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The Legal Envelope Theorem

David A. Weisbach[†] and Daniel J. Hemel[‡]

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Abstract

Non-tax legal rules regulating the workplace, the financial sector, real property, and many other areas affect the ability of governments to collect revenues and provide public goods. Yet tax-collection considerations rarely enter into economic analyses of non-tax legal rules. Usually, tax-collection concerns are shunted aside to separate studies (and separate law-school courses) rather than being integrated into debates in non-tax spheres. This separation between non-tax legal rules and tax-collection considerations bears significant negative consequences for the ability of law and economics to generate descriptively accurate and normatively attractive accounts of important non-tax legal questions.

This Article takes a step toward remedying that oversight. We present an analytic framework for understanding the interaction between non-tax legal rules and tax collection. This framework—which we call the Legal Envelope Theorem—demonstrates that legal rules should systematically deviate from simple notions of efficiency to take stock of tax effects. We then provide a series of examples applying the Legal Envelope Theorem, illustrating how the non-tax legal system ought to be (and, on occasion, actually is) designed with tax effects in mind. These examples range from parental-leave mandates to bank capital requirements to centuries-old property and contract rules regularly taught in introductory law-school courses. We illustrate how a framework that is attentive to tax-collection considerations can enhance the government’s capacity to redistribute resources and address wealth inequality.

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INTRODUCTION

As late as the second half of the nineteenth century, communities in many parts of Europe organized landholdings in ways that would look strange to modern eyes. In parts of rural Russia, for example, a household might, in the summer, hold a dozen or so noncontiguous strips of land in different ecological zones surrounding a single village. In the winter, the cropland might revert to commonly owned property where anyone could graze their fowl and livestock. These arrangements, writes James C. Scott in his book *Seeing Like a State*, were well understood by local inhabitants and “worked admirably for their purposes.”¹ But property rights regimes of this sort created problems for tax collectors, who faced tremendous difficulties in assigning liabilities to different households.

On Scott’s account, authorities in several countries responded to this challenge by modifying property regimes so as to make landholdings more “legible,” *i.e.*, more susceptible to observation and taxation. In many places, authorities replaced well-functioning but illegible regimes with freehold tenure systems that facilitated the collection of revenues. Legal rules governing real property were devised with taxation in mind, and arrangements that might have been otherwise optimal were instead modified in light of tax considerations.²

In Scott’s view, legibility is a double-edged sword. Efforts to facilitate observation and taxation are “vital to the maintenance of our welfare and freedom,”³ for a state unable to collect revenue from its citizens is also unable to protect and advance their interests. But, Scott warns, “the legibility of

¹ JAMES C. SCOTT, *SEEING LIKE A STATE: HOW CERTAIN SCHEMES TO IMPROVE THE HUMAN CONDITION HAVE FAILED* 40 (1998).

² We are not sure that this claim is the best description of the reasons for the shift to freehold tenure. There may have been other advantages to freehold tenure. Our focus is on modern examples, and nothing in our analysis depends on whether Scott’s account is accurate.

³ SCOTT, *supra* note 1, at 4.

society provides the capacity for large-scale social engineering,”⁴ and it is thus a necessary (though not sufficient) ingredient in many of the greatest tragedies of the nineteenth and twentieth centuries. Scott’s account of efforts at legibility is thus not entirely—or primarily—valedictory. After all, the same features that allow a state to raise revenue likewise enable it to suppress minorities (and sometimes majorities).

While Scott is focused on the relationship between legibility and tyranny, his account also suggests a close relationship between legibility—the ability of the government to observe and tax—and legal rules. For a state to revise its entire system of property law to facilitate tax collection is exceptional, but the idea that property law might be designed with a view toward taxation is not. Legal rules seemingly unrelated to taxation—such as the statute of frauds—have their historical origins in debates over tax-collection capacity. Legal rules engineered for non-tax purposes—from parental leave laws to bank capital requirements—potentially serve important tax-facilitating functions. Understanding the idea of legibility and the relationship between non-tax rules and tax collection is essential to understanding why our current legal system looks and works the way it does.

In this paper, we examine the relationship between taxes and legal rules. We seek to understand whether—and under what circumstances—non-tax legal rules have been or should be adjusted to take the tax system into account.⁵ We will argue that there are a small number of cases in which well-known non-tax legal doctrines *do* reflect tax collection considerations, and a larger number of cases in which they ought to. In this latter bucket, we place (among others) many legal rules governing the workplace, the structure of business organizations, the financial sector, and the transfer of real property.

⁴ *Id.* at 5.

⁵ As the large literature on tax expenditures argues, the line between tax and non-tax legal rules is to a great extent arbitrary. Nothing in our paper turns on this distinction. In fact, our thesis is that there should be less of a distinction between tax and other legal rules.

In all of these cases, non-tax legal rules affect tax collection, and the non-tax legal regime ought to be adjusted in light of this phenomenon.

To advance our thesis, we develop a theoretical apparatus for understanding the interaction of legal rules and the tax system, resulting in what we call the Legal Envelope Theorem. The Legal Envelope Theorem builds on a narrower instrument that we introduced in prior work on tax policy. That tool—which we called the Behavioral Elasticity of Tax Revenue, or BETR—is a measure of the efficiency effects of a small tax policy change. It allows us to estimate the effects on total resources available to society of almost any modification to tax policy, including changes in tax rates, the tax base, or tax enforcement.

Our fundamental insight is that *non-tax* legal rules affect the total resources available to society through the same channels as tax policy does. For example, changes to workplace rules may make labor in the formal (taxed) sector relatively more attractive than leisure or work in untaxed sectors of the economy, such as household production. As a result of a change in relative value, people will shift toward working more in the formal sector and paying more in taxes. Likewise, legal rules can make activities relatively easier for the government to observe and thus to tax. For example, the Uniform Commercial Code's statute of frauds—which requires contracts for the sale of goods totaling \$500 or more to be indicated in writing⁶—potentially makes it easier for tax authorities to find evidence of unreported income. Scott's example of early-modern European property rules, which enhanced the legibility of land holdings, fits this latter logic.⁷

To analyze how non-tax legal rules affect total resources, we rely on the envelope theorem—familiar to many readers from basic microeconomics. The

⁶ U.C.C. § 2-201 (Unif. Law Comm'n 2012).

⁷ These two pathways are not distinct. Activities that the government cannot observe are likely to be in the informal sector. Making activities more observable may often be the same thing as shifting activities to the formal sector. Nothing except nomenclature depends on the distinction. Instead, it is, we hope, a helpful way of organizing cases.

envelope theorem holds that a slight change in the value of one parameter has no first-order effect on the optimized value of a function. For example, if an individual allocates her time between labor and leisure in a way that is privately optimal, a small shift toward more labor or more leisure does not make her materially better or worse off. The reason for this is at the optimum, the marginal benefit to the individual from working a little more is equal to the marginal cost (in this example, the opportunity cost of losing a little bit of leisure time). If it were otherwise (i.e., if the marginal benefit were greater than the marginal cost or vice versa), the individual would reallocate her time between labor and leisure until she reached a point at which there were no additional incremental gains to be had.

Applying the envelope theorem to the interaction of legal rules and the tax system yields a powerful conclusion: If we start from the point at which the marginal non-tax benefit of adjusting a legal rule in one direction or the other equals the marginal non-tax cost, but the *tax* consequences of the change are more than marginal, then we can potentially achieve first-order (i.e., more than marginal) tax system benefits without material non-tax costs. Better yet, the BETR—which measures the efficiency effects of small changes in the tax system—allows us to determine *how far* from the non-tax optimum to deviate in light of tax collection considerations. In other words, it tells us how far from “simple efficiency” we want our legal rules to be (where by “simple efficiency,” we refer to the maximization of non-tax benefits net of non-tax costs).

Having established the Legal Envelope Theorem as a conceptual manner, we then illustrate its practical applications. Across a wide array of doctrinal areas, we highlight important interactions between legal rules and the tax system. We show how the Legal Envelope Theorem can inform the design of core legal rules, including laws affecting work, the law of business organizations, laws affecting size of the informal sector, and property law.

The Legal Envelope Theorem also sheds light on long-running debates in law and economics regarding the relationship between efficiency and distribution. Louis Kaplow and Steven Shavell have argued that legal rules should not be adjusted to favor the poor, because “such use of legal rules to redistribute income is generally less effective than relying exclusively on the

income tax system to achieve distributive objectives.”⁸ Our analysis—though compatible with a careful reading of Kaplow and Shavell’s argument—adds an important qualification. The ability of the tax system to achieve redistributive objectives depends critically on the design of non-tax legal rules. When non-tax legal rules are structured so as to make the tax system function more effectively, the efficiency costs of redistributive taxes will be lower, and the optimal level of redistribution will be higher.

This last insight connects the Legal Envelope Theorem to conversations about widening wealth and income inequality, which former President Barack Obama has described as “the defining challenge of our time.”⁹ The failure of non-tax legal rules to account for tax collection consequences makes the challenge of wealth and income inequality even greater, because it renders efforts to address that challenge through the tax-and-transfer system costlier. Although our statement of the Legal Envelope Theorem does not explicitly account for redistribution (and, indeed, we agree with Kaplow and Shavell that non-tax legal rules generally are not the most efficient means of achieving purely redistributive objectives), the primary underlying motivation for the Legal Envelope Theorem is to facilitate redistributive taxation. If society did not care at all about redistribution, it would not need the Legal Envelope

⁸ Louis Kaplow & Steven Shavell, *Should Legal Rules Favor the Poor? Clarifying the Role of Legal Rules and the Income Tax in Redistributing Income*, 29 J. LEGAL STUD. 821, 834 (2000) [hereinafter Kaplow & Shavell, *Should Legal Rules*]. For earlier statements of the argument, see Steven Shavell, *A Note of Efficiency vs. Distributional Equity in Legal Rulemaking: Should Distributional Equity Matter Given Optimal Income Taxation?*, 71 AM. ECON. REV. 414 (1981); Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667 (1994) [hereinafter Kaplow & Shavell, *Why the Legal System*].

⁹ White House Office of the Press Sec’y, *Remarks by the President on Economic Mobility* (Dec. 4, 2013), <https://obamawhitehouse.archives.gov/the-press-office/2013/12/04/remarks-president-economic-mobility>.

Theorem.¹⁰ Because we *do* care about redistribution, the addition of the Legal Envelope Theorem to the toolkit of legal-system design is imperative.

We proceed as follows. Part I provides the analytic underpinnings of the Legal Envelope Theorem. It begins with our prior measure of the effects of changes to the tax system, the BETR. It then shows how the BETR can be extended to capture changes to legal rules. It also situates the Legal Envelope Theorem within the broader law-and-economics and public finance literatures. Part II shows how the Legal Envelope Theorem applies to four different areas of law: laws that affect work, the law of business organizations, laws that affect the size of the informal sector, and property law. In each case, we consider a number of different legal rules, showing how reforms should be evaluated in light of their interactions with the tax system. We conclude with reflections on the role of the Legal Envelope Theorem in scholarly and policy-reform debates.

I. ANALYTIC FRAMEWORK

In prior work, we developed a measure of the efficiency effects of changes in tax policies, such as changes to tax rates, the tax base, or enforcement efforts.¹¹ We show here that this measure—the Behavioral Elasticity of Tax Revenue, or BETR—also allows us to estimate the efficiency consequences of changes to legal rules that affect tax collection. Building on this foundation, we establish the Legal Envelope Theorem. The Legal Envelope Theorem holds that it is optimal to deviate from an otherwise efficient legal rule if the BETR from the change is positive. Although the strong form of the Legal Envelope

¹⁰ Absent any concern regarding redistribution, the most efficient mechanism for raising revenue is a lump-sum tax (i.e., a tax that does not depend upon income). The decision instead to use taxes that depend upon income, consumption, and wealth—which, in turn, gives rise to the distortions that the Legal Envelope Theorem addresses—is a decision that reflects society’s distributional concerns.

¹¹ Daniel Hemel & David Weisbach, *The Behavioral Elasticity of Tax Revenue* (Univ. of Chi. Coase-Sandor Inst. for Law & Econ. Research Paper No. 892, Oct. 2019), <https://ssrn.com/abstract=3462705>. A more complete explanation of the BETR is found in that article.

Theorem applies only to marginal (i.e., small) changes to legal rules, the same framework also sheds light on larger legal-system reforms.

Our motivating example in the next two sections involves a straightforward tradeoff between two activities—raising cattle for sale in the taxable sector versus growing vegetables for consumption in the untaxed sector. Many readers will recognize this rancher-grower example from Ronald Coase’s canonical article *The Problem of Social Cost*,¹² almost certainly the most influential single article in the law and economics literature. The difference between Coase’s example and ours is that Coase considers the allocation of land between two people engaged in different activities—a rancher who raises cattle and a farmer who grows vegetables. We begin by considering cases in which the same individual engages in different activities (cattle raising and vegetable growing) and allocates land between those two activities. Later on, we will extend our analysis to multi-actor settings that are closer to Coase’s. While we thus take some liberties with Coase’s example, the correspondence to Coase is intentional. We seek to show how the Legal Envelope Theorem informs central problems in law and economics, as well as other areas.

A. The Behavioral Elasticity of Tax Revenue

1. Market vs. Non-Market Production

Consider, first, a very simple setting in which a single individual is choosing between two potential uses of the same plot of land. The individual can (a) use the land to raise cattle, which she then will sell at a cattle market in a transaction observable by the tax authority, or (b) use the land to grow vegetables, which she and her family then will consume. Her choice need not be all-or-nothing: she can split the land between the two uses.

The individual makes this choice against the backdrop of a tax system. For purposes of the example, we will assume a very simple tax system consisting only of a flat-rate 30 percent cash flow income tax. We also will assume, as is

¹² Ronald H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960).

standard, that the cash flow income tax does not reach household production and consumption. The government does not tax—because it has no way of observing—the value of goods and services that an individual produces for herself and her household members (*e.g.*, vegetables from one's own garden).

The individual will want to allocate her available land between cattle raising and vegetable growing such that the value she derives from an additional unit of land devoted to cattle raising equals the value she derives from an additional unit of land given over to gardening. If one of those values were greater than the other, she would reallocate land to the higher-value use until there were no more incremental gains to be had.¹³

Let's say that, at the private optimum, an additional unit of land devoted to cattle raising will allow the individual to earn an additional \$10 at the cattle market. She then will have to pay a tax of 30 percent x \$10, or \$3, leaving her with \$7 with which she can buy goods and services. Since the individual is optimizing, this implies that the value of the vegetables that the individual can grow by devoting the same unit of land to vegetable growing is also \$7. If it were anything more than \$7, she would want to reallocate land from cattle raising to vegetable growing (and vice versa if it were less than \$7).

Now suppose that the tax rate falls from 30 percent to infinitesimally less than 30 percent, such that the after-tax amount that the individual can earn from devoting an additional unit of land to cattle raising is slightly more than \$7. The individual will reallocate a little bit of land from vegetable growing to cattle raising because cattle raising is now slightly more valuable to the individual than it was before.

¹³ We will assume, for purposes of this article, that the individual chooses the privately optimal allocation (i.e., what's best for her and her family). The BETR and the Legal Envelope Theorem can be extended to individuals who make optimization errors following the approach outlined in Raj Chetty, *Is the Taxable Income Elasticity Sufficient to Calculate Deadweight Loss? The Implications of Evasion and Avoidance*, 1 AM. ECON. J.: ECON. POL'Y 31, 39–41 (2009).

What is the effect of this change on the individual's wellbeing? If she devotes one more unit of land to cattle raising and one fewer to vegetable growing, she is not materially better or worse off than before, because she was previously indifferent between those two options. A small change in the tax rate causes her to shift her choices, but that shift itself has approximately zero effect on the individual's utility. True, when she earns an additional \$10 at the cattle market, she pays an additional tax of almost \$3, but she is approximately as well off as if she had spared herself the \$3 in taxes and grown vegetables worth \$7 (indeed, slightly better off). This result follows from what is known in economics as the envelope theorem.¹⁴ Envelope effects are a key part of the arguments that follow.

While the individual is roughly indifferent as to whether she allocates an additional unit of land to cattle raising and pays \$3 more in taxes, society is not. Society is \$3 better off when the individual allocates the extra land to cattle raising, because the individual's income from cattle raising is taxed while the value of vegetables grown for home consumption is not. Thus, the government raises an additional \$3 of revenue and can purchase an additional \$3 of public goods. This \$3 of revenue is the tax equivalent of manna from heaven—it's \$3 of extra wealth to be allocated across society. We will refer to it as the "behavioral" effect on tax revenue—"behavioral" because it resulted from a change in the behavior of a taxpayer (here, the individual allocating more of her land to cattle raising).

The \$3 behavioral effect on tax revenue from the individual reallocating land to cattle raising is not the only consequence of a slight reduction in the

¹⁴ Why exactly it carries that name requires a longer explanation. On the history of the envelope theorem, see Torsten Schmidt, *Really Pushing the Envelope: Early Use of the Envelope Theorem by Auzpitz and Lieben*, 36 HIST. POL. ECON. 103 (2004).

Envelope-theorem reasoning appears at several places in the law-review literature. See, e.g., Ian Ayres, *Pushing the Envelope: Antitrust Implications of the Envelope Theorem*, 17 MISS. C. L. REV. 21 (1996); Chris William Sanchirico, *Detection Avoidance*, 81 N.Y.U. L. REV. 1331, 1361 n.101 (2006) (applying envelope-theorem reasoning to analysis of investment in law enforcement). We discuss specific applications of the envelope theorem to the interaction between tax and non-tax legal rules below. See *infra* note 31.

tax rate. Recall that the individual already was raising cattle on some of her land, and she was selling that cattle at the market and paying tax on those sales. Now, she is paying a little less in taxes on all of those sales—sales that would have happened regardless of the tax change. With respect to those sales of cows raised on land that she would have allocated to cattle raising anyway, the individual *is* better off: she is doing exactly what she was doing before but now her after-tax income is a little bit higher. Symmetrically, the government is worse off, since it is raising less revenue and has less to spend on public goods. Assuming that the value of \$1 in the hands of the individual and the government is the same, the benefit to the individual and the cost to the government exactly offset.¹⁵ The shift in wealth from the government to the individual is a “transfer” that does not affect the total resources available to society. In the language of economics, this is the “mechanical” effect on tax revenue (as distinguished from the “behavioral” effect).

Summing up, the effect on the total resources available to society as a result of a small reduction in the tax rate is equal to the behavioral effect on tax revenue (here, \$3), minus administrative and compliance costs (here, zero). We intentionally ignore mechanical effects in this calculation because those are transfers—one side (here, the individual) is better off, and the other side (here, the government) is symmetrically worse off. This is the key lesson from the BETR framework. The effect of a small change in tax policy on the total resources available to society (*i.e.*, the efficiency effect of the tax policy change) is the *behavioral effect* on tax revenue less any change in administrative and compliance costs.

2. Reported vs. Unreported Income

In the example above, the individual’s only possible uses of her land were (a) raising cattle to be sold at the market in a transaction observable by the tax authority or (b) growing vegetables for household consumption. Now we will introduce a third option: the individual can grow vegetables that she sells to

¹⁵ We discuss the reasons why this assumption is appropriate in our prior work. See Hemel & Weisbach, *supra* note 11.

her neighbors for cash in transactions that—though legally subject to taxation—will not be reported by the individual to the tax authority.

