONS 124-25 n.16 (1979) ) (examining the significance for distributive justice of personal identity over time); Zelenak, supra note 52, at 8-9.

54 See Adler supra note 9, at 13-14; DEATON, supra note 23, 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 models).

55 See, e.g., DEATON, supra note 23, at 16 (explaining that "[a]dditivity rules out phenomena such as habit formation"); Adler supra note 9, at 13 (observing that, among other things, "[a]dditive separability rules out the
translate the various episodes within a life into a composite picture capable of comparison, focusing on entire lives may lead us astray.

Personal identity over time also bears on questions directly relevant to the application of willpower. If we think of a person as made up of different temporal "selves" with potentially inconsistent preferences, which (if any) of those selves should be empowered to bind the others to a plan with which they may disagree? This "multiple selves" problem already arose with respect to the definition of an OACP, and I suggested resort to a consensus view, or composite preference. At some level, the idea of "different selves" must be viewed as a metaphor; our entire legal and moral system is premised on a continuous personal identity. Yet many everyday dilemmas attest to the presence of intertemporal conflicts, and the way in which policy instruments are structured will determine the terms on which those conflicts are resolved. For example, tax policy must make some assumption about how different parts of a person's life are related to each other in making basic choices about the length of the tax period and the content of the tax base.

Consider a fundamental question of tax policy: Should all of the "selves" that make up an individual's life be considered part of the same taxable unit? Deciding this question does not necessarily require taking a stand on philosophical principles of identity. The tax code and various social benefit programs group together certain family members for purposes of calculating tax liability and dispensing benefits, yet nobody would take the position that these family members are "the same person." What seems to be most important in defining a taxation unit is the expectation that resources will be shared among the members. 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 horizontal equity arguably 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.\footnote{The desire to treat equal-earning individuals equally regardless of marital status, if a progressive tax rate schedule is in place. \textit{See}, e.g., Henry E. Smith, \textit{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 pattern perfectly, it is worth noting that grouping different people together may substitute in some degree for the grouping together of different temporal selves.}

In exploring whether temporal selves should be grouped together for tax purposes, then, we might want to examine how resource sharing works among them.\footnote{Of course, 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. \textit{See} Zelenak, supra note 52, at 19-20 (discussing Vickrey's recognition of and approach to this problem in the context of his lifetime averaging proposal).} We want to know not only whether the selves are able to share resources (a question of "resource access"), but also whether they are willing to do so (a question of "resource allocation"). If resource sharing is to approach optimality, the selves engaging in it must both be able to tell where in the life cycle a particular act of consumption will produce the most utility and be appropriately motivated to move consumption to that part of the life cycle. This becomes easier the more closely the various selves understand and identify with each other, as through memory and anticipation.\footnote{See Jon Elster & George Loewenstein, \textit{Utility from Memory and Anticipation} in \textit{Choice Over Time} 213 (George Loewenstein & Jon Elster, eds., 1992); \textit{see also} PARFIT, supra note 52, at 172-74 (examining asymmetries between looking backward and looking forward).}

Interestingly, removing constraints on borrowing to allow earlier selves freer access to the earnings of later selves has an ambiguous effect on the degree to which reality approximates the life-cycle model.\footnote{This point is well recognized. \textit{[cites].}} A primary reason, of course, is willpower. Consider in this connection the optimal arrangement for linking together the bank accounts of eight different individuals. If the individuals will gain access to these linked accounts sequentially, some rule other than completely free access may do best at ensuring that the total store of funds is not drawn down too quickly. Importantly for our purposes, loosening borrowing constraints will have different impacts on different individuals, depending on their willpower levels. 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.\footnote{66 See David Laibson, \textit{Golden Eggs and Hyperbolic Discounting}, 112 Q. J. of Econ. 443, 465-67 (1997). (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).}

In comparing the well-being of two people over their lifetimes, then, we will be interested not only in their lifetime earnings, but also in their ability to leverage those earnings into utility, which depends in turn on their ability to allocate consumption within the life cycle. If earnings tend to "stick" within (or relatively near) the period in which they are earned, two people with identical lifetime earnings but different life-cycle earning patterns could experience very different levels of lifetime well-being owing to difficulties in allocating consumption. This is well understood. What this paper hopes to emphasize is the following additional point: Two people with identical lifetime earning \textit{and} identical earning patterns could nonetheless experience very different levels of lifetime well-being owing to differences between them in their ability to arrange consumption optimally throughout the life cycle. Interestingly, many of the constraints other than willpower, such as those on borrowing or on insuring, are likely to have roughly the same effects on people with identical earning patterns. Not so for willpower. Heterogeneity in self-control has the power to pull apart the lifetime welfare profiles of people who earn exactly the same amount in exactly the same pattern.\footnote{67 Note that one of the mechanisms through which it may do so is by eroding, over time, the ability to access credit (for example, if debts fail to be repaid on time and credit scores suffer) or insurance (if lack of willpower translates into impulsive behavior that increases risk in a way insurers can observe).}

\section*{C. Willpower's Workings}

Scholars have long debated how willpower is best understood and characterized.\footnote{68 For discussion of the different ways self-control has been understood, see, e.g., Baumeister & Vohs, \textit{supra} note 17, at 203 (explaining that self-control might be understood as a "strength or energy," as "a set of cognitive schemas and processes," or as "a kind of skill").} To think about the question, it is helpful to first catalogue some of the ways in which low willpower causes people to depart from their OACPs. We can then consider some of the reasons behind these departures.

\subsection*{1. Departures from an OACP}

Individuals' departures from their OACPs can take a variety of forms. Most familiarly, people may 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, however.\footnote{69 See, e.g., Thaler & Shefrin, \textit{supra} note 18, at 397-98; \textit{GEORGE AINSLIE, PICOECONOMICS} 142-73 (1992); Roland Benabou & Jean Tirole, \textit{Willpower and Personal Rules}, 112 J. POL. ECON. 848 (2004).} 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).\textsuperscript{70} For these reasons and others, people may actually consume later than they would prefer or (in the case of accidental bequests) may ultimately consume less on a lifetime basis than they would prefer.\textsuperscript{71}

While both early and late consumption can be reduced to questions of spending and saving, other willpower shortfalls involve choices among goods or activities. 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.\textsuperscript{72} Similarly, willpower shortfalls may cause the labor-leisure choice to be made incorrectly, so that a lifetime features too much of one and too little of the other.

Self-control problems are often linked to visceral motivations; indeed, prototype examples involve cravings for food or addictive substances.\textsuperscript{73} However, people may fail to carry out their OACPs for reasons that are far removed the kinds of impulsive actions that we might ordinarily identify with addiction. For example, a workaholic may simply delay a vacation, month after month, a procrastinating student (or academic) may defer working on a writing project day after day, and a would-be exerciser may delay going to the gym week after week. At no point is there a sudden overwhelming impulse that derails the individual's pursuit of her OACP; rather, thousands of tiny decisions drive a wedge between an individual's actual consumption plan and her OACP. In other cases, people may receive emotional rather than physical rewards from a self-defeating consumption pattern--consider shopping binges, video game marathons, or compulsive email checking.

In sum, departures from one's OACP may take the form of consuming the wrong things (misconsumption), consuming things in the wrong amounts (underconsumption or overconsumption), at the wrong time

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\textsuperscript{70} See, e.g., Benabou & Tirole, supra note 69, (discussing possibility that people will precommit to an underspending regime); GEORGE AINSLIE, BREAKDOWN OF WILL 143-60 (2001).
\textsuperscript{71} [cites on dissaving among the elderly and accidental bequests].
\textsuperscript{72} Consumption choices can of course 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. [cites].
\textsuperscript{73} Loewenstein, supra note 18, at 52-55.
}
(myopic consumption or hyperopic consumption), or in the wrong patterns (missequenced consumption). These categories overlap to some extent, and it is not necessary to draw sharp distinctions among them, but it is helpful to bear in mind that willpower does not always involve simply shifting consumption earlier in time. All of these willpower lapses share a common element, however: people are making intertemporal tradeoffs (whether between consuming X now and consuming X later, or between consuming X now and suffering Y result later) that are suboptimal in their own opinions.

2. Willpower Exertions and Failures of Will

A growing body of empirical research suggests that willpower constitutes part of a depletable stock of mental energies. 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. The researchers concluded that willpower works like a muscle that can become fatigued with use. Of course, muscles not only become tired but can also recover after time, and, more importantly, can get stronger with regular use; these same characteristics appear to apply to willpower. For example, studies involving children and delayed gratification suggest that people can

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74 See Baumeister & Vohs, supra note 17 (discussing studies); see also Loewenstein, supra note 18, at 55-56 (observing that willpower is limited, much like mental and physical efforts).

75 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].

