

Information Reporting and State Capacity

Wei Cui*

(Preliminary Draft, March 18, 2016;

Comments are welcome but please do not circulate without Author's permission)

Abstract: A prominent strand of recent economic research hypothesizes that information reporting is essential to the capacity of modern states to collect tax revenue. Two claims in particular are increasingly regarded as indisputable and serve as “stylized facts” fueling further theoretical and empirical research. The first is that information reporting is responsible for the high level of tax compliance with the personal income tax in many developed countries. The second claim is that the VAT is self-enforcing. This paper argues that both claims involve fundamental mis-characterizations and, appearances to the contrary, command little empirical support. More generally, I suggest that the use of information reporting has universal and fundamental limitations, whether in the income tax and VAT contexts, and whether in developing and developed countries. The use of information reporting and withholding does not mark major differences in the tax capacity of developed and developing countries. Ultimately, portraying the task of building state fiscal capacity as about reducing the information asymmetry between taxpayers and the government may merely extend the traditional deterrence model of tax compliance from the developed to the developing country context. Given the limitations of that traditional model, such an extension may be unwarranted.

Introduction.....	2
I. Does Information Reporting Explain Income Tax Compliance?	5
A. Information reporting, final withholding, and excises	6
B. Agency relationships, financial claims, and non-anonymity of transacting parties.....	9
II. Recent Empirical Research on Information Reporting on Business Income	12
A. U.S. taxpayer response to new credit card and settlement entity reporting	12
B. Information reporting on business firms in Ecuador.....	15
C. Do developing countries use information reporting and withholding less?.....	19
III. Information Reporting under the VAT	20
A. Information and incentives under VAT remittance mechanisms.....	21
1. Information	22
2. Incentives.....	23

* Allard School of Law, University of British Columbia. Email: cui@allard.ubc.ca. I am grateful for comments on this draft from Ben Alarie, Richard Bird, Mitchell Kane, Emily Satterthwaite, Michael Smart, and the audience at the James Hausman Tax Law & Policy Workshop at the University of Toronto Law School. All errors remain my own.

B.	Mis-interpretations in recent empirical work on VAT compliance	24
1.	Empirical differences inter-firm sales and sales to final consumers	24
2.	Spillover effects?	26
C.	The controversy surrounding cross-checking VAT invoices	28
IV.	Fundamental Choices in Theorizing about Tax and Development	29
A.	Old hypotheses in new disguise	29
B.	Taxation without Information	31
	Conclusion	32
	References	33

Introduction

A substantial body of recent research in political economy and developmental economics has coalesced around the idea that effective revenue collection is an essential component of modern “state capacity”, which in turn helps to explain the divergent paths of economic development of nations (Besley and Persson 2013, Dincecco 2015). As the titles of work by influential scholars indicate, the questions “Why can modern governments tax so much?” (Kleven et al 2015, Kleven 2014) and “Why do developing countries tax so little?” (Besley and Persson 2014) are now the focus of extensive theoretical and empirical inquiries. Within this literature, a prominent hypothesis is that the use of third-party information reporting is of first-order significance to tax administrative capacity. In the boldest formulation of this idea, Henrik Kleven, Claus Kreiner, and Emmanuel Saez claim that third-party information reporting is a defining feature of modern taxation. (Kleven et al 2015) Developed economies have succeeded in collecting tax by making effective use of this administrative tool, and developing countries should focus on designing more effective uses of it to build state capacity. To support such bold conjectures, a small but “rapidly growing” empirical literature has emerged that purports to offer novel evidence for the power—as well as the limitations—of third-party information reporting.¹

For at least two reasons, this new empirical literature has also attracted interest from scholars whose primary focus is on tax law and policy in developed economies such as the United States. First, policymakers in advanced economies are interested in narrowing the “tax gap”, and there has been a persistent debate about the extent to which additional information reporting can help this effort.² Second, as a theoretical matter, it has been suggested that the presence of third-party reporting may help reconcile the discrepancy between the generally high observed levels of tax compliance in advanced economies and the low level of such compliance predicted by the traditional deterrence model of tax compliance.³ Understanding the pervasive impact of information reporting, the intuition is, can reinforce our faith in the traditional theory

¹ The description of this empirical literature as “rapidly growing” is borrowed from Slemrod et al 2015. For a summary review, see Slemrod 2016 (section 3.3).

² See, e.g. Bankman 2007, and Alm and Soled 2014.

³ See Allingham and Sandmo 1973, Kopczuk and Slemrod 2006, Kleven et al 2011, Slemrod 2016.

of tax compliance, the relevance and credibility of which may otherwise seem to have been eroded due to its poor predictions.

This article offers a critical perspective on the recent literature on information reporting. Specifically, I focus on two claims that have come to be regarded as almost indisputable in the recent literature, and argue that they in fact involve important mis-characterizations of facts. The first claim is that information reporting is responsible for the high level of tax compliance with the personal income tax in many developed countries. The second claim is that the VAT is self-enforcing. Both claims, I argue, are conceptually unsound and, to date, command inadequate empirical support. This perspective is contrarian, as much recent scholarship assumes exactly the opposite, i.e. that important empirical advances have been made to demonstrate the efficaciousness of information reporting under the income tax and the self-enforcing property of the VAT. But precisely because the two claims have achieved the status of “stylized facts” fueling further theorizing and empirical work by economists, it is important to explore their potential conceptual weaknesses as well as weaknesses in purported empirical evidence for them.

It may be useful to state explicitly, at the outset, the motivations of my critique of the recent literature on information reporting and state capacity. My main intent is not to advocate for or against the adoption of greater information reporting in particular contexts.⁴ My chief aim is instead theoretical: I challenge the explanatory role that some scholars have assigned to information reporting (or tax collection mechanisms that they claim to constitute information reporting). For example, at least given the (admittedly inadequate) information we have, it is not clear that developing countries on average make use of third-party information reporting and withholding to lesser extents than developed countries. It is likely that these administrative devices work less well in many developing countries than in some developed countries: employers and other reporting/withholding agents may be less compliant; tax administrators may have sharply limited resources or skills to conduct audits; and so on. But as these examples imply, many things in tax administration work less well in developing countries. The question is whether focusing on information reporting identifies a crucial difference in institutional design or an independently significant causal factor.