As before, the individual will allocate her land across these three uses optimally, such that there are no additional gains to be had from reallocation. If her net after-tax income from allocating an additional unit of land to cattle raising is \$7 (*i.e.*, \$10 in pre-tax income less \$3 in taxes), this means that she also derives \$7 in value from an additional unit of land given over to growing vegetables for household consumption *or* for neighborhood sales. This could be because her neighbors are only willing to pay \$7 for the vegetables and the individual can hide that income from tax authorities costlessly. Or it could be because her neighbors are willing to pay more than \$7 for the vegetables but the individual bears costs in hiding that income from tax authorities (*e.g.*, the cost of opening a secret bank account¹⁶).

Now imagine that instead of lowering the tax rate, the government slightly raises the rate at which it audits taxpayers. The very small increase in the frequency of audits makes it slightly likelier that the individual will get caught evading taxes on her neighborhood vegetable sales. If she is caught, she will have to pay past-due taxes and penalties. The increase in the audit rate therefore makes the neighborhood vegetable sales slightly less attractive than they were before, causing the taxpayer to reallocate a bit of her land from that purpose to either (a) raising cattle or (b) growing vegetables for household consumption.¹⁷

What is the effect on the individual's well-being from reallocating from neighborhood vegetable sales to (a) or (b)? Again, there is no material effect, because the individual already was indifferent between these options. If the

¹⁶ The cost of not reporting income might also be the moral disutility that the individual experiences from violating the tax laws. If the value she assigns to that moral disutility is less than the amount she pays in taxes, she will bear that moral-disutility cost.

¹⁷ If the vegetables that she sells to her neighbors are the same vegetables that she grows for herself and her family, then she will not need to reallocate land; she can just reallocate the vegetables. For purposes of our example, it doesn't matter which is the case.

individual reallocates toward raising cattle that she sells for \$10 at the market in a taxable transaction, then the government gains an additional \$3 in tax revenue, and society is \$3 better off. This is a behavioral effect on tax revenue. If the individual reallocates toward growing vegetables for household consumption, then the government does not collect any additional revenue, and society is no better off than before.

Once more, the change in tax policy generates mechanical effects on tax revenue in addition to behavioral effects. When the government audits more taxpayers, more people will be caught evading taxes, and they will have to pay back taxes and penalties. Those payments are transfers from the private sector to the public sector: what the evader loses is precisely equal to what the government gains.

Changing the audit rate, however, will lead to an additional set of costs not seen in our first example: the additional administrative and compliance costs from the new audits. By “administrative costs,” we refer to costs borne by the government in collecting taxes. By “compliance costs,” we refer to costs borne by the private sector. Administrative and compliance costs of tax collection are real resource costs that reduce the total amount available to society. Therefore, the effect of the audits on the total resources available to society is the behavioral effect on tax revenue less the change in administrative and compliance costs.

We have illustrated the BETR using simple examples involving (1) a tradeoff between market and nonmarket production and (2) a tradeoff between reported and unreported income, but the framework applies much more broadly. It applies in any case where an individual is indifferent between two options, one of which will cause her to pay more in taxes (but bear less of some other cost). For example, it applies to the familiar labor-leisure tradeoff (where the taxpayer’s alternative to market production is not household production, but no production at all). It also applies to circumstances in which an employee is choosing between taxable income and untaxed fringe benefits,

such as health insurance.¹⁸ It applies, too, when the individual is choosing between two types of income subject to different tax rates (*e.g.*, income from wages versus income from self-employment¹⁹). In all these cases, the effect of the change in tax policy on the total resources available to society is the behavioral effect on tax revenue less administrative and compliance costs.

There are a number of nuances that we have left out of this explanation—nuances that are important to the BETR but less essential to understanding the Legal Envelope Theorem. One such issue is the computation of “compliance costs” (and, more specifically, the limited circumstances in which tax-related compliance costs might not enter the BETR directly).²⁰ Another issue, mentioned above, is whether \$1 in the hands of a private individual should be valued the same as \$1 in the hands of the government.²¹ We explore these subtleties at length in earlier work.²² We set them aside here in order to focus more intensively on the legal-rules context, to which we now turn.

¹⁸ An optimizing employee will select the mix of compensation that leaves her indifferent between an extra \$1 of taxable income and an extra \$1 of untaxed fringe benefits. (If her tax rate is 30 percent, that means she values the extra \$1 of untaxed fringe benefits at \$0.70.) A policy change that causes her to reallocate \$1 of compensation from untaxed fringe benefits to taxable income will leave her no worse off than before, but the behavioral effect on tax revenue makes society better off (by \$0.30 if the tax rate is 30 percent).

¹⁹ Starting in 2018, self-employment income is eligible for a 20 percent deduction for single taxpayers with up to \$157,500 in taxable income and married-filing-jointly taxpayers with up to \$315,00 in taxable income. Those thresholds are adjusted each year for inflation. Taxpayers with income above those thresholds are eligible for a full or partial deduction under certain circumstances. The benefit is set to sunset at the end of 2025. *See* I.R.C. § 199A.

²⁰ *See* Hemel & Weisbach, *supra* note 11 (manuscript at 27).

²¹ *See id.* (manuscript at 70).

²² For further discussion of this point, see Daniel Hemel, Jennifer Nou & David Weisbach, *Appendix to “The Marginal Revenue Rule in Cost-Benefit Analysis”* (Univ. of Chi. Law Sch., Working Paper, 2018), <https://ssrn.com/abstract=3230003>.

B. The Legal Envelope Theorem

The BETR, as developed above, measures the change in the total resources available to society resulting from small changes in tax policy. We show here that the same framework also allows us to measure the change in the total resources available to society resulting from small changes in legal rules that affect tax collection. The core logic is the same. If society sets its legal rules to maximize net benefits irrespective of tax consequences, then small changes to otherwise-optimal legal rules will not have first-order effects on the sum of non-tax net benefits. They may, however, have tax consequences, thus changing total social resources. We call this the Legal Envelope Theorem because it arises from the same envelope effect outlined above.

1. The Legal Envelope Theorem in a Single-Person Setting

To illustrate the Legal Envelope Theorem, we begin with an example that directly parallels our exposition of the BETR in the previous Section. Imagine again that a single individual is allocating a fixed amount of land across two uses—cattle raising for sale in the taxable sector and vegetable growing for untaxed household consumption. On the margin, the individual is indifferent between (a) allocating a unit of land to cattle raising, selling the cattle for \$10 on the market, and paying a tax of \$3, or (b) allocating a unit of land to vegetable growing, resulting in \$7 worth of untaxed household consumption. The individual's choice will be influenced not only by the tax rate—as illustrated above—but also by the constellation of legal rules that affect the costs and benefits of cattle raising and vegetable growing. These include laws addressing the treatment of animals, fencing, fertilizer use, the transportation of livestock to market, and much more.

Consider any one of these laws—for example, the maximum amount of water-soluble nitrogen that a grower may apply per square foot.²³ Nitrogen enhances crop yields, so a lower limit on nitrogen means the individual and

²³ See, e.g., N.J. Rev. Stat. § 58:10A-63 (2013) (establishing limits on the use of water-soluble nitrogen).

her household will grow fewer vegetables per unit of land. But excess nitrogen use can contaminate groundwater, potentially seeping into the household's drinking well.²⁴ For the sake of simplicity, we will assume that the direct effects of the change in the legal rule all fall on a single individual or household—*i.e.*, this household's drinking water and *only* this household's drinking water will be affected by a rule change. In the next Section, we will consider the more complicated case in which changes in legal rules reallocate entitlements across individuals and households.

Ignoring tax collection consequences, the efficient fertilizer rule would set the maximum amount of water-soluble nitrogen such that the marginal benefit from a small reduction in that amount (improved drinking water) equals the marginal cost (lower crop yields). We will say that this rule satisfies the standard of "simple efficiency." A rule accords with simple efficiency if the non-tax benefits from a slight change in the rule equal the non-tax costs—*i.e.*, if the rule maximizes total resources before accounting for taxes—holding the distribution of income fixed.²⁵

²⁴ See Mary H. Ward, *Too Much of a Good Thing? Nitrate from Nitrogen Fertilizers and Cancer—President's Cancer Panel—October 21, 2008*, 24 REV. ENVTL. HEALTH 357 (2009).

²⁵ As Louis Kaplow has argued in a related context, simple efficiency must be defined holding the distribution of income (or the distribution of utilities) fixed. The tax and transfer system imposes efficiency costs to redistribute income. For example, income-based taxes and transfers distort how much people work and save, what jobs they take, where and how they invest, and so forth. Society judges these efficiency costs as worth bearing in order to get the redistributive benefit of shifting resources from people with a low marginal utility of wealth (the rich) to people with a high marginal utility of wealth (the poor).

If simple efficiency were not defined holding distribution fixed, the category of "efficient" legal rules would include regressive legal rules that offset the efficiency costs of the tax system. For example, if the tax system takes a dollar from a rich person and gives it to a poor person at an efficiency cost of \$0.25, an "efficient" legal rule might give the dollar back to the rich person, even if the efficiency benefit were less than \$0.25. The same qualifier is needed in much of the literature discussing the relationship between the redistribution, tax system, and legal rules. For further discussion of this point, with guidance on how and why to apply the constant-distribution-of-income approach, see Louis Kaplow, *A Unified Perspective on Efficiency, Redistribution, and Public Policy*, 73 NAT'L TAX J. 429 (2020).

Importantly for our purposes, a slight reduction in the nitrogen limit also slightly lowers the value of allocating land to vegetable growing. The yield on the marginal unit of land allocated to vegetable growing is now a bit less than \$7. As a result, the individual reallocates one unit of land from vegetable growing to cattle raising.

The effect on the individual's utility is, as in Section I.A, approximately zero. The reduction in her vegetable yields is balanced out by the improvement in the quality of her drinking water. Also, the envelope theorem tells us that if her allocation of land between cattle raising and vegetable growing was previously optimal, the reallocation of one unit of land from vegetable growing to cattle raising does not make her appreciably better off or worse off than before. But the reallocation of one unit of land from vegetable growing to cattle raising does—as before—have a first-order effect on the total resources available to society. Now, the individual's taxable income rises by \$10, and so the taxes she pays increase by \$3.

This result should not be surprising, since it is—for all intents and purposes—the same result as in Section I.A. The only modification is that the relevant policy change that caused the individual to reallocate one unit of land from vegetable growing to cattle raising (or, at a higher level of generality, from the untaxed sector to the taxed sector) was a change in a non-tax legal rule rather than an element of the tax system. The change in total resources available to society is, as under the BETR, the behavioral effect on tax revenue (here, \$3) less any change in administrative and compliance costs. If, for example, the government had to spend money to implement the reduction in the nitrogen limit, that would be a real resource cost that enters the total-utility analysis, equivalent to the tax administrative costs considered in Section I.A. Similarly, if the individual has to spend money to comply with the reduction in the nitrogen limit, such as tracking and reporting her nitrogen use to a

regulator, these costs are real resources that enter the analysis in the same way tax compliance costs do.

Our analysis shows that we should change the fertilizer rule so that it no longer satisfies simple efficiency, but instead maximizes the total resources available to society, inclusive of taxes, or what we will call “full efficiency. “By moving away from simple efficiency, we do not make the individual rancher/grower appreciably worse off or better off, but we generate \$3 of additional tax revenue that can be used to produce \$3 worth of public goods or returned to the rancher to spend how she pleases. The move away from simple efficiency thereby constitutes an increase in total resources.

A short-hand way of thinking about these effects is that the change in the legal rule generates what might be called a fiscal externality.²⁶ It causes the rancher/grower to change her behavior in a way that is immaterial to her but generates a benefit to others because of the additional resources available to the government. The Legal Envelope Theorem can be reframed as stating that efficiency needs to take this fiscal externality into account.

²⁶ Nathaniel Hendren uses this terminology in a similar sense. See Nathaniel Hendren, *The Policy Elasticity*, 30 TAX POL'Y & ECON. 51, 53 (2016) (defining “fiscal externality” as “the impact of the behavioral response to [a] policy on the government budget outlays per dollar of government expenditure”). The term is sometimes used in a related but distinct sense in the literature on fiscal federalism and interjurisdictional competition. See, e.g., Zvi Hercowitz & David Pines, *Migration with Fiscal Externalities*, 46 J. PUB. ECON. 163, 163-64 (1991) (stating that “[i]n a strict sense fiscal externality is defined as a situation where a pure public good is financed by residence-based taxes,” such that migration—which affects the per-capita cost but not the per-capita benefit of public goods, generates positive fiscal externalities for the jurisdiction into which migrants are moving and negative fiscal externalities for the jurisdiction out of which migrants are moving); Bev Dahlby, *Fiscal Externalities and the Design of Intergovernmental Grants*, 3 INT'L TAX & PUB. FIN. 397, 398 (1996) (“[I]nterjurisdictional fiscal externalities occur when a government’s tax and expenditure decisions affect the well-being of taxpayers in other jurisdictions . . .”).

2. The Legal Envelope Theorem in a Multiperson Setting

In the immediately preceding example, we imagined that the non-tax costs and benefits of the change in the legal rule all fell on the same individual. This may accurately describe some legal rules, which seek to maximize the wellbeing of all individuals to whom they apply rather than to assign rights, resources, and responsibilities across different individuals. Oftentimes, however, legal rules affect different individuals differently, potentially making some individuals better off and others worse off. The Legal Envelope Theorem applies in this case as well: simple efficient legal rules do not maximize total resources because they ignore tax effects. Fully efficient legal rules must take all of the effects into account.²⁷

To see how the analysis applies in the multi-person setting, continue with the immediately preceding example, except imagine now that the nitrogen from fertilizer contaminates not the rancher/grower's own drinking well but the wells of her neighbors. Lowering the water-soluble nitrogen limit from the simple efficient level will make the rancher/grower worse off, because she now reaps a smaller yield from the land that she continues to allocate to vegetable growing. It will, however, make her neighbors better off, because

²⁷ In the single individual case—which in public economics is typically called a Ramsey model after the earlier twentieth century British mathematician Frank Ramsey—there is no reason to distinguish between wealth and utility. Ramsey models, like the one we use, preclude distributional considerations by assumption because they involve only one individual, and so no redistribution across individuals.

In the multiple-person case considered in this Section, the difference between wealth and utility becomes relevant because different individuals will have different marginal utilities of wealth. It matters which individuals have resources if we want to maximize a function of individual utilities. Definitions of efficiency try to abstract away from these distributional effects by focusing on total resources (or total wealth), rather than who has those resources.

To keep the multiple person case as parallel as possible to the single person case, we will focus on the maximization of total resources, rather than total utility. We can do this by assuming that all individuals affected by the legal rule have the same marginal utility of wealth. We explicitly consider differences in the marginal utility of wealth in Section I.C.2.

they now benefit from safer drinking water. It generates a transfer between the rancher and her neighbor.

Since we were previously at the simple efficient legal rule, we know that the transfer away from the rancher is of equal size as the transfer to her neighbors. (If not, we could have adjusted the prior legal rule and increased total resources leaving aside tax effects, which means that the prior rule would not have been simple efficient.) The transfer does not affect the total resources available to society. As a result, we treat the transfer as a wash for purposes of measuring the efficiency effects of the legal change.

Because the rancher/grower had previously chosen the privately optimal allocation of her land, her behavioral change—her reallocation of one unit of land from vegetable growing to cattle raising—also does not materially affect her own wellbeing. This, too, is the envelope effect at work: if the rancher/grower was at the private optimum, then we know that the marginal benefit to her of a small change in either direction was equal to the marginal cost, and a small reallocation will not make her appreciably better off or worse off. It does, however, affect the total resources available to society, because when she reallocates land to cattle raising, she pays more in taxes. Again, the change in society's total resources is measured by the BETR: the behavioral effect on tax revenue of \$3 less any change in administrative and compliance costs.

The neighbors may also change their behavior in response to improved drinking water. Those changes also will not make them materially better or worse off. For example, improved drinking water from their well might cause the neighbors to drink a little bit less beer and a little bit more water; if they were previously allocating their liquid consumption between beer and water optimally, then they are effectively indifferent to a small change in the direction of more water consumption. The neighbors' behavioral change would, however, have a first-order effect on the total resources available to society if it changed tax collections (e.g., if beer is taxable and water is not). Under those circumstances, we would use the BETR to calculate the effect of the neighbors' behavioral change on total resources. The BETR adds (or nets, depending on the sign) these effects to the effects of changes in the rancher/grower's behavior to measure the total change in resources from the change in the legal

rule. If the change is positive, the simple efficient legal rule fails to maximize total resources, and we can do better by modifying it.

To summarize: Small changes in “simple efficient” legal rules do not materially affect the sum of total resources available to society except through the tax channel. We know this because the simple efficient legal rule is, by definition, set to maximize total resources before taking taxes into account. Therefore, a small change in either direction may generate transfers but has no first-order effects on total resources. Moreover, since individuals are choosing their own behavior to maximize their own wellbeing, a small change in their behavior in either direction does not leave them materially better off or worse off. These behavioral changes may, however, have tax collection consequences. When they do, the BETR allows us to see how those behavioral changes affect the total resources available to society.

So far, we have illustrated the Legal Envelope Theorem through what in the natural and social sciences is called a “toy model,” a deliberately simplistic model that strips away many details so that we can convey the central mechanism concisely. In Part II, we will show how our toy model corresponds to a wide range of real-world scenarios in which non-tax legal rules affect tax collection. Before doing so, we will consider a number of points left out of the toy model but important to the analysis that follows.

C. Comments and Qualifications

1. More than Marginal Changes

The Legal Envelope Theorem applies to small changes in legal rules away from simple efficiency. Because the marginal non-tax benefit from a legal rule change in any direction away from the simple-efficient legal rule equals the marginal non-tax cost (both at the individual level and the level of society), we can proceed as if the only effects of the change on total resources are those captured by the BETR. Once we make more than small changes, however, there will be first-order costs in the primary legal area, at which point the envelope theorem logic no longer applies.

Nonetheless, the Legal Envelope Theorem can help us analyze larger legal-rule changes in two ways. First, and most straightforwardly, the Legal Envelope Theorem can be used not only to analyze marginal changes from simple efficient legal rules but also to find fully efficient legal rules. A fully efficient legal rule maximizes total resources including those affected by the primary legal system and those in the tax system. At the optimum, the marginal loss in simple efficiency should equal the marginal fiscal externality, as measured by the BETR.

Because tax rates are substantial in developed countries, the fully efficient legal rule may deviate substantially from the simple efficient rule. The fiscal externality is equal to the tax rate. We have been using 30% in our example, but in the United States, the tax rate often exceeds 50% (taking both federal and state taxes into account), and in other developing countries may be well above 50%.²⁸

Second, the Legal Envelope Theorem also offers insight into the effects of discrete changes to legal rules that are not marginal. For example, repealing the Statute of Frauds altogether would be a discrete legal-rule change.²⁹ Discrete changes present a challenge not present with marginal or small changes. With respect to small rule changes, anyone who alters her own behavior in response to the rule change was previously indifferent between engaging in a little more or a little less of the relevant activity. Not so for individuals who change their behavior in response to a discrete change. Some of these changes may be “inframarginal”—i.e., they leave individuals substantially better off or worse off than before. For example, if we eliminate

²⁸ See David Altig, Alan J. Auerbach, Laurence J. Kotlikoff, Elias Ilin & Victor Ye, *Marginal Net Taxation of Americans' Labor Supply* 19 tbl.2 (Nat'l Bureau of Econ. Research, Working Paper No. 27164, May 2020), <http://www.nber.org/papers/w27164> (calculating that the mean marginal tax rate on an additional \$1000 of current-year earnings—taking into account a wide range of tax and transfer consequences—is 53.8 percent for households in the lowest income quintile and above 50 percent for more than a quarter of households).