76 Id. at . Other studies coming to same conclusion involved initial tasks like suppressing a particular thought (“white bear” study), particular emotions (sad and comic movies), or forcing oneself to do something unpleasant (drink an unpalatable beverage). [cites]. In each case, these acts were “depleting” rather than “bracing” and worsened later performance on a cognitive task. [cites]. See also 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). 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). Work in neuroeconomics has tried to shed additional light on the processes involved in self-control. See Jess Benhabib & Alberto Bisin, Modeling Internal Commitment Mechanisms and Self-Control: A Neuroeconomics Approach to Consumption-Savings Decisions, 52 GAMES & ECON. BEHAV. 460 (2005); Stephen Manuck et al., A Neurobiology of Intertemporal Choice, in TIME AND DECISION 139 (George Loewenstein et al., eds., 2003); Samuel McClure et al., Separate Neural Systems Value Immediate and Delayed Monetary Rewards, 306 SCIENCE 503 (2004).

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. Nonetheless, 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. Thus, we may see in some willpower lapses the analogue of "rational ignorance" in the realms of decisionmaking and information gathering. 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, people may quite rationally exhibit occasional willpower lapses.

Significantly, however, giving in to temptation will not always be restorative. On the contrary, when a lapse breaks a personal rule that an individual has established for herself, it may "set a precedent" that then leads to further lapses. 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. Thus, controlled lapses may be helpful to one's overall pursuit of an OACP only when they can be psychologically firewalled off from later, similar occasions for which willpower will be needed. An interesting question prompted by this line of reasoning is whether tax policy could itself structure opportunities for "controlled lapses." The popularity of overwithholding and subsequent tax refunds may be explicable in just these terms, if the feeling of "found money" offers people a bounded exception to

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78 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). But see Loewenstein, supra note 18, at 58, characterizing the "cognitive transformation of rewards or punishments" in Mischel's studies as a "self-control tactic" that does not involve willpower.

79 Loewenstein, supra note 18, 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 77 (modeling this allocation process).

80 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. Sci. 213 (1961)].

81 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); Benabou & Tirole, supra note 69, at 851-56; Roland Benabou & Jean Tirole, Self-Knowledge and Self-Regulation: An Economic Approach, in COLLECTED ESSAYS IN PSYCHOLOGY AND ECONOMICS , (Isabelle Brocas and Juan Carrillo eds, 2002) (discussing "lapse-activated snowballing" associated with harm to "self-reputation").

82 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).

83 See, e.g., Ainslie, supra note 81, at 148-49; [other cites on bounded exceptions].

84 Cf. 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, 192-93, 206 fig. 4 (2006) (discussing and depicting the effects of "guilt-free zones").
their usual rules about spending.  

Another question is whether fatigue follows from the exercise of willpower itself, rather than from the deprivation that the exertion of willpower produces. To return to the study involving cookies, did people do worse simply because they had seen and smelled cookies which they could not have, or did they do worse specifically because they had to stop themselves from grabbing the cookies? If the cookies had been presented in a locked glass cabinet that allowed just as much visual and olfactory access, would the same results obtain? Other studies have tried to pinpoint volitional choice as the key to depletion, but those studies have not involved self-control as such. The question is an important one for public policy, given that one alternative is simply to not let people partake of particular consumption opportunities. Will they feel deprived and do worse on other self-control or decisional dimensions, or will we have allowed them to conserve their limited stock of mental and emotional energy to deploy on other occasions? Similarly, to what extent can precommitment sidestep the costs of exerting willpower while continuing to achieve the benefits associated with doing so?  

Consistent with this paper's focus on heterogeneity, we must take seriously the possibility that willpower works differently in different individuals. If people are variously fortified by and depleted by past exercises of self-control, this has very different implications for tax policy than if the indicators all point in the same direction. Additional empirical work might be directed not only at longer-term effects of exercising willpower, but also at this question of heterogeneity more explicitly. For example, although different age cohorts exhibit different savings behaviors and monetary attitudes, we know little about the intergenerational transmission of willpower.  

II. IF WILLPOWER WERE OBSERVABLE  

Although intertemporal struggles are universal, willpower lapses do not  

85 See Fennell, supra note 2, at 151-52. The bounded nature of the exception would turn on the refund's transformation through "mental accounting" into something distinguishable from the same number of dollars in a checking or savings account. See, e.g., Richard H. Thaler, Anomalies: Saving, Fungibility, and Mental Accounts, 4(1) J. ECON. PERSP. 193, 197-98 (1990) (discussing windfalls and bonuses).  

86 See Baumeister et al., supra note __, at __ (effects of choosing to give a speech taking a particular position versus being assigned to do so).  

87 The public finance literature has begun to discuss this question in the context of Social Security, See, e.g., Kumru & Thanopoulos (2008), at 774 (suggesting that because social security precludes early consumption, it "reduce[s] the cost associated with the exertion of self-control").  

88 See Loewenstein, supra note 18, at 58-59.  

affect everyone to the same degree. Some people ("high-willpower types") are able to more effectively pursue their OACPs than others ("low-willpower types"). In considering the policy response to willpower heterogeneity, I will start by considering the counterfactual case in which willpower levels are observable. We will then see how things change when willpower cannot be observed directly but must instead be inferred through some proxy measure. Using observability as a baseline has real policy relevance if we think that we can devise instruments that encourage individuals to reveal their willpower type by self-selecting into different regimes.

If willpower levels were readily visible, what, if anything, would we want to do about those differences? Three divergent responses come to mind. First, we might funnel resources to low-willpower types, whether as a compensatory move or otherwise. Second, we might attempt to turn low-willpower types into high-willpower types by penalizing 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—compensatory, punitive, and injunctive—do not exhaust the choice set, but they do offer useful starting points. 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. The first involves the relationship between willpower and ability, while the second involves the relationship between willpower and well-being.

First, willpower might be considered an element of ability, which is generally taken to be the proper theoretical target of taxation. 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, we might think of exertions of willpower as a form of nonmarket production, akin to untaxed production that occurs within the home.

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90 This binary classification is an obvious simplification but helpful in making the discussion of heterogeneity more tractable.
91 See infra Part IV.C.
92 For discussion of this point, see, e.g., Lawrence Zelanek, Taxing Endowment, 55 DUKE L.J. 1145 (2006); Shaviro, supra note 6, 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").
willpower, even if not itself an element of ability, might signal something about unobservable underlying talents or skills. If this were so, willpower might provide an additional data point from which our true target of taxation can be better inferred. 94 I will set aside this last point in the discussion that follows because my concern here is with whether willpower, in itself, offers a reason for differential treatment. 95

Second, willpower levels work as amplifiers or dampeners that help to determine how successfully marketable talents and skills are converted into well-being over the life cycle. 96 Because low-willpower people are less able to achieve the consumption plan that they deem best, they are (by their own lights) less well off than their high-willpower counterparts. This is true even if we hold constant everything else that influences the ability of people to carry out a preferred consumption plan—lifetime earning capacity, earning patterns, access to capital and insurance markets, access to information about the future, computational powers, risk preferences, and so on. 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. 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 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. 97

Where one comes out on this question depends both on empirical assessments about marginal utility and on the social welfare function in use. 98 For example, 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

94 The related idea that savings might serve as an "indicator good" has been explored. See Bankman and Weisbach, Superiority, supra note 6, 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).

95 If willpower were observable and ability were not, then we would indeed be interested in willpower as an indicator of ability. But given that willpower must, in fact, be inferred from some other proxy, a concern with ability (if defined in a way that does not include willpower as an element) should lead to a more direct investigation of the link, if any, between that proxy and ability itself. Cf. Bankman & Weisbach, Superiority, supra note 6, at 1454 n. 99 (observing that if education forms the link between ability and savings, that education rather than savings would seem to be "the more direct signal of ability").

96 The capacity to wring more lifetime welfare out of a given income stream might 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 6, at 758; see also Warren, supra note 9, at __; text accompanying notes __, infra.

97 Shaviro, supra note 6, at 785.

98 See e.g., id.; Weisbach, supra note 30. As Weisbach explains, a utilitarian social welfare function is concerned only with marginal utility, while other kinds of social welfare functions could incorporate criteria involving total utility as well (at the limit, the Rawlsian social welfare function looks only at the total utility of the least well off person). See id. at __.
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threshold. The issues are analogous in some ways to those surrounding transfers to people with disabilities.\(^99\) People with disabilities are less able to earn and may have additional needs that increase their marginal utility of money.\(^100\) On the other hand, they may be less able to translate money into utility and hence have a lower marginal utility of money than other people.\(^101\) A focus on marginal utility might argue for transferring either more or fewer resources to a person with a disability (depending on the net impact of the disability on the person's marginal utility of money), while a focus on total utility would unambiguously argue for transferring more resources (assuming that the disability has lowered the overall utility level).\(^102\) Similarly, a focus on total utility would be consistent with redistribution in favor of low-willpower people, whose utility levels on a lifetime basis are suppressed by their difficulty arranging consumption optimally.