I also believe it is important to explore the relationship between the thrust of the recent scholarship on taxation as an aspect of state capacity, on the one hand, and the traditional deterrence model of tax compliance, on the other. In the developed country context, both the explanatory power and the policy relevance of the Allingham and Sandmo model have arguably

⁴ Nonetheless, the literature on information reporting and state capacity and my critique of it do have policy implications. Third-party information reporting is a relatively established tax administration device. Tax practitioners and scholars arguably have long been aware of its advantages and limitations in the context of both income taxation and indirect taxes such as the sales tax and the VAT. Whether recently developed econometric techniques uncover previously unknown facts that can change our minds about existing policies—facts about either the mechanisms, or the magnitude, of impact on compliance of the device—is thus an obvious and important question. As discussed in Part III *infra*, a strand of the recent literature purports to demonstrate with superior empirical evidence that the VAT is “self-enforcing”, and suggests that developing countries should devote more resources to systematically cross-checking reports of sales and purchase among firms. These ideas actually run against the “received wisdom” about VAT as well as current expert advices offered by organizations like the International Monetary Fund (IMF). The policy implications of the new academic research thus should be carefully evaluated.

been limited. Insofar as explaining modern state capacity represents a new area of intellectual inquiry, and given that research on tax and development often are viewed as having direct policy implications in development aid,⁵ it is important to note how Allingham and Sandmo' model's implicit explanatory biases/preferences may be imported into the newly emerging "state capacity" literature.

The paper proceeds as follows. Part I critically examines the claim that information reporting is responsible for the high level of tax compliance in many developed countries. The effective use of information reporting in the income tax context is observed mainly for wage and financial income, which are relatively unique components of the income tax base, in that third parties possess both (i) near-complete information about them and (ii) control over their payment. I suggest that these are precisely conditions under which final withholding, or an excise tax on such tax base components, could achieve the same revenue collection objectives as information reporting. Thus attributing the high level of personal income tax compliance in the areas of wage and financial income to information reporting suffers from a problem of mis-identification. I also argue that the feasibility of information reporting depends on the types of transactions in which market participants are likely to retain mutual identities. This imposes a previously-unnoticed, hard constraint on the extent of (even ineffective) information reporting.⁶

Part II reviews some representative examples of recent empirical research on the effect of information reporting outside the wage and financial income contexts. Such research suggests that the implications of information reporting for both revenue and audit strategies implemented are quite mixed. It also demonstrates that there are crucial *similarities* in information reporting between developed and developing countries. It is thus unpromising to look for differences in state capacity along this dimension of tax administration.

Part III critiques the second "stylized fact" much referred to in recent economic research, namely that the VAT is "self-enforcing". I argue that, by its traditional design (i.e. not just as a matter of practical implementation), the VAT involves no information reporting and is not in any interesting sense self-enforcing. Since this is contrary to the explicit and implicit claims of a number of recent studies, I also explain how the purported evidence offered by recent studies for the claim that the VAT is self-enforcing are based on incorrect empirical identifications. Moreover, related recommendations for developing countries to engage more in VAT invoice cross-matching undermines the traditional conception of the administrative advantages of the VAT. These recommendations are thus more problematic than may be realized by those who make them.

Finally, Part IV argues that a number of hypotheses supposedly tested in recent research (e.g. whether information reporting is a "substitute" or a "complement" of audits) are poorly formulated. This may be due to a fundamental, undefended assumption made by the researchers. By postulating information reporting as the linchpin of modern taxation, the recent literature strongly implies that tax administration is a matter of providing the government with the maximal amount of information to allow for the easiest enforcement. Building fiscal capacity is a

⁵ See IMF 2015.

⁶ Overall, Part I aims to delineate the bounds of effective information reporting more sharply than previous discussions.

matter of reducing the “information asymmetry” between taxpayers and the state. This crude assumption is often asserted as self-evident truth, but it is in reality highly controversial. This is because the very concept of “voluntary compliance” must be understood as depicting taxpayers as not taking advantage of their information asymmetry viz-a-viz the government. To say that modern tax systems aim to minimize the information asymmetry between taxpayers and the state implicitly denies the fundamental significance of voluntary compliance. A brief Conclusion follows.

I. Does Information Reporting Explain Income Tax Compliance?

Despite recent bold claims made by political economists that third-party information reporting is the defining feature of modern tax systems, the use of information reporting is, in many obvious respects, quite limited in advanced economies. As a simple heuristic, most developed countries do not use information reporting under their VATs or corporate income taxes.⁷ Information reporting is chiefly limited to wages and financial income under the personal income tax, and leaves out most types of individual business income. Under the U.S. federal income tax,⁸ for example, information reporting is largely restricted to the personal income tax context and primarily to employment income (where non-final withholding also applies), financial income (e.g. dividend, interest, capital gains, pensions and annuities), social transfers (e.g. social security benefits and unemployment benefits), and income from partnerships and S corporations. Business receipts from individual consumers are not subject to information reporting.⁹ For business-to-business transactions, only non-corporate providers of services are generally subject to information reporting.¹⁰ Since 2011, credit card companies and payment settlement entities such as eBay have reported to the IRS payments to individuals and businesses.¹¹ Another recent important expansion of information reporting is the requirement for financial institutions to furnish information about the tax basis of securities to taxpayers and the government in order to determine gains or losses on the sale of securities.¹²

Whether the scope of information reporting should be expanded has been a matter of century-long debates.¹³ Besides political dynamics, there are institutional design issues that may have limited the adoption of information reporting. Among scholars, Leandra Lederman has usefully described six conditions which information reporting requirements should generally satisfy (Lederman 2010):

- a) The party furnishing the information report should be at arm’s-length from, and should be unlikely to benefit from collusion with, the taxpayer.

⁷ Surely it would make no sense to neglect the VAT and corporate income tax in discussing modern taxation.

⁸ In discussing practices of developed countries, I will use the United States as the primary example, given that tax compliance and administrative capacity are generally perceived to be high in the U.S. compared to other advanced economies.

⁹ This is true under U.S. state sales taxes as well.