²⁹ For an argument in favor of Statute of Frauds repeal, see Michael Braunstein, *Remedy, Reason, and the Statute of Frauds: A Critical Economic Analysis*, 1989 UTAH L. REV. 383, 422-31.

the Statute of Frauds, making tax evasion easier, some of the behavioral changes will reflect inframarginal changes, and we cannot assume that anyone who changed her behavior was indifferent.

The BETR and the Legal Envelope Theorem still can aid our analysis of discrete changes, though the function of these tools will be nuanced. When a discrete change in a tax or non-tax legal rule leads to a change in tax revenue due to behavioral effects, the BETR can allow us to estimate lower bounds and upper bounds of the effect on total resources from a given individual's tax-related behavioral change (i.e., a behavioral change that affects taxes collected). In some circumstances, these lower-bound and upper-bound estimates may be all we need.

To illustrate, imagine that the wage rate is \$10 per hour and the tax rate starts out at 30 percent. Then the tax rate falls to 20 percent, and an individual works an hour more and pays \$2 more in taxes. We know that the individual valued an additional hour of leisure at \$7 or more; otherwise, she would not have been working the hour in the first place. We also know that she did not value an additional hour of leisure at more than \$8; otherwise, she still would not be working. The increase in total resources resulting from the behavioral change is at least \$2, representing the behavioral effect on tax revenue. It is potentially as much as \$3, representing the behavioral effect on tax revenue plus the benefit to the individual of replacing \$7 worth of leisure with \$8 in after-tax income.³⁰

The same analysis applies to legal rules. Imagine that a new nitrogen limit for fertilizer raises the cost of growing vegetables by \$1 per unit of land. The rancher/grower in the previous two Sections reallocates one unit of land from vegetable growing to cattle raising, causing her to earn an additional \$10 in taxable income and pay an additional \$3 in taxes. We know that the

³⁰ Put differently, the benefit to the individual from the behavioral change cannot be less than zero; otherwise she would not have made the change. And it cannot be greater than \$1; otherwise she would not have needed the tax cut in order to make the change. So we add the \$2 behavioral effect on tax revenue to an individual benefit ranging from zero to \$1.

rancher/grower assigned a value of at least \$7 to the vegetables from that unit of land; otherwise, she would have been raising cattle there in the first place. We also know that the rancher/grower did not value the vegetables at more than \$8; otherwise, she would have continued to grow vegetables even after the new nitrogen limit. The increase in total resources resulting from tax-related behavioral changes is at least \$2, representing the \$3 behavioral effect on tax revenue less the loss to the rancher of replacing \$8 of vegetables with \$7 of after-tax income. It is potentially as much as \$3, representing purely the \$3 behavioral effect on tax revenue, with the rancher/grower's \$7 of additional after-tax income and \$7 less of vegetables netting out.

Even where we can estimate only lower and upper bounds, the BETR and the Legal Envelope Theorem can help us make decisions about discrete changes to legal rules. Sometimes, a lower-bound estimate of the increase in total resources resulting from a tax-related behavioral change will be sufficiently large that, even if the true effect is only the lower bound, the benefits will outweigh the non-tax costs of deviating from simple efficiency. In other cases, an upper-bound estimate of the increase in total resources resulting from tax-related behavioral changes will be sufficiently small that, even if the true effect is the upper bound, the non-tax costs of deviating from simple efficiency will swamp the benefits. There still will be instances in which the non-tax costs of deviating from simple efficiency lie between the lower- and upper-bound estimates of the increase in total resources from tax-related behavioral changes, in which case the BETR and the Legal Envelope Theorem will not be determinative. Even in those circumstances, though, the BETR and Legal Envelope Theorem can give us a rough sense of magnitudes that a focus on simple efficiency ignores.

2. Redistribution and the Relationship to Kaplow & Shavell (1994)

In establishing the Legal Envelope Theorem, we focused on the efficiency effects of tax and legal rules. We set aside distributional aspects, such as the possibility that the rancher/grower might be wealthier than her neighbors (or, vice versa, that the neighbors might be wealthier than the rancher/grower).

There is a debate about whether, and the extent to which, legal rules should be used to redistribute income.³¹ To the extent they are used to redistribute income, legal rules should not be set to be efficient—whether simple or full. Here we address the relationship between that debate and our claims. We make two points.

³¹ The canonical analysis of the relationship between distributional issues and legal rules is, as noted above, the 1994 article by Louis Kaplow and Steven Shavell. Kaplow & Shavell, *Why the Legal System*, *supra* note 8. For additional statements of the result and clarifications, see Shavell, *supra* note 8; Kaplow & Shavell, *Should Legal Rules*, *supra* note 8; Louis Kaplow, *On the (Ir)Relevance of Distribution and Labor Supply Distortion to Government Policy*, 18 J. ECON. PERS. 159 (2004); Louis Kaplow, *On the Undesirability of Commodity Taxation Even When Income Taxation Is Not Optimal*, 90 J. PUB. ECON. 1235 (2006). Kaplow and Shavell's arguments have spawned a large and heated literature. Key interlocutors include Christine Jolls, *Behavioral Economics Analysis of Redistributive Legal Rules*, 51 VAND. L. REV. 1653 (1998); Ronen Avraham, David Fortus & Kyle Logue, *Revisiting the Roles of Legal Rules and Tax Rules in Income Redistribution: A Response to Kaplow & Shavell*, 89 IOWA L. REV. 1125 (2003); Chris William Sanchirico, *Taxes Versus Legal Rules as Instruments for Equity: A More Equitable View*, 29 J. LEGAL STUD. 797 (2000); Zachary Liscow, Note, *Reducing Inequality on the Cheap: When Legal Rule Design Should Incorporate Equity as Well as Efficiency*, 123 YALE L.J. 2478 (2014); and Lee Anne Fennell & Richard H. McAdams, *The Distributive Deficit in Law and Economics*, 100 MINN. L. REV. 1051 (2015).

Chris Sanchirico uses envelope-theorem reasoning to argue that legal rules should be adjusted away from efficiency in order to shift resources from rich to poor (in contrast to our argument that legal rules should be adjusted away from simple efficiency in order to facilitate redistributive taxation that then shifts resources from the rich to the poor). See Sanchirico, *supra*, at 813-20. Sanchirico's argument is valid if individuals with the same taxable income differ in their marginal utility of wealth in ways that the legal system can observe but the tax system cannot. See Kaplow & Shavell, *Should Legal Rules*, *supra* note 8, at 828. Under those circumstances, changes to otherwise-efficient legal rules might be used to redistribute from individuals with lower marginal utility of wealth to individuals with higher marginal utility of wealth. The practical difficulty in implementing this insight, as Kaplow and Shavell note, is that the marginal utility of wealth cannot be observed directly—and thus, the insight does not tell policymakers *in which direction* to adjust otherwise-efficient legal rules. See *id.* at 832. By contrast, our version of the Legal Envelope Theorem recommends modifications based on observable changes in tax revenue (and does not depend upon unobservable marginal utilities).

First, to a great extent, that debate is orthogonal to our claims. Our claims are about which legal rules are efficient. Regardless of whether one thinks legal rules should be used to redistribute, it is important to know which legal rules are efficient. For example, for a given level of redistribution, we want the most efficient legal rules. And understanding which legal rules are efficient is central to understanding the costs of redistribution through legal rules.

Moreover, regardless of one's views about whether rules should be used to redistribute directly, distributional concerns strengthen the importance of adjusting legal rules to take the tax system into account. Taxation is society's most powerful tool for addressing income and wealth inequality. Taxes allow us to shift resources away from high-income individuals and households to the rest of society, and negative taxes—like the earned income tax credit and the child tax credit—allow us to transfer resources to low-income individuals and households. From a welfarist perspective, the primary reason why we do not tax at a 100 percent rate and redistribute wealth equally across individuals is that taxation (whether on the basis of income, consumption, or wealth) introduces inefficiencies. Making the tax system more efficient allows us to redistribute more, and so using legal rules to make it easier to tax is more important the more that we care about distribution. That is, our analysis is orthogonal to the arguments over whether legal rules should be used to redistribute income, but it is central to the project of reducing income inequality.

Second, the Legal Envelope Theorem is consistent with prior work establishing that non-tax legal rules themselves generally are not the most effective tools for redistributing resources from high-income to low-income individuals (or high-wealth to low-wealth individuals). As noted, the canonical analysis of the relationship between distributional issues and legal rules is a 1994 article by Louis Kaplow and Steven Shavell.³² Kaplow and Shavell argue that the tax system can achieve distributional goals more efficiently than legal

³² Kaplow & Shavell, *Why the Legal System*, *supra* note 8.

rules. They conclude, therefore, that legal rules generally should not seek to redistribute income and, instead, should pursue efficiency.

Kaplow and Shavell consider a redistributive legal rule and a tax on labor income. The legal rule by construction deviates from simple efficiency in an attempt to redistribute income. For example, an efficient strict liability system sets damages equal harm. To make the rule redistributive, damages could be a function of the income of the injurer, with damages set lower than harm for low-income defendants, and increasing relative to harm as the injurer's income goes up, so that damages are higher than harm for high-income defendants.³³

Kaplow and Shavell suggest the following thought experiment. Replace the inefficient redistributive legal rule with the efficient one, and simultaneously adjust the tax rate schedule so that at each income level, individuals are equally well off. For example, in our hypothetical inefficient strict liability regime described above, high-income individuals were worse off relative to an efficient regime. When we replace the inefficient regime with the efficient one, we would simultaneously increase the tax rate on high-income individuals so that they are no better off than under the inefficient rule. Imagine that we do the same at each income level—for example, lowering the tax rate on low-income individuals and replacing their favorable tort system with an efficient one.³⁴

Kaplow and Shavell then examine the effects of this swap. By construction, individuals at each income level are no better or worse off than before. Moreover, the effective tax schedule (the actual tax schedule plus any implicit tax due to the tort system) is the same before and after the swap, and Kaplow and Shavell assume that individual labor-supply choices will respond to changes in the effective tax schedule in the same way they respond to changes in the actual tax schedule.³⁵ But we have replaced the inefficient tort rule with

³³ See Kaplow & Shavell, *Why the Legal System*, *supra* note 8, at 669–670.

³⁴ See *id.* at 671–74.

³⁵ See *id.* at 671.

an efficient tort rule, which means that total resources have increased. Since the tax changes leave every individual as well off as under the inefficient rule but total resources increase, the increase in resources shows up as an increase in tax revenue, which can then be used to lower taxes on the rich and increase transfers to the poor or, equivalently, to provide public goods that everyone values.³⁶ Therefore, we should prefer the swap—the efficient legal rule and the modified tax schedule—to the inefficient legal rule and the original tax schedule. The swap generates a Pareto improvement: everyone is at least as well off as before and some people or all people are better off. As a result, Kaplow and Shavell conclude, legal rules should not seek to redistribute wealth. Instead, we should use legal rules to pursue efficiency and the tax system to redistribute wealth.

This conclusion is consistent with our claims about which legal rules are efficient. Although they appear, in their main text, to support the idea that we should pursue what we have called simple efficiency, this is driven by two limiting assumptions in their model. First, they assume a relatively simple tax system. Although they do not specify the details of their tax system, we take it to be a tax on labor income with no enforcement problems. Second, Kaplow and Shavell make a technical assumption about the individual utility function, known as weak separability. This assumption guarantees that the content of legal rules has no effect on the ability of the tax system to operate.³⁷

When we relax these assumptions, our arguments and Kaplow and Shavell's are consistent. Kaplow and Shavell explicitly consider the effects of relaxing their weak separability assumption. In this case, they conclude legal rules should deviate from simple efficiency but only in a limited way. The key idea is that a tax on labor income distorts the choice of how much to work. Individuals reduce their work and increase their leisure. Legal rules can, when

³⁶ See *id.* at 674.

³⁷ In particular, they assume that utility takes the form $U = U(l, u(c_1, c_2, \dots, c_n))$, where l is labor effort, and c_i is consumption of good i . This assumption is not strictly necessary for their core conclusions but greatly simplifies the analysis. For further discussion, see Kaplow, *supra* note 25.

we relax the weak separability assumption, increase the relative price of leisure, offsetting this distortion. The legal system can help the tax system function, but it still does not seek to directly redistribute.

This is precisely the same effect we consider with the Legal Envelope Theorem, but we do so in the context of a more complex tax system, one that may tax different activities at different rates, that has enforcement problems, that requires administrative and compliance costs, and so forth. The legal system in this case plays the same conceptual rule of helping the tax system. It acts to penalize choices that reduce tax collections and to subsidize choices that increase tax collections—but the role for legal rules is much larger.

Even in this more general context, the legal system still lacks any general advantage over the tax system in redistributing income directly.³⁸ Instead, the legal system is helping the tax system function better. In that sense, the legal system is important for redistribution, but indirectly by making the central tool for redistribution, the tax and transfer system, function better. As a result, our arguments are thus compatible with, and are an extension of, Kaplow and Shavell's arguments.

3. Relationship to Public Finance Literature

The literature on the economics of taxation, for the most part, considers the design of the tax system taking the legal system as given. For example, the economics literature often takes labor supply elasticity as a primitive rather than a choice. The literature assumes there is such a thing called a corporation whose structure and operations are determined exogenously. In addition, for

³⁸ We say that the legal system lacks any “general advantage” because, like Kaplow and Shavell, we acknowledge the possibility of cases in which behavior may respond less to redistribution via the legal system than via the tax system.

the most part, the economics literature assumes that there are a set of activities—colloquially leisure—that cannot be taxed for external reasons.³⁹

We instead treat these and similar items as choices. Within some range, we can change the elasticity of labor supply by changing the legal rules surrounding work. Corporations are legal inventions and can have the characteristics that we choose. And the activities we do not tax depend in large part on our ability to observe. We can choose legal rules that make it easier and harder to observe various activities, and we can choose to spend resources observing.

To illustrate how we differ from the standard approach in economics, consider a recent paper by three of the most prominent economists currently working on tax issues, Thomas Piketty, Emmanuel Saez, and Stefanie Stantcheva.⁴⁰ They consider how the optimal top tax rate is affected by three different behavioral margins: the labor supply elasticity, the ability of taxpayers to evade taxes, and what they call the bargaining elasticity. The bargaining elasticity reflects the ability of top income earners to extract rents

³⁹ The economist Frank Knight defined leisure as “all non-pecuniary, alternative uses of time.” FRANK H. KNIGHT, *RISK, UNCERTAINTY AND PROFIT* 117 (1957). For other attempts at a definition of leisure, see Justin Voss, *The Definition of Leisure*, 1 J. ECON. ISSUES 91 (1967), and Stephen Enke, *On the Economics of Leisure*, 2 J. ECON. ISSUES 437 (1968). As noted above, the BETR and the Legal Envelope Theorem do not require the analyst to distinguish between non-pecuniary uses of time and other pecuniary but untaxed uses of time (e.g., labor in the informal economy).

Some papers make the non-taxed sector endogenous. See, e.g., Shlomo Yitzhaki, *A Note on Optimal Taxation and Administrative Costs*, 69 AM. ECON. REV. 475 (1979); John Douglas Wilson, *On the Optimal Tax Base for Commodity Taxation*, 79 AM. ECON. REV. 1196 (1989); Joel Slemrod & Wojciech Kopczuk, *The Optimal Elasticity Of Taxable Income*, 84 J. PUB. ECON. 91 (2002); Dhammika Dharmapala, Joel Slemrod & John Douglas Wilson, *Tax Policy and the Missing Middle: Optimal Tax Remittance with Firm-Level Administrative Costs*, 95 J. PUB. ECON. 1036 (2011). Our analysis builds on this literature by showing how the legal system can shape the non-taxed sector’s scope.

⁴⁰ Thomas Piketty, Emmanuel Saez & Stefanie Stantcheva, *Optimal Taxation of Top Labor Incomes: A Tale of Three Elasticities*, 6 AM. ECON. J.: ECON. POL’Y 230 (2014).

from their employers, such as CEOs getting paid excessive salaries. They suggest a top tax rate that reflects a combination of all three elasticities.

All three of these elasticities are in part determined by law. As we demonstrate below, legal rules affect the costs and benefits of work and, therefore, the labor supply elasticity. They affect the ability of taxpayers to engage in evasion, such as using anonymous offshore bank accounts, and, therefore, the evasion elasticity. And they determine the ability of CEOs to bargain with their employers, and, therefore affect the bargaining elasticity.⁴¹ Under the approach we advocate here, we should not simply design the tax system taking the legal system as fixed. We should instead design the two in tandem, recognizing that optimal tax rules depend on the content of legal rules and that optimal legal rules depend on the structure of the tax system. Our approach, we believe, will provide more socially beneficial outcomes because it allows us to use the full toolkit to design the tax and legal system rather than only half.

A second issue is how our arguments relate to one of the canonical results in the economics of taxation, the Corlett-Hague rule.⁴² The Corlett-Hague rule has played an influential role in the public finance literature since it was introduced by two British economists in 1953. It holds that goods that are complements to leisure or substitutes for labor should be taxed at a higher rate than other goods, and goods that are substitutes for leisure or complements to labor should be taxed at a lower rate than other goods (or equivalently, subsidized). The intuition behind this result is the same as we discussed above with respect to Kaplow and Shavell's arguments. A tax on labor income distorts labor effort: people will work less and spend more time on leisure. Taxing, say,

⁴¹ Piketty, Saez, and Stantcheva note that this last elasticity, the bargaining elasticity, can be affected by legal choices. *See id.* at 243. We show that all three elasticities—labor supply elasticity, tax avoidance, and bargaining—are shaped by legal-design choices.

⁴² *See* W. J. Corlett & D. C. Hague, *Complementarity and the Excess Burden of Taxation*, 21 *REV. ECON. STUD.* 21 (1953).

a complement to leisure reduces this distortion because leisure becomes relatively less attractive.

Boiled down to its core, the Legal Envelope Theorem proposes that legal rules should be adjusted away from simple efficiency to subsidize complements to taxpaying and penalize substitutes for taxpaying. That is, our core claim is that the Corlett-Hague logic applies to margins other than labor/leisure that affect tax collection, such as the choice between taxable and untaxed production and the choice between reporting and evasion. Complements to taxpaying should be subsidized. Substitutes for taxpaying should be penalized. The legal system and the tax system are alternative mechanisms for implementing Corlett and Hague's intuitions. The Legal Envelope Theorem is the legal-rule generalization of the Corlett-Hague tax rule.

Corlett and Hague suggest using excise taxes while we suggest using legal rules. Kaplow and Shavell make a suggestion similar to Corlett and Hague and note that excise taxes will often be a better tool than legal rules.⁴³ A natural question is when we should use one approach or the other.

