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ABSTRACT

The federal income tax code has become increasingly complex over time with the implication that many taxpayers no longer understand the connection between their life decisions and their taxes. Some commentators have suggested that increasing computational complexity may be attributable in part to the proliferation of tax preparation software that renders such complexity manageable at filing time, but otherwise does nothing to mitigate the “black box” nature of the tax system. While such complexity and opacity undercut explicit incentives embedded in the Code, make planning more difficult, and undermine political accountability for taxes, they may also reduce the inefficient distortion or deadweight loss of the income tax, particularly with respect to higher-income taxpayers.

This Article argues that technology represents a potential response to tax complexity and opacity as well as a contributing factor. It argues that tax planning software can and likely will be used to restore “functional transparency” to the Code, for good or bad, alerting taxpayers to explicit incentives, allowing taxpayers to easily determine the tax consequences of their life decisions, and providing a means for improving fiscal citizenship, but also highlighting tax burdens in such a way as to increase deadweight loss. This Article also makes the case for government provision of planning software targeted at lower-income taxpayers in order to level the planning playing field and improve the take-up of tax incentives by this population, while avoiding facilitating social welfare reducing tax planning by higher-income taxpayers.

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I. Introduction

It is well known that the federal income tax code has become increasingly complex over time with the implication that many taxpayers no longer understand the connection between their life decisions and their tax obligations. The tax code, it is sometimes said, now resembles a black box.¹ Some commentators argue that increasing computational complexity of the Code is attributable in part to the proliferation of tax preparation software.² The idea is that tax provisions requiring complex calculations, such as phase outs of deductions or credits or the alternative minimum tax, would have encountered fierce resistance in the past when most taxpayers filled out forms by hand, but now that most filers use tax preparation software such as TurboTax or employ professional preparers who use such software, this computational complexity is trivial and acceptable.³

The increasing complexity of the Code has pros and cons.⁴ On the positive side, a more complex tax system can increase accuracy in the sense of drawing sharper distinctions between taxpayers along relevant metrics, such as ability to pay. Plus, to the extent that complexity reduces the salience of income taxes or leads taxpayers to systematically underestimate their effective marginal tax rates (EMTRs),⁵ this complexity may reduce the inefficient distortion, known as excess burden or deadweight loss, that arises when taxpayers shift their behavior away from a taxed good or activity, in this case labor, to an untaxed activity, in this case leisure.

But there are a number of downsides to this complexity driven opacity.⁶ If the complexity leads taxpayers to systematically over-estimate their EMTRs, this feature would increase the inefficient distortion of the income tax. But even if increased opacity has the opposite effect of reducing excess burden, there are several negatives. The tax code contains many explicit incentives and subsidies. Incentives are less effective if taxpayers simply responding to prompts from TurboTax do not recognize them. Similarly, complexity and opacity increase the difficulty of factoring taxes into major life decisions, such as buying a house or having children. A more complex and opaque tax system may make it easier for Congress to obfuscate tax burdens and reduce political accountability for taxes. It is even possible that complexity and

¹ Zelenak (1040 book) ch. 2.

² Zelenak (1040 book) ch. 2.

³ Zelenak (1040 book) ch. 2.

⁴ *Infra* Part x.

⁵ I use EMTR to denote the actual impact of the next or last dollar of income on an individual's tax liability and to distinguish this from the statutory marginal tax rates (STRs) that are easily found from tax tables or online. STRs are sometimes referred to as tax brackets. As discussed *infra* Part x, EMTR is the appropriate tax rate for most decision making. Both EMTR and STR should be distinguished from the average tax rate (ATR), which is total tax divided by total income.

⁶ *Infra* Part x.

opacity could result in suboptimally large government through the “fiscal illusion” that taxes are lower than they are in actuality.

To be sure, whether these positive or negative effects of complexity and opacity are real or just theoretical depends on a number of factors.⁷ Do taxpayers respond to EMTRs, or to what they believe to be their EMTRs? Does salience of taxation affect behavior? Do taxpayers systematically under- or over-estimate EMTRs or are their errors random? How does/would increasing complexity affect these estimations and responses? There is a large literature on these questions, and they remain somewhat unresolved. In short, however, the evidence suggests that taxes do affect behavior, but salience matters, as one would expect. Taxpayers, particularly high-income taxpayers, appear to systematically underestimate EMTRs, and one would expect that the provisions of the Code that affect marginal rates, such as deduction phase outs, more often lead to under-estimation of EMTRs than the reverse. Thus, while there are many open empirical questions, it seems likely that today complexity and opacity result in a tradeoff between reduced excess burden of taxation, on the one hand, and impaired tax incentives, personal planning and optimization, and perhaps political accountability, on the other.

But need this be the case, and will this continue to be the case? While a number of commentators have argued that technology is a leading culprit in this story, this Article argues that technology will also provide the response – that technology can render the income tax black box functionally transparent and to some extent will do so whether so doing is in the overall interest of society, or not.⁸

This is the first academic article to look closely at tax *planning* software, as opposed to tax *preparation* software.⁹ At the extreme, the latter renders the tax system opaque by reducing the taxpayer to a clerk who simply inputs figures from various documents when queried by the software. Out pops a net tax amount owed or tax refund figure with little or no insight into how that amount was determined.¹⁰ Tax planning software, on the other hand, can be designed to allow taxpayers to easily run “what if” scenarios, adjusting inputs to determine the tax impact of various life decisions, such as starting a family, taking a higher paying job, sending a kid to college, etc. When integrated with preparation software, tax planning software could also be designed to alert taxpayers to various tax incentives, explaining, for example, that an earned income tax credit (EITC) recipient can take home more than a dollar from an increased dollar in wages, that education credits may be available for a child nearing

⁷ *Infra* Part x.

⁸ See *infra* Part x.

⁹ See *infra* Part x.

¹⁰ This is a bit of a caricature of tax preparation software. In reality, the realms of tax preparation and planning software overlap considerably. For example, both preparation and planning software serve an educative function but preparation software tends to do so in a generic fashion while planning software can better tailor advice and education to a particular taxpayer’s situation. See *infra* TAN x.

college age, or that charitable contributions will have no tax impact if the standard deduction will exceed a taxpayer's total itemized deductions.

The general idea here is that what is important is that taxpayers understand the impact that their life decisions will have on their tax burden, not that they understand the mechanics of, e.g., the earned income credit phase out. Throughout this article I refer to the ability to make connections between life decisions and tax as functional transparency.

Does tax planning software serve this function today?¹¹ Yes and no. Planning software currently marketed to individual taxpayers is too simplistic to create functional transparency. These products appear to serve as little more than marketing devices for the tax preparation software companies that provide them. However, the planning software marketed to professional preparers is generally much more sophisticated. The best products facilitate detailed "what if" scenario analysis and generate recommendations tailored to individual taxpayer situations. Combined with the knowledge and foresight of professional preparers, these products could create functional transparency. Somewhat surprisingly, however, the limited empirical evidence suggests that the taxpayer clients of professional preparers may be less knowledgeable about taxes than other taxpayers.¹²

For this and a number of other reasons, I am somewhat skeptical about the prospects for commercially available tax planning software. If enough high-income taxpayers see value in piercing through the black box, one would expect the promulgation of planning software aimed at individual taxpayers and that the use of planning software would expand more generally. But will the private goals and incentives driving these developments match public goals? Will commercially available products optimally highlight tax incentives? Will these products be available at a price affordable to low-income taxpayers? Will commercial tax planning software facilitate cheating? And, of course, even if commercially available tax planning software works perfectly, functional transparency undermines the potential positive impact that opacity has on reducing the excess burden of the income tax.

Indeed, there may be a case for government intervention in the tax planning software market, perhaps even for government provision of such software.¹³ Software could be designed to further the government's objectives in addition to furthering taxpayer objectives by, for example, highlighting explicit tax incentives incorporated in the Code. Ideally, this software would be targeted at taxpayers at the lower-end of the income spectrum in order to level the tax planning playing field

¹¹ See *infra* Part x.

¹² The proffered explanation is that some taxpayers who enlist professional preparers delegate tax compliance to these professionals and as a result have little grasp of the intricacies of taxation. See *infra* Part x.

¹³ See *infra* Part x.

between low- and high-income taxpayers, address the particular complexities associated with low-income tax situations, and avoid undermining the efficiency benefits of opacity at the high-end of the income spectrum.

Suppose, for example, that the federal government were to adopt a pre-populated tax return scheme for lower-income taxpayers along the lines of California's Ready Return experiment.¹⁴ While pre-populated returns would massively reduce compliance burdens, they would likely heighten the black box nature of the tax system for participants. Taxpayers taking advantage of pre-populated return filing could be offered simplified tax planning software – perhaps smartphone based – to help offset the increased black box effect, or such software could be provided to low-income taxpayers generally if these taxpayers were priced out of the commercial tax planning software market. Targeting government provided planning software at low- or low- to middle-income taxpayers would have the added bonus of not facilitating social welfare reducing planning by high-income taxpayers.

To be sure, even government provision of tax planning software would not necessarily resolve all of the issues arising from the increasing complexity and opacity of the Code. Would the mere availability of such software sufficiently address the political accountability, fiscal citizenship, and even personal planning concerns arising from opacity? Would it be a sufficient response to these concerns that taxpayers could readily associate their life decisions with their tax burdens, even if they did not choose or pay to do so?¹⁵

In my view, technology-driven responses to the increasing complexity and opacity of the Code are probably inevitable. The important questions are who gets to shape these responses – commercial concerns or the government – and what does the answer to that question mean for fairness, democracy, and efficiency?

The remainder of this article is organized as follows...

II. The Increasing Complexity and Opacity of the Federal Income Tax

There is widespread agreement that the federal income tax code has become increasingly complex over time and increasingly opaque to individual taxpayers.¹⁶ This Part will define the terms “complexity” and “opacity” as I intend to use them in

¹⁴ As discussed *infra* Part x, a taxing authority may “pre-populate” tax returns using data reported by third parties, such as wages, and distribute these returns to taxpayers who may sign and file the return or provide their own return instead.

¹⁵ These questions are asked in somewhat greater detail but are only provisionally answered *infra* Part x.

¹⁶ Whether the Code is too complex for the job is debatable. See Ruhl & Katz at 195. Ruhl & Katz also distinguish between a legal system being complicated, which the Code clearly is, and being complex in the sense of interdependence between its elements. As will be apparent, this Article uses complexity in its more general sense.

this Article and discuss their sources and growth. This Article focuses on the individual federal income tax. While the corporate income tax may also suffer from increasing complexity, I assume that corporations generally have the resources and incentives to deal with the complexity and do not experience the same pathologies as individual taxpayers. I may be wrong about that, but if so, that must be the subject of another article.

Complexity, it has been remarked, is complex.¹⁷ Tax complexity has been broken down into numerous subcategories.¹⁸ This Article is chiefly concerned with two types of complexity – computational complexity and planning complexity. In analyzing the take-up of the EITC, Jacob Goldin defines computational complexity as the difficulty of determining one’s eligibility for a tax benefit and the amount of that benefit and distinguishes computational complexity from informational complexity – the difficulty of acquiring the information needed to determine a tax benefit.¹⁹ Both of these types of complexity fall within a larger category known as compliance complexity, which may be distinguished from tax planning complexity – the cost or difficulty of arranging one’s affairs in response to tax rules.²⁰

The alternative minimum tax (AMT) has long been seen as the paradigm of computational complexity. Although the reach of this provision was significantly curtailed by the 2017 Tax Cuts and Jobs Act (TCJA), taxpayers potentially subject to the AMT must essentially calculate their taxes twice – once using the regular set of inclusions, exclusions, deductions, and tax rates and the second time using modified AMT inclusions, exclusions, deductions, and rates. Close behind the AMT as the poster children for computational complexity are the myriad phase outs in the Code of various deductions, credits, and exemptions.

All of this computational complexity increases the opacity of the tax code for individual filers and makes it more difficult to include tax consequences in one’s planning. Taxpayers may be aware of the EITC but not be aware of whether, given their income, they are eligible for the maximum credit, some fraction of the maximum, or no credit at all.²¹ Taxpayers on the cusp of the AMT may not know whether various

¹⁷ See, e.g., Tran-Nam at 242 (observing that “tax simplicity (and hence its mirror image, tax complexity) is itself a complicated notion”).

¹⁸ See, e.g., Thomas, *User Friendly*, at 1514 (surveying the literature and describing rule-based complexity, computational complexity, structural complexity, and compliance complexity).

¹⁹ Goldin, *EITC* at 74, 81.

²⁰ Goldin, *EITC*, at 73-74, n. 77.

²¹ The EITC is a refundable tax credit. The design includes a phase-in range across which recipients receive a credit equal to a percentage of earnings up to a maximum credit level, a plateau across which the credit – the maximum credit – does not vary with income, and a phase-out range across which the credit declines at a fixed percentage of income. The phase-in and phase-out percentages are a function of the

potential tax deductions for, e.g., state and local income taxes or real estate taxes, will reduce their ultimate tax liability. None of these taxpayers may have an accurate conception of their EMTR and the after-tax implications of marginal adjustments to income or various expenses.

Another closely related concept is tax salience. As Deborah Schenk describes, salience refers to the visibility or prominence of a tax provision.²² Tax provisions that are more salient economically have a greater effect on taxpayer behavior.²³ More computationally complex tax provisions are likely to be less salient.²⁴

It is, I believe, universally agreed that the tax code has become more computationally complex over time. Whether measured in terms of pages devoted to the federal income tax code and regulations or the amount of time expended in complying with the Code, complexity seems to rise inexorably.²⁵ To be sure, the

number of qualifying children in the household. See IRC §32; see also Goldin, EITC, at 63-66 (describing the design of the EITC).

²² Schenk, *Salience Bias*, at 254.

²³ Schenk, *Salience*, at 263. Gamage and Shanske refer to this type of salience as market salience.

²⁴ Schenk, *Salience*, at 263. Salience is related to the availability heuristic. According to the availability heuristic as described by Tversky and Kahneman, individuals tend to “assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind.” Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 *Sci.* 1124, 1127 (1974). One factor that affects availability is salience. *Id.* McCaffery suggests that complexity acts as a multiplier on the availability bias. McCaffery at 1926. For further discussion of the relationship between salience and the availability bias in the tax context, see Schenk, *Salience*, at 264.