¹⁰ Payors need to report payments that exceed \$600 in the aggregate each year. Internal Revenue Code (IRC) Section 6041A.

¹¹ IRC Section 6050W.

¹² IRC Section 6045(g).

¹³ See, e.g. Thorndike 2006.

- b) Only those who possess a bookkeeping infrastructure should be required to information report.
- c) Information reporting parties should be fewer in number than taxpayers reported on, allowing the government to centralize the sources of information.
- d) “Information reporting is most effective when it provides all of the information necessary for the government to match the third-party report with corresponding amounts on the taxpayer’s return; partial reporting reduces enforcement efficiency.”
- e) There should be few ways for the taxpayer to cheaply avoid information reporting.
- f) Transactions that do not contribute substantially to the tax gap in the absence of information reporting should not be prime targets for information reporting.

These *prima facie* plausible considerations could certainly help explain (together with political dynamics) the limited use of information reporting in the U.S.. But it may be possible to offer sharper hypotheses about the limits of information reporting. Among Lederman’s six factors, factor (d)—the completeness of information reporting—is perhaps the most crucial. While other scholars have also noted the need for information reporting to be complete to be effective,¹⁴ not much has been said about *when* information reporting is likely to be (in)complete. In the following, I offer arguments, which, if valid, imply that information reporting is a superficial phenomenon that is derivative upon more basic tax policy choices. Developed countries did not just happen to choose wage and financial income to be subject to information reporting. Instead, it is more accurate to say that information reporting just happens to work for these types of income. It follows that expanding information reporting beyond the wage and financial income spheres will often be fraught with difficulty. Moreover, until wages and financial income becomes a larger share of the national income in developing countries, information reporting would not be a particularly useful tool for improving tax administration.

A. Information reporting, final withholding, and excises

Because information reporting needs to rely on arm’s length parties,¹⁵ how useful information reporting is in the income tax context depends on how well market transactions serve to measure income. When the dollar amounts of market transactions do not directly reflect income, the discrepancy between amounts subject to information reporting and taxpayers’ taxable income will reduce the utility of information reporting. This fact has been well noted with respect to business income (whether earned by corporate or other entities or by individuals) among legal scholars and practitioners.¹⁶ Such income can be computed only after taking deductions into account; and the income of a business typically results from multiple transactions with different parties, even the aggregate of which may not correctly reflect income (given the difference between cash and accrual accounting, between ordinary and capital expenditures, and so on).

By contrast, there are some unique reasons why wage income and information reporting make a good fit. First, as a basic fact about modern employment relationships, most employers bear the expenses incurred by employees in carrying out their duties. This is reflected in the

¹⁴ See Bankman 2007, Slemrod et al 2015, Carrillo et al 2014.

¹⁵ This is Lederman’s factor (a) above.

¹⁶ It is apparently still being absorbed in economic research. See Almunia and Lopez-Rodriguez 2015.

income tax laws in most developed countries—generally, there are few employment expense deductions allowed against employment income. Unreimbursed employment expenses directly paid by the employee are relatively rare.¹⁷ Second, while there are many personal expenses that are larger for employees than for individuals who do not work (e.g. commuting, clothing, and childcare expenses), such expenses are generally treated as personal and non-deductible expenses under the modern income tax. Work-related personal expenses are instead taken into account in developed countries through deductions or exemption thresholds for standardized amounts,¹⁸ regardless of the actual amounts individual taxpayers spend. As a result, gross cash wage payments are generally fully taxable, and information reports of wage income fully correspond to taxable income.

While obvious, these facts are important. They suggest that to make information reporting on wage income effective, vital economic and fiscal conditions must hold. Employment relations requiring workers to provide only labor and not other factors of production need to be prevalent. Wages also must be sufficiently high to leave a large tax base even after standard deductions.¹⁹ If these conditions are not satisfied, either of two things would happen. If there are not many individuals formally employed, or if standard deductions largely erode the individual income tax base, the income tax base could be very small. Alternatively, deductions for earning wage income would have to be denied, which undermines the legitimacy of the income tax as based on the ability to pay.

Once the particular economic and fiscal conditions are satisfied for gross cash wage payment to closely approximate taxable income, however, information reporting is only one among several ways in which the government can collect tax on wages. The most familiar alternative is final withholding: employers could simply deduct tax from wage payments to employees, and employees would not have to file income tax returns themselves.²⁰ Under final withholding, any information transmitted to the government would simply help the latter audit whether employers have performed withholding correctly. There would no longer be a third-party aspect of reporting on employees (any more than employers now filing tax returns for their own shares of employment taxes engage in third-party reporting). Indeed, a final withholding tax is little different from an excise tax on wage payments imposed on employers. A contemporary example of a tax on wage income imposed on employers is the fringe benefits tax in Australia on employers for in-kind compensation for employees.²¹

Now, consider the question why a government would choose information reporting over final withholding with respect to any items of gross income of an individual. The answer is generally that there is some personal circumstance—credits and deductions, other income that

¹⁷ See Ault and Arnold 2010.

¹⁸ Examples are the standard deduction in the U.S., standardized deductions for commuting expenses in Germany and some other European countries, and so on. A recent survey of the broad empirical patterns for personal exemptions/thresholds for wage income under the personal income tax of many countries is given in Jensen 2015.

¹⁹ Another relevant factor is the general existence in developed countries of substantial programs of redistribution targeted towards low-income households, which permits standard deductions to remain low, even below the poverty line (as in the U.S. and in Canada).

²⁰ For a comparative review of the practice of final withholding on wage income, see U.S. Department of Treasury 2003.

²¹ Ault and Arnold 2010, at ___.

affects marginal tax rates, and so on—that the third parties (e.g. employers) providing information reporting do not have easy access to. Therefore final withholding is not feasible. Such private information would then have to come from the taxpayers themselves. The adoption of information reporting as opposed to withholding, in other words, is precisely *premised upon* the incompleteness of information possessed by third parties. It is thus fundamentally incorrect to see information reporting as *overcoming* information asymmetry in this context. If there is no information asymmetry, withholding would suffice. Information reporting becomes relevant only when the tax law permits private information to be relevant.²² Information asymmetries and information reporting are two sides of the same coin.