Existing literature, extending as far back as the debate between Coase and Pigou, addresses this question in analyzing whether (and when) we should rely on public or private enforcement of law.⁴⁴ The use of excise taxes

⁴³ Kaplow & Shavell, *Why the Legal System*, *supra* note 8, at 681 app.

⁴⁴ Pigou suggested using taxes on externalities, now known as Pigouvian taxes. A.C. PIGOU, *THE ECONOMICS OF WELFARE* (4th ed. 1938). Coase pointed out that alternative mechanisms—including market transactions, firm organization, and direct regulation—can address externality problems and will sometimes do so more efficiently than Pigouvian taxes. Coase, *supra* note 12, at 2-18, 42-44. For an overview of the Coase-Pigou debate, see Nahid Aslanbeigui & Steven G. Medema, *Beyond the Dark Clouds: Pigou and Coase on Social Cost*, 30 *HIST. POL. ECON.* (1998).

For more recent literature exploring the choice of public versus private legal systems, see Howell E. Jackson & Mark J. Roe, *Public and Private Enforcement of Securities Laws: Resource-Based Evidence*, 93 *J. FIN. ECON.* 207 (2009); A. Mitchell Polinsky & Steven Shavell, *The Theory of Public Enforcement of Law*, in 1 *HANDBOOK OF LAW AND ECONOMICS* 403 (A. Mitchell

corresponds to public enforcement: excise taxes are comparable to fines imposed by a government agency. Legal rules entail a mix of public and private enforcement but often involve private enforcement. The choice between excise taxes and legal rules in any given case will like depend on the particulars in each case, such as which parties have the relevant information, the incentives for various parties to enforce, administrative and compliance costs, and whether bringing in a third party (the government) can improve incentives for private actors.

In many of our applications below, we consider cases in which legal rules already regulate a behavior, and the sorts of adjustments recommended by the Legal Envelope Theorem can be implemented at low marginal administrative cost. It may be that some of these legal regimes should be replaced with a different enforcement system that relies on fines or excise taxes. We leave the complex choice between legal-rule adjustments and excise taxes for future work.

II. APPLICATIONS

In this Part, we show that there are a large number of legal rules that affect the tax system and, as a result, need to be set taking the tax effects into account. We do not attempt a detailed analysis of each legal rule. Instead, we seek to show in each case that it is desirable to deviate from the simple efficient legal rule, possibly substantially.

We cover four categories of legal rules: laws that affect work, laws concerning business organizations, laws that affect the size of the informal economy, and the law of property. Our claim is not that each of these cases is original. Instead, our claim is that there are a large number of such cases. The

Polinsky & Steven Shavell eds., 2007); Nuno Garoupa & Daniel Klerman, *Optimal Law Enforcement with a Rent-Seeking Government*, 4 AM. L. & ECON. REV. 116 (2002); A. Mitchell Polinsky & Steven Shavell, *The Economic Theory of Public Enforcement of Law*, 38 J. ECON. LIT. 45 (2000); Steven Shavell, *The Optimal Structure of Law Enforcement*, 36 J.L. & ECON. 255 (1993).

effect of legal rules on the tax system is pervasive, and, therefore, tax effects are likely to be important to determining the optimal content of the legal rules.

A. Legal Rules Related to Work

Labor income is the most important part of the tax base in all developed-country tax systems.⁴⁵ This is inevitable because returns to labor make up a majority of gross domestic product in developed economies.⁴⁶ Broad-based tax systems thus must rely primarily on taxing labor income. Because of the centrality of labor income to the tax base, the elasticity of labor supply is one of the most important parameters determining the ability of the tax system to operate and, importantly, to redistribute.

As noted, the elasticity of labor supply taken by many economists to be a primitive.⁴⁷ We illustrate here that it is not a primitive, but is instead affected by the legal rules surrounding work (in addition to preferences about work versus leisure).⁴⁸ In a basic sense, this observation is obvious. Legal academics

⁴⁵ The major forms of taxes around the world are income taxes, value added taxes (VATs), and payroll taxes. Income taxes are taxes on both labor income and capital income. Because labor income is much larger than capital income, labor income is the majority of the base of an income tax. VATs are nominally taxes on consumption, but it is relatively easy to show that a VAT is equivalent to a flat rate tax on labor income. *See, e.g.,* David A. Weisbach, *Ironing Out the Flat Tax*, 52 STAN. L. REV. 599 (2000). Payroll taxes are nominally and effectively taxes on labor income.

⁴⁶ INT'L LABOUR ORG. & ORG. FOR ECON. CO-OPERATION & DEV., THE LABOUR SHARE IN G20 ECONOMIES 5 fig.2 (2015), <https://www.oecd.org/g20/topics/employment-and-social-policy/The-Labour-Share-in-G20-Economies.pdf>.

⁴⁷ To give another example, in their review of the economics of labor income taxation, Thomas Piketty and Emmanuel Saez characterize the difference between labor supply elasticity and the elasticity of tax evasion as follows: "The key distinction between real [labor supply] and tax avoidance responses is that real responses reflect underlying, deep individual preferences for work and consumption while tax avoidance responses depend critically on the design of the tax system and the avoidance opportunities it offers." Thomas Piketty & Emmanuel Saez, *Optimal Labor Income Taxation*, 5 HANDBOOK OF PUBLIC ECONOMICS 391, 417 (2013).

⁴⁸ We are not the first to make this point. *See* Michael Keane & Richard Rogerson, *Micro and Macro Labor Supply Elasticities: A Reassessment of Conventional Wisdom*, 50 J. ECON. LIT.

who work on employment and labor law do so on the belief that those legal choices affect the work environment and, presumably, individual choices regarding work. The same is true of labor economists. They study the effect of the institutions surrounding work, such as unionization, the minimum wage, or wrongful discharge laws and regularly recommend reforms to those institutions on the theory that reforms will lead to better outcomes (e.g., encouraging work or—equivalently in our model—increasing pay⁴⁹). It is only those studying the tax system—particularly public finance economists—who take the elasticity of labor supply as primitive rather than as a choice. That is, a simple glance at the massive literature in labor economics, employment law, and labor law, should be sufficient to show that the elasticity of labor supply is not a deep primitive.⁵⁰ And once we recognize that the elasticity of labor supply is in part a choice, it follows straightforwardly from the Legal Envelope

464, 465 (2012) (noting that “one important source of confusing in the literature is the idea that one can estimate a labor supply elasticity in one context and import this elasticity into other contexts,” and stating that “in general, labor supply elasticities are neither a single number nor a primitive feature of preferences”).

⁴⁹ In the BETR, a behavioral change that yields an x increase in taxable wages taxed at rate t has the same effect on total resources (tx) whether or not the change is an increase in labor supply (working an additional hour at a wage of x) or an increase in pay of x holding hours fixed.

⁵⁰ Henrik Jacobsen Kleven, *How Can Scandinavians Tax So Much?*, 28 J. ECON. PERSP. 77 (2014). The experiences of Scandinavian countries shed some light on the extent to which legal rules can affect labor supply and, as a result, increase the ability to tax. Scandinavian tax systems raise substantially more revenue as a percent of GDP than most other Western tax systems, and yet report some of the highest labor force participation rates in the developed world as well as low levels of tax evasion. While it might be the case that Scandinavians are just hard working, Henrik Kleven argues that this is a result of design choices. Their tax systems have broader bases that discourage avoidance and their governments have adopted policies that reduce the cost of work. For example, Scandinavian countries have substantial childcare and elder care subsidies, good public transportation, and good education systems. These sorts of services reduce the cost of work, and, as a result, reduce the efficiency costs of taxing work. While the United States may not desire to adopt Scandinavian-style social welfare policies, the Scandinavian example shows how much the institutional environment surrounding work can influence work effort.

Theorem that we can, and should, choose its value based in part on the tax effects.

There are a vast number of laws that directly regulate or that indirectly affect work.⁵¹ Moreover, laws affecting leisure choices affect labor supply elasticity, which means that those laws can be thought of as work-related rules for our purposes. We cannot cover even a modest fraction of these laws—taken together there are hundreds. Instead, we consider a selection of examples illustrative of the broader universe.

1. Mandatory Benefits

Mandates that require employers to provide a particular bundle of benefits constitute a core element of the regulation of work. Many, if not most employment laws take this form. For example, laws require many employers to provide health insurance,⁵² family leave,⁵³ a safe workplace environment,⁵⁴

⁵¹ Christine Jolls, in her insightful survey of employment law, lists nine categories of legal rules regulating work (each category made up of multiple legal rules): safety mandates, workers compensation, privacy mandates, fringe benefit mandates, targeted mandates such as family and medical leave, wrongful discharge laws, unemployment insurance, minimum wage rules, and overtime rules. Christine Jolls, *Employment Law*, in 2 HANDBOOK OF LAW AND ECONOMICS 1349 (A. Mitchell Polinsky & Steven Shavell eds., 2007). She explicitly leaves off discrimination law and labor law, both of which are central to work choices. Jolls also does not consider antitrust laws, which may allow, or disallow, monopsony by employers. And Jolls also does not list legal rules that may have important but indirect effects on work, such as rules that affect the costs of commuting, rules that affect the physical work environment such as zoning or building codes, or laws that affect the costs of obtaining skills needed to work.

⁵² The Affordable Care Act requires employers with 50 or more full-time employees (or equivalents) to provide health insurance to at least 95 percent of their full-timers.

⁵³ The Family and Medical Leave Act of 1993 requires most employers with 50 or more employees to provide 12 weeks of unpaid leave each year so that employees can recover from a serious illness or care for a new child or seriously ill family member. *See* Pub. L. No. 10-3, 107 Stat. 6 (codified as amended at 29 U.S.C. §§ 2601-2654).

⁵⁴ *See, e.g.*, Occupational Safety and Health Act of 1970, Pub. L. No. 91-596, 84 Stat. 1590 (codified as amended at 29 U.S.C. ch. 15).

protection against termination except under certain circumstances,⁵⁵ protection against unjust discrimination on the basis of a host of characteristics,⁵⁶ and many other benefits. We explore mandated parental leave and wrongful discharge laws as examples. We start with a general framework before turning to the particular applications.

a. Framework

To understand how the Legal Envelope Theorem sheds light on mandated benefits, begin with a standard labor-economics model of mandatory work-related benefits in which a mandate is instituted to correct a market failure. To simplify the analysis, we will assume that employers pass the cost of the mandate along to employees through lower wages. Employees are willing to sacrifice extra wages in order to receive a benefit that they value. To arrive at simple efficiency, the government should mandate additional benefits until any further increase in the required benefit and corresponding reduction in the wage would leave the employee no better off.⁵⁷ In addition to changing how they are compensated, a mandate may also change how much people are

⁵⁷ This model tracks an example in Lawrence H. Summers, *Some Simple Economics of Mandated Benefits*, 79 AM. ECON. REV. 177, 181 (1989). See also Jonathan Gruber, *The Incidence of Mandated Maternity Benefits*, 84 AM. ECON. REV. 622 (1994) (studying the effect of state and federal laws requiring employers to provide comprehensive health insurance coverage for childbirth and finding evidence consistent with the Summers example); Christine Jolls, *Accommodation Mandates*, 53 STAN. L. REV. 223 (2000) (extending and modifying Summers).

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willing to work: it may have long run employment effects. In the Corlett and Hague sense, discussed above, the mandate might be a complement to, or substitute for, taxable, market work.

One might wonder why a mandate is even necessary under these circumstances—i.e., why employers won't offer the benefit absent a requirement that they do so. One possible explanation is adverse selection. For example, employers left to their own devices might decide not to offer sick leave—even though employees value such leave—because employers do not want to attract unhealthy job-seekers.⁵⁸ A second possibility is transaction costs. Employees would bargain with their employers for the benefit if bargaining were costless, but it is not, and so employers and employees might be willing to stick with the default terms of employment provided by law unless those terms differ dramatically from the outcome for which the employers and employees would bargain.⁵⁹ The government thus has some (though not infinite) leeway to set the terms of employment arrangements before employers and workers begin looking for legal alternatives (e.g., switching from an employer-employee arrangement to an independent-contractor arrangement). A third possibility is imperfect information. For example, employees might be misinformed about their rights under the status quo and would bargain for more benefits if they were better informed.⁶⁰ Mandates might also be intended to address entrenched discrimination. For our purposes, what is important is not why simple efficiency might call for a mandatory benefit, but how the prescription of simple efficiency diverges from full efficiency after accounting for taxes.

Consider the following scenario: An employee faces a 30 percent tax rate, and an employer will reduce taxable wages by \$1 for every \$1 that the

⁵⁸ See Philippe Aghion & Benjamin Hermalin, *Legal Restrictions on Private Contracts Can Enhance Efficiency*, 6 J. L. ECON. & ORG. 381 (1990); Summers, *supra* note 55.

⁵⁹ Employment law would thus reflect a majoritarian default. See Ian Ayres & Robert Gertner, *Majoritarian vs. Minoritarian Defaults*, 51 STAN. L. REV. 1591, 1603–04 (1999).

⁶⁰ See, e.g., Pauline T. Kim, *Bargaining with Imperfect Information: A Study of Worker Perceptions of Legal Protection in an At-Will World*, 83 CORNELL L. REV. 105 (1997).

employer spends on providing the mandated benefit. The employer's expenses—on wages and on the benefit—are deductible, so the employer is indifferent as to which it provides. Now imagine that the government requires the employer to provide the employee with an untaxed benefit (e.g., health insurance or unpaid leave⁶¹). Imagine, further, that the mandate is set at a level that satisfies simple efficiency. The employee is indifferent between \$1 of taxable wages (\$0.70 in after-tax wages) and an extra bit of benefit to which the employee assigns a value of \$0.70.

The two effects mentioned above imply that the simple efficient legal rule will not be the same as the fully efficient legal rule. First, holding total compensation fixed, adding a mandate often means cash wages go down and a fraction of the compensation is now paid in the form of the mandate. Because many mandates, such as health insurance and unpaid leave, are not taxed, this means that the fraction of taxable compensation goes down. While employers and employees may be indifferent, at the margin, between taxable and non-taxed compensation, society prefers that the employee receive taxable wages. Every extra \$1 of taxable wages yields \$0.30 more of tax revenue, which can be used to purchase public goods. In these circumstances, society will want to reduce level of mandated benefit from the level that satisfies simple efficiency, since a lower mandate leads to more tax revenue.

Second, the mandate might affect how much people work (or whether to work at all) in the taxable sector. For example, as we will discuss, parental leave may have important effects on women's workforce participation. To continue with our example, if, as a result of the mandated benefit, the worker increases her workforce participation by an additional hour, she is indifferent—she gives up leisure time worth \$0.70 and gets after-tax compensation of \$0.70—but society has \$0.30 more. Taking both effects into account, the fully efficient legal rule should deviate from the simple efficient rule (except by sheer coincidence

⁶¹ The cost of health insurance to the employer is, straightforwardly, the premium that the employer pays on the employee's behalf. The direct cost of unpaid leave to the employer is, of course, zero (because it is unpaid), but the employer will likely bear indirect costs (e.g., the cost of training other employees to fill in for the worker on leave).

when the two effects perfectly offset). Moreover, at the optimum, this deviation might be significant. With our assumed 30 percent tax rate, the benefits of shifting from untaxed activities to taxed activities is almost a third of the total value. Realistic marginal tax rates, both in the United States and abroad, are—as noted above—often much higher.⁶² Although we expressed the Legal Envelope Theorem in terms of marginal deviations from simple efficiency, the difference between the simple efficient and the fully efficient mandates will often be anything but marginal.

b. Parental Leave

We can analyze mandated parental leave using this framework. Notwithstanding large changes in women's social and economic roles over the last 50 years in the United States, women still experience pay and employment gaps relative to men.⁶³ Much of the gap between women's and men's pay appears to arise soon after childbirth.⁶⁴ As a result, one of the core methods of addressing women's participation and pay gaps is to require parental leave. The idea behind paid parental leave is to allow parents (most often women) to take short term leave, retain firm-specific capital, and hopefully be able to return to the workforce.

Federal law already requires unpaid parental leave. Paid parental leave is common in European countries but not in the United States, although there appears to be a shift toward paid parental leave in recent years. Eight states and the District of Columbia have enacted laws that either already mandate or

⁶² See *supra* note 28.

⁶³ For a detailed analysis of the gender pay gap, see Francine D. Blau & Lawrence M. Kahn, *The Gender Wage Gap: Extent, Trends, and Explanations*, 55 J. ECON. LIT. 789 (2017). For an analysis of the gap in workforce participation, see Sandra Black, Diane Whitmore Schanzenbach & Audrey Breitwieser, *The Recent Decline in Women's Labor Force Participation*, in *THE 51%, DRIVING GROWTH THROUGH WOMEN'S ECONOMIC PARTICIPATION* 10 (Diane Whitmore Schanzenbach & Ryan Nunn eds., 2017).

⁶⁴ Claudia Goldin & Joshua Mitchell, *The New Life Cycle of Women's Employment: Disappearing Humps, Sagging Middles, Expanding Tops*, 31 J. ECON. PERSP. 161 (2017).

soon will mandate paid parental leave.⁶⁵ As we write, the federal government is enacting paid parental leave for federal employees.⁶⁶

To understand the effects of parental leave, consider first the case of unpaid leave. Unpaid leave is an untaxed benefit. Thus an employee facing a 30 percent tax rate will be indifferent between \$100x of wages and unpaid-leave benefits to which she or he assigns a value of \$70x. Starting from a simple efficient unpaid parental leave policy, the Legal Envelope Theorem might counsel for a slight move in the direction of less generous leave benefits (e.g., moving from 12 workweeks to 11 workweeks and 4 workdays). Such a change would shift the compensation mix toward more taxable wages, thus generating more tax revenue.

There is some evidence that unpaid parental leave encourages women to increase their participation in the workforce, as proponents hope. For example, Sankar Mukhopadhyay examines the labor-output effects of the Pregnancy Discrimination Act of 1978, which required employers to provide the same leave benefits for pregnant and post-partum mothers as they would for any other employee experiencing a temporary disability.⁶⁷ Mukhopadhyay estimates that unpaid maternity leave reduces labor force participation among mothers immediately after childbirth but raises labor force participation among mothers with children between one and six years old by nearly 4 percentage points.⁶⁸ These findings suggest that preserving a mother's attachment to the labor force immediately after childbirth increases the

⁶⁵ In California, the District of Columbia, New Jersey, New York, Rhode Island, and Washington, these mandates already have taken effect as of this writing. Massachusetts's mandate comes into effect in 2021, Connecticut's in 2022, and Oregon's in 2023. BIPARTISAN POLICY CTR., STATE PAID FAMILY LEAVE LAWS ACROSS THE U.S. 2 tbl.1 (Nov. 2019), <https://bipartisanpolicy.org/wp-content/uploads/2019/11/State-Paid-Family-Leave-Laws-Across-the-US.pdf>.

⁶⁶ Office of Personnel Mgmt., Paid Parental Leave—Interim Final Rule, RIN 3206-AN96 (filed Aug. 6, 2020), <https://cutt.ly/vdBdUlp>.

⁶⁷ See Sankar Mukhopadhyay, *The Effects of the 1978 Pregnancy Discrimination Act on Female Labor Supply**, 53 INT'L ECON. REV. 1133 (2012).