If willpower levels were both observable and immutable, this analysis might support applying different tax schedules to high- and low-willpower groups, respectively. The idea would be an adaptation of George Akerlof's notion of tagging.\(^103\) Akerlof showed that gains could be achieved from making certain characteristics the basis for applying different tax rates if people who have those characteristics differ in systematic ways.\(^104\) For example, there has been some recent discussion of using age as a tag, given evidence that young people have more elastic labor supply.\(^105\) Similarly, evidence that married women have more elastic labor supply than married men might argue for using a combination of gender and marital status as a tag.\(^106\) Although these examples involve tagging to achieve efficiency objectives, tagging might also be employed in the service of distributive ends. Indeed, one of Akerlof's primary examples was the use of work training requirements to identify needy individuals.\(^107\) More recently, the tagging concept has been applied in the contexts of genetic information.\(^108\)

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99 See Weisbach, supra note 30.
100 Id. at ___.
101 Id. at 33-34. There may be complications owing to lumpiness or other factors. For example, it may be that marginal utility for small transfers is low, but once a particular threshold is reached, the person with the disability reaches a new plateau where utility jumps. Cf. CHARLES KARELIS, THE PERSISTENCE OF POVERTY ___ (2007).
102 Weisbach, supra note 30, at 33-34.
104 Id.
107 See Akerlof, supra note 103, at 16-17.
and disabilities.109

Even proceeding on the counterfactual assumption that willpower is observable, using it as a basis for tagging encounters the problem of mutability. The fact that people might be able to change categories does not rule out the use of tagging altogether; the question is whether it does well enough at sorting the population along relevant dimensions to produce net gains.110 Nonetheless, a principal argument against compensating low-willpower people would be one of moral hazard: that willpower levels will erode as a result. 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.

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. If we think that low-willpower people have more elastic labor supply than others, then this would make out an efficiency-based case for reducing their marginal tax rates, at least to the extent that willpower levels are observable and difficult to alter through effort.111 But intuitions pull in different directions here. Myopic low-willpower people might be more ready to substitute leisure for labor, other things equal, but they might also find themselves more frequently in binds (assuming imperfect liquidity) requiring work just for survival.112 People with low willpower may 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.

Although the issues are complex, we might well worry about a vicious cycle in which compensation for low willpower levels would only serve to

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110 See Akerlof, supra note 103, 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 Logue & Slemrod, supra note __, at [7-8].
111 Cf. Kremer, supra note 105.
112 It is even possible that they would strategically engineer such binds to force themselves to work. See Peter Diamond & Botond Koszegi, Quasi-Hyperbolic Discounting and Retirement, 87 J. PUB. ECON. 1839, 1841, 1859 (2003) (discussing such “strategic undersaving”).
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113 The design challenges resemble those that social policy has long grappled with in various contexts. As in other settings, it is possible that arrangements other than cash transfers 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.114 Similarly, restructuring societal arrangements to make things easier on those with low willpower could change the degree to which earned income translates over time into utility for those individuals. Such arrangements might include the in-kind distribution of tools (such as precommitment devices) for better leveraging utility, or a greater degree of intrapersonal redistribution from the low-willpower person's low-marginal-utility states to her high-marginal-utility states.115

In a different vein, John Roemer suggests an interesting theoretical approach to 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.116 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.117 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.118

Applying the idea to the present context, we might direct resources in a manner that benefits relatively high-willpower individuals within low-willpower groups (again, assuming that willpower levels are observable).119

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113 Bankman and Weisbach, Reply, supra note 6, at__.
114 See Weisbach, supra note 30, at __ (discussing the social model of disability and the stairs example, as well as the possibility that the latter may have public goods characteristics); see id. at 48 (making a similar point about statutes)
115 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).
117 Id. at 14-15.
118 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.
119 Finding the relevant comparison group presents obvious challenges if we move away from the artificial
If we did not have to worry about "imitators"—high-willpower individuals who would try to slip into low-willpower groups—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. Punishing Willpower Lapses

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 punishments 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. But some initial observations will help to highlight the difficulties that exist even in the rarified world in which willpower levels are visible.

First, even without any governmentally imposed penalty or subsidy system, individuals who cannot stick to their OACPs are already worse off than those who can. 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. Yet, sometimes the problem with existing disincentives is not that they are too low, but rather that they are temporally misplaced. 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. But there is another problem. If low-willpower individuals do not respond to the price change assumption that willpower levels are observable. One possibility is the use of income or wealth to define groups, if we think that willpower tends to be correlated with those characteristics. See text accompanying notes __, infra.

120 See Weisbach, supra note 30, at ___ (discussing problem of "imitators" in the disability context).

121 See infra Part III.C

122 Cf. DEMSETZ, supra note 80, 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?

123 See Loewenstein & O'Donoghue, supra note 84, 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").
that the government has introduced, then they will be made even worse off than before, relative to high-willpower people. They must not only pay the new, higher price associated with the willpower lapse but also suffer the effects of the lapse in their own lives. This result is difficult to justify on distributive grounds.

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. For example, penalizing people for a failure to save money might lead to better savings habits but worse health habits. 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. 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.

Of course, if certain kinds of willpower lapses produce especially large externalities, shifting people away from them could make good policy sense. In that case, however, the policy justification would lie in the externalities themselves, 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. Thus, it is important to distinguish willpower problems as such from problematic choices that may or may not be products of low willpower. The two categories blur in practice because willpower shortfalls are difficult to identify, but the justifications continue to matter. If a policy is designed to alter incentives for low-willpower people, then we must worry not only about whether its direct effects work as promised, but also about its collateral effects on high-willpower people who happen to be swept within the policy's compass. If a policy is justified based on the external effects of particular behavioral choices, that overbreadth worry disappears but we might still ask whether the policy has an unwanted distributive impact on low-willpower people, if they are disproportionately represented among those penalized.

124 See id. at 190; Strnad, supra note 12, at 1254; text accompanying notes __, infra.
125 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 77.
126 See id. at 13-15 (modeling the case where willpower has alternative uses). Ozdenoren et al. suggest that the fact people must choose when and how to exercise a limited stock of willpower could explain the small correlations found between different categories of activities with adverse effects on health. Id. at 5, 25-27 [citing David M. Cutler & Edward Glaeser, What Explains Differences in Smoking, Drinking, and Other Health-Related Behaviors? 95(2) AM. ECON. REV. 238 (2005)].
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. 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. As these examples suggest, the cost of closing the utility gap in just any old way could be prohibitively high—constraints that bite into the ability to rearrange one's consumption as one deems best have very high costs for high-willpower people.

If willpower levels were observable, however, certain treatments could be selectively applied to those who struggle with self-control issues. In idealized form, each low-willpower individual's OACP might be forcibly reproduced through customized limits on her choices. While forcing people to do things generally interferes in obvious ways with autonomy, forcing people to do things that they themselves would view as utility enhancing could be viewed as a vindication of autonomy. 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-control would remain on the individual. Not so if a choice is simply placed out of reach. Once again, we would want to know whether the deprivation itself produces any sort of depletion effect, even aside from the exercise of willpower. 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.\textsuperscript{127}

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, offering limits on choice might change behavior, to the extent that reliance on the limits eliminates the need to exert willpower.\textsuperscript{128} Indeed, we might see even

\textsuperscript{127} 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 12, at 1254. Thus, we can understand at least some "penalty" schemes as containing elements of forced decisions. See text accompanying notes __, infra.

\textsuperscript{128} See, e.g., Posner, supra note 18, 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")
very high-willpower people shifting from the arduous pursuit of their OACP to a form of state-sponsored OACP autopilot. 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,129 or merely instrumental to achieving OACPs (and hence dispensable if OACPs can be achieved through other means). If we thought that reliance on external controls would erode societal stocks of willpower over the long run and produce net harm, people who initially had high willpower levels could be disqualified from the program (again, assuming willpower levels were observable). Of course, this would only push the analysis back one step—if the controls were attractive enough, people could allow their willpower levels to fall in order to qualify. Or, put differently, the ability to qualify for the program would make the development and deployment of willpower levels less valuable.

Thus, even if willpower levels were fully observable, it is not entirely clear what policy approach to heterogeneity in self-control would be best. Simply blocking and mandating choices has some important advantages, however, and these might well be compelling if the identification problem could be resolved. Nonetheless, we would need to know more about willpower's societal role and the potential impact of social policy on its long-term development.

III. WILLPOWER AND 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 low-willpower people, 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.130

A. Lifetime and Sublifetime Tax Periods

129 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).

