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Behavioral Economics and Tax Policy  
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**ABSTRACT**

Behavioral economics is changing our understanding of how economic policy operates, including tax policy. In this paper, we consider some implications of behavioral economics for tax policy, such as how it changes our understanding of the welfare consequences of taxation, the relative desirability of using the tax system as a platform for policy implementation, and the role of taxes as an element of policy design. We do so by reviewing the logic of specific features of tax policy in light of recent findings in areas such as tax salience, program take-up, and fiscal stimulus.

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Rahm Emmanuel, the current White House Chief of Staff, has famously been quoted as saying that: “You don’t ever want a crisis to go to waste; it’s an opportunity to do important things that you would otherwise avoid” (Zeleny and Calmes, 2008). The recent crisis—the recession and the associated financial emergency—represents such an opportunity for a wide range of economic policies, including tax policy. This is true not just in some political or operational sense: as an opportunity to accomplish policies we would otherwise avoid. But also from a scientific perspective: as an opportunity to reconsider the intellectual foundations of economic policy in ways we might otherwise not be motivated or encouraged to do.

In this paper, we link this opportunity to rethink aspects of the standard economic approach to tax policy with a compelling cause for doing so. We argue that the implications of behavioral economics—the integration of economics and the psychology of preference formation and choice—for public policy, including tax policy, have yet to be systematically explored, and that this oversight leads to both mistaken policy and missed opportunity. Behavioral economists have now accumulated several decades of findings indicating that the standard economic assumptions about individual behavior are not accurate, that people do not act rationally, that they are not perfectly self-interested, and that they hold inconsistent preferences. Moreover, and especially in recent years, policy economists have increasingly come to see that these deviations from the standard assumptions about behavior matter for economic policy. The most celebrated example is the use of defaults in retirement savings: policies encouraging firms to automatically enroll their workers in 401(k) plans, rather than waiting for individuals to sign up on their own, seem to encourage participation and savings in those plans to an extent that is extremely difficult to rationalize under standard assumptions about preference and choice (Madrian and Shea, 2001).

Here we take up the question of how to think about incorporating results from behavioral economics into tax policy. Because a complete reconceptualization of tax policy from the ground up is beyond the scope of a single review paper, we take the approach of working through the implications of behavioral economics in a series of extended examples, from three distinct levels of analysis for tax policy: (1) understanding the welfare consequences of taxation; (2) using the tax system as a platform for policy implementation; and (3) employing taxes as an element of policy design.

*Welfare consequences.* Perhaps the central concern of tax policy, from the perspective of economics, is understanding how taxes matter for welfare in order to better design taxes that are maximally efficient and equitable. To do this, economists have developed models of deadweight loss and incidence. And based on these models, derived results for what optimal taxes look like—results along the lines of Mirlees (1971) for taxes on labor, and along the lines of Ramsey (1927) for commodity taxes. In applying these models to the practical matter of policy design, these results are often incorporated by way of rules of thumb for what “good” taxes look like: they are simple, they impose low rates on wide tax bases, they are imposed on relatively inelastic goods, and so on. Crucially, however, the underlying models that generate these results depend centrally on how individuals respond to taxation. In the standard model, the key factors for understanding both tax efficiency and tax incidence are elasticities. But elasticities are simply a parameterization of a behavioral response. And behavioral economics shows that how people respond to taxes is less straightforward than the standard model supposes. Imperfectly rational people will respond to taxes in a way that is mediated by psychology. In this paper, we review the case for rethinking tax simplicity.

*Platform for policy implementation.* For a number of reasons, both economic and practical, a wide variety of public policies operate through the tax system. So, for example, some transfer policies, like the Earned Income Tax Credit (EITC), are a part of the tax system. But other platforms are available. Transfers, for example, can be done as standalone programs such as the Temporary Assistance for Needy Families (TANF) program. Determining whether or when it is desirable to implement policy through the tax code depends in part on how individuals behave. That is, it depends not on how individuals respond to the taxes themselves, but how they interact with the features of the system in place for tax collection. The issue we discuss here is the attractive automaticity of the tax system.