Much the same can be said about most types of financial income and social transfers that are subject to information reporting in developed economies. There is, for example, generally a close correspondence between gross payment and taxable income when interest and dividends are concerned. Because of this, final withholding and information reporting are often close substitutes. When final withholding applies, there is little need for information to be transmitted to tax authorities about taxpayers by third parties. The third parties are themselves the taxpayers, compliance from whom the government must then secure.²³

Both policy and academic interests in information reporting likely issue from the observation that where information reporting operates, the level of tax compliance is high. This observation may give rise to the impression of a causal connection between information reporting and high compliance levels. However, this impression is misleading. To use econometric jargon, the causal connection is *under-identified* in the income tax context. If there is a causal connection, it is more plausible to regard it as lying between the large tax base of wages and financial income in advanced economies, on the one hand, and the collection of revenue from such income, on the other. When a large wage and financial income tax base is absent, information reporting may have little use. Once the large wage and financial income tax base is present, however, income taxation can succeed, even if information reporting is not relied on but other collection mechanisms, such as final withholding (or even employer and financial institutions taxations), are deployed instead.²⁴

²² If a “third party” possesses both complete information regarding an item of income belonging to the tax base and control over that item of income—as do employers and payers of financial claims *viz-a-viz* employees and recipients of financial income—then that third party can itself be made into the taxpayer with respect to such element of the tax base. There would be no need to provide information about a different taxpayer. Obviously, the task of reducing information asymmetry between the government and individuals receiving employment, financial and other income would not even be relevant if only employers and financial institutions are subject to tax with respect to these taxable amounts. Such a task becomes relevant only because individuals are made into taxpayers.

²³ Of course, when there is discrepancy between gross payment and taxable income (as in the case of proceeds from dispositions of investments, or from annuities), information reporting must be structured to reconcile such discrepancies to be useful. The U.S. requirement for brokers to report on the tax basis of securities commencing in 2011 illustrates a change from incomplete to more complete reporting on capital gain and loss. See Lederman 2010.

²⁴ Note that the foregoing arguments draw a distinction between information reporting and withholding. In information reporting, a third party transmits information about a taxpayer to the government. In withholding, a third party transmits revenue that theoretically can be credited against the tax liability of a taxpayer to the government. Yet in doing so, the third party need not transmit information about the taxpayer to the government. *Ipsa facto*, the third party in the withholding scheme is not, by the act of withholding itself, reducing any information asymmetry between the government and the ultimate taxpayer. This distinction is crucial for interpreting the administrative properties of the VAT. See Part III *infra*.

Since information reporting is (by a wide margin) neither a necessary nor a sufficient condition for income tax compliance, it is hard to see it as grounding an indispensable (“causal”) explanation of such compliance. In fact explaining compliance in terms of information reporting faces a more obvious difficulty:²⁵ what explains compliance on the part of the “third parties” that perform information reporting and/or withholding? What prevent employers from regularly colluding with employees in under-reporting wages, and bargaining with employees for the benefit of the tax savings from such underreporting? Such collusion is known to occur not only in developing countries²⁶ but is also widespread in the informal sectors in developed countries, and even for non-cash compensation in formal sectors. What prevent it from being more widespread in developed countries? The audit rate for parties required to perform information reporting is not known to be higher than in other areas of tax administration,²⁷ and therefore the expected value of penalties for non-compliance should be low. Compliance with information reporting and withholding requirements thus itself poses a challenge to the traditional deterrence model of tax compliance. Before such challenge is dealt with, it is not clear how information reporting helps solve the puzzle created by the traditional theory of tax compliance.²⁸

B. Agency relationships, financial claims, and non-anonymity of transacting parties

There is another respect in which wage income and financial income (including income from ownership of partnerships and S corporations) are special relative to many other types of receipts. Employment is an agency relationship. Financial income typically arises from financial claims, though in modern financial markets financial claims tend to be intermediated by layers of agency relationships. It appears that market transactions involving (i) agency relationships and (ii) financial claims are distinctive in the following respect: they require mutual knowledge of the identities of the transacting parties.²⁹ It is the intrinsic nature of an agency relationship for the principal and agent to know who each other are. Similarly, financial claims by definition persist over time. Therefore the parties need the identities of their counterparties to locate them later on. Thus parties that have financial claims against one another generally do not remain anonymous. Where they do, they are connected through a chain of non-anonymous agency relationships. By contrast, the sale and purchase of goods and services generally transpire in such a way that

²⁵ The problem stated in the ensuing text applies to wage and financial income and would apply even if final withholding, excise taxation, or any other alternative to information reporting is adopted.

²⁶ For a recent study, see Kumler et al 2013.

²⁷ While there are far fewer employers than employees in the economy, the number of employers is still too great for there to be a high realistic risk of being audited.

²⁸ Although Kleven et al 2015 argue that the risk of whistleblowers in sufficiently large firms explains compliance with information reporting requirements, that argument is belied by the sheer discrepancy between the complete transformation (which they document) of modern public finance by the introduction of the income tax on wages, on the one hand, and the very marginal significance of tax whistleblowers in the history of tax administration, on the other.

²⁹ Social transfers such as low-income support or supplement income for the unemployed, which are often subject to information reporting and/or withholding, are also inherently non-anonymous. Some agency relationships and financial claims may nonetheless involve anonymity (e.g. the use of bearer instruments). So one may think of the presence of agency relationships and financial claims as generally necessary but not sufficient conditions for the keeping of mutual identities.

parties need not know the identities of their counterparties, or any case do not retain information about such identities. Transactions in goods and services require the keeping of identities only insofar as they create claims over time (e.g. warranty for defective products) or the relationship of agency.

Although the distinctiveness of agency relationships and financial transactions in maintaining party identities has seldom been noted, it does remarkably well in predicting the boundaries of information reporting. In the U.S., for example, most types of information reporting are done by parties in agency relationships or subject to financial claims. Reporting by employers and brokers are examples of the former; reporting by payors of interest, dividends, social security payments, and by partnerships and S-corporations are examples of the latter. Recently introduced reporting by payment settlement entities such as Visa and third party settlement entities such as eBay can be viewed as based on both agency and financial relationships. The major deviation from reporting by principals, agents, and parties subject to financial claims is reporting by businesses of payments to service providers of annual amounts in excess of \$600 (i.e. the issuance of 1099-MISC forms). But even here, it is tempting to rationalize the limitation of information reporting to recipients of services (as opposed to goods) precisely by the fact that most such services involve agency relationships.

