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Enforcement as Substance in Tax Compliance

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Enforcement as Substance in Tax Compliance

Leandra Lederman*
Ted Sichelman**

Abstract

It is well known that the government's complete failure to enforce a law can nullify that law. But what are the effects of partial enforcement? This Article shows that imperfect enforcement can alter the de facto content of the written law in predictable and beneficial ways. Specifically, in the tax compliance context, even if perfect enforcement were costless, it would not always be socially optimal. When improving the substantive law is infeasible, the enforcement agency can effect beneficial changes in the law by adopting a probabilistic enforcement scheme that varies according to the category of taxpayer and type of transaction. Our model shows that properly "measuring" enforcement in this manner can increase overall social welfare without reducing tax revenues. Unlike case-by-case

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discretionary enforcement, which often results in costly uncertainty, measured enforcement operates via systemic, published policies that legal actors can respond to predictably. Accordingly, measured enforcement can offer substantial benefits not readily obtained through traditional lawmaking or enforcement schemes.

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I. Introduction

An unenforced law is tantamount to no law at all.¹ Of course, enforcing the law is costly. As a result, the government cannot ensure 100% compliance.² Scholars often assume that perfect enforcement of the laws, though unrealistic, is the ideal, and have focused on achieving the highest level of compliance possible at the lowest cost.³ More sophisticated analyses contemplate the benefits of discretionary enforcement, which allows a prosecutor or other enforcer leeway in determining whether conduct that may nominally fall within a law's ambit actually deserves punishment.⁴ These latter approaches

1. See, e.g., Anne L. Alstott, *The Earned Income Tax Credit and the Limitations of Tax-Based Welfare Reform*, 108 HARV. L. REV. 533, 584 (1995) (“[R]ules for assessing taxes or awarding benefits based on income or other criteria are useless unless those rules are enforced.” (footnote omitted)); ALBERT EINSTEIN, *My First Impressions of the U.S.A.*, in IDEAS AND OPINIONS 3, 6 (2010) (“The prestige of government has undoubtedly been lowered considerably by the Prohibition law. For nothing is more destructive of respect for the government and the law of the land than passing laws which cannot be enforced.”); Kenji Yoshino, *On Empathy in Judgment (Measure for Measure)*, 57 CLEV. ST. L. REV. 683, 685 (2009) (“[A]n unenforced law is worse than no law at all.”).

2. See Eric Biber, *The Importance of Resource Allocation in Administrative Law*, 60 ADMIN. L. REV. 1, 17 (2008) (“[N]o agency has limitless resources, and perfect enforcement of any statute is impossible. An administrative agency cannot function without setting priorities.” (citation omitted)); Edward K. Cheng, *Structural Laws and the Puzzle of Regulating Behavior*, 100 NW. U. L. REV. 655, 675–78 (2006) (explaining that enforcement of tax evasion laws is “predictably spotty” and that structural safeguards such as employers’ remission of employee taxes explain a large part of the approximately 80% tax compliance rate); Chris Guthrie, *Prospect Theory, Risk Preference, and the Law*, 97 NW. U. L. REV. 1115, 1142 (2003) (“The IRS has expansive enforcement powers, but it has insufficient resources to ensure that all taxpayers comply with the tax laws.”).

3. See, e.g., Nuno Garoupa, *The Theory of Optimal Law Enforcement*, 11 J. ECON. SURV. 267, 271–72 (1997) (discussing the social cost of the imposition of penalties); A. Mitchell Polinsky & Steven Shavell, *The Economic Theory of Public Enforcement of Law*, 38 J. ECON. LITERATURE 45, 71–72 (2000) (discussing methods for improving compliance and decreasing costs).

4. See, e.g., Jennifer F. Reinganum, *Plea Bargaining and Prosecutorial Discretion*, 78 AM. ECON. REV. 713, 722 (1988) (“Intuitively, when the arrest process does not do a good job of screening out the innocent . . . , then discretion

effectively allow the enforcer to tailor the substantive law on a case-by-case basis.⁵

In both approaches, uncertainty is viewed as a cost to the regulated parties.⁶ Even when enforcers enjoy discretion, standard models suggest that like cases should be treated alike to minimize costs.⁷ However, in the last few decades, scholars have begun to consider the potentially beneficial effects of uncertainty.⁸ In these models, enforcers do not concern themselves with treating like cases alike, instead adopting an enforcement “roulette wheel” whereby legal actors who violate the nominal law are not sure if they will be subject to punishment, so they calculate probabilities that their actions will be sanctioned.⁹ Interestingly, these models have shown that under certain conditions, this probabilistic enforcement can increase social welfare.¹⁰

at the prosecution stage is preferred. On the other hand, when the prosecutor can be confident that most defendants are guilty, the restriction to a uniform offer is preferred.”); cf. Albert J. Reiss, Jr., *Consequences of Compliance and Deterrence Models of Law Enforcement for the Exercise of Police Discretion*, 47 LAW & CONTEMP. PROBS. 83 (1984) (exploring how the shift from compliance-focused to deterrence-focused policing affected police officers’ and managers’ use of discretion).

5. See John T. Scholz, *Voluntary Compliance and Regulatory Enforcement*, 6 LAW & POL’Y 385, 387 (1984) (“Enforcement officials inevitably practice considerable discretion in resolving legal ambiguities in order to achieve intended policy results.” (citation omitted)); Kim Forde-Mazrui, *Ruling Out the Rule of Law*, 60 VAND. L. REV. 1497, 1550 (2007) (“In the law enforcement context, vague laws are objectionable because they vest so much discretion in the police that ‘enforcement’ decisions are, in effect, lawmaking.” (citation omitted)).

6. See Yuval Feldman & Doron Teichman, *Are All Legal Probabilities Created Equal?*, 84 N.Y.U. L. REV. 980, 1011–12 (2009) (“[R]educing legal uncertainty is costly . . .”).

7. See Richard A. Musgrave, *Horizontal Equity, Once More*, 43 NAT’L TAX J. 113, 113 (1990) (“Even in the utilitarian context, there is a good case for viewing horizontal equity as an independent norm.”); see also *Martin v. Franklin Capital Corp.*, 546 U.S. 132, 139 (2005) (“Discretion is not whim, and limiting discretion according to legal standards helps promote the basic principle of justice that like cases should be decided alike.” (citation omitted)).

8. See *infra* Part II.B.

9. See *infra* Part II.B.

10. See *infra* Part II.B.

In this Article, we consider probabilistic models of enforcement in the context of tax compliance. In so doing, we extend existing models in a manner that makes uncertainty more widely applicable as a potential enforcement mechanism. Unlike previous scholarship, we conduct a comprehensive normative analysis of the implications of our novel probabilistic enforcement approach.¹¹

We begin by considering the most basic models of tax compliance, in which the audit rate is set in advance and unchangeable, and the modelers attempt to determine the responses of taxpayers with various characteristics, such as income levels and risk preferences.¹² These models are merely predictive, offering the enforcer no ability to change its strategy in response to taxpayer behavior.¹³ In more sophisticated models, the taxing authority responds to the behavior of taxpayers and adapts its audit scheme accordingly.¹⁴

Some of these models examine the effects of uncertainty on taxpayers.¹⁵ Because each taxpayer is subject to an “audit

11. See *infra* Part III.

12. See James Andreoni et al., *Tax Compliance*, 36 J. ECON. LITERATURE 818, 824–25 (1998) (“A weakness of the Allingham–Sandmo model is that it assumes that the probability of audit is constant.”); see also Michael G. Allingham & Agnar Sandmo, *Income Tax Evasion: A Theoretical Analysis*, 1 J. PUB. ECON. 323, 324–27 (1972) (introducing a basic static model of tax compliance).

13. See Andreoni, *supra* note 12, at 824–25 (noting that models such as Allingham–Sandmo assume that audit rates do not change in response to taxpayer behavior).

14. See *id.* at 825 (“Recently, researchers have developed a more general theoretical framework in which the probability of audit is a function of reported income and is determined jointly with cheating as part of an equilibrium.”); see also Brian Erard & Jonathan Feinstein, *Honesty and Evasion in the Tax Compliance Game*, 25 RAND J. ECON. 1, 1–2 (1994) (referring to work “that incorporates the strategic behavior of the tax agency into the formal analysis, providing a link between tax agency audit policies and taxpayer reporting decisions”).

15. See, e.g., Kyle D. Logue, *Tax Law Uncertainty and the Role of Tax Insurance*, 25 VA. TAX REV. 339, 374 (2005) (“[G]iven the existing incentives to under-comply with the tax laws, maybe the deterrence value of a little legal uncertainty will at least help to even things out.”); Joseph E. Stiglitz, *Utilitarianism and Horizontal Equity: The Case for Random Taxation*, 18 J. PUB. ECON. 1, 2 (1982) (“Most of our analysis is focused on the desirability of random taxation.”); Laurence Weiss, *The Desirability of Cheating Incentives and*

lottery,”¹⁶ which yields uncertain outcomes, risk-averse taxpayers may behave quite differently than risk-neutral taxpayers do.¹⁷ Specifically, risk-averse taxpayers experience greater costs from the uncertainty of being audited,¹⁸ which can lead them to forgo the uncertainty of a tax penalty by honestly reporting their incomes and staying well within the letter of the tax law.¹⁹ Of course, risk aversion is no substitute in these models for strict enforcement; rather, it merely tempers the detrimental effects of an imperfect enforcement system that cannot prevent all cheating.²⁰

In contrast to the prevailing assumption that full enforcement of the tax laws would be ideal, a few scholars have argued that *fostering* less than 100% tax compliance with the nominal laws may actually increase social welfare.²¹ These

Randomness in the Optimal Income Tax, 84 J. POL. ECON. 1343, 1348 (1976) (“[T]he possible desirability of permitting incentives to cheat is implied by, and implies, the desirability of using a random rate in preference to a certain rate yielding the same revenue.”); see also Leigh Osofsky, *The Case Against Strategic Tax Law Uncertainty*, 64 TAX L. REV. 489, 493–502 (2011) (discussing various models involving tax law uncertainty).

16. See, e.g., Lawrence Zelenak, *Tax Enforcement For Gamers: High Penalties or Strict Disclosure Rules?*, 109 COLUM. L. REV. SIDEBAR 55, 56 (2009) (“Traditionally, a major attraction of tax shelters to gamers was the opportunity to play the audit lottery.” (footnote omitted)).

17. See *infra* Part II.B.1–2.

18. See Alex Raskolnikov, *Crime and Punishment in Taxation: Deceit, Deterrence, and the Self-Adjusting Penalty*, 106 COLUM. L. REV. 569, 635 n.263 (2006) (“[T]he deterrent effect of any given penalty on risk-averse potential [tax] offenders will exceed its expected value” (citations omitted)).

19. See Marsha Blumenthal & Charles Christian, *Tax Preparers*, in THE CRISIS IN TAX ADMINISTRATION 201, 205 (Henry J. Aaron & Joel Slemrod eds., 2004) (“If taxpayers are averse to the risk of an audit, they report more income as their uncertainty rises.”); Suzanne Scotchmer, *The Effect of Tax Advisors on Tax Compliance*, in 2 TAXPAYER COMPLIANCE: SOCIAL SCIENCE PERSPECTIVES 182, 187 (Jeffrey A. Roth & John T. Scholz eds., 1989) (“The risk-averse taxpayer may cope with involuntary risk by reporting conservatively.”); Margaret H. Lemos & Alex Stein, *Strategic Enforcement*, 95 MINN. L. REV. 9, 29 (2010) (“Fearful of the high penalties for tax evasion, risk-averse taxpayers will . . . try to secure the placement of their returns in the safe harbor zone.”).

20. See *infra* Part II.B.1.

21. See, e.g., J.C. Baldry, *The Enforcement of Income Tax Laws: Efficiency Implications*, 60 ECON. REC. 156, 156–57 (1984) (arguing that when the marginal cost of enforcement is positive, less than full enforcement may result in a budget surplus when taxpayers are risk-averse); Frank A. Cowell, *The*

scholars remind us that the imposition of taxes can cause economic distortions, such as dampening productivity, misallocating resources, and decreasing consumer demand.²² By “measuring” enforcement (in our terminology), these deadweight losses can be mitigated, sometimes so much so that the revenue lost from tax evasion is more than counterbalanced by tax revenues collected from compliant taxpayers on the income generated from their increased productivity, investment, and the like.²³ Of course, improving the substantive law directly would often be the ideal approach.²⁴ When doing so is infeasible, measured enforcement may become a “second best” solution.²⁵

However, most of these models rely on taxpayer risk aversion to achieve their effects.²⁶ Other models rely on unrealistic assumptions about tax enforcement, such as a lack of discretionary authority on the part of the enforcement agency.²⁷ In this Article, we show that by using its discretion to

Economic Analysis of Tax Evasion, 37 BULL. ECON. RES. 163, 183 (1985) (“[T]he government may be able to increase social welfare . . . by actually *encouraging* dishonesty . . .” (footnote omitted)); Serge-Christophe Kolm, *A Note on Optimum Tax Evasion*, 2 J. PUB. ECON. 265, 265–70 (1973) (suggesting, in a response to Allingham and Sandmo, that allowing some tax evasion could increase overall utility); Jonathan Skinner & Joel Slemrod, *An Economic Perspective on Tax Evasion*, 38 NAT’L TAX J. 345, 346 (1985) (“[I]n some circumstances tax evasion can contribute to economic efficiency.”); Weiss, *supra* note 15, at 1347 (“[C]heating may give rise to a welfare gain by making final wealth variable.”). See generally William M. Landes & Richard A. Posner, *The Private Enforcement of Law*, 4 J. LEGAL STUD. 1, 37 (1975) (arguing that to prevent “overenforcement,” the legislature does not set the tax enforcer’s budget at the level at which marginal revenue equals marginal enforcement costs).

22. See *supra* note 21.

23. See *infra* Part III.B.

24. See Cowell, *supra* note 21, at 183 (“[T]he structure of the second-best problem which one is solving [is such that] if taxes are distortionary and evasion provides a way of overcoming such distortions then the social value of reducing evasion becomes ambiguous.”).

25. See R.G. Lipsey & Kelvin Lancaster, *The General Theory of Second Best*, 24 REV. ECON. STUD. 11, 12 (1956) (“The general theorem of second best states that if one of the Paretian optimum conditions cannot be fulfilled a second best optimum situation is achieved only by departing from all other optimum conditions.”).

26. See *infra* Part II.B.

27. See, e.g., Garoupa, *supra* note 3, at 268–75 (aiming for the highest possible level of enforcement); see also *infra* Part II.B.

differentiate nominally uniform tax laws by adjusting the level of enforcement for different classes of taxpayers, the government may reduce deadweight losses from taxation, while maintaining or increasing its overall tax revenue, even for risk-neutral taxpayers and under realistic assumptions about tax enforcement. For example, by setting the audit rate for sellers of a good with positive externalities (such as books) lower than the one for sellers of a good with negative externalities (such as gasoline), the taxing authority can achieve the same effect on the laws that different *substantive* tax rates would—and similarly generate differentiated behavior among differently situated taxpayers. For this and other situations we present below, these differentiating effects of probabilistic, measured enforcement can lead to overall increases in social welfare and tax revenue when the taxing authority properly takes account of the relevant supply and demand curves and adjusts its enforcement strategy accordingly.

This finding has important benefits and consequences. First, it does not depend upon the risk aversion of taxpayers.²⁸ Some taxpayers—such as large corporations and very wealthy individuals—may have very low or even no risk aversion when considering an issue implicating tax compliance behavior.²⁹ Relatedly, our model dispenses with many of the assumptions of previous models, such as the shape of taxpayers' supply and demand curves, the "quality" of consumer goods, and the nature of penalties for noncompliance.³⁰ Second, our model suggests that

28. See *infra* note 161 and accompanying text.

29. See Joel Slemrod, *The Economics of Corporate Tax Selfishness*, 57 NAT'L TAX J. 877, 882 (2004) ("[T]he assumption of risk aversion seems unsatisfactory for a large publicly-held firm, because presumably the shareholders hold diversified portfolios, implying that the firm should behave as if it is risk-neutral, even if its shareholders are not."). Some corporate managers will certainly exhibit risk aversion in their decisionmaking processes, but large, publicly traded companies will be much closer to risk neutrality than closely held corporations or private individuals. See *id.* (explaining why publicly held corporations are likely to behave as if they are risk neutral); Joel Slemrod, *Cheating Ourselves: The Economics of Tax Evasion*, 21 J. ECON. PERSP. 25, 36 (2007) ("Arguably, we would expect large public companies to act in a risk-neutral manner, rather than like the risk-averse individuals in the Allingham and Sandmo (1972) model.").

30. See *infra* Part III.

in choosing who to audit, the taxing authority effectively has broad power to fine-tune the de facto content of substantive tax laws in order to achieve ends that may not be politically or administratively feasible by the legislature or through the substantive rulemaking process.³¹ That is, by engaging in measured enforcement, the tax authority can use its “on-the-ground” enforcement power to fine-tune—indeed, alter—the effect of statutes and regulations.³² In more theoretical terms, the tax agency can achieve a beneficial price discrimination of sorts in applicable tax rates, normally reserved to the monopolistic substantive lawmaking process,³³ by differentiating the enforcement of otherwise uniform laws.³⁴ Although the existing literature has recognized that differentiated substantive tax laws—for instance, Ramsey³⁵ and Pigouvian taxation³⁶—can increase social welfare, scholars have not fully appreciated the wide-ranging power of administrative agencies to effectively tailor substantive law via their enforcement strategies.³⁷

31. See *infra* Parts III–IV.

32. See *infra* Parts III–IV.

33. We thank Jordan Barry for this metaphor.

34. Price discrimination—that is, the ability to charge different prices to different consumers—is widely known to reduce the deadweight welfare losses caused by monopolies. See, e.g., SUZANNE SCOTCHMER, *INNOVATION AND INCENTIVES* 37 (2004) (“The deadweight loss imposed by a monopolist can be mitigated, and possibly eliminated, if the monopolist can discriminate on price.”).

35. See Joseph Bankman & David A. Weisbach, *The Superiority of an Ideal Consumption Tax Over an Ideal Income Tax*, 58 *STAN. L. REV.* 1413, 1420 n.10 (2006) (“Under Ramsey taxation, we should levy a tax on goods with low elasticity of demand because the quantities consumed are likely to change less when subject to taxation as compared to goods with high elasticities, thus minimizing deadweight loss.”).

36. See David Hasen, *Liberalism and Ability Taxation*, 85 *TEX. L. REV.* 1057, 1108 (2007) (“A cost-internalizing tax, sometimes referred to as a ‘Pigouvian tax’ (named for the economist A.C. Pigou), is designed to make the person who engages in an activity bear all and only the costs associated with the activity.” (citation omitted)).

37. See *infra* Part II.A–B. In this regard, the originality of our thesis is that changes in agency-level enforcement (not rulemaking) can lead to de facto changes in the law that have the same effect as customization at the substantive lawmaking level. See *infra* Parts III–IV.

Although legislators and rulemakers can respond dynamically to these de facto changes in the content of the law as applied, such power to tailor the law inevitably raises concerns and some potentially adverse consequences. Notably, measured enforcement may be less transparent than statutes or regulations that set different tax rates for different commodities.³⁸ Lack of transparency impedes accountability, which may set the stage for potential abuses.³⁹ Differential enforcement may also raise fairness concerns.⁴⁰ In addition, measured enforcement shifts power from the legislature or agency-level rulemaking process—which typically involves some form of democratic participation—to the discretion of the enforcement agency, which could raise due process and separation of powers concerns.⁴¹

Yet, each of these concerns about measured enforcement is in essence a concern about the existing system, which inevitably allows for auditing of only a small fraction of taxpayers, selected in a nontransparent way.⁴² Any strategy adopted by the tax agency to audit taxpayers—other than one that is wholly random—will have a de facto impact on the substantive tax law.⁴³ For example, when the Internal Revenue Service (IRS) set audit priorities that focused on high-risk noncompliance areas such as high-income nonfilers and users of offshore credit cards,⁴⁴ it increased the likelihood that other types of taxpayers could evade taxes undetected, implicitly allowing greater departures from the

38. See *infra* Part IV.B.3.

39. See, e.g., Dorit Rubinstein Reiss, *Account Me In: Agencies in Quest of Accountability*, 19 J.L. & POL'Y 611, 653–55 (2011) (explaining that in the 1970s the Food & Drug Administration strove to “increas[e] transparency to increase agency accountability and reduce abuses”).