A perennial question in tax policy that has received significant recent attention involves the length of the tax period. William Vickrey's proposal of lifetime averaging would make the taxpayer's lifetime the taxable period, with annual collections based on a running average. Variations on this theme, such as averaging over a shorter span of years, have appeared in the literature, and some limited averaging provisions have appeared in the tax code. 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 amount in a steady pattern. 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. However, there are real constraints on people's ability to rearrange money frictionlessly within the life cycle. One of those constraints, but far from the only one, is willpower. What impact, then, 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 1 shows the wage earnings of four people, A, B, C, and D over a four-year period (this simple example ignores interest, and also assumes that the tax in question does not reach savings or investment earnings). As indicated in parentheses, A and C are high-willpower individuals, whereas B and D are low-willpower individuals.

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131 See, e.g., Shaviro, supra note 6; Fennell & Stark, supra note 8; 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 7.


133 See, e.g., Batchelder, supra note 131.

134 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).

135 See Vickrey, supra note 132, at 379; Fennell & Stark, supra note 8, at 28 & tbl. 1.
Table 1: Four Earners

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Suppose first that the self-control problems experienced by the low-willpower individuals involve a kind of "income inertia" such that income tends to be consumed very near the point at which it is earned. Further suppose that all four individuals have an OACP that would involve perfect smoothing of consumption over the years. A tax that is based on the entire period would treat all four individuals equally. But are they equally well off? Let us assume that borrowing is unavailable. In such a case A and B are in exactly the same position; they would be taxed equivalently regardless of whether the tax is annual or whole-period. A would have the ability to rearrange her income into a different consumption pattern, but because her earnings happen to fall into her OACP, she need not do so. B is 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, cannot rearrange his earnings to match his OACP. His earnings "stick" and are consumed where they fall, which, unhappily, does not turn out to be the 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. Still, it might seem that D would prefer a world in which fluctuating
earnings are taxed the same way as the steady earnings of A and B; taxing them differently means taxing the 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. 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. 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, then, 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. 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. Borrowing opens up additional vistas for self-control problems, and could make B in our example end up worse off than A in either a lifetime or an annual system. Second, not everyone wants to smooth out their consumption. If people wish to pile up consumption into heaps and

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136 For discussion of this point, see Fennell & Stark, supra note 8, 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 52, at 29 n.151.

137 The textual statement assumes the same structure of tax rates 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).

138 See Fennell & Stark, supra note 8, at 32-33; [other cites].
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, it would be possible to do even more intrapersonal redistribution through the tax system by employing mechanisms like age-based taxation. Fourth, it is noteworthy that intrapersonal redistribution does not require actually applying higher marginal rates to the higher-income selves and lower marginal rates to lower-income selves; a single rate could be calculated on a lifetime basis, with intrapersonal redistribution accomplished through tax collection timing or other mechanisms. Finally, as I will discuss below, we might design a system that lets people opt into particular tax regimes based, among other things, on their preferences for intrapersonal redistribution.

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. 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. 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. On this account, choices about when to consume are no different than choices between different goods. If consumption

139 See Fennell & Stark, supra note 8, at ___.
140 See, e.g., Fennell & Stark, supra note 8, at ____; Shaviro, supra note 6, at 761-62 (distinguishing annual tax liability from annual cash flow settlement).
141 See infra Part IV.C.3.
142 See Shaviro, supra note 6, at 748-49; see also Zelenak, supra note 52.
143 See Shaviro, supra note 6, at ___ (noting the implications of the permanent income hypothesis for both tax base and tax period).
144 Like any other tax that applies different rates to different commodities, then, 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 6, 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 6, 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 6, 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 were perfectly rational, they would indeed count all present-value equivalent taxes as reducing the return to labor by exactly the same amount, whether those taxes were levied immediately in the form of a wage tax or deferred in the form of a tax on savings. If people are myopic, however, 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 8, 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"); see also Bankman & Weisbach, Superiority, supra note 6, at 1424 n.22 (acknowledging that "[p]erhaps one can offer various psychological theories for why people misperceive the effect of various taxes").
145 Bankman & Weisbach, Superiority, supra note 6, at 1423-27 (analogizing the choice to one between prunes and figs).
that occurs immediately after earning is taxed at one rate, and consumption that occurs later is effectively taxed at a different rate, then people may substitute immediate consumption for delayed consumption, choosing a less-preferred consumption pattern without gaining anything for the government—a deadweight loss.\textsuperscript{146} The results are also often deemed unfair to savers.\textsuperscript{147}

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.\textsuperscript{148} But, as proponents of the consumption tax have emphasized, at least in theory the change could be made distributively neutral by making the tax on labor income much 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.\textsuperscript{149} 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.\textsuperscript{150} Accepting this assumption for the sake of discussion,\textsuperscript{151} would there then be any reason to worry about willpower heterogeneity in deciding whether or not to tax savings?

One argument for a negative answer would run as follows: If we think that wage levels are positively correlated with willpower levels, then a progressive rate structure would already deliver relief to low-willpower groups. Not taxing savings would then allow the market system to 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.\textsuperscript{152} Such an approach would have the attractive characteristic of not deterring individuals from exerting willpower effort while at the same time directing more resources

\textsuperscript{146} Of course, this “substitution effect” is only one possible effect of a tax on savings. Because a tax on savings makes later consumption more costly, there will also be an “income effect” in which people may save even more in order to be certain they can support their desired consumption pattern in the future notwithstanding the tax. [cites, data on this]. The potential for offsetting effects does not eliminate concerns about introducing an unnecessary distortion, however.

\textsuperscript{147} For a discussion of this argument and the sort of example used to make it, as well as a counterargument, see Kelman, supra note 9, at 653-58.

\textsuperscript{148} See, e.g., Bankman & Weisbach, Superiority, supra note 6, at 1428-30.

\textsuperscript{150} 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).

\textsuperscript{151} Maintaining distributive neutrality while eliminating a tax on savings may in fact prove politically impossible. Cognitive work suggests that how a tax is presented and framed, and how different components of it are divided up, 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). Thus, although it seems illogical, it is quite possible that marginal tax rates above a certain amount would be rejected, even if the narrowing of the tax base left the overall burden unchanged. This argument offers an independent distributive reason to oppose reducing or eliminating taxes on saving. But I will set it aside here and accept the assumption of distributive neutrality in order to better focus on the element of willpower.

\textsuperscript{152} See text accompanying notes __, supra.
TAXING WILLPowEr

(through the progressive rate structure) to those in low-willpower groups. While this argument would not undercut other reasons for opposing a move to a consumption tax (including grave doubts that anything like a distributively neutral shift could ever be accomplished politically), it might suggest that willpower heterogeneity would not offer additional ammunition to consumption tax opponents. 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, 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. But there is also significant heterogeneity in savings behaviors within wage income levels, which might at least be suggestive of further willpower heterogeneity.

Would wealth levels (at a given wage level and life stage) offer a better gauge of willpower levels? Presumably, the relationship between wealth accumulation and willpower is nonrandom, and there is some empirical evidence connecting the two. The contours of the relationship are not entirely straightforward, however, given that self-control problems can manifest in both oversaving and undersaving. Moreover, some savings behavior is the product of precommitments undertaken in the face of known self-control problems.

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153 See Thomas J. Dohmen, et al., Are Risk Aversion and Impatience Related to Cognitive Ability? CEPR Discussion Paper No. 6852 (June 2008), at 28 (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 credit constraints"). Dohmen et al.'s tests of cognitive ability involved word fluency and symbol correspondence, similar to components of the Weschler Adult Intelligence Scale. Id. at 7-8. The intertemporal experiment gave subjects several paired choices between 100 Euros "today" (check that could be cashed immediately) and varying larger payments in the form of a check that could be cashed in 12 months; they knew that one of these choices would be randomly selected to serve as their actual payoff. Id. at 10-11. 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, [SSRN] (2006). Both Dohmen et al. and Benjamin et al. also studied risk preferences, and both found lower levels of risk aversion among those with higher cognitive ability. While this last point is outside the current paper's purview, it is worth noting that risk aversion could offer another impediment to optimal allocation of consumption over the life cycle.

154 See text accompanying notes ___ 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 18, 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").

155 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 21 (in a study involving the hypothetical allocation of ten "dream restaurant nights" 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"). Some additional complications are raised in Ozdenoren et al., supra note 77, at 15-16.

156 See id; see also Rick et al., supra note 3.

157 [See, e.g., Ainslie; Elster].
distinct from willpower) can explain some differentials in savings behavior. Earning patterns may also vary in ways that make savings more or less important to achieving an individual's OACP. Finally, inherited wealth complicates matters enormously. Nonetheless, the relative accumulation of wealth at any given income level and life-cycle stage offers at least a weak informational signal about willpower.