What is the connection between agency and financial transactions, on the one hand, and information reporting, on the other? It is perhaps that in such transactions, market participants routinely record payments made to identified parties. All the government has to do in imposing reporting requirements is to harness such information. By contrast, in other transactions where parties do not normally keep track of mutual identities, obtaining information about such identities and associating transactions with them introduce costs not originally present in market activities. It is this kind of cost that policymakers may not find sufficiently justifiable to impose (especially when the information gathered would offer only an incomplete picture of the tax base).

A good illustration of this point is an information reporting device that has received frequent favorable comments from academics in recent years but that are perceived to deliver only very mixed results in the real world: inducing consumers to report on merchants through the use of lotteries.³⁰ Generally, if the foregoing observations are correct, we do not expect merchants to keep information about consumers.³¹ Suppose, however, that a lottery is established, so that consumers who report enough of their receipts from purchases may win a prize: such a system was implemented in Sao Paolo, Brazil, and was studied in Naritomi 2014. To facilitate the lottery, merchants may begin to collect social security numbers from consumers, and such information is later on used for processing lottery claims. It is clear here that it is the lottery—a

³⁰ For favorable academic comments on consumer lotteries in information reporting, see, e.g. Bankman 2007 (at 510-11), Lederman 2010 (at 1753), Slemrod 2016, and Naritomi 2014. For critical discussion of real-world experience, see e.g. IMF 2015 (at 29-30), Frooken et al 2014.

³¹ Consumers *may* keep information about merchants (for purposes of returns, warranties, etc), but *requiring* information reporting by consumers on merchants still imposes a large social cost. It also violates the conditions of centralization and book-keeping infrastructure that Lederman identified.

type of financial transaction³²—that creates the need of collecting information of consumers by merchants. By contrast, if we ask the question: How often do merchants (i.e. sellers of ordinary goods and services) need social security numbers from the customers? The answer is: Almost never.

The logic of agency relationships and financial claims thus helps to explain the limited scope of information reporting in developed countries, jointly with the consideration of how well gross payments measure the income tax base.³³ Note that the consideration that information reporting by those who are not engaged in agency or financial relationships will create extra social costs is not encompassed by Lederman's list of six factors. For example, even arm's length parties, who have the bookkeeping infrastructure and who can be viewed as a centralized source of information, may not be appropriate parties to require to information report, if the reporting relates to customers whose identities they have no other reason to track—think of supermarkets and department stores.

How costly would it be to require market participants to keep track of mutual identities in order to facilitate tax collection, in circumstances where they would not otherwise gather or transmit such information? At least for transactions among businesses, the cost need not be inordinately high. The VAT applies in most countries to the supply of goods and services generally, but not to financial flows. That is, it applies mainly to transactions for which, according to the analysis above, mutual identities would not otherwise be kept. Nonetheless, under the credit-invoice VAT, the transacting parties do keep track of mutual identities when required by the government to do so. The discussion of the social cost of gathering information in this sub-Part is not meant to imply that expanding information reporting beyond what might be called its natural bounds is necessarily undesirable. Instead, it is only meant to offer one plausible explanation of why information reporting under the income tax has been limited even in developed countries.

In Part III, it will be argued that even though the VAT requires the collection of mutual identities for B2B transactions, it generally does not involve information reporting. The VAT instead is a system of withholding. Moreover, introducing information reporting into the VAT would actually waste, rather than enhance, the administrative advantages of the VAT. The joint thrust of the arguments in Parts I and III, therefore, will be that while it is logically conceivable for information reporting to produce significantly more tax compliance, tax compliance with respect to wage and financial income and under the VAT *does not offer evidence for such possibility*.

³² Many consumer lotteries aimed at improving tax collection involve instantaneous lotteries, and thus simply give incentives to consumers to help create paper trails (e.g. sales receipts) as opposed to actually involving them in information reporting.

³³ That is, agency relationships and relationships of financial claims explain the imposition of information reporting requirements even where the transactional amounts do not closely track the tax base, i.e. despite the ineffectiveness of information reporting. U.S. broker information reporting of gross receipts from the disposition of securities before the recent introduction of basis reporting is an example of this. The filing of forms 1099-MISC and 1099-K is another.

Before turning to the subject of information reporting under the VAT, Part II will consider the very mixed evidence, within the income tax context, for the effectiveness of information reporting when implemented beyond the realm of wage and financial income.

II. Recent Empirical Research on Information Reporting on Business Income

Recent empirical research sheds some light on the complex consequences of introducing information reporting in the business income context. I will discuss a pair of recent studies, one (Slemrod et al 2015) carried out in the U.S., and the other (Carrillo et al 2014) in Ecuador. My focus will be on three common features of the studies. First, both acknowledge and are premised on the incompleteness of information reporting in the business income context.³⁴ Second, both use the traditional Allingham and Sandmo deterrence model of tax compliance to predict that some taxpayers will act strategically in the face of information reporting. Third, although both studies empirically establish instances of such strategic behavior, the exact nature of the strategic behaviors detected is difficult to interpret. Consequently, even careful econometric analysis of extensive administrative data does not yield clear audit implications. Overall, therefore, no conclusions about the superiority of information reporting can be drawn. What can be concluded, however, is that there is very little indication that developed and developing countries differ substantially along this dimension of tax administration.