40. See *infra* Part IV.B.5.

41. See *infra* note 268.

42. See I.R.C. § 6103(b)(2) (2012) (“Nothing in the preceding sentence, or in any other provision of law, shall be construed to require the disclosure of standards used or to be used for the selection of returns for examination, or data used or to be used for determining such standards . . .”).

43. See *infra* note 247 and accompanying text.

44. See *IRS Sets New Audit Priorities*, INTERNAL REVENUE SERV. (Sept. 2002), <http://www.irs.gov/uac/IRS-Sets-New-Audit-Priorities> (last visited Oct. 1, 2013) (identifying priority areas for IRS audits) (on file with the Washington and Lee Law Review).

law by the latter group of taxpayers. In contrast to these unintended consequences of discretionary enforcement, our model contemplates a more conscious and focused allocation of resources that strives to increase social welfare and, in so doing, can more consciously address the potentially adverse consequences of imperfect enforcement.⁴⁵ Moreover, our model intentionally increases the transparency of audit-selection criteria.

The remainder of the Article proceeds as follows. Part II reviews standard economic modeling of tax compliance. It discusses both traditional tax compliance models and conventional accounts of the effects of uncertainty on tax compliance and enforcement. In Part III, we introduce a novel model of tax uncertainty that relies on measured enforcement, whereby enforcement rates intentionally differ by the type of taxpayer and transaction, so as to induce increased compliance in some areas and decreased compliance in others. We show, using a basic formal model, that a measured enforcement strategy can reduce economic distortions while maintaining or increasing tax revenues. For example, in the context of a sales tax, measured enforcement can reduce both (1) deadweight losses resulting from decreased demand for taxed goods and (2) allocative distortions resulting from goods with externalities (positive or negative).

Finally, Part IV of the Article considers some implications and caveats of measured tax enforcement. Unlike previous scholarship, this Part undertakes a comprehensive review of the potential costs and complications of intentionally injecting uncertainty into the enforcement process.⁴⁶ Although we recognize that this sort of measured enforcement can sometimes be harmful, we argue that with a sufficiently knowledgeable enforcement agency operating under controlled conditions, this approach can lead to large welfare gains that may not easily be replicated by direct changes to the substantive law.⁴⁷ Accordingly, we conclude that measured enforcement is in effect a form of de facto substantive lawmaking and, like de jure lawmaking, can yield positive or negative results depending on the details of

45. See *infra* Part III.

46. See *infra* Part IV.

47. See *infra* Part IV.

implementation. This insight may yield benefits in many areas of the law.

II. Standard Economic Modeling of Tax Compliance

Traditional accounts of tax compliance generally assume that if enforcement were costless, it would be in the government's interest to maximize the amount of tax it collects.⁴⁸ This assumption implies that imperfect enforcement—which is inevitable, given enforcement costs—decreases social welfare by reducing overall tax revenues. More recently, some scholars have suggested that probabilistic tax enforcement may actually increase tax compliance relative to perfect enforcement, assuming that taxpayers are risk averse.⁴⁹ Specifically, these scholars assert that uncertainty in enforcement makes the costs of noncompliance higher for risk-averse taxpayers relative to completely certain (but imperfect) enforcement.⁵⁰

A few of the models relying on uncertainty also suggest that tolerating some “cheating” may increase social welfare if taxpayers are risk averse because imperfect compliance can reduce the deadweight losses caused by taxation.⁵¹ These models are an important building block for the model we introduce in the next Part.⁵² However, just a few models suggest (as we do) that, regardless of the risk profile of the taxpayers, imperfect tax enforcement, if correctly structured, can yield results superior to those of a costless system of perfect enforcement.⁵³ We discuss and critique below first the traditional models of tax compliance, then the more recent models.

48. See *infra* Part II.A.

49. See *infra* notes 77–88 and accompanying text.

50. See *infra* Part II.B.

51. See, e.g., Cowell, *supra* note 21, at 181–82 (arguing that deadweight losses may be reduced by noncompliance); Weiss, *supra* note 15, at 1343–44 (same).

52. See *infra* Part III.

53. See *infra* notes 141–44 and accompanying text.

A. Traditional Models

The basic model of tax compliance was developed by Michael Allingham and Agnar Sandmo,⁵⁴ and is based on Gary Becker's economic model of crime.⁵⁵ The model assumes that enforcement is costly and, thus, imperfect.⁵⁶ Accordingly, the taxing authority can only audit a fraction of all taxpayers, which allows some (possibly most) taxpayers to cheat and escape penalty.⁵⁷ In the most basic form of the Allingham–Sandmo model, the taxpayer faces the choice of either (1) complying with the tax law and thus paying a known amount, or (2) cheating but facing the possibility of detection and a sanction that includes a penalty in addition to the amount of the tax.⁵⁸ Thus, under the Allingham–Sandmo model, the expected cost of cheating depends on the audit rate (which is constrained by the government's enforcement budget) and the amount of the sanction.⁵⁹

For example, assume that a taxpayer is deciding whether or not to report \$5,000 of poker winnings. Assume that the applicable tax rate is 20%, so the tax at stake is \$1,000. Assume further that if the taxpayer fails to report the winnings and is

54. See Allingham & Sandmo, *supra* note 12, at 324–27 (introducing the basic static model of tax compliance).

55. See Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169, 172–84 (1968) (introducing an economic model for crime and punishment).

56. See Allingham & Sandmo, *supra* note 12, at 324 (“The tax declaration decision is a decision under uncertainty. The reason for this is that failure to report one’s full income to the tax authorities does not automatically provoke a reaction in the form of a penalty.”).

57. See *id.* (explaining that noncompliance does not necessarily result in a penalty).

58. “The model can be written as $EU = (1 - p) u(y + x) + pu(y - Fx)$ where EU is the expected utility, u is the utility function, p is the probability of audit (with assumed detection and sanction), y is the legal after-tax income, x is the amount of undeclared taxes, and F is the penalty applicable to the unpaid taxes.” Leandra Lederman, *The Interplay Between Norms and Enforcement in Tax Compliance*, 64 OHIO ST. L.J. 1453, 1463 n.46 (2003).

59. See *id.* at 1463 (“In the [Allingham–Sandmo] model . . . tax compliance depends on the probability of detection and the punishment if cheating is detected.” (footnote omitted)); Allingham & Sandmo, *supra* note 12, at 324 (explaining that a cheating taxpayer’s payoff will depend on whether or not the cheating is detected).

caught, the taxpayer will owe the \$1,000 plus a penalty of \$200, or \$1,200 in total.⁶⁰ If the audit rate is 1%, assuming that audits detect all evasion and all evaders must pay the tax and the penalty, the expected cost of noncompliance for a risk-neutral taxpayer is only \$12,⁶¹ while compliance costs \$1,000. In this basic model, therefore, at any realistic audit rate, an amoral taxpayer should always decide to cheat.⁶²

Of course, this model is simplified, and contains several important assumptions. Perhaps most importantly, it treats the audit rate as exogenously determined, rather than being affected by the taxpayer's reporting behavior. Tax authorities, including the IRS, typically do respond to taxpayer behavior in setting audit rates,⁶³ and taxpayers' reporting behavior may, in turn,

60. For simplicity, this example ignores the time value of money. In reality, interest generally would apply to the taxpayer's liability. For example, the Internal Revenue Code generally imposes interest on underpayments of tax. See I.R.C. § 6601(a) (2012) ("If any amount of tax . . . is not paid on or before the last date prescribed for payment, interest on such amount at the underpayment rate established . . . shall be paid for the period from such last date to the date paid."); *id.* § 6601(f) (providing for netting of underpayment and overpayment interest). *But cf. id.* § 6601(c) (allowing suspension of interest in certain circumstances).

61. The basic model is typically generalized to risk-averse taxpayers. See Allingham & Sandmo, *supra* note 12, at 324 (assuming that the taxpayer in their model is risk averse).

62. Despite the fact that the overall audit rate for individuals is quite low, the IRS estimates individuals' voluntary compliance rate at 83.1%. INTERNAL REVENUE SERV., IRS TAX GAP MAP FOR TAX YEAR 2006, http://www.irs.gov/pub/newsroom/tax_gap_map_2006.pdf. However, taxpayers lack the opportunity to evade taxes on many sources of income because of information reporting and withholding. See Leandra Lederman, *Statutory Speed Bumps: The Roles Third Parties Play in Tax Compliance*, 60 STAN. L. REV. 695, 697 (2007) (explaining that an important piece of the purported "puzzle" of high federal income tax compliance "is that the federal income tax law benefits from structural mechanisms that constrain payment with respect to the major sources of income for many people, including wages and salaries").

63. See Lederman, *supra* note 58, at 1467 ("Among other techniques, the IRS uses a secret formula with a multitude of variables that is designed to optimize the selection of returns for audit." (citations omitted)); James Alm et al., *The Relationship Between State and Federal Tax Audits*, in EMPIRICAL FOUNDATIONS OF HOUSEHOLD TAXATION 235, 236–37 (Martin Feldstein & James M. Poterba eds., 2008) (explaining that states use varied audit selection methodologies, including return characteristics).

respond to audit rates.⁶⁴ More sophisticated tax compliance models therefore treat the audit rate as endogenous,⁶⁵ such that the probability of audit is a function of reported income and is determined jointly with cheating as part of an equilibrium.

These traditional models also assume that if enforcement were costless, it would be optimal to set the audit rate at 100% so that taxpayers could not cheat.⁶⁶ Thus, the problem of optimizing the audit rate only occurs in these models because in a costly enforcement system, the government must determine how to allocate its limited resources so as to maximize tax revenue. In other words, traditional models presume that the substantive tax laws are necessarily optimal, so the failure to achieve 100% compliance is, on balance, a net social cost. As we explain in the next section, this assumption is flawed.

B. Standard Accounts of the Effects of Uncertainty

In the poker winnings example discussed above, the audit rate was clear and known to the taxpayer.⁶⁷ In reality, taxpayers may face uncertainty regarding their likelihood of audit.⁶⁸ The

64. See Andreoni et al., *supra* note 12, at 824 (“[T]axpayers may condition their reports on past reports and audit experiences, as well as future expectations.”).

65. See *id.* at 824–31 (reviewing models that treat the audit rate as endogenously determined).

66. See, e.g., Erard & Feinstein, *supra* note 14, at 4 (“[W]e derive the tax agency’s audit rule under the assumption that the agency seeks to maximize expected tax and penalty revenue net of audit costs, subject to an explicit budget constraint.”); Michael J. Graetz et al., *The Tax Compliance Game: Toward an Interactive Theory of Law Enforcement*, 2 J.L. ECON. & ORG. 1, 6 (1986) (“In our basic model, we assume that the IRS in its enforcement strategy attempts to maximize total government revenue, including taxes, interests, and penalties, net of audit costs.”); Louis Kaplow, *Optimal Taxation with Costly Enforcement and Evasion*, 43 J. PUB. ECON. 221, 221–22 n.3 (1990) (“[T]his paper examines the common case where, in principle, one would like to enforce fully the taxes one imposes if enforcement were costless.”).

67. See *supra* notes 61–62 and accompanying text.

68. See, e.g., Sarah B. Lawsky, *Modeling Tax Law’s Uncertainty*, 65 STAN. L. REV. 241, 258 (2013) (“The probability that a [tax] position will be struck down . . . encompasses a number of probabilities—the chance of audit, the chance of detection, and the chance that the position will be struck down—and none of these probabilities is known.”); John T. Scholz & Neil Pinney, *Duty*,

IRS publicizes general audit rates retrospectively⁶⁹ but closely guards the factors that increase the likelihood that an individual return will be audited.⁷⁰ Thus, taxpayers face uncertainty regarding the probability that cheating will be detected, as well as the probability of sanction.⁷¹

Moreover, the poker winnings example implicitly assumed that the tax law's application was clear. In that simple example, this assumption is realistic: the federal income tax unambiguously encompasses winnings of this type.⁷² Many other tax liability questions are far less clear, however. In fact, the government could choose to make the tax law intentionally unclear in an effort to increase tax compliance.⁷³ Does legal uncertainty increase tax compliance?⁷⁴ Existing literature responds to this question in different ways.

Fear, and Tax Compliance: The Heuristic Basis of Citizenship Behavior, 39 AM. J. POL. SCI. 490, 497–98 (1995) (finding, in a 1988 study of taxpayers asked to imagine understating income by \$500 or \$5,000, a mean perceived probability of detection across the two questions of 48%, reflecting a wide variance of answers).

69. The information available on the IRS website includes tables for 1998 through 2012 labeled “Examination Coverage: Recommended and Average Recommended Additional Tax After Examination, by Type and Size of Return and Fiscal Year.” See *Examination Coverage: Recommended and Average Recommended Additional Tax After Examination, by Type and Size of Return and Fiscal Year* (2013), INTERNAL REVENUE SERV. (last updated Mar. 25, 2013) <http://www.irs.gov/uac/SOI-Tax-Stats-Examination-Coverage-Recommended-and-Average-Recommended-Additional-Tax-After-Examination-IRS-Data-Book-Table-9a> (last visited Oct. 1, 2013) (listing general audit rates for past years) (on file with the Washington and Lee Law Review).

70. See Raskolnikov, *supra* note 18, at 590 (“Audit strategies such as the audit selection formulas are among the IRS’s most closely guarded secrets.” (citations omitted)).

71. See Lawskey, *supra* note 68, at 258 (noting taxpayer uncertainty about the likelihood the IRS will detect and penalize noncompliant reporting); Joel Slemrod & Shlomo Yitzhaki, *The Optimal Size of a Tax Collection Agency*, 89 SCANDINAVIAN J. ECON. 183, 185 (1987) (“The problem of tax evasion is inherently one of choice under uncertainty . . .”).

72. See I.R.C. § 61(a) (2012) (“Except as otherwise provided in this subtitle, gross income means all income from whatever source derived . . .”).

73. See Osofsky, *supra* note 15, at 494 (explaining that the application of both tax rules and standards can be uncertain).

74. In this Article, we use the term “uncertainty” in its broad sense to refer to unknown outcomes, encompassing both known and unknown probability distributions. See generally FRANK H. KNIGHT, RISK, UNCERTAINTY AND PROFIT

1. *The Effects of Uncertainty on Risk-Averse Taxpayers*

An important line of literature argues that uncertainty can foster tax compliance. Some of this literature focuses on unclear substantive law, arguing that taxpayers facing uncertain tax consequences from a completed transaction are likely to report more income.⁷⁵ Kyle Logue explains the intuition as follows:

[G]iven the existing incentives to under-comply with the tax laws, maybe the deterrence value of a little legal uncertainty will at least help to even things out. Indeed, the only thing preventing some taxpayers from being more aggressive in their tax planning may be the residual level of uncertainty within the tax laws. And this might even be Congress's intent; lawmakers may have left some uncertainties in the tax laws with the hope in mind that taxpayers, seeking to avoid uncertainty, would err on the side of caution.⁷⁶

Similar reasoning applies in the context of tax enforcement. Namely, a risk-averse taxpayer has a greater incentive to comply with the law to avoid a penalty in an uncertain regime than in a certain one. For example, Suzanne Scotchmer and Joel Slemrod "show in a simple model that with the probability of audit and

19–20, 197–232 (1921). Where known uncertainty ("risk" in the Knightian sense) leads to results in our model different from unknown uncertainty ("uncertainty" in the Knightian sense, sometimes referred to in the literature as "ambiguity"), we distinguish the two concepts. Otherwise, we treat them as one category for ease of exposition.

Moreover, unlike some economists, we do not limit the notion of increased uncertainty or risk to situations involving distributions of greater variance but the same mean—that is, a "mean-preserving spread"—of the variable of interest. See Michael Rothschild & Joseph E. Stiglitz, *Increasing Risk: I. A Definition*, 2 J. ECON. THEORY 225, 231 (1970) ("The concept of a [mean-preserving spread] is the beginning . . . of a definition of greater variability."). Here, we are concerned with the tax enforcement agency's ability to adjust enforcement rates up or down for certain classes of taxpayers in order to tailor enforcement. See *infra* Parts III–IV.

75. See Osofsky, *supra* note 15, at 500–01 ("[I]f taxpayers believe that . . . the Service will audit more frequently in response to strategic uncertainty . . . [t]axpayers may respond by reporting higher tax liability in order to avoid a higher perceived chance of audit and resulting costs . . .").

76. Logue, *supra* note 15, at 374 (citations omitted).

finer fixed, randomness in assessed taxable income generally enhances revenue” when taxpayers are risk averse.⁷⁷

Laurence Weiss relied on the same basic risk-aversion assumption to find that random taxation (which gives rise to uncertainty for taxpayers) is socially beneficial in a world in which lump sum taxation—in other words, taxing everyone the same amount regardless of income—is not feasible, so income is taxed instead.⁷⁸ Weiss’s model adapts the traditional model of tax compliance by allowing taxpayers to choose how much labor to supply to the market in addition to choosing how much to cheat on their taxes.⁷⁹ Weiss’s advance is in recognizing that cheating may reduce the distortions resulting from the diminution in labor resulting from an income tax.⁸⁰ Moreover, if the penalty is set appropriately, risk-averse taxpayers can be deterred from excessive cheating, so that overall welfare increases.⁸¹

Building upon the models of Weiss and others,⁸² Frank Cowell argued that “[n]o coherent reason [has been] advanced as

77. Suzanne Scotchmer & Joel Slemrod, *Randomness in Tax Enforcement*, 38 J. PUB. ECON. 17, 18 (1989) (footnote omitted). Their model assumes a linear tax rate and, as is standard, the imposition of a penalty when an audit reveals underreporting, but no “reward” if the audit reveals overreporting. *Id.* at 20. Their model and similar ones inherently require the assumption of taxpayer risk aversion. *See id.* (assuming a risk averse taxpayer); Baldry, *supra* note 21, at 157, 158 (same); Cowell, *supra* note 21, at 181 (same); Graetz et al., *supra* note 66, at 12 (same); Weiss, *supra* note 15, at 1343 (same).

78. Weiss, *supra* note 15, at 1343–44 (“[S]tarting from a position in which no one cheats, it is to the advantage of all agents to have incentives to cheat, while these incentives might be provided without any loss of (expected) tax revenues.”).

79. *See id.* (permitting taxpayers to choose how much labor to supply).

80. *See id.* (discussing the economic benefits of noncompliance); Shlomo Yitzhaki, *On the Excess Burden of Tax Evasion*, 15 PUB. FIN. Q. 123, 123 (1987) (“Weiss (1976) has recently challenged the popular view, suggesting that societies may actually benefit from allowing the taxpayer to cheat.”).

81. Yitzhaki argues that the welfare gains from encouraging taxpayer cheating will not “increase[] welfare beyond what will be achieved by an optimal tax rate” adopted in the substantive law. Yitzhaki, *supra* note 80, at 134.

82. Cowell builds upon the work of J.C. Baldry, who in turn builds upon Serge-Christophe Kolm’s model. *See* Baldry, *supra* note 21, at 156–57 (arguing that when the marginal cost of enforcement is positive, less than full enforcement may result in a budget surplus when taxpayers are risk-averse); Kolm, *supra* note 21, at 265–70 (suggesting, in a response to Allingham and Sandmo, that allowing some tax evasion could increase overall utility for risk-

to why one [would be] interested in eliminating tax evasion in the first place.”⁸³ Like Weiss, Cowell adopts a model in which risk-averse taxpayers select how much to engage in tax evasion and how much labor to supply, but Cowell also models how the “effective expected real wage” from labor changes when the government alters its audit strategy.⁸⁴ Cowell concludes that “the impact on Social Welfare of an increase in detection probability is in general not clear cut *even if there were no marginal costs . . .* . So the government may be able to increase social welfare . . . by actually *encouraging* dishonesty.”⁸⁵ Like Weiss’s model, Cowell’s work is an important recognition that the government may reduce deadweight losses from taxation by encouraging noncompliance, but it is limited to circumstances involving risk-averse taxpayers.⁸⁶

2. *The Effects of Uncertainty on Risk-Neutral Taxpayers*

In line with the discussion above, Joseph Stiglitz developed a compliance model involving a consumption tax and found that random tax rates are generally the government’s best approach.⁸⁷

averse taxpayers). Because Cowell’s model is a more complete exposition of Baldry’s and Kolm’s earlier models, for simplicity, we refer to the group of them as “Cowell’s model” in the remainder of the article. See *infra* notes 83–86 and accompanying text; Frank A. Cowell, *Public Policy and Tax Evasion: Some Problems, in THE ECONOMICS OF THE SHADOW ECONOMY* 273 (Wulf Gaertner & Alois Wenig eds., 1985) (making a claim similar to Baldry’s regarding imperfect enforcement).