Taxing savings, then, would generally redistribute from high-willpower to low-willpower types. Put another way, failing to take data on savings or wealth into account in determining tax burdens is likely to differentially burden low-willpower people. At the same time, alleviating that burden could create perverse incentives in what is exactly the wrong direction for many low-willpower people—toward less wealth accumulation. Yet, if data on savings or wealth accumulation is valuable for its informational content about willpower, we might examine ways other than an income tax to incorporate that informational content into tax policy.

Before leaving the topic of consumption taxes and income taxes, another variation on the consumption tax deserves attention. 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. The theory here is that all earned income will be consumed sooner or later, so one simply prepay for the consumption that will inevitably follow; because the tax system is indifferent as to when the consumption occurs, it does not tax savings. A different way of approaching the consumption tax is a "postpaid" model under which tax liability for a given period is based on actual consumption within that period. If this postpaid system were made progressive, as Edward McCaffery has advocated, it would have some interesting implications for our willpower analysis. McCaffery views savings in the

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158 People may even have independent preferences for the act of saving itself. Bernheim, supra note 20, at __ (discussing the possibility that saving could be viewed as "inextricably rewarding and immediately gratifying") (citing Tibor Scitovsky, The Joyless Economy (1976)). If this were the case, then saving could be understood as a kind of consumption good in itself, rather than merely a means to future consumption.

159 See Bankman & Weisbach, Reply, supra note 6, at 800-01 ("Adopting an income tax, which encourages spending out of solicitude for those who are made worse by excessive spending is perverse. It is like noting that smokers are worse off than non-smokers and as a remedy reducing the relative price of cigarettes.").

160 Similarly, 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 6, 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.

interest of consumption smoothing as legitimately nontaxable, but believes
that savings that enable consumption above this "smoothing" baseline are
appropriately taxed.162 His primary interest seems to be in taxing more
heavily those whose consumption horizons are expanded by 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.163 But McCaffery also views as a
desirable feature of his approach that it would encourage people to smooth
their own consumption through the life cycle.164

Focusing on this last point, note that a progressive postpaid tax would
present the flip side of the horizontal equity concerns that Vickrey
addressed with his lifetime averaging proposal. Instead of taxing more
heavily those who earn unevenly, 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. In contrast, the rate
structure rewards smooth consumption (although McCaffery proposes
brackets wide enough that the smoothing need not be perfect to reap those
rewards).165 Because the 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,166 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.

162 Id. at 815-16.
163 Id. at 870.
164 Id. at 882-84.
165 Id. at 882-83; see also id. at 874 tbl 2.
166 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.").
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 not easy to tell whether observed uneven consumption is a product of low willpower, mere preferences, or other constraints.\footnote{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 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.} If OACPs typically involve very smooth consumption, then punishing uneven consumption might encourage many people to do a better job of achieving their OACPs. If, however, OACPs often involve lumpy, uneven consumption, then punishing uneven consumption would introduce a harmful distortion. People with lumpy OACPs who switched to a smooth pattern would suffer diminished utility without delivering any revenue to the tax system. People with lumpy OACPs who did not switch to the smooth pattern would still be forced to remit more money to the government, and this group is likely to be disproportionately composed of low-willpower individuals.

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 and Virtue Subsidies

While we usually think that taxes work better the less they distort behavior, some taxes (and subsidies as well) reprice behavior in the hope of aligning it more closely with the social optimum. Pigouvian taxes are typically designed to overcome externalities by forcing actors to take into account the impacts of their choices on others.\footnote{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.} The same principle can be applied in the case of internalities, or costs that one temporal self imposes on other selves.\footnote{See, e.g., Strnad, supra note 12, at 1240-59. Although I will revisit the question of externality control later, see text accompanying notes __, infra, externalities relate only indirectly to the question of willpower heterogeneity. While people with low willpower may make more of the externality-producing choices than...} Indeed, taxes on particular commodities, such as cigarettes or fatty foods, are often discussed in terms of both externalities and internalities.\footnote{See, e.g., Strnad, supra note 12, at 1240-59. Although I will revisit the question of externality control later, see text accompanying notes __, infra, externalities relate only indirectly to the question of willpower heterogeneity. While people with low willpower may make more of the externality-producing choices than...} On an efficiency analysis, Pigouvian taxes should be...
used only to correct for those costs that have not already been taken into account in the decisionmaker's calculus. Thus, it is not enough to point to a cost imposed on another party to establish that it is an externality; one must also establish that the cost in question has not been internalized, typically by showing that transaction costs preclude its internalization. In a world of zero transaction costs, the opportunities for bargaining would cause every such cost to be taken into account; this was Coase's core insight, and the basis of his critique of Pigou. In many real-world contexts, however, it will be apparent that certain external costs have not been, and are not likely to be, internalized by the parties imposing them.

Translating Pigouvian taxes designed for externalities into the intrapersonal context presents a problem: it will typically be much less clear that an unaccounted for cost has actually been imposed on another party. 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. One might reasonably argue that some individuals internally approach a Coasean state in which different temporal selves frictionlessly transact. 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. If the current self is already internalizing all the costs of the decision, a tax generates rather than corrects a distortion.
A heavy tax on ice cream might induce a shift to, say, cake in such a case, producing a reduction in the person's lifetime well-being and raising no revenue for the government—a deadweight loss.

Even if we put aside the question of how much of the harm from a given commodity is imposed on other selves in a manner that is not accounted for by the actor, the fact that impacts are often nonlinear makes appropriately calibrated taxation difficult or impossible. The same problem exists when taxes attempt to correct for externalities, but measurement difficulties may be especially acute for internalities. For example, the health difference between consuming nine candy bars and ten candy bars in a given week may be much less than the difference between no candy bars and one candy bar—or vice versa. The amount of harm done by the marginal candy bar is also likely to vary greatly among people depending on other dietary choices, genetic predispositions, and activity levels. In theory, the tax would correspond to the marginal (noninternalized) harm caused by each unit of activity. A single per-unit tax would be expected to often miss the mark, either failing to correct for a distortion or adding a new distortion.

An additional problem with applying Pigouvian taxes to the intrapersonal case involves the consequences for those who do not respond to the tax by reducing consumption. In the interpersonal case, parties may simply choose whether to pay the tax and engage in the activity or save the money and skip the activity. If they do choose to pay the tax, it is because doing so makes them better off than forgoing the activity. But in the intrapersonal case, those who choose to pay the tax are made worse off both by the tax (now) and by the effects of the activity itself (later). If the tax is set to match the damage that the activity does, then those who choose to pay and continue suffer twice as much harm as they would in the absence of the tax. If we think that people who have especially severe willpower problems tend to be worse off already, this double-whammy seems perverse. Those in the grip of an addiction who have an inelastic demand for the vice good are especially hard hit by such a tax. This problem can be corrected by letting the later self receive the tax proceeds collected from the earlier self; the money will then compensate her for her earlier self's

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178 See, e.g., Strnad, supra note 12, at 1244 (discussing complexities associated with nonlinear impacts).
179 See id.
180 See id. at 1236–39.
181 See id. at 1254; cf. Loewenstein & O'Donoghue, supra note 84, 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").
182 Strnad supra note 12, at 1254.
183 This would be less true if they had already internalized the costs of the addiction and were acting rationally in consuming the drug. See Becker & Murphy, supra note 46. In that case, they would only bear the cost of the tax, and not any additional (net) costs associated with the addiction itself.
bad decisions. 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. At this point, we can reframe what is occurring not as a sin tax but as a forced purchase—here, of insurance—that comes bundled with the good. Thus, sin taxes might be structured to amount to bans on certain intertemporal choices, such as consuming Good X without also making provision for the long-term effects of Good X on one's future self.

The flip side of a sin tax is a subsidy for "virtuous" behavior. While the tax code advantages many activities, the tax benefits associated with retirement savings are especially relevant to the question of willpower and intertemporal choice. Where sin taxes are designed to make individuals take into account negative internalities that their actions impose on other selves, subsidized savings would cause people to take positive internalities into account. Again, the treatment is only useful to the extent that people's decisionmaking selves are not already internalizing the effects of saving on later selves; otherwise, it merely introduces a behavioral distortion. Hyperopic individuals who already place too much weight on the benefits that their future selves will enjoy would be led to move even further from their OACPs. The flip side of the "double punishment" concern raised earlier would also obtain. Although subsidies are framed in a manner that suppresses their "punishing" nature, they still serve to make those who fail to collect the subsidy worse off in relative terms. If people who fall into that category are also disproportionately worse off for reasons owing to low willpower, then they are in relative terms made doubly worse off.

