

Chapter 1

Toward an Agenda for Behavioral Public Finance

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THIS chapter is about the intersection—or the possible intersection—between the fields of behavioral economics and public finance, which we call behavioral public finance. Public finance is a venerable field in the economics fold. Its positive and normative branches rest on two basic assumptions. One, and central to public finance’s positive agenda, is that individuals are rational, maximizing agents, in the simple sense that they act consistently on the basis of a well-defined utility function.¹ We call this the rationality assumption. Two, and central to public finance’s normative agenda, is that the basis for evaluating social policies should be the well-being of society’s members, as they judge this well-being to be. We call this the consumer sovereignty principle.

Behavioral economics, in contrast, is a newcomer on the social science field. It rests on a series of empirical challenges to the rationality assumption that can, if taken to a certain limit, call the consumer sovereignty principle into question. Perhaps because of this perceived nihilistic possibility—or simply because it represents a challenge to received orthodoxy—skeptics continue to question both the facts and the relevance of behavioral economics to any field of study.

Given this inherent tension, can behavioral public finance be a happy marriage?

We believe—however tentatively—that it can. We are more certain that it is important to try and advance the union. To the extent that behavioral economics rests on empirically verifiable (and verified) understandings about how real people think, choose, decide, and act in real-

life settings, public finance models that aim for real-world relevance ought to take behavioral insights into account. This does not mean abrogating traditional public finance wholesale, or abandoning consumer sovereignty principles. As in all marriages, there will be give and take; the whole will be different from—and at least potentially better than—the sum of the parts. The challenge—as in any marriage—is to keep the lines of communication open.

After some additional background comments on the two disciplines, we illustrate the possible relevance of behavioral public finance with three broad clusters of questions, concerning the forms of public finance mechanisms, problems of intertemporal choice, and models of taxpayer compliance. We mean these examples to be suggestive, not definitive. We invite the reader to consider more examples, some of which are provided in the other chapters in this volume.

Three Faces of Public Finance

Public finance has been a principal concern of economics at least since Adam Smith. Its subject matter is the role of the government in addressing society's economic tasks, regarding both the allocation of scarce resources and their distribution or redistribution. Indeed, as classically divided by Richard Musgrave (1959), public finance consists of two parts, a government expenditure and revenue-raising aspect or, in more colloquial terms, tax and spending dimensions. Public finance also divides naturally into descriptive or positive analysis versus prescriptive or normative analysis. Positive analysis seeks to understand the actual effects of government tax and spending programs on the behavior of individuals and businesses and on the well-being of individuals. Normative analysis seeks, by contrast, to establish guidelines for what the government should—and should not—do. Answers to fundamental normative questions inevitably depend on values to which economic analysis cannot contribute directly, but these answers also depend on the positive analysis to which public finance can speak. The discipline can lay out the costs and benefits—the welfare implications—of various alternative government actions.

On the spending or allocative side, the most fundamental question is why do anything—what the role of the public sector should be. Within the neoclassical welfare framework familiar to economists, free and private markets generally work to achieve an efficient allocation, defined as an equilibrium outcome where no one could be made better off without making someone else worse off, the Paretian condition. The case for any particular government expenditure program must therefore turn on some demonstration of a market failure, such as the presence of a public good, externality or, increasingly, an informational asymmetry. In the

case of any market failure, government intervention can, at least in theory, increase social wealth and welfare, improving allocative efficiency.

Public finance also looks to the distribution or redistribution of social wealth, whether the income distribution is taken to be a public good or not (Thurow 1971), because the free market alone does not necessarily give rise to an attractive distribution of society's collective resources. In contemporary advanced democracies, public tax and transfer programs actually comprise a larger share of the economy than do more traditional tax and spending programs.

In the neoclassical framework, public finance seeks both to describe what policies maximize social welfare by alleviating market failures (as by providing public goods) in an allocatively efficient manner, and to redistribute the (greater) social wealth to achieve a more desirable distribution of resources (Mirrlees 1971; Kaplow and Shavell 2002).

Another shoe falls inevitably because government spending and transfer programs require government revenues. Public finance thus considers the appropriate structure of taxation. The ideal tax would be a lump sum or per capita one, because it would not distort behavior and thus not affect the allocation of resources. But given the infeasibility of such first-best or non-distortionary taxation, public finance economists have developed sophisticated analyses of optimal taxation (Ramsey 1927; Mirrlees 1971; Atkinson 1996). But adopting optimal tax systems in real-world settings—even bracketing the difficult social choice problems of agreeing on the appropriate welfare function in the first place—is problematic (Slemrod 1990). Public finance economists thus go beyond the pure theory of tax to consider compliance and administration, attempting to minimize the transaction costs of tax in the real world. As part of its core mission, public finance studies the behavioral response of individuals and firms to alternative tax systems. Its goal is to understand and predict both revenue effects and the deadweight costs of various alternative tax regimes and reforms—that is, to understand the inputs needed for the normative theory of optimal tax to point to best practices, for example, the labor supply elasticities needed to implement optimum income tax policies—and the tradeoffs entailed in second-best, real-world settings.

In addition to these two traditional functions of public finance—tax and spending or transfer—government now often pursues a third function through its legally sanctioned control over fiscal matters. Government today acts to modify behaviors, not as an unavoidable by-product of its usual tasks, such as taxation, but purposefully in response to a perceived need to induce people to behave more “appropriately.” Under what, if any, circumstances government should engage in this sort of activity is a part of the challenging intersection between behavioral economics and traditional economics. Within the neoclassical framework,

taxes have long been advocated as a tool to correct for externalities, or (equivalently) the problem of social cost diverging from private cost (Pigou 1951).² Today, however, the government often acts through fiscal mechanisms in one of two ways: first, to encourage what are arguably goods (charitable giving, savings) beyond what people would choose on their own; second, to discourage what are arguably bads (smoking, drinking). In either case, traditional externality-correcting grounds may or may not guide it (Gruber and Köszegi 2002; O'Donoghue and Rabin 2003; Sunstein and Thaler 2003). This expansion of the domain of public finance raises questions under and about the consumer sovereignty principle.

The New Kid on the Block

In contrast to welfare economics, behavioral economics is a fledgling in the field of social science. It has roots in the seminal work of Herbert Simon (1955) on “bounded rationality,” and grew enormously under the guidance of Daniel Kahneman and Amos Tversky (1979), who argued that there are two broad features of human judgment and decision making. One aspect involves various errors in coding mechanisms—how matters are understood, or entered into mental processes—known as heuristics and biases. These lead to violations of the laws of logic and consistency. The second aspect consists of evaluatory functions that differ from the expected utility function of the neoclassical rational choice models (von Neumann and Morgenstern 1944; Savage 1954). Other treatments (Thaler 1980, for example) differ in terminology and detail, but share the characteristic of showing that real people do not follow logically consistent choice and decision protocols. By now abundant experimental and real-world observed evidence (Camerer 2000)—buttressed by common sense—confirms that individuals do not always think and act in ways consistent with the standard, and limited, axioms of rational choice (List 2004).