*Element of policy design.* Taxes are one tool among many in the policymaker toolbox. So for example, in discussions of policy options for curbing carbon emissions, one tool policymakers can reach for is a carbon tax. In some sense, the core idea of using taxes as an element of policy design is that tax policy can be used to change behavior. And as behavioral economics has informed how economists understand individual behavior, it also informs how economists understand what levers are more or less effective for changing behavior. As a result, behavioral economics changes standard conclusions about the usefulness and effectiveness of taxes as elements of policy. We discuss this in the context of the problem of understanding how best to use taxes for fiscal stimulus.

## **Behavioral economics**

Before discussing the implications of behavioral economics for tax policy, though, a brief review of the relevant dimensions of behavioral economics is in order. The general contention of behavioral economics is that the usual assumptions made in economics about how individuals

form and express preferences—that they are perfectly rational, that they are perfectly self-interested, and so on—are not accurate representations of how individuals in fact think and choose. This is, in one respect, not especially revelatory. These are simplifying assumptions, used primarily for tractability in modeling and not intended as a real description of the world. They survive within economics not because they are necessarily true, but because they are useful.

But behavioral economics goes further than merely observing that these assumptions sometimes fail, in two respects. First, behavioral economics argues that the standard assumptions are so consistently violated as to be neither literally true nor useful as modeling assumptions. Second, that people violate those assumptions in identifiable and predictable ways. Psychologists and behavioral economists have collected a lot of evidence about the specific behavioral tendencies individuals exhibit, such as mental accounting, loss aversion, and hyperbolic discounting. For the purposes of thinking about tax policy, it is sufficient to understand these psychological insights aggregated at a relatively broad level, primarily in terms of the violations from the standard assumptions that they represent. At this level, there are two basic classes of deviations: individuals are imperfectly rational, and they hold non-standard preferences.

*Imperfect rationality.* Imperfect rationality captures the general finding that individuals are not especially good at choosing optimally. On the one hand, this is because individuals seem to find it hard to know what is optimal. They have only limited attention to devote to choice, leading them to be more like local than global optimizers. And they possess only limited computational capacity, meaning that they have trouble even optimizing at all. Mental accounting is an example of individuals failing to choose optimally in this way (Thaler, 1980). On the other hand, individuals are not effective optimizers because they seem to find it hard to

do what is optimal. They possess only bounded self-control, and can have difficulty realizing their intentions. Hyperbolic discounting is an example of individuals failing to behave optimally in this way (Laibson, 1997).

*Non-standard preferences.* The category of non-standard preferences captures the finding that individuals seem to have preferences that are inconsistent with even the weak assumptions standard economic models place on the form of preferences. That is, what individuals want is not what economists typically assume. One such result is the finding of other-regarding preferences. People are not always perfectly self-interested—they care about the welfare of others, and they care about fairness (Andreoni and Miller, 2002; Kahneman, Knetsch, and Thaler, 1986). Another such result is reference dependence. People appear to form preferences around reference points. Loss aversion is an example of such preferences (Kahneman and Tversky, 1979).

### **Rethinking tax simplicity**

The core of the economics of taxation is understanding the welfare effects of taxation. This dimension of the economics of taxation is concerned with generating results about how to raise revenue efficiently and fairly. This is done theoretically, in the optimal taxation literature, and from there leads to practical rules for tax policy design. With behavioral agents, these rules become somewhat less certain. Welfare results—both for efficiency and equity—depend on how individuals respond to taxes. Because the way in which imperfectly rational people respond to taxes will be mediated by psychology, results from behavioral economics will possibly change conclusions about optimal taxation in a wide variety of ways. Here we focus on the evidence and logic of one aspect of this, which is that behavioral economics leads to a rethinking of tax simplicity.