83. Cowell, *supra* note 21, at 181.

84. *Id.* at 181–82; see also Cowell, *supra* note 82.

85. Cowell, *supra* note 21, at 182–83. *But see* Slemrod & Yitzhaki, *supra* note 74, at 188 n.5 (arguing that Cowell’s analysis is incorrect because he mistakenly concluded that a term in his equation must be less than zero, a critical component of his conclusion that welfare falls as the probability of detection and penalty rises).

86. See Cowell, *supra* note 21, at 168 (making the assumption that the taxpayer’s utility function is concave for consumption); Cowell, *supra* note 82, at 275 (noting the second derivative of the utility function is negative); Laura Schechter, *Risk Aversion and Expected-Utility Theory: A Calibration Exercise*, 35 J. RISK UNCERTAINTY 67, 67 (2007) (“According to expected-utility theory, risk aversion arises due to the concavity of the utility function.”).

87. See Stiglitz, *supra* note 15, at 9, 15 (“The larger the revenue to be

His model, like Weiss's, assumes risk-averse taxpayers.⁸⁸ However, F.R. Chang and D.E. Wildasin extended the Stiglitz model to risk-neutral taxpayers.⁸⁹ They confirmed Stiglitz's finding that randomizing the tax on a consumption good is generally optimal.⁹⁰ However, instead of using a utility-maximizing approach, they adopted an expenditure-minimization model in which overall consumer expenditures are minimized for a desired level of utility.⁹¹ Like Stiglitz—and unlike the model we present below—Chang and Wildasin focus on randomizing tax rates, rather than enforcement.⁹²

raised . . . and the more negative the curvature of the demand function, the more likely is random taxation to be desirable.”); see also James Alm, *Uncertain Tax Policies, Individual Behavior, and Welfare*, 78 AM. ECON. REV. 237–42 (1988) (elaborating on Stiglitz's model and finding that increasing declared income in the presence of uncertainty depends on absolute and relative levels of taxpayer risk aversion); Wojciech Kopczuk, *Redistribution When Avoidance Behavior is Heterogeneous*, 81 J. PUB. ECON. 51, 65 (2001) (“As long as [tax] avoidance is more easily accessible to individuals to whom one wants to redistribute income, its existence may be welfare improving.”); Wolfram F. Richter & Robin W. Boadway, *Trading Off Tax Distortion and Tax Evasion* 18 (CESifo, Working Paper No. 505, 2001), available at <http://ssrn.com/abstract=277282> (examining the potentially beneficial results of noncompliance for risk-averse taxpayers).

88. See Jennifer F. Reinganum & Louis L. Wilde, *Income Tax Compliance in a Principal-Agent Framework*, 26 J. PUB. ECON. 1, 13 (1985) (“Stiglitz (1976) and Weiss (1976) have suggested that randomness in the tax or audit rates may have beneficial incentive effects when labor supply decisions are endogenous and individuals are risk averse.”); A. Mitchell Polinsky & Steven Shavell, *The Optimal Tradeoff Between the Probability and Magnitude of Fines*, 69 AM. ECON. REV. 880, 884–85 (1979) (examining the effects of fines on risk-averse individuals).

89. See F.R. Chang & D.E. Wildasin, *Randomization of Commodity Taxes: An Expenditure Minimization Approach*, 31 J. PUB. ECON. 329, 330, 342 (1987) (explaining that their model, unlike Stiglitz's, does not depend on taxpayer risk aversion, though it also involves two identical consumers).

90. See *id.* at 344 (“[W]e have found necessary and sufficient conditions for randomization of the tax structure to be Pareto improving, if accompanied by lump-sum interpersonal transfers.”).

91. See *id.* at 330, 342 (explaining that their model, unlike Stiglitz's, does not depend on taxpayer risk aversion).

92. See *id.* at 330 (“[W]e present and interpret necessary and sufficient conditions for a small move toward a random tax structure, i.e. ‘local randomization’, to be desirable.”); Stiglitz, *supra* note 15, at 4 (“[W]e provide conditions in which a slight randomization in the tax rate would lead to Pareto improvement (in terms of ex ante expected utility).”). The same holds true for

Jennifer Reinganum and Louis Wilde developed a model in which risk-neutral taxpayers are uncertain about enforcement costs and therefore uncertain about how much of an understatement will trigger an audit.⁹³ In their model, the IRS maximizes its revenue after enforcement costs, so it will tolerate cheating where the net return on enforcing the laws against a particular taxpayer will not be positive.⁹⁴ Reinganum and Wilde found that, in their model, increasing enforcement uncertainty increases compliance at first, but unless penalties are sufficiently high—greater than 100%—after a certain point, increased uncertainty will decrease compliance.⁹⁵ That model therefore considers the effects of uncertainty on risk-neutral taxpayers, but it follows the traditional approach of trying to maximize taxpayer compliance.⁹⁶

Alm's model, which elaborates upon Stiglitz's model. Alm, *supra* note 87, at 237–44. Additionally, like Stiglitz, Chang and Wildasin assume that the two taxpayers in the model are identical in terms of their revenue, demand, and utility curves, limiting their model's applicability. See Chang & Wildasin, *supra* note 89, at 332–33 (describing the initial conditions for their chosen model including "identical compensated demand curves for each household evaluated at a common level of utility"); Stiglitz, *supra* note 15, at 5 ("Assume, for simplicity, there are two identical individuals.").

93. See Jennifer F. Reinganum & Louis L. Wilde, *A Note on Enforcement Uncertainty and Taxpayer Compliance*, 4 Q.J. ECON. 793, 795 (1988) (assuming taxpayer uncertainty about IRS enforcement costs).

94. *See id.*

95. *See id.*

96. *See id.* at 797. Isabel Sánchez and Joel Sobel also developed a model involving risk-neutral taxpayers, focusing on the relationship between the government as the principal and the IRS as the agent conducting the audits. See Isabel Sánchez & Joel Sobel, *Hierarchical Design and Enforcement of Income Tax Policies*, 50 J. PUB. ECON. 345, 345–46 (1993) (emphasizing the conflict between the tax policy maker and the auditor). However, like Reinganum and Wilde's model, Sánchez and Sobel assume a revenue-maximization enforcement strategy, rather than focusing on maximizing social utility. *Id.* at 349. Border and Sobel adopt a similar principal-agent model, in which the government is the principal and risk-neutral taxpayers are the agents. See Kim C. Border & Joel Sobel, *Samurai Accountant: A Theory of Auditing and Plunder*, 54 REV. ECON. STUD. 525, 525–29 (1987) (utilizing a principal-agent model). Again, however, the model is limited to a revenue-maximization enforcement strategy. *See id.*; see also Suzanne Scotchmer, *Audit Classes and Tax Enforcement Policy*, 77 AM. ECON. REV. 229 (1987) (also assuming a revenue-maximization strategy). While a study by Mookherjee and Png extends these models to situations involving a fixed revenue goal of the enforcement agency, it assumes risk-averse

A significant departure from all of these models is a relatively obscure article by Urs Schweizer, published in a German economics journal, addressing whether tax evasion can increase social welfare.⁹⁷ Like the Chang–Wildasin and Reinganum–Wilde models, Schweizer considers risk-neutral taxpayers, specifically importers that are subject to excise taxes.⁹⁸ However, contrary to the usual assumption of revenue-maximization, Schweizer assumes that the government only has a fixed revenue target in order “to finance some public projects.”⁹⁹ Schweizer’s model divides up importers into two classes: tax evaders and non-evaders.¹⁰⁰ In one scenario, the evaders and non-evaders sell the same goods and have the same cost structure, but the evaders must expend resources in order to avoid detection by the taxing authorities.¹⁰¹ Schweizer shows that when evasion is costly and the demand elasticities—the change in consumer demand when prices go up or down—are identical, then perfect enforcement is optimal because evasion costs give rise to deadweight losses resulting from the fact that some consumers are precluded from purchasing the product they would have bought absent costly evasion.¹⁰² However, in Schweizer’s second scenario, the evaders and non-evaders have different cost structures, making less-than-perfect (and, hence, uncertain) enforcement optimal when the evaders sell at a lower marginal

taxpayers. See Dilip Mookherjee & Ivan Png, *Optimal Auditing, Insurance, and Redistribution*, 104 Q.J. ECON. 399, 400–01 (1989).

97. Urs Schweizer, *Welfare Analysis of Excise Tax Evasion*, 140 ZEITSCHRIFT FÜR DIE GESAMTE STAATSWISSENSCHAFT 247 (1984).

98. *See id.* at 247.

99. *See id.* (“Suppose the government needs a certain amount of resources to finance some public projects and taxing imports is the only feasible source for raising revenues.”); cf. Dilip Mookherjee & I.P.L. Png, *Enforcement Costs and the Optimal Progressivity of Income Tax*, 6 J.L. ECON. & ORG. 411, 412 (1990) (“[T]he planner seeks to maximize social welfare subject to raising some target revenue.”).

100. Schweizer, *supra* note 97, at 248.

101. *Id.* at 248–53; cf. Cowell, *supra* note 21, at 183 (“[E]vasion activities might per se imply higher marginal costs of production because of all the tedious business of having to hide the stuff when the King’s Men call.”). Note that Cowell’s observation suggests that tax-evading sellers would never have *lower* marginal costs than non-evading sellers.

102. *See* Schweizer, *supra* note 97, at 248–53 (modeling this approach).

cost than the non-evaders and demand is income-inelastic, meaning that consumer demand does not change as consumer income increases or decreases.¹⁰³

Schweizer's work, although scarcely cited in later literature, is important in two respects. First, Schweizer, like Weiss and Cowell, contemplates that limiting enforcement may have beneficial welfare effects.¹⁰⁴ Second, Schweizer considers the context in which the government sets a specific revenue target, rather than simply trying to maximize revenue,¹⁰⁵ which is more reflective of how governments should behave when attempting to maximize social welfare.¹⁰⁶

However, Schweizer's model is limited in two key ways, making its application relatively limited (and perhaps explaining why it has not been heavily cited). First, because Schweizer's starting point is an examination of the conclusion in an earlier article by Jagdish Bhwagati and Bent Hansen that evading import tariffs reduces welfare,¹⁰⁷ Schweizer limits his exposition to excise taxes and makes little effort to generalize his results, even conceptually.¹⁰⁸

103. See *id.* at 257 ("If . . . marginal costs of non-evaders at an output level sufficiently high exceed those of evaders operating at a level moderate enough, the optimal policy has to allow for at least some tax evasion.").

104. See *id.*

105. See *id.* at 248, 253–56 (using a revenue target in the analysis).

106. See STAFF OF JOINT COMM. ON TAXATION, 106TH CONG., STUDY OF PRESENT-LAW PENALTY AND INTEREST PROVISIONS AS REQUIRED BY SECTION 3801 OF THE INTERNAL REVENUE SERVICE RESTRUCTURING AND REFORM ACT OF 1998, at 33 (Comm. Print 1999), <http://www.jct.gov/s-3-99.pdf>

The government's policy objective . . . is to maximize 'social welfare.' With respect to taxes, its objective is to design a tax system that raises the desired amount of revenues in an equitable and efficient manner, taking into consideration the likely response of the public to the policies it adopts.

107. See Schweizer, *supra* note 97, at 247 (discussing Jagdish Bhagwati & Bent Hansen, *A Theoretical Analysis of Smuggling*, 87 Q.J. ECON. 172 (1973), and noting that the analysis presented in the remainder of his article relies on a different assumption about the government's revenue goal).

108. See *id.* at 248 ("The present paper deals with welfare problems arising from evading—to differentiate our product from Sandmo's—excise instead of income taxes by an admittedly less general approach.").

Second, and more importantly, the only context Schweizer identifies in which some evasion increases welfare requires an artificial, exogenous distinction between evaders and non-evaders that effectively begs the question of whether less-than-perfect enforcement is optimal.¹⁰⁹ Specifically, Schweizer finds that if, at a sufficiently high output level, evaders have lower marginal costs in producing the goods, then—particularly if product demand is income-inelastic—allowing some evasion is optimal.¹¹⁰ That is, if evaders have a lower marginal cost structure, it is socially optimal to shift some purchasing to them from the non-evaders because that will, by definition, increase producer surplus (effectively, profits), some of which the government can capture via penalties that counterbalance any lost taxes that otherwise would have been paid up front by the non-evaders.¹¹¹

The principal problem with this approach is that it depends on tax evaders having lower marginal cost curves than non-evaders. One generally would not expect that to be the case.¹¹² If we imagine the producers of a certain product arrayed along the spectrum of their marginal cost curves, we would not expect to see those with the lowest marginal costs choosing to evade taxes while the others do not. In reality, an economic decision to engage in tax evasion is made in the context of whether the benefits of doing so outweigh the costs.¹¹³ Moreover, if the market is competitive, those with higher marginal costs risk being put out of business because the market price is below their cost. The producers with higher marginal cost curves may therefore be more likely to choose to engage in tax evasion.

It might be possible, however, that a seller's decision to evade taxes drives down its costs of production—if the taxes evaded are not just the excise tax in question but taxes on inputs, too, such as employment taxes owed with respect to workers and taxes due on capital inputs. That is, by paying workers cash and buying

109. See *id.* at 253–54 (assuming without explanation that the evaders' marginal costs are constant but the non-evaders' marginal costs are strictly increasing).

110. See *id.* at 257.

111. See *id.* at 254–55.

112. See *supra* note 101.

113. See *supra* notes 54–58 and accompanying text.

inputs on the black market, a dishonest producer might succeed in lowering its costs.¹¹⁴ Of course, the good produced with black market inputs might not be a perfect substitute for the good others are selling,¹¹⁵ and the model requires that.¹¹⁶ But even if the resulting good is identical, the cheating producer's lower costs were produced through evasion of other taxes, begging the question of whether perfectly enforcing *those* taxes is optimal or welfare-reducing. Schweizer's model does not consider this possibility. In addition, Schweizer abstracts away from the allocative distortions of taxation by analyzing sales of the same good with demand that is income-inelastic. Thus, while Schweizer's work is important in that it recognizes that there may be welfare benefits to imperfect tax enforcement, the context he applies it to is narrow and not particularly realistic.¹¹⁷

114. See Agnar Sandmo, *The Theory of Tax Evasion: A Retrospective View*, 58 NAT'L TAX J. 643, 653 (2005) ("When firms and consumers hire black market labor, it must be because it is cheaper; gross wages must be lower than in the regular economy.").

115. See *id.* (explaining that goods produced in the "below-ground" economy (B) are not perfect substitutes for goods produced in the "above-ground" economy (A): "Even where the A and B sectors appear to produce the 'same' good or service, consumers will often prefer A's output on account of better reputation, follow-up service, warranty or return policy, lower search costs, and the like").

116. See Schweizer, *supra* note 97, at 257 ("[T]he analysis is restricted to the case of two commodities to be distinguished only with respect to whether they are legally exchanged or sold by tax evading suppliers. For buyers, the two commodities are perfect substitutes.").

117. Without citing Schweizer's article, Carl Davidson, Lawrence Martin, and John Douglas Wilson present a similar model, in an effort to answer the question of whether the welfare benefits of allowing some tax evasion or the allocative distortions resulting from evasion dominate. See Carl Davidson et al., *Efficient Black Markets?*, 91 J. PUB. ECON. 1575, 1589–90 (2007) (not listing Schweizer among the references). Like Schweizer's, the Davidson et al. model is of limited generalizability. Its finding that only if the black market consists of high-quality goods is its existence welfare-enhancing depends upon a complex interaction among product quality, consumer tastes, capital inputs, and a penalty that depends partly upon retained capital (rather than revenue or income). See *id.* at 1582–84 (discussing the assumptions and outcomes of their model). The Davidson et al. article is discussed further below. See *infra* Part IV.B.5.

3. The Possibility that Uncertainty Decreases Tax Compliance

Contrary to the models discussed above, which generally predict that uncertainty will increase tax compliance, Leigh Osofsky has countered that uncertainty in the substantive tax law may decrease tax revenues.¹¹⁸ To be certain, the models discussed above concerned uncertainty in enforcement, not in the substantive tax law, and most of Osofsky's arguments therefore do not apply in the enforcement context.¹¹⁹ One of her arguments, however, does.¹²⁰ Specifically, Osofsky argues that "strategic uncertainty may cause taxpayers to perceive ambiguity, rather than [knowable] risk, regarding particular tax issues."¹²¹ Osofsky

118. See Osofsky, *supra* note 15, at 493 ("Tax law uncertainty, in this context, means any type of tax law question that a taxpayer cannot definitively resolve based on the available tax law authority.").

119. First, Osofsky argues that the amount of tax penalties imposed systematically declines as legal uncertainty increases because most tax penalties do not apply if the taxpayer is not negligent or otherwise has a basis for the position taken on the return. *Id.* at 508–11. Of course, when there is certainty in the law, but uncertainty in enforcement, the taxpayer has no basis to argue its noncompliance was non-negligent. Second, she contends that even if increased uncertainty led taxpayers to fear an increased chance of audit, some taxpayers might report less in an effort to gain in negotiations with the IRS over the tax liability. *Id.* This argument, however, relies on the taxpayer gaining a plausible basis for underreporting from uncertainty in the substantive law:

Under tax law uncertainty, . . . the taxpayer faces much less strategic downside from reporting less tax liability, and instead may experience much upside as a negotiation tactic If the Service questions a low tax liability report, but the report remains within the confines of the tax law, the Service has little leverage to demand a higher payment.

Id. at 533. Last, Osofsky contends that uncertainty may increase the use of tax return preparers, who have been shown to decrease compliance for questions involving legal uncertainty. *Id.* at 535–36. Here again, Osofsky notes that it is uncertainty "in the tax law" that drives taxpayers to resort to preparers (as well as preparers' aggressive positions); uncertain enforcement would not have that effect. See *id.* at 537 ("Strategic uncertainty may provide the professional tax return preparers who taxpayers may increasingly employ more ample ground for exploitation of uncertain tax law.").

120. Another argument is relevant—namely, that uncertainty in the law may "seem[] fundamentally unfair," which may cause some taxpayers to "shirk[] their taxpaying obligations to a greater extent." *Id.* at 524. We address this argument below. See *infra* Part IV.B.5.

121. See Osofsky, *supra* note 15, at 492.

suggests that in the face of ambiguity, taxpayers “who view their chances of success as low under certain tax law, may welcome the chance to take a gamble when the likelihood of disallowance of the favorable tax position becomes less certain.”¹²² In this event, ambiguity will increase the overall level of dishonesty.¹²³

We agree with Osofsky that to the extent that some taxpayers are ambiguity-seeking, their compliance in the face of uncertainty may decrease. However, uncertainty need not always generate ambiguity—as Osofsky recognizes, uncertainty may merely result in knowable risk.¹²⁴ Under enforcement schemes that merely increase knowable risk, like the one we advocate below, it is only those taxpayers that are truly risk preferring that may decrease compliance.¹²⁵ Although some risk-preferring taxpayers surely exist, those numbers are very likely low.¹²⁶ Thus, while Osofsky’s work is important in the context of uncertain substantive tax law, it does not significantly affect the analysis of the measured enforcement model we contemplate here.

Taxpayers may have divergent reactions to increased ambiguity, whereby taxpayers with a low chance of success on the merits would be more likely to claim tax benefits, whereas taxpayers with a high chance of success on the merits would have the opposite inclination. As a result, the impact of strategic uncertainty on revenue becomes unclear.