With the recent Nobel Prize awarded to Kahneman, the field of behavioral economics is blossoming.³ But it would be premature to say that it has yet reached full flower. In particular, the area self-consciously lacks a general field theory of human behavior, let alone one that would be as parsimonious as the rational agent model (Camerer 1990; Epstein 2003). Indeed, behavioral economics rests on a rejection—of the axiom of rational agency—rather than on the affirmation or acceptance of any specific alternative theory of human behavior and thought. Given this, care must be taken in extending behavioral models to new fields. But there are also compelling reasons to go forward.

The most compelling is to resolve the fundamental questions that deviations from rationality pose to normative public finance. If preferences are inconsistent, how can any lawmaker choose which one is “correct”?

What does the consumer sovereignty principle even mean in the face of consumer inconsistency? Having established that individuals sometimes make decisions that are apparently inconsistent with rational choices serving a stable objective or utility function, how does government go about substituting an alternative metric for evaluating the success or failure of policies? If, as we discuss later, the form in which public policies are presented matters for decisions, what is the appropriate form? And are we even sure that all heuristics and biases are problems, or sources of inefficiency, that ought to be corrected?

This volume does not by any means resolve these questions. It means rather to raise them, and others like them, and, in addressing the various questions from many empirical and theoretical perspectives and disciplines, to begin to construct a multidisciplinary program to make progress toward answering them.

Behavioral Public Finance: Three Views of a Possible Cathedral

Here we sketch out three broad clusters of questions raised by behavioral public finance. We mean this discussion to be illustrative, both of the range of issues within each cluster and of the field of behavioral public finance itself. It does not even purport to be a systematic survey of what is included in this volume.

Form Matters: Framing and Other Optics of Public Finance

A central descriptive component of behavioral economics is that form matters. Contrary to the dictates of ideal rationality, whereby the substance or underlying reality of various alternative states of the world ought solely to matter, the purely formal aspects of a choice or decision set often affect substantive outcomes. This leads to violations of such basic rational choice axioms as transitivity and the independence of irrelevant alternatives: preference shifts and reversals can turn on logically irrelevant matters such as how a choice set is described.⁴ One cluster of questions for behavioral public finance turns on these violations of the rationality assumption: what implications do citizen heuristics and biases have for central public finance questions?

Consider, for example, the framing effect, under which individuals respond to the rhetorical characterization of a constant set of facts, such as preferring a half-full to a half-empty glass (McCaffery and Baron 2004b; Levin et al. 2002). An instance of framing relevant to public finance is the metric effect. Subjects react differently depending on the unit in which a question is posed, preferring, for example, a tax system featuring higher

taxes when asked about taxes in percent rather than in dollar terms (McCaffrey and Baron 2003). Other examples include penalty aversion, wherein people prefer policies described as bonuses to their punitive converse (child bonuses versus childless penalties); the Schelling effect, wherein people want progressive bonuses (more for the poor than the rich) and progressive penalties (higher for the rich than the poor), which are inconsistent given a trivial framing manipulation; and tax aversion, wherein people prefer government surcharges described as something other than a tax, such as a payment or user fee (McCaffery and Baron 2003; Schelling 1978; Eckel, Grossman, and Johnston 2005). Real-world evidence suggests that successful politicians have at least intuited many of these heuristics and biases.

In the variously described endowment effect, loss aversion, status quo bias, or reference-dependent utilities (Kahneman, Knetsch, and Thaler 1986), subjects react differently depending on their perception of the baseline or status quo: experiencing more disutility from a loss off a high baseline than from a corresponding failure to obtain a gain from a low baseline. The baseline itself can be set arbitrarily—as a matter of framing—and still affect choice. In a classic example from Thaler, individuals will use cash to avoid a penalty for using credit cards at the gas pump, but will forswear from using cash to obtain a bonus for doing so, on the same facts (for example, \$1.90 a gallon for cash, \$2.00 for credit cards). In public finance, the endowment effect may lead to a “stickiness” of public goods, such as Social Security benefits: once in place, citizens will react to their loss more harshly than to the failure to obtain an equivalent good. The endowment effect is also one reason why socially set default rules can matter (Sunstein and Thaler 2003), and why citizens might prefer fully hidden taxes to more transparent ones (McCaffery and Baron 2004a).

Individuals also employ mental accounts, fail to integrate across similar categories, or suffer from an isolation effect (Thaler 1999; McCaffery and Baron 2003). Although money is fungible in the rational model—a matter of substance—individuals often react as if different sources of wealth (a matter of form) map up with different uses: seeing lottery proceeds, for example, as windfalls that need not be devoted to ordinary wants and needs. In public finance, this effect can interact with the now well-documented flypaper effect (Hines and Thaler 1995) as well as with the endowment effect to suggest that there is path dependence to fiscal outcomes. Revenue sources flow to certain particular public uses and stick there, making reallocation of funds to higher and better public (or private) uses difficult.

In a related disaggregation effect (McCaffery and Baron 2003), individuals have a difficult time integrating parallel but separate systems to form consistent global judgments. Thus, for example, it is hard for indi-

viduals to keep in their minds the structure of the payroll tax system when making decisions about the appropriate level of progression in the income tax. This disaggregation (or isolation) effect suggests that citizens will be hard pressed to understand how changes in one tax, such as a negative rate bracket under the income tax, can compensate for the structure of other taxes, such as the absence of a zero bracket under the payroll tax system. The effect also suggests that many smaller taxes can add up to a greater total tax burden, with the same psychic discomfort, as fewer larger taxes, because people do not sum them up fully in their minds (McCaffery and Baron 2003). Consider also the possible privatization of presently publicly provided goods. The two welfare theorems of neoclassical welfare economics suggest that whether a good or service is provided publicly, and, if so, how, should be decided by standard welfare maximizing principles. Suppose, for example, that privatization of a particular good or service would be more efficient, meaning that social welfare would increase if public provision ceased. The greater social wealth generated by privatization could then be redistributed to meet the Paretian constraint. But the disaggregation effect suggests that subjects may not redistribute sufficiently in the tax system, standing alone, to counterbalance the effect of the privatization: they do not integrate tax and spending decisions, to use changes in tax to compensate for the losers from spending cuts (see chapter 4, this volume). This possibility pits efficiency against equity.

This overview suggests the stakes for behavioral public finance in terms of certain by now well-noted violations of the rationality assumption. One, as long as the form of public finance matters, politics will turn to at least some extent on formal matters or rhetoric. Politicians will invest time and money in rhetoric, and the better rhetoricians—or salespeople—will have an advantage. Two, and worse, public finance may be unstable, because different frames can elicit preference reversals, the key finding of the Kahneman and Tversky framing literature. As new actors enter the political scene and set new frames, public opinion may shift, supporting a high level of turnover, as it were, in public finance systems, with the attendant transition and transaction costs (Feldstein 1976). Three, and worst of all, real wealth can be left on the table, an homage to cognitive illusions, if the more attractively framed public finance form is not the one that maximizes social welfare. Politicians may choose to please voters with an inefficient tax or spending program; taxes have real effects, independent of their optical or cognitive properties. Here is an example of where public finance, as traditionally practiced, matters: it can tell us the welfare costs of various alternative tax and spending arrangements, laying bare, as it were, the costs of popular illusions, as in a preference for distorting but hidden taxes.