²⁵ Andrew Lundeen, *A Lot Has Changed in the 27 Years Since the Last Major Tax Reform*, TAX FOUND. (Oct. 22, 2013), <https://taxfoundation.org/lot-has-changed-27-years-last-major-tax-reform/> (stating that between 1986-2013 the tax code has increased from less than 30,000 pages to over 70,000 pages); Annette Nellen & Jeffrey A. Porter, *30 Years After the Tax Reform Act: Still Aiming for a Better Tax System*, J. OF ACCOUNTANCY, (Oct. 1, 2016), <https://www.journalofaccountancy.com/issues/2016/oct/tax-reform-act.html#:~:text=Since%201986%2C%20Congress%20has%20made,6%2F11%2F12>). (referencing a press release from Sen. Max Baucus, then chair of the Senate Finance Committee stating between 1986-2012 “Congress made 15,000 changes to the tax code”); Scott Greenberg, *Federal Tax Laws and Regulations are now Over 10 Million Words Long*, TAX FOUND. (Oct. 8, 2015), <https://taxfoundation.org/federal-tax-laws-and-regulations-are-now-over-10-million-words-long> (stating “as of 2015, federal tax laws and regulations have grown to over 10 million words in length” and describing how the length has grown steadily over the past 60 years from 1.4 million in 1955); *Id.* (“Americans spend 6.1 billion hours and \$233.8 billion complying with the tax code.”).

recently enacted TCJA included some simplifying changes. By reducing the personal exemption amount to zero through 2025, the TCJA effectively suspended the phase out of personal exemptions.²⁶ The TCJA also suspended through 2025 the phase down of itemized deductions for high-income taxpayers²⁷ and, by doubling the standard deduction, dramatically reduced the number of taxpayers who will itemize. Finally, the TCJA raised the AMT exemption levels and exemption phase-out thresholds, drastically reducing the number of taxpayers potentially subject to the AMT.²⁸ Of course, only time will tell whether these reforms will stick. Moreover, the TCJA ushered in an incredibly complex set of provisions – the §199A qualified business income deduction – which is now available to a large number of individual taxpayers.

There are undoubtedly many reasons for the complexity of the Code.²⁹ Congress's propensity for locating social programs in the tax code through enactment of tax expenditures certainly adds complexity. Critics beginning with Stanley Surrey have lamented this use of the Code for a variety of reasons, including the resulting increase in complexity.³⁰ On this score, I share the view of Jacob Nussim and David Weisbach that tax expenditures are not inherently objectionable, and that the tax system may be the most appropriate means of administering certain social programs, such as the EITC, for example.³¹ But whatever one's take on that question, undoubtedly tax expenditures add complexity.³²

²⁶ IRC §151(d)(5).

²⁷ IRC §68(f).

²⁸ Eastman (Tax Foundation) at 8 (reporting that these AMT reforms are expected to reduce the number of taxpayers paying the AMT from 5 million to 200,000).

²⁹ In addition to Congress's propensity to situate social welfare programs in the tax code, Gale and Holtzblatt ascribe complexity to an unavoidable conflict between simplicity and fairness, to politics, and to the inherent complexity of the income tax base. Gale & Holtzblatt (2002) at 181-83.

³⁰ Stanley S. Surrey, Tax Incentives as a Device for Implementing Government Policy: A Comparison with Direct Government Expenditures, 83 Harv. L. Rev. 705, 731 (1970) (arguing that "the tax system is complex enough as it is, and to have a large number of tax incentives side by side with the provisions making up the structure of the tax itself can only cause confusion and a blurring of concepts and objectives"). Surrey described a number of other disadvantages of tax expenditures including the "upside down" effect of subsidies framed as tax deductions as these are worth more to high-income individuals in high tax brackets than they are to low-income individuals who are in low brackets or who do not pay tax at all. *Id.* at 720-24.

³¹ David A. Weisbach & Jacob Nussim, The Integration of Tax and Spending Programs, 113 Yale L.J. 955 (2004).

³² THOMAS L. HUNGERFORD, CONG. RSCH. SERV., RL 33641, TAX EXPENDITURES: TRENDS AND CRITIQUES 13 (2006). While many tax expenditure provisions arguably are appropriately situated in the Code, most tax expenditures include phase-out provisions that increase complexity. These phase outs are justified as limiting benefits to low-income taxpayers, but as Daniel Shaviro has argued, this justification

Larry Zelenak has argued that there may be a link between technology and computational complexity.³³ His idea, as noted in the introduction, is that technology has reduced the cost to taxpayers of complying with complex tax provisions, which has made such provisions more palatable, and made it easier for Congress to enact complex provisions. I do not know whether this is a testable hypothesis, but it strikes me as plausible.

However, while TurboTax and other tax preparation software products have reduced the cost of complying with complex provisions – have reduced computational complexity – they have done little to address opacity and planning complexity. Taxpayers preparing their taxes on their own may simply input data on income and expenses following software prompts and easily arrive at a net tax amount owed or to be refunded, but this sort of blind use of tax preparation software renders the process a black box. A taxpayer using these tools would not necessarily know, for example, whether her various expenses actually reduced her taxes or by how much. To be sure, modern tax preparation software marketed to individuals typically includes tax tips that serve an educative function, but as discussed below, these are unlikely to produce much transparency. Tax preparation software also reduces the compliance cost of taxpayers who enlist professional preparers, but again, this use of software is unlikely to illuminate the black box.

Another technological innovation – pre-populated return generation – shares these properties – reducing compliance costs but increasing or failing to reduce opacity in the face of complex tax provisions. California experimented with pre-populated return filing, known as Ready Return, in 2004 and 2005.³⁴ Taking advantage of the prevalence of third-party reporting of wage and salary income, California sent pre-populated state income tax returns to 50,000 taxpayers with the simplest tax situations based on prior years' returns.³⁵ The recipients were free to sign and file the pre-populated return or submit their own return instead. The program was successful by most metrics with participation exceeding projections and satisfaction ratings in the high 90s.³⁶ Today, elements of Ready Return are incorporated in California's CalFile electronic tax filing system, but Ready Return has

is flawed in the sense that a better, more efficient policy would be to eschew phase outs and adjust statutory marginal tax rates accordingly. See Daniel Shaviro, *Minimum Wage*, at 408-09. See also Zelenak, *Complex Tax Legislation*, at 113-16. Of course, if adjusting statutory rates is politically impossible, tax expenditures with phase outs may be better than no tax expenditures at all. See Shaviro at 409-10; Zelenak at 114-15.

³³ Lawrence Zelenak, *Complex Tax Legislation in the TurboTax Era*, 1 COLUM. J. TAX L. 91 (2010).

³⁴ Bankman, *Using Tech*, at 783.

³⁵ Bankman, *Using Tech*, at 783.

³⁶ Bankman, *Using Tech*, at 784.

not achieved its promise, due in large part to opposition from the providers of tax preparation software.³⁷

Despite the current setback, given increasing third-party reporting and advances in technology, one can imagine a future in which pre-populated returns are an option for a large number of taxpayers. Some of these taxpayers will put in the time and effort to understand their tax situation and determine whether the pre-populated return is correct. But others are likely to simply sign and file the pre-populated return. For these taxpayers, compliance costs will be vanishingly small, but the tax system will likely be a complete black box yielding high planning complexity.

Looking further ahead, Joshua Blank and Leigh Osofsky envision a day in which artificial intelligence (AI) has developed to such a degree that taxes may be calculated automatically even for individuals with complex tax situations, obviously reducing compliance costs, but with the result that “the public stops understanding what the law is.”³⁸ As with pre-populated return filing, in Blank and Osofsky’s world of return-free compliance, computational complexity is likely high but the costs of managing that complexity are minimal. Planning complexity, however, would seem to continue to be significant.

III. The Pros and Cons of Increased Complexity and Opacity

While some will simply bleat “complexity bad, simplicity good”, in reality complexity is more complex than that. There are benefits as well as costs to tax complexity, which are explored in this Part. The primary benefit has to do with improving the efficiency of the income tax. Thus, this Part begins with a brief introduction to efficiency analysis of income tax provisions and an exploration of taxpayer responsiveness to taxation, before considering the pros and cons of complexity and opacity, per se.

³⁷ See Bankman, Nass & Slemrod at 481 (noting that elements of Ready Return were consolidated into CalFile in 2014); Joseph Bankman, *Point & Counterpoint: Simplified Filing Would be a Boon for All Taxpayers, Not Just those who File the Simplest Returns, and Would Save Substantially on Filing Costs*, 34 ABA: POINT & COUNTERPOINT (Aug. 26, 2016), [https://www.americanbar.org/groups/taxation/publications/abataxtimes_home/16aug/16aug-pcp-bankman-maule-perspectives-on-two-proposals-for-filing-tax-simplification/\(discussing Intuit’s opposition to ReadyReturn and other similar systems\)](https://www.americanbar.org/groups/taxation/publications/abataxtimes_home/16aug/16aug-pcp-bankman-maule-perspectives-on-two-proposals-for-filing-tax-simplification/(discussing%20Intuit's%20opposition%20to%20ReadyReturn%20and%20other%20similar%20systems)); Joseph Bankman, *Simple Filing for Average Citizens the California ReadyReturn*, 107 TAX NOTES 1431, 1434 (2005) (discussing the tax preparation business’s opposition to ReadyReturn).

³⁸ Blank & Osofsky, ALG, at 9.

A. Efficiency of the Labor Income Tax³⁹

Taxes affect behavior. Most obviously, an individual who has \$100 of income before tax will consume or save differently depending on whether she faces a tax of zero, \$20 or \$40, because taxes affect her wealth. But this “income” effect of taxation is unavoidable if society is to fund public goods, and it is a function of the amount of tax raised, not the method. In a revenue neutral analysis, e.g., we extract \$20 of tax and return \$20 in public goods, the income effect falls away. Thus, efficiency analysis of taxation focuses not on the income effect of taxation but on a second effect – the “substitution” effect.⁴⁰

The substitution effect refers to the change in behavior resulting from differential taxation. For example, our income tax taxes returns to labor (and savings) but not our enjoyment of leisure. As a result, we work less and “consume” more leisure under a labor income tax than we would in a no tax world. This makes sense; we are all maximizing our utility given the tax system we face, but this distortion in consumption patterns (not amount) reduces our aggregate utility beyond that simply associated with the income effect of taxation. We would, taxes aside, prefer to work a little more and recreate a little less, but the tax on wages distorts that choice. Economists refer to this additional loss of utility resulting from the distortion in behavior as the excess burden of taxation or deadweight loss.⁴¹

Consider a uniform lump sum or head tax. Such a tax produces an income effect but no substitution effect because the tax is essentially unavoidable.⁴² It can be avoided only by dying or expatriating. If we take these two options off the table, a lump sum tax does not distort taxpayer behavior beyond the change arising from the income effect. Thus, a lump sum tax is an efficient tax that creates no excess burden. Of course, a lump sum tax is also patently unjust as it totally ignores an individual’s ability to pay taxes. Real world taxes that are based on measures of income, consumption, or wealth, are fairer in that regard, but because they are by definition not uniform, they inevitably create substitution effects and excess burden. In this decidedly second-best world, the efficiency goal is to minimize the distortion and excess burden for a given amount of revenue raised.⁴³

³⁹ See generally, Harvey S. Rosen, *Public Finance*; Joseph E. Stiglitz, *Economics of the Public Sector*. For helpful and concise discussions of efficiency analysis of taxation, see Nussim, *Confuse and Protect*, at 234-37; Weisbach, *Line Drawing*, at 1650-55.

⁴⁰ Weisbach, *Line Drawing*, at 1653-54, Nussim, *Confuse*, at 235.

⁴¹ Weisbach, *Line Drawing*, at 1651 (“The deadweight loss of the tax is the loss in value to consumers in excess of the revenue raised by the government.”)

⁴² Nussim, *Confuse*, at 236.

⁴³ Nussim, *Confuse*, at 237; Weisbach, *Line Drawing*, at 1653. Obviously, there are other considerations in selecting or designing tax schemes including compliance costs incurred by taxpayers and enforcement costs incurred by taxing authorities. These add to the total deadweight loss of taxation.

Under an income tax, the primary distortion that we are concerned about is along the labor/leisure front and the degree of distortion or excess burden in theory is a function of the marginal tax rate – the tax on the next or last dollar earned by the taxpayer – because it is the marginal rate that determines the relative after-tax value of labor and leisure and the distortions in behavior that arise from taxing the one but not the other.⁴⁴ Importantly, however, the relationship between the marginal rate and excess burden is not linear; excess burden increases with the square of the tax rate.⁴⁵

B. Do Taxpayers Understand and Respond to Taxation?

The forgoing all makes sense in theory. But does it reflect reality? Do taxpayers understand and respond to the economic incentives created by taxation? Are distortions real? Because if taxpayer behavior is not distorted in actuality, taxes don't create inefficiencies. But the evidence suggests that while taxpayers don't respond to taxes as perfectly informed rational economic actors, taxes do distort behavior.

The primary distortion we would expect from a labor income tax is to labor supply. Increasing taxes on labor should result in less work and more leisure. Economists capture the effect of taxes on labor supply by measuring labor supply elasticity – the effect of taxes on employment rates and hours worked.⁴⁶ However, historically, studies have found fairly low labor supply elasticities along the intensive margin (hours worked), suggesting that hours worked are not terribly sensitive to tax rates.⁴⁷ Of course, there are many possible explanations for this finding. Perhaps,

⁴⁴ Note again that I use the term “effective marginal tax rate” in this article to refer to a taxpayer's actual marginal rate taking into account phase-in and phase-out provisions and similar adjustments and to distinguish this rate from statutory marginal rates or tax brackets.

⁴⁵ Weisbach, Line Drawing, at 1651; Feldstein, Tax Avoidance and Deadweight Loss, at 678, n.15. It is difficult to explain exactly why deadweight loss is a function of the square of the tax rate, and the concept is generally demonstrated graphically using demand curves. Deadweight loss is the area of a right triangle under a downward sloping demand curve with height equal to the amount of tax imposed and base equal to the reduction in quantity demanded given the tax. If the tax is raised by an increment t' , there is an increase in both the height and base of the deadweight loss triangle. Since the area of a right triangle is equal to $(b \times h)/2$, and both b and h increase with t , deadweight loss increases with t^2 . See Weisbach, Line Drawing, for an example of the graphical depiction of deadweight loss.

⁴⁶ Chetty (2012) at 971-72. The effect of taxes on employment rates is known as the extensive margin elasticity and the effect on hours worked by those employed is known as the intensive margin elasticity. *Id.*

⁴⁷ Saez, Slemrod & Giertz (SSG) at 3-4 (“the profession has settled on a value for this elasticity close to zero for prime-age males, although for married women the responsiveness of labor force participation appears to be significant”).

incentives to keep one's job or to be promoted have more to do with labor supply than tax rates. Raj Chetty has suggested that various frictions could explain low labor supply elasticities.⁴⁸ Or perhaps taxes affect labor supply but over a longer time horizon than can be captured in empirical studies.⁴⁹

In an important paper, however, Martin Feldstein argued that focusing on labor supply alone is too narrow a perspective and that all responses to taxes should be considered in evaluating the deadweight loss of taxation.⁵⁰ Feldstein found, and later work confirms, that elasticities of taxable income (ETI) to tax are significantly larger than labor supply elasticities.⁵¹ For example, if taxpayers increase charitable contributions or contributions to retirement plans as tax rates increase, these distortions would be reflected in measures of ETI, but not in labor supply. Emmanuel Saez, Joel Slemrod, and Seth Giertz caution that some ETI may simply reflect time shifting (my retirement funding example) or entity shifting (from individual to corporate form, for example) which represent tax-induced distortions but not of the type that create significant deadweight losses.⁵²

Other researchers have explored whether taxpayers respond to more discrete tax incentives created by "kinks" in the income tax schedule. The federal income tax system includes numerous kinks – points at which the marginal tax rate changes abruptly – such as the point at which marginal income goes from being taxed at a zero rate to being taxed at a 10% rate, or the point at which an EITC eligible worker's income subsidy is capped.⁵³ In theory, if taxpayers are both aware of the details of the tax schedule and respond to these details by, for example, adjusting their labor supply, these kinks in the tax schedule should result in taxpayers reporting income that is bunched at the kinks.⁵⁴

In a 2010 paper, however, Emmanuel Saez finds very little evidence of bunching at kinks in the federal income tax.⁵⁵ He finds some bunching at the first kink in the EITC schedule, the income level at which the EITC reaches its maximum level, and some bunching at the first income tax bracket kink (the point at which the 10%

⁴⁸ Chetty (2012)

⁴⁹ Kaplow, *Theory of Taxation and Public Economics* 87-89 (2008).