⁶⁸ See *id.* at 1136.

likelihood that she will return to work in the long term, even though it temporarily reduces her labor output in the short term.⁶⁹ The additional tax revenue from her extra years of working is a benefit of parental leave that a simple efficiency calculus would leave out.⁷⁰ The net effect left out of a simple efficiency analysis combines the social cost of reduced taxable compensation (for any given level of employment) and increased long-term employment.

While Mukhopadhyay focuses on unpaid leave for mothers, much of the debate over parental leave now focuses on paid leave, including for non-birth-giving parents. Several studies find that paid parental leave increases mothers' labor-force participation in the months after the birth of a child⁷¹ and in the

⁶⁹ See *id.* at 1135.

⁷⁰ Mukhopadhyay's finding that unpaid leave increases long-term labor force participation for new mothers is not uncontroverted. For example, Natalie Goodpaster studies the Family and Medical Leave Act of 1993 (FMLA) and reaches a contrasting conclusion. Focusing specifically on married mothers, she finds evidence that unpaid maternity leave led *more* married mothers to leave the workforce in the long term. She suggests that mothers who take leave may learn that they derive greater value from staying home with their children than they expected, and that "[t]his effect can be compounded over time as more expecting married mothers have social interaction with mothers who have already made the choice to stay out of the labor force." Natalie K. Goodpaster, *Leaves and Leaving: The Family and Medical Leave Act and the Decline in Maternal Labor Force Participation*, 10 BE J. ECON. ANAL. & POL'Y (2010). For our purposes, it does not whether Mukhopadhyay or Goodpaster is correct (and they could both be correct—the 1978 and 1993 laws may have had different consequences due to different statutory features and different social and economic conditions). What matters is that leave laws may have important effects—positive or negative—on future taxpaying behavior that a comprehensive efficiency analysis should take into account.

⁷¹ See Tanya S. Byker, *Paid Parental Leave Laws in the United States: Does Short-Duration Leave Affect Women's Labor-Force Attachment?*, 106 AM. ECON. REV. 242 (2016).

medium to long term,⁷² though evidence on the medium- and long-term effects is not uniform.⁷³

Analysis of paid parental leave differs from unpaid parental leave in that paid leave *is* taxable (or more precisely, payments by employers to employees on leave is included in gross income for federal income tax purposes⁷⁴). Paid leave mandates, though, provide for less than 100 percent wage replacement,⁷⁵ so we can think of paid parental leave as a partly taxed, partly untaxed benefit, and therefore apply the same general framework as for unpaid leave. That is, paid parental leave with a wage replacement rate of less than 100 percent changes the compensation mix so that less of an employee's compensation is taxed (a negative effect on tax revenue), but likely increases future labor force participation (a positive effect on tax revenue). As with unpaid leave, the Legal Envelope Theorem suggests taking the resulting fiscal externalities into account when setting the rule.

Some analyses of paid leave—including one recent analysis by congressional committee staff⁷⁶—suggest that the latter effect predominates and that the entire increase in economic output, or GDP, as a result of paid leave should be counted as a benefit. But as the Legal Envelope Theorem shows, an analysis that includes the economic output of parents who remain in the workforce as a benefit while ignoring the value of the time stay-at-home parents spend with their children does not provide an accurate picture of the

⁷² See, e.g., Charles L. Baum & Christopher J. Ruhm, *The Effects of Paid Family Leave in California on Labor Market Outcomes*, 35 J. POL'Y ANAL. & MGMT. 333 (2016); Paul Gregg, Maria Gutiérrez-Domènech & Jane Waldfogel, *The Employment of Married Mothers in Great Britain, 1974–2000*, 74 ECONOMICA 842 (2007); Christopher J. Ruhm, *The Economic Consequences of Parental Leave Mandates: Lessons from Europe*, 113 Q. J. ECON. 285 (1998).

⁷³ For a recent paper suggesting that paid leave may reduce long-term employment, see Martha J. Bailey et al., *The Long-Term Effects of California's 2004 Paid Family Leave Act on Women's Careers: Evidence from U.S. Tax Data* (Nat'l Econ. Research Bureau, Working Paper No. 26416, 2019), <http://www.nber.org/papers/w26416>.

⁷⁴ 26 U.S.C. § 61(a)(1).

⁷⁵ See BIPARTISAN POL'Y CENTER, *supra* note 65, at 2 tbl.1.

⁷⁶ Joint Econ. Comm., *The Economic Benefits of Paid Leave: Fact Sheet 2* (n.d.).

effect of paid leave on total resources. Public policy should support the choice of parents to remain in the workforce—indeed, our argument here is that the case for pro-work laws and policies is even stronger than a simple-efficiency analysis would suggest. But we should not proceed in our analysis as if the time that parents spend at home with children is worthless to society.

The Legal Envelope Theorem provide a fuller picture of the resource effects of changes in labor force participation resulting from changes in paid-leave mandates. Consider again a new parent whose earnings would be \$100x and whose tax rate is 30 percent. Imagine that the parent is on the fence between remaining in the workforce and leaving (i.e., value that the parent assigns to the care she can provide by staying at home is \$70x). Assume that a small change in the paid parental leave law (e.g., extending the leave that employers must provide from 12 workweeks to 12 workweeks plus 1 workday) would push the parent over the fence and cause her or him to remain in the workforce. What is the effect on total resources?

The entire effect on economic output, or GDP (\$100x), supplies the wrong answer. Although the value of the parent's output in the taxable sector has increased by \$100x, the value of her or his output in the untaxed sector has declined by \$70x. On the other hand, ignoring the effect on economic output entirely will supply the wrong answer too. When the parent shifts from staying at home to participating in the workforce, the government collects additional tax revenue that can be used to provide valuable public goods. If the parent fully internalizes the benefits and costs of the choice to her or his child, then the increase in total resources is the behavioral effect on tax revenue: here, \$30x. If current leave laws fail to account for this tax-revenue effect, and if a longer paid-leave period would lead to greater long-term labor force attachment, then the Legal Envelope Theorem favors a change in the law toward longer paid leave.

To be clear, workforce participation effects are far from the only factor to consider in a policy analysis of paid parental leave. A full analysis should account for possible positive effects on children's health and educational outcomes (to the extent those outcomes are not internalized by parents in

their own behavioral choices).⁷⁷ And insofar as paid parental leave results in higher rates of female labor participation and career advancement, the positive externalities from having more women in the workplace (and, particularly, more women in leadership roles) must be factored in too.⁷⁸ There is a strong gender-equity case—apart from the tax-revenue case—for policies that facilitate and encourage labor force participation and career advancement among mothers. Said another way, whatever we would do to achieve gender-egalitarian goals, we should do more because of the tax effects.

c. Job Protection and Wrongful Discharge

A central, and contested, area of workplace regulation is the set of laws that regulate termination. There are numerous laws that regulate this choice, including include civil service laws for federal and state employees, laws that affect the power of public- and private-sector unions, employment discrimination laws, state-level wrongful discharge laws, and judicial doctrines that deviate from the common-law rule of employment at will.⁷⁹

The most straightforward argument for these rules is that employees may value limits on when they can be fired more than their cost. Being fired is extremely disruptive to one's life. While limitations on firing are costly to firms

⁷⁷ For evidence that paid leave has positive effects on children's health, see, for example, Sakiko Tanaka, *Parental Leave and Child Health in OECD Countries*, 115 *ECON. J.* F7 (2005). For more ambiguous findings, see Qian Liu & Nordstrom Skans, *The Duration of Paid Parental Leave and Children's Scholastic Performance*, 10 *B.E. J. ECON. ANAL. & POL'Y* no. 1, art. 3 (2010).

⁷⁸ On the positive externalities provided by female managers to younger and less senior female workers, see Geoffrey Tate & Liu Yang, *Female Leadership and Gender Equity: Evidence from Plant Closure*, 117 *J. FIN. ECON.* 77 (2015).

⁷⁹ Wrongful discharge laws come in a number of different forms including (1) an implied contract of no wrongful discharge; (2) public policy against wrongful discharge in particular circumstances; and (3) an implied duty of good faith. For a brief description of these doctrines and a history of their development, see David H Autor, John J Donohue & Stewart J Schwab, *The Costs of Wrongful-Discharge Laws*, 88 *REV. ECON. STAT.* 211 (2006).

and, therefore, may force firms to reduce pay, individuals may be willing to take this trade-off.

We may need to laws imposing wrongful discharge rules rather than relying on firms and employees to enter into them via employment contracts because any single firm that offers wrongful discharge protections may attract less desirable employees, a form of adverse selection.⁸⁰ In addition, there is evidence that employees have imperfect information about when they can be fired. They often believe that they cannot be fired at will and instead can only be fired for some sort of misconduct.⁸¹ If this is true, employees may not believe that they need to make a wrongful discharge limitation explicit in their employment contracts.

Laws that provide employment security can be thought of as mandating a term of employment, and the analysis above applies in a straightforward fashion. Suppose that a particular level of wrongful discharge protection is simple efficient. Relative to slightly weaker protection, this rule will reduce taxable compensation: what was previously taxable compensation now comes in the form of the non-taxable utility benefit from additional job security. If we were to lower the discharge protection a little bit, the individual and her employer would be no worse off. The relative portion of compensation paid in taxable form, however, would go up, generating a social benefit. As a result, we should want somewhat less employment security than otherwise.

While the evidence is mixed, however, it appears that wrongful discharge laws—one form of employment protection—reduce workplace participation because employers are reluctant to hire workers that they cannot fire.⁸² To the

⁸⁰ David I. Levine, Just-Cause Employment Policies in the Presence of Worker Adverse Selection, 9 J. LAB. ECON. 294 (1991).

⁸¹ See, e.g., Kim, *supra* note 58.

⁸² For example, one study finds that that employment (as a percent of population) goes down by 0.8% to 1.7% for states adopting the implied contract exception, with the effects most pronounced for females and younger, less-educated workers. See David Autor, John Donohue & Stewart J. Schwab, *The Employment Consequences of Wrongful-Discharge Laws: Large, Small, or None at All?*, 94 AM. ECON. REV. 440 (2004). On the other hand, Tom Miles finds not finds no

extent this is true, wrongful discharge laws further reduce taxable compensation. A small decrease in their strength would increase tax revenues while not making workers or employers worse off.

In the parental leave case, the two effects—the mix of taxable versus non-taxable compensation holding market work constant, and the change in taxable, market work—act in opposite directions. Taxable compensation as a fraction of the total goes down but total work appears to go up. The Legal Envelope Theorem suggests moving away from simple efficiency based on the net effect. In the wrongful discharge case, the two effects appear to work in the same direction. The Legal Envelope Theorem in this case is clearer, suggesting weaker protection from termination than the simple efficient rule.

2. Laws Indirectly Affecting Work

The examples above involved laws whose nominal subject was work or employment. Other laws whose subject matter is not nominally work or employment, however, may also have substantial effects on work. Indeed, non-work-related legal rules may have a greater effect on work levels than many rules that directly regulate the work environment. In all of these cases, we should deviate from the simple efficient rule in the direction that increases taxable compensation. Consider the following:

Zoning and land use: Zoning and other rules regulating land use affect where businesses and homes are located relative to one another. Their relative location determines, in part, the length of commutes, which in turn affects the cost of working. Zoning and land use rules also in part determine the type of building or other amenities of the workplace and the amenities surrounding

effects on employment levels but does find that employers increase their use of temporary-help agency workers. See Thomas J. Miles, *Common Law Exceptions to Employment at Will and U.S. Labor Markets*, 16 J. L. ECON. ORG. 74 (2000). Autor, Donohue, and Schwab argue that the difference in results is due to Miles's reliance on a system of classifying case law developments that often records a later date for state-level changes than the date at which those changes first emerged.

the workplace. For example, working in an office park is different than working in a dense urban environment and that is different from working in an area zoned for heavy industry. While zoning and land use rules involve a host of complex set of considerations, one important effect is on work. To the extent zoning and land use rules affect work, they generate fiscal externalities which should be taken into account when setting those rules.

Transportation: Legal rules also directly govern how people commute. For example, driving laws affect the length of a commute and its safety. They affect the type of vehicle that can be used for commuting and whether carpooling is desirable.⁸³ Laws regulating the vehicles themselves affect the cost of commuting as well as the commuting experience. To the extent they these legal rules change the amount of work individuals do, they have a fiscal externality that should be taken into account.

Leisure: The regulation of leisure activities is extensive.⁸⁴ For example, laws regulate the safety of various leisure activities (e.g., bicycle helmet laws). They determine what sorts of leisure activities one may engage in (e.g., alcohol laws). They determine the costs of many leisure activities (e.g., laws regulating the movie industry). Making leisure activities more attractive unfortunately generates a negative fiscal externality which means we should be slightly less willing to make leisure attractive than otherwise.

Spending. So far we have focused on non-tax *legal* rules that affect the workplace, but—as suggested by Corlett and Hague—non-tax subsidies for complements to labor affect work decisions too, and should be adjusted in light of tax considerations. For example, government subsidies for childcare and early childhood education have potentially significant consequences not only

⁸³ The distinction between law and spending is especially fraught in this context. Speed limits and HOV lanes are “laws” while an additional lane of road surface is “spending.” Both affect commutes.

⁸⁴ The inestimable *Journal of Leisure Research* provides numerous articles illustrating the point.

for children's outcomes,⁸⁵ but also for the labor supply choices of their parents (and, particularly, mothers).⁸⁶ As with paid parental leave, the tax effects reinforce egalitarian goals of increasing women's labor force participation and earnings. Public transit subsidies also appear to have positive employment effects, and, therefore, we should spend more on public transit than simple efficiency would suggest.⁸⁷

3. Summary

The workplace is a legally constructed environment. The regulation of work is pervasive. As such, legal rules affect the costs and benefits of work. The regulation of non-work activities is also pervasive, and these regulations affect the costs of work as well. As a result, the elasticity of labor supply should be thought of as, in part, a choice, rather than an exogenously given variable. Legal rules surrounding work and leisure should be designed with a view to the tax revenue consequences. They should deviate from simple efficiency, possibly significantly, because of these considerations.

B. Legal Rules Affecting Business Organizations

Even more so than for work, the law shapes business entities. Their very existence is created by law—they are legal fictions. Their governance, their

⁸⁵ For a recent analysis of the costs and benefits of universal subsidized child care, see Tarjei Havnes & Magne Mogstad, *Is Universal Child Care Leveling the Playing Field?*, 127 J. PUB. ECON. 100 (2015).

⁸⁶ For example, Jonah Gelbach finds significant positive effects on women's employment from the introduction of schooling for 5-year olds (kindergarten) on women's employment. Jonah B. Gelbach, *Public Schooling for Young Children and Maternal Labor Supply*, 92 AM. ECON. REV. 307 (2002). Other studies, however, find more mixed results. Compare Stefan Bauernschuster & Martin Schlotter, *Public Child Care and Mothers' Labor Supply—Evidence from Two Quasi-Experiments*, 123 J. PUB. ECON. 1 (2015) (finding an effect in Germany). with Tarjei Havnes & Magne Mogstad, *Money for Nothing? Universal Child Care and Maternal Employment*, 95 J. PUB. ECON. 1455 (2011) (finding no effect in Norway).

⁸⁷ See, e.g., Paul M. Ong & Douglas Houston, *Transit, Employment and Women on Welfare*, 23 J. URB. GEOGRAPHY 344 (2013).

capital structure, the relationship between owners and the firm, the relationships between suppliers and the firm, the size of firm, the information they must collect and that they must disclose, and numerous other aspects of their operations are shaped by the law. Many of these legal choices have important effects on the tax system.

The analysis of the way that business law affects the tax system is, in a basic sense, the same as the analysis of legal rules affecting work: we want legal rules to deviate from simple efficiency in order to favor higher-tax activities. For example, debt is generally taxed at a lower rate than equity, so we want legal rules to favor equity more than simple efficiency would suggest.

A key problem with analyzing the interaction of business law and taxes is that the tax rules governing business organizations are likely far from their optimum and can themselves be reformed. For example, rather than shifting the non-tax legal rules to reduce the use of debt, we could fix the tax rules to eliminate the distinction between debt and equity, eliminating the distortion without changing non-tax legal rules.⁸⁸ To keep the analysis simple, we assume that the tax rules are, in the short term, largely fixed, and discuss how legal rules interact with them, with the understanding that the optimal policy likely involves changes to both tax rules and legal rules.

We consider three areas where legal rules intersect the tax rules governing business organizations: (i) debt versus equity, (ii) the choice of legal entity, and (iii) the rules governing distributions. These three items are the three major distortions caused by the corporate tax, as identified by the Treasury Department's study of major corporate tax reform.⁸⁹

⁸⁸ See, for example, the proposal by the Treasury Department to eliminate the distinction. U.S. DEP'T OF THE TREAS., INTEGRATION OF THE INDIVIDUAL AND CORPORATE TAX SYSTEMS, TAXING BUSINESS INCOME ONCE (1992).

⁸⁹ *Id.* The American Law Institute recognized a similar set of distortions. AM. LAW INST., FEDERAL INCOME TAX PROJECT: INTEGRATION OF THE INDIVIDUAL AND CORPORATE INCOME TAXES, REPORTER'S STUDY OF CORPORATE TAX INTEGRATION (1993).

1. Debt/Equity Rules

Leverage—the use of debt rather than equity—reduces the tax on corporations because corporations can deduct interest payments made to lenders but not dividend payments made to shareholders.⁹⁰ As a result, the Treasury Department study concluded that the tax law creates an incentive to capitalize corporations with debt rather than equity.

The economic difference between debt and equity is that debt—borrowing—is typically characterized by a mandatory requirement to repay a fixed amount at a fixed time, while equity is typically characterized by a return contingent on the performance of the business.⁹¹ Businesses have some optimal mix of these two instruments in their capital structure.

Legal rules affect this choice. The bankruptcy law and the law of secured transactions affects the ability of a corporation to use debt. In addition, securities laws affect the cost of issuing debt and of issuing equity in public or in private markets. Banking laws affect the ability of businesses to get bank loans. That is, “debt” and “equity” are relationship determined by legal rules

⁹⁰ The net tax benefit of leverage to the corporation also depends on the tax treatment of the lenders as compared to shareholders. Large pools of capital, particularly foreign capital and capital owned by pension funds, are not taxed under U.S. law, which means that interest payments are not taxed at all while earnings distributed as dividends are taxed at the corporate level.

The American Law Institute study of corporate integration emphasizes that the preference for debt, if any, depends on the relative tax rates of lenders and shareholders as well as the corporate-level treatment. ALVIN WARREN, *INTEGRATION OF THE INDIVIDUAL AND CORPORATE INCOME TAXES, REPORTER'S STUDY OF CORPORATE INTEGRATION* (1993). With low enough tax rates on dividends and on corporate income, the preference may be reversed—the tax law may generate a preference for equity.

⁹¹ In reality, the line between debt and equity is almost impossible to draw. Debt can be contingent and depend in part on the performance of the business and equity can have required fixed payments. But in the prototypical cases, the difference between the two is relatively clear.

(as well as by the terms of the instruments themselves). Therefore, the ability of a corporation to use debt depends on legal choices.

The analysis of how legal rules and the tax system interact is roughly the same as above, which is that we want to shift away from the simple efficient set of legal rules governing debt and equity to favor equity. Rather than repeat this analysis, we illustrate the interaction with an actual case where a legal rule was changed in response to tax issues.