Id.

122. *Id.* at 504.

123. *See id.* at 505.

124. *See id.* at 503 (explaining that “risk exists when taxpayers face known probabilities of particular outcomes. Risk may increase as the potential outcomes (or their percentage likelihoods) change, but in any event the probability of the potential outcomes remains known”).

125. *Cf.* Jeffrey Partlow, *The Necessity of Complexity in the Tax System*, 13 WYO. L. REV. 303, 315 (2013) (“The audit lottery and self-reporting nature of the tax system permit aggressive taxpayers to test the system and take advantage of ambiguity . . .”).

126. *See* Lawrence Zelenak, *The Sometimes-Taxation of the Returns to Risk-Bearing Under a Progressive Income Tax*, 59 SMU L. REV. 879, 909 (2006) (noting how risk-preferring investors are “rare”).

III. A Novel Uncertain Tax Enforcement Model

As Part II demonstrated, existing models of tax compliance are incomplete. The traditional models do not take uncertainty into account and treat revenue-maximization as the goal.¹²⁷ The risk-aversion models ignore the possibility that uncertainty may also be beneficial for risk-neutral taxpayers.¹²⁸ The models involving risk-neutral taxpayers adhere to the traditional assumption of revenue-maximization or are limited in scope.

The revenue-maximization assumption on which many of the models rest is particularly limiting because it focuses on maximizing tax receipts without regard to the effect of the tax laws on overall social welfare. It is well-known that taxation may cause market distortions, resulting in deadweight losses.¹²⁹ For example, income taxes may cause labor and productivity declines because they keep individuals from capturing the full benefits of their labor.¹³⁰ Similarly, taxes on returns to capital can reduce

127. See *supra* Part II.

128. Yitzhaki argues that one of Weiss's examples actually relates to a risk-neutral taxpayer, not a risk-averse taxpayer, as Weiss contends. See Yitzhaki, *supra* note 80, at 134–35 (explaining how the risk-aversion assumption is violated). However, Yitzhaki does so in the context of attempting to refute Weiss's claim that taxpayer "cheating" can increase social welfare, rather than presenting a general model of how noncompliance among risk-neutral taxpayers can increase welfare. See *id.* at 135 ("We were unable to find any other examples that will confirm Weiss's contention. The question of whether there exists an example in which it is desirable to allow the taxpayer to cheat is still open.").

129. See, e.g., N. GREGORY MANKIW, *PRINCIPLES OF ECONOMICS* 159 (6th ed. 2011) ("[B]ecause taxes distort incentives, they cause markets to allocate resources inefficiently."); Joel B. Slemrod, *The Economics of Taxing the Rich*, in *DOES ATLAS SHRUG? THE ECONOMIC CONSEQUENCES OF TAXING THE RICH* 3, 24 (Joel B. Slemrod ed., 2000) ("[T]he tax system clearly induces people to rearrange their behavior, and these changes are evidence of an unseen but real cost of levying taxes.").

130. See Hasen, *supra* note 36, at 1074 ("[T]he policymaker . . . must address the problem that individuals substitute untaxed leisure for work when the marginal income tax rate is high enough."). A tax may also give rise to an "income effect," however, in which taxpayers compensate for their post-tax decrease in consumption power by working more. See Linda Sugin, *A Philosophical Objection to the Optimal Tax Model*, 64 *TAX L. REV.* 229, 233 (2011) ("Income effects look at how people manage their income in response to a tax. For example, an orange lover might earn more money to afford the expensive oranges that he craves."). In Part IV, we consider the role of income effects as they apply to our model.

the incentive for investment,¹³¹ and overall consumption may decrease in the face of sales and use taxes.¹³² Although decreased market activity is sometimes the aim of these taxes—that is, Pigouvian taxation¹³³—often, the primary focus is simply to raise revenue.¹³⁴

In addition, all of these declines in market activity can be associated with overall allocative distortions if market actors are differentially affected by taxes, which is invariably the case.¹³⁵ For example, relatively inelastic goods, such as cigarettes, will be subject to less decreased demand in the face of consumption taxes than are relatively elastic goods, such as floral arrangements.¹³⁶ Taxes will thus not only decrease overall consumption for both of these goods, but introduce allocative distortions relative to a free market by reducing consumption of one good (here, flowers) more,

131. See JIM SAXTON, JOINT ECON. COMM., 105TH CONG., *THE ECONOMIC EFFECTS OF CAPITAL GAINS TAXATION* 10 (1997), available at http://www.jec.senate.gov/republicans/public/?a=Files.Serve&File_id=fb9bda51-34e1-44ccbfaad-2c82d2539ac7 (last visited Sept. 30, 2013) (“[T]here are many provisions in the tax code which discriminate against saving and investment and outweigh the preferential treatment of capital gains.”) (on file with the Washington and Lee Law Review).

132. See MANKIW, *supra* note 129, at 162 (“[T]ax raises the price paid by buyers, so they consume less. At the same time, . . . tax lowers the price received by sellers, so they produce less. Because of these changes in behavior, the size of the market shrinks below the optimum.”).

133. See Tatiana Andreyeva et al., *The Impact of Food Prices on Consumption: A Systematic Review of Research on the Price Elasticity of Demand for Food*, 100 AM. J. PUB. HEALTH 216, 216 (2010), <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2804646/pdf/216.pdf> (“Experience from tobacco tax regulation . . . underscores the power of price changes to influence purchasing behavior and, ultimately, public health.”); see also *supra* note 36.

134. See William B. Barker, *International Tax Reform Should Begin at Home: Replace the Corporate Income Tax with a Territorial Expenditure Tax*, 30 NW. J. INT’L L. & BUS. 647, 651 (2010) (“The first and most obvious function of taxation is raising revenue. Today, with the ever-increasing problem of tax competition, governments are looking for new, dependable sources of revenue.” (footnotes omitted)).

135. See Kunio Kawamata, *Price Distortion and Potential Welfare*, 42 ECONOMETRICA 435, 435 (1974) (“If a government imposes sales taxes, or subsidizes several industries and keeps some prices higher than others, there is a distortion in the market mechanism, in the sense that not all of the agents in the economy face or act on the same ratios.”).

136. See *infra* notes 145–46 and accompanying text.

in an applicable economic sense, than the consumption of another good (here, tobacco).¹³⁷

Accordingly, our model focuses on overall social utility rather than simply looking to maximize tax collections regardless of the social costs. Specifically, our model makes three significant contributions to the literature. First, in contrast to all but a handful of economic models, which have been largely ignored in legal scholarship,¹³⁸ we show that—because of the distortionary effects of taxation—it may be in the government’s interest to intentionally induce some taxpayers *not* to comply with the tax laws as they appear on the books. Second, we show that tax uncertainty may yield social benefits even with respect to risk-neutral taxpayers, particularly sellers of generic goods that endogenously choose to comply (or not) with the tax laws. In contrast to the few economic models finding noncompliance socially beneficial even if taxpayers are risk neutral, our model does not assume that perfect compliance is optimal or rely on unrealistic assumptions about factors such as product quality.¹³⁹ Third, unlike the economics literature—which has essentially limited its analysis of the potential efficiency benefits of

137. See Edward J. McCaffery & James R. Hines Jr., *The Last Best Hope for Progressivity in Tax*, 83 S. CAL. L. REV. 1031, 1054 (2010) (“Tax rates distort the allocation of resources, which ought, in standard welfare economics theory, to be set efficiently by the pretax price system.”).

138. On the Westlaw Law Review “JLR” database, a search for Weiss, *supra* note 15, yields one citation (search for “The Desirability of Cheating Incentives and Randomness in the Optimal Income Tax”); a search for Cowell, *supra* note 82, yields no citations (search for “Public Policy and Tax Evasion: Some Problems” and “The Economics Of The Shadow Economy”); a search for Cowell, *supra* note 21, yields four citations (search for “Frank A. Cowell” and “The Economic Analysis of Tax Evasion”); a search for Schweizer, *supra* note 97, yields no citations (search for “Welfare Analysis of Excise Tax Evasion” and “Urs Schweizer”); and a search for Davidson et al., *supra* note 117, yields no citations (search for “Efficient Black Markets?”; and “Carl Davidson”). Only one citing reference notes the possibility that imperfect compliance may increase welfare, and that article does so briefly, in a footnote. See Graeme S. Cooper, *Analyzing Corporate Tax Evasion*, 50 TAX L. REV. 33, 39 n.25 (1994) (“[It] has been suggested, however, that the possibility of successful evasion of tax on labor income in the informal sector may operate as an informal (and desirable) mechanism to reduce the economic distortion caused by a tax on labor in the search for optimal taxation.” (citing Weiss, *supra* note 15)).

139. See *supra* notes 97–117 and accompanying text.

noncompliance to quantitative models—we discuss at length the policy concerns raised by a system of measured tax enforcement.

Our model of intentional reduction in tax compliance to decrease the distortionary effects of taxation stands in stark contrast to traditional legal solutions to this problem, which include changes to the tax rate, allowable deductions and credits, and the like.¹⁴⁰ Importantly, the traditional approaches all involve *certain and deterministic* changes. On the other hand, our proposal—drawing upon earlier work by one of us on intellectual property¹⁴¹—involves increasing the amount of uncertainty to alter compliance rates in a structured way, thereby decreasing economic distortions, while maintaining or increasing overall tax revenue.¹⁴²

140. See, e.g., Lily L. Batchelder et al., *Efficiency and Tax Incentives: The Case for Refundable Tax Credits*, 59 STAN. L. REV. 23, 28 (2006) (arguing that refundable credits constitute the “optimal subsidy” and “best way to minimize the distortions that necessarily result from our inability to perfectly correct for the externalities involved”); Brian H. Jenn, *The Case for Tax Credits*, 61 TAX LAW. 549, 568 (2008) (contending that in contrast to a credit, a deduction may “buy” a reduction in the deadweight cost of taxation” by potentially decreasing taxpayers’ effective marginal rate).

141. Ted Sichelman, *Quantum Game Theory and Coordination in Intellectual Property* (San Diego Legal Studies Paper, No. 10-035, 2010), available at <http://ssrn.com/abstract=1656625>. See also Ian Ayres & Paul Klemperer, *Limiting Patentees’ Market Power Without Reducing Innovation Incentives: The Perverse Benefits of Uncertainty and Non-Injunctive Remedies*, 97 MICH. L. REV. 985 (1999) (examining the benefits of uncertainty on patent litigation).

142. Moreover, in the vein of Stiglitz, we extend our model to account for allocative distortions caused by differential elasticities of supply or demand. See *infra* Part III.B. Note that the uncertainty created by imperfect tax enforcement can also be created by poorly defined statutes and regulations. See Louis Kaplow, *Optimal Deterrence, Uniformed Individuals, and Acquiring Information About Whether Acts Are Subject to Sanctions*, 6 J.L. ECON. & ORG. 93, 93 (1990).

To the extent that these laws create uncertainty regarding the locus and amount of a given tax, the same sorts of concerns arise as in the tax enforcement context. This is not meant to imply that the two would have identical effects, however. See Feldman & Teichman, *supra* note 6, at 1010–11 (finding that enforcement uncertainty, while reducing the expected sanction, results in less noncompliance than substantive law uncertainty, which undercuts the law’s normative force). For instance, taxpayers might take more offense at unequal treatment under the substantive tax law than the same under an enforcement scheme, leading to different compliance results.

A. Reducing Distortions from Decreased Demand

As discussed above, sales and other types of consumption taxes can reduce the demand for products and services.¹⁴³ These taxes will typically affect the demand for products with differing elasticities differently.¹⁴⁴ These variable effects of taxes on product demand can result in allocative inefficiencies that outweigh any social benefits from taxation.¹⁴⁵ If it were costless for the legislature or rulemaker to discriminate among various classes of products, it could adopt differential (Ramsey-style) tax rates based on product elasticity, collecting the same amount of overall revenue but reducing the amount of allocative inefficiency caused by a single rate.¹⁴⁶ However, in practice, the transaction costs of doing so can be quite high, which typically results in a single sales or other consumption tax rate applicable to all but a few classes of products.¹⁴⁷

143. See *supra* note 132 and accompanying text.

144. See Andreyeva et al., *supra* note 133, at 217 (“The price elasticity of demand . . . is determined by a multitude of factors: availability of substitutes, household income, consumer preferences, expected duration of price change, and the product’s share of a household’s income.”).

145. See Lee Anne Fennell, *Relative Burdens: Family Ties and the Safety Net*, 45 WM. & MARY L. REV. 1453, 1513 (2004) (“Placing a tax on elastic items can lead to significantly different consumption patterns that do the government no good, but that leave the individual consumers worse off than they otherwise would be. This is a deadweight loss.”).

146. See A.B. Atkinson & J.E. Stiglitz, *The Structure of Indirect Taxation and Economic Efficiency*, 1 J. PUB. ECON. 97, 117 (1972), [http://darplse.ac.uk/papersdb/Atkinson-Stiglitz_\(JPubE72\).pdf](http://darplse.ac.uk/papersdb/Atkinson-Stiglitz_(JPubE72).pdf) (“[T]he optimal structure of taxation from an efficiency viewpoint is one that taxes more heavily goods which have a low income elasticity of demand.”); Edward J. McCaffery, *A New Understanding of Tax*, 103 MICH. L. REV. 807, 850 (2005) (“The core insight of the Ramsey optimal tax literature is the ‘inverse elasticity’ rule. The government should tax goods in inverse proportion to their price-elasticities.”). See generally Frank P. Ramsey, *A Contribution to the Theory of Taxation*, 37 ECON. J. 47 (1927).

147. See, e.g., IND. CODE ANN. § 6-2.5-2-2(a) (2011) (“The state gross retail tax is measured by the gross retail income received by a retail merchant in a retail unitary transaction and is imposed at seven percent (7%) of that gross retail income.”); *id.* § 6-2.5-5 (containing certain exemptions including food, water, and public transportation); CAL. REV. & TAX. CODE § 6051 (West 2011) (“For the privilege of selling tangible personal property at retail a tax is hereby imposed upon all retailers”); *id.* §§ 6381–6396 (listing exemptions).

Here, we introduce a model of intentionally imperfect and uncertain enforcement that can reduce overall allocative inefficiencies resulting from sales and similar taxes, while maintaining or increasing overall tax revenue. We apply it to an example of a highly elastic product, whereby the sales tax reduces demand for the product so much that sellers of the product cannot sell the product at a profit. This drives the sellers out of the market, which not only introduces market inefficiencies, but also reduces or eliminates tax revenue from the sellers.¹⁴⁸ If the government introduces imperfect and uncertain enforcement in collecting sales tax on the product, sellers can effectively “cheat,” allowing them to set their prices so as to sell the product profitably. The resumption of sales reduces allocative distortions and increases government revenue. Importantly, although we apply our model to sales taxes, the model can be generalized to apply to other taxes, such as income taxes, that reduce overall demand or productivity.¹⁴⁹

148. Specifically, taxes might be reduced—but not eliminated—if sellers entered other, less profitable markets, leading to some, but less, taxable revenue.

149. Specifically, income taxes can provide incentives for taxpayers to substitute leisure for labor. See, e.g., Jane G. Gravelle, *Behavioral Responses to Proposed High-Income Tax Rate Increases: An Evaluation of the Feldstein-Feenberg Study*, 59 TAX NOTES 1097, 1100 (1993) (“When the wage rate falls, leisure becomes less costly in terms of forgone wages, and the individual might wish to increase leisure by reducing the amount of time worked.”); Edward J. McCaffery & James R. Hines Jr., *The Last Best Hope for Progressivity in Tax*, 83 S. CAL. L. REV. 1031, 1054–55 (2010) (“Looking at wages, or the payment for labor, taxes on them cause after-tax wages to fall, and so people find work less attractive. This tax-induced distortion causes taxpayers to substitute untaxed leisure for taxed labor, all else equal.”). Some taxpayers will be more inclined to stop working in the face of an income tax increase than others—in other words, the labor elasticity for some taxpayers will be higher than other taxpayers—which, like sales taxes, can result in allocative distortions. See BENJAMIN M. FRIEDMAN, DAY OF RECKONING 242–44 (1988) (explaining that an individual’s response to after-tax wage variances depends on a variety of individual characteristics). In some cases, labor elasticity may be so high that a taxpayer substitutes so much leisure activity that the net tax revenue from the taxpayer is less than before the increase. Under these conditions, the model we present below for sales taxes can be adapted to income taxes. Similar treatments apply for other types of taxes that reduce productive, taxable market activity.

For example, suppose that the sales tax rate is 10% of a product's pre-tax price.¹⁵⁰ Also suppose that the tax produces no net social benefits or losses.¹⁵¹ In other words, the administration of the tax system is assumed to be costless, and the value to society of the system is assumed to be exactly equal to the value of the money in the hands of the taxpayers.¹⁵² Also assume that in a system of perfect enforcement, non-compliers are always caught, and it is costless for the government to do so. When caught, taxpayers must pay the tax, plus a penalty of 50% of whatever is owed.¹⁵³

With no tax, product *A* would be sold at \$100, with three consumers purchasing it.¹⁵⁴ One consumer would pay a maximum (i.e., has a reservation price) of \$108 for the product, another consumer would pay \$104, and the last consumer, \$100.¹⁵⁵ Assume that there is no possible price discrimination and the market is a competitive one, such that the seller earns no profit

150. For simplicity, in this and the remainder of the examples, we assume no other taxes or subsidies apply.

151. Of course, there is reason to believe that taxation can produce net social benefits, which strengthens the argument we present here. See Diane Lim Rogers, Opinion, *Good Reasons for Taxes*, BOS. GLOBE, Apr. 16, 2006, available at <http://www.brookings.edu/research/opinions/2006/04/16taxes-rogers> (last visited Sept. 30, 2013) (“[E]ven with our imperfect tax system, the revenues provided by taxes strengthen, not weaken, our nation’s economy. They fund essential public goods and services, they contribute positively to national saving and many of the things that they fund . . . indirectly create private wealth as well.”) (on file with the Washington and Lee Law Review).

152. We adopt the equal utility assumption for simplicity. Under this assumption, our example shows that probabilistic enforcement results in a net utility equal to that of no tax. See *infra* note 172 and accompanying text. However, if we relax this assumption such that positive externalities result from taxation, then probabilistic taxation can exceed the benefits of no tax. See *id.*

153. In general, let the pre-tax price of the product be P , the sales tax rate r , and the penalty rate, t . In this situation, the expected tax payment in the event of evasion and detection is $Pr + Prt = Pr(1 + t)$.

154. In general, the price of the product will be a function of the demand curve and supply curve. For simplicity, assume a fixed producer cost C (including opportunity costs) for each product, and a competitive market wherein all producers have the same per-product cost, C , such that the product price, P , is equal to C in the absence of a tax.

155. In general, assume the reserve price for each consumer is defined as P_r (reserve price) = $C + d_n$, where d_n is the marginal demand for the n th consumer over the producer cost, C .

when selling at \$100. In that case, social welfare with no tax is \$12 (all consumer surplus), because the first and second consumers value the product at \$8 and \$4 more than the purchase price, respectively.¹⁵⁶

With the 10% tax in place, there is no price at which the seller can break even and sell the product.¹⁵⁷ Specifically, if the seller set the pre-tax price sufficiently below \$100 to capture at least one customer once the 10% tax is included, it would not break even, because \$100 is the lowest price at which the seller can earn a profit.¹⁵⁸ Assuming it is relatively costless for the seller to enter a new line of business with a similar amount of risk, then it would do so—otherwise, the seller would simply go out of business entirely—and, in either event, product *A* would not be sold. Thus, with a tax, social welfare is 0, with a deadweight loss of \$12.¹⁵⁹

156. In general, with no tax, social welfare would be $\sum_{n=1}^N d_n$, where there are N consumers.

157. In general, with a tax rate r , since the producer's cost per product is fixed at C , the post-tax product price becomes $P(1+r)$, or $C(1+r)$. In this event, any consumer for which $C + d_n < C(1+r)$ (i.e., $d_n < Cr$) will not purchase the product. Suppose there are K consumers for which this holds. In this event, assuming the utility of the tax is the same in the government's hands as the

consumers', then net social welfare is reduced by $\sum_{n=1}^K d_n$, relative to no tax, from those consumers who do not purchase the product. We assume here that these K consumers gain essentially no utility from other uses. See *infra* note 159.