⁵⁰ Feldstein, *Tax Avoidance and Deadweight Loss* (1999).

⁵¹ *Id.*; SSG at 42 (the best available estimates of ETI range from 0.12 to 0.40).

⁵² SSG at 10.

⁵³ Depending on whether an EITC recipient has qualified children and the number, her EMTR increases by between 7.65 and 45 percentage points at the point at which the credit is maximized.

⁵⁴ Raj Chetty and co-authors provide the following quote in explaining the rationale for the expectation of bunching at a large MTR kink point in the Danish tax system: "By the end of November, some of my colleagues stop working. It does not pay anymore because they have reached the high tax bracket." Chetty et al (2011) at 760, n.12.

⁵⁵ Saez (2010).

rate kicks in) but little evidence of bunching otherwise.⁵⁶ Moreover, he speculates that the bunching at the first EITC kink may reflect mis-reporting of income (i.e., cheating) rather than an actual impact on labor supply.⁵⁷ On the other hand, Raj Chetty and colleagues do find substantial bunching at a very significant kink in the Danish income tax schedule.⁵⁸ Saez speculates that the differences in outcomes of the two studies may have to do with the relative simplicity of the Danish tax system and the greater economic significance of the Danish tax kink.⁵⁹

Finally, there is survey and experimental evidence shedding limited light on taxpayer understanding of (but not responsiveness to) tax rate schedules. The bottom line is that most taxpayers lack a solid grasp on their EMTRs and, while some studies find over-estimation, most studies find under-estimation, particularly for high-income taxpayers. In survey evidence reported in 1988, Fujii and Hawley found that of the 65% of subjects who reported an estimated EMTR, on average these respondents underestimated their EMTRs by about 3% points,⁶⁰ a result that the authors characterized as evidence that taxpayers know their EMTRs (glass half full),⁶¹ and which Emmanuel Saez characterized as evidence that taxpayers don't know their EMTRs or report them with substantial error (glass half empty).⁶² In 1995, Rupert and Fischer provided survey evidence suggesting both over- and under-estimation of EMTRs based on a population of mostly low- and middle-income taxpayers.⁶³ More recently, in 2015, Gideon tested taxpayer perception of their statutory marginal rates and found that low-income taxpayers tended to over-estimate their STRs, while high-income taxpayers tended to under-estimate.⁶⁴ However, EMTRs for both groups of taxpayers are likely to be less than STRs given numerous deduction and credit phase outs.⁶⁵

Several studies find that taxpayers frequently employ average rates in decision making instead of marginal rates. Because ATRs are lower than MTRs in a progressive system, this error is essentially equivalent to under-estimation of

⁵⁶ Saez (2010) at 181.

⁵⁷ Most of the bunching at the first EITC kink is associated with self-employed workers whose income is not verified by third party reporting. Saez (2010) at 193.

⁵⁸ Chetty et al (2011) at 751.

⁵⁹ Saez (2010) at 182 (noting that the threshold for the top Danish income tax bracket is uniform for all individuals and that Danish taxes are based on individual (not family) income).

⁶⁰ Fujii & Hawley at 346.

⁶¹ Fujii & Hawley at 346-47.

⁶² Saez (2010) at 182.

⁶³ Timothy J. Rupert & Carol M. Fischer, *An Empirical Investigation of Taxpayer Awareness of Marginal Tax Rates*, 17 J. OF AM. TAX ASS'N 36 (1995).

⁶⁴ See Michael Gideon, *Do Individuals Perceive Income Tax Rates Correctly*, 45 PUB. FIN. REV. 97, 99 (2017).

⁶⁵ See *infra* TAN x.

MTRs.⁶⁶ In 1995 de Bartolme reported experimental evidence that subjects presented with a tax table that highlighted average rates but not marginal rates tended to use ATRs in decision making.⁶⁷ Subjects presented with a tax schedule that highlighted marginal rates did not make the same error.⁶⁸ Of course, today only about 10% of taxpayers file returns without assistance and use the tables or worksheets provided by the IRS. In a 2005 working paper, Feldman and Katuscak also found evidence, based on survey data, that taxpayers tend to use ATRs in place of MTRs, a result that the authors attributed to the complexity of the Code.⁶⁹

In an intriguing experiment reported in 2003, Rupert, Single and Wright found that subjects failed to adjust their estimates of their MTRs for floors and phase outs of deductions and credits and thus tended to underestimate their EMTRs.⁷⁰ Subjects presented with less complex adjustments to STRs made smaller errors than those presented with more complex adjustments.⁷¹

To be sure, several of these studies are quite old. On the other hand, the Code is more complex and opaque today, which does not bode well for the level of current taxpayer understanding and use of marginal tax rates. As further discussed below, the factors that make the Code computationally complex tend to reduce EMTRs below STRs, generally resulting in underestimation of EMTRs.

In sum, it is clear that taxpayers respond to taxes. Elasticities of taxable income to tax rates are significant and deadweight loss from differential taxation is real. The accuracy of taxpayer perception of marginal rates and the speed and degree of responsiveness to changes in marginal rates remain somewhat open questions.

C. Positive Aspects of the Complexity and Opacity of the Federal Income Tax

With that brief primer on efficiency of taxation and equally brief review of evidence regarding taxpayer understanding of and responsiveness to taxes, we now consider how the complexity of the federal income tax could actually increase social welfare.

1. Increased Accuracy

First, a more complex tax system can support a more accurate tax system that makes finer gradations between taxpayers based on relevant metrics, such as ability to pay. As Louis Kaplow describes, a more accurate tax system improves the

⁶⁶ Offsetting this effect to some degree is survey evidence suggesting that taxpayers systematically over-estimate ATRs. See Ballard & Gupta (2018).

⁶⁷ de Bartolme (1995) at 80.

⁶⁸ de Bartolme (1995) at 80.

⁶⁹ Feldman & Katuscak (2005) at 2.

⁷⁰ Rupert et al (2003) at 73.

⁷¹ Rupert et al (2003) at 79.

distribution of the tax burden making it “more likely that high-income individuals pay high taxes and low-income individuals pay low taxes.”⁷² Compare, for example, a lump sum head tax to even a rudimentary wage tax. The latter is more complex, and while still far from perfect, obviously better recognizes ability to pay.

But Kaplow focuses on another benefit of improving accuracy, which is that a more accurate tax is more efficient.⁷³ Because excess burden is a function of the square of the tax rate, errors in determining income that result in a higher tax rate cause greater increases in distortion and excess burden than is avoided by errors that result in a lower rate.⁷⁴ Random errors, in other words, do not even out. As a result, increasing accuracy reduces aggregate excess burden.⁷⁵ This result holds, Kaplow notes, as long as taxpayers are aware of mismeasurement and act accordingly.⁷⁶

The accuracy theme has been repeated in more recent commentary that focuses on the potential for AI to disrupt tax design and assessment. The idea here is that AI-based tools will eventually be able to quickly and inexpensively answer all tax questions incorporating all relevant tax materials – the Code, regulations, other written guidance, and caselaw.⁷⁷ Commentators suggest that such technology could be used to generate optimal tax rules that yield greater revenue with minimal distortions.⁷⁸ While the underlying tax rules would be extremely complex and perhaps even individualized, the directives to taxpayers, e.g., pay \$X, would be simple.⁷⁹

2. Reduced Deadweight Loss

Of course, this AI-based tax system would be opaque, which leads to consideration of the potential benefits of complex *and opaque* tax provisions. In short, such provisions can reduce the excess burden of the income tax if they lead taxpayers to either ignore taxes in their decision making, or to consider taxes in their decision making but to underestimate their EMTRs.

One approach to a tax system that is a complete black box is to pay one’s taxes when due but to ignore taxes in decision making. While ignoring taxes in decision making would have obvious drawbacks, which are considered in the following

⁷² Kaplow, Accuracy, at 62.

⁷³ Kaplow, Accuracy, at 63.

⁷⁴ Kaplow, Accuracy, at 63.

⁷⁵ Suppose, for example, that the accurate tax for each of two taxpayers is 10. Deadweight loss would be a function of 2×10^2 or 200. Suppose instead that one taxpayer is taxed at 8 and the other at 12. The total DWL in this scenario is a function of 8^2 plus 12^2 , which is 208.

⁷⁶ Kaplow, Accuracy, at 63.

⁷⁷ Casey & Niblett, Death of Rules, at 1419; Alarie, Path of Law, at 443.

⁷⁸ Casey & Niblett, Death of Rules, at 1419; Alarie, Path of Law, at 443.

⁷⁹ Casey & Niblett, Death of Rules, at 1419; Alarie, Path of Law, at 443.

sections, doing so would reduce or eliminate the inefficient distortions that arise when individuals respond to taxes.⁸⁰

There is some evidence that individuals respond less to hidden or low-salience taxes. For example, Chetty, Looney, and Kroft conducted an experiment in which certain products in stores were labelled with sales tax inclusive prices while labels on other products did not include sales taxes.⁸¹ Although consumers had an accurate understanding of sales taxes in the abstract,⁸² they reduced purchases of sales tax inclusive labelled goods relative to goods that lacked such labels.⁸³ The authors attributed this result not to information, but to salience and bounded rationality,⁸⁴ an effect that Brian Galle refers to as “cognitive loafing.”⁸⁵ Chetty, Looney, and Kroft also found in a separate study reported in the same paper that increases in beer excise taxes, which are included in posted prices, more greatly reduced demand for beer than did increases in beer sales taxes, which were not posted at the shelf but only added at checkout.⁸⁶ Similarly, Amy Finklestein found that the introduction of automated highway toll collection such as EZ Pass led to higher tolls, presumably because the elimination of toll collection at toll booths reduced drivers’ awareness of tolls or the salience of these tolls.⁸⁷

Commentators generally agree that low-salience taxes can be used to improve the efficiency of taxation by reducing distortions and deadweight loss.⁸⁸ It seems unlikely, of course, that individuals would totally ignore the federal income tax. But this isn’t what’s required for salience to matter. Individuals may be fully aware of the income tax, but if the complexity and opacity of the Code reduce the salience of the tax at the time that these individuals make life decisions, that reduction in salience could lead to smaller distortions and deadweight loss.⁸⁹

Relatedly, Deborah Schenk argues that while the federal income tax is salient, in the sense of being prominent, distortions in behavior and deadweight loss may be limited if as a result of complexity and opacity individuals underestimate their

⁸⁰ Goolsbee, TurboTax, at 20.

⁸¹ Chetty et al (2009).

⁸² The authors surveyed shoppers about sales tax rates and found that the median subject correctly answered seven of eight questions about the taxable status of goods. Chetty et al (2009) at 1165.

⁸³ Chetty et al (2009) at 1146.

⁸⁴ Chetty et al (2009) at 1147.

⁸⁵ Galle at 75.

⁸⁶ Chetty et al (2009) at 1146.

⁸⁷ Finklestein at 969.

⁸⁸ Galle, at 112; Gamage & Shanske, at 60; Schenk, at 255.

⁸⁹ This situation would mirror Chetty et al’s findings regarding sales tax salience. Shoppers were well aware of sales tax rules and rates but nonetheless responded differently when their attention was called to them in the shopping aisle. Chetty et al at 1146.

EMTRs.⁹⁰ As discussed above, the limited survey evidence suggests that many taxpayers do not have an accurate understanding of their EMTRs and tend to underestimate, if anything.⁹¹ But this evidence is somewhat dated and limited, so let us return to theory.

To the extent that taxpayers make an effort to understand their tax situation, would complexity tend to lead taxpayers to under- or over-estimate their EMTRs? One cannot be sure without more evidence, but two factors suggest that increasing complexity would be associated with under-estimation and thus with reduced distortion and deadweight loss, at least for middle to high-income taxpayers. The first factor is the proliferation of deduction and credit phase outs and floors on various deductions under the regular income tax.

In recent years,⁹² numerous regular tax deductions and credits have been phased out (or down) with income, including the EITC,⁹³ personal exemptions,⁹⁴ itemized deductions,⁹⁵ the dependent care credit,⁹⁶ the child tax credit,⁹⁷ the adoption credit,⁹⁸ the making work pay credit,⁹⁹ and various education¹⁰⁰ and retirement¹⁰¹ deductions and credits.¹⁰² The phase out of a deduction or credit increases a taxpayer's EMTR above the statutory rate otherwise applicable. Suppose, for example, that certain taxpayers are entitled to a \$10,000 credit for some

⁹⁰ Schenk at 273, 283. But Schenk adds that “the conclusion that a low-salience income tax provision is efficiency-enhancing is not sufficiently robust to be the sole support for intentionally exploiting the salience bias.” *Id.* at 284.

⁹¹ See *supra* TAN x-y.

⁹² As Zelenak notes, although “phase-outs became a significant feature of the income tax in the 1980s,” “the most dramatic growth in phase-outs occurred” in the 1990s. Zelenak (2010) at 106.

⁹³ IRC §32.

⁹⁴ IRC §151(d). Suspended until 2025.

⁹⁵ IRC §68. Suspended until 2025.

⁹⁶ IRC §21.

⁹⁷ IRC §24.

⁹⁸ IRC §23.

⁹⁹ In place in 2009 and 2010. See Congressional Research Service, *Withholding of Income Taxes and the Making Work Pay Tax Credit*, https://www.everycrsreport.com/files/20130130_R40969_0e50564ebded07e5b21af3f38e80928bdfc21714.pdf.

¹⁰⁰ These include the American Opportunity and Lifetime Learning Credits (§25A), the deduction for qualified tuition and related expenses (§222), the deduction for interest on education loans (§221), and the deduction for contributions to Coverdell Education Savings Accounts (§530).

¹⁰¹ These include the so-called “saver’s credit” (§25B), and deductible contributions to traditional and Roth IRAs (§§219 & 408A).

¹⁰² For a snapshot of current phase out provisions of the IRC, see Tax Policy Center Briefing Book, *How Do Phaseouts of Tax Provisions Affect Taxpayers?* (May 2020).

expenditure if their adjusted gross income (AGI) does not exceed \$100,000, but that the credit phases down at a rate of 20c for each dollar of AGI in excess of \$100,000, being reduced to zero for taxpayers with AGI of \$150,000. Also suppose that the statutory MTR applicable to all of these taxpayers is 25%.¹⁰³ Within the phase-out range, for each additional dollar of income, taxpayers will lose 20c of their credit in addition to facing a tax of 25c. Thus, the EMTR in the phase-out range will be 45%.¹⁰⁴ Taxpayers in this situation who focus on the statutory rate (the posted price, if you will), will under-estimate their actual EMTR, potentially reducing distortions in their supply of labor relative to the distortions that would occur under a fully transparent tax scheme.