One of the practical design rules that comes out of standard welfare analysis of taxation is that, other things being equal and in very general terms, simplicity is a goal of tax policy. Partly this is because simplicity is associated with efficiency. Low tax rates on large bases, which are relatively efficient, are simple relative to taxes with lots of exceptions to the definition of income, which lead to smaller bases and higher rates. This conclusion also follows in part from the effects of complexity on the costs of tax compliance and administration. Complex tax codes are harder for people to comply with and more costly for authorities to administer. While there are often real benefits to many complicating features of the tax code that can be weighed against these costs, in general there is a tendency to view measures that complicate the tax code as more often the result of political motivations than economic ones.

Behavioral economics allows for behavioral responses to complexity that add nuance to, and may even in some cases overturn, this conclusion. While the traditional case for tax simplicity is indirect, related to achieving broad tax bases, or administrative, the behavioral approach suggests that the degree of simplicity directly enters the optimal tax calculation. There are at least three elements of this added nuance. First, complexity can affect behavioral responses to otherwise economically equivalent taxes. Second, complexity can be used as a screening mechanism to promote efficiency. Third, complexity may aid attainment of social goals.

*Complexity, behavioral response, and welfare.* Perhaps the major implication of behavioral economics for the welfare consequences of tax complexity comes from the fact that imperfectly rational individuals can no longer be assumed to perceive taxes correctly. Individuals will respond not to the tax rate as it is set, but as they construe it. The welfare consequences of this are not clear-cut. Moreover, it raises questions about whether policymakers could be improving welfare outcomes by deliberately manipulating tax salience, and how. Consider two



cases: salience effects, where consumers may fail to perceive complex or obscure taxes accurately or at all, and benefit taxes, where the welfare implications of taxation depend on consumers making the connection between taxes and the benefits they fund.

Evidence suggests that salience effects are present with respect to both commodity and labor taxes. In the case of commodity taxes, research has shown that some taxes are all but ignored by consumers. In one widely cited study, Chetty, Looney, and Kroft (forthcoming) show that individuals largely ignore sales taxes—taxes that are not ordinarily included in marked prices—on taxed items in a supermarket. A related piece of evidence comes from the work of Finkelstein (2009) who studies the effects of automated toll collection, finding that individuals pay less attention to tolls collected in this less salient manner. In the case of taxes on labor, emerging evidence finds that the behavioral response to income taxes is also muted by their complexity. Saez (2009) finds little evidence that taxpayers bunch at kink points in the income tax schedule, a result consistent with imperfectly rational taxpayers failing to accurately perceive a complex and opaque tax code. Additional evidence comes from Chetty and Saez (2009), who find a behavioral response to an intervention providing information about the EITC schedule, suggesting an imperfect understanding of the relevant tax schedule in the absence of the intervention.

Results such as these raise questions as to what optimal tax policy is or should be with respect to tax salience. To some extent, the degree to which taxes are salient is a choice variable for policymakers. For example, policymakers can set commodity taxes as sales taxes, which are typically not posted in the price the consumer sees, or they can set commodity taxes as excise taxes, which typically are. There is work that bears on this question, for example Slemrod and Kopczuk (2002) develop a model in which the government can affect the relevant elasticity. But

the theoretical literature has yet to yield the type of rules of thumb with respect to optimal tax salience that translate into practical policy recommendations. When policymakers can choose to keep some taxes hidden from consumers, this will keep the elasticity low, which, other things equal, is desirable for efficiency purpose. But with a binding budget constraint, spending too much on the good with a hidden tax will leave less income for subsequent purchases—distorting individual consumption and decreasing welfare. Resolving the net welfare consequences of tax salience is thus an important future line of research.

Complexity may possibly lead to positive welfare gains in the case of benefit taxes—such as the Social Security payroll tax or unemployment taxes—where the tax funds an identifiable benefit. The standard way of modeling the incidence and efficiency of taxes with this property is usually analogous to the welfare consequences of mandated benefits (Summers, 1989). In a behavioral world, however, it can no longer be assumed that merely implementing a benefit tax leads to a tax being perceived as such by those on whom it falls. So, for example, Liebman and Zeckhauser (2004) raise the possibility that imperfectly rational individuals may ignore the claim to Social Security benefits they accrue by paying the Social Security payroll tax, a behavior they memorably label as “ostriching.” In this case, complexity, at least a particular variety of tightly controlled complexity, can improve outcomes. Having a separate tax schedule and system does introduce inefficiencies. It doubles up on some administrative functions, and it leads to different definitions of income and tax bases. But this same complexity is also likely to be useful in getting individuals to connect, for example, Social Security taxes with Social Security benefits. Certainly, it seems that individuals in the current system are more likely to make that connection than under an alternative in which payroll taxes are folded in to the income tax. And by

promoting this connection to individuals, it likely makes them more apt to treat the tax as a mandated benefit.