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. 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

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184 See Bhattacharya & Lakdawalla, supra note 43.
185 See Strnad, supra note 12, at 1255.
186 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).
187 As this example suggests, whether something is a subsidy depends on the baseline in use. Relative to a tax system that taxes (some) savings and investment income, the treatment of retirement savings works like a subsidy; however, one might also characterize it as the selective removal of a distortion.
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. Thus, Social Security produces results that might resemble those brought about by willpower without any exertion of self-control, saving people the costs of avoiding temptation.

A variety of other policies similarly operate to foreclose particular choices or to remove particular products from the market. Regulatory controls on prices and product attributes withdraw choices from individuals and buffer their exposure to the negative effects of bad consumption choices. Especially interesting in this connection are efforts to reduce the interest rates on loans that are regarded as "predatory." While these price reductions would seem to reduce the harm that could flow from a given loan, one might also expect that the cheaper price of credit would induce more rather than less demand for borrowing. It is worth noting that this is exactly the opposite approach of a intrapersonal Pigouvian tax. Rather than aim to reduce the harm caused by an activity by raising its price, such reforms try to reduce the harm caused by an activity by lowering its price.

We can recast this move as withdrawing certain price-product bundles from the marketplace. The effect might either be to allocate more surplus to the consumer, or to drive away suppliers in ways that remove options from the consumer's choice set. Although the former effect might have distributive impacts on low-willpower people, the latter effect is especially interesting for our discussion. Consider, for example, strict limits on mortgage lending – a timely topic. 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. As in the case of Social Security, this has two potential benefits. First, it means that people will not make certain kinds of borrowing choices. Second, it means that people will not even

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189 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 32, at 612 ("psychic cost" of willpower); Ozdenoren et al., supra note 77 (modeling the depletion effects of exercising willpower).

190 [cites – e.g., Pers Krusell, et al., Temptation and Taxation (2005) [available at SSRN]]

191 Sometimes what appears to be a withdrawal of a choice really amounts to a repricing. 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, the real effect is simply to raise the cost of consumption, as with a sin tax. [cites].

192 [cites on predatory lending legislation].

193 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").
waste the cognitive energy that it takes to resist those borrowing choices.

These advantages of limits on action come with some significant downsides. 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. 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—and this impediment is all the more worrisome when it is applied to 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.194 Here we see one of most serious implications of our real-world inability to observe willpower levels—we cannot readily tailor restrictions to bind those, and only those, who are in need of such constraints.

E. Sticky Defaults

"Nudging" through default selections has recently gained prominence as an alternative to forcing particular choices.195 In the realm of intertemporal choice, such nudges generally amount to making the more patient or farsighted choice the default option or the more readily available alternative. These approaches aspire to an "asymmetric paternalism" that helps those who need it without imposing very large costs on those who do not.196 To take one of Richard Thaler and Cass Sunstein's examples, cafeteria designers might put food in an order that encourages, but does not require, patrons to make healthier selections.197 In the realm of financial decisionmaking, altering the defaults for participation in 401(k) programs can keep procrastination from eroding the potential savings of employees.198 Those who do not like the default can opt out. While opting

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194 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 Oxymoron, 99 NW. U. L. REV. 1245, 1269-75 (2005).
195 See generally Thaler & Sunstein, supra note 130.
197 Thaler & Sunstein, supra note 130, at ___.
198 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
out does impose a cost, the expenditure can be kept to a minimum, as with Thaler and Sunstein's "one-click paternalism." Moreover, because it is often impossible to avoid having some default, there will always be costs associated with opting out and with influencing decisions in directions that are in fact dispreferred.

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 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 go ahead 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); similarly, an unheeded nudge leaves the opt-out worse off than before (enduring both the hassle of opting out and the bad results of the choice). Interestingly, just as with the sin tax, it is not clear whether an easier or harder opting-out process is better for those who are at least somewhat committed to making a choice that will leave their other selves worse off. As prices rise, fewer people would be expected to opt out, but those who do are made increasingly worse off as a result. Moreover, 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.

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. In this respect, the default choice resembles other efforts to educate decisionmakers. For example, the question of financial literacy education has recently attracted a great deal of attention. 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). 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, instruments for imparting financial advice, such as financial planning software, might offer platforms from which precommitments could be undertaken.

IV. SELF-SORTING TOWARD SELF-CONTROL

As Part III's discussion suggested, the inability to accurately identify willpower levels greatly complicates the task of addressing willpower heterogeneity. Yet even when we make the counterfactual assumption that willpower levels are readily observable, it is not entirely clear how the tax system should respond to willpower heterogeneity. In this last Part, I will start by constructing a framework for evaluating willpower-related tax policies. I then suggest that self-selection offers the best way to approach willpower heterogeneity, given that it can both overcome the identification problem and avoid undue intrusions on autonomy. After considering the government's potential role in offering precommitment devices, I will consider a more speculative proposal that relies on self-sorting into tax and regulatory regimes that are designed to be differentially attractive to high-willpower and low-willpower populations.

A. Constructing a Framework

The first task is to distill from the divergent considerations above a way of organizing our thinking about willpower heterogeneity. Analogizing to the interpersonal context, we can understand people with self-control problems to be operating in an intrapersonal environment marked by high transaction costs. People with high levels of willpower, in contrast, operate in an intrapersonal transaction cost environment that more closely approximates the Coasean ideal. Just as in the interpersonal context, high transaction costs present two fundamental concerns. First is the worry that an entitlement will not reach the higher valuing user at all. In the intrapersonal context, this would amount to having a lower-valuing temporal self control resources or decisionmaking privileges that would be better deployed by a different temporal self. In short, the individual will make the wrong choice. We may term the resulting utility losses "failure

205 See text accompanying notes __, supra.
206 [cites]
costs." Second, even if the entitlement does ultimately reach the higher valuing user, resources may be dissipated in the transfer process.\textsuperscript{207} Although much remains to be learned about the precise mechanisms through which willpower is depleted and restored, existing evidence clearly tends toward a consensus view that it costs something to exercise self control.\textsuperscript{208} When these "exercise costs" are subjectively high relative to their success in preventing failure costs, we would say that a person has a low level of willpower. Existing research suggests, however, that exercise costs are not fixed for a given person; rather, exercise costs can increase as willpower (or other cognitive resources) become depleted.\textsuperscript{209}

We can now make some initial observations. First, on any given occasion people may incur only failure costs (if they do not try to exercise willpower), only exercise costs (if they successfully exercise willpower) or both failure costs and exercise costs (if they struggle unsuccessfully to overcome temptation before eventually succumbing). Although all three scenarios reduce well-being, the last outcome is the most punishing of all. Second, if the goal is to minimize the sum of failure costs and exercise costs, low-willpower people would seemingly do best to "choose their battles" and give in to temptation quickly when the failure costs are not too high (taking into account any "precedent setting" effects of the lapse).\textsuperscript{210} Even better, they might arrange things—as through precommitment—so that tempting choices are simply unavailable.\textsuperscript{211} This strategy may backfire, however, if one's willpower level (that is, the costliness of the intrapersonal transaction cost environment) is mutable over time. Perhaps exerting willpower makes one better at it, so that eventually one moves into the ranks of higher-willpower people for whom failure costs and exercise costs are both low. To these first two costs, then, we must then add a third, which I will call "erosion costs."\textsuperscript{212} If failing to exercise willpower erodes the

\textsuperscript{207} See sources cites in notes , supra; see also Gul & Pesendorfer, supra note 189, at 1420 ("quantifying the cost of self-control as a utility penalty that applies whenever the ultimate choice is not the most tempting one").

\textsuperscript{208} See, e.g., supra notes __; Ozdenoren et al, supra note 77.

\textsuperscript{209} Loewenstein & O'Donoghue apply a "choosing your battles" approach to reduce another category of costs that will be introduced below as "penalty costs." While I focus primarily on penalties imposed by third party enforcers, Loewenstein & O'Donoghue focus on self-imposed nonpecuniary penalties like fear and guilt. Loewenstein & O'Donoghue, supra note 84, at 186-87, 204 fig. 2; id. at 192-93, 206 fig. 4 (explaining and illustrating how "guilt-free zones" could assist in reducing certain costs associated with attempting to resist temptations that ultimately prove irresistible).

\textsuperscript{210} For the potential gains that might come from reducing one's choice set, see, e.g., Gul & Pesendorfer, supra note 189.

\textsuperscript{211} This category of costs has received much less attention than have failure costs and exercise costs; indeed, most modern treatments ignore it altogether. However, some references to it can be found in the literature. See, e.g., Bailey Kuklin, Self-Paternalism in the Marketplace, 60 U. CINN. 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 Mill's "moral muscles argument" against paternalism); Jonathan Klick & Gregory Mitchell, Government
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.  

Consider how the three basic approaches to willpower heterogeneity surveyed above—directing resources toward low-willpower individuals, punishing willpower lapses, and forcing better choices—map onto this structure. The first approach reduces failure costs; 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, more failures become likely, even if each is made less costly by societal transfers. Further, there may be additional erosion costs associated with willpower atrophy over time.