Floors placed on various deductions have a similar impact on EMTRs. Medical and dental expenses, for example, are deductible only to the extent that their aggregate amount exceeds 10% of a taxpayer's AGI.¹⁰⁵ Suppose a taxpayer has AGI of \$100,000 and medical expenses of \$15,000. \$5000 of medical expenses would be deductible.¹⁰⁶ But for each additional dollar of gross income, the taxpayer will lose ten cents of her deduction for medical expenses because of the ten-cent increase in the floor. As a result, her EMTR will be 10% above the statutory rate.¹⁰⁷ Again, if a taxpayer focuses on her statutory rate but is subject to a floor on deductions, she will underestimate her EMTR.

¹⁰³ Most floors and phase outs in the Code are based on some measure of adjusted gross income, which is gross income less a certain set of specified deductions. See, e.g., IRC §213(a) (setting a floor on deductibility of medical expenses at 10% of AGI); IRC §32(a) (phasing out the EITC based on a percentage of AGI in excess of a threshold).

¹⁰⁴ Because the phase out here is of a credit, the credit phase-out percentage and the statutory MTR can simply be added to calculate an EMTR.

¹⁰⁵ IRC §213. Other deductions subject to floors include miscellaneous itemized deductions and casualty losses. Miscellaneous itemized deductions, including unreimbursed business expenses of employees, are allowed only to the extent that their aggregate exceeds 2% of AGI. IRC §67(a). However, the deduction for miscellaneous itemized deductions is completely suspended through 2025. §67(g). Deductions for net personal casualty losses of individuals are allowed only to the extent that their aggregate exceeds 10% of AGI. IRC §165(h). Through 2025, deductions for casualty losses are generally limited to losses from federally declared disasters. §165(h)(5).

¹⁰⁶ Because the floor on the deduction would be 10% of \$100,000, or \$10,000.

¹⁰⁷ To keep things simple, suppose in this example that the taxpayer's statutory and average tax rates are 25% and that medical expenses are the taxpayer's only itemized deductions. (These simplifications do not affect the analysis.) At AGI of \$100,000, taxable income would be \$95,000 (\$100,000 - \$5000 deduction after the 10% of AGI floor), and tax would be \$23,750. At AGI of \$100,001, taxable income would be \$95,001.10 (\$100,001 - \$4999.90 deduction after the 10% of AGI floor), and tax would be \$23,750.275. In other words, a \$1 increase in gross income increases tax by 27.5 cents for a 27.5% EMTR, 10% higher than the 25% STR.

Moving beyond the regular income tax, a second factor that in recent years has tended to result in EMTRs in excess of statutory rates is the alternative minimum tax (AMT). Prior to the enactment of the TCJA, over 5 million U.S. taxpayers paid the AMT.¹⁰⁸ The AMT is essentially a second tax system incorporating a broader base, large exemptions, and nominally lower tax rates. But because the AMT exemption amounts phase out for higher-income taxpayers, EMTRs under the AMT are often higher than statutory rates. The Tax Policy Center reported that about 77% of households subject to the AMT faced a higher EMTR in 2015 than they would have faced under the regular income tax.¹⁰⁹ As Burman, Gale and Rohaly note, the idea that the AMT broadens the base and reduces rates is, or was, a myth.¹¹⁰

As a result of these provisions, middle and upper income taxpayers whose EMTRs differ from their STRs more often face an EMTR that exceeds their STR, rather than the reverse.¹¹¹ And for these taxpayers it seems likely that complexity and opacity lead to under-estimation of EMTRs, on average, and to reduced labor supply distortions.¹¹² In other words, the under-estimation of EMTR would mitigate the

¹⁰⁸ Shuldiner (2018) at 498. The TCJA reduced the reach of the AMT to about 200,000 taxpayers in 2018, but the changes are due to expire at the end of 2025. Barring further legislative action, the old AMT rules will be restored in 2026 and the provision is estimated to affect 6.7 million taxpayers in 2026. Tax Policy Center, Briefing Book, Key Elements of the U.S. Tax System, AMT, What is the AMT? <https://www.taxpolicycenter.org/briefing-book/what-amt>.

¹⁰⁹ Tax Policy Center, Should the AMT Replace the Regular Income Tax? at 2. See also Altshuler & Goldin at 335 (using the Urban-Brookings Tax Policy Center Microsimulation Model and estimating that 80% of AMT-paying taxpayers faced an EMTR in excess of their STR for 2009).

¹¹⁰ Burman et al (Tax Notes 2003) at 115.

¹¹¹ Using 2010 IRS Statistics of Income data, Sherlock estimates that 42.5% of taxpayers in the 25% bracket faced an EMTR above their STR and only 1.8% below; that 54% of taxpayers in the 28% bracket faced a higher EMTR and only 1% a lower; and that 76.8% of taxpayers in the 33% bracket faced a higher EMTR and 9.6% a lower. To be sure, because very high-income taxpayers would have fully passed through the AMT exemption phase out, only 3.6% of taxpayers in the 35% bracket faced an EMTR in excess of STR in 2010, while 45.5% faced a lower EMTR. However, fewer than 1% of taxpayers were in the 35% bracket in 2010. Note also that, like today, the personal exemption and itemized deduction phase outs were not in place in 2010. Sherlock at 32.

¹¹² An important set of provisions of the TCJA complicates this picture somewhat. Newly enacted §199A provides a 20% deduction for the qualified business income of certain taxpayers. For taxpayers entitled to the full deduction, this provision effectively reduces EMTRs by 20% of the STR. A taxpayer who was unaware of this provision and focused on the STR would over-estimate EMTR and potentially over supply labor, all else equal. However, the §199A deduction phases out with income. Section 199A eligible taxpayers within the phase-out range can face EMTRs well in

reduction in labor supply that would follow if high-income individuals understood their actual EMTRs and acted accordingly.

For lower-income individuals the picture is somewhat more complex. First, it is not only high-income taxpayers who experience EMTRs in excess of statutory rates and who would under-estimate their EMTRs if they focused on the latter. Lower-income individuals often face exceptionally high EMTRs as a result of a confluence of phase outs. For example, examining 2010 data, Sherlock finds that 20% of taxpayers in the 10% statutory bracket faced an EMTR at least 10% points higher.¹¹³ In other words, for these taxpayers, EMTRs are twice statutory rates, or more.

But two factors run in the other direction for lower-income taxpayers. First, tax expenditures sometimes incorporate phase-in provisions that create wage subsidies across a significant income range for low-income taxpayers. Consider the EITC. The EITC phase in reduces EMTRs in a fashion analogous to the increase in EMTR that flows from the phase out. For example, the EITC phases in at a 34% rate for taxpayers with one qualifying child.¹¹⁴ Within the phase-in range, these taxpayers receive a credit of 34 cents for every additional dollar earned. Most of these EITC recipients face a zero statutory rate and thus an EMTR of negative 34% once the EITC phase in is factored in.¹¹⁵ Some recipients face a 10% statutory rate and a negative 24% EMTR with the EITC phase in. Individuals who fail to consider the EITC phase in might over-estimate their EMTR and work less than they would if their EMTR were transparent. In this case complexity and opacity amplify the distortions of the labor income tax.¹¹⁶

In addition, some studies have found that the tax rate that is most salient for individuals is the highest statutory rate.¹¹⁷ If low-income individuals make labor supply decisions based on this rate rather than their lower statutory or even EMTR, they will again under-supply labor amplifying the distortion of the income tax. This is less of a problem for high-income taxpayers whose income places them in or near the highest bracket to begin with.

excess of STRs. In these situations, of course, a taxpayer focused on her STR would under-estimate EMTR and potentially under supply labor. See Libin Zhang, *Marginal Income Tax Rates of the Passthrough Business Deduction*, Tax Notes, May 21, 2018 at 1139 (estimating that in the §199A phase-out range, EMTRs in 2018 can exceed 60%).¹¹³ Sherlock at 13. See also Altig et al (2020) (taking into account phase outs of non-tax benefits as well as phase outs under state and federal tax law and finding that one in four low-income workers faced EMTRs in excess of 70%).

¹¹⁴ IRC §32(b).

¹¹⁵ Likely as a result of the EITC phase in, Sherlock finds that 44% of taxpayers in the 0% bracket in 2010 faced a negative EMTR. Sherlock at 32.

¹¹⁶ Similarly, the refundable portion of the Child Tax Credit phases in at a 15% rate for taxpayers with earned income above \$3000. See IRC § 24(d).

¹¹⁷ Edward J. McCaffery, *Cognitive Theory and Tax*, 41 UCLA L. REV. 1861, 1887 (1994).

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In sum, although the evidence that taxpayers tend to under-estimate their EMTRs is less than fully robust, it is consistent with the observation that the complicated phase outs of deductions, credits, and AMT exemptions are more likely to result in under-estimation than the reverse, at least for middle to high-income taxpayers. To the extent that taxpayers respond to these lower perceived EMTRs, complexity and opacity likely reduce distortions and excess burden. In this sense, complexity and opacity serve to increase social welfare.

3. Deterred Cheating and Welfare-Reducing Planning

Transparency facilitates tax planning and certainly not all tax planning is welfare enhancing. Indeed, David Weisbach argues that tax planning is worse than worthless.¹¹⁸ Tax planning, in his view, is equivalent to taxpayers doing backflips to reduce taxes.¹¹⁹ If everyone does backflips, the revenue raised from each taxpayer must be unaffected in equilibrium.¹²⁰ The only difference, before and after, is all the backflips. If only some taxpayers do backflips, these taxpayers impose externalities on those that abstain.¹²¹ While there are certainly exceptions, which even Weisbach notes, there is truth to his observation.¹²² Given a fixed revenue requirement, a taxpayer's expenditure of time and energy to reduce her taxes is socially wasteful. And whatever one thinks about "good" tax planning, some tax planning, equating to evasion or cheating, clearly is socially wasteful.

If transparency facilitates planning (including cheating) by laying out a roadmap for technical compliance or reported compliance, as some have argued,¹²³ then complexity and opacity deter planning. Consider the EITC. An EITC recipient's credit is maximized when her earned income reaches a certain threshold. That threshold is an inflation adjusted figure that depends on whether the taxpayer has qualifying children and, if so, the number of qualifying children.¹²⁴ Given the annual

¹¹⁸ Weisbach (Ten Truths) at 222.

¹¹⁹ Weisbach (Ten Truths) at 222.

¹²⁰ Weisbach (Ten Truths) at 223 ("Holding government spending constant, everyone's taxes are exactly the same with and without the backflip shelter, except that with the backflip, nominal taxes are higher and then are reduced by the tax gymnastics.").

¹²¹ Weisbach (Ten Truths) at 223 (viewing tax planning by some as an externality imposed on others).

¹²² Weisbach (Ten Truths) at 224 (recognizing that changes in behavior intended to satisfy explicit tax incentives may be socially valuable). See also, Viswanathan (arguing that low-income tax planning is often efficient).

¹²³ See, e.g., Casey & Niblett at 1420 ("If the law provides a clear rule and the regulated individual would prefer to circumvent that rule, then certainty provides a road map for avoidance").

¹²⁴ IRC §32.

inflation adjustments, the threshold is a moving target. Suppose a taxpayer with non-wage income (and a less than finely tuned moral compass) decides that she would like to report income equal to the threshold in order to maximize her tax credit.¹²⁵ If the threshold were a fixed, transparent, round number amount widely understood within the community, doing so would be fairly easy. But it is much more difficult to hit an obscure moving target. In fact, if one Googles “EITC” or “EITC maximum credit” one can quickly learn the maximum credit for a given year and the income level at which the credit completely phases out, but not the income level associated with achieving the maximum credit.¹²⁶ One has to work very hard, I found, to uncover this critical bit of information.

D. Negative Aspects of Increasing Tax Complexity and Opacity

Complexity can support a more accurate tax system and complexity and opacity can work to mitigate labor supply distortions and deadweight loss if taxpayers systematically under-estimate EMTRs and deter, or at least not promote cheating. But there are many countervailing costs. First, as noted above, if individuals systematically over-estimate EMTRs, this would amplify labor supply distortions and increase deadweight loss. This scenario seems unlikely for high-income individuals, but possible for low-income individuals in the EITC phase-in range. But even assuming systematic under-estimation of EMTR across the board and reduction of deadweight loss, there are a number of potentially offsetting negative factors.

1. Suboptimal Decision Making

Tax complexity and opacity could lead to suboptimal decision making. Most obviously, systematic under-estimation of EMTRs may lead to individuals working more than they would if fully and accurately informed. This may be personally suboptimal, but obviously this is just the flip side of reduced labor supply distortion, which we view as a plus. But more generally, complexity and opacity impede basic tax planning and decision making that no one would find objectionable. A taxpayer who is unaware of phase outs and under-estimates her EMTR may sock away less of her earnings in qualified retirement vehicles or give less of her money to charity than she would if she understood that the after-tax cost of these decisions was much less than she anticipated. A taxpayer on the cusp of the AMT may be unable to determine the tax benefit associated with various expenditures, such as the property taxes she would pay if she purchased a home.¹²⁷ Other opaque limitations on deductions or credits may result in taxpayers making suboptimally large expenditures on, for

¹²⁵ Given third party reporting of W-2 wage income to the IRS, taxpayers reporting W-2 wages only have no real scope for mis-reporting their income for EITC purposes.

¹²⁶ EITC Maximum Credit, Google, <http://google.com> (search for EITC Maximum Credit and open the first several links).

¹²⁷ See, e.g., Zelenak (2010) at 103.

example, higher education or home improvements, without realizing that the purported tax benefits are limited or largely illusory.¹²⁸

2. Ineffective Tax Incentives

Many of the most complex tax provisions faced by individuals involve explicit tax incentives or subsidies that Congress has elected to implement through the income tax. These incentives and subsidies include the EITC, education credits, and retirement savings incentives.¹²⁹ As Larry Zelenak notes, tax incentives are less effective if taxpayers don't recognize them.¹³⁰ The sheer number of incentives, their individual complexities, and the interplay between them¹³¹ undermine taxpayer recognition, understanding, and take-up. Commentators have recognized the tension between the general goals of reducing behavioral distortions and increasing the efficiency of the income tax, on the one hand, and promoting the goals underlying these tax expenditures, on the other. For example, Jacob Goldin has remarked that raising awareness of the EITC creates a tradeoff between improving the effectiveness of the incentive and facilitating individual optimization and minimizing deadweight loss.¹³²

¹²⁸ Tax complexity and opacity could also potentially lead to suboptimal budgeting and consumption choices if individuals who under-estimate their EMTRs also under-estimate their aggregate tax burden. This possibility has received considerable attention in the context of low-salience consumption taxes. Chetty et al (2009) at 1173-74; Gamage & Shanske at 66-68; Nussim at 242. Chetty, Looney, and Kroft provide an example in which a consumer purchases a certain car, unaware of a tax on the car purchase which will leave insufficient funds for necessities. Chetty et al (2009) at 1174 (noting that the effect of inattention depends on how the consumer adjusts her budget in light of the tax, whether the consumer is credit constrained, etc.). Other commentators have questioned the significance of this distortionary income effect, however, and have argued that it is less likely to arise from misperception of income tax rates. Gamage & Shanske at 67-68 (arguing that given taxpayer learning these distortionary income effects are of limited importance unless low-salience taxes affect irregular expenditures and there are long delays between purchase and assessment of tax); Nussim at 254 (arguing that the potential drawbacks of misperceived consumption taxes generally do not apply to wage taxes given, inter alia, taxpayers' ability to learn and respond to non-transparent taxation). Accurate withholding would seem to resolve budgeting problems even in the face of complexity and opacity. I thank Leigh Osofsky for this observation.