Individuals' cognitive biases may also affect their behavioral responses

to tax and other public finance mechanisms, a central concern of public finance. What behavioral assumptions should lawmakers employ when modeling the effects of tax or other public finance reform? Do for example citizens react differently to something called a tax as opposed to something else? Recent experimental work on the crowding out hypothesis suggests that they do, reducing their charitable contributions when taxes go to the charity, but not when unlabeled exactions do (Eckel, Grossman, and Johnston 2005). Do the observed labor and capital supply elasticities to tax law changes reflect behavior biases? And so on. As a matter of applied public finance, we need models that are behaviorally realistic, and the insights of behavioral economics may be indispensable in such settings.

And so various actors in public finance—lawmakers, citizens, and taxpayers—can have various biases, interacting in complex and multi-dimensional ways. Putting it all together—that is, sketching out a full political economy model of public finance with behavioral biases in play—is beyond the scope of the present essay. Such a task is one of the great potential projects for the field of behavioral public finance. But we can say a few things about what such a project might look like. It is by now well accepted that utility-maximizing applies to politicians as much as to ordinary citizens. Gary Becker (1983) has argued for a model in which politicians reward pressure groups with favors (tax breaks, spending programs, and so on), constrained by the opposition of the residual taxpayer class. In the Becker model, equilibrium is reached when efficient interest groups are rewarded by efficient taxes. But what if some taxes produce less psychic pain, strictly on account of their formal properties, than others? Taxes, even hidden ones, have real effects on prices, regardless of their perceived burden. What if politicians are choosing suboptimal taxes, from a welfare maximizing perspective, to make citizens feel better because of the form of the tax? The celebrated social pie will shrink on account of the choice.

One reason for concern is that the lawmakers themselves may be biased. Much evidence suggests that frequent players in private markets overcome heuristics and biases (see List 2003, 2004). After all, success in private markets is measured by the objective benchmark of wealth, and turns on matters of skill. The cognitively disadvantaged is economically disadvantaged as well. In public settings, by contrast, political success turns to a considerable degree on rhetorical skill. It may be that successful policy makers are indeed subject to the same type of cognitive biases we have just catalogued. Indeed, being subject to popular biases might even help politicians to be more communicative with their fellow citizens: the lawmaker who really believes it important to “get corporations to pay their fair share” is a better salesperson than one who is conscious of the deceit involved. The subject of behavioral public choice can com-

plement the field of public choice that James Buchanan and others have championed. If not exactly a theory of the blind leading the blind, behavioral public choice might be a theory of the cognitively biased leading the cognitively biased, without the same disciplining mechanisms of the private sector to help see us all through the maze.

Whenever distortions arise—from cognitively disadvantaged or brilliantly savvy lawmakers—a related question is, where behavioral heuristics and biases have led to suboptimal public finance structures, can some form of debiasing mechanism improve welfare, measured from a more enlightened or consistent set of preferences? Suppose, that is, that individuals prefer hidden taxes over direct ones, in part because of loss aversion: they do not notice a loss when they have failed to obtain the gain in the first place. This might, for example, explain the persistence and popularity of the corporate income tax, which diverts resources from their otherwise ultimate placement in private hands, such that its ultimate incidence is difficult to ascertain (McCaffery 1994; McCaffery and Baron 2004a). Suppose further that the corporate income tax is more distorting, in a traditional public finance, welfare economic meaning, than alternative sources of revenue—and perhaps suppose, too, that the hidden tax does not simply replace other, more transparent taxes, but leads instead to a larger government (Hines and Thaler 1995; Becker and Mulligan 2003). In such a case real wealth is being left on the table, a sacrifice to cognitive illusion and inconsistency. Should public finance help to lay bare the illusions? And, if so, how?

One way is to educate citizens to better understand public finance. Here again the fundamental things apply. Understanding that true or ultimate incidence diverges from nominal or statutory incidence, and that corporations are not real people, is not all that complex, whatever the final truth of the incidence puzzle happens to be. But widespread education in areas where the average person has little experience or political efficacy will be challenging. It is not clear who has the time and resources to take on the chore.

A second way is to rely on various arbitrage mechanisms, that is, structural devices to counterbalance the effects of irrational biases. The paradigms in private finance are the market and competition itself. Even if some—most?—agents are irrational, and tend to buy high and sell low, markets can be expected to counteract the bias and appropriately value securities, as long as there is at least one rational actor without liquidity constraints. Individual investors may still incur losses but the price system will be on net efficient, diminishing the aggregate harm to social welfare. Similarly, competition in consumer markets keeps prices at marginal cost, however much some individual agents might be able to be tricked into paying more. Arbitrage in this sense is a comforting tale in private markets, though some behavioralists doubt its accuracy or at

least its breadth (Barberis and Thaler 2003). Be that as it may, there is no obvious arbitrage mechanism in public finance, where the presence of lawmakers creates a principal-agent problem at the core that we discuss further. Indeed, public finance can be defined as the study of nonmarket economic activity. Standard rational choice gives reason to fear the difference. Whereas in private markets arbitrage of the sort described is a private good, the benefits of which can inure to the individual agent, in public finance arbitrage is a public good, the benefits of which inure to the general public (McCaffery and Baron 2004a). A short seller in a financial market, for example, can capture profits from the irrational exuberance (if such it is) of others; but the political actor who aims to lay bare the illusion of hidden taxes, say, can have no assurance that he, personally—or even his political party generally—will benefit from any efficiency gains. Standard rational choice theory predicts that debiasing or arbitrage in the public sector will be undersupplied, increasing the stakes for behavioral public finance.

Finally, a third means out of the suboptimal state that the intersection of cognitive biases and politics may lead us to involves constraining the political process. There is evidence from behavioral economics that quick or hot judgments are more distorted, and less consistent, than calm and cool ones: a reason to delay and “strike while the iron is cold” sometimes (see Noll and Krier 1990). Balanced budget amendments or paygo rules that force legislators to designate new revenue sources for new spending programs, or to cut specific spending programs to offset tax cuts, may have the salutary effect of bringing all data into full view, undercutting the isolation effect and making for calmer, more consistent judgments.

Absent some cure, in education, arbitrage, or self-binding constraints on decision making, the aggregate effect of all the various heuristics and biases on the big questions of public finance is not clear. Will government be too big? Too slanted towards programs with highly salient, short-term benefits? Too dependent on hidden, excessively distorting taxes? These central questions of public finance should be reexamined in the light of what we are learning about cognitive biases. If the result of the biases is a collection of tax and expenditure program elements that resemble the packaging, price presentation, and product placement one encounters at the local supermarket, then the stakes are not necessarily high. But recall again the disciplining effect of private markets, missing at least in part from government actions. What if, in public finance, Smith’s celebrated invisible hand is replaced with an invisible sleight of hand?