A. U.S. taxpayer response to new credit card and settlement entity reporting

Slemrod et al 2015 study how self-employed individual taxpayers (Schedule C filers) in the U.S. responded to information reporting newly introduced in 2011. Under this new reporting regime, electronic payments received by businesses (e.g. credit card payments and payments by online commerce platforms like eBay) are reported by the firms processing these payments. The scale of the study was large: the authors matched 2.5 million new information returns (1099-Ks) filed in 2012 to the tax returns of over a million Schedule C filers.³⁵

The authors found that at least in the short run, the introduction of Form 1099-K had no impact on the aggregate net income reported by Schedule C filers. There was also no detectable additional deterrence effect relative to pre-existing information reporting. Although this may seem a disappointment to those who had advocated enacting this form of information reporting, it is not entirely surprising: 1099-K reporting actually covers a narrower range of transactions than the existing information reporting regime in the U.S. applicable to service providers; and the most common type of tax evasion is done through cash transactions anyway. In fact, an important implicit assumption of the authors is that amounts reported on Form 1099-Ks will represent the true business receipts only for a very small segment of taxpayers (e.g. online sellers who derive most of their receipts from the likes of eBay, etc). Their prediction is that among

³⁴ While Carrillo et al 2014 assert that this is due to institutional configurations in developing countries, Slemrod et al 2015 actually belies this assertion, which could in any case be easily seen as incorrect. See discussion in II.C infra.

³⁵ These information returns represented \$160 billion (3%) of the total \$5.3 trillion of receipts reported to the IRS on all 10.3 million 1099-Ks through the new information reporting program.

those taxpayers whose reported receipts on Schedule C closely match amounts reported on Form 1099-Ks, a substantial portion will be taxpayers with “a high propensity to under-report receipts prior to the introduction of information reporting”. In other words, rather than seeing amounts reported on Form 1099-Ks as setting a relevant benchmark for truthful reporting, close matching between Schedule C and 1099-K receipts should be seen as a potential sign of cheating.

It is worthwhile to state the authors’ reasoning intuitively—essentially the same reasoning is adopted in Carrillo et al 2014.³⁶ According to their logic, in the absence of information reporting, those taxpayers who are predisposed to cheat will under-report business receipts. When there is information reporting, these taxpayers may believe that failing to declare at least the amounts of receipts reported on Form 1099-Ks will substantially (and discontinuously) increase the risk of audit.³⁷ Therefore, such taxpayers will likely report amounts on their Schedule Cs that are at least equal to amount reported on 1099-Ks. But two other types of related behavior are also likely. First, these taxpayers are also likely to report amounts on their Schedule Cs not much more than, and possibly exactly equal to, amount reported on 1099-Ks. Second, they are likely to increase reported expenses to offset increased reported receipts, given that it is more difficult to verify expenses than to verify receipts.³⁸ Overall, then, if one observes taxpayers who file tax returns only when subject to information reporting, whose self-declared receipts largely match third-party reported receipts, and/or whose expenses closely match receipts, such patterns are potentially indicative of a propensity towards tax evasion.

Motivated by such reasoning, Slemrod et al focused on the 9-10% of their taxpayer sample that reported gross receipts within 5% of the gross amount on the 1099-K’s issued to them. This is the group of taxpayers that “bunched” around the point where the ratio of gross receipts reported on a taxpayer’s Schedule C to the receipts reported on 1099-K forms issued to the taxpayer is 1 (this ratio is denoted “K/R”).³⁹ Of course, not all taxpayers that bunch around $K/R=1$ deserve suspicion. Some taxpayers may simply have a high share of true receipts subjected to information reporting. If they report truthfully, their reported receipts should largely match third-party reported receipts. Slemrod et al confirm the presence of such taxpayers.⁴⁰ However, they also observe that taxpayers with K/R close to 1 report unusually large increases in their receipts and expenses from 2010 to 2011, which cannot be explained by the trend of growth of taxpayers that happen to have a high share of true receipts subject to information reporting. Instead, it is likely that many taxpayers with K/R close to 1 *reported* more receipt after becoming subject to additional third party information reporting.

³⁶ Both studies illustrate such reasoning with simple formal models, but the intuitive predictions do not depend on the precise assumptions of the models.

³⁷ In their formal models, Carrillo et al 2014 and Slemrod et al 2015 both assume that the audit probability when self-declared amount falls below the amount on information reports is 100%.

³⁸ Third party reported amounts set a floor for reported receipts, but not a ceiling for reported expenses. Carrillo et al 2014 put great emphasis on this intuitive point.

³⁹ “Bunching” means an abnormal concentration of taxpayers at a point relative to the overall distribution of taxpayers along a given dimension.

⁴⁰ “Bunching is extremely common for [individuals] receiving 1099-K from [third party settlement entities, e.g. eBay] only, with 17% reporting receipts exactly equal to the 1099-K amount and 42% reporting receipts very close to the 1099-K amount.” Slemrod et al 2015 at 15.

Slemrod et al find several other types of evidence of taxpayer strategic behavior. First, taxpayers with K/R close to 1 in 2011 were substantially less likely to have filed a Schedule C in prior years.⁴¹ This is the “extensive margin” response to 1099-K. Second, taxpayers bunching around K/R=1 also reported large increases in expenses, which to a great extent offset the increases in reported receipts by this group, resulting in little change in net income reported. Third, corresponding to the introduction of the 1099-K, there is an increase in the percentage of Schedule C filers reporting receipts exactly equal to expenses. Specifically, taxpayers bunching at where K/R=1 are disproportionately likely to also bunch around the point where the ratio of reported expense to receipt is 1, as are new Schedule C filers who also receive 1099-Ks. Fourth and finally, the authors “examine the composition of expenses to see precisely where taxpayers increased expense reporting to offset increased receipts reporting, and find increases occurred primarily in the ‘Other Expenses’ line item.”

Can we, however, conclude from these patterns that some of the “bunching” taxpayers are cheating?⁴² Slemrod et al judiciously refrain from this conclusion, even though they offer analyses that give it some plausibility. They discuss three types of benign reasons why taxpayers may have increased receipt reporting (including by filing Schedule C for the first time) in response to information reporting, while simultaneously increasing reported expenses. The first is that prior to information reporting, some taxpayers may have skipped reporting the portion of their total receipts that correspond to business expenses.⁴³ The second is that many payments reported by credit card companies may not represent true business receipts, because of fees, taxes, and merchandise returns. Some taxpayers may have tried to reconcile such discrepancies between amounts on information returns and true receipts by reporting fees, taxes, and merchandise returns as “other expenses”.⁴⁴ The third, more systematic reason, is that the tax law may impose limitations on business deductions so as to “quarantine” them to particular types of income.⁴⁵ Greater income earned in such quarantined activities would automatically (and legitimately) increase deductible expenses. Slemrod et al offers persuasive evidence that this third reason does not explain the increase in expense reporting by the “bunching” taxpayers they study. However, to what extent the first two explanations underlie the increased expense reporting that they identify is unknown. Because Slemrod et al’s formal model does not predict the complete offset of increased reported receipts by expenses even for strategic taxpayers,⁴⁶ these explanations arguably remain relevant.