¹²⁹ See *supra* TAN x.

¹³⁰ Zelenak (2010) at 103.

¹³¹ To provide just one example, consider the interplay between the §21 dependent care credit and the §129 exclusion for employer provided dependent care. The maximum amount creditable under §21 is reduced by any exclusion under §129.

¹³² Goldin (EITC) at 106. The EITC creates a tension because it includes a phase-out provision that increases EMTRs and reduces work incentives as well as a phase-in provision with the opposite effect. See §32(a)&(b).

3. Undermined Political Accountability and Fiscal Citizenship

The complexity and opacity of the Code enables Congress to purposefully obfuscate tax burdens, reduces political accountability, and undermines fiscal citizenship. While it is often difficult to glean congressional motives from complex tax provisions, sometimes it isn't. Although temporarily in abeyance, the poster children for purposeful obfuscation of tax rates has to be the phase outs of personal exemptions and itemized deductions.¹³³ The two are roughly similar in apparent intent and effect, so we will consider only the phase out of personal exemptions.

A deduction for personal exemptions – a set amount each year based on the number of individuals in the filing unit – has been a feature of the income tax since 1913.¹³⁴ Since 1985, the personal exemption amount for each member of the filing unit has been indexed for inflation,¹³⁵ reaching \$4,050 prior to the enactment of the TCJA.¹³⁶ Between 1988 and 2009 and again between 2013 and 2017, the personal exemption amount was phased down or out for high-income taxpayers.¹³⁷ Why? There is no plausible reason other than as a hidden or low-salience means of raising additional tax revenue from this population of taxpayers. The highest statutory MTR has high political salience.¹³⁸ It is this number that citizens generally focus upon in considering whether “taxes” are too high, too low, or about right, and, of course, a significant fraction of the population generally believes the answer to be “too high.” Thus, it is no surprise that a means of raising additional tax revenue from taxpayers in the highest bracket, without adjusting that bracket, would be a means of avoiding political accountability for taxes and a particularly popular option for policy makers. And that is just what Congress has done, repeatedly, by phasing out personal exemptions and itemized deductions.

How might complexity facilitate this move? If one can imagine a truly simple tax system focused on measuring income and including no tax expenditures, the

¹³³ Technically, §68 phases down itemized deductions to a floor equal to 20% of itemized deductions before the phase down and was not truly a phase out. However, I will refer to both as phase-out provisions for simplicity.

¹³⁴ <https://www.taxpolicycenter.org/briefing-book/what-are-personal-exemptions>

¹³⁵ Stephen J. Entin, *Tax Indexing Turns 30*, TAX FOUNDATION n.30 (Mar. 11, 2015), <https://taxfoundation.org/tax-indexing-turns-30/>.

¹³⁶ Rev. Proc. 2016-55, 2016-45 I.R.B. 707 (providing inflation adjusted figures for tax years beginning in 2017).

¹³⁷ During some years the phase out was in effect, there were limits to the amount of reduction. For a detailed explanation *see* IRS, TABLE 23, U.S. INDIVIDUAL INCOME TAX: PERSONAL EXEMPTIONS AND LOWEST AND HIGHEST TAX BRACKET TAX RATES AND TAX BASE FOR REGULAR TAX, TAX YEARS 1913-2015 (Sept. 18, 2015), <https://www.irs.gov/statistics/soi-tax-stats-historical-table-23>.

¹³⁸ McCaffery refers to the highest rate bracket as being “socially prominent” and argues this prominence places constraints on legislators. McCaffery at 1887, 1905.

enactment of phase outs of personal exemptions or itemized deductions would likely be a fairly transparent end run around statutory rate increases and for that reason might never have happened. But given an already complicated Code with numerous phase outs of tax expenditure deductions and credits, the addition of two more phase outs may have seemed less exceptional and notable.

The personal exemption and itemized deduction phase outs are examples of purposeful obfuscation that both benefit from and increase tax complexity and reduce political accountability. But tax complexity may undermine fiscal citizenship even when the effect is unintended. In his excellent book, *Learning to Love Form 1040: Two Cheers for the Return-Based Mass Income Tax*, Larry Zelenak defends our broadly applicable, return-based tax system against critics such as Michael Graetz, who would prefer to return the income tax to its roots as a tax on high-income individuals only.¹³⁹ Zelenak's defense is based primarily on fiscal citizenship and the idea that the process of filing taxes encourages citizens to think more deeply about the tax system and about the fiscal state more generally. Excessive complexity undermines fiscal citizenship, in Zelenak's view. "Taxation without comprehension," he argues, "is inimical to fiscal citizenship."¹⁴⁰

4. The Leviathan and Fiscal Illusion Problems

Related to the forgoing, some commentators argue that complexity and opacity, particularly when remedied by black box software, may lead to suboptimally large government. The idea here is that if taxpayers don't comprehend their liability, if taxes are low salience, and if compliance is relatively painless; and if public goods are more salient, taxpayers may support a larger government providing more services than they would if all were transparent and clearly understood.¹⁴¹

These arguments stem from the Leviathan hypothesis and the theory of fiscal illusion. As Edward McCaffery describes,

¹³⁹ Zelenak (1040) (reacting to Graetz's 2008 book titled, *100 Million Unnecessary Returns, A Simple, Fair, and Competitive Tax Plan for the United States*).

¹⁴⁰ Interestingly, Zelenak is fan of pre-populated return systems, such as California's Ready Return experiment. In his view, the minimal requirement that citizens at least sign and return pre-populated returns is sufficient to engender fiscal citizenship.

¹⁴¹ Milton Friedman publicly regretted his role in the introduction of the Federal income tax withholding system during WWII. In Friedman's view, the withholding system made the income tax less visible and more acceptable, leading to growth in government. See Milton Friedman & Rose D. Friedman, *Two Lucky People: Memoirs* 123 (1998). See also, PRESIDENT'S ADVISORY PANEL ON FEDERAL TAX REFORM, PUBLIC MEETING 119 (May 17, 2005) (statement of Grover G. Norquist, President, Americans for Tax Reform) ("[M]oving to a so-called return-free system will reduce people's understanding of what exactly they're paying and their [reduced] focus on it will make it easier to raise taxes.").

The basic idea of the Leviathan hypothesis is that governments, or any bureaucracy generally, continually expand. It is as if a government were a living organism.... Fiscal illusion is a more specific theory that holds that individuals are likely to exaggerate the benefits and underestimate the costs of certain large public projects or public goods generally.... Taxes add to and enrich the basic fiscal illusion/Leviathan story. Any degree of hiddenness in a tax structure plays directly into the prominence aspects of the fiscal illusion effect.¹⁴²

While this fiscal illusion/Leviathan theory of the size of government is possible, Galle notes that evidence supporting this story is inconclusive.¹⁴³ David Gamage and Darien Shanske argue that there is no baseline for determining whether the political salience of taxes is too high or low and thus that we can draw no useful conclusions about whether any relationship between tax salience and the size of government is socially valuable or costly, assuming that such a linkage exists at all.¹⁴⁴

5. Impact on Taxpayer Autonomy, Rights to Transparency, and Fairness

Related to the problem of impaired decision making, but broader, is a concern that complexity and opacity undermine taxpayer autonomy. McCaffery, for one, questions the purposeful use of cognitive error, such as employing low-salience taxes, even in pursuit of noble, liberal goals.¹⁴⁵ Joshua Blank and Leigh Osofsky note that the IRS has adopted a taxpayer bill of rights, which includes a right to be informed and a right to clear explanation of tax laws and IRS procedures.¹⁴⁶ In contemplating a world in which technology may allow the production of tax returns with little or no input from taxpayers, Blank and Osofsky worry that “the public stops understanding what the law is,” which seems to run counter to the right to be informed.¹⁴⁷

Finally, opacity and complexity will often lead to outcomes for taxpayers that many will view as unfair. If taxpayers make expenditures that they reasonably expect will provide tax benefits, perhaps in response to specific incentives created by Congress, but later learn that the tax benefit was subject to an opaque limitation and thus was reduced or eliminated, this simply seems unfair.¹⁴⁸

¹⁴² McCaffery at 1927-28 (citations omitted). Finkelstein traces the theory of fiscal illusion to John Stuart Mill and notes the importance of James Buchanan’s work in this area. Finkelstein at 970.

¹⁴³ Galle at 98.

¹⁴⁴ Gamage & Shanske at 79.

¹⁴⁵ McCaffery at 1943.

¹⁴⁶ Blank & Osofsky (2017) at 199; Blank & Osofsky (2020) at 16.

¹⁴⁷ Blank & Osofsky (2020) at 9.

¹⁴⁸ This situation can arise even with relatively straightforward code provisions. Itemized deductions, for example, provide tax benefits only to the extent that they exceed the standard deduction, in aggregate. Thus, taxpayers who donate used vehicles to charity in response to advertisements touting tax benefits and later find

E. Weighing the Pros and Cons and of Tax Complexity and Opacity

In terms of overall social welfare, complexity and opacity of the Code likely result in a tradeoff between reduced excess burden, on the one hand, and individual losses due to suboptimization and perhaps impeded political accountability, on the other. Commentators vary in their assessment of the net impact on social welfare.

For example, Gamage and Shanske argue that reducing the economic or “market” salience of taxes is socially valuable because the reduction in distortions and deadweight loss is a first order effect while income effects, externalities, and distributional effects are second order.¹⁴⁹ With respect to political salience, Gamage and Shanske are agnostic, emphasizing that there is no coherent baseline for determining the optimal political salience of taxes.¹⁵⁰ To be sure, Gamage and Shanske focus on salience, not complexity, and the additional downsides of complexity might suggest a different result for them.

Galle concludes that the social welfare effects of hidden taxes are indeterminate and that the answer depends, at least in part, on the mechanism through which taxes are hidden.¹⁵¹ Again, there is not one to one correspondence between complex taxes and hidden taxes, but significant overlap. Schenk cautiously supports exploitation of low-salience taxes, primarily on political economy grounds.¹⁵² She is somewhat more cautious about the use of complexity to reduce salience given other costs to complexity.¹⁵³

Zelenak, on the other hand, tends to focus on the downsides of complexity, in particular, the adverse impact on fiscal citizenship.¹⁵⁴ McCaffery, as noted above, has expressed discomfort with purposeful exploitation of cognitive error, i.e., exploitation of complex and low-salience taxes, on both practical and moral grounds.¹⁵⁵

that the tax benefit is small or nonexistent may feel aggrieved. See Faulhaber, *Hypersalience*. However, as long as the tax rules are straightforward and easily accessible, sympathy will likely be limited. Once the complexity of the rules and interplay of rules creates a high degree of opacity, fairness arguments seem more compelling.

¹⁴⁹ Gamage & Shanske at 60.

¹⁵⁰ Gamage & Shanske at 79.

¹⁵¹ Galle argues that “[h]idden taxes are likely progressive in a rational ignorance model, but regressive otherwise.” Galle, at 64.

¹⁵² Schenk at 284.

¹⁵³ Schenk at 286.

¹⁵⁴ Zelenak (2010); Lawrence Zelenak, *Justice Holmes, Ralph Kramden, and the Civic Virtues of a Return Filing Requirement*, 61 TAX L. REV. 53 (2007).

¹⁵⁵ McCaffery at 1943.

I am undecided on this question myself. I am attracted by the potential reductions in labor supply distortion and cheating associated with complexity and opacity. On the other hand, I do worry about suboptimal decision making and impairment of tax incentives, particularly at the low end of the income distribution. Although it simply reflects my own biases, I am less concerned about a high-income taxpayer under-estimating her EMTR and working “too much” as a result of deduction or credit phase outs or the AMT than I am about a low-income taxpayer missing out on the EITC.

IV. How Tax Planning Software Can (and Likely Will) Address the Complexity and Opacity of the Income Tax

Although it is important to understand the pros and cons of tax complexity, ultimately the question of whether complexity and opacity on net reduce or increase social welfare is somewhat beside the point of this Article. The primary claim here is that technology can, and likely will, render the black box functionally transparent, at least for high-income taxpayers who are willing to pay the fare, for good or ill. This Part discusses the potential of tax planning software to re-create transparency. The following Parts evaluate currently available technology and make the case for government intervention in this arena and bring us back to the pros and cons of complexity, asking if we can preserve the pros while mitigating the cons.

I start with the proposition that the primary concern with a federal income tax black box is that taxpayers cannot readily understand the relationship between their life decisions and their tax burdens, which I refer to as a lack of functional transparency. The problem is not that taxpayers can't master the calculation of the phase out of personal exemptions, for example, but that taxpayers don't understand how much of their next dollar of income they'll keep after tax. It isn't that the EITC phase-in calculations are complex, per se, but that taxpayers don't realize how much additional income they'll receive on net from taking a higher paying job. The problem isn't so much the difficulty of wading through the plethora of mutually exclusive education incentives, as it is just knowing that tax incentives for higher education exist and estimating the tax benefit.

Technology can easily address these problems. It can do so in three basic ways. First, tax planning software can be used to run “what if” scenarios illuminating the association between life decisions and tax. Second, planning software can be used to alert taxpayers to tax incentives, both recurring and one-time incentives. Third, and more generally, software can be used to educate taxpayers, to improve their understanding of the tax system from a functional perspective.

A. Running “What If” Scenarios

Many of us use software to prepare our tax returns. We input or download our various items of income and expense, and our withheld and/or estimated tax payments, and the software calculates how much additional tax we owe or the

amount of our refund. And then we have a beer and celebrate the fact that that chore is done for another year.

But what most of us fail to realize is that we have also created a tool that could be used for tax planning. Once all of this information has been collected, we could easily run “what if” scenarios to determine the marginal effect of our decisions.¹⁵⁶ To be sure, what we have done is to create a baseline for the year past, not the year ahead, but for many of us, the past year is a reasonable starting place for thinking about the year or years ahead, and the tax impact of marginal adjustments to the past year’s data is likely to carry over to the next year.

The range of “what ifs” is almost limitless. How will my taxes be affected if I earn another \$1000? If I have another child? If I donate a used car to charity? This is the sort of information that taxpayers need in order to make decisions in an optimal fashion. Of course, taxpayers who are fully informed in this fashion are more likely to adjust their labor supply to reflect their actual EMTR, which may not be socially optimal. But at this stage I am evaluating what planning software can do to render the black box functionally transparent; not whether it should be done.