*Complexity, screening and welfare.* A related but separate consideration appears in allowing for varying degrees of sophistication about tax complexity. Take the following example: social returns to education are high, and as a result a tax credit for education is desirable. Assume, however, that variation in the social return to education across individuals is correlated with their being savvy about tax complexity. To make the example simple, assume two types: one type has social return and is savvy, and the other type has only private return and is not savvy. With a simple tax credit, then everyone participates and the government subsidizes the type that only generates private return as well as the social return type. With a complicated credit, only the savvy respond, and the subsidy is provided only to those who generate a social return, improving the targeting efficiency of the subsidy.

*Complexity, social goals, and welfare.* Finally, complexity and imperfectly rational behavior can combine to create new opportunities for tax policy to achieve social goals. One situation where complexity can create such an opportunity is when the complexity of a tax leads individuals to respond to a tax in error, but that error leads individuals to respond in a way that fits with policymakers'—and possibly society's—preferences. For example, the result that the EITC strongly encourages work may be due in part to the fact that the EITC follows a complicated schedule, to which recipients can bring only limited attention and limited computational resources. What evidence is available does suggest that EITC eligible individuals do possess only imperfect knowledge of how the credit operates (Smeeding, Ross Phillips and O'Connor, 2000; Ross Phillips, 2001; Chetty and Saez, 2009). The evidence of the impact of the EITC on labor force participation and hours worked is consistent with a model in which

individuals only understand the work incentives of the EITC in some approximate sense. For instance, an increase in labor force participation with little effect on hours worked could be a result of workers understanding the average effects of the EITC on earnings but not the marginal effects—a variant of “schmeduling,” in the terminology of Liebman and Zeckhauser (2004). The key is to note that, while this is an error on the individual level, from society’s perspective, this may be thought of as desirable. It may even be possible to combine schmeduling with hidden taxes so that individuals respond in ways that incorporate income effects (from schmeduling) while reducing distortions from substitution effects (from hidden taxes).

Another opportunity created by behavioral economics for attaining social goals with complex tax policy comes about due to the ambiguous relationship of tax complexity to tax fairness. That is, from recognizing that there is a welfare component to taxation that is about preferences, rather than behavioral response. Behavioral economics stresses that individuals are not, in practice, perfectly self-interested. They care about the welfare of others and they care about the fairness of the process that generates outcomes. There are several implications for the relationship between complexity and welfare. The first is simply that the fairest tax code may not be the simplest. In that case, preferences for an equitable or fair tax system that may require some degree of complexity will compete with the costs of complexity. Another is that it likely matters for welfare results, more than is typically supposed, what people believe their taxes are being used for. Behavioral economics, in other words, may make the consideration of balanced budget incidence more crucial in judging the true incidence of taxes. In general, since the usual assumptions about preferences are difficult to justify, models and calculations of efficiency and incidence should be more careful about considering welfare effects of this nature.

Of course, many of the standard drawbacks of tax complexity still remain even in the presence of behavioral agents. And, in fact, there are some reasons to believe that tax complexity along some dimensions is even more costly with behavioral agents than with perfectly rational agents. The costs, for example, of compliance with a complex tax code are possibly much larger with imperfectly rational individuals. And complexity probably dooms the effectiveness of some desirable aspects of the tax code. For example, complex subsidies to retirement savings may not be effective, as in the case of the Savers' Credit (Duflo et al., 2006). Taken all together, behavioral economics does not so much suggest that tax simplicity is less or more desirable than in the standard model, so much as it changes and complicates the relationship between simplicity and welfare.