Banks are required to meet what are known as capital requirements. These are requirements that a certain portion of their capital structure be made up of financial instruments that do not require immediate repayment—they are long-term claims rather than claims with rigid, fixed payment schedules. Common stock is the paradigmatic form of bank capital because it never needs to be repaid.

The reason for the capital requirement, as laid out in work by Douglas Diamond and Raghuram Rajan, is to reduce the probability of financial distress.⁹² A secure cushion of capital means that banks are more likely to be able to make mandatory payments on the debt that they issue. The cost of bank capital requirements is that they reduce one of the core functions of banks, which is issuing short-term, liquid notes that can act as money in a modern financial system. The higher the capital requirement, the less a bank can provide liquidity to the market. Simple-efficient capital rules balance these costs against the benefits.

A capital requirement needs a definition of “capital.” Most countries follow the Basel Committee on Banking Supervision guidelines, classifying capital into Tier 1 and Tier 2, with Tier 1 being preferred.⁹³ The Basel Committee

⁹² Douglas W. Diamond & Raghuram G. Rajan, *A Theory of Bank Capital*, 55 J. FIN. 2431 (2000).

⁹³ For the most recent version, see BANK OF INT’L SETTLEMENTS, THE BASEL FRAMEWORK (2019), https://www.bis.org/basel_framework/index.htm.

provides a complex set of rules that determine how much of any given financial instrument counts toward each tier.

As noted, common stock is the paradigm of Tier 1 capital. If a bank uses common stock as its Tier 1 capital, however, it loses the benefit of the interest deduction. Therefore, a central tax planning goal for banks is to structure a financial instrument that qualifies as Tier 1 capital for bank regulatory purposes yet is treated as debt for tax purposes. It is the Holy Grail of bank tax planning.

In the mid-1990s, tax planners almost reached the Holy Grail through an exotic tax structure known as “Reverse MIPS.”⁹⁴ The basic idea was to issue preferred stock (which counted as Tier 1 capital) to a partnership and have the partnership issue debt secured by the preferred stock. For tax purposes, the partnership is a pass-through entity, which means that the interest deductions on the debt flowed through to the bank. (The dividends on the preferred stock used to pay the interest on the debt were treated as a nothing for tax purposes because the bank was treated as just paying itself.) For bank regulatory and accounting purposes, however, the partnership was treated as an independent entity, which means that the debt was not treated as bank debt. Instead, the bank was treated as having merely issued preferred stock to the independent partnership. Therefore, the bank was treated as having issued Tier 1 capital for bank regulatory purposes but debt for tax purposes.⁹⁵

⁹⁴ MIPS, or Monthly Income Preferred Stock, was a financial instrument designed to generate most of the features of equity while allowing an interest deduction for tax purposes. MIPS was widely used by non-financial corporations but did not satisfy the capital requirements for banks. Reverse MIPS is a variant on MIPS which effectively reversed or flipped upside down the basic structure. On MIPS and Reverse MIPS, see generally Mark P. Gergen & Paula Schmitz, *The Influence of Tax Law on Securities Innovation in the United States: 1981-1997*, 52 TAX L. REV. 119, 153-154 & nn.129-30 (1997).

⁹⁵ For further background on the Reverse MIPS saga, see Tom Pratt, *IRS Notice on MIPS Leaves Basic Structure Unscathed; But Some Variations Clearly Won't Work*, INV. DEALERS' DIGEST, Apr. 25, 1994, at 12.

Before any Reverse MIPS were issued, however, the Treasury found out about them. Immediately upon hearing of these instruments, the Treasury issued a public notice, Notice 94-48, stating that the government would challenge the intended tax treatment of these instruments, should any of them be issued.⁹⁶ The Notice laid out a number of theories of why the instruments did not generate an interest deduction for tax purposes. The banks' tax advisors disagreed, and the banks were prepared to issue the instruments. The Notice, however, effectively acted to inform the bank regulators of the tax problem the instruments generated. In response, the bank regulators determined that they would not allow the instruments to be classified as Tier 1 capital, effectively preventing banks from issuing them.⁹⁷

We can think about how the bank regulators acted in terms of the Legal Envelope Theorem. Before they focused on the tax effects and risks, the bank regulators thought that the proper legal rule was to classify Reverse MIPS as Tier 1 capital. That is, they classified the instrument based on Basel Committee's rules that determined the trade-off between liquidity creation and safety. The determination that Reverse MIPS was Tier 1 capital was simple efficient.⁹⁸ Declining to classify them as Tier 1 was a small move away from

⁹⁶ Notice 94-48, 1994-1.C.B. 357. The government described the core problem as follows: The Internal Revenue Service is aware of proposed transactions designed to provide corporations with significant tax advantages in satisfying their equity capital requirements. Although the details may vary, these transactions are intended to give the issuing corporations the tax benefits of issuing debt even though the corporations actually issue stock. In addition, the instruments are intended to be treated as equity for regulatory, rating agency, or financial accounting purposes.

⁹⁷ An interesting contrast to this story is the regulatory actions behind *Cottage Savings v. Commissioner*, 499 U.S. 554 (1991). There, bank regulators—the Federal Home Loan Bank Board—actively help banks generate tax deductions for losses while avoiding the regulatory and accounting implications of those losses.

⁹⁸ The Basel Committee's rules may have been flawed, in which case, the bank regulator's decision would also have been flawed. To keep reality from getting in the way of a good yarn, we ignore this possibility. More seriously, all the legal and tax choices in this sort of complex environment are difficult ones. We are using this history as an example of the types of interactions between the laws governing business organizations and taxes rather than attempting to make definitive statements about the optimal content of particular rules.

simple efficiency that generated positive tax benefits. Indeed, the tax benefits were likely significant because Reverse MIPS and similar structures could have eliminated a substantial portion of the tax base for financial institutions. The regulators choose the fully efficient rule rather than the simple efficient rule, consistent with the recommendation of the Legal Envelope Theorem.

2. Choice of Entity

The corporate tax may distort the choice of business entities. In particular, businesses may avoid using the corporate form to avoid the double-level corporate tax. The 1992 Treasury Department study of the corporate tax argued that distortions in the choice of organizational form generated significant social losses, as businesses used otherwise suboptimal structures.⁹⁹ For example, a business that would have operated efficiently as a corporation might choose to be a partnership because of the tax cost of incorporation.

The ability of businesses to choose their form, and how that choice affects the operation of the business, depend almost entirely on the legal rules that govern business entities. Corporations, general and limited partnerships, and limited liability companies are all creatures of law. We can choose their attributes. Whether businesses choose to operate through the higher-taxed or lower-taxed form will depend, in part, on the non-tax attributes that the law assigns to each form. We cannot even begin to understand whether, and the extent to which, the tax incentive to choose particular forms of business organizations generates social losses without understanding the underlying law.

As with debt versus equity, we illustrate the interaction with an historical incident, the 1977 invention of the limited liability corporation and the tax response, known as check-the-box. The LLC was created as a response to the corporate tax. It is an example of the non-tax legal rules taking taxation into

⁹⁹ See U.S. DEP'T OF THE TREAS., *supra* note 88, at 3-4, 112-15.

account. As we will discuss, states probably made the wrong choice because of free-rider incentives—the invention of the LLC probably had a negative BETR—but regardless of merits of the states' actions, the story shows how legal choices regarding what entities should exist and their attributes affect the tax system.

To understand the invention of the LLC, we must review how the tax law classified business entities at the time of their invention. The tax rules were (and remain) asymmetric. If a business was organized under state law as a corporation, the entity was treated as a corporation for tax purposes. But if a business was organized under state law as some other legal form, such as a partnership, the entity might be characterized for tax purposes as either partnership or a corporation.¹⁰⁰

To draw the distinction between partnerships and corporations (for entities that did not use a state law corporate form), the tax law used a “looks like” test, known colloquially as the four-factor test. Under this test, if the entity had enough features of a platonic corporation, it was taxed as a corporation.¹⁰¹ In particular, platonic corporations were said to have four factors: (i) continuity of life (i.e., death of a shareholder does not cause the corporation to cease to exist); (ii) centralization of management; (iii) limited liability; and (iv) free transferability of interests. Partnerships were said to lack these attributes. Recognizing that there was flexibility in structuring entities—for example, a partnership could hire a centralized manager rather than being run by the partners themselves—the regulations treated an entity as a corporation if it had at least three of the four factors.

¹⁰⁰ Technically, corporations are defined in section 7710(a)(3) to include “associations, joint stock companies, and insurance companies.” This provision has been read to mean that any entity that is actually a state-law corporation is a corporation for tax purposes. In addition, entities that are “association” are also tax corporations. The question is what it means to be an association.

¹⁰¹ Treas. Reg. 1.7701-2. Regulations build on *Morrissey v. United States*, 296 U.S. 344 (1935), and *United States v. Kintner*, 216 F.2d 418 (9th Cir. 1954).

The four-factor test meant that the corporate tax was in part a tax on the use of these factors in addition to a tax on the choice of entity. That is, the corporate tax fell on (1) the choice to use the corporate form and (2) the use a sufficient number of the four factors. To the extent that the tax fell on the use of the corporate form, it fell on a legal fiction. To the extent it fell on the four factors and to the extent they represented underlying economic arrangements, it fell on economic choices (though to some extent, the four factors were formalistic legal arrangements rather than true economic arrangements).

Sufficiently clever lawyers were able to manipulate the four factors to achieve most of what their clients wanted for non-tax legal purposes while getting their preferred tax law treatment.¹⁰² For example, lawyers were able to create publicly traded entities that were treated as partnerships for tax purposes, allowing businesses to access public capital markets without having to pay the corporate tax. In response, Congress changed the tax law to treat most publicly traded entities as corporations regardless of their other attributes.¹⁰³ Lawyers could also give partnerships limited liability for the most part, by making a modestly capitalized corporation the general partner in a limited partnership.

The final push to take advantage of the four-factor test involved a change to state law rather than structuring within existing law: Wyoming enacted the first limited liability company statute in 1977.¹⁰⁴ An LLC, unlike a limited partnership, does not require any partner to have unlimited liability. Nevertheless, Wyoming LLCs were able to be treated as partnerships under

¹⁰² For a history, see Victor E. Fleischer, Note, *If It Looks Like a Duck: Corporate Resemblance and Check-the-Box Elective Tax Classification*, 96 COLUM. L. REV. 518 (1996). For a list of additional sources on this issue, see David A. Weisbach, *Line Drawing Doctrine and Efficiency in the Tax Law*, 84 CORNELL L. REV. 1627, 1639 n.13 (1998).

¹⁰³ I.R.C. § 7704.

¹⁰⁴ See Act of March 4, 1977, ch. 155, 1977 Wyo. Sess. Laws 512.

the four-factor test.¹⁰⁵ In effect, LLCs had the most important state law attributes of a corporation but qualified as partnerships for tax purposes.

The IRS was initially unsure how to treat LLCs, and considered forcing them to be treated as corporations. After a number of years of deliberation, however, the IRS basically just gave up. It made the choice whether to be a corporation or a partnership elective (unless the entity is a state law corporation or is publicly traded). Entities simply “check the box” to determine how they are treated for tax purposes.¹⁰⁶ That is, the state law change so drastically altered the relevant elasticity that it made the tax rule impossible to enforce. And while we cannot tie it directly to the invention of the LLC (there could be a number contributing factors), the fraction of business income in corporate form has fallen dramatically in the last several decades.¹⁰⁷

Like the saga of Reverse MIPs, the LLC story illustrates the tax revenue effects of non-tax legal rules regarding business organizations. But unlike, Reverse MIPs, the advent of the LLC was a move in precisely the wrong direction.¹⁰⁸ Making the choice of entity easier most likely created a negative fiscal externality. The Legal Envelope Theorem, by contrast, counsels for

¹⁰⁵ See Rev. Rul. 88-76, 1988-2 C.B. 360. The Service held that a Wyoming LLC only had two of the attributes of a corporation: centralized management and limited liability. But because a Wyoming LLC would dissolve upon the death or exit of any member, it did not have the corporate characteristic of continuity of life. And because a full transfer of a membership interest—along with all the attributes of membership—required the remaining members’ approval, a Wyoming LLC did not have the corporate characteristic of free transferability of interests. Because a Wyoming LLC satisfied only two prongs of the four-factor test, the IRS ruled that it was partnership and not a corporation. See *id.* Following the advent of the Wyoming LLC, all states would ultimately adopt their own LLC statutes. See Howard M. Friedman, *The Silent LLC Revolution—The Social Cost of Academic Neglect*, 38 CREIGHTON L. REV. 35, 92-96 app. (2004).

¹⁰⁶ Treas. Reg. 301.7701-3.

¹⁰⁷ Matthew Smith, Danny Yagan, Owen Zidar & Eric Zwick, *Capitalists in the Twenty-First Century*, 134 Q. J. ECON. 1675 (2019).

¹⁰⁸ The likely reason for this move in the wrong direction was that states were trying to externalize costs to other states, in effective a 50-player prisoner’s dilemma game.

adjusting legal rules to make it more costly to avoid taxation rather than making it easier.¹⁰⁹

Stepping back from the specifics of the LLC case study, the discussion here illustrates a more general point about the interaction between the tax system and non-tax legal rules regarding choice of organizational form. Non-tax law provides business enterprises with a menu of organizational forms from which they can choose.¹¹⁰ The tax system must decide how to treat each of these organizational forms. The tax system can strive for rough equivalence across forms, but in a complex tax system, it is likely (if not inevitable) that the use of some forms will be tax-advantageous relative to other forms for particular enterprises under certain circumstances. Setting tax considerations aside, there is likely to be some efficient number of forms and some efficient set of rules regarding the ease with which enterprises can change their form.¹¹¹ The more options there are, and the easier it is to move across them, the likelier it is that any particular enterprise will be able to shift to a form that reduces its or its owners' taxes. If we would otherwise have a menu that satisfies simple efficiency, we should adjust it so as to reduce the number of options and/or make it somewhat harder to switch among them. Doing so will not lead to any first-order loss in efficiency but will increase tax revenues. The LLC revolution illustrates one way that state law regarding business organizations can be adjusted to affect tax revenues. Unfortunately, it appears that states made precisely the wrong adjustment.

¹⁰⁹ For an argument along these lines, see David M. Schizer, *Frictions as a Constraint on Tax Planning*, 101 COLUM. LAW REV. 1312 (2001). The BETR provides a precise characterization of the social benefits of frictions.

¹¹⁰ The menu could be provided by private-sector sources, though the state is the sole supplier in virtually every modern market economy. See Gillian Hadfield & Eric Talley, *On Public versus Private Provision of Corporate Law*, 22 J. L. ECON. & ORG. 414 (2006).

¹¹¹ The cognitive cost of too many menu options is familiar to anyone who has struggled to decide what to order at a diner. See Roberto A. Ferdman, *Americans Are Tired of Long Restaurant Menus*, WASH. POST (Sept. 18, 2014), <https://www.washingtonpost.com/news/wonk/wp/2014/09/18/americans-are-tired-of-long-restaurant-menus>.

3. Distributions

The final distortion created by the two-level corporate highlighted by the Treasury study concerns the timing and form of corporate distributions.¹¹² The economics underlying this distortion are far more complex than those regarding the choice of entity or the use of leverage, and aspects of the economics are still not well understood.¹¹³ In the interest of brevity, we use a purposefully simplified illustrative version of the law, with the understanding that a more complete analysis might lead to different conclusions.

The tax law has always treated dividends and share repurchases (buybacks) differently. Although the differences are complex, buybacks are generally preferred under current law, relative to dividends.¹¹⁴ The key reasons are that buybacks have somewhat more favorable basis recovery rules and that buybacks may facilitate the streaming or targeting of distributions to low-taxed shareholders, allowing high-tax shareholders to defer their taxes or possibly eliminate them through stepped-up basis at death.¹¹⁵ Under the law prior to 2003, buybacks were more clearly preferred because they were taxed at a lower rate than dividends.¹¹⁶

¹¹² See U.S. DEP'T OF THE TREAS., *supra* note 88, at 115-18.

¹¹³ For example, see David A. Weisbach, *Capital Gains Taxation and Corporate Investment*, 70 NAT'L TAX J. 621 (2017).

¹¹⁴ For a canonical treatment of the subject, see Marvin A. Chirelstein, *Optional Redemptions and Optional Dividends: Taxing the Repurchase of Common Shares*, 78 YALE L.J. 739 (1969).

¹¹⁵ For example, imagine a corporation with two shareholders, one who is old (and whose heirs will soon be able to take advantage of stepped-up basis at her death) and the other who is young and healthy. A dividend has to be paid pro rata to both types while a share repurchase can be targeted only at the young and healthy shareholder. The older shareholder can wait to receive her share of the earnings until she dies, at which point those earnings will not be taxed because of the basis step-up. Section 305(b) prevents this kind of streaming with dividends (for example, by creating two classes of stock, one which pays dividends and one which does not). See I.R.C. § 305(b).

¹¹⁶ Prior to the Jobs and Growth Tax Relief Reconciliation Act of 2003, Pub. L. No. 108-27, 117 Stat. 752, dividends were generally taxed as ordinary income, while buybacks were taxed

The most relevant legal rule governing the choice between dividends and buybacks is the safe harbor from market manipulation liability under sections 9(a)(2) and 10(b) of the Securities Exchange Act of 1934.¹¹⁷ In 1982, the Securities and Exchange Commission issued a safe harbor that made it easier for corporations to use buybacks without violating market manipulation rules.¹¹⁸ To qualify for the Rule 10b-18 safe harbor, an issuer that buys back its shares on the open market generally must (among other requirements) halt its repurchases during a 30-minute blackout period before the close of the trading session, and the issuer's aggregate purchases for the day cannot exceed 25 percent of the stock's average daily trading volume.¹¹⁹

Since that time, there has been a relatively consistent trend toward the use of buybacks such that buybacks are now a larger share of corporate distributions than dividends.¹²⁰ There is a substantial literature in finance attempting to explain the choice between dividends and buybacks.¹²¹ The literature argues that dividends carry a signal about strong future earnings while buybacks do not. This makes dividends more expensive but also more meaningful. In particular, the economic literature argues that corporations will only increase their dividends if they can sustain the increase over the long term. They will use buybacks for short-term increases in distributions.

as sales of capital assets potentially eligible for the preferential tax rate on long-term capital gains. In the immediate run-up to the 2003 law, the gap between these two rates was wide: the ordinary income tax rate was 35 percent, while the long-term capital gains rate was 20 percent. Under the 2003 law, most dividends paid by U.S. corporations are taxed at the same preferential rate as long-term capital gains. *See* I.R.C. § 1(h)(11).

¹¹⁷ Ch. 404, tit. I, §§ 9(a)(2), 10(b), 48 Stat. 891 (codified at 15 U.S.C. §§ 78i(a)(2), 78j(b)).

¹¹⁸ 17 C.F.R. 240.10b-18; *see also* Securities Exchange Act Release No. 19244, 47 Fed. Reg. 53333, 53334 (Nov. 26, 1982). The rule was updated in 2003. *See* Securities Exchange Act Release No. 48766, 68 Fed. Reg. 64952 (Nov. 17, 2003).

¹¹⁹ 17 C.F.R. 240.10b-18(b)(2)(iii), (4).

¹²⁰ Edward Yardeni, Joe Abbott & Mali Quintana, Corporate Finance Briefing: S&P 500 Buybacks & Dividends 9 fig.10 (Aug. 7, 2020), <https://www.yardeni.com/pub/buybackdiv.pdf>.