158. We have implicitly assumed that in the event of a tax, the lowest price at which the seller may earn a profit is \$110 (in other words, consumers bear the total incidence of the tax). Of course, the government could use the tax to increase the wealth of one or more buyers, or to subsidize the sellers, to offset the decreased demand from the sales tax. As we mentioned, these alternatives are examples of traditional solutions to tax distortions and are typically difficult to implement. Here, we make the realistic assumption that these solutions are not feasible, in order to demonstrate the full benefits of probabilistic enforcement.

159. If consumers do not purchase product *A*, they are left with disposable income to purchase another product, make an investment, and so forth. We assume for simplicity that all other products of interest to the consumer are produced in a competitive market and taxed at the same 10% rate. If this is so, then the consumer would not purchase any of these products for the same reasons presented in the text. Thus, the consumer must invest or save the

Although the tax collector cannot change the tax rate for product *A*, it can change its enforcement strategy. Suppose the tax collector enforces the tax only $x\%$ of the time. In that case, if the seller does not pay sales tax up front, its expected tax payment is $0.15Px$ (i.e., 10% of the purchase price, P , plus a 50% penalty of that amount times $x\%$).¹⁶⁰ When the expected tax payment in the event of detected noncompliance is less than the certain amount of payment up front, i.e., when $0.15Px < 0.10P$,¹⁶¹

money not spent. This would lead to some net surplus, as well some government revenue, but for ease of exposition, we assume without loss of generality that the combined surplus and tax revenue would be essentially nil. For instance, in the example of above, if a consumer saves \$100, suppose on average the consumer makes a 5% return by investing the money. Assuming for simplicity the same 10% tax rate as the sales tax, this results in \$0.50 of government tax revenue. The return also generates consumer surplus of \$5, but recall that we ignored in our example any investment surplus made by the seller and the government. Assuming that the seller and government would have similar returns to the consumer, the *net* surplus from the consumer's investment relative to that when the product is sold would be close to zero. Thus, any discretionary cash left in the consumer's hands generally would not substantially affect overall welfare. Moreover, any use of the cash by the consumer would always, by definition, be an inferior choice relative to purchasing the product. In Part III.B, below, we examine a situation in which consumers purchase an alternative, less desirable product in the face of a sales tax.

160. In general, the net expected tax payment is $Prx(1+t)$, where P is the price of the good, r is sales tax rate, x the probability of detection, and t the tax penalty. Thus, in the example in the text, the net expected tax payment is $P(0.10)(1+0.5)x = 0.15Px$.

161. In general, when $Prx(1+t) < Pr$ (i.e., $x(1+t) < 1$), then a risk-neutral seller will not remit sales tax to the government up front. In other words, when $x < 1/(1+t)$, a seller will not remit sales tax to the government up front. When a seller is risk-averse, this will *decrease* the number of sellers who will engage in "tax evasion." See generally notes 49–81 and accompanying text. In a simple model of risk aversion, this can be modeled by multiplying the quantity $x(1+t)$ by a seller risk multiplier R_s , such that $R_s > 1$. Conversely, when sellers are risk-preferring, this will *increase* the number of sellers willing to engage in tax evasion, which can be modeled by multiplying the quantity $x(1+t)$ by a seller risk-multiplier R_s , such that $R_s < 1$. In other words, for any risk profile, when $x < 1/R_s(1+t)$, then a seller will evade taxes. In effect, in a simple model of risk aversion, seller risk aversion will increase the effective audit rate, and seller risk preference will decrease the effective audit rate. For simplicity, we ignore the seller's risk profile in the remaining analysis, but given its basic effect on outcome, it is clear that our general results do not depend on the risk profile of the seller. Rather, they either strengthen (in the case of risk-averse taxpayers) or weaken (in the case of risk-preferring taxpayers) our general finding that

a risk-neutral seller will not remit sales tax to the tax collector.¹⁶² In other words, when $x < 2/3$ —that is, when the enforcement rate is less than 66.66%—a risk-neutral seller will earn more on average by “cheating.”

Notably, when the enforcement rate is less than 66.66%, the seller may be able to price the good more cheaply in order to induce buyers to purchase it. Specifically, the seller may be able to nominally set P below 100, because it can now keep part of the amount of nominal tax that it collects from the buyer, which can offset losses otherwise caused by pricing below cost.¹⁶³ Specifically, the net expected profit for the seller is $(1.1P - 100)N - 0.15PN$, where N is the number of units sold.¹⁶⁴ The first term reflects the net profits before taxes—the price of the good P plus the 10% nominal tax (i.e., $1.1P$) less the cost to the seller to make each good (i.e., \$100), multiplied by the number of units sold. The second term reflects the net expected tax payment calculated earlier, which thereby reduces the seller’s net expected profits.¹⁶⁵

If the seller can break even, then it will sell the product. In other words, for any N , if $(1.1P - 100) - 0.15Px \geq 0$, then it will sell.¹⁶⁶ Thus, if $P(1.1 - 0.15x) \geq 100$, it will sell. The government knows that the seller effectively has three pricing options

limited enforcement can increase utility.

162. We have assumed the seller knows the enforcement rate, as we discuss in Part IV.

163. In this regard, note that the seller will always prefer to charge a tax and not remit it to the alternative of not charging a tax at all, because if the seller does the former, it ultimately pays less in tax and penalties when tax is collected, because the effective price of the good is lower in the former case.

164. In general, the net expected profit for the seller when it forgoes paying sales tax up front is $M([(1+r)P - C] - Prx(1 + t))$, where M is the number of consumers purchasing the product. Collecting terms, the net expected profit is $M[P(1 + r(1 - x - xt)) - C]$.

165. Here, we assume that the nominal price, P , is respected by the tax collector, because the government has intentionally adopted a system of probabilistic enforcement to reduce deadweight losses. If the tax collector does not respect P , then the expected penalty is $(0.15)(1.1P)x$, or $0.165Px$. In this instance, if the tax collector sets enforcement at less than 60.6%, then it is in the interest of the seller not to remit sales tax. The same analysis that follows would apply in this situation, with taxable $0.15Px$ suitably replaced by $0.165Px$.

166. In general, if $[(1+r)P - C] \geq Prx(1 + t)$, the seller will produce products and sell them. In other words, if the seller can set $P \geq C/(1 + r(1 - x - xt))$, then it will sell.

(including a nominal tax) at \$100, \$104, or \$108, because these are the maximum amounts each respective buyer is willing to pay. In other words, the seller maximizes its revenue by setting $1.1P$ right at the reservation price of one of the buyers, because if the seller priced just below one of these amounts, it could always raise the price to the next highest reservation price without losing any buyers.¹⁶⁷ (These prices correspond to nominal, pre-tax prices, P , of \$90.91, \$94.54, and \$98.18.)

At a \$100 tax-inclusive price, all three buyers would purchase, so the seller's net after-tax profits would be $-\$40.91x$ [i.e., $-0.15 * \$90.91 * 3 * x$],¹⁶⁸ since the seller earns no pre-tax profit on each sale. In other words, at \$100, if the government enforces the tax at all, the seller cannot break even, and no products are sold. Thus, at \$100, the only option for the government is to set the enforcement rate at 0%. This case is equivalent to no tax, and social welfare is 12.¹⁶⁹ At a \$104 tax-inclusive price, there are only two buyers, and the seller's revenue would be $\$8 - \$28.362x$ [i.e., $2 * (\$104 - \$100) - x(0.15 * \$94.54 * 2)$]. In this case, $x \leq 0.282$ (that is, the audit rate must be less than or equal to 28.2%) for the seller to break even. Social welfare is \$4 (consumer surplus from the buyer with a \$108 reservation price) + \$8 (producer surplus from the seller's net pre-tax profits of \$4 per sale) - \$28.362 x (reduction in producer surplus due to net expected sales taxes and penalties) + \$28.362 x (utility of tax to society). Thus, the government maximizes its revenue by setting x to 0.282, resulting in social welfare of \$12.¹⁷⁰ At \$108, there is only one buyer, and the seller's net after-tax profits would be $\$8 - \$14.727x$ [i.e., $(\$108 - \$100) - x(0.15 * \$98.18)$]. Social welfare is \$8 (producer surplus) - \$14.727 x

167. In general, the government knows that P_{RE} (reserve price) = $C + d_n$ for the n th consumer. The government will analyze what results if the seller sets P equal to the reservation price for each consumer (assuming P_r satisfies the inequality in note 166) and will determine the net social welfare that results.

168. This represents the 10% tax plus the 50% penalty (an effective rate of 15%), multiplied by the base price of \$90.91, for three products sold.

169. In general, if $P = C$, the only way to satisfy the inequality in note 166 is to set $r = 0$.

170. Note that the government cannot increase social welfare by reducing its revenue.

(reduction in producer surplus due to taxes) + \$14.727x (utility of tax to society). In this case, $x \leq 0.543$, which means social welfare would be \$8.¹⁷¹

The government desires to maximize social welfare, so it would like the seller to set $1.1P$ to \$104 (i.e., P to \$94.54). If the government sets its audit rate, x , such that $0.282 < x \leq 0.543$, then the seller will price at \$108, because it cannot earn a profit at \$104. If the government sets $x = 0.282$, the seller will try to price at \$108 to maximize its revenue. However, in a competitive market, the price will be driven down to exactly where the seller earns nothing after taxes, which is \$104. Thus, the government sets the rate at 0.282, which results in the optimal outcome of \$12 in surplus (\$8 in taxes plus \$4 in ordinary consumer surplus). This increases welfare over a classical tax by \$12, exactly matching the social welfare of no tax.¹⁷²

In sum, sales taxes can reduce consumer demand, particularly for highly elastic products.¹⁷³ In our example, the

171. In general, the government (including the enforcement agency) will seek to maximize net social surplus, which is the sum of $\sum_{n=1}^M (P_{RE} - P)$ (consumer surplus) and $M(P - C)$ (pre-tax producer surplus), which reduces to $\sum_{n=1}^M (P_{RE} - MC)$, provided that the government's tax revenue meets a minimum goal, G . Because production costs are fixed, net surplus is maximized when P is as low as possible, as long as $M(P - C) \geq G$. Thus, the government begins by analyzing the lowest $P_{RE} > C$, checking to see if it can raise G , and if not, proceeds to the next lowest P_{RE} and so forth. Once the government finds the lowest P_{RE} satisfying its revenue needs, the enforcement agency sets its audit rate x at a level whereby it taxes away all of the producer surplus, leaving the seller with zero net revenue, just enough to induce it to produce (and, in this regard, recall that opportunity costs are included in the seller's overall costs, C , per product). Recall that if $P \geq C/(1 + r(1 - x - xt))$, the seller will produce and sell the product. Thus, for the optimum P_r , the enforcement agency will choose x (and possibly t , if it has the discretion to set the penalty for non-payment), such that $P = C/(1 + r(1 - x - xt))$.

172. Note that if social utility is increased from taxation, then pricing at \$104 would exceed the social welfare of no tax, because society's utility would increase more than the loss to the producer when it remits the sales tax and penalty. See *supra* note 152.

173. In general, the reduction in consumer surplus with probabilistic

product was so elastic that the sales tax reduced demand to zero, resulting in a net reduction of welfare of \$12 relative to no taxation. The standard solutions to this problem include changes in tax rates, offering subsidies, and making purchases deductible.¹⁷⁴ However, these solutions must all be implemented at the legislative or substantive rulemaking levels, raising public choice issues and potentially entailing significant implementation costs.¹⁷⁵ Our model offers a novel solution to the problem: probabilistic, “measured” tax enforcement that relies on agency enforcement discretion and does not depend on the risk profile of the taxpayer for its results.¹⁷⁶

Importantly, measured enforcement can reduce distortions from suboptimal taxation while maintaining or increasing overall tax revenue.¹⁷⁷ In our example, overall tax revenue was increased relative to a fully enforced sales tax, and overall welfare was returned exactly to the level of no tax whatsoever. Although probabilistic enforcement is certainly not a costless solution, as we discuss in Part IV, it provides quite a different manner of reducing the distortionary effects of taxation from the traditional solutions and, for that reason, may lend itself to problems for

enforcement compared with no tax is $\sum_{n=1}^{N-M} (P_{RE}) - (N - M)C$ where there are N consumers with no tax and M consumers with a probabilistically enforced tax. Compared to a certain tax, the increase in consumer surplus from a probabilistically enforced tax is $\sum_{n=1}^{M-N+K} (P_{RE}) - (M - N + K)C$, where K is the number of consumers who could not purchase the product with a perfectly enforced tax relative to no tax. *See supra* notes 156–57.

174. *See supra* note 140 and accompanying text.

175. *See* Jonathan R. Macey, Winstar, *Bureaucracy, and Public Choice*, 6 SUP. CT. ECON. REV. 173, 176 (1998) (“[P]ublic choice theory posits that laws and regulations are supplied by lawmakers and bureaucrats to the political groups or coalitions that outbid competing groups.”).

176. Tax authorities such as the IRS generally determine their enforcement priorities. *See, e.g.*, Press Release, Internal Revenue Serv., IRS Sets New Audit Priorities (Sept. 2002), <http://www.irs.gov/pub/irs-news/fs-02-12.pdf> (“The Internal Revenue Service is realigning its audit resources to focus on key areas of noncompliance with the tax laws. The strategy represents a new direction for the agency’s compliance effort.”).

177. *See infra* Part IV.

which traditional solutions have been unworkable. Before we turn to that discussion, we examine in the next section how probabilistic enforcement can reduce distortions resulting from externalities from the sale of certain products.

B. Reducing Allocative Distortions in the Context of Externalities

The production, sale, and use of many goods can produce positive or negative externalities—namely, effects on parties other than the manufacturer-seller or the consumer.¹⁷⁸ For instance, the sale and use of gasoline may lead to pollution and even war (negative externalities),¹⁷⁹ while the sale and use of books may lead to more informed voting and hence improved political leadership, among other benefits (positive externalities).¹⁸⁰

To illustrate these concerns in the context of probabilistic taxation, we focus on products with different elasticities. Because sales taxes dampen demand for higher elasticity products more than they do for lower elasticity products, sales taxes may result in allocative distortions by relatively increasing purchases of the product with the lower elasticity.¹⁸¹ This allocative distortion

178. See MANKIW, *supra* note 129, at 195–201 (“In the presence of externalities, society’s interest in a market outcome extends beyond the well-being of buyers and sellers who participate in the market to include the well-being of bystanders who are affected indirectly.”).

179. See, e.g., James Donnelly-Saalfield, *Irreparable Harms: How the Devastating Effects of Oil Extraction in Nigeria Have Not Been Remedied by Nigerian Courts, the African Commission, or U.S. Courts*, 15 HASTINGS W.-NW. J. ENVTL. L. & POL’Y 371, 372–76 (2009) (describing the environmental degradation in Nigeria related to the extraction of oil and gas); Steven D. Levitt, *Hurray for High Gas Prices!*, FREAKONOMICS: THE HIDDEN SIDE OF EVERYTHING (June 18, 2007, 9:40 AM), <http://www.freakonomics.com/2007/06/18/hurray-for-high-gas-prices/> (last visited Oct. 1, 2013) (arguing that higher gas prices decrease several possible externalities associated with driving) (on file with the Washington and Lee Law Review).

180. See, e.g., DAVID L. ULIN, *THE LOST ART OF READING: WHY BOOKS MATTER IN A DISTRACTED TIME* (2010); *Publishing in Latin America, A Literary Deficit*, THE ECONOMIST, Dec. 10, 2011, at 44, <http://www.economist.com/node/21541435> (last visited Oct. 1, 2013) (discussing the low volume of books published in Latin America and linking it with lower levels of reading proficiency in these countries) (on file with the Washington and Lee Law Review).

181. See Eric M. Zolt, *The Uneasy Case for Uniform Taxation*, 16 VA. TAX

could in turn lead to negative externalities not fully encompassed by the consumer deadweight loss from decreased demand resulting from the sales tax.¹⁸²

For example, suppose that, after a sales tax is imposed, consumers continue to purchase gasoline (low elasticity) but forgo purchasing high-elasticity products, such as books.¹⁸³ Two potential costs may arise. First, the failure to purchase the high-elasticity product (here, books) may lead to effective negative externalities (from reduced positive externalities).¹⁸⁴ Additionally, or alternatively, if consumers do not purchase the high-elasticity product at the higher price, they may purchase more of the low-elasticity product.¹⁸⁵ If the purchase of the low-elasticity product (here, gasoline) creates negative externalities, then society will suffer from additional purchases.¹⁸⁶ Uncertainty in the enforcement of taxes can reduce these externalities in at least two ways.

First, uncertainty can dampen negative externalities resulting from reduced demand for high-elasticity products like books. Suppose the high-elasticity product, such as books, has the same producer and consumer characteristics as in the example in the previous section, but further assume that when the product is not purchased, there is a negative externality (or, more precisely,

REV. 39, 63 (1996) (“The size of the loss or burden [resulting from allocative distortions] depends upon the responsiveness or elasticity of the change. The greater the elasticity, the more taxpayers change behavior and the more the tax distorts.”).

182. Cf. Martin Feldstein, *Tax Avoidance and the Deadweight Loss of the Income Tax* 1 (NBER Working Paper No. 5055, 1995), available at <http://www.nber.org/papers/w5055> (“[D]eadweight losses are substantially greater than . . . conventional estimates because the traditional framework ignores the effect of higher income tax rates on tax avoidance . . . through changes in the patterns of consumption . . .”).

183. For simplicity, we assume the high-elasticity goods result in positive externalities and the low-elasticity goods result in negative externalities.

184. See Michael J. Trebilcock, *The Law and Economics of Immigration Policy*, 5 AM. L. & ECON. REV. 271, 283–84 (2003), <http://time.dufe.edu.cn/jingjiwengong/waiwenziliao1/271.pdf> (discussing the loss of positive externalities from skilled workers as a cost).

185. See *supra* note 159.

186. See *supra* note 179 and accompanying text.

a loss of a positive externality) of \$1 per product.¹⁸⁷ Under the above assumptions, the net social welfare from a fully enforced sales tax would be a \$3 loss from the negative externalities created by the forgone purchases of the three consumers.¹⁸⁸ In this event, a probabilistic tax has even greater effect in reducing social losses. In particular, at the optimal enforcement levels in the prior example, the seller sets the price of the good at \$104, which results in two purchases, and—absent any externalities—as calculated earlier, \$12 in net social welfare.¹⁸⁹ Taking into account the \$2 of positive externalities from the two purchases, total surplus increases to \$14.¹⁹⁰

Second, uncertainty can reduce negative externalities that result from the additional purchases of low-elasticity products (e.g., gasoline) that result when consumers forgo purchasing high-elasticity products. Suppose that in the absence of a tax, product *B* (here, gasoline) has three buyers—one who values it at \$58, one at \$54, and one at \$50.¹⁹¹ Each unit of gasoline sold has

187. In general, let E_p represent the net welfare gain (or loss) that arises from externalities when a product is purchased.

188. In general, recall that in the event of a tax and no externalities, net social welfare is $\sum_{n=1}^{N-K} d_n$, where K is the number of consumers who do not purchase the product in the presence of a tax. See *supra* notes 156–57. If the purchase of a product results in E_p of welfare gain from externalities, then in the presence of a tax, net social welfare is $\sum_{n=1}^{N-K} d_n + E_{pn}$. In other words, overall welfare is reduced in the presence of a tax by $\sum_{n=1}^K d_n + E_{pn}$ relative to no tax, because of the decrease in purchases in the presence of a tax.

189. See *supra* note 174 and accompanying text.

190. In general, compared to a certain tax, the increase in consumer surplus from a probabilistic tax is $\sum_{n=1}^{M-N+K} (P_{RNn} + E_{pn}) - (M - N + K)C$, where K is the number of consumers who could not purchase the product with a perfectly enforced tax. Cf. *supra* note 173.