### **The attractive automaticity of the tax system**

Another dimension to tax policy is that the administrative apparatus that has been built to levy and collect taxes is often used in order to implement policies that sometimes have very little to do with taxes *per se*. Perhaps the clearest example of this is with transfer policies such as the EITC. Policies like the EITC are a near substitute for standalone transfer policies, such as TANF or food stamps. But the one is implemented through the tax system, and the others are not. The tax system is used for a variety of such purposes, from subsidizing higher education to encouraging particular forms of saving. On the one hand, such programs impose administrative challenges and monitoring costs on tax agencies, and add to compliance costs by further complicating an already burdensome tax problem. On the other hand, the marginal burdens—for tax administrators and benefit claimants alike—may be smaller when they are added to the tax system in this way rather than implemented as a separate program requiring its own

administrative devices and application and take up processes. This is the primary tradeoff in judging when implementing policies through the tax system is likely to be worthwhile relative to available alternatives. Behavioral economics changes the terms of this tradeoff, so that different conclusions might be reached about when it is appropriate to implement policy through the tax code and when it is not when the targets of such policies are imperfectly rational. One way in which the tax code becomes an even more attractive apparatus for implementing policy in a behavioral world is that it features an attractive automaticity.

The automaticity of implementing programs through the tax code comes from the structure of the existing tax system, especially the income tax system. Paying income taxes is nearly automatic, from the perspective of many individuals, due to features like tax withholding. And even settling taxes, as painful as that can be, is relatively automatic compared with other government programs: filing taxes is difficult, but not necessarily more difficult than is, say, applying for food stamps. In fact, filing taxes is in some respects easier and more automatic. For example, while the government requires that individuals are sent the documentation they need—W-2s, 1099s, and so forth—in order to file their taxes, an application for food stamps can require a paperwork burden that can be equally daunting, but individuals are largely left to collect their own documentation and records. Finally, while there are notable exceptions, the tax system is relatively distinct in that a robust and widespread network of third parties has arisen that make settlement even more automatic—either by selling filers simplifying software, or the service of preparing taxes outright.

The attractiveness of the automaticity of the tax system comes from the fact that accumulating evidence suggests that barriers to taking up programs, even minor barriers such as application costs or waiting times, can discourage program participation out of proportion to the

magnitude of the costs they impose (Bertrand, Mullainathan, and Shafir, 2006). That human frailties—procrastinating filing a form, or being put off by the tediousness or hassle of completing it, or failing to understand program rules—can lead qualifying individuals to forgo benefits. Moreover, there is a concern in such an environment that program non-participants are then not those who value the program the least but instead those who understood the rules the least or faced the biggest procrastination problem. Such barriers to take up may induce an unattractive selection in program participants. In some cases, such as transfer programs, those most put off by complex or burdensome program application requirements might be the very target population. As a result, this feature of the tax system, as it happens to exist, intersects with an element of policy design emphasized by behavioral findings. There are several examples of how policy can or might exploit that intersection.

*Transfers.* To continue with the example given above, policies that seek to redistribute or alleviate hardship can be operated either as standalone policies or as part of the tax code. At the broadest level, such policies can be thought of as part of the parameterization of redistribution in either case. However, in this paper, we only consider the administrative and implementation issues. To qualify for food stamps, in most cases individuals have to complete a cumbersome application process. To qualify for the EITC requires a marginal set of steps on a tax return that many qualifying individuals would file in any event. The take up rates reflect this difference: Estimates suggest that only about 67 percent of eligible individuals receive food stamps, while the EITC may reach as many as 94 percent of eligible households (Wolkwitz, 2008; Blumenthal, Erard, and Ho, 2005). This discrepancy and the causes for it should ideally inform discussions of how to administer such programs. Finally, note that while the main existing choices are between operating policies as part of the tax code or as standalone programs, an innovative third

option is being tested in a number of contexts that attempts to operate enrollment into such programs alongside the tax system. These promising experiments start from the observation that much of the information needed for determining eligibility for such programs is already contained on the tax return. Noting this, these experiments take the approach of taking information off of individual tax returns at the time of filing and using it to assist them in applying for existing programs, such as financial aid for college (Bettinger, Long, and Oreopoulos, 2009). There are ways that policy could further promote these efforts, such as by synchronizing the timing of the financial aid cycle in college admissions with the tax season.