Punishing willpower lapses takes exactly the opposite approach (we can say the same of subsidizing willpower successes). Here, failure costs are amplified, 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, failure costs, and the penalty itself ("penalty costs"). Erosion costs are avoided; if anything, the increased exercise of willpower induced by the penalty should help to build up willpower over the longer run. 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 like an omniscient judge awarding the entitlement to the higher valuing user in a land use dispute, thus side-stepping the need for any further transactions. 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. If we introduce real-world difficulties in making determinations about which self values the entitlement most highly, we must also add "error costs" to our list, along with a variety of other costs relating to program administration and interferences with autonomy. These expenses may be justified where exercise costs and failure costs are very high, but the high-willpower segment of the population does not suffer from high exercise or failure costs, and would therefore be systematically disadvantaged by such an intervention (assuming that it had no additional purposes, such as controlling externalities). Self-selection strategies, including precommitment, can help to address some of these concerns.

B. Precommitment Strategies

The potential role of precommitment in managing self-control problems is well known and has been thoroughly and interestingly discussed in the literature.216 Given the way that 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.217 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, to either foreclose future choices or to price them.218 However, precommitment can only reach true self-control problems—where a person knows the best course of action and simply 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 truly naive individual who does not have insight into the best course of action. Moreover, if the

217 See text accompanying notes __, supra.
218 See text accompanying notes 239-244, infra.
precommitting self is not acting in the composite interests of the self over time, precommitment can generate error costs.

An additional underbreadth problem could result if people do not 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.219 As a result, they might fail to engage in precommitment even when it would generate significant gains. Making precommitment mandatory without placing any limits on the content of the choice could respond to this problem. 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.220 The behavioral literature discusses more limited examples in which people can achieve gains by choosing consumption goods—snacks, meals, magazines, or movies—at a temporal remove from the point of consumption.221

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.222 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.223 While the tradeoff may be worth it for people with self-control problems,224 it could impose a net cost on those with high willpower. There might also be autonomy concerns associated with a mandatory predecision process, even for people who would not want to later change their minds. Making precommitment purely voluntary would avoid these costs even though it would offer less help to those who are partially or fully naive about their future self-control problems.

Governmental bodies are already involved in precommitment in some

219 See O'Donoghue & Rabin, supra note 50 (examining effects of naiveté about self-control problems); O'Donoghue & Rabin, supra note 4 (analyzing the effects of partial recognition of willpower problems).
220 Laibson, supra note 21, 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 66, at 446-51. Easy availability of credit to borrow against those goods undoes these gains, however. Id. at 461-67.
221 [cites]. See also O'Donoghue & Ragin, supra note 13, at 190 (discussing the possibility of offering nonrefundable coupons to purchase particular items, such as potato chips or cigarettes).
222 See Laibson, supra note 21, at 21-22.
223 This is admittedly not a problem if we proceed on the artificial assumption that OACPs are perfectly known. In the real world, however, the capacity to update in light of unfolding developments is very valuable. See Laibson, supra note 66, 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.
224 For example, Laibson concludes based on his model that "]all 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 21, at 30.
limited ways, such as through state-sponsored self-exclusion programs for problem gamblers. We might also characterize certain programs like 401(k) plans and IRAs as precommitments, insofar as they involve voluntarily binding oneself to refrain from accessing money until after retirement, on pain of stiff penalties. But clearly the government could do more in terms of offering precommitment packages to individuals and enforcing their terms. Should it? Providing and enforcing citizen precommitments would cost money, but arguably this would be exactly the right way to convey resources to people with low willpower. Just as providing assistive devices in kind to people with disabilities can make those individuals better off without attracting "imitators," an in-kind good that is valuable to low-willpower people but valueless to high-willpower people would make targeted assistance to the former group self-enforcing.

One might wonder, though, whether governmental involvement is necessary. It is usually assumed that private precommitment mechanisms are too readily subject to unraveling to be tenable. 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. Some private precommitment mechanisms do exist, however, such StickK’s private commitment contracts. But these alternatives tend to rely on financial incentives such as fines for failure; they cannot block off unwanted choices altogether. Private mechanisms for self-imposing hard constraints on action are often lacking, perhaps in part because private entities often profit from willpower lapses. An alternative to direct government provision of precommitment mechanisms would be legal requirements that private entities offers such options, along with any other provisions necessary to prevent other entities from unraveling the precommitment.

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225 [news articles; self-exclusion notes].
226 See Weisbach, supra note 30, at 51.
227 See Laibson, supra note 21, at 27 (explaining that private interventions designed to implement desired savings plans "are vulnerable to third party arbitrage"); Kaplow [cite; paren].
228 See, e.g., Laibson, supra note 66, at 461 (explaining how instantly available credit keeps illiquid goods like houses less effective as precommitment devices); [Kaplow].
231 See Laibson, supra note 21, at 27 (noting the potential for outlawing the arbitrage opportunities that threaten to unravel private precommitments).
C. Self-Sorting Into Different Tax Regimes

A governmental program might also take the idea of self-selection a step further. If we think that precommitment is attractive to those with willpower problems and aversive to those without willpower problems, then a precommitment package could serve as more than just a self-targeting benefit package: it could also provide a means for learning otherwise unobservable information about willpower levels. That information could assist in delivering better-tailored tax regimes to high- and low-willpower individuals, respectively.

1. Targeting Heterogeneous Populations

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. Self-selection has also received recent theoretical attention as a way of improving the targeting of social policy. Rather than have policymakers categorize people based on some observable characteristic, as in Akerlofian tagging, people effectively tag themselves. Such self-sorting can harness private information and partition the population in ways that facilitate better-targeted 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, the

\[\text{See text accompanying notes }\text{supra.}\]
respective packages 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"). Not every feature of the respective bundles needs to serve both objectives. 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. 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.

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? I have already suggested that precommitment mechanisms could make a package aversive to one group (high willpower) and attractive to another (low willpower). The simplest version of the self-sorting idea has already been introduced—making precommitment products available to those who want them. Here, the good provided in kind operates both as a screening mechanism and as a benefit bestowed selectively on the screened group.

People might instead be required to select between different tax schedules, with the choice itself serving as a kind of precommitment. For example, Ted O'Donoghue and Matthew Rabin explored the possibility of devising optimal tax and subsidy schemes for each of two types of consumers—those who are "fully rational" and those who suffer from self-control problems. The latter might, for example, choose a schedule that taxes potato chips heavily while subsidizing carrots. Similarly, Jay Bhattacharya and Darius Lakdawalla have suggested that smokers could voluntarily purchase "smoking licenses" that would commit their future selves to cigarette taxes. 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-

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235 See Raskolnikov, supra note 233, at 39-40 (distinguishing "separating" from "targeting").
236 See id.
237 See id. at 39; Estaban & Miyagawa, supra note 233, 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).
238 See Raskolnikov, supra note 233, at 40 n. 181 (counseling caution in adding features that pursue one goal at the expense of the other).
239 O'Donoghue & Rabin, supra note 13, at 186, 189-90.
240 Id.
241 Bhattacharya & Lakdawalla, supra note 43; 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).
free packages of cigarettes. 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, 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.

Variations on this basic approach could permit low-willpower people to remove options from their own choice sets, force better intertemporal decisions, or punish (reward) themselves for making bad (good) choices over time. All of these measures could help close the utility gap between high-willpower people and low-willpower people. But would it also be possible to address remaining utility or ability differences between the groups by directly altering the tax burdens on the two groups? It is worth reiterating at this juncture that it is by no means clear that redistribution in favor of low-willpower populations would be normatively desirable. However, if it were deemed to be so on balance, there are at least two ways in which self-selection into different tax regimes might play a role. The first involves the treatment of purely intrapersonal redistribution. The second, and more speculative, idea would involve construction of tax and regulatory packages that would embed a redistributive component within differentially aversive limits on borrowing and spending.

2. Intrapersonal Redistribution

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. As a first cut, we might imagine policymakers allowing taxpayers to present

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242 O'Donoghue & Rabin, supra note 13, 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").

243 See Becker & Murphy, supra note 46.

244 See O'Donoghue & Rabin, supra note 13.

245 Before rejecting this form of redistribution, however, the implicit redistributive effects of alternative approaches should be examined. See Mitchell, supra note 194, 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 194 and accompanying text.

246 This preference is sensitive to the collection method in place. See Liebman, supra note 7, at 31-50 (analyzing the impact of averaging on taxpayers with different earning patterns); see also Shaviro supra note 6, 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).
themselves either as separate temporal entities requiring individualized treatment 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. But neither characterization is likely to be systematically accurate for either of our populations of interest; as already noted, much more than willpower determines how much life cycle consumption optimization an individual can accomplish. Thus, 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 the composite reflective states) would not want any redistribution that expands their early-life consumption beyond their OACP. However, they would be quite interested in redistribution to those spots in the life cycle that they would have a tendency to leave depleted if left to their own devices.