191. In general, assume the reserve price for each n th consumer for each i th product is defined as P_{ni} (reserve price) = $C_i + d_{ni}$, where C_i is the cost of producing the i th product and d_{ni} is each n th consumer's private value of the i th product over the seller's production cost. See *supra* note 155.

negative externalities of \$25.¹⁹² Suppose the seller breaks even at a competitive price of \$50. In this event, with no tax, net welfare is \$12 (consumer surplus), \$0 (producer surplus), and -\$75 (negative externalities), resulting in -\$63.¹⁹³ With a sales tax rate of 10% and perfect and certain enforcement (and abstracting away from allocative effects), only the buyer at \$58 purchases, since the cost of the product with sales tax is \$55 (\$50 base plus \$5 in sales tax). In this event, in a competitive market, net social welfare is \$3 (consumer surplus), \$0 (producer surplus), \$5 (social welfare from taxation), and -\$25 (negative externality), resulting in -\$17.¹⁹⁴ Thus, the sales tax has a beneficial effect relative to none, which is an example of a classic Pigouvian tax designed to reduce consumption.

Yet, the situation becomes more complicated to address through a Pigouvian tax when both product *A* and product *B* come into play. Suppose that the buyer of product *A* (books) who values the product at \$108 is the buyer of product *B* (gasoline) who values it at \$58.¹⁹⁵ Suppose this buyer would value a second item of product *B* at \$55 and a third item of *B* at \$50.¹⁹⁶ In this event, without a sales tax, the buyer prefers to use its limited funds (assume, of \$165) to purchase *A* and *B* at a \$100 and \$50, respectively, resulting in net consumer surplus of \$16 (\$108 - \$100 + \$58 - \$50).¹⁹⁷ However, with a fully enforced sales tax on

192. In general, let E_{pi} represent the net welfare gain (or loss) that arises when each *i*th product is purchased arising from externalities. See *supra* note 187 (defining E_p).

193. In general, net social welfare with no tax is $\sum_{n=1}^N d_n + E_{pn}$.

194. In general, the net increase in social welfare in taxing a product with negative externalities is $\sum_{n=1}^K d_n + E_{pn}$, where K is the number of consumers who forgo purchasing the product in the presence of the tax.

195. In general, and assuming one buyer for simplicity, P_{ri} (reserve price) = $C_i + d_i$.

196. In general, we can treat multiple items of the same product as effectively different products, wherein P_{ri} (reserve price) = $C_i + d_i$, such that i increases proportionally.

197. In general, if the buyer has limited funds F , then with no tax, the buyer will maximize its consumer surplus by allocating F such that the product with

A and B, the buyer will purchase none of A since it will cost \$110 to purchase A.¹⁹⁸ Thus, the buyer purchases two of B at \$55 (including sales tax), resulting in consumer surplus of \$3 (\$58 – \$55 + \$55 – \$55). In this event, producer welfare is 0, negative externalities are –\$50, and government welfare is \$10 (the \$10 of sales tax collected on product B), resulting in a net social welfare of –\$37, which is better than the –\$63 net welfare with no tax, but worse than the net welfare of –\$17 when there is no allocative shift.¹⁹⁹

Thus, the allocative shift caused by the sales tax worsens net utility with respect to a sales tax on product B. By imposing a probabilistic enforcement scheme on product A, but not on product B—thereby causing the buyer to continue to purchase product A—this allocative distortion can be reduced or removed, increasing net welfare. In particular, suppose the government sets the enforcement rate on product A’s sales tax to 54.322%, which—following the analysis in the previous section—results in a price of \$108. In this event, the buyer would be indifferent between purchasing two of product B (consumer surplus of \$3 and social welfare of –\$37, see above) and one of product A and one of product B (consumer surplus of \$3 and social welfare of –\$9).²⁰⁰

the highest d_i is purchased first, then the next highest product, and so forth, wherein j total products are purchased, with a net consumer surplus of

$$\sum_{i=1}^j d_i + E_i$$

198. In general, where C is fixed, recall that with a tax rate r , the post-tax product price becomes $P(1+r)$, or $C(1+r)$. In this event, any product for which $C_i + d_i < C_i(1+r)$ (i.e., $d_i < rC_i$), the consumer will not purchase the product. See *supra* note 157 (describing the effects of a sales tax on multiple consumers in a one-product model).

199. In general, if a sales tax causes the single consumer to buy fewer products (including additional units of the same underlying product), this will reduce consumer and social welfare. Because the forgone purchases in this example have positive externalities, the tax further reduces social welfare. Suppose the consumer forgoes the purchase of h products. In this instance, the

decrease in social welfare is $\sum_{i=1}^h d_i + E_i$, where it assumed that the forgone purchases would have resulted in positive externalities, E_i .

200. Specifically, the consumer surplus from the purchase of product B is \$3 (\$58 – \$55), the producer surplus is \$0 (\$50 pre-tax price – \$50 cost), the

Assuming that there are no costs for the buyer to switch from product *A* to product *B*, the buyer will engage in a mixed strategy, purchasing one of product *A* and one of product *B* 50% of the time and two of product *B* 50% of the time.²⁰¹ Moreover, if there is even a small cost to the buyer to switch from product *A* to product *B*, then the buyer will always buy one of product *A* and one of product *B*.²⁰² In either event, the negative externalities introduced from the allocative distortions of taxation are reduced, thereby increasing social welfare (even disregarding the other benefits from imperfect taxation described above).²⁰³

IV. Some Caveats and Implications of Measured Enforcement

As the discussion above has shown, a measured enforcement approach can reduce economic distortions that may result from a sales or similar tax, while maintaining, or even increasing, the tax revenue that would otherwise be collected under a fully enforced tax. In the examples above, measured enforcement was shown to reduce the allocative distortions that result from asymmetric demand shifts for products of differing elasticities and externalities subject to a uniform sales tax. In effect,

government surplus is \$5 (in taxes paid), and the negative externalities are –\$25, resulting in a total of –\$17 in net social welfare. The social welfare from the sale of product *A* is \$8 (producer surplus)–\$14.727*x* (reduction in producer surplus due to taxes) + \$14.727*x* (utility of tax to society), which results in a net social welfare of \$8. See *supra* Part III.A. Thus, total net social welfare from the purchase of product *A* and product *B* is –\$9.

201. See ERIC RASMUSEN, *GAMES AND INFORMATION: AN INTRODUCTION TO GAME THEORY* 66 (1989) (“A mixed strategy maps each of a player’s possible information sets to a probability distribution over actions.” (emphasis removed)).

202. See Paul Klemperer, *Markets with Consumer Switching Costs*, 102 Q.J. ECON. 375, 375 (1987), <http://www.nuffield.ox.ac.uk/users/klemperer/market.pdf> (describing three categories of consumer switching costs, including “transaction costs, learning costs, and artificial or contractual costs”).

203. In general, in the presence of a probabilistic enforcement scheme, the single buyer will on average purchase more of the products forgone in the face of a perfect tax. If we suppose for simplicity that the consumer now purchases *g* additional products, the increase in social welfare relative to a certain tax is

$$\sum_{i=1}^g d_i + E_i$$

measured tax enforcement can correct for the distortions resulting from applying uniform laws to very different goods, without reducing overall tax revenue.²⁰⁴

Moreover, because tax authorities typically have discretion to set audit priorities, they can implement such a strategy without going through rulemaking processes or waiting for legislative change, both of which are time-consuming and costly.²⁰⁵ As long as the tax authority can identify which products have positive externalities and which have negative ones, and roughly what the demand elasticities are for those products, it can adopt a measured enforcement scheme that will be socially beneficial. Moreover, the legislature is free to respond to this change in the de facto content of the tax laws by changing the substantive content of the laws or even earmarking appropriations for certain types of audits.²⁰⁶ Of course the measured enforcement approach is built on some assumptions, and may raise questions about its effects and consequences. This Part addresses those issues, as well as other potential welfare effects of measured enforcement.

A. Assumptions

1. Competency and Communicativeness of the Enforcement Agency

In order for measured enforcement to succeed, the enforcement agency must be sufficiently knowledgeable about the effects of taxation to tailor the enforcement of uniform tax laws to

204. Cf. Landes & Posner, *supra* note 21, at 38–40 (suggesting in the context of analyzing public versus private enforcement that “discretionary nonenforcement” by public authorities can reduce the costs of enforcing rules that are otherwise overinclusive).

205. See *id.* at 38 (“The more particularly the legislature tried to describe the forbidden conduct, the more loopholes it would open up.”).

206. See *supra* note 176. Of course, if the legislature were to implement a perfectly optimal law, then there would be no role for measured enforcement. See Yitzhaki, *supra* note 80, at 134 (arguing that the welfare gains from encouraging taxpayer “cheating” will not “increase[] welfare beyond what will be achieved by an optimal tax rate” adopted in the substantive law). However, for reasons we set forth below, there will nearly always be a substantial residuum of suboptimal substantive law ripe for measured enforcement. See *infra* Part IV.B.2.

achieve effectively differentiated laws. For instance, in the sales tax examples presented earlier, the enforcement agency had complete knowledge of the relevant demand curves, supply curves, and the seller's production and opportunity costs.²⁰⁷ Of course, such complete knowledge is unrealistic, and hence achieving perfect measured enforcement is impossible.²⁰⁸ Yet, our model need not achieve anywhere near the ideal to improve social utility compared to the current system,²⁰⁹ which generally allocates scarce enforcement resources in those areas in which the agency believes it can collect the most revenue, taking little to no account of the consequences of effectively implementing a differentiated *substantive* tax system via differentiated enforcement.²¹⁰ Because our model allows the government to achieve the same or even a greater level of tax revenue,²¹¹ blindness to the distortionary effects of taxation will generally lead to inferior economic results compared to a system in which the enforcer consciously tailors enforcement to diminish these effects.²¹²

Thus, as long as the enforcement agency has a rough knowledge of the relevant economic landscape and the effects of taxation on economic actors, it can measure its enforcement

207. See *supra* Part III. Relatedly, we assumed a constant producer cost (including opportunity costs) for each product, and a competitive market wherein all producers have the same per-product cost. See *supra* note 154. In general, such costs will not be constant and markets will be imperfect, making complete knowledge even less attainable.

208. See Zolt, *supra* note 181, at 66–67 (“The information requirements for designing a tax system based on optimal tax principles are substantial. We would need to determine the compensated elasticities of supply and demand for thousands of commodities. . . . As the number of product categories and different rates increases, enforcement and compliance costs increase.”).

209. See generally Lipsey & Lancaster, *supra* note 25 (setting forth the theory of the “second best,” whereby otherwise suboptimal solutions may become optimal in the face of external “constraints”).

210. See Jeffrey A. Dubin & Louis L. Wilde, *An Empirical Analysis of Federal Income Tax Auditing and Compliance*, 41 NAT'L TAX J. 61, 71 (1988) (noting that the IRS directs auditing resources to areas that show the least compliance).

211. See *supra* Part III.

212. That is, measured enforcement can maximize both tax revenues and social welfare, while the traditional approach maximizes only revenue, ignoring the deadweight losses imposed by taxation.

strategies to potentially achieve economically superior outcomes.²¹³ Specifically, (1) if the tax laws as written do not maximize social utility and legislative change is infeasible,²¹⁴ and (2) the marginal costs of measured enforcement—which we address below—are less than the marginal benefits, then it will generally be sensible for the enforcement agency to adopt a measured, rather than a revenue-maximizing, strategy.²¹⁵

Of course, what constitutes sufficient knowledge such that the marginal benefits of measured enforcement outweigh the costs across a wide class of situations is not a simple question to answer. Yet, even if one believes that the enforcement agency would have difficulty in even roughly determining product elasticities, demand curves, supply curves, production costs, opportunity costs, and taxpayer risk profiles, then our approach would still apply to “outlier” situations in which the negative effects of taxation were relatively clear. For instance, it would be advisable to reduce enforcement with respect to highly elastic products producing positive externalities.²¹⁶

213. For similar reasons, the fact that measured enforcement for a given product space (for example, automobiles) may affect complementary product spaces (for example, road paving machines), thereby creating complex supply and demand curve dynamics, is not fatal to our approach. Rather, the enforcement agency need have only a comparative advantage over the legislature and rulemaking authority in determining these secondary relationships and implementing measures to counteract the distortions that result from these dynamic effects.

214. The tax authority can make this determination by examining whether products with different elasticities or externalities are taxed at the same rate. The tax authority's ability to make these determinations is discussed below. See *infra* notes 247–49 and accompanying text.

215. See *supra* note 212; cf. Shlomo Yitzhaki, *A Note on Optimal Taxation and Administrative Costs*, 69 AM. ECON. REV. 475, 475 (1979) (“The social cost of taxation is the sum of the administrative cost and the deadweight loss caused by the tax system.”).

216. A large, well-funded enforcement agency might be able to implement a differentiated enforcement strategy at a lower cost than Congress or a state legislature, because it presumably would avoid the public choice issues faced by elected officials. See Jack M. Beermann, *Interest Group Politics and Judicial Behavior: Macey's Public Choice*, 67 NOTRE DAME L. REV. 183, 183 (1991) (“In accord with the assumption of self-interest, public choice theorists have described political activity, including government itself, as a market in which officials sell favorable action in return for votes, money (which may help in reelection bids), postgovernment employment, other support, or a combination of

Another crucial assumption in our model is that the taxpayers are knowledgeable about the enforcement rates and penalties.²¹⁷ If the enforcement agency publishes the details of audit strategy, rates, penalties, settlements, and the like, presumably most affected taxpayers—or their tax advisers—would be empowered to respond appropriately to a measured tax enforcement strategy on the part of the agency. In many cases, however, the relevant enforcement rates may be much more specific than audit rates, because a single return may relate to many classes of transactions.²¹⁸ In this situation, the effective enforcement rate reflects a combination of (1) the probability of audit and (2) the agency's stance with respect to the taxation of the items it identifies in the audit. In order to inform taxpayers of these varying enforcement strategies and rates, the agency would need to publish—and taxpayers and their advisers would need to absorb—detailed information.²¹⁹ As such, our model may only be suitable for only the most sophisticated taxpayers.

these.”). An agency should also have more flexibility in tailoring its enforcement, and adapting it from year to year as needed, than it would by going through substantive rulemaking, which—at least in the federal context—is generally subject to notice-and-comment procedures if the rule is to have the “force of law.” See 5 U.S.C. § 553 (2012) (providing for notice-and-comment rulemaking, subject to limited exceptions such as “good cause” and interpretative rulemaking).

217. See *supra* Part III.

218. See, e.g., Mary Dalrymple, *GE Files Tax Return That's 24,000 Pages: Would Have Been Eight Feet Tall*, SAN JOSE MERCURY NEWS, June 1, 2006, at BU4, available at http://www.nbcnews.com/id/13068387/ns/business-personal_finance/t/ge-files--page-tax-return/ (“[General Electric] filed a 24,000-page tax return to the Internal Revenue Service this month.”); *All Products*, GENERAL ELECTRIC, <http://www.ge.com/products> (last visited Oct. 1, 2013) (listing the numerous types of products and services offered by General Electric) (on file with the Washington and Lee Law Review).

219. Currently, the IRS publishes general information about audit rates. See INTERNAL REVENUE SERV., EXAMINATION COVERAGE: RECOMMENDED AND AVERAGE RECOMMENDED ADDITIONAL TAX AFTER EXAMINATION, BY TYPE AND SIZE OF RETURN, FISCAL YEAR 2012 in IRS DATA BOOK, available at <http://www.irs.gov/uac/SOI-Tax-Stats-Examination-Coverage:-Recommended-and-Average-Recommended-Additional-Tax-After-Examination-IRS-Data-Book-Table-9a> (last visited Oct. 1, 2013) (providing an Excel spreadsheet of relevant tax information from the year 1998 to the present) (on file with the Washington and Lee Law Review).

Moreover, the disclosure of detailed information regarding enforcement could, in theory, lead to widespread, undesired noncompliance.²²⁰ However, the disclosure contemplated by the model is simply audit rates, not the specific likelihood that any particular taxpayer will be audited.²²¹ The taxpayers who can use this information strategically are those who are making compliance decisions based primarily on a cost-benefit analysis, and the measured enforcement system depends on that cost-benefit analysis for its results.²²² Furthermore, if necessary, any undesired increase in noncompliance could be dampened by increasing penalties. These concerns suggest that any experiment with measured enforcement proceed cautiously and at least initially be limited to categories of taxpayers, such as publicly held corporations, likely to conduct a cost-benefit analysis and able to pay tax penalties.²²³

2. Income Effects

As discussed above, taxation can have “substitution effects” on market activity. Substitution effects reflect taxpayer migration to a less-taxed good or activity. For example, an income tax may reduce labor as taxpayers substitute untaxed leisure, and a sales

220. See Raskolnikov, *supra* note 18, at 590 (“Audit strategies such as the audit selection formulas are among the IRS’s most closely guarded secrets. The government has been very reluctant to release individual return data collected through [the Tax Compliance Measurement Program] out of concern that researchers would use it to reverse-engineer audit formulas.” (footnote omitted)).

221. See *supra* notes 217–20 and accompanying text.

222. See *supra* Part III.

223. Cf. Yoram Keinan, *Playing the Audit Lottery: The Role of Penalties in the U.S. Tax Law in the Aftermath of Long Term Capital Holdings v. United States*, 3 BERKELEY BUS. L.J. 381, 407 (2006) (“In recent years corporations have weighed the estimated benefits with the associated costs of a transaction even with respect to tax-motivated transactions.”); Lawrence Zelenak, *Codifying Anti-Avoidance Doctrines and Controlling Corporate Tax Shelters*, 54 S.M.U. L. REV. 177, 187 (2001) (“A risk-neutral corporation would decide to enter into a tax shelter transaction as long as the tax cost of not entering the shelter is greater than the expected cost of entering the shelter.”).

tax may reduce consumption of the taxed products.²²⁴ This type of market distortion is what measured enforcement can address.

However, taxes can also have “income effects,” meaning that taxpayers adjust to the decrease in their buying power by increasing their labor so as to retain the same post-tax buying power.²²⁵ In an income tax or sales tax system, income effects and substitution effects are offsetting, at least to some extent, in that they pull in opposite directions.²²⁶ For example, in the presence of a sales tax on gasoline, a taxpayer might both reduce gasoline purchases (e.g., substituting carpooling or the use of mass transit or a bicycle), while also working slightly more to pay for any remaining increase in the cost of gas.

Substitution effects may dominate income effects.²²⁷ In fact, whether a tax gives rise to an income effect depends on what the government does with the revenue raised by the tax.²²⁸ For example, if the government charges a \$10 sales tax on a particular item but provides \$10 in a lump sum to the taxpayer, that series of events will not give rise to an income effect because the taxpayer’s purchasing power will not have decreased.²²⁹ The

224. See *supra* notes 130–37 and accompanying text.

225. See Ilan Benshalom & Kendra Stead, *Values and (Market) Valuations: A Critique of the Endowment Consensus*, 104 NW. U. L. REV. 1511, 1519–20 (2010) (explaining “income effect” as “meaning that, as a result of the tax, individuals would have less consumption power and, therefore, may have an incentive to work more to meet their needs”).

226. See Sugin, *supra* note 130, at 236

The income effect in an income tax (increased work to achieve a set level of after-tax wage) is tempered by the offsetting substitution effect (decreased work on account of avoiding the tax by choosing leisure instead of work) so that the two distortions together might add up to less than either one separately.

227. See Richard M. Hynes, *Non-Procustean Bankruptcy*, 2004 U. ILL. L. REV. 301, 322 (“Economists typically believe the substitution effect will dominate and lower tax rates will induce individuals to work harder, and, in any case, the income effect is irrelevant from the standpoint of efficiency.” (footnote omitted)).

228. See David Gamage & Darien Shanske, *Three Essays on Tax Salience*, 65 TAX L. REV. 19, 63 (2011) (“When tax instruments are fully market-salient, whether the tax instruments produce income effects depends on what the governments do with their collected tax revenues.”).