Time Matters Too: Time Inconsistency and Problems of Self-Control

The first cluster of questions concerned an array of heuristics and biases that call the rationality assumption into question, rewarding rhetoric

among politicians, making public finance potentially volatile, and running the risk of leaving real wealth on the table. A second cluster of questions concerns a more specific set of inconsistencies, which calls into the question the very meaning of the consumer sovereignty principle.

Specifically, many people seem to have intertemporal preferences that are not only present-oriented but also time-inconsistent. People act as if they do not have the self-control to resist behavior that has short-term benefits but larger long-term costs. There is also considerable evidence that many people misforecast their own future preferences: as two future periods get closer, they give higher relative weight to consumption in the earlier period. One particular form of time inconsistency, known as hyperbolic discounting, has attracted much recent attention (Phelps and Pollak 1968; Laibson 1997; O'Donoghue and Rabin 1999). Under it, the discount factor between consecutive future periods is constant but far smaller than the discount factor between the next period and the immediately present one, leading to a rolling present-tense bias.

This phenomenon has potentially profound implications for both the positive and normative aspects of public finance. These implications for behavior depend to some extent on whether people are aware that, once the next period arrives, they will again become impatient with respect to the new current period and the new next period. If a person is sophisticated enough to realize that she will change her mind in the future, she can make decisions now accordingly. In particular, it may be advantageous to pursue self-commitment devices that limit future choices, like Ulysses did when he bound himself to the mast as his ship passed the Sirens' sweet song.

Related time-inconsistency models have important applications to saving and retirement decisions; people seem to save too little on their own, all but certain to later rue the day they failed to save more. This kind of myopia has been used as a justification for a system of compulsory saving like Social Security, and even for specific design features such as the payment of benefits only as annuities (Aaron 1999). O'Donoghue and Rabin (1999) explore how time-inconsistent people will tend to procrastinate in preparing for retirement, and suggest that default investment options and imposing deadlines on financial decisions might satisfy a criterion of cautious paternalism—valuable for people who are making errors, but with relatively small costs for people who are fully rational. Experience has shown that default rules can have a powerful influence on the saving behavior of employees (see chapter 11; see also Thaler and Benartzi 2004).

More recently, models of intertemporal choice have been applied to addictive and harmful commodities, defined as those goods for which past consumption increases the attractiveness of current consumption, and for which future costs are large relative to present benefits. Imagine that the consumers of such goods are rational and forward-looking, in

the sense of Becker and Murphy (1988), but also have time-inconsistent intertemporal preferences and are unable to overcome the self-control problems these preferences imply. In this setting there is a justification for “sin taxes” that help prevent present selves from acting for their own future harms. The optimal sin tax can be calculated using the standard optimal taxation framework, assuming that the policy objective is to maximize utility based on long-term preferences rather than those that guide the actual decisions—another example of using standard public finance, welfare economics tools with a behavioral twist. Jonathan Gruber and Botond Köszegi (2002) estimate the optimal tax on cigarettes to be at least \$1 per pack, and quite likely much higher.⁵ Furthermore, the utility or deadweight cost of a tax on a harmful addictive good is lower than for a nonaddictive good because the consumer places a positive value on the self-control provided by the higher price. Indeed, Gruber and Köszegi argue that for a wide range of parameter values, levying a tax on an addictive commodity will on net benefit the addicted person.

The welfare analysis of optimal cigarette taxes is another illustration of a fundamental question posed by behavioral public finance. When welfare economics seeks to maximize the satisfaction of individual preferences, as it typically does, which preferences should it use? The fact that the individual is impatient when faced with a choice between today and tomorrow, but would like to become patient in the future, creates a conflict between the current self and the future self. This type of question is acute when time inconsistency is in play. If policy makers know that citizens want to spend (smoke) today, but are likely to rue their failure to save (quit smoking) tomorrow, which set of preferences—which self—should they choose to please?

Note that the structure of the paternalistic argument has moved from arguing that a judicious setting of a default rule can benefit many people while harming none, because of the option to opt out (Sunstein and Thaler 2003), to arguing that an inescapable tax on certain behaviors can benefit precisely the people who behave in the targeted way. This is a dramatic change. In traditional public finance terms, one may be concerned about high taxes on cigarettes, alcohol, or unhealthy eating habits, for example, on both vertical and horizontal equity grounds. Take cigarettes. Gruber and Köszegi (2001) present data showing that the share of income spent on cigarettes is eight times as high for the bottom income quartile compared to the top quartile, and is four times as high when the quartiles are defined by consumption, arguably a better indicator of lifetime income. But when the self-control problem joins the model, the beneficial effect of the tax on the smoker’s own welfare undercuts the apparent regressivity of cigarette taxes.⁶ Of course, this only makes more pressing the normative question of which self or set of preferences is to count in the analysis—today’s happy smoker, or tomorrow’s dying patient.

The possibility of widespread time inconsistency looms over one of the most daunting of today's public finance issues: the implications of future liabilities, as for Social Security and Medicare, on present government finances (Jackson 2004). A strictly rational choice or rational expectations perspective would suggest that citizens today account for all known future liabilities (Barro 1974). But do they? And, if they do not, are there mechanisms to make future liabilities more salient today? How should one even think about such problems under the consumer sovereignty principle, with the problems of this and the preceding cluster of behavioral issues in play? If people want to live for the moment, and let the future care for itself, running up large deficits or whatever in the meanwhile, who are we—who is any we—to tell them otherwise? As with the formal matters considered in the prior section, however, lesser and less paternalistic steps may help to lessen the problem. To the extent that time inconsistency is driven by the different salience of the present and the future, or on account of an isolation effect, then measures such as personal account statements, as discussed in chapter 10 in this volume, may lessen the problem.

Compliance Matters: Does Citizen Duty Trump Rational Self-Interest?

The first cluster of questions looked at inconsistencies and confusions in the popular perception of public finance system design; the second raised questions about how to even think about, let alone implement, welfare-improving fiscal policies in the light of behavioral inconsistencies. These are questions at least in part of high theory. The final cluster of questions concerns a more practical, but still central, subject matter for public finance: why do citizens pay taxes, and how can a government keep them doing so, and prevent them from not complying?

Once again, our intent here is to illustrate the range of issues that behavioral public finance can concern, not to weigh them. Compliance matters seem second order compared to the possible large distortions in efficiency and equity occasioned by widespread citizen cognitive errors, and different in magnitude, too, from the conceptual puzzles posed by time-inconsistent preferences. Still, the stakes in understanding tax compliance here can be high. Whatever the motivation, the fact is that the cost of raising taxes, and of running government, is lower to the extent that taxpayers “volunteer” to comply. This argument applies more broadly than to compliance with the tax system. Christopher Clague argues that “a society with very low levels of rule obedience cannot . . . have a net of institutions that is conducive to economic progress” (1993, 412).⁷ Rational choice provides a simple paradigm for compliance, but is it rich enough to accommodate real world settings? Behavioral public fi-

nance may help to unify a broad and disparate set of challenges to the standard view that individuals' compliance behavior is best explained by a model of rational self-interested behavior constrained only by a deterring enforcement regime.