Although hyperopic low-willpower people present a minor complication, we might generalize and say that forward (later in time) intrapersonal redistribution will typically be more attractive to those with low willpower 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. 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, tax policy has some flexibility in terms of how it will move money around within individual lives, and offering choice about the direction of the flow could prove useful for both high-willpower and low-willpower individuals.

3. Choosing Between Tax and Regulatory Packages

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. 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. Instead, 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 include 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.

Table 2: Two Packages

<table>
<thead>
<tr>
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<th>Package One</th>
<th>Package Two</th>
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<tbody>
<tr>
<td><strong>Intrapersonal</strong></td>
<td>Skews Earlier</td>
<td>Skews Later</td>
</tr>
<tr>
<td><strong>Redistribution</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Provisions</strong></td>
<td>Flexible Tax Payment Terms</td>
<td>Customized Borrowing and Spending Restrictions</td>
</tr>
<tr>
<td><strong>Tax Rates</strong></td>
<td>Higher</td>
<td>Lower</td>
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Each of these packages would begin with a progressive consumption 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 redistributive element would be timed differently under the two packages. 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 some of their lifetime tax burden into their later years, which would further help to relieve liquidity constraints. 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, 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 Table 2 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). Or, the opposite classification problem could result: those 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. This raises the question of whether some limits should be put 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 that 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 unduly intrusive. Another alternative, discussed in the next section, 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.

4. Incorporating Information About Wealth

While my focus thus far has been on self-sorting, information about wealth (indexed for life-cycle stage) might be used to improve the targeting of redistribution from high-willpower people to low-willpower people. For example, Package Two's tax advantages could be phased out as the taxpayer's accumulated wealth grows: when a certain threshold of wealth is
reached (which would vary based on age), 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 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, 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.

The rationale for building in information about wealth would rest on a correlation between wealth levels and willpower levels. While it would be impossible to draw any conclusions about a particular individual's willpower level based solely on her accumulated wealth, it seems plausible that the distribution of willpower would be higher in a high-asset bracket than in a low-asset bracket. Thus, it is more likely that a randomly selected person whose wealth falls below a given threshold will possess lower willpower than a person drawn at random from above the threshold than that the reverse will be the case. 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.

Of course, introducing a wealth criterion presents new worries. Not only may high-willpower people opt for Package Two in order to obtain lower tax rates, both 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.

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247 There is evidence that self-control problems fall with age, see Ameriks et al., supra note 21, 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.

248 See text accompanying notes supra on Akerlofian tagging.

249 See text accompanying note supra.

250 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 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).

251 See notes supra and accompanying text.

252 See text accompanying notes supra on targeting v. separating.
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.253

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.

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, 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. Of course, it might 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."

253 Cf. Jonathan Nash, Allocation and Uncertainty: Strategic Responses to Environmental Grandfathering, unpublished manuscript on file with author (Feb. 7, 2008) (advocating "retrospective allocation" mechanisms that introduce uncertainty into grandfathering schemes in an effort to reduce strategic behavior); [on randomization in taxation, see Stigliz]. 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).
5. Taking Stock

Even if the plan sketched above could be designed in a way that would minimize perverse incentives and the potential for strategic behavior, it would still introduce complexity and raise other concerns that could swamp any potential improvements. On the advantage side of the ledger, we have five primary entries. First, people with low willpower would be able to receive better lifetime consumption results that would help to bring their well-being levels closer to those experienced by high-willpower people. Second, low-willpower people would be able to achieve those results through a mechanism that does not call on them to engage in personally costly and draining exertions of will, and that does not risk penalizing them (further) for failures. Third, the self-sorting induced by the plan allows us to deliver additional resources (through a lighter tax schedule and in-kind precommitment and financial planning benefits) to many low-willpower people. Fourth, high-willpower people could access a tax regime that fits more closely with their experience without depriving low-willpower people of the intrapersonal redistribution benefits associated with annual taxation. Fifth, treating willpower more selectively and surgically might forestall more socially costly initiatives that would block certain consumption choices for high-willpower types as well as low-willpower types.

There are also several disadvantages. The administrative cost would be considerable. To implement the various borrowing and spending limits would require placing controls on bank accounts and loans linked to the person's social security number. Even if the current ubiquitous use of electronic records could make this cost manageable, the added degree of governmental involvement in people's saving and spending decisions might be independently objectionable. In particular, using lower tax rates as a carrot might be viewed as inappropriate governmental leverage. For example, we might worry that low income people would feel pressured 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 TANF and EITC in ways that would seem to 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. The
existence of an opt out, even one that costs something, makes the system more autonomy-enhancing than a fully coercive system would be, but it remains an open question whether a system like the one outlined would constitute an undue intrusion into private prerogatives.

One answer that is a bit of a cheat given this paper's exclusive focus on willpower would be to cite the externalities imposed by improvident personal financial decisions, such as the costs incurred through social welfare programs. While that argument might help to bolster the case for governmental involvement, it would support broader-ranging measures against certain kinds of financial choices, regardless of whether willpower lapses were involved. This does not mean that externalities are wholly irrelevant. Suppose that low-willpower people are more likely to make these externality-causing decisions, and high-willpower people are less likely to do so. Having a policy that partitions the two populations and subjects only the former to controls would arguably offer a relatively cheap (in terms of autonomy intrusions) way of controlling externalities. If high-willpower people would view limits on their choices as aversive even if they would not wish to make a choice outside of those limits, then this form of tailoring arguably holds autonomy advantages.

Another potential disadvantage stems from the nature of the restrictions placed on people in Package Two, which strain the meaning of the term "precommitment." It would probably be unworkable to let people use Package Two's borrowing and spending restrictions to pursue just any old OACP they might happen to have. While significant customization for personal circumstances and some degree of choice based on preferences could be extended, the range of alternatives would presumably be limited to the kinds of prudent decisionmaking that policymakers would view as objectively desirable. As a side note, it is not entirely clear how much this program could be used to help the hyperopic, although it would be 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. Another concern, touched on briefly above, is that people unaware of their own self-control problems would choose Package One and face higher tax rates on top of the negative effects of their own self-control lapses.

There could also be unwanted effects on the inculcation of willpower and related values throughout society, if we were to shift to a system that lets people opt out of controlling their own consumption paths. To assess

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254 To be sure, the externality of the public burden itself is the product of other governmental decisions. See, e.g., Gary Becker, Becker-Posner Blog, Is Government Intervention in the Fast-Food Industry Justified? July 27, 2008, http://www.becker-posner-blog.com/archives/2008/07/is_government_i.html (observing that "the alleged 'externality' with regard to obesity is due only to the government's subsidy of medical expenditures, so that it is a case of one government intervention--justified or not--causing another intervention--control of eating"). However, the program itself presumably exists because of even larger externalities stemming from unalleviated poverty that would emerge in its absence. [cites].
this argument, we would need to know more about the development and transmission of willpower across people and over time. It might be the case that taking a lot of the effort out of dealing with saving and spending would leave people free to focus more willpower on tasks that the government is not well suited to take on, such as diet and exercise choices. Or cognitive resources might be freed up in ways that enable people to become more productive workers or more effective parents. On the other hand, people who do not have to struggle to figure out how best to make ends meet may miss out on some "character-building" experiences for themselves and for their children. Yet keeping people from failing in these efforts also has its attractions; there is nothing especially character-building about having bill collectors calling night and day or going through the traumas of default, foreclosure, and bankruptcy.

Nonetheless, the disadvantages of the approach outlined here are formidable enough to make it questionable that the net effect would be an improvement, even if addressing willpower heterogeneity were our primary objective. Once we consider the other goals that a tax system must balance, such a proposal's prospects grow even dimmer. My point in sketching this idea is not to advocate it, however, but rather to provide a 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 reduce unwanted collateral effects on high-willpower people.

CONCLUSION

Tax policy grapples with numerous dimensions of human heterogeneity. This paper has intentionally focused on just one narrow slice—variations in willpower. This limited focus has, I hope, helped to illuminate how and why willpower might matter to taxation. My analysis has necessarily filtered out much that is important and relevant to devising tax policy. As I stated at the outset, I take no position here on what is the best all-things-considered tax system. This paper is also limited in its methodological approach. I do not attempt to formally model willpower or show how it interacts with consumption decisions over the life cycle. Such models do exist, however, and they offer insights of their own into the complexities presented here. Moreover, although I suggest some potential directions for empirical work, this paper does not itself undertake those inquiries.

What this analysis adds to the existing body of work is modest but important: an intuitive and 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.