*Savings.* Automatic features of the tax code can also be used to improve the implementation of policies that aim to encourage personal savings, including retirement savings. Many tax filers receive refunds, and a large and growing fraction elect to receive those refunds through direct deposit. When an individual files taxes, it is a relatively trivial portion of the process to specify where that refund will go. Policy can encourage directing all or a portion of refunds into accounts where they are likely to be saved rather than spent—Tufano, Schneider, and Beverly (2005) have called this a “savable moment.” One recent policy innovation to encourage this behavior has been the advent of split refunds. Since 2007, individuals have been able to split their refunds across multiple accounts, including savings accounts and IRAs. Evidence suggests that this policy might work to encourage saving (Beverly, Scheider, and Tufano, 2006).

*Health insurance.* Finally, consider the policy problem of expanding health insurance coverage. This is a clear example of a policy goal that, in itself, has little if anything to do with taxes. But looking at both recent and proposed reforms, it seems clear that efforts to expand health insurance coverage will consider seriously the possibility of interacting with the tax



system. Here, too, such policies can potentially make use of the automatic features of the tax system. Where increased coverage is pursued through the expansion of public programs, such as Medicaid, this could take the form of aligning in some ways the enrollment process with the tax filing process. For example, while approximately 21 percent of children eligible for Medicaid or SCHIP are estimated to be uninsured, roughly 90 percent of those children live in families that file a federal income tax return. Based on this, and the fact that the tax return already contains much of the information necessary to determine Medicaid eligibility, Stan Dorn and others have proposed methods for using the tax system to promote enrollment in these programs (2009).

Even where health insurance expansions are proposed to take the form of some kind of individual mandate, there are automatic features of the tax system that could be an integral part of making enrollment as easy as possible. The Massachusetts plan, for example, verifies its health insurance mandate through the state income tax return. A national plan could be modeled after the Massachusetts plan along these lines, yet go even further by modifying the tax form to collect health insurance status and then using this information to do automatic enrollment for free insurance (if determination can be made based on the previous year's income) and to proactively reach out to those eligible for subsidized insurance. And if tax returns were to shift to a return-free filing system in the future, data from insurers on who is covered could be matched with tax returns to calculate eligibility for free or subsidized insurance as the first step in automatic enrollment.

A national plan for health insurance coverage expansion could also leverage the tax system's collections infrastructure and facilitate enrollment by deducting estimated premiums through paycheck withholding, transferring those amounts to a health insurance connector to be applied to a policy of the individuals' choice. For instance, contributions could be collected

through withholding with the IRS sending pre-filled W4 forms to individuals allowing voluntary collection of their share of premiums. Our estimates, based on tabulations of the Current Population Survey, indicate that of the 45 million uninsured, as many as 29 million live in a family with someone who, at some point in the year, worked at a firm with 10 or more people. A tax-withholding based system that applied to such workers could thus conceivably facilitate enrollment of two-thirds of the uninsured in any given year.

### **Taxes and fiscal policy**

Finally, the use of taxes to achieve fiscal policy ends is a good, and timely, example of using taxes as a tool of policy. A goal of fiscal policy is to achieve macroeconomic stabilization—in the current crisis the task has been to stimulate the economy in the face of slack aggregate demand. Alternative forms of tax cuts for this purpose are judged against each other and against spending proposals according to the “bang for the buck” each is believed to deliver. And for this purpose, there exist a standard set of design rules of thumb for what a fiscal stimulus should look like—for example, that the timing of the stimulus should match the moment of slack demand. What behavioral economics adds to this analysis is to suggest that design rules at this level are, by themselves, insufficient for ensuring tax cuts are an effective stimulus. Because individuals are imperfectly rational, small changes in the way tax cuts are presented or delivered can affect how individuals respond. A literature evaluating these effects has generated some results.