The rational choice story is simple. Because one's own benefit from government activity is, with some exceptions, not significantly affected by one's contribution, in the traditional model purely self-interested persons do not voluntarily contribute to a public good—that is, pay taxes—unless the threat of punishment makes it sensible. The standard public finance model of the demand for tax evasion, due to Allingham and Sandmo (1972), assumes free-riding to be ubiquitous. It models the compliance decision as a choice under uncertainty made by amoral individuals, whose decisions depend—strictly—on the chance of being caught and penalized, the penalty imposed, and one's risk aversion.

Looking at real world data, however, some have argued that the Allingham-Sandmo model is flawed: given the probability of audit and the penalties typically assessed, evasion seems to be a winning proposition for many more people than actually do evade.⁸ This suggests that something is going on outside of the standard rational choice model—either in the utility functions, as in the altruistic and reciprocal altruism explanations, or in some failure of rationality, as in a misperception of the odds of detection. Although the first possibility need not venture into the field of behavioral economics (there is, after all, no disputing taste), the second might.

Although free-riding is indeed widespread, much experimental work (and anecdotal evidence) suggests that such behavior is also context specific. Ostrom (2000, 140) remarks that the finding that “the rate of contribution to a public good is affected by various contextual factors” is one of several phenomena that “have been replicated so frequently that these can be considered the core facts that theory needs to explain.” What is going on? There is an active literature that seeks to determine to what extent such behavior is motivated by pure altruism, in the sense that people put positive value on the well-being of others unconditioned by their behavior, or reciprocal altruism, under which preferences over other people's well-being depend on the behavior, motivation, and intentions of those other people.⁹ Either one of these behaviors would be rational, of course, although the factual bases for at least reciprocal altruism might not obtain, and any static level of compliance in a model depending on reciprocity is unlikely to be a stable equilibrium.

But it is also possible that “excessive” compliance might relate to an irrationality, a behavioral anomaly or inconsistency of some sort. Some have proposed substituting the expected-utility-maximization framework with an alternative framework, in the spirit of Kahneman and Tversky's 1979 prospect theory, that has immediate implications for the

theory of tax evasion. Loss aversion relative to a reference point defined by no evasion will reduce the attractiveness of evasion, because the harm of getting caught will seem worse than the benefit from evading, even if the two are of equal magnitude. Much the same effect can be obtained by overweighting the low probabilities of detection and the penalties for evasion.¹⁰ Dhimi and al-Nowaihi (2004) argue that such a framework (and a stigma cost for discovered evasion) can more satisfactorily explain the level of observed evasion, the non-ubiquity of evasion, and the fact that tax rates negatively impact evasion.¹¹

There are also indications that individuals' tax compliance behavior depends on variables that lie outside of the free-rider cost-benefit calculus. Some laboratory experiments have found that subjects respond not only to the probabilities and stakes of a tax evasion game, but also to context provided to them, though this finding is not widely documented.¹² Frey differentiates between the intrinsic and extrinsic motivation to comply with tax liabilities (1997). With intrinsic motivation, taxpayers pay because of civic virtue; with extrinsic motivation, they do so because of threat of punishment. Frey argues that increasing extrinsic motivation—say with more punitive enforcement policies—crowds out intrinsic motivation by making people feel that they pay taxes because they have to, rather than because they want to.¹³

If tax equity strengthens the social norm against evasion, then evasion becomes more costly in terms of bad conscience (if not caught) or bad reputation (if caught) in a society with a more equitable system (Falkinger 1995). An individual can also find unfairness in the wider public finance system due to the government's provision of the wrong goods—someone such as Thoreau may avoid taxes because he thinks government policy wrong. But this is not a simple matter. Expenditures on warfare might be tolerated in a patriotic period but rejected during one characterized by antimilitarism (Daunton 1998). Expenditure on welfare might at times be seen as a socially desirable pooling of risk, and at other times seen as a source of national decay. And so on.

All this behavior suggests that reciprocal altruism may be at work, but where the taxpayer's behavior depends on the behavior, motivations, and intentions not of any subset of particular individuals, but of the government itself. Some taxpayers may be willing to surrender some of their own potential advantages to effect a more fair distribution of outcomes, but only if they perceive the tax system and tax enforcement process overall to be fair. This characterization is very similar to the spirit of Levi (1998, 90), who argues that citizens are likely to trust government only to the extent that they believe that it will act in their interests, that its procedures are fair, and that their trust of the state and others is reciprocated.¹⁴ Moreover, government trustworthiness, plus the perception that others are doing their share, can induce people to become "contingent consent-

ers" who cooperate even when their short-term material self-interest would make free-riding the individual's best option. In Levi's words, "the willingness to pay taxes quasi-voluntarily or to give one's contingent consent to conscription often rests on the existence of the state's capacity and demonstrated readiness to secure the compliance of the otherwise noncompliant" (1998, 91).¹⁵ Once again, this can be a strictly rational matter, a result of preferences, or the government's activities can make the penalties more salient, exacerbating a prospect-theory like effect.

It is notable that all of the literature about whether attitudes affect compliance applies to individual taxpayers, although in most countries the bulk of taxes are remitted (as opposed to borne, in the sense of ultimate incidence) by businesses, either because the taxes are levied on business entities or because labor income taxes are withheld by the employer. Whether a company's policy would react as an individual is a fascinating and open question, one that is related to the motivations behind corporate charitable contributions. This query applies more broadly—under what circumstances do organizations mitigate or perhaps exacerbate cognitive biases?¹⁶

In sum, behavioral public finance can contribute to an understanding of citizen compliance with the tax system as well as other fiscal measures to the extent that compliance decisions depend on factors beyond the rational self-interested calculus, such as nonstandard preferences and the reality and framing of what government does with the money it collects. Indeed, the idea that the behavioral response to tax and expenditure policies may hinge on how benevolently one views the purpose of those policies holds the promise of explaining a wide range of apparent behavioral anomalies discussed here.

Objections and Conclusions

We cannot conclude without at least noting that skeptics about the entire enterprise of behavioral economics are still out there. Some continue to deny that the various heuristics and biases exist, though this is getting increasingly difficult in the face of abundant experimental and real-world evidence. The most enduring critiques fall into two major (and somewhat related) camps. One holds that the biases might exist, but they are artifacts of the experimental design or other institutional settings in which they are found (Plott and Zeiler 2005). Better design, education, incentives and so on can mitigate or altogether eliminate the biases (List 2004). A second camp picks up the theme, as Barberis and Thaler (2003) and others note, of arbitrage mechanisms. Here, the reasoning goes, conceding that heuristics and biases exist and are even rampant—that individuals cannot and do not overcome them (individual-level debiasing, as through education, has its limits)—the biases do not much matter, be-

cause they do not materially affect how markets work. Systems solve individual errors. Thus, for example, behavioral economics may not pose a challenge to perhaps the most celebrated finding of the standard rational choice view, the efficient market hypothesis: even if almost all agents are irrational, markets can still work, in a fashion to do Adam Smith proud.