As long as the relationship between life decisions and tax is a continuous function, “what if” scenario exploration should provide the information that taxpayers need to make those decisions effectively. And generally, those relationships are continuous. Phase outs are typically smooth. Consider, for example, the phase out of the EITC.¹⁵⁷ For taxpayers with two qualifying children, the EITC phases out at a 21.06% rate, that is, for each dollar of income above the phase-out threshold, these taxpayers lose 21 cents of credit until the credit vanishes.¹⁵⁸

Some tax provisions, however, create cliff effects that make planning somewhat more difficult. For example, §222 provides up to a \$4000 deduction for qualified college tuition and related expenses for single taxpayers with AGI of \$65,000 or less and a \$2000 deduction for single taxpayers with AGI between \$65,000 and \$80,000. A single taxpayer with AGI of \$65,000 who added another \$1000 of income would see her §222 deduction reduced by \$2000, which would mean, all else equal, that \$1000 of additional pre-tax income would result in \$1000 *less* income after tax. Given the cliff and the many other factors that could effect on which side of the cliff the taxpayer fell, planning for this taxpayer is complicated.

Nonetheless, in cases in which tax provisions create discontinuities, planning software could alert taxpayers who are near a cliff as to the issue. For taxpayers far

¹⁵⁶ If the software was designed to support “what if” planning. Whether and to what extent commercially available planning software does so is the topic of the following Part.

¹⁵⁷ IRC §32.

¹⁵⁸ IRC §32(b).

from the cliff, the provisions are essentially continuous and no more problematic than smooth phase outs.

B. Tax Incentive Alerts

A second problem with tax system opacity is that taxpayers may mis-perceive tax incentives or even have no idea that certain tax incentives exist. Here again, planning software can largely mitigate the problem by highlighting these incentives.

Let's return to our taxpayer who has just prepared and submitted her return using software that supports "what if" planning. Suppose the taxpayer is an EITC recipient. Of course, the taxpayer might run a "what if" scenario that would reveal her actual EMTR given her position along the phase-in, plateau, or phase-out range of the EITC,¹⁵⁹ but the taxpayer might not think to do so. Given the complexity of the EITC and the likelihood that a recipient's EMTR will differ from her STR, planning software could be used to proactively alert and educate taxpayers as to the EITC. The software could specify the break points in the EITC schedule for the following year, explain in simple terms the size of the tax subsidy or penalty in the phase-in and phase-out range, and provide generally useful information about the EITC, e.g., that it varies with number of kids and marital status, etc.

Suppose a taxpayer has listed a number of itemized deductions but that the standard deduction exceeds (or is slightly less) than the total of itemized deductions. Again, the taxpayer might or might not run a "what if" scenario that reveals that her itemized deductions are not reducing her taxes (or reducing tax only minimally), but she might fail to do so. Given this common situation, the software might be designed to affirmatively alert the taxpayer that only deductions in excess of \$X for the following year will reduce her taxes.¹⁶⁰

Suppose a taxpayer lists a dependent child who is in her early or mid-teens. The taxpayer may be unaware of the various tax credits and other tax incentives available for higher education. The child's age could trigger an alert that highlights these incentives and directs the taxpayer to other sources for further information.

¹⁵⁹ As discussed supra note x, the design of the EITC includes an income range across which the credit phases in and acts as a wage subsidy, an income range across which a recipient receives the maximum credit (the plateau), and an income range across which the credit is phased out.

¹⁶⁰ It is even conceivable that the software could explain that creating a donor advised fund and bunching charitable contributions into a single year could minimize taxes, given the TCJA increase in the standard deduction and other modifications to itemized deductions. See, e.g., National Philanthropic Trust, Donor-Advised Funds and Tax Law Changes: Understanding How New Tax Law Changes May Impact Your Philanthropy (undated), <https://www.nptrust.org/wp-content/uploads/2018/12/DAFs-and-Tax-Law-Changes-NPT.pdf>.

C. Improving Taxpayer Understanding of the Tax System

In each of these cases, software could be used to mitigate the opacity and complexity of the Code, returning taxpayers to the level of understanding that they held when the system was simpler and most returns were prepared by hand. But in some cases, the software potentially goes further, rendering the tax system more transparent and understandable than in the hand prepared return “golden age.” And this brings me to the third way that technology can address complexity – by improving taxpayer understanding of the tax system from a functional perspective – a substitute for and improvement upon learning by doing.

One of the purported benefits of filling out tax returns by hand is that by so doing the taxpayer learns about the provisions that are applicable to her situation. This could very well be true for repetitive situations. For example, a taxpayer might think that her \$500 donation to the Red Cross would reduce her taxes, but after completing her return by hand, she might learn that the standard deduction was greater than her total itemized deductions, and as a result her donation provided her no tax benefit. Going forward, she would understand this and potentially modify her behavior if the tax benefit was important to her.

But what about new situations? The first year that a taxpayer preparing her own return by hand pays college tuition for a dependent child she may learn about education tax credits (if she is diligent), but she’s less likely to learn about education credits in the years leading up to her child’s matriculation when the prospect of the credit might have affected the decision of when and where to attend college. In this situation, software that alerts taxpayers to potentially applicable tax provisions on the horizon is better than learning by doing taxes.

Another way that planning software could improve upon learning by doing is by mitigating common taxpayer errors. Tax planning software can play an important role in distinguishing EMTRs from STRs in cases in which taxpayers are subject to various floors, phase ins, phase outs, or the AMT. Well informed, economically sophisticated taxpayers will, of course, make incremental decisions based upon their EMTRs, but some research suggests that taxpayers fail to account for these adjustments.¹⁶¹ Other research suggests that some taxpayers fail to understand the basic difference between average and marginal tax rates and erroneously make decisions based on average rates.¹⁶² As long as we have a tax system with a progressive rate schedule, which is important in maintaining progressivity,¹⁶³

¹⁶¹ See *supra* TAN x.

¹⁶² See *supra* TAN x.

¹⁶³ A progressive rate schedule is not vital to progressivity. Progressivity could be accomplished with a single tax rate and large uniform cash transfers or “demogrants.” See Bankman & Griffith at 1945 (stating that one result of the optimal tax model is that “a progressive tax is best implemented through demogrants combined with

marginal tax rates will exceed average rates on ordinary income, and the potential for mis-applying average rates will exist. Learning by doing will not correct the error, but software that explicitly determines effective marginal rates and, more importantly, frames this rate as the fraction of the next \$100 or \$1000 earned that goes to federal taxes could help mitigate this problem.

V. Tax Planning Software Today

Tax *preparation* software is now ubiquitous. In a 2014 hearing, the Commissioner of the IRS reported that 34% of individual filers utilized tax preparation software, while another 56% turned to professional preparers, almost all of whom would have utilized software to prepare these returns.¹⁶⁴ That leaves about 10% of individual taxpayers using paper and pencil. While the software providers seem to be focused primarily on tax preparation products, many also offer tax *planning* products. Our research revealed 39 tax planning software products on the market today.¹⁶⁵

Tax planning software ranges from simplistic to highly sophisticated. The most sophisticated products are marketed to professional preparers who advise multiple taxpayers. In many cases, professional planning software is integrated with tax preparation software or the preparer can export data from the preparation software to the planning software. If broadly utilized, the most sophisticated tax planning software available today would go some way towards restoring the functional transparency of the tax system. However, the products currently offered to individual taxpayers certainly do not meet that standard, and the extent to which professional preparers use planning software to improve their clients understanding of the tax system is unclear.

There is great variety in the functionality of tax planning software, and the line between tax preparation software and tax planning software is murky. Consider products like TurboTax and TaxAct.¹⁶⁶ These are tax preparation software products aimed at individual taxpayers eschewing the use of professional preparers. The emphasis is on ensuring that users identify all possible deductions and credits (as well as income items, of course) for the current tax year, so as to avoid paying more

constant or even declining marginal rates"). But the demogrant approach to progressivity is likely to be a non-starter politically.

¹⁶⁴ Protecting Taxpayers from Incompetent and Unethical Return Preparers: Hearing Before the S. Comm. on Fin., 113th Cong. (2014) (testimony of John A. Koskinen, Comm'r of Internal Revenue Service), <http://www.finance.senate.gov/imo/media/doc/Koskinen%20Testimony.pdf> (cited in Blank & Osofsky (2017)).

¹⁶⁵ A list of these products is provided in the Appendix. This list does not include a number of tax preparation software products that include no tax planning functions.

¹⁶⁶ INTUIT TURBOTAX, <https://turbotax.intuit.com/> (last visited on July 11, 2020); TaxAct, <https://www.taxact.com/> (last visited on July 11, 2020).

tax than is owed. These products include numerous prompts to help users identify allowable credits and deductions, and these prompts serve an educative function in addition to their primary function of minimizing reported taxable income.¹⁶⁷ These products could even be used to run “what if” scenarios to illuminate the impact of various life decisions on tax burdens, but these products are not designed for this function and using them in this manner would be inconvenient, to say the least. Aside from alerting users to current year deductions and credits, these programs do nothing to highlight tax incentives or issues that might be on the horizon.

The makers of both TurboTax and TaxAct offer rudimentary tax planning software as well. TurboTax offers TaxCaster, which it bills as a tax refund estimator.¹⁶⁸ TaxCaster is a free, stand-alone product. It is not integrated with TurboTax’s preparation software, and it allows users to input various items of income and expense, withholding, and other information that it uses to generate a bottom line tax owed/refunded figure. Because TaxCaster utilizes fewer fields than TurboTax, it is conceivably easier to use for simple tax planning. However, a user cannot adjust inputs without starting the process over, so TaxCaster’s utility in this service is limited. The product seems to exist largely as advertising for TurboTax’s tax preparation software.

TaxAct offers a simplistic but potentially educative Tax Bracket Calculator that determines a user’s statutory marginal and average tax rates based on seven inputs as well as a 30 field Tax Refund Calculator that allows users to vary inputs and recalculate tax owed. This product could be used to run “what if” scenarios by taxpayers with relatively simple tax situations.¹⁶⁹

The bottom line, however, is that “tax planning” products aimed at individual taxpayers do not provide the tools needed to render the Code functionally transparent. Tax planning software marketed to professional preparers, on the other hand, is much more powerful.

The leading products in this class, including Lacerte Tax Planner, CCH ProSystem fx Planning, and Drake Tax Planner, are sophisticated, integrated planning

¹⁶⁷ To provide just a few examples, TaxAct’s input screens note that contributions to a traditional IRA can reduce taxes, while contributions to a Roth IRA would not, highlight the floor on deductions for medical expenses, and explain that itemized deductions are only useful to the extent they exceed the standard deduction. Tax Software Pro Tips Advice, TAXACT, <https://www.taxact.com/>. TurboTax’s input screens provide similarly useful and educative notes. Input Screens ExplainWhy, Turbo Tax, <https://turbotax.intuit.com/>.

¹⁶⁸ *Income Tax Calculator 2019: Taxcaster*, INTUIT TURBOTAX (last visited on July 11, 2020), <https://turbotax.intuit.com/tax-tools/calculators/taxcaster/>.

¹⁶⁹ Taxpayers with more complex situations would likely be stymied by, for example, the prompt to enter their qualified business income deduction.

products.¹⁷⁰ Because these products are offered to professional preparers, who presumably know the tax laws, there is relatively less emphasis on providing the kinds of educative tax “tips” that one finds in TurboTax and TaxAct. But this function is not entirely absent either, and, because these planning products are integrated with tax preparation software or start with data exported from taxpayer returns, these tips are not generic, but are tailored to particular taxpayer circumstances.¹⁷¹

Planning software aimed at professional preparers generally provides little guidance with respect to tax incentives that lie beyond the immediate horizon of the current tax year and next. I found no examples of software that would alert a preparer with respect to education credits that might soon come into play for a taxpayer with a teenage child, for example. This is not too surprising, given that the audience for these products is professional preparers who would not typically need this kind of prompt to have a conversation with their clients about topics such as this. This should be bread and butter work for tax advisors.

Where the best planning products really shine, however, is in facilitating “what if” planning. Again, because these products are integrated with tax preparation software, they start with a taxpayer’s actual tax situation and allow preparers to hypothetically adjust for a new job, a new child, a move to a different state, etc., and quickly and easily compare the tax consequences of the various scenarios. Lacerte, for example, boasts that its planning software allows preparers to “compare multiple, complex scenarios using actual current and future year tax rates.”¹⁷² CCH ProSystem fx Planning allows a planner to “forecast and compare up to 30 different tax scenarios with 8 years of projection data per plan.”¹⁷³ These products even include features allowing preparers to quickly prepare reports for their clients including charts comparing the outcomes of various scenarios.¹⁷⁴

To what extent does tax planning software bring clarity to the black box of federal income taxation today? Software aimed at individuals preparing their own returns – both preparation and planning software – serves an educative function by

¹⁷⁰ See e.g. Lacerte, INTUIT, proconnect.intuit.com/Lacerte, (last accessed on July 17, 2020); CCH ProSystem fx Suite, WOLTERS KLUWER, <https://taxna.wolterskluwer.com/professional-tax-software/prosystem-fx> (last accessed on July 17, 2020); DRAKE SOFTWARE, drakesoftware.com, (last accessed on July 17, 2020).

¹⁷¹ For example, in its marketing materials, Lacerte provides an analysis of the tax return for a hypothetical taxpayer that highlights unused opportunities to reduce tax by, e.g., fully participating in qualified retirement plans, accelerating certain itemized deductions, or even employing a child under the age of 18 in the family business.

¹⁷² <https://proconnect.intuit.com/lacerte/integrations/tax-planner/>.

¹⁷³ Wolters Kluwer, CCH ProSystem fx Planning Fact Sheet; [file:///Users/diwalker/Downloads/cch_prosystem_fx_planning_fact_sheet_2018_02_20%20\(1\).pdf](file:///Users/diwalker/Downloads/cch_prosystem_fx_planning_fact_sheet_2018_02_20%20(1).pdf).

¹⁷⁴ Wolters Kluwer, CCH ProSystem fx Planning Fact Sheet

highlighting generic tax tips and providing simple bracket analyses. This software is focused, however, on identifying current tax year deductions and credits and estimating or determining tax. This software is not useful for conducting “what if” scenario analysis or for calling taxpayers’ attention to tax incentives that may be approaching on the horizon. These products certainly simplify compliance, but users are still likely to see the tax system as a black box.

Professional preparers could bring clarity to their clients by combining their knowledge and experience with the sophisticated planning products at their disposal. Their knowledge and experience would allow them to advise their clients with respect to tax provisions with which their clients may not be aware, and the planning software would allow them to easily illuminate the tax consequences of various life decisions their clients face. Given this, one might expect that taxpayers who utilize professional preparers would be better informed. But as several commentators have observed, the use of professional preparers may actually reduce taxpayer awareness of tax considerations if taxpayers essentially delegate return preparation and filing to professional preparers.¹⁷⁵

The limited empirical evidence supports this more pessimistic view. In a survey-based study of taxpayer awareness of their marginal tax rates reported in 1995, Rupert and Fischer found that taxpayers who used professional preparers were less accurate than other taxpayers in estimating EMTRs.¹⁷⁶ More recently, Ballard and Gupta surveyed 978 adult residents of Michigan soliciting their estimation of their average federal income tax rate.¹⁷⁷ Almost 85% of respondents over-estimated their ATRs, with mean over-estimation of 11.6 percentage points.¹⁷⁸ Respondents who reported using a professional preparer over-estimated their ATRs by nearly 3 percentage points more than self-preparers, all else equal.¹⁷⁹

Before concluding this Part, I would be remiss if I did not mention one very different and very promising technological advance in tax analysis offered by Blue J. Legal.¹⁸⁰ Blue J. Legal harnesses artificial intelligence and big data to predict the result of difficult borderline tax questions such as whether a financial instrument would be characterized as debt or equity or whether a worker would be classified as an employee or independent contractor. To be sure, Blue J. Legal is itself a black box, but the software provides probabilities that its characterizations are correct and allows users to test various sensitivities, which assists in effective planning and structuring. Although as currently configured, Blue J. Legal is targeted at a specific

¹⁷⁵ Rupert & Fischer at 40; Feldman & Katuscak at 3.