229. See *id.* The tax will still give rise to a substitution effect if there are similar but untaxed goods.

question of whether the income effect or the substitution effect dominates with respect to a given tax is an empirical one,²³⁰ unless a tax change is revenue-neutral, in which case, the substitution effect will dominate.²³¹ Moreover, taxpayers may be more readily able to decrease consumption than to increase income, at least in the short run. Although some hourly workers might be readily able to request additional hours, other workers, such as those on salary, will have a harder time smoothly increasing income.²³² For all of those reasons, our model assumes that income effects are *de minimis*, so that substitution effects dominate. In those areas in which income effects dominate, our model would have less force.²³³

230. See Anne L. Alstott, *Equal Opportunity and Inheritance Taxation*, 121 HARV. L. REV. 469, 497 (2007) (“Economic theory cannot predict whether the income effect or the substitution effect will dominate: that is an empirical question.”).

231. See Christopher Heady, *Optimal Taxation as a Guide to Tax Policy: A Survey*, 14 FISCAL STUD. 15, 22 (1993) (“[I]n revenue-neutral tax changes the average taxpayer does not have an income effect, so only the substitution effect operates for that person.”).

232. See Jane G. Gravelle, *Behavioral Responses to Proposed High-Income Tax Rate Increases: An Evaluation of the Feldstein-Feenberg Study*, 59 TAX NOTES 1097, 1100 (1993) (“Many salaried workers are employed for a standard work period or to do a standard job and cannot easily vary the amount of labor supplied.”).

233. Another assumption in our sales tax example is that the sellers are not additionally subject to an income tax. See *supra* Part III. Specifically, we assumed that the sellers retained the full amount of the income-derived profit necessary to induce them to sell in a given competitive market. See *supra* Part III. If this assumption is relaxed so that some portion of the seller’s actual profits is taxed away via an income tax, then our model would become much more complex, yielding potentially different results. See Schweizer, *supra* note 97, at 256 (contending that when seller profits are fully taxed away and other conditions hold, then “tax evasion . . . would necessarily be suboptimal”). Yet, if the government were to adopt a strategy to intentionally encourage less than full compliance with the nominal tax laws, it could also adjust taxation on income in a similar manner—for instance, by auditing the income tax returns of sellers of highly elastic goods less frequently. So while the imposition of an income tax would make our model more complex, it would not change our ultimate results, at least in theory. Of course, it might increase the practical difficulties in implementing such a strategy.

B. Some Possible Consequences of Measured Enforcement

In this section, we address other potential consequences of a measured tax enforcement strategy, including costs stemming from increased uncertainty, as well as concerns regarding agency expertise, accountability, and discrimination among similarly situated taxpayers. While all of these concerns should be taken seriously, none of them counsels against considering at least a limited measured enforcement strategy.

1. The Costs of Uncertainty

Because measured tax enforcement requires audits at less than a 100% probability, it inherently would create some uncertainty for taxpayers regarding the expected tax payment if they fail to comply with the tax laws. Generally speaking, legal uncertainty can impose significant public and private compliance costs.²³⁴ In the tax context, James Alm has argued that “uncertain tax policies make individual choices in a variety of dimensions more difficult.”²³⁵ Specifically, tax law uncertainty can increase planning and related transaction costs, because taxpayers cannot easily predict, for example, whether they are subject to a given tax, whether they can take a deduction, and so forth,²³⁶ which can lead taxpayers to forgo transactions that

234. See, e.g., J. SCOTT MOODY, WENDY P. WARCHOLIK & SCOTT A. HODGE, SPECIAL REPORT: THE RISING COST OF COMPLYING WITH THE FEDERAL INCOME TAX 2 (2005), <http://taxfoundation.org/sites/taxfoundation.org/files/docs/sr138.pdf> (“If lawmakers create an Internal Revenue Code that is unnecessarily complex or that changes rapidly, taxpayers will face uncertainty about how taxes will affect a business plan or investment. When the tax consequences of economic activities are unpredictable, tax policy handicaps the growth and dynamism of the U.S. economy.”).

235. Alm, *supra* note 87, at 237; see also Yitzhaki, *supra* note 80, at 129 (“In the case of tax evasion the excess burden [(deadweight loss)] occurs because of the uncertainty introduced into the economy by tax evasion.”).

236. See Alm, *supra* note 87, at 237 (“Individuals who are planning their financial affairs . . . need to know whether tax changes will alter the return on their tax shelters by changing such things as depreciation rules, investment tax credits, interest deductions, at-risk rules, or capital gains tax rates and holding periods.”); Jonathan Skinner, *The Welfare Cost of Uncertain Tax Policy*, 37 J. PUB. ECON. 129, 144 (1988) (estimating the additional burden of uncertain

would be welfare enhancing.²³⁷ Indeed, a study in the 1980s estimated the welfare costs of uncertain taxation at \$15 billion in 1986 dollars.²³⁸

However, the kind of unpredictable uncertainty (“uncertainty” in the economic usage of Frank Knight) that leads to large transaction costs is quite different from the type of predictable uncertainty (“risk” in the Knightian sense) that forms the basis of our “measured” approach to enforcement.²³⁹ Unlike unpredictable uncertainty, a computable risk usually can be readily factored into a taxpayer’s economic analysis of proposed courses of dealing.²⁴⁰ Thus, if enforcement rates and strategies are generally stable and known by taxpayers, then the costs from uncertainty should be relatively minimal compared with the benefits of measured enforcement.

Moreover, since enforcement today is already an “audit lottery,”²⁴¹ simply restructuring the lottery by adjusting existing audit rates should—at least in the long run—give rise to no substantially greater costs from uncertainty than the existing system. In fact, because our model contemplates publishing much more information about the enforcement agency’s strategies,

rather than certain tax policy to be \$15 billion in 1986).

237. See Kyle D. Logue, *Tax Law Uncertainty and the Role of Tax Insurance*, 25 VA. TAX REV. 339, 343 (2005)

[S]ophisticated taxpayers who are considering engaging in some sort of business transaction . . . [may] face substantial uncertainty as to how the tax laws will be applied to their particular transaction. It is easy to understand how such uncertainty might deter a risk-averse taxpayer from engaging in welfare-enhancing, wealth-creating transactions . . . especially if the uncertainty in question could feasibly be eliminated or reduced.

238. Skinner, *supra* note 236, at 143.

239. KNIGHT, *supra* note 74, at 19–20, 197–232; cf. Lawsky, *supra* note 71, at 243 (defining uncertainty as “an unknown probability”).

240. See Eric L. Talley, *On Uncertainty, Ambiguity, and Contractual Conditions*, 34 DEL. J. CORP. L. 755, 759 (2009) (“‘Risk’ refers to randomness whose probabilistic nature is extremely familiar and can be characterized with objective probabilities (such as the outcome odds that attend the roll of a fair die). ‘Uncertainty,’ in contrast, refers to randomness whose probabilistic behavior is extremely unfamiliar, unknown, or even unknowable.”).

241. See *supra* note 16 and accompanying text.

uncertainty of all kinds should actually substantially decrease relative to today's system.²⁴² Ironically, while decreased uncertainty should prove beneficial to taxpayers in planning transactions, it may diminish the beneficial effects of uncertainty on risk-averse taxpayers, identified by Weiss and others, discussed above.²⁴³ However, given that we recommend considering the use of our model only for the most sophisticated of taxpayers, which tend to be more risk-neutral than ordinary taxpayers, such secondary effects are likely to be minimal.²⁴⁴

2. *The Importance of Agency Expertise*

As explained above, the enforcement agency must be sufficiently knowledgeable in order to successfully implement a measured enforcement strategy.²⁴⁵ Of course, since agencies are not omniscient, the implementation of such a strategy will generate error costs.²⁴⁶ These error costs can be problematic because measured enforcement affects the de facto content of the substantive law. For example, if the legislature determines after a lengthy period of fact-finding that the appropriate sales tax rate is 5% across a wide class of products, a measured enforcement scheme that results in little to no compliance for many classes of

242. See Dennis J. Ventry Jr., *Cooperative Tax Regulation*, 41 CONN. L. REV. 431, 450 (2008) (“[T]ransparency can facilitate certainty in reporting positions, and reduce costs of compliance as well as enforcement. Indeed . . . openness can lead to certainty for both taxpayers and the government.” (footnotes omitted)).

243. See *supra* notes 78–117 and accompanying text. Additionally, publishing more information about audit strategies will tend to decrease costly Knightian uncertainty, but leave intact more beneficial Knightian risk, further mitigating any negative secondary effects of decreased uncertainty. See *supra* note 239 and accompanying text (defining Knightian uncertainty and Knightian risk).

244. See Joel Slemrod, *Tax Minimization and Corporate Responsibility*, 96 TAX NOTES TODAY 1523, 1526 (Sept. 9, 2002) (“[A] publicly held corporation should make decisions as if it is risk-neutral, knowing that its shareholders can hold a diversified portfolio. More important, the owners of the firm and the decisionmakers are distinct.”).

245. See *supra* Part IV.A.

246. See generally Pinaki Bose, *Regulatory Errors, Optimal Fines and the Level of Compliance*, 56 J. PUB. ECON. 475 (1995) (analyzing the effects of tax enforcement errors).

products will substantially deviate from the legislature's intent, potentially leading to significant social costs.

As an initial matter, it is important to recognize that the current revenue-maximizing approach already creates effective *de facto* deviations from the substantive law implemented by the legislature, because many taxpayers will be able to understate their tax liability without penalty.²⁴⁷ Nonetheless, because our model envisions intentional indirect tinkering with the substantive law, a “measured”—rather than wide-ranging—tailoring of tax enforcement is the best approach, at least initially.

The enforcement agency also has certain advantages in obtaining the information necessary to achieve specific effects than would the legislature or the agency doing so directly through traditional lawmaking processes, which may lower transaction costs.²⁴⁸ First, the tax agency is the “on-the-ground” expert regarding tax administration and enforcement.²⁴⁹ Moreover, while the agency as it stands now is not necessarily more knowledgeable than the legislature when it comes to product elasticities, labor-leisure tradeoff functions, externalities, and such, it may be better positioned to acquire this knowledge. Specifically, the agency has readily on-hand a storehouse of data that it can use to compute this information, and it has the capability and capacity to hire economic experts to manage and administer such an undertaking.²⁵⁰ Accordingly, the agency is

247. See Scotchmer, *supra* note 96, at 229 (“[T]he effective tax code will differ from the legislated tax code, where the effective tax code reflects actual payments, including taxes on reported income and the expected value of fines.”).

248. See *supra* Part IV.A.

249. See Sánchez & Sobel, *supra* note 96, at 346 (“The government delegates the responsibility to collect taxes because it is unable to carry out the enforcement activity on its own. The division of responsibility arises if the task of enforcing tax policies requires information and expertise that the government does not have.”).

250. That is, a tax collector such as the IRS has first-hand information about enforcement strategies and the amount of taxes collected. It also already employs economists to assist its enforcement strategies. See, e.g., Press Release, Internal Revenue Serv., IRS Realigns and Renames Large Business Division, Enhances Focus on International Tax Administration (Aug. 4, 2010), <http://www.irs.gov/uac/IRS-Realigns-and-Renames-Large-Business-Division,-Enhances-Focus-on-International-Tax-Administration> (last visited Aug. 4, 2013)

likely to be in the best position to observe the dynamic responses of taxpayers to targeted audit projects.

Second, the political economy costs in the enforcement arena may be lower than those in the law or rulemaking context.²⁵¹ Legislatures are composed of politicians who experience lobbying and inevitably worry about reelection.²⁵² The tax authority, by contrast, is composed of civil servants who do not have to worry about pleasing the public in the same way.²⁵³ This is particularly so in the agency enforcement context, in which the agency enjoys broad discretion over policy, rather than the rulemaking context, in which the agency will generally face greater procedural constraints.²⁵⁴

On the other hand, it is possible that if it became widely known that the tax enforcement agency was intentionally

(noting the economists on the staff of the Large Business and International Division of the IRS) (on file with the Washington and Lee Law Review).

251. See Feldman & Teichman, *supra* note 6, at 1014 (noting that there can be high political costs to certain law making); Daniel C. Richman, *Federal Criminal Law, Congressional Delegation, and Enforcement Discretion*, 46 UCLA L. REV. 757, 801 (1999) (“While the political costs of narrowing the scope of substantive law appear to be prohibitive, the costs of proposals to restrict enforcer activities are not . . .”); William J. Stuntz, *The Political Constitution of Criminal Justice*, 119 HARV. L. REV. 780, 795–96 (2006) (suggesting that it is more politically expedient to change procedural criminal law than substantive criminal law).

252. See Susan Block-Lieb, *Congress’ Temptation to Defect: A Political and Economic Theory of Legislative Resolutions to Financial Common Pool Problems*, 39 ARIZ. L. REV. 801, 819–20 (1997) (“Public choice theory, sometimes referred to as the economic theory of legislation, contends that rational self-interested legislators tend to enact legislation that favors organized interests to the detriment of social welfare.” (footnote omitted)).

253. See John T. Scholz, *Contractual Compliance and the Federal Income Tax System*, 13 WASH. U. J.L. & POL’Y 139, 160 (2003) (“[T]he few political appointees to the agency are limited to the Commissioner’s office, with career civil servants performing the dominant role in shaping IRS enforcement decisions.”); Ventry, *supra* note 242, at 447–48

To date, no one has suggested that the IRS is particularly susceptible to agency capture. . . . Unlike other agencies, the Service does not interact as intimately with the entities it regulates. Moreover, it does not oversee one particular industry with organized representation, but instead regulates hundreds of millions of taxpayers in hundreds of thousands of different taxable industries, thereby diffusing the potential influence of specific interest groups.

254. See *supra* note 209 and accompanying text.

differentiating among various categories of taxpayers in an effort to decrease deadweight losses, special interest groups would lobby the agency, presenting information and arguments as to why lowering the audit rate would benefit society.²⁵⁵ This argument is one against targeted laws more generally, as these same groups could lobby the legislature directly. Moreover, the tax enforcement agency may be less susceptible to lobbying because its decisionmakers are not elected officials.²⁵⁶ For example, the head of the IRS, the Commissioner of Internal Revenue, is appointed by the President with the advice and consent of the Senate.²⁵⁷

Finally, agency discretion in enforcement can be diminished to a significant extent by the legislature's ability to respond to any agency changes in the de facto content of the law by adopting new substantive laws. Specifically, if the legislature passes more particularized substantive laws, these laws will constrain the ability of the agency to implement its own differentiated regime via measured enforcement.²⁵⁸ The legislature could even go so far

255. A.B. Atkinson & J.E. Stiglitz, *The Structure of Indirect Taxation and Economic Efficiency*, 1 J. PUB. ECON. 97, 98 n.2 (1972) ("The tax structure eventually emerging [from differentiated taxation] might well be based as much on relative strengths of these pressure groups as on relative dead weight losses.").

256. One potential counterargument is that agency officials are more susceptible to capture than legislatures, because of the "revolving door" movement of government employees into lucrative jobs with private-sector employers who regularly lobby the agency. However, in an analogous context, "while politics can pave the way to a more lucrative career (such as lobbying), many politicians remain in the business long past the point of maximizing their lifetime earnings potential." Daniel Shaviro, *Beyond Public Choice and Public Interest: A Study of the Legislative Process As Illustrated by Tax Legislation in the 1980s*, 139 U. PA. L. REV. 1, 80 (1990). In addition, the IRS seems less subject to capture than other agencies. See *supra* note 253. If such activity were afoot, it would be just as, or even more, prevalent under today's system as it would be under one of measured enforcement because we propose publishing detailed audit information across specific industry sectors, which arguably should constrain the ability of agency officials to privilege any given industry. See *supra* note 242 and accompanying text.

257. See I.R.C. § 7803(a)(1)(A) (2012) ("There shall be in the Department of the Treasury a Commissioner of Internal Revenue who shall be appointed by the President, by and with the advice and consent of the Senate.").

258. Cf. Elizabeth Magill, *Agency Self-Regulation*, 77 GEO. WASH. L. REV. 859, 883 (2009) ("Compared to legislatures, agencies have many more

as to require the agency to adopt specific enforcement schemes with minimum levels of auditing and penalties in particular areas when it determines the agency has made gross errors in its cost-benefit analysis—or the legislature could simply provide funding earmarked for specific audit projects.²⁵⁹

Of course, the costs of particularization by the legislature are high, but these barriers support implementing measured enforcement at the agency level. In cases in which the legislature is better suited to do so—namely, when the legislative transaction costs of differentiated enforcement are sufficiently low—then it certainly can institute such a scheme. Alternatively, the legislature itself can intentionally adopt uncertain laws to achieve effects similar to those of measured enforcement.²⁶⁰

3. Transparency and Accountability Issues

One important issue with moving de facto lawmaking from the legislative and rule-making levels to the enforcement level is that agencies, especially in their enforcement capacity, are less transparent than the legislative and rule-making processes are. Legislation usually involves public bills²⁶¹ and rulemaking often involves notice to the public with an opportunity to comment,²⁶² while enforcement generally has neither of these aspects.²⁶³

constraints on their options fixed by authoritative sources like statutes.”).

259. See Dorothy A. Brown, *The Tax Treatment of Children: Separate But Unequal*, 54 EMORY L.J. 755, 777 (2005) (referencing funding earmarked in 1998 and 2003 for Earned Income Tax Credit enforcement).

260. Cf. Sichelman, *supra* note 141, at 4–5 (proposing a system of uncertain intellectual property laws to optimize innovation incentives).

261. See Erik A. Johnson, *The Legislative Process*, 1951 JAG J. 12, 13, 14 (explaining that resolutions, private bills, and public bills may all be introduced in Congress, and that “bills proposed to become public laws are the most common”).

262. See 5 U.S.C. § 553(b) (2012) (providing for notice-and-comment rulemaking by federal agencies).

263. Confidentiality regarding the enforcement processes and outcomes is particularly true in the federal tax arena. See M. Bernard Aidinoff et al., *Report and Recommendations on Taxpayer Compliance*, 41 TAX LAW. 329, 350 (1988) (“Privacy statutes mandate that most tax enforcement actions remain confidential, so that only the small number of criminal tax evasion cases are routinely publicized.”).

Transparency fosters accountability, and, conversely, lack of transparency may give rise to abuses.²⁶⁴

The reality is that agencies already have enforcement discretion. However, the IRS, at least, is subject to a great deal of oversight,²⁶⁵ and has worked on increasing transparency.²⁶⁶ The proposed measured enforcement system would actually increase transparency through publication of more detailed enforcement percentage information.²⁶⁷ This would provide information both to the general public, and to the legislature, which could respond to those rates with statutory changes if it found them warranted.²⁶⁸ Indeed, measured tax enforcement would ease the burden of the legislature “getting the rate just right”—instead, the legislature could set nominal tax rates at the high end of the spectrum with the intention that the enforcement agency would

264. See *supra* note 39 and accompanying text.

265. A list of “IRS Oversight Organizations” on the IRS website includes The Government Accountability Office (GAO), The Office of Management and Budget (OMB), The Treasury Inspector General for Tax Administration (TIGTA), The Electronic Tax Administration Advisory Committee (ETAAC), The Information Reporting Program Advisory Committee (IRPAC), The Internal Revenue Service Advisory Council (IRSAC), The Taxpayer Advocacy Panel (TAP), and The IRS Oversight Board. *IRS Oversight Organizations*, INTERNAL REVENUE SERV. (Oct. 11, 2011), <http://www.irs.gov/uac/IRS-Oversight-Organizations> (last visited Aug. 4, 2013) (on file with the Washington and Lee Law Review).

266. See Reiss, *supra* note 39, at 646–47 (“[T]he IRS, widely held up for years as an example of complete non-accountability, has been working for over ten years on increasing its transparency and responsiveness to the general public.” (footnote omitted)).