We find it interesting that many of the by-now standard responses to the perceived challenge of behavioral economics in private market domains depend on factors—learning, learning by doing, incentives, arbitrage mechanisms such as the market or the impersonal forces of competition—that may be altogether lacking and in any event are very different in the public setting. Inefficient structures ought not to persist long in private markets, as long as there are at least a few one-eyed persons in the land of the blind. But unless these people are also saints, public finance has a long way to go.

We thus suspect that much of the skepticism about incorporating behavioral economics into public finance is a resistance to abandoning the elegant and powerful conceptual structure currently used to evaluate economic policies. Embedded in the fundamental theorems of welfare economics, the conceptual structure implies that in the absence of market failures, an unfettered market economy will ensure efficiently, but not necessarily fairly, allocated resources. In the presence of market failures, government intervention can in principle, but not necessarily in practice, improve the efficiency of resource allocation unless the cost of government failures outweighs the benefit of alleviating the market failure. In considering behavioral public finance, we must confront the question of whether the cost of government failures will outweigh the benefits of alleviating human failure, in the sense of failure to act as the standard normative models presume. There is a fear that behavioralism would leave economics, public or otherwise, with nothing to do, certainly from a normative perspective: if preferences are inconsistent, they are inconsistent, and social science must end. We are not so pessimistic. We feel that this nihilistic approach short-sells the role of traditional public finance and what it can bring to behavioral economics. There are, it is worth noting, objectively valued goods, such as health and wealth. Inconsistent choices made under different frames can and do affect the quantity of these real goods. Thus traditional public finance can point out the welfare cost of hidden taxes, or sketch out the likely optimal savings policies for individuals. This can then lead to better debiasing mechanisms, such as accounting or cost-impact statements, or the setting of default rules in a manner likely to improve welfare, with opt-out provisions. In all these cases, we would never have seen any problem with the behavioral biases absent traditional, rational-choice-based public finance theory to show us the light.

Still, the skittishness that many economists feel about embracing be-

havioral perspectives is illustrated by the proliferation of terms recently applied to modify the word paternalism, the term we use to describe policies that override consumer sovereignty as the governing principle in the light of behavioral anomalies: benign, cautious, enlightened, libertarian, weak, to name a few of the more prominent modifiers (see, for example, Camerer et al. 2003; O'Donoghue and Rabin 2003; Sunstein and Thaler 2003). There are good reasons for this skittishness. In most cases, people's judgment of what is in their best interest is best. It is a safeguard against authoritarian government, as Richard Epstein reminds us. Overruling the choices that citizens—even confused, time-inconsistent, and downright irrational ones—make places tremendous responsibility on the benevolence of decision makers. For example, knowing the fact that many individuals respond to default rules can be useful in the possession of enlightened, benevolent decision makers, but history has shown that individuals' tendency to be obedient to authority can have horrible consequences. So care must be taken before pronouncing the union of behavioral and public finance economics permanent.

Yet in the end, none of this means that we as scholars should turn our heads from the reality of how real people make decisions in real situations. Instead, we more humbly suggest pursuing the research agenda that this essay outlines. The remaining chapters in this volume represent new research that addresses many of the nascent field's key issues. All save the last were presented in earlier forms at a conference at the Stephen M. Ross School of Business at the University of Michigan held on April 23 and 24, 2004, in Ann Arbor; a precursor conference had been held at the University of Southern California Law School on February 7 and 8, 2003. The topics of this research, and these chapters, are a sampler of what we feel the wider field should encompass.

The first chapters explore the idea that form and framing matter in public finance. George Loewenstein, Deborah A. Small, and Jeff Strnad draw out the implications of the well-documented identifiable victim effect in chapter 2. This is a bias whereby ordinary people show greater sympathy toward identifiable victims such as Baby Jessica or Free Willy the whale than toward statistical victims, such as the vast masses of people worldwide suffering from AIDS or malaria. This effect is relevant to fiscal policy in a large jurisdiction, when the costs and benefits of policies are spread widely. The authors stress that, though the identifiable victim effect is usually associated with an overreaction to identifiable victims, framing of public policies to capitalize on it can shift people's responses in a normatively desirable direction if people are insufficiently sympathetic toward statistical victims. In addition, the identifiable victim effect provides some conceptual underpinning for the political popularity of "hidden" taxes over those whose incidence is more easily assessed—

fully hidden taxes, like the corporate income tax, have *no* real, observable human victims at all.

Although behavioral economics has apparently identified several classes of systematic biases, not much progress has been made in providing a unifying model of behavior or general field theory that encompasses all biases. Indeed, most empirical analysis has focused on one bias at a time, though in many settings it is reasonable to suppose that multiple deviations from the standard model apply. Hanming Fang and Dan Silverman offer an exploratory treatment in chapter 3 of what is likely to be a major preoccupation of behavioral economics in the future—empirically distinguishing among biases. They illustrate the methodological problems and offer a few tentative solutions in the context of a simple model of welfare participation, an issue that is clearly important in public finance. In deciding whether to enroll for welfare benefits, potential participants may be subject to one or both of two well-documented cognitive biases: projection bias, in which people falsely project their current preferences over consumption onto their future preferences, and present bias, in which at any one point in time people excessively discount the immediate future. Although both projection and present bias may each suggest too much welfare use by some families (who value the benefits today), precisely how each of these biases affect labor supply and welfare program participation decisions has potential implications for policy design. If, for example, projection bias had an important influence on the decisions of welfare recipients, then programs that promote gradual transitions into work and thus permit low cost adaptation of preferences may be more successful in terms of attachments to the labor market than stronger pushes such as mandatory workfare or time limits. The opposite, however, may be true if present bias has a more important influence on the labor supply of the welfare-eligible: there is little reason for gradual transitions, because individuals are looking only or primarily at the present period. Fang and Silverman argue that individuals subject to both biases will exhibit different attitudes toward time limits and other welfare eligibility restrictions, both before and after such restrictions are implemented. In principle, then, one can empirically distinguish between the two and sharpen our understanding of the policy implications.

Jonathan Baron and Edward J. McCaffery pick up and continue this theme of the framing of public finance issues in chapter 4, studying tax progressivity and showing that in experimental settings ordinary subjects' preferences for bottom-line redistribution depends on the form of public finance mechanisms. They group many heuristics and biases under the common label of isolation effects. People make decisions on the basis of the information immediately before them, failing to integrate related matters in a wider data set. Most strikingly, most subjects want tax

systems to reflect moderate levels of progressivity, with upper-income taxpayers contributing more in absolute and percent terms, and so on. When a government cuts goods and services in a privatization or downsizing move, subjects continue to desire moderate progression in the remaining, now smaller, tax system. But because cuts to goods and services provided equally to all taxpayers have a greater impact on the poor, the global tax-and-transfer system becomes less progressive. In fact, adding in reasonable replacement costs—made available to the subjects—shows that privatization can easily violate the Pareto constraint, because people will not adjust the tax system enough to offset the regressive effect of the spending cuts. This finding suggests that behavioral biases may pit equity against efficiency, given the need or desire for widespread citizen support.