¹²¹ *See* Franklin Allen & Roni Michaely, *Payout Policy*, in 1 HANDBOOK OF THE ECONOMICS OF FINANCE 337 (George M. Constantinides, Milton Harris & René M. Stulz eds., 2003).

The legal rule—SEC Rule 10b-18—that mediates the choice between buybacks and dividends can be changed, and doing so will have tax implications. For instance, the SEC could extend the blackout period from 30 minutes to 31 minutes, or reduce the average daily trading volume cap from 25 percent to 24 percent. If those rules were previously set to satisfy simple efficiency, then small changes will not have first-order effects except for their tax revenue consequences. And nudging firms away from buybacks and toward dividends is likely to raise tax revenue, thus increasing total resources available to society.

There have been a number of legislative proposals in the last several years to impose limits on buybacks, though, for the most part, these would entail discrete rather than marginal changes.¹²² The motivations for these proposals are generally tangential to taxation,¹²³ and our discussion does not amount to an endorsement of any of them. Regardless, what these proposals do show is that legal rules can affect the choice between dividends and buybacks. The dividend-buyback margin is thus another area where the Legal Envelope Theorem can guide policy.

C. Rules Affecting the Informal Economy

A central problem affecting tax collection in many nations is that a large portion of their economy is in the informal sector. Estimating the size of the

¹²² See, e.g., Reward Work Act, S. 915, 116th Cong. (2019) (sponsored by Senator Baldwin) (proposing to abrogate Rule 10b-18). See generally Jay B. Sykes, Cong. Research Serv., *Stock Buybacks: Background and Reform Proposals* (Feb. 27, 2019) (providing overview of proposals and their rationales).

¹²³ Some buyback critics argue that buybacks divert capital from long-term investments, though this criticism is highly questionable. See Jesse M. Fried & Charles C.Y. Wang, *Are Buybacks Really Shortchanging Investment?*, HARV. BUS. REV. (Mar-Apr. 2018) (casting doubt on this rationale). Others argue that buybacks can facilitate insider trading. See, e.g., Robert J. Jackson, Jr., *Letter on Stock Buybacks and Insiders' Cashouts*, HARV. LAW SCH. FORUM ON CORP. GOVERNANCE (Mar. 8, 2019). A related argument is that buybacks exacerbate inequality, though the causal underpinnings of this claim are somewhat hazy. See, e.g., William Lazonick, *Profits Without Prosperity*, HARV. BUS. REV. (Sept. 2014).

informal economy is difficult because informal activity is, by its nature, hidden. By almost any measure, however, it is large.¹²⁴ According to the International Labour Organization, more than 60 percent of the world's employed population work in the informal economy.¹²⁵ In some countries, such as Haiti, Nigeria, and Zimbabwe, the informal economy accounts for more than half of GDP.¹²⁶ Even in the United States, which has proportionately one of the smallest shadow sectors in the world, the informal economy still accounted for 7 percent of GDP in 2015.¹²⁷

There is a tight correlation between the share of taxes (as a percent of GDP) and economic development: highly developed economies collect a large shares of GDP in taxes, while less developed economies collect a low share in taxes.¹²⁸ This is caused in part by the large size of the informal sector in developing countries. Countries with large informal sectors cannot tax large portions of the economy. But causation likely goes in the other direction as well: countries that raise less revenue will lack the administrative capacity to enforce taxes or to provide public goods, which means that they will have a larger informal economy.

¹²⁴ Friedrich Schneider & Dominik H. Enste, *Shadow Economies: Size, Causes, and Consequences*, 38 J. ECON. LIT. 77 (2000); Dominik H. Enste, *Regulation and Shadow Economy: Empirical Evidence For 25 OECD-Countries*, 21 CONST. POLIT. ECON. 231 (2010); FRIEDRICH SCHNEIDER & DOMINIK H. ENSTE, *THE SHADOW ECONOMY: AN INTERNATIONAL SURVEY* (2013).

¹²⁵ Press Release, Int'l Labour Org., *More Than 60 Per Cent of the World's Employed Population Are in the Informal Economy* (Apr. 30, 2018), https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_627189/lang--en/index.htm.

¹²⁶ See Leandro Medina & Friedrich Schneider, *Shadow Economies Around the World: What Did We Learn Over the Last 20 Years* 69-76 tbl.A.1 (Int'l Monetary Fund, IMF Working Paper 18/17, Jan. 2018), <https://www.imf.org/~media/Files/Publications/WP/2018/wp1817.ashx>.

¹²⁷ *Id.* at 76 tbl.A.1.

¹²⁸ According to Timothy Belsley and Torten Perrson, low-income countries collect taxes of between 10 to 20 percent of GDP while high-income countries collect taxes of around 40 percent. Timothy Besley & Torsten Persson, *Why Do Developing Countries Tax So Little?*, 28 J. ECON. PERSP. 99 (2014).

Citizens of developed countries generally take the capacity to tax as a given. Tax debates center around the proper tax base or the appropriate level of progressivity. The capacity to tax, however, is a central problem of the well-being of residents of developing countries. Governments without adequate tax revenues cannot provide the necessary institutions, such as an impartial justice system, or public goods such as roads, access to clean water, and physical security. The informal economy and the resulting effects on taxation are a first order problem for billions of people around the world.¹²⁹

We explore two examples of legal rules that can affect the size of the informal economy: rules that raise the cost of transacting in cash (and thus the cost of informality), and rules that reduce the cost of financial services (and thus the cost of formality). Changes to these rules to improve the functioning of the tax system are likely to have their greatest impact in developing countries, where the informal sector is larger. All countries, however, face problems of informality to some extent, and our analysis applies to advanced as well as developing economies.

¹²⁹ There is an ongoing debate about the reasons for informality. In a recent survey, Rafael La Porta and Andrei Shleifer suggest three different lines of argument. In one, epitomized by the Peruvian economist Hernando de Soto, the informal economy is held back by government regulation or by insecure property rights—by legal rules. Under this theory, adjusting those rules, such as by reducing barriers to entry or by providing a better system of property rights, will generate a shift to the formal sector, generating growth. Not incidentally for our purposes, changing these legal rules would generate more tax revenue. Another theory is that informal firms stay informal to avoid taxes and regulation, which means that the right approach to reducing informality is better enforcement. Legal rules can still play a role. By reducing the costs of formality and increasing the benefits, changes to legal rules can reduce the incentives of firms to stay informal. Finally, firms may be informal because they are simply less productive than formal firms, which means that they lack the incentives to become larger and to join the informal economy. The informal economy shrinks as human capital grows and people become more productive. This last theory, which is La Porta's and Shleifer's preferred theory, leaves a smaller role for legal rules. Rafael La Porta & Andrei Shleifer, *Informality and Development*, 28 J. ECON. PERSP. 109 (2014).

1. Raising the Cost of Cash

Cash is a central component of the informal economy. Cash is used for relatively benign activities, such as by informal vendors that abound in developing economies. Cash is also central to far less benign activities. In a recent book on the effects of cash, Kenneth Rogoff observes that cash is central to drug trafficking, racketeering, extortion, corruption, human trafficking, and money laundering.¹³⁰

Governments have to make choices about what types of cash they should issue. In a sense, the choice of cash denominations is a formal legal rule—it is a decision about what bills and coins qualify as legal tender. Large cash transactions will be extraordinarily costly if, for example, a government allows only one-unit notes (e.g., one-dollar bills). Conversely, the cost of cash transactions will likely be quite high as well if a government printed notes of every possible denomination (1-unit, 2-unit, 3-unit, and so on, all the way up to a very large number, thus requiring individuals to engage in involved arithmetic exercises every time they buy anything). Governments must balance these competing considerations in determining the optimal number of note types and the corresponding denominations.

A sizeable scholarly literature in economics, operations research, and related fields seeks to specify the optimal denomination structure for bank notes and coins. Leo van Hove characterizes the optimal denomination structure as a multicriteria optimization problem in which the most important criterion is the “principle of least effort”: the settlement of transactions should involve as few notes and coins as possible. Other criteria include compatibility with the decimal system (to make mental arithmetic easier); “surveyability” (the idea that the number of denominations should be small enough that members of the public can easily recognize and sort the different denominations by size, shape, color, image, etc.); and the minimization of

¹³⁰ KENNETH S. ROGOFF, *THE CURSE OF CASH 2* (2016).

central-bank production costs.¹³¹ Consequences for the size of the informal economy are largely left out of the optimal-denomination-structure literature.

Now suppose that a government comes to understand the nefarious role of cash, such as in human trafficking, drug sales, and the like. Many of the activities listed above rely on relatively large denomination notes. As Rogoff documents, the \$100 bill is the most important unit of currency globally for these activities, but in any given country, large denomination notes may play a role in domestic transactions.¹³² If we leave aside taxes for a moment, the government should want to reduce the circulation of large denomination notes to reduce nefarious activities associated with these notes. Whatever the right balance of different types of currency was desirable absent concerns about illegal activities, it should shift toward smaller denomination notes once concerns about illegal activities are taken into account.

Tax enters the calculus in much the same way. As Rogoff demonstrates, large denomination notes are important for tax evasion. Unlike most other forms of payment, they are largely untraceable (except, quite imperfectly, through serial numbers). The government should reduce the availability of large denomination notes because of the opportunities for tax evasion that they create.

India followed this logic in November 2016 by making all 500 and 1,000 rupee notes (86 percent of all cash then in circulation in the country) invalid as legal tender. To prevent criminals from planning around the

¹³¹ See Leo Van Hove, *Optimal Denominations for Coins and Bank Notes: In Defense of the Principle of Least Effort*, 33 J. MONEY, CREDIT & BANKING 1015, 1019 (2001); see also Y. Bouhdaoui, D. Bounie & L. Van Hove, *Central Banks and Their Banknote Series: The Efficiency-Cost Trade-off*, 28 ECON. MODELING 1482 (2011) (arguing that transactional-efficiency gains must be weighed against central-bank production costs); Yassine Bouhdaoui & Leo Van Hove, *On the Socially Optimal Density of Coin and Banknote Series: Do Production Costs Really Matter?*, 52 J. MACROECON. 252 (2017) (arguing that central banks could achieve substantial transactional-efficiency gains with small incremental production costs by increasing the number of denominations).

¹³² See ROGOFF, *supra* note 130, at 31–32.

demonetization, the announcement was a surprise and took effect at midnight the next day. In his address to the nation, Prime Minister Narendra Modi said that the ban would reduce the use of fake notes, thus cutting off a funding source for terrorists who derive income from counterfeiting. Modi also said that the ban would aid in the fight against corruption and “black money” (i.e., untaxed black market activity).¹³³ This was the third time that India had demonetized large denomination notes. On the first two occasions—in 1946 and in 1978—the goal of reducing tax evasion figured more prominently in the official justification for the government’s actions.¹³⁴

The Modi government has said that the move led to a sharp uptick in income tax filings,¹³⁵ but independent analyses have questioned that claim.¹³⁶ Disentangling the effects of demonetization from secular trends in tax collections is difficult without a control group. Our objective here is not to defend demonetization but to illustrate the ways in which changes to non-tax legal rules fit into our framework.

Rogoff argues that the United States should make a similar move.¹³⁷ He would begin by eliminating all notes from the \$50 bill on up, and if that proves successful, would proceed to phase out smaller-denomination bills as well.

¹³³ See Vidhi Doshi, *India Withdraws 500 and 1,000 Rupee Notes in Effort to Fight Corruption*, *GUARDIAN* (Nov. 8, 2016), <https://www.theguardian.com/world/2016/nov/08/india-withdraws-500-1000-rupee-notes-fight-corruption>.

¹³⁴ See Amartya Lahiri, *The Great Indian Demonetization*, 34 *J. ECON. PERSP.* 55 (2020).

¹³⁵ See S Murlidharan, *Tax Returns Filing Sees Quantum Jump: How Modi Govt's Demonetisation Exercise Has Started Bearing Fruit*, *FIRSTPOST* (Aug. 8, 2017), <https://www.firstpost.com/business/tax-returns-filing-sees-quantum-jump-how-modi-govts-demonetisation-exercise-has-started-bearing-fruits-3906571.html>.

¹³⁶ See, e.g., Lahiri, *supra* note 132, at 57; Dhammika Dharmapala & Vikramaditya S. Khanna, *Stock Market Reactions to India's 2016 Demonetization*, 16 *J. EMPIRICAL LEGAL STUD.* 281 (2019).

¹³⁷ As Rogoff notes, then-Harvard Law School student James Henry issued a prescient call for the elimination of \$50 and \$100 bills nearly forty-five years ago. See James Henry, *Calling in the Big Bills*, *WASH. MONTHLY*, May 1976, at 26; ROGOFF, *supra* note 130, at 222–223 (citing Henry).

Rogoff argues that this intervention would reduce tax evasion as well as other black-market criminal activity.¹³⁸ At the same time, it would almost certainly increase transaction costs for some cash-reliant individuals and firms—for a period, if not in the long term.

The Legal Envelope Theorem provides us with a framework for weighing the tax-revenue gains from demonetization against the transactional-efficiency losses. Consider an individual who is roughly indifferent between the informal and formal sectors: the additional cost of operating in the informal sector (e.g., weaker protection of property rights) is approximately equal to the additional regulations she would have to comply with and if she operated in the formal sector. Now imagine that a small change in the denomination structure—e.g., the elimination of \$100 bills—increases her costs in the informal sector by enough that she switches some of her activities over to the formal sector, paying more taxes. She is not materially better off or worse off than before, but the extra taxes she pays are an increase in the total resources available to society.

The Legal Envelope Theorem instructs us to weigh these benefits against other costs (and benefits) of the rule change. If the change affects the government's administrative costs and these costs were not already accounted for in the simple efficiency calculus, the decrease (or increase) in administrative costs would enter the calculus as an additional benefit (or cost) of the change.¹³⁹ Note, though, that for a small change from a denomination structure that satisfied simple efficiency, the change in costs to banknote users does not have a first-order effect on the total resources calculus. The reason for this is that a simple efficient denomination structure balances the marginal benefit of fewer denominations (e.g., increased surveyability) against the

¹³⁸ *Id.* at 92–118.

¹³⁹ No longer having to print a certain denomination banknote may reduce costs for the government mint. On the other hand, having to print a larger number of low-denomination banknotes may increase mint costs. And enforcing the demonetization rule might increase costs for other agencies.

marginal cost (e.g., a larger number of banknotes required to complete a transaction).¹⁴⁰

The analytical framework is fundamentally the same regardless of the details of the tax system, though—of course—the parameter values will depend entirely on country-specific factors. The demonetization of high-denomination banknotes may be more desirable in developing countries like India where the potential revenue gain is proportionally greater, or it may be more desirable in developed countries like the United States where the transactional-efficiency loss from shifting toward noncash forms of payment is likely to be low for most market actors. Our argument is not that the demonetization of 500 and 1,000 rupee notes was wise, nor that \$50 and \$100 bills should be removed from circulation (though we are certainly amenable to that idea). Our more modest—but also much broader—claim is that all of these questions can be assessed using the BETR and the Legal Envelope Theorem to estimate the effect on society's total resources.

2. Reducing the Cost of Financial Services

The cash example above involved a legal rule change that raises the cost of transacting in the informal sector. Another way to reduce the size of the informal sector is to make transactions in the formal sector less expensive (and thus more attractive). One strategy for accomplishing this latter objective—which we explore in detail here—is to change certain rules related to the financial sector.

The formal sector and the financial sector are not synonyms, but they are closely related. In many countries, banks share customer-related information

¹⁴⁰ If the starting-point denomination structure failed to take into account the non-tax negative externalities of cash transactions (e.g., the devastating costs of human trafficking), the effect on those externalities also would enter the total-resources calculus.

with tax authorities.¹⁴¹ Firms that evade taxes thus must forgo the opportunity to use banks. Apart from information sharing between banks and tax authorities, banks may be reluctant to lend to firms that operate in the informal sector and evade taxes, both because these firms tend to have less reliable financial information and because these firms are at significant risk of default in the event that their evasion is detected.¹⁴² Reducing the cost of financial services therefore serves to increase the opportunity cost of tax evasion for firms.

To analyze the relationship between tax evasion and the cost of financial services, Roger Gordon and Wei Li propose a model of taxation in which only firms using the formal financial sector can be taxed (and only firms that pay taxes can use the formal financial sector). In developed economies, the value added by the financial sector is sufficiently high that most firms choose to operate in the formal, taxed sector. By contrast, Gordon and Li hypothesize that in developing economies, the value added by the financial sector is low enough to generate a large informal sector. Gordon and Li use this model to explain a number of otherwise puzzling policies consistently used by developing countries, such as inflation, tariffs, a narrow tax base, and government ownership of capital intensive industries.¹⁴³ For example, inflation operates as a tax on cash holdings, which causes firms to shift from using cash to using the formal financial sector (where interest rates compensate for inflation).

¹⁴¹ Roger Gordon & Wei Li, *Tax Structures in Developing Countries: Many Puzzles and a Possible Explanation*, 93 J. PUB. ECON. 855, 856 (2009).

¹⁴² Thorsten Beck, Chen Lin & Yue Ma, *Why Do Firms Evade Taxes? The Role of Information Sharing and Financial Sector Outreach*, 69 J. FIN. 763, 765 (2014). Based on survey evidence regarding tax evasion across countries, Beck et al. find that smaller firms are less likely to evade taxes in countries where bank branch penetration is higher.

¹⁴³ Traditional explanations for these policies are that governments of developing countries simply did not understand which policies were desirable or that they were captured by sectoral interest. Gordon and Li argue that because these policies are pervasive and long-standing, they are unlikely to be because of lack of information. Capture does not explain many of the existing tax structures.

Our particular interest is in the application of Gordon and Li's model to non-tax legal rules. Gordon and Li suggest, in passing, that if the government can raise the return that firms receive from making use of the financial sector, it should do so, because that will cause some firms on the margin between the informal and formal economy to shift into the formal economy and pay additional taxes.¹⁴⁴ Gordon and Li do not explain how the government might do this, but the Legal Envelope Theorem offers potential insights.

Consider, for example, rules related to bank reserve requirements. While capital requirements, discussed above, address the risk of insolvency (i.e., the risk that the bank won't have sufficient assets to meet its liabilities), reserve requirements address the risk of illiquidity (i.e., the risk that the bank won't have sufficient cash on hand to satisfy its immediate obligations). Reserve requirements specify the amount of cash that the bank must hold as a percentage of deposit liabilities. A 10 percent reserve requirement would mean that a bank with \$100 of deposits would need to have at least \$10 of cash in its vault or in its account with the central bank.

Reserve requirements are typically understood to raise the cost of bank deposits. Higher reserve ratios mean that banks must keep more of their deposited cash in their vault, and thus cannot earn income from lending that cash out.¹⁴⁵ The benefit of higher reserve requirements is that they reduce the risk of bank failure. Some of this benefit is internalized by the bank and its customers, but some of the benefit accrues to the rest of society. The failure of one bank to meet immediate obligations may cause a run on other banks. A series of bank failures can in turn produce contagion effects that impose costs on other sectors of the economy. Bank failures also may impose costs on taxpayers if the government steps in to bail out failed banks and cannot recoup bailout money as part of the resolution process.

¹⁴⁴ Gordon and Li, *supra* note 141,, at 864.