267. See *supra* notes 209–13 and accompanying text.

268. In theory, a measured enforcement regime, particularly in the federal context, may raise concerns that it could override congressional intent, violate separation of powers, or violate due process requirements. Those issues generally are beyond the scope of this article. However, enforcement discretion is a well-embedded feature of the constitutional landscape, and there is no indication that in the tax context it depends on the implicit assumption that the agency will adopt an enforcement strategy that solely turns on maximizing revenue. See generally Edward A. Morse, *Reflections on the Rule of Law and “Clear Reflection of Income”: What Constrains Discretion?*, 8 CORNELL J.L. & PUB. POL’Y 445, 492 (1999) (“[T]he Code . . . reflects a longstanding tradition of deferring to the Commissioner’s enforcement discretion, rather than prescribing rule-like boundaries . . .”).

use its on-the-ground knowledge and discretion to target its audit resources so as to achieve more optimal de facto tax rates.²⁶⁹

4. *The Role of Compliance and Noncompliance Norms*

Given the costs of enforcement, no system could achieve 100% enforcement of the tax laws, just as no government could hope to eliminate all traffic violations. However, a system that depends on less than full compliance to achieve its results risks the possibility that taxpayers will start to flout the law in large numbers.²⁷⁰ That is, if the enforcement system is seen as encouraging noncompliance, “there may be a strong ‘watershed’ effect,” resulting in a cascade of taxpayer evasion that far surpasses the socially optimal level.²⁷¹ For less economically driven taxpayers, this watershed may take the form of encouraging a view that tax evasion is no longer “wrong.”²⁷²

It is thus critical that a measured enforcement system not be advertised as one that fosters “cheating.” Rather, like the current system, it is one that audits a fraction of taxpayers and imposes penalties on taxpayers caught evading their tax

269. We thank Jordan Barry for this suggestion.

270. See Lederman, *supra* note 58, at 1481–83, 1497 (reporting the findings of a game theoretic experiment suggesting that “the presence of free riders lowers average contributions in a public goods game, and in response, conditional cooperators lower their contributions”); see also Dan Kahan, *The Logic of Reciprocity: Trust, Collective Action, and Law*, 102 MICH. L. REV. 71, 81 (2003). Kahan states:

If most other individuals seem to be paying their taxes, then evasion will provoke either guilt, shame, or both in the reciprocator who covets the respect of others and of herself. If, in contrast, most individuals appear to be evading, then complying won’t make her feel guilty or ashamed at all; it will make her feel like a sucker.

Id.

271. Cowell, *supra* note 83, at 184 (“But if you let matters get out of hand it becomes very much harder to dissuade any one individual from evasion ‘everyone else does it, so why shouldn’t I . . . ?’”).

272. See, e.g., Jon S. Davis et al., *Social Behaviors, Enforcement, and Tax Compliance Dynamics*, 78 ACCT. REV. 39, 42 (2003) (“An . . . explanation for why knowing a tax evader might cause honest taxpayers to consider evasion is that observing others’ behavior can affect one’s own internalized moral standards.”).

responsibilities.²⁷³ As in the current system, the imposition of a fine for noncompliance carries with it the signal that evasion is not acceptable.²⁷⁴ Of course, measured enforcement would entail auditing some categories of taxpayers at a higher rate than others.²⁷⁵ That is true in the current system as well.²⁷⁶ The critical difference between the current enforcement system and measured enforcement is simply which categories of taxpayers are audited more frequently.

In addition, because measured enforcement focuses on increasing efficiency rather than revenue, it need not keep audit rates relatively nontransparent. Instead, it contemplates publicizing them so that taxpayers can respond to the actual risk of audit rather than an incorrect guess. Of course, this increased transparency, coupled with the reallocation of audit resources, could affect taxpayer behavior. It is possible that in the short run, taxpayers in more highly audited industries would resent the taxing authority and be tempted to increase their levels of evasion. That might require increasing audit rates and penalties if they are not sufficiently high at the outset to limit this reaction.²⁷⁷ As long as affected taxpayers have the funds to pay the fines, which publicly held corporations facing a transparent

273. See *supra* note 230 and accompanying text.

274. See Lior Jacob Strahilevitz, *How Changes in Property Regimes Influence Social Norms: Commodifying California's Carpool Lanes*, 75 *IND. L.J.* 1231, 1240 (2000) (arguing that a fine can reinforce a social norm). But see Uri Gneezy & Aldo Rustichini, *A Fine Is a Price*, 29 *J. LEGAL STUD.* 1, 10–11 (2002) (finding that imposing a fine on parents late picking up their children from daycare increased parents' tardiness).

275. See *infra* note 286.

276. See INTERNAL REVENUE SERV., *supra* note 219 (showing 2012 overall income tax audit rates of 1.0% for individuals; 0.2% for estates' and trusts' income tax returns; 1.1% for small corporations other than S corporations; 17.8% for large corporations; and 0.5% for both partnerships and S corporations).

277. It is worth noting that the higher-than-normal fines in our examples are not required for measured enforcement to increase social welfare. We used a 50% fine (of unpaid taxes) to simplify the presentation, but nothing in our model implies that fines would generally need to be so high for measured tax enforcement to increase welfare. See *supra* notes 160–66 (showing in the general model that high fines are not essential to achieving benefits via measured enforcement).

auditing and penalty system should,²⁷⁸ these changes should not pose a significant barrier to the measured enforcement approach.

5. Fairness (Horizontal Equity)

As noted above, the current tax enforcement system, which necessarily involves less than 100% enforcement, gives rise to an “audit lottery.”²⁷⁹ Such an audit-selection process means that similarly situated taxpayers are treated differently, because some noncompliant taxpayers are audited and owe the taxes and penalties, while others—including some with exactly the same economic characteristics—escape detection.²⁸⁰ Such differential treatment might be thought to be “unfair” because it violates the principle of horizontal equity, namely that “similarly situated individuals face similar tax burdens.”²⁸¹

There is a debate among tax scholars as to whether horizontal equity has any normative content, at least independent of the concept of “vertical equity,” which entails appropriately treating differently situated taxpayers.²⁸² Although

278. Although taxpayers could try to appear cash-poor so as to limit collectability, publicly held corporations are subject to regulatory regimes that make such artifice difficult to accomplish. See 17 C.F.R. § 240.10b-5 (2011) (making unlawful fraud “by the use of any means or instrumentality of interstate commerce, or of the mails or of any facility of any national securities exchange”).

279. See *supra* note 16 and accompanying text.

280. See Agnar Sandmo, *Income Tax Evasion, Labour Supply, and The Equity-Efficiency Tradeoff*, 16 J. PUB. ECON. 265, 287 (1982) (“A solution in which a small fraction of the number of tax evaders is punished very severely is certainly inequitable, . . . and the very possibility of such outcomes may conflict rather sharply with one’s sense of justice.”).

281. David Elkins, *Horizontal Equity as a Principle of Tax Theory*, 24 YALE L. & POL’Y REV. 43, 43 (2006). Tax evasion itself also raises concerns about horizontal equity because “taxpayers with equal income may either choose honesty and pay their taxes, evade and escape detection, or evade and get caught,” resulting in differing tax payments. Skinner & Slemrod, *supra* note 21, at 347.

282. See James R. Repetti & Diane Ring, *Horizontal Equity Revisted*, in THE PROPER TAX BASE: STRUCTURAL FAIRNESS FROM AN INTERNATIONAL AND COMPARATIVE PERSPECTIVE 1, 1–2 (Yariv Brauner & Martin J. McMahon Jr., eds., Kluwer International Publishing 2012) (forthcoming), available at <http://ssrn.com/abstract=1927984> (explaining that Louis Kaplow and Richard

a number of scholars have argued that the concept of horizontal equity lacks any independent normative content,²⁸³ it does resonate with many people as a fairness principle.²⁸⁴

Although horizontal equity is often considered in connection with substantive tax laws, it also arises in connection with tax administration. In a world with less than a 100% audit rate, if audit guidelines are considered *ex ante*—where presumably all similarly situated taxpayers have a similar probability of audit—they may seem horizontally equitable, but the results to taxpayers will differ *ex post* after some taxpayers are audited and some are not.²⁸⁵ Accordingly, Joel Slemrod and Jon Bakija explain that “[e]vasion creates horizontal inequity because otherwise equally well off people end up with different tax burdens.”²⁸⁶ Thus, any tax system that cannot prevent all tax evasion, including the current system, will have horizontal inequities resulting from that evasion. Moreover, Jim Repetti and Diane Ring argue that, “[i]n deciding who should be audited, it is necessary to refer to something beyond [horizontal equity].”²⁸⁷ They explain that horizontal equity does not speak to what the tax enforcer is seeking to maximize—be it revenue, utility, or something else.²⁸⁸

Musgrave both argued that horizontal equity has no normative content, but Musgrave changed his mind after reading Kaplow’s article).

283. See *id.* at 2 (“We agree with Musgrave I’s original assessment and later determinations by Kaplow and [McDaniel & Repetti]. HE [(Horizontal Equity)] does not serve a useful role in formulating tax policy.”).

284. See *id.* at 10 (“In an effort to discern and specify the undeniable appeal of HE, scholars have carved out a role, but one that is not on par with VE [(Vertical Equity)] and does not make claims on substantive tax policy design.”).

285. See Reinganum & Wilde, *supra* note 88, at 13 (“While a random audit policy is horizontally equitable in an *ex ante* sense (i.e. before anyone is audited they face an identical probability of audit), it is not horizontally equitable *ex post* (i.e. some individuals with the same income are audited while others are not).”).

286. JOEL SLEMROD & JON BAKIJA, *TAXING OURSELVES: A CITIZEN’S GUIDE TO THE GREAT DEBATE OVER TAX REFORM 178* (MIT Press 4th ed. 2008).

287. Repetti & Ring, *supra* note 282, at 18 (“[Horizontal equity] does not guide us in selecting among these objectives. It is necessary to once again appeal to some other source to decide how to best accomplish enforcement.”).

288. See *id.* (“The difficulty with this analysis is that [horizontal equity] is not helpful in insuring even-handed enforcement. In a world of finite resources, not every taxpayer can be audited.” (footnote omitted)).

Our model, which contemplates a system of probabilistic enforcement in order to dampen potential welfare losses from taxation, does just that—optimizing utility for example by focusing on taxpayers whose products are highly inelastic or produce substantial negative externalities.²⁸⁹ Notably, however, our model differs from the current revenue-maximizing strategy, because the enforcement agency in our approach contemplates—and in fact depends upon—some noncompliance in order to increase social welfare.²⁹⁰ Thus, like the current system, it will inevitably contain *ex post* horizontal inequities. The question then becomes whether targeting enforcement so as to intentionally audit some types of taxpayers (such as sellers of goods that produce negative externalities) more than others increases those inequities.²⁹¹

Measured enforcement will increase horizontal inequities in less-audited sectors and reduce them in more heavily audited sectors.²⁹² Given the same (or at least nearly the same) revenue target as in the current system, measured enforcement should therefore not increase horizontal inequity, but simply shift it.

289. See *supra* Part III. There is an additional “fairness” concern that we abstracted away from regarding the elasticity of products. For instance, the demand for food is relatively inelastic, while the demand for opera tickets is elastic. See James Allison, *Demand Economics and Experimental Psychology*, 24 BEHAV. SCI. 403, 406 (1979) (noting that economists generally “suppose that demand for nonessential commodities is more elastic than demand for essentials”). Thus, a strict focus on enforcing the tax on inelastic products might result in an undesired distributive shift in real income from the poor to the wealthy. Of course, as in any tax system, unwanted distributive effects might call for deviations from the most “efficient” enforcement scheme.

290. See *supra* Part III; Cowell, *supra* note 21, at 185 (“Considerations of horizontal equity—which connote *ex post* ‘fairness’ in the tax treatment of individuals—or simple retribution thus seems to be an essential prop to the anti-evasion argument.”).

291. Cf. Cowell, *supra* note 82, at 278 (“If [the] legislator or public policy analyst truly believes that evasion *per se* is a ‘bad thing’, then one must be prepared to accept some form of paternalistic overriding of individual preferences for the sake of imposing horizontal equity . . .”); Scotchmer, *supra* note 96, at 229 (“[E]nforcement policies designed to maximize net revenue affect the equity properties of the effective tax code.”).

292. This is an *ex post* perspective. *Ex ante*, measured enforcement will not increase horizontal inequity because it treats only differently situated taxpayers—such as sellers of different goods—differently.

Ultimately, horizontal equity generally comes at the price of failing to maximize overall social welfare, and setting the optimal balance between social utility and horizontal equity has no clear solution.²⁹³ However, because measured enforcement would leave horizontal inequities in the aggregate roughly the same as they are under the current system, this thorny issue does not pose a barrier for a measured enforcement system.

6. *The Role of Allocative Distortions*

While measured enforcement may not lead to net horizontal inequities, it does shift the enforcement locus, which could very well cause allocative distortions. That is, the presence of a lower-taxed sector can give rise to distortions as taxpayers migrate into that sector.²⁹⁴ This point is a distinct one from the social benefits that can be obtained by the reduction in market distortions that tax evasion entails. In order to tease out the issue of whether and when the welfare benefits or the allocative distortions dominate, Carl Davidson, Lawrence Martin, and John Douglas Wilson developed a model similar to the model of Urs Schweizer,²⁹⁵ discussed above,²⁹⁶ in which the world is divided into a “legal market,” in which risk-neutral sellers pay taxes and a “black market,” in which they evade taxes.²⁹⁷ Like Schweizer, Davidson et al. recognize that tax evasion may “raise[] welfare” in some circumstances, particularly when differentiated tax treatment of

293. See Martin Feldstein, *On the Theory of Tax Reform*, 6 J. PUB. ECON. 77, 83 (1976) (“The problem for tax design is . . . to balance the desire for horizontal equity against the utilitarian principle of welfare maximization. Balancing these two goals requires an explicit measure of the departure from horizontal equity. I can offer no obvious or compelling solution to this problem.”).

294. See SLEMROD & BAKIJA, *supra* note 286, at 180 (providing an example of housepainters who accept cash, which gives rise to a “supply of eager housepainters”).

295. Davidson et al., *supra* note 117, at 1575–76.

296. See *supra* notes 97–111.

297. Davidson et al., *supra* note 117, at 1578–85; see also Carl Davidson et al., *Tax Evasion as an Optimal Tax Device*, 86 ECON. LETT. 285, 285–86 (2005) (presenting a similar model).

differing goods is optimal but information asymmetries and other costs “limit the government’s power” to implement such taxes.²⁹⁸

The Davidson et al. model makes several assumptions: consumers can purchase at most one unit of the good in the model, the good varies among firms in its “quality” level, and consumers have heterogeneous tastes.²⁹⁹ In addition, some firms in their model have fewer assets, while others have more. Because tax evasion risks detection and imposition of a penalty that is capped by the amount of assets the tax authority can seize from any given taxpayer, lower-asset firms choose to operate in the black market, while higher-asset firms do not.³⁰⁰

With this setup, Davidson et al. find that if the black market consists of high-quality goods, there is a welfare benefit from the small amount of evasion resulting from a black market, because the black market results in a *correction* of the allocative distortion resulting from uniform taxation, which otherwise suppresses the sale of high-quality goods.³⁰¹ By contrast, if the black market consists of low-quality goods, there are some welfare benefits through purchases that would not have been made if only high-quality goods were offered (given consumers’ heterogeneous quality preferences), but these benefits are outweighed by the allocative distortions from the introduction of the low-quality goods.³⁰² Davidson et al. also explain that the government can set the tax evasion penalty at a level that results

298. Davidson et al., *supra* note 117, at 1585–86. Their starting point for the proposition that a black market may be welfare-enhancing is an undergraduate public finance textbook, H.S. ROSEN, PUBLIC FINANCE (McGraw-Hill/Irwin 7th ed. 2005). *See id.* at 1575–76.

299. *See id.* at 1576 (“[W]e next assume that the tax system distorts the decision of whether to devote resources to any taxed activity.”).

300. *See id.* at 1577 (“By capping the maximum fines at the firm’s total assets, we are essentially assuming that higher fines are precluded by either the economy’s legal system (e.g., limited liability) or the excessive costs needed to obtain them.”).

301. *See id.* (“[A] black market can be desirable, even when audits are costless, because it partially corrects the distorting effect that a uniform tax system has on the allocation of resources across taxed activities.”).

302. *See id.* (“Black markets containing high-quality goods improve the allocation. With low-quality goods, the misallocation is so severe that it offsets any welfare gains from the ability of black markets to draw resources into taxed activities as a whole.”).

in the black market consisting of high-quality goods (thus always optimizing welfare).³⁰³

Our model abstracted away from these concerns by assuming that product markets were fully competitive and that the government could tax away all producer surplus.³⁰⁴ In this situation, measured enforcement would not lead to secondary distortions in product markets.³⁰⁵ However, if the government reduced enforcement in monopolistic or oligopolistic markets, or set its audit rates and fines so as to introduce substantial secondary allocative effects, then the Davidson et al. model, and extensions to it, would need to be considered. For these reasons, we recommend that any experiment with measured enforcement not only be limited to sophisticated taxpayers, but also to taxes on product sales made by sellers operating in highly competitive, mature markets.³⁰⁶

V. Conclusion

“Taxes are the life-blood of government,”³⁰⁷ so optimizing enforcement of the tax laws is a critically important issue. Yet, the traditional approach of attempting to maximize tax revenues ignores the overall welfare costs of strict enforcement of the tax laws.³⁰⁸ The model developed in this article, which applies regardless of the taxpayer’s risk profile, demonstrates how a tax authority can increase overall social welfare by “measuring” its enforcement of suboptimal tax laws. By taking into account deadweight losses and other distortions caused by taxation, the tax authority can adjust its enforcement rates to reduce these distortions, while maintaining or increasing overall revenue.

303. See *id.* at 1585 (“[O]nly the new fine schedule is needed to ensure that a welfare-improving black market can always be created, regardless of whether the capital intensity of production increases or declines with quality.”).

304. See *supra* note 171.

305. Thus, we do not believe the assumptions of Davidson et al. always apply. See *supra* note 117 and accompanying text.

306. Another benefit of limiting measured enforcement to mature markets is that it eases the information burden on the enforcement agency.

307. *Bull v. United States*, 295 U.S. 247, 259 (1935).

308. See *supra* Part II.

The examples considered in this article involve measured enforcement of a uniform sales tax. As long as the tax authority is able to discern the general elasticities for various products, it can target its enforcement resources so as to increase social welfare. In particular, the tax authority would decrease the enforcement of taxes on highly elastic goods and those creating large positive externalities, and the opposite for highly inelastic goods and those creating large negative externalities, resulting in fewer allocative distortions from the sales tax, but the same or increased sales tax collections.

Of course, in order to implement a measured enforcement strategy, the enforcement agency would have to be sufficiently knowledgeable about the distorting effects of taxation. Yet, while tax authorities might not be able to obtain, for example, detailed supply and demand information, they should be able to discern—at least at the extremes—which goods are highly elastic (such as books) and which are highly inelastic (such as gasoline). Even making such rough distinctions can lead to gains in overall social welfare. Because tax enforcement agencies generally are insulated from political processes and are on-the-ground experts, they may have a greater ability than the legislature does to achieve effectively differentiated taxation. However, the legislature remains free to respond to the effects that measured enforcement has on the *de facto* content of the laws, adjusting the substantive laws to achieve desired results.

Although measured enforcement would be carried out at the agency level, rather than via political processes, it would not need to reduce transparency compared to the current system. Rather, audit rates would be more heavily publicized than under the current system. Nor would it be advertised as a system that promotes “cheating”—which could result in undesired noncompliance—but rather as a transparent audit regime applied to sophisticated taxpayers. Publicity about the penalties for cheating should also help serve as an enforcement mechanism and as a signal that noncompliance is not normatively acceptable.

The proposed measured enforcement approach also would not result in any additional horizontal inequity. Although, as in any system in which there is tax evasion, allocative distortions will result due to the higher return to tax-evading sectors, the economics literature demonstrates that the efficiency gains from

an appropriate level of noncompliance can exceed the losses from allocative distortions if an enforcement program is properly designed.

The benefits of measured enforcement are not limited to the tax context. The fundamental insight that imperfect enforcement may give rise to beneficial effects is applicable in an array of legal contexts, including not only regulatory law, but many fields of public and private law. In essence, whenever the cost of particularized rulemaking is sufficiently high, measured enforcement may lead to overall welfare gains via de facto changes in the substantive law. More generally, when the substantive law is not ideal, and amending it is not feasible, the government can improve the situation by measuring enforcement of the substantive law.