Overall, the findings of Slemrod et al 2015 are consistent with the following observations. First, many types of information reporting on business receipts and expenses—as opposed to

⁴¹ The authors conservatively estimate that Form 1099-K caused more than 20% of taxpayers in this particular group to start filing Schedule C.

⁴² Slemrod et al 2015’s study is conducted with taxpayer confidentiality protected. It is possible, however, for the IRS to perform similar analysis in the future and identify taxpayers that bunch, file new tax returns while bunching, and/or report expenses precisely offsetting receipts. This population of taxpayers showing such “suspect” patterns comes up to about 1% of the total population of taxpayers that the authors studied.

⁴³ Slemrod et al, 2015, at footnote 32, give the example of an app developer compensated for sales net of commissions. For a more staid example, consider whether academics reimbursed by host institutions that are not their employers for travel expenses would file Schedule C’s just to report their reimbursement receipts.

⁴⁴ Slemrod et al, 2015, at footnote 18 and 29.

⁴⁵ Examples in the U.S. would include home office expense deductions, hobby loss deductions, and so on.

⁴⁶ Nor was this predicted by the formal model in Carrillo et al 2014.

information reporting in respect of wages, financial income, and social transfers—contain incomplete and noisy information. This is true for the U.S. newly-introduced 1099-K reporting; it is probably true of the long-standing, more expansive 1099-MISC reporting as well. To make use of such information to detect non-compliance, the government often needs additional information that is hard to come by.⁴⁷ This, of course, is not news. It is common knowledge among taxpayers, professionals, and policymakers in developed countries.⁴⁸ Indeed it is implicit in the very design of Slemrod et al 2015’s study (i.e. looking for potential “cheaters” among “bunchers”): it would be a stretch to call it a “finding”.⁴⁹

Second, although careful econometric analysis of the type carried out by Slemrod et al can detect taxpayer strategic behavior, the implications of the detected patterns for audit choices are complex. For instance, the authors focused on “bunching” taxpayers to identify strategic behavior,⁵⁰ but these taxpayers tend to be significantly smaller than the typical 1099-K recipients.⁵¹ The revenue potential for devoting audit resources is thus limited. Moreover, it is very difficult to determine whether taxpayers are claiming real or illegitimate business expenses, not only because such expenses are not subject to information reports, but also simply because of the inherently heterogeneous nature of payments made and received by individuals and businesses. The relevance of information reporting is rather indeterminate.⁵²

B. Information reporting on business firms in Ecuador

Carrillo et al 2014’s study is closely related to Slemrod et al 2015 in both theory and methodology, but is conducted in a developing country context. It required the cooperation of the Ecuadorian tax authority and access to extensive (though confidential) information from Ecuadorian corporations’ income tax and VAT returns. Along with the Pomeranz 2015 study in Chile discussed in Part III below, it is representative of the impressive body of recent empirical research on taxation in developing countries based on close collaboration between scholars and government agencies. However, the findings made by Carrillo et al are harder to interpret than they claim.

⁴⁷ Interestingly, on the basis of the incompleteness of third-party information reporting, Lederman 2010 intuited that credit card information reporting may not increase compliance (Lederman 2010 at 1753-7), but that information reporting by payment settlement entities like eBay may be more effective (Id at 1748-52). Slemrod et al 2015’s finding of the absence of aggregate reporting and deterrence effects during at least the initial years of 1099-K reporting seems to vindicate Lederman’s pessimism regarding the former and provide only slight support to her optimism about the latter.

⁴⁸ It would thus be misleading to interpret Slemrod et al 2015 as showing that “even” in a developed country, information reporting is incomplete, which may create room for non-compliance. This, however, is one of the conclusions offered in Almunia and Lopez-Rodriguez 2015, which analyzes potential strategic behavior by Spanish firms in response to audit risk. Such a formulation is obviously rhetorical, since the incompleteness of information reporting for business income is just commonsense.

⁴⁹ It is rather the implicit assumption—prevalent in recent political economy research—that developing countries adopt far less information reporting that has not been demonstrated by any empirical research to date.

⁵⁰ Whatever strategic behavior that the remaining 90% of taxpayers may have engaged in are thus not detected.

⁵¹ Cite.

⁵² To put it differently, even if the econometric evidence produced by Slemrod et al demonstrates strategic behavior, it falls short of proving non-compliance.

Carrillo et al obtained information from the income tax returns of 87,000 Ecuadorian corporations for the three years 2008-2010. VAT return information for a similar number of firms was also obtained for the years 2009 and 2010. The authors make a basic but unusual assumption: they view annexes attached to the firms' VAT returns, which list the firms' sales to and purchases from other businesses that are VAT taxpayers (B2B transactions), as providing third party information about the costs and revenues of these customer and supplier firms for *income tax* purposes.⁵³ They then examine how Ecuadorian firms respond to this type of "information reporting".

Carrillo et al first pursue an exercise of matching income tax returns with B2B transaction information from VAT returns. They find (not surprisingly) that firms' self-reported revenues and costs are higher than are reported on third-party VAT returns on average, but 24% (23%) of firms report lower revenues (costs) than the third-party reports. Assuming (without argumentation) that a firm's true revenue and costs for income tax purposes should be higher than the firm's sale and purchase transactions reflected on *other* firms' VAT returns, the authors conclude first that revenue under-reporting is rampant among Ecuadorian firms.⁵⁴ In addition, they claim that firms reporting lower cost than third-party reports may be doing so strategically.⁵⁵ Finally, in the general sample, Carrillo et al do not find firms bunching around "third-party reported" amounts, which bunching is central to Slemrod et al 2015's study. Instead of interpreting this in terms of the discrepancy between VAT and income tax accounting (i.e. the incompleteness of this form of "information reporting"),⁵⁶ they argue that Ecuadorian firms generally believe that the government has weak audit capacity and is unlikely to match third party information with tax returns. In other words, when the government is perceived to be weak, taxpayers do not even bother to act strategically.