*Framing tax cuts.* One lesson is that the framing of tax cuts can affect whether and when they are spent, and thus their stimulative impact. The results of experimental work by Epley, Mak, and Idson (2006) provide the primary piece of evidence that this is the case. The authors

find that tax cuts presented as a “bonus” might be more likely to be spent than tax cuts presented as a “rebate”. The authors interpret this as a result of reference dependence—that when individuals perceive the tax cut as a gain (a “bonus”) rather than as a foregone loss (a “rebate”), they are more likely to spend the tax cut.

*Delivering tax cuts.* Another lesson is that how tax cuts are delivered can affect whether and how they are spent. The most recent stimulus bill, for example, the American Recovery and Reinvestment Act of 2009, rather than providing a lump sum tax cut (either as a rebate or a bonus), delivered its primary tax cut in the form of reduced withholding. The idea being that tax cuts that reduce withholding might be more effective than lump sum rebates. This was based in part on past experiences that suggest a greater willingness to spend out of reduced withholding, such as shown in Shapiro and Slemrod (1995), which found a propensity to spend out of a reduction in withholding rates even in the absence of a change in the tax rate. Additionally, a recent laboratory experiment done by Chambers and Spencer (2008) found subjects were more likely to plan to spend a hypothetical tax cut delivered as many small payments rather than one delivered as a lump sum.

Finally, while not the focus here, note that deviations from the standard model of behavior have obvious implications for understanding the macroeconomics of policies such as these. Akerlof and Shiller (2009) provide an overview of the potential role of behavioral economics in macroeconomics and macroeconomic policy.

## **Conclusion**

While behavioral economics does not yet provide firm and detailed answers for how tax policy should best reflect the fact that individuals are not perfectly rational, it clearly raises

relevant and important questions. The available evidence, from economics and from psychology, both provokes doubt about some of the standard conclusions in tax policy and points the way to some tentative new conclusions. But the process of reconsidering those results in full, and the theoretical and empirical research that it ultimately requires, is just now beginning.

## References

- Akerlof, George A., and Robert J. Shiller. *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism*. Princeton, NJ: Princeton University Press, 2009.
- Andreoni, James and John H. Miller. “Giving According to GARP: An Experimental Test of the Consistency of Preferences for Altruism.” *Econometrica* 70 No. 2 (March, 2002): 737–53.
- Bertrand, Marianne, Sendhil Mullainathan, and Eldar Shafir, “Behavioral Economics and Marketing in Aid of Decision Making Among the Poor.” *Journal of Public Policy and Marketing* 25 No. 1 (Spring, 2006): 8–23.
- Bettinger, Eric, Bridget Terry Long, and Philip Oreopoulos. “Increasing Postsecondary Enrollment among Low-Income Families: A Project to Improve Access to College Information and Financial Aid: The FAFSA H&R Block Experiment.” Harvard University. Mimeo, 2009.
- Beverly, Sondra, Daniel Scheider, and Peter Tufano. “Splitting Tax Refunds and Building Savings: An Empirical Test.” In *Tax Policy and the Economy, Volume 20*, edited by James M. Poterba, 111–162. Cambridge, MA: National Bureau of Economic Research, 2006.