¹⁷⁶ Rupert and Fischer at 51 (survey of 108 taxpayers who responded to a survey instrument and provided tax return information).

¹⁷⁷ Ballard & Gupta at 270.

¹⁷⁸ Ballard & Gupta at 264.

¹⁷⁹ Ballard & Gupta at 278-79.

¹⁸⁰ BLUE J. LEGAL, <https://www.bluejlegal.com/> (last visited on Aug. 2, 2020).

set of difficult questions and is not a multi-purpose tax planning tool, it suggests an alternative path forward for tax planning technology.¹⁸¹

VI. The Case for Government Provided Tax Planning Software

Even without AI, existing technology seems sufficient to restore functional transparency to the increasingly complex tax system. Planning software currently available to professional preparers is more than adequate for “what if” scenario analysis that would not only calculate a taxpayer’s EMTR in various situations but would explain the relationship between life decisions and tax in a fashion that is easily digestible and actionable. And it would be straightforward to add individually tailored prompts highlighting tax incentives that are currently available or that may be on the horizon. One can think of this as a combination of professional preparer planning software and professional preparer experience and foresight. This combination of information could mitigate the black box nature of our tax system to a significant degree, for good or ill.

This Part of the Article presents the case for government provision of just such software. The argument, in brief, is that the development of such technology and its availability to high-income taxpayers are probably inevitable, and as a result the downsides of widely available software are to some extent unavoidable, but that government provision can help shape the technology in ways that increase social welfare and improve distributional outcomes. I also argue that government provided planning software should be targeted at low- to middle-income taxpayers in order to avoid facilitating social welfare reducing tax planning by high-income taxpayers and to level the tax planning playing field for lower-income taxpayers.

I am not the first to advocate government provided tax software. In a 1999 article, Joshua Rosenberg envisioned government provided tax preparation software that would be focused on accurate compliance and would highlight tax incentives.¹⁸² Like me, Rosenberg viewed government provided software as a response to the increasing complexity and opacity of the Code.¹⁸³ More recently and further afield but in a similar spirit, Marjorie Kornhauser proposed in 2005 that the IRS provide taxpayers with an annual statement of their income tax burden, similar to the statement we receive annually from the Social Security Administration.¹⁸⁴ This statement would highlight key data, such as gross income, deductions, taxable income, and credits and provide and explain the difference between the taxpayer’s

¹⁸¹ Ben Alarie, one of the founders of Blue J. Legal foresees AI reducing the cost of information and increasing the democratization of tax law. Alarie (Law in Future). I am less sanguine. The fact that technology is available does not mean that it will become affordable and ubiquitous.

¹⁸² Rosenberg at 42, 51.

¹⁸³ Rosenberg at 51.

¹⁸⁴ Kornhauser (2005) at 106-07.

ATR and MTR.¹⁸⁵ In many ways, the government provided tax planning software envisioned here is a high-tech extension of Kornhauser's proposal.

A. Further Development/Proliferation of Tax Planning Software Likely is Inevitable

Given the increasing complexity of the Code, the increasing power of technology, and the amount of money (and leisure) at stake, it is probably inevitable that tax software vendors will continue to develop and to market planning software. In fact, it is surprising that sophisticated tax planning software is not currently marketed to high-income individuals. Intuit, for example, offers such software to professional preparers through its Lacerte line, but offers nothing comparable to individuals utilizing its TurboTax line of products.¹⁸⁶

Why is this? The answer has to be that individual purchasers of tax preparation software don't yet demand this kind of analysis. Perhaps taxpayers who want this information receive it indirectly from professional preparers. And, indeed, there must be demand for these services by the clients of professional preparers, or Lacerte, Drake, CCH and the other vendors of professional tax software would not include these features in their products either.

Meanwhile, a number of technology savvy commentators envision a future in which technology will have a much more dramatic influence on tax and other areas of the law. Ben Alarie, for example, predicts that technological advances will lead to increasing democratization of the law as lower costs of producing information will make it less expensive to understand legal rights and obligations.¹⁸⁷

If this is right, if we are approaching "legal singularity" in Alarie's evocative phrasing,¹⁸⁸ then the costs of achieving functional transparency – principally increased excess burden and cheating – are likely unavoidable. If so, the important questions have to do with who shapes the innovation and for whose benefit.

B. IRS Tax Planning Software Could Be Designed to Advance Government Policies

Commercial tax planning software will be designed to maximize revenue for the vendor, which likely translates into software that maximizes the utility of the software's end users. There is no reason that vendors would take into account overall

¹⁸⁵ Kornhauser at 107-08.

¹⁸⁶ TurboTax offers Free, Deluxe, Premium, and Self-Employed editions, which are increasingly costly. The higher-end products tackle increasingly complicated tasks, such as dealing with securities transactions, but none offer the "what if" scenario analysis found in Lacerte.

¹⁸⁷ Alarie (Law in Future) at 426.

¹⁸⁸ Alarie (Path) at 443.

social welfare in designing such software, but the government could. This section highlights several ways in which government designed and provided tax planning software could focus on meeting government and social welfare objectives that commercial products might not.

1. Increasing the Efficacy of Tax Incentives

The Code contains numerous clear-cut tax incentives aimed at individual taxpayers.¹⁸⁹ Given the complexity and opacity of the Code, many taxpayers are unaware of these incentives or fail to take full advantage. For example, 20% of taxpayers eligible for the EITC fail to claim the credit, primarily because they fail to file returns.¹⁹⁰ As Jacob Goldin notes, incomplete EITC take-up means that many individuals fail to receive the EITC tax benefit and in all likelihood “at least some individuals are not aware of the pro-work incentives the credit creates, and hence, work less than they would if they were to take the credit’s incentives into account.”¹⁹¹ Presumably, Congress would prefer full take-up and more effective incentives.¹⁹² Because EITC eligible taxpayers who file returns typically use professional preparers or tax preparation software that ensures that the taxpayer will receive her full credit, Goldin argues that “efforts to increase EITC take-up should focus on inducing EITC-eligible individuals to file a tax return.”¹⁹³

This prescription makes sense as a means of ensuring that individuals receive the EITC to which they are entitled, but encouraging filing alone would not ensure that individuals understand and respond to the EITC’s work incentives. Suppose, for example, that a federal EITC-capable pre-populated return system were to be established. Such a system would largely mitigate computational complexity and ensure payment of full EITC benefits to workers with W-2 earnings reported to the IRS,¹⁹⁴ but it would not provide the information that individuals need to make informed decisions about work effort. It would not even ensure that EITC recipients were aware of the credit at all.

In order to ensure that tax incentives are as effective as possible, individuals need to be made aware of the incentives and brought to understand how their potential responses to the incentives would affect their after-tax income.

¹⁸⁹ See *supra* TAN x.

¹⁹⁰ Goldin (2018) at 60-61, 70.

¹⁹¹ Goldin at 66.

¹⁹² The government spends hundreds of millions of dollars a year on EITC outreach and enforcement. See Bhargava & Manoli at 3523 (cited in Goldin (2018)) (reporting that Congress appropriated \$716 million in 1997 for EITC outreach and enforcement over a five-year period).

¹⁹³ Goldin at 107.

¹⁹⁴ Workers with self-employment income not reported to the government by third parties would not be issued pre-populated returns and might continue to miss out on the EITC.

Government provided planning software could (1) alert individuals that they are or may be eligible for various incentives, and (2) allow these individuals to quickly and easily calculate the after-tax income associated with their potential responses to the incentive.

If a taxpayer can be induced to use government provided tax planning software that accesses her tax return data, the first step – alerting the taxpayer as to incentive eligibility – is fairly trivial. The software could be designed to determine whether, based on her reported income and other reported characteristics, e.g., number and age of dependent children, the taxpayer is eligible or close to being eligible for the various discrete federal income tax incentives – the EITC, education credits, retirement credits, etc. And the software presumably could be designed to make these determinations automatically and prompt the taxpayer without the need for an affirmative inquiry.¹⁹⁵

To be sure, simply making such software available does not solve the particular EITC take-up problem highlighted by Goldin. EITC-eligible individuals who fail to file returns are unlikely to utilize tax planning software to determine how much money they are leaving on the table. It is conceivable, although somewhat big brother-ish, that the IRS would use third party reported income data to alert non-filers as to the possibility that they would be eligible for the EITC and direct them to simple tax planning software that would provide a more definitive answer.¹⁹⁶

The second step – associating potential responses to incentives with after-tax income – falls squarely within the domain of current professional tax planning software and specifically “what if” scenario analysis and can clearly be accomplished with current technology.¹⁹⁷ In the EITC example, the software could provide the taxpayer with her current tax credit based on her current income and with the credit she would receive if her income were to increase or decrease by, say, 10%.

¹⁹⁵ Sophisticated tax planning software products marketed to professional taxpayers today automatically conduct these sorts of analyses and provide alerts. *E.g.* *Tax Planner* Pro, INTUIT, <https://quickbooks.intuit.com/app/apps/appdetails/taxplanner/en-us/> (last visited on July 11, 2020); *Lacerte*, INTUIT, <https://proconnect.intuit.com/lacerte/> (last visited on July 11, 2020) (including a deduction finder); *ProConnect*, INTUIT, <https://proconnect.intuit.com/tax-online/> (last visited on July 11, 2020) (using pop-ups to show potential deductions or credits); *Checkpoint*, THOMSON REUTERS, tax.thomsonreuters.com/checkpoint (last visited on July 11, 2020); *ATX*, WOLTERS KUWLER, <https://taxna.wolterskluwer.com/professional-tax-software/atx> (last visited on July 11, 2020).

¹⁹⁶ Again, this process would not assist taxpayers eligible for the EITC based on income from self employment that is not reported to the IRS by third parties.

¹⁹⁷ See supra TAN x.

Of course, there are potential downsides to such a program. Continuing with the EITC example, first, total EITC benefits would likely increase, but, to the extent that this is a product of greater work effort, we should count this as a feature, not a bug. Second, making it easier for taxpayers to understand how the EITC works could increase cheating. If it is easier for an EITC recipient to determine the income level that maximizes her credit in her particular situation, she may be more likely to report that level of income. Third, as Goldin notes, some behavioral responses increase deadweight loss, in this case that would include the negative impact of the EITC phase out on work incentives.¹⁹⁸ I will address these concerns in subsequent sections.

2. Highlighting Cases in Which EMTR is Less than STR

While tax expenditure provisions more often result in EMTRs exceeding STRs because of phase outs, there are cases in which the opposite is true and when it would be in the interest of the taxpayer and society for the taxpayer to recognize this situation and increase her labor supply. Government planning software could be designed to expressly highlight these situations and illustrate to the taxpayer that her after-tax income may be a larger fraction of pre-tax income than she had realized. One example of this phenomenon, of course, is the EITC phase in that we have just discussed.¹⁹⁹ In the EITC phase-in range, taxpayers' EMTRs are significantly lower than STRs.²⁰⁰ Taxpayers who fail to understand this and believe their tax rate to be the STR (or in some cases the highest STR, which may be more salient) may be leaving money on the table personally and creating needless deadweight loss.

At the opposite end of the income spectrum, AMT paying taxpayers who are not subject to the AMT exemption phase out (because the phase out has not been triggered or because their exemptions have been fully phased out) also likely face an EMTR that is less than their STR.²⁰¹ Again, both individual utility and social welfare are improved if these taxpayers are made aware of the lower EMTR and respond accordingly. Simple tax planning software can alert taxpayers to these circumstances and illustrate the relationship between pre- and post-tax income, correcting misperceptions and increasing social welfare.

3. Not Highlighting Cases in Which EMTR Exceeds STR

What about situations in which a taxpayer's EMTR exceeds her STR? This will commonly be the case for taxpayers whose itemized deductions are curtailed by a floor or whose income places them in the phase-out range for one or more provisions such as the EITC, the AMT, education credits, etc. In these cases, a taxpayer who understood her true EMTR might work less than she would under the mistaken belief

¹⁹⁸ Goldin at 62-62.

¹⁹⁹ Another is the refundable portion of the child tax credit. See *supra* TAN x.

²⁰⁰ See *supra* TAN x.

²⁰¹ Recall that the nominal rates under the AMT are less than the highest rates under the regular income tax.

that her STR was her EMTR, improving her personal utility but increasing the aggregate deadweight loss from taxation. Presumably, commercially available software would treat the two cases – cases in which the EMTR exceeds the STR and cases in which the EMTR is less than the STR – symmetrically, promoting individual utility maximization in both cases and ignoring social welfare. Must government provided software take the same tack? Probably, but not necessarily. Let me elaborate.

Clearly, the government cannot misrepresent the tax laws to taxpayers. If a taxpayer in a phase-out range uses government provided software to determine the marginal impact of additional income, the software must provide the correct answer. But must the software prompt the taxpayer that her income places her in a phase-out range and, as a result, her EMTR may be higher than she realizes? The argument that the software must alert the taxpayer would likely be grounded in an implicit promise that the software would promote individual optimization. Some might argue that if the software alerts taxpayers to incentives that benefit the government and society, in fairness it must highlight incentives that do not benefit the government and society.

But there are at least two possible counter arguments. First, the IRS could simply disclaim any such obligation. Taxpayers would not be bound to use the IRS's software, and the software could clearly indicate what it is designed to do and not to do. Second, in some cases the symmetry may be false. Explicit tax expenditures, such as the EITC, education credits, retirement incentives, and the like, which the government would want to affirmatively highlight, are different in kind than the phase out of the AMT exemption amounts, which is, in effect, a rate adjustment. To be sure, some would argue that the government's obligation to highlight hidden tax rate adjustments, such as the phase out of AMT exemptions, personal exemptions, or itemized deductions, should actually be greater, but the government has never been obligated to highlight the impact of these phase outs and it is not clear why government provision of planning software would impose such an obligation.²⁰²

Ultimately, however, I suspect that the asymmetric treatment of tax incentives and disincentives would be a nonstarter politically and thus untenable. And there is, to be sure, one other constraint on the IRS's ability to shape tax planning software to serve social welfare instead of personal welfare. As noted above,²⁰³ use of this software is voluntary. If taxpayers, specifically high-income taxpayers, do not believe that the government's software serves their interest they can purchase a commercial product, or given the current dearth of sophisticated planning software marketed to individuals, consult a tax professional for advice.