Bruno S. Frey and Alois Stutzer change directions in chapter 5 to look at the extent to which the political process will mitigate—or accentuate—the impact of individual biases. They focus on the systematic tendency of people to mispredict future utility by overemphasizing the lasting positive effects of acquiring income and gaining status: activities featuring what the authors call extrinsic attributes. Utility from intrinsic attributes such as feelings of autonomy and communal well-being gets less weight. The consequences of mispredicting utility, such as working too hard for the wrong reasons, are not restricted to the private realm; mispredictions also affect people's behavior as citizens. This occurs in two ways. First, citizens evaluate government policy, often underestimating intrinsic attributes relative to extrinsic attributes. Second, in a perfectly competitive democratic system of party competition, the two parties may not be able to afford to deviate from the short-term evaluation of their program by the median voter, and have to provide a policy bundle with strong extrinsic attributes. However, the political process can also generate conditions such that citizens get a more detached view of their evaluation and become partly aware of their or others' misprediction of utility. Moreover, in modern democracies, public discourse puts people's awareness of their anomalous behavior on the political agenda.

Lee Anne Fennell challenges us in chapter 6 to look beyond the prevailing view that the most important cognitive bias related to choice over time is hyperbolic discounting, very much related to the present bias Fang and Silverman discuss. Under hyperbolic discounting, the "discount rate" applied to the present and the immediate future period is always greater than the discounting among future periods, leading to under-saving and other problems, as relevant to chapter 11 on 401(k) savings plans. Fennell argues that individuals often display hyperopic behavior, wherein they choose a lower (or at least lower in present value) payoff received later, leading to over-saving (of all things). Such behavior is at least arguably rampant in the contexts of overwithholding for in-

come tax liabilities, and foregoing the advance payment option under the earned income tax credit; both effectively entail making interest-free loans to the government. Fennell cautions that such behavior has many explanations that are consistent with other psychological evidence, such as a preference for improving sequences or as a precommitment device to overcome anticipated consumption self-control problems. Moreover, people often prefer to get dreaded events (paying taxes, for example) over with earlier rather than later. The chapter offers an excellent example of how a given behavior can be overdetermined by behavioral explanations, and how careful analysis, of the type suggested in the chapter by Fang and Silverman, is required to sort out what underlies the behavior.

The next three chapters—one conceptual and two empirical—turn to issues of tax compliance. Paul Webley, Caroline Adams, and Henk Elffers offer fascinating evidence in chapter 7 that the Allingham-Sandmo framework, in which individuals treat the decision to evade taxes or not as a rational choice under uncertainty, omits two concerns relevant to compliance with value added taxation in the United Kingdom. They find that both perceptions of fairness, which have no place in the standard framework, and mental accounting—the ownership of VAT liabilities—are predictive in explaining compliance among restaurant owners and other retailers. They speculate that their data suggest that because there is little flexibility in varying VAT rates, taxpayers concerned with fairness may react adversely to the lack of “horizontal equity,” which may in turn undermine voluntary compliance.

Terrence Chorvat explores in chapter 8 what might explain the experimental and field findings that increases in the rate of detection and fines are often negatively correlated with compliance; another finding in tension with the standard rational choice explanation. Chorvat stresses the potential importance of intrinsic motivation (a term echoing Frey and Stutzer) that is conceptually separate from the deterrent effects of punishment for detected noncompliance, and argues that econometric and experimental economic evidence indicates that the tax system is able to take advantage of the trustworthiness one finds in society. An important point to emerge here is that, although tax system compliance is likely affected by the level of trust in society, the tax system itself also affects the trust level. If we have a relatively high trust society in which we can trust citizens to pay their taxes, then trusting the taxpayer is in fact reinforcing norms. If trustworthy behavior is not prevalent, however, and if individuals in particular are likely to cheat on their taxes, then relying on voluntary compliance mechanisms may actually decrease trustworthiness. To Chorvat, the proper question should not be so much whether higher rates of audit or fines can increase compliance, but whether they are the *best* way to increase compliance. This is particularly true if one accepts the notion that complying with tax laws may lead to greater trustworthi-

ness in other areas of life. If compliance can increase by other ways, this is likely the optimal route to more tax revenue. However, deciding which mechanism to rely upon therefore calls for an understanding of the trustworthy behavior of the members of society.

John Cullis, Philip Jones, and Alan Lewis in chapter 9 also look beyond the Allingham-Sandmo deterrence model of tax evasion, calling into question the view of the taxpayer as an individual wealth-maximizer weighing up the costs and benefits of evasion and suggesting that, depending on the situation, taxpayers may or may not behave instrumentally. Based on a series of experiments with students, the authors conclude that, because compliance rates vary significantly depending on the audit rate, at least some respondents behave instrumentally. Instrumental reasoning and behavior are much more common among students of economics units who declare less taxable income in all scenarios than students studying psychology. Indeed the majority of psychology students declare all their income even when the probability of investigation is only 1 percent! The fact that an instruction to behave instrumentally or “to be yourself” has no statistically significant effect on compliance behavior suggests to the authors that instrumentality is not an immediately elastic choice, but rather comes almost naturally to economists who behave this way whether they are bidden to or not, whereas psychologists cannot bring themselves to do so even when explicitly asked. Moreover, the framing of taxation, as already withheld or yet to be paid, was statistically significant: when tax is yet to be paid it is perceived as a loss, thereby encouraging risk. This framing effect occurs whether one studies economics or psychology.

In chapter 10 Howell Jackson addresses a mechanism that might at first glance be seen as a partial cure for prevalent citizen cognitive errors: specifically, the statements sent out by the Social Security Administration to all eligible workers over the age of twenty-five. Although the greater information thus obtained might be thought to lead to better-informed citizens, Jackson asks instead how the contents of these statements may lead program participants to misinterpret the value of their Social Security benefits, making it difficult for participants to compare Social Security benefits to other retirement savings. In addition, the current Social Security statements obscure the extent to which additional years of labor market participation increase the value of Social Security benefits. Jackson describes how the current statements could be supplemented with estimates of the actuarial value of Social Security benefits. Although such information could mitigate the problems with the current statements, Jackson also notes the potential drawbacks of providing it, including the possibility that it might make the redistributive aspects of the system more transparent, potentially weakening support for the program among some constituencies.