- Blumenthal, Marsha, Brian Erard, and Chih-Chin Ho. "Participation and Compliance with the Earned Income Tax Credit." *National Tax Journal* 58 No. 2 (June, 2005): 189–213.
- Chambers, Valrie, and Marilyn Spencer. "Does Changing the Timing of a Yearly Individual Tax Refund Change the Amount Spent vs. Saved?" *Journal of Economic Psychology* 29 No. 6 (December, 2008):856–62.
- Chetty, Raj, Adam Looney, and Kory Kroft. "Salience and Taxation: Theory and Evidence." *American Economic Review* (forthcoming).
- Chetty, Raj, and Emmanuel Saez. "Teaching the Tax Code: Earnings Responses to an Experiment with EITC Recipients." NBER Working Paper No. 14836. Cambridge, MA: National Bureau of Economic Research, April, 2009.
- Dorn, Stan, Bowen Garrett, Cynthia Perry, Lisa Clemans-Cope, and Aaron Luca. "Nine in Ten: Using the Tax System to Enroll Eligible, Uninsured Children into Medicaid and SCHIP." Urban Institute Working Paper. Washington, D.C.: Urban Institute, January, 2009.
- Duflo, Esther, William G. Gale, Jeffrey B. Liebman, Peter Orszag, and Emmanuel Saez. "Saving Incentives for Low and Middle Income Families: Evidence from a Field Experiment with H&R Block." *The Quarterly Journal of Economics* 121 No. 4 (November, 2006): 1311–46.
- Epley, Nicholas, Dennis Mak, and Lorraine Chen Idson. "Bonus or Rebate?: The Impact of Income Framing on Spending and Saving." *Journal of Behavioral Decision Making* 19 No. 3 (July, 2006): 213–27.
- Finkelstein, Amy. "E-Z Tax: Tax Salience and Tax Rates." *The Quarterly Journal of Economics* (forthcoming).

- Kahnemen, Daniel, Jack L. Knetsch, and Richard Thaler. "Fairness as a Constraint on Profit Seeking: Entitlements in the Market." *American Economic Review* 76 No. 4 (September, 1986): 728–41.
- Kahneman, Daniel, and Amos Tversky. "Prospect Theory: An Analysis of Decision under Risk." *Econometrica* 47 No. 2 (March, 1979): 263–91.
- Laibson, David. "Golden Eggs and Hyperbolic Discounting." *The Quarterly Journal of Economics* 112 No. 2 (May, 1997): 443–77.
- Liebman, Jeffrey B., and Richard J. Zeckhauser. "Schmeduling." Harvard University. Mimeo, 2004.
- Madrian, Brigitte C., and Dennis F. Shea. "The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior." *The Quarterly Journal of Economics* 116 No. 4 (November, 2001): 1149–87.
- Mirlees, James A. "An Exploration in the Theory of Optimal Income Taxation." *Review of Economic Studies* 38 No. 114 (April, 1971): 175 –208.
- Ramsey, Frank. "A Contribution to the Theory of Taxation." *Economic Journal* 37 No. 145 (March, 1927): 47–61.
- Ross Phillips, Katherin, "The Earned Income Tax Credit: Knowledge Is Money." *Political Science Quarterly* 116 No. 3 (Fall, 2001): 413–24.
- Saez, Emmanuel. "Do Tax Filers Bunch at Kink Points? Evidence, Elasticity Estimation, and Salience Effects." University of California at Berkeley. Mimeo, 2009.
- Shapiro, Matthew D. and Joel Slemrod. "Consumer Response to the Timing of Income: Evidence from a Change in Tax Withholding." *American Economic Review* 85 No. 1 (March, 1995): 274–83.

- Slemrod, Joel, and Wojciech Kopczuk. "The Optimal Elasticity of Taxable Income." *Journal of Public Economics* 84 No. 1 (April, 2002): 91–112.
- Smeeding, Timothy M., Katherin Ross Phillips, and Michael O'Connor. "The EITC: Expectation, Knowledge, Use, and Economic and Social Mobility." *National Tax Journal* 53 No. 4 (December, 2000): 1187–210.
- Summers, Lawrence H. "Some Simple Economics of Mandated Benefits." *American Economic Review*, 79 No. 2 (May, 1989): 177–83.
- Thaler, Richard H. "Toward a Positive Theory of Consumer Choice." *Journal of Economic Behavior and Organization* 1 No. 1 (March, 1980): 39–60.
- Tufano, Peter, Daniel Schneider, and Sondra Beverly. "Leveraging Tax Refunds to Encourage Saving." Retirement Security Project policy brief 2005-8. Washington, D.C.: Retirement Security Project, August, 2005.
- Wolkwitz, Kari. *Trends in Food Stamp Program Participation Rates: 2000–2006*. Washington, D.C.: Mathematica Policy Research, Inc., June 2008.
- Zeleny, Jeff, and Jackie Calmes. "Obama, Assembling Team, Turns to Economy." *The New York Times* (November 7, 2008): A1.