²⁰² I use the personal exemption, itemized deduction, and AMT exemption phase outs as familiar examples recognizing that the first two are currently inapplicable and that the AMT and AMT exemption phase outs currently apply to only a very small number of taxpayers.

²⁰³ See *supra* TAN x.

Given this reality, and in order to avoid facilitating social welfare reducing planning by high-income taxpayers, the better and more achievable course might be to target government provided planning software at low- to middle-income taxpayers. The following sections provide other potential justifications for such targeting.

C. IRS Provision of Tax Planning Software Could Improve Distribution

As noted above, while vendors do not market sophisticated tax planning software to individual taxpayers, they do market such software to professional preparers who presumably use these features in advising their clients.²⁰⁴ Reliance on professional preparers is not limited to high-income taxpayers. Principally because of the complexity of the EITC, many low-income taxpayers turn to professionals, as well. Logic and intuition suggest, however, that high-income clients would make greater use of scenario planning services offered by their preparers than low-income clients because more dollars would generally be at stake and because high-income taxpayers would be better able to pay for additional planning services beyond simple tax preparation.

If this is an accurate portrayal, and I admit, that this is speculative, this pattern would be troubling from a distributional perspective. High-income taxpayers who receive and act on accurate information about the tax consequences of their life decisions will make more utility-enhancing decisions than low-income taxpayers who fail to utilize these services. By providing free planning software to low-income taxpayers, the IRS could level this playing field.

In recent work, Manoj Viswanathan argues that the IRS should support low-income tax planning.²⁰⁵ He argues that low-income tax planning is more likely to be welfare enhancing than high-income planning and that, even when it isn't, it's unfair for low-income taxpayers not to be able to plan when high-income taxpayers do.²⁰⁶ Viswanathan notes that the TCJA introduced complex provisions that apply to low-income taxpayers, such as §199A, and he encourages the IRS to sponsor programs to advise these taxpayers *ex ante*.²⁰⁷ Government provision of simple, user-friendly tax planning software to low-income taxpayers would be perfectly consistent with this effort.

But there may be an even stronger argument for government provision of planning software to low-income individuals. Given numerous phase outs of tax expenditures targeted at lower-income taxpayers, the Code may be more of a black

²⁰⁴ See *supra* TAN x.

²⁰⁵ Viswanathan at 195.

²⁰⁶ Viswanathan at 203.

²⁰⁷ Viswanathan at 210-211 (suggesting, for example, that law school clinics “could and should provide tax planning assistance for low-income taxpayers beyond what [low-income tax preparation assistance] centers currently provide”).

box for these taxpayers than for middle- and upper-income taxpayers. So the need may be greater. Moreover, while I support the adoption of pre-populated return programs, I recognize that if these programs become reality, the Code will become even more of a black box for the typically lower-income taxpayers who would be eligible to participate, again increasing the need and justification for government provided planning software.

D. Getting the IRS into the Tax *Preparation* Software Game

In 2002, the IRS entered into the Free Online Electronic Tax Filing Agreement with the Free File Alliance, a collection of vendors of tax preparation software products.²⁰⁸ The vendors committed to providing free tax preparation and filing software through the IRS's website for 60% of U.S. taxpayers.²⁰⁹ The IRS committed to stay out of the tax preparation software business. Although the term of the agreement has been extended several times,²¹⁰ the program has not lived up to expectations. A recent report issued by the Treasury Inspector General for Tax Administration found that only 2.4% of 104 million eligible taxpayers utilized the program and filed their returns for free, while 33.2% of these taxpayers filed using Alliance members' commercial software products.²¹¹ One reason for a lack of taxpayer participation, the Inspector General found, was that some Free File Alliance members edited the code in their Free File web pages to ensure that taxpayers searching the Internet for free return filing would not find the members' Free File page.²¹² More generally, the Inspector General attributed this low level of participation in the Free File program to "complexity, confusion, and lack of taxpayer awareness about [the program's] operation and requirements."²¹³

Undoubtedly, integrated tax preparation and tax planning software is more efficient and effective than stand-alone products. Perhaps this is the moment for the IRS to abandon the Free File Program and get into the tax preparation software game. The IRS could provide tax preparation software as well as planning software targeted at lower-income taxpayers who, phase outs aside, typically face less complex tax situations.²¹⁴ The combination of products would focus on achieving accurate

²⁰⁸ Permanent Subcommittee on Investigations Staff Memorandum, IRA Oversight of Free File Program 1 (June 9, 2020).

²⁰⁹ PSI Staff Memo at 1.

²¹⁰ PSI Staff Memo at 1-2 (noting that the 2005 extension expanded coverage to 70% of taxpayers).

²¹¹ Treasury Inspector General for Tax Administration, Complexity and Insufficient Oversight of the Free File Program Result in Low Taxpayer Participation 4-5 (Feb. 3, 2020).

²¹² TIGTA at 9-10.

²¹³ TIGTA, Highlights.

²¹⁴ Whether the IRS creates tax preparation software or not, any IRS planning software should be designed to receive data directly from commercial preparation products such as TurboTax.

compliance but also promoting functional transparency of the tax system, particularly for low-income taxpayers who are less likely to have access to affordable commercial services.²¹⁵

E. The Costs of Government Provided Tax Planning Software

Part III of this Article described several positive aspects of increased complexity and opacity – supporting a more accurate tax system, reducing distortions in taxpayer behavior and deadweight loss, and reducing cheating. Effective government provided planning software that restored functional transparency would undermine the second and third of these benefits of complexity, resulting in greater deadweight loss and more cheating.

To be sure, these downsides are not unique to government provided planning software. Commercial planning software already exists that implicates these costs. But by definition, if government provided software achieves greater penetration, more taxpayers will understand and presumably act upon the various incentives embedded in the Code, some by reducing work effort when they realize that their EMTR is significantly higher than they believed, some by mis-reporting income from self-employment in order to maximize receipt of tax benefits. These, then, are the behavioral costs of government provided software. Obviously, there would be additional costs of software development, promulgation, and maintenance.

F. Summing Up the Case for Targeting Government Provided Planning Software at Lower-Income Taxpayers

In sum, while the government could endeavor to provide tax planning software to all taxpayers, high income taxpayers already have access to commercial planning software through professional preparers and the resources to command these services. The need is greater at the lower end of the income spectrum. Moreover, increasing functional transparency through the provision of planning software will likely lead to greater deadweight loss, particularly at the higher end of the income spectrum, as, absent transparency, high-income taxpayers tend to underestimate their EMTRs as a result of various deduction and credit floors and phaseouts. To be sure, increasing functional transparency for lower-income taxpayers will also increase deadweight loss in some cases, but not in all cases given various phase-in provisions applicable to low income taxpayers. Weighing the costs and benefits suggests that targeting government provided planning software at low-income taxpayers may be the most sensible path forward.

VII. Further Discussion of Planning Software as a Response to Tax Complexity

²¹⁵ Rosenberg (1999) (advocating IRS promulgation of tax preparation software focused on achieving accurate compliance).

As I've argued above, technological responses to tax complexity are probably inevitable. Indeed, they exist today for some taxpayers, and one would think that their use would increase as tax complexity grows and the cost of technology falls. If so, the important questions going forward are 1) who gets to shape these responses – the government or private parties? And 2) who will be in a position to take advantage of this technology – all taxpayers or just high-income taxpayers who can afford the bill?

For the moment, however, let's envision a world in which planning software – commercial and/or government provided – is widely available and broadly used, creating functional transparency for many taxpayers. I have discussed the implications for tax efficiency and distribution, but other questions remain. Does the functional transparency generated by planning software address the all of the concerns created by complexity?

Joshua Blank and Leigh Osofsky have noted that the Taxpayer Bill of Rights commits the IRS to a certain level of transparency, a commitment that in their view is not being met today.²¹⁶ Would government provision of planning software meet this commitment? Does this commitment require that taxpayers be able to understand how phase outs work or is it sufficient that they be able to easily associate life decisions with their tax burden? Is functional transparency, in other words, sufficient to meet the IRS's commitment? Although the Taxpayer Bill of Rights speaks of the right to "clear explanations of the laws," which might suggest a sort of granular clarity, the underlying commitment is to a right to be informed.²¹⁷ In my view, the kind of functional transparency that can be achieved through the sophisticated tax planning software I've described above should be sufficient to meet that commitment.

Other complexity-related concerns lie in the political and philosophical spheres. Would widespread availability of planning software sufficiently address the democratization, political accountability, and autonomy concerns arising from complexity and opacity? Would government-provided software more adequately address these concerns than leaving all of this to the marketplace? Is it a sufficient response to these concerns that taxpayers *can* readily associate life decisions with tax burdens even if they do not choose (or perhaps pay) to do so?

Here I am somewhat more skeptical. Take political accountability, for example. One concern is that policy makers can raise taxes surreptitiously by, for example, phasing out deductions and avoid the ire of taxpayers who are hoodwinked into thinking that their marginal rates and perhaps average rates are lower than they are in reality. With planning software, taxpayers can easily determine their true EMTR and ATR, and those who do so would not be hoodwinked. But even if free, easy,

²¹⁶ Blank & Osofsky (2017) at 194,199 (arguing that IRS publications engage in "simplicity," simplified descriptions that "have the unintended effect of obscuring individuals' knowledge of the underlying tax law").

²¹⁷ IRS, Taxpayer Bill of Rights: #1, The Right to be Informed.

and effective planning software were readily available, would taxpayers use the software to figure this out? Software makes it easier for an interested citizen to cut through the opacity, but does nothing to combat the persistent misapprehensions of the lazy taxpayer-voter in the face of surreptitious tax increases.²¹⁸

It is also unclear that planning software would sufficiently address the leviathan or fiscal illusion concerns of some commentators. Of course, as noted above, not all commentators are concerned with exploitation of tax provisions with low political salience.²¹⁹ But if one shares these concerns, one might fairly conclude that planning software has greater promise as a tool for addressing the adverse impact of complexity on decision making and tax incentives than on political accountability and the size of government.

VIII. Conclusion

Our complex and opaque tax system has been described as a black box. In reality it is more of a gray translucent box. The black box label is appropriately placed on algorithms derived from the application of machine learning to big data. The algorithms are said to flow from a black box because “they discern patterns and make predictions in a way that cannot be intuitively understood or explained in the same way that conventional analysis can be.”²²⁰

Our tax system is complex and opaque, but it is not like a machine learning black box. The result of any tax calculation can be explained if one is willing to take the time and make the effort.²²¹ But individual Code provisions and the interplay of provisions can be extraordinarily complicated. And while compliance is made manageable by the use of tax preparation software and professional preparers (and possibly in the future by distribution of pre-populated returns), these “solutions” may leave taxpayers in the dark with respect to the underlying tax law.

I have argued that planning software can be used to restore functional transparency to the Code, alerting taxpayers to various tax incentives and allowing

²¹⁸ Perhaps, however, journalists or other intermediaries could use planning software to educate taxpayers and voters who lack the motivation to do the analyses themselves.

²¹⁹ See *supra* TAN x.

²²⁰ Coglianesi & Lehr at 14.

²²¹ This is not to suggest that there are no ambiguities in the tax rules applicable to individual taxpayers. It may be ambiguous, for example, whether a certain gig economy worker is an employee or an independent contractor, and that determination has important tax and other legal consequences. See Ring and Oei; Thomas. See also, Blank and Osofsky, *Simplexity* (explaining that the IRS often presents complex and ambiguous tax questions as simple and clear cut). However, the computational complexity associated with floors, phase ins and phase outs, and the AMT does not arise from ambiguity.

taxpayers to associate their life decisions with tax burdens. This is a different type of transparency than that which purportedly existed in the prior “golden age” when tax rules were simple, individuals filled out their own returns by hand, and taxpayers learned about tax by doing their taxes, and in some ways functional transparency is superior.

But I have also argued that there are costs and benefits to creating this functional transparency because there are benefits as well as costs to complexity and opacity. Be that as it may, such software exists today, and its use will only increase as complexity increases and as high-income taxpayers realize what’s at stake.

I have also made the case for government provision of tax planning (and preparation) software that would be targeted at low-income taxpayers in order to address the particular complexities of taxation at the low end of the income spectrum and level the tax planning playing field between high- and low-income taxpayers, while avoiding facilitating social welfare reducing tax planning by high-income taxpayers.

Some have argued that technology led us to the complex and opaque tax system we have today.²²² The primary argument of this Article is that technology can help supply the remedy as well as the injury.

²²² See *supra* TAN x.

Appendix

Tax Software	Website
1. Abacus	http://abacus.tax/
2. ATX- Wolters Kluwer	cchsfs.com
3. Bloomberg Law: Tax	bloomberglaw.com/product/tax
4. Blue J Legal	www.bluejlegal.com
5. BNA Income Tax Planner (Calc-Q-Tax)	www.bna.com/tax
6. CCH Access Tax-Wolters Kluwer	cchgroup.com
7. CCH ProSystemfx-Wolters Kluwer	https://taxna.wolterskluwer.com/professional-tax-software/prosystem-fx
8. Checkpoint-Thomson Reuters	tax.thomsonreuters.com/checkpoint
9. Clarus R+D	clarusrd.com
10. Comtax	https://www.comtaxit.com/
11. Credit Karma	creditkarma.com
12. Drake Software	drakesoftware.com
13. EZ Tax Return	https://www.6.eztaxreturn.com/scriptsez/start.exe/eztax/p/alliance2020/start.html?r_link=www.eztaxreturn.com
14. FreeTaxUSA	freetaxusa.com
15. Genius Software	https://saginfotech.com/
16. GoSystem Rs-Thomson Reuters	tax.thomsonreuters.com/gosystem
17. H&R Block	hrblock.com
18. inDinero	indinero.com
19. Jackson Hewitt	https://www.jacksonhewitt.com/
20. Lacerte-Intuit	proconnect.intuit.com/lacerte
21. Liberty Tax	libertytax.com
22. Online Taxes	OLT.com
23. OneSource-Thomson Reuters	tax.thomsonreuters.com/onesource/tax
24. Petz Crossling	http://www.crosslinktax.com
25. PowerTax	http://www.powertaxsolution.com/
26. ProConnect Tax-Intuit	proconnect.intuit.com
27. ProSeries Cloud Hosting	https://proconnect.intuit.com/proseries/
28. QuickBooks-TaxPlanner Pro	https://quickbooks.intuit.com/app/apps/appdetails/taxplanner/en-us/
29. Redwing Software	https://www.redwingsoftware.com/home/home.aspx
30. Sage50-Cloud	https://www.sage.com/en-us/products/sage-50cloud/
31. TaxAct	ww.taxact.com
32. Taxfyle	https://taxfyle.com

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33. Taxmaster	http://www.taxmaster.com/
34. TaxSlayer-Professional	www.taxslayerpro.com
35. TaxSlayer-Individual	www.taxslayer.com
36. Taxwise-Wolters Kluwer	cchsfs.com
37. TurboTax-TaxCaster	https://turbotax.intuit.com/tax-tools/calculators/taxcaster/
38. UltraTax CS-Thomson Reuters	tax.thomsonreuters.com/ultratax
39. VeriPlan	http://www.theskilledinvestor.com/VeriPlan/