James Choi, David Laibson, Brigitte Madrian, and Andrew Metrick take a step down from the world of high theory to study a pressingly practical problem in chapter 11, and offer rather precise (and simple) solutions. Specifically, they assess the impact of several different features of 401(k) plans on employee savings behavior. By examining the impact on employee plan choice when several large corporations implemented changes in their 401(k) plan design, the authors detected a persistent behavioral principle—that people often follow the path of least resistance. Almost always, the easiest thing to do is nothing whatsoever, a phenomenon the authors call passive decision. Passive decision making implies that employers have a great deal of influence over the savings outcomes of their employees. For example, and significantly, the employer choice of default savings rates and default investment funds strongly influences employee savings levels. Despite having the opportunity to opt out of defaults, many employees never do so. The authors find that, in companies without automatic enrollment, the typical employee takes over a year to enroll in their company-sponsored retirement plan. In contrast, in companies with automatic enrollment, employees overwhelmingly accept the automatic enrollment defaults, including default savings rates and default fund choice. Moreover, many plan participants allow the menu of investment funds to drive their asset allocation decisions. Finally, employees do succeed in raising their contribution rates if they are given a low-effort opportunity to sign up for an automatic schedule of increases in their contribution rate. This phenomenon has important implications for public policy because it implies that, for better or worse, plan administrators can manipulate the path of least resistance to influence the saving and portfolio choices of their employees. By implication, government regulations about plan design can affect pension—and probably saving—choices as well.

The noted libertarian Richard Epstein closes the book with an essay in which he asks some characteristically big, and skeptical, questions. He evaluates whether accepting the behavioral economics agenda makes it more plausible to favor a variety of paternalistic regulations whose main purpose is to protect individuals from their own biases and excesses. He argues that the key test for rationality is not whether individuals make mistakes, but whether they can resort to a range of personal, institutional, and market mechanisms to minimize the effects of these mistakes. For Epstein, differential susceptibility to cognitive biases, far from being a reason to reject markets, helps explain their configuration in a wide range of contexts, including employment and credit transactions; economic models of perfect competence are indispensable to indicate the steps that people must take to combat cognitive biases. He offers a cautious defense of libertarian paternalism and presents a critique of hard paternalism as against its softer rival. To illustrate his arguments, Epstein

identifies the ambiguities in the use of libertarian paternalism to deal with sticky default provisions. He closes with a public choice and behavioral examination of Social Security reform, concluding that the public choice problems both dominate and exacerbate the cognitive difficulties that ordinary workers face in making their savings and consumption decisions.

These chapters reflect a wide range of scholarly methods and subject matters. But they all try to grapple with challenges at the intersection between behavioral economics, or the study of real human economic judgment and decision making, warts and all, and public finance, set in a modern era of very large government involvement in just about all aspects of our social and economic lives. As we all collectively struggle with issues about how to tax and spend, save for the future, and control our own behaviors, for better or for worse, in sickness and in health, in good times and in bad, we have little choice but to bless this marriage of disciplines, and hope for ever better answers to ancient but ever more pressing questions.

Notes

1. See Gary Becker: "Now everyone more or less agrees that rational behavior simply implies consistent maximization of a well-ordered function, such as a utility or profit function" (1962, 1).
2. This use of public finance mechanisms was harshly criticized by Ronald Coase (1960, 1988).
3. For good general surveys, see Daniel Kahneman and Amos Tversky (2000) and Jonathan Baron (2000). Matthew Rabin has been highly influential (1998).
4. That form matters in consumer decisions is well understood by marketing directors. Witness the proliferation of cereal boxes that cost \$3.99 and gasoline that sells for \$1.499 per gallon, and the ubiquity of discounting from "regular" prices. Aradhna Krishna and Joel Slemrod address to what extent marketers' insights can explain income tax design features (2003).
5. Ted O'Donoghue and Matthew Rabin carry out a similar exercise (2003).
6. Jonathan Gruber and Botond Köszegi conclude that, as long as the poor do not have life values and/or marginal damage from smoking very far below the rich, and as long as their discount rate is not much lower, the regressivity of cigarette taxes is reduced for sophisticated time-inconsistent smokers (2001).
7. The use of the term "obedience" will raise a red flag among those familiar with the psychology literature that addresses how people behave toward authority, because what psychologists have learned here is very unsettling. In perhaps the most controversial psychology experiment of all time, Stanley Milgram demonstrated that, if so instructed by an authority figure, most ordinary citizens would deliver apparently very painful electrical shocks to apparently innocent subjects (1974). That most people are malleable with re-

spect not only to the use of well-intentioned default rules and debiasing, but also to malevolent suggestions, raises concerns about the slippery slope of paternalistic policies. Here we just note this important issue, and leave the debate to the (behavioral) political scientists to pursue.

8. The evidence often cited for this claim—that an average audit rate for individual tax returns in the United States of less than 1 percent combined with what we know about risk aversion from other contexts suggests that compliance should be much, much lower—is flawed. A wage or salary earner whose employer submits this information electronically to the Internal Revenue Service (as on W-2 forms or 1099s), but who does not report that income on his own personal return, will be flagged for further scrutiny with a probability much closer to 100 percent than to 1 percent. Looking exclusively at areas where there is no strong system of third-party reporting—as for the self-employed, or for unregulated asset classes—the rate of compliance is far lower, getting closer to the rational choice model's predictions.
9. The theory and evidence concerning reciprocal altruism is summarized in Ernst Fehr and Klaus Schmidt (2003).
10. Michele Bernasconi and Alberto Zanardi explore the implications of reference dependence (2002). James Alm, Betty Jackson, and Michael McKee discuss experimental evidence that is consistent with the outweighing explanation (1992; see also Yaniv 1999).
11. Dhimi and al-Nowaihi's numerical simulation exercises use parameters based on independent experimental evidence, but strain to explain why observed evasion is so low in light of an assumed probability of detection between 1 and 3 percent. As argued in endnote 8, however, the actual probability of detection for income subject to withholding and verifiable from third-party information returns is much higher than this, so that the expected utility model does not grossly under predict tax evasion of this kind of income, after all.
12. Michael Spicer and Lee Becker (1980) and Alm, Jackson, and McKee (1992) find support for this proposition. Frank Cowell reports on experiments that fail to find links between perceived inequities in the tax system and non-compliance (1990, 219). See also John Cullis and Alan Lewis (1997) and Robert Mason and Lyle Calvin (1984).
13. John Scholz and Mark Lubell, in an experimental setting, find that the level of cooperation in certain settings declines significantly when penalties are introduced, suggesting that the increased deterrence motivation did not compensate for the change in decision frame brought about by the penalties (2001).
14. Similarly, Lars Feld and Bruno Frey (2002) argue that to sustain citizens' commitment to the contract and therefore their morale, the tax authority must act respectfully toward citizens while at the same time protecting the honest from the free rider. It does this by giving taxpayers the benefit of the doubt when it finds a mistake, by sanctioning small violations more mildly, and by sanctioning large and basic violations (for example, the failure to file a return) more heavily.
15. Margaret Levi reminds us that military service is another important way that democratic governments are able to elicit both money and labor from

their populations in the face of tax evasion, draft evasion, and other forms of disobedience (1997).

16. Jennifer Arlen, Matthew Spitzer, and Eric Talley find some support for the idea that the endowment effect—the tendency to value goods more highly when one perceives an ownership of them—is lessened in the agency context familiar to the corporate world (2002).

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