¹⁴⁵ See Charles W. Calomiris, Florian Heider & Marie Hoerova, *A Theory of Bank Liquidity Requirements* 16 (Columbia Univ./Eur. Cent. Bank, Working Paper, Jan. 2015).

Absent tax considerations, the simple-efficient bank reserve requirement would strike a balance between the above-mentioned benefits and costs. Wherever this balance is struck, the discussion here suggests a reason to reduce the reserve requirement somewhat. This deviation from simple efficiency operates as a subsidy from other sectors (which stand to bear some of the costs from bank runs) to the financial sector.¹⁴⁶ Importantly for our purposes, it has the collateral consequence of reducing the cost of financial services, thus making the formal sector more attractive to firms on the margin.¹⁴⁷

To be sure, reserve requirements are not the only way that the government can reduce the cost of financial services and thus make the formal sector more attractive.¹⁴⁸ For example, an alternative policy—which is currently being pursued in a number of developing countries, including India—is to subsidize electronic payment systems. The Indian government has developed the Unified Payment Interface or UPI.¹⁴⁹ The UPI provides a simple and secure electronic payments system that is as cheap and easy as cash. According to some reports, the UPI has been more effective than demonetization at reducing the size of the informal sector, and it has much greater long-term potential.

¹⁴⁶ The Legal Envelope Theorem case for adjusting reserve requirements downward becomes even stronger if some of the social cost of bank failure is borne indirectly by the informal sector.

¹⁴⁷ Our analysis of bank reserve requirements does not necessarily apply to bank capital requirements. Reducing bank capital requirements also may reduce the cost of financial services, thus causing firms to shift from the informal sector to the formal sector. However, reducing bank capital requirements also likely means that banks will shift away from equity toward debt, which will reduce tax revenue insofar as debt is tax advantaged.

¹⁴⁸ Gordon and Li note that if foreign banks do not share information with home-country tax authorities, the government may choose to impose otherwise-inefficient restrictions on foreign banks so as to increase tax capacity. See Gordon and Li, *supra* note 141, at 857, 864.

¹⁴⁹ See CASHLESS INDIA, GOV'T OF INDIA, UNIFIED PAYMENTS INTERFACE (UPI), <http://164.100.161.163/upi.html> (last visited July 30, 2020); Sasi Desai, Nipun Jasuja & Piyush Khandekar, *Your Guide to UPI — the World's Most Advanced Payments System*, MEDIUM: WHARTON FINTECH (May 11, 2017), <https://medium.com/wharton-fintech/your-guide-to-upi-the-worlds-most-advanced-payments-system-b4e0b372bf0b>.

In sum, legal rules can affect the choice of firms to be informal (tax-noncompliant) or formal (tax-compliant) both by raising the cost of informality and reducing the cost (or, equivalently, increasing the benefit) of formality. Although these effects are likely to be largest in countries with sizeable informal sectors, they have implications for legal analysts everywhere.

D. Property

We end where we started, with property. Rather than review our initial motivating example of changes to property rules in early-modern Europe, we illustrate how property rules can affect taxation with another historical example, the enactment of the Statute of Frauds in England in 1677. We then turn to modern-day applications.

1. The Statute of Frauds

The Statute of Frauds is incorporated into the law of every U.S. state other than Louisiana. It typically requires that any conveyance of a property right in land, aside from a short-term lease, must be put in writing and signed by at least one of the parties.¹⁵⁰ The Statute of Frauds also generally applies to contracts that cannot be performed within one year¹⁵¹ and, under the Uniform Commercial Code, to contracts for the sale of commercial goods at a price of \$500 or more.¹⁵² It is taught across law schools both in property courses and contract courses. We focus here on its property-law manifestation.

Over the years, scholars have imputed various purposes to the Statute of Frauds: “to prevent people from fraudulently convincing courts that nonexistent contracts exist,”¹⁵³ “to caution the promisor that he is entering into

¹⁵⁰ THOMAS W. MERRILL & HENRY E. SMITH, *PROPERTY: PRINCIPLES AND POLICIES* 860 (3d ed. 2017).

¹⁵¹ See Braunstein, *supra* note 29, at 394-95 nn.44-45.

¹⁵² UCC § 2-201 (Unif. Law Comm’n 2012).

¹⁵³ Eric A. Posner, *Norms, Formalities, and the Statute of Frauds: A Comment*, 144 U. PA. L. REV. 1971, 1980 (1996).

a binding relationship,”¹⁵⁴ and “to increase the security of property rights,”¹⁵⁵ among others. The legal scholar Philip Hamburger, however, has argued that the original enactment of the Statute of Frauds was intimately connected to a debate in seventeenth-century England over the legibility of property holdings and the collection of tax.¹⁵⁶

Hamburger notes that fraudulent land transfers had become a serious problem by the mid-sixteenth century in England. The medieval system of preventing fraudulent conveyances relied on “a combination of community ceremonies, rules of inheritance, and court rolls, which together often made known who had title to land.”¹⁵⁷ In some instances, the parties to a transfer would conduct “a ritual known as livery of seisin,” in which “a twig or cloth of earth would be transferred in the presence of local inhabitants.”¹⁵⁸ Otherwise, transfers were largely governed by the laws of primogeniture, whereby property would pass upon the holder’s death according to mandatory rules of inheritance that privileged the property holder’s eldest son.¹⁵⁹ Some transfers, but far from all, were recorded on local court rolls.¹⁶⁰

Over time, these safeguards against fraudulent transfers “gradually eroded,” according to Hamburger, most importantly because of the advent of a new form of property called the “use.”¹⁶¹ A use—or what we would now call “equitable ownership”—allowed one party to benefit from land legally held by another. As parties transferred equitable ownership informally without relying on the livery of seisin or the laws of primogeniture, it became difficult

¹⁵⁴ Joseph M. Perillo, *The Statute of Frauds in the Light of the Functions and Dysfunctions of Form*, 43 *FORDHAM L. REV.* 39, 53 (1974).

¹⁵⁵ Merrill & Smith, *supra* note 150, at 860.

¹⁵⁶ Philip Hamburger, *The Conveyancing Purposes of the Statute of Frauds*, 27 *AM. J. LEG. HIST.* 354 (1983).

¹⁵⁷ *Id.* at 355.

¹⁵⁸ *Id.*

¹⁵⁹ *See id.*; A. W. B. SIMPSON, *AN INTRODUCTION TO THE HISTORY OF LAND* 53-60 (1961).

¹⁶⁰ *See* Hamburger, *supra* note 156, at 355.

¹⁶¹ *Id.* 356.

to know who owned a particular parcel of land. This uncertainty generated fresh opportunities for fraud.¹⁶²

The most prominent proposal to reduce fraudulent conveyances was mandatory registration of all land transfers.¹⁶³ But a registry would do more than just fight fraud: it also would provide the Crown with information that it could use to assess and collect land taxes.¹⁶⁴ In the terminology we introduced at the outset, it would enhance legibility. As Hamburger illustrates, seventeenth-century commentators understood this point well at the time.¹⁶⁵

For the same reasons the Crown supported a land registry, landowners opposed it. A registry would reduce their independence from the Crown and “would facilitate collection of the hated land tax, not to mention other forms of confiscation.”¹⁶⁶ In addition, landowners feared having to justify their claims to ownership on initial registration. Lawyers also opposed a registry because it would have eliminated the rents they enjoyed from the legal work required to limit fraud. Given the opposition by landowners and lawyers, the Crown’s proposal for a registry could not pass Parliament.¹⁶⁷

The English judge Matthew Hale’s idea of the Statute of Frauds was able to satisfy both the Crown and landowners (and lawyers!). The core of the proposal was a requirement that almost all conveyances of land be in writing along with voluntary enrollment of transactions concerning land.¹⁶⁸ Voluntary

¹⁶² *See id.*

¹⁶³ *See id.* at 358-59.

¹⁶⁴ *See id.* at 361.

¹⁶⁵ *See id.* at 361-362 & nn.32-35.

¹⁶⁶ *Id.* at 361.

¹⁶⁷ *See id.* at 361-65.

¹⁶⁸ One might wonder why simply requiring a written document would resolve the problem of fraudulent conveyances, given the ease of forgery. One important factor may have been the limits of literacy: a significant portion of the English population still could not read or write at the time, and thus would have had trouble conjuring up false documents. On literacy in England over the last five centuries, see Max Roser & Esteban Ortiz-Ospina, *Literacy*, OUR WORLD IN DATA (2013), <https://ourworldindata.org/literacy>.

registration rather than mandatory registration effectively threaded the needle between the various interests in land conveyances.¹⁶⁹ What the Statute of Frauds did not do is centralize all information about land ownership in the hands of the Crown such that the Crown could use that data to collect land taxes.

To be sure, the Statute of Frauds does appear to have raised revenue—albeit indirectly. By deterring fraud, as Hamburger notes, Hale’s system increased the value of land, and thus expanded the base for the rickety land-tax regime.¹⁷⁰ To use our terminology, it was likely a move in the direction of simple efficiency, at least relative to the status quo. Increases in simple efficiency often will raise revenue insofar as they generate more wealth, meaning that there is more that can be taxed.

The logic of the Legal Envelope Theorem would have favored the land registry approach over the Statute of Frauds approach, because a land registry—in addition to increasing simple efficiency relative to the status quo, also would have enhanced legibility. What is especially striking about the Statute of Frauds case is that key actors understood this logic nearly three-and-a-half centuries ago, though they defied it because—at the time—they favored a weaker state. Although the participants in the seventeenth century debate would not have had the language of modern economics with which to describe their insight, they—like the state-builders in Scott’s story—intuitively understood the importance of tax-collection considerations in the design of non-tax legal rules.

2. Modern-Day Analogues

Scott’s and Hamburger’s historical examples have parallels in modern legal systems. Just as communal landholding structures in rural Russia and Elizabethan England flummoxed tax collectors, complex allocations of ownership everywhere from the “pueblos jóvenes” of Peru to the private banks

¹⁶⁹ See Hamburger, *supra* note 156, at 364-79.

¹⁷⁰ See *id.* at 382.

of Switzerland stymie contemporary tax authorities. The debate in seventeenth-century England over land registration and the Statute of Frauds finds analogues across the world today.

The Peru example is perhaps the clearest correlate to the controversy in seventeenth-century England that culminated in the Statute of Frauds, though the distributional dynamics differ importantly. There, it is in the pueblos jóvenes (literally, “young towns,” or what outsiders might call “shanty towns”) where landholdings are often opaque to outsiders. The Peruvian economist Hernando de Soto has argued that the prevalence of informal property rights in these areas—such as the holding of land by squatters—makes it difficult for residents to obtain credit and to seek legal remedies for business conflicts.¹⁷¹ Formal property rights would allow owners to borrow against their property, to buy and sell the property, to assure protection against third parties, and to otherwise obtain access to the legal system.

De Soto has led programs to give formal legal title to property holders—first in Peru, and subsequently across the developing and post-communist world.¹⁷² While De Soto emphasizes the potential for land titling to improve economic outcomes for low-income individuals, he also has noted the important tax-collection consequences. He reports that when he and his team set up voluntary land registries in Peru, the 267,000 formerly extralegal businesses that registered their holdings paid an additional \$1.2 billion in

¹⁷¹ HERNANDO DE SOTO, *THE MYSTERY OF CAPITAL: WHY CAPITALISM TRIUMPHS IN THE WEST AND FAILS EVERYWHERE ELSE* (2000).

¹⁷² See *Hernando de Soto*, INST. FOR LIBERTY & DEMOCRACY, <https://www.ild.org.pe/about-us/ild-president> (last visited Aug. 10, 2020). Soto estimated that as of 1997, there was \$9.3 trillion in real estate held but not legally owned by low-income people across the developing world and former communist countries—what De Soto describes as “dead capital” that cannot be fully utilized. DE SOTO, *supra* note 171, at 135.

taxes four years later. Studies of land titling in Thailand and India find dramatic effects on tax revenue as well.¹⁷³

Efforts to encourage land titling in the developing world focus on the lower end of the income distribution. In many advanced economies, the emphasis is on increasing the legibility of the holdings of the rich. Today's governments cannot readily observe who owns property that is hidden using shell corporations, trusts, bearer securities, and other mechanisms of the global tax evasion industry.¹⁷⁴ One oft-cited study suggests that before recent changes in the law, about 8 percent of household financial wealth was held in tax havens, and much of the resulting income evades taxation.¹⁷⁵

A full analysis of the non-tax legal tools available to address the problem of high-end tax evasion lies beyond our scope. But notably, one mechanism that some jurisdictions have settled upon is the same solution that the Crown sought in seventeenth-century England: a central property registry.

¹⁷³ See Klaus Deininger & Gershon Feder, *Land Registration, Governance, and Development: Evidence and Implications for Policy*, 24 WORLD BANK RES. OBSERVER 233, 248, 259 n.15 (2009).

¹⁷⁴ Much of what we know about modern tax evasion comes through two major leaks: one from HSBC Private Bank Switzerland, the Swiss subsidiary of the London-headquartered financial institution, and one from the Panamanian law firm Mossack Fonseca. For a detailed description of the latter leak, see BASTIAN OBERMAYER & FREDERIK OBERMAIER, *THE PANAMA PAPERS: BREAKING THE STORY OF HOW THE RICH AND POWERFUL HIDE THEIR MONEY* (2016). Academic work using data from the HSBC and Mossack Fonseca leaks includes Annette Alstadsæter, Niels Johannesen & Gabriel Zucman, *Tax Evasion and Inequality*, 109 AM. ECON. REV. 2073 (2019), and James O'Donovan, Hannes F. Wagner & Stefan Zeume, *The Value of Offshore Secrets: Evidence from the Panama Papers*, 32 REV. FIN. STUD. 4117 (2019).

¹⁷⁵ Gabriel Zucman, *The Missing Wealth of Nations: Are Europe and the U.S. Net Debtors or Net Creditors?*, 128 Q. J. ECON. 1321 (2013). Other estimates are substantially higher. See, e.g., JAMES S. HENRY, TAX JUSTICE NETWORK, *THE PRICE OF OFFSHORE REVISITED: NEW ESTIMATES FOR "MISSING" GLOBAL PRIVATE WEALTH, INCOME, INEQUALITY, AND LOST TAXES* (2012). For those keeping track, this is the same James Henry who—has a Harvard law student—presciently proposed the abolition of \$50 and \$100 bills. See Henry, *supra* note 137.

The Canadian province of British Columbia provides a case in point. In 2016, an investigation by the nongovernmental organization Transparency International Canada revealed widespread tax evasion as well as money laundering in the Vancouver real estate market. The tools used to evade tax there are strikingly similar to those of seventeenth-century England. Wealthy individuals—often non-Canadians—buy real estate through shell companies, trusts, or nominees.¹⁷⁶ These arrangements can be used to avoid real estate transfer taxes, for example, by selling shares of a shell company or interests in a trust rather than transferring the property itself.¹⁷⁷ They also can be used to avoid capital gains tax on home sales. Canadian tax law allows an exemption for income from the sale of a principal residence,¹⁷⁸ so wealthy individuals selling investment properties sometimes appoint nominees who claim that they use the investment property as their home.¹⁷⁹

Spurred by high-profile revelations of money laundering and tax evasion in Vancouver, the British Columbia government moved in 2019 to establish a registry of beneficial ownership in land, with penalties of up to \$100,000 or 15 percent of the assessed property value (whichever is greater) in the event of

¹⁷⁶ TRANSPARENCY INT’L CANADA, *NO REASON TO HIDE: UNMASKING THE ANONYMOUS OWNERS OF CANADIAN COMPANIES AND TRUSTS* 32 (2016). Nominees are individuals appointed to hold property on behalf of a principal. *See id.* at 19. Nominee arrangements, also called “bare trusts,” share some similarities with typical trusts, but the nominee’s authority is significantly narrower than the authority of a typical trustee. *See* Douglas S. Ewens, Rosemarie Wertschek & James R. Wilson, *Income Tax Implications of Utilizing Bare Trusts*, 37 *CAN. TAX J.* 499, 499-50 (1989). Transparency International Canada revealed that 26 percent of high-priced properties sold in Vancouver over the previous five years had been nominally owned by students or homemakers with no apparent income stream. *See* TRANSPARENCY INT’L CANADA, *supra*, at 31.

¹⁷⁷ *See* TRANSPARENCY INT’L CANADA, *supra* note 176, at 29-30.

¹⁷⁸ *See* *Disposing of Your Principal Residence*, GOV’T OF CAN., <https://www.canada.ca/en/revenue-agency/services/tax/individuals/topics/about-your-tax-return/tax-return/completing-a-tax-return/personal-income/line-127-capital-gains/principal-residence-other-real-estate/sale-your-principal-residence.html> (last visited Aug. 10, 2020).

¹⁷⁹ *See* TRANSPARENCY INT’L CANADA, *supra* note 176, at 29.

noncompliance.¹⁸⁰ It remains to be seen whether requiring registration will prove to be enough to stop high-end evasion, though some local experts express optimism.¹⁸¹ The key point for our purposes is that British Columbia is very explicitly engineering its real property law in order to advance a tax objective. The relationship between tax and non-tax legal rules, so often shadows, is there in the limelight.

III. CONCLUSION

The fact that non-tax legal rules can facilitate or frustrate the collection of revenue is not—to be clear—an insight new to the proponents of the British Columbia beneficial-ownership registry. Nor is it new to this article. Participants in property-law debates three-and-a-half centuries ago grasped the connection between non-tax legal rules and taxation. Indeed, one reason why the subject deserves our attention is precisely because our non-tax laws reflect tax-collection imperatives. To understand how non-tax laws shape society, one also must understand how those laws grease the wheels of tax collection (or, in some cases, throw sand into their gears).

In an era of wide wealth inequality, the connection between non-tax legal rules and tax-collection capacity plays an even larger role. The advanced economies that have been most successful at closing the wealth gap are also the ones whose non-tax legal rules best reflect the Legal Envelope Theorem's lessons.¹⁸² Their experiences serve to underscore that *how much* we can

¹⁸⁰ See BRIT. COLUM. MINISTRY OF FIN., LAND OWNER TRANSPARENCY ACT WHITE PAPER: DRAFT LEGISLATION WITH ANNOTATIONS (June 2018), <https://www2.gov.bc.ca/assets/gov/housing-and-tenancy/buying-and-selling/land-owner-transparency-act-consultation/lota-white-paper-june-2018.pdf>; *What Is the Beneficial Ownership Registry and How Will It Work?*, REAL ESTATE BD. OF GREATER VANCOUVER (May 22, 2019), <https://www.rebgv.org/news-archive/what-is-the-beneficial-ownership-registry-and-how-will-it-work.html>.

¹⁸¹ See Kerry Gold, *Armed with New Data, B.C. Set for Crackdown on Tax Evasion in Vancouver Property Market*, GLOBE & MAIL (Dec. 11, 2019), <https://www.theglobeandmail.com/real-estate/vancouver/article-armed-with-new-data-bc-set-for-crackdown-on-tax-evasion-in>.

¹⁸² See *supra* note 50.

redistribute depends in substantial part on *how efficiently* we can do so. The promise of the Legal Envelope Theorem is that it allows economic analysis of non-tax legal rules to integrate tax-collection considerations into an efficiency framework. Some of these tax-collection considerations already are integrated into non-tax law. But we believe—especially now—that there is room for much more.