Carrillo et al then study a particular policy intervention. In 2011 and 2012, the Ecuadorian tax authority (SRI) selected around 8,000 firms whose self-reported revenue in 2008, 2009 or 2010 was substantially below revenue reported by third-party sources.⁵⁷ The SRI notified these firms of the existence of discrepancies and asked the firms to submit an amended tax return to address the discrepancy. For firms with discrepancies in 2008, the SRI did not provide the notified firms information about the third-party reported amount. For firms with discrepancies in 2009 and 2010, the third-party reported amount was communicated to the notified firms.

⁵³ These VAT return annexes thus play the role in their study that Form 1099-Ks play in Slemrod et al's U.S. study, whereas the Ecuadorian firms' income tax returns are the counterparts to Slemrod et al's Schedule Cs.

⁵⁴ In Slemrod et al 2015, about 5% of the Schedule C filers reported receipts less than 95% of revenue reported on 1099-Ks. (Correspondence with Joel Slemrod and Daniel Reck, February 2016.)

⁵⁵ In their conceptual reasoning, Carrillo et al believe that taxpayers may underreport costs in order to under-report receipt, while at the same time minimizing detection probability. Curiously, Carrillo et al 2014 do not report whether it is the same firms that "underreport" both revenue and cost.

⁵⁶ Or in terms of general taxpayer compliance, for that matter.

⁵⁷ "The mean discrepancy is \$307,000, \$176,000 and \$197,000 in 2008, 2009 and 2010 respectively. The median is 0.63 as a fraction of reported revenue." In this context, "third-party information" also included exports, imports, bank interest (received by the taxpayers), and purchases made using credit cards.

Only a small share of firms in this sample of notified taxpayers filed amended tax returns in response.⁵⁸ Carrillo et al focus on this sample and make two findings that are strongly indicative of strategic behavior on the part of the amending firms. First, the discrepancy notifications induced large increases in reported revenues on the amended returns. When firms were given a specific third-party reported revenue amount (i.e. for the 2009 and 2010 tax years), “35% of all firms that file an amendment revise reported revenues to match the indicated amount exactly.” And overall, “firms that adjust reported revenues do so by 93 cents on average for every dollar of notified revenue discrepancy.”⁵⁹ These firms are thus analogous to the Schedule C filers that bunch around the value of $K/R = 1$ in Slemrod et al 2015. For firms receiving discrepancy notifications for the 2008 tax year, where no specific amount of discrepancy was provided, revenue adjustments are only 36 cents for every dollar of discrepancy on average.

Second, again analogous to the Schedule C filers’ response in Slemrod et al 2015, the amending firms in Carrillo et al’s study “offset the majority of increases in reported revenues with increases in reported costs. For every dollar of revenue adjustment, firms increase reported costs by 96 cents.” This was true regardless of whether the firm was notified of the third-party reported amount. Moreover, the pattern of almost-complete cost offset was observed regardless of the size of the revenue adjustment on the amended return.⁶⁰ Finally, the authors report that firms chose cost adjustments on line items that were difficult for the tax authority to verify—the most frequent cost adjustment was to “Other Administrative Costs.” As a result of these offsetting cost adjustments, the amending firms reported essentially no additional taxable profit, and consequently no additional revenue was raised by the SRI.

It seems clear, therefore, that the many of the amending firms in the Ecuadorian study engaged in strategic behavior. The major difference from the Schedule C filers that Slemrod et al 2015 examine is that in the latter study, taxpayers reacted to a perceived increase in the probability of detection through information reporting. In the Ecuadorian case, however, taxpayers faced a directly communicated threat of audit, but seemed to act in ways only to increase the risk of audit. *What were the firms thinking?*

If Slemrod et al’s study was not able to identify the precise nature of bunching taxpayers’ strategic behavior, Carrillo et al’s study fell short even further in this regard. To see how, consider first the high rate of non-response among the notified firms. Both the authors and the Ecuadorian SRI suspected that all the notified firms are non-compliant. These firms, by the authors’ conceptual framework, should thus all be acting strategically. It is therefore striking that more than 80% of the Ecuadorian firms notified by the SRI did not file amended returns.⁶¹ What

⁵⁸ “The share of amending firms in the notification sample was 19% in the 2008 round, 11% in the 2009 round, and 16% in the 2010 round.” Thus the number of taxpayers whose amended returns are analyzed is 596, 249 and 421, respectively, for the years 2008-2010.

⁵⁹ This magnitude is over-stated because Carrillo et al chose to treat 15% of the amending firms “that filed an amendment but did not change reported revenues or any other major variables” as not making an amendment. (at 22). Nonetheless, the upward adjustment is substantial. Moreover, the authors observe that the magnitude of adjustment “holds throughout the distribution, including for discrepancies in the hundreds of thousands of dollars.”

⁶⁰ As a result, Carrillo et al observe no correlation between pre-notification reported profit rates and implied profit rates on the amended portion of the return.

⁶¹ The only trait distinguishing amending and non-amending firms that that authors mention is that “amending firms are somewhat smaller in terms of overall self-reported economic activity”.

strategic calculations are reflected by the failure to respond? Moreover, 15% of the firms that filed amended returns made no significant changes, in direct contrast to the remaining firms that mostly matched their reported receipts to the information that the SRI possessed. Does the non-adjustment also represent strategic calculation, or does it reflect the firms' honest beliefs that they engaged in no mis-reporting, and that the SRI's information from third-party reported amounts is inaccurate or irrelevant? How can ignoring SRI notifications, amending returns but making no changes, and amending returns while making seemingly artificial changes all represent rational strategies?⁶²

A more fundamental issue with Carrillo et al's study is the nature of the "information reporting" they consider. The third-party information in the study comes from annexes to taxpayers' VAT returns. There are many reasons not to expect such reported amounts to match revenue and cost items on the income tax returns of customer and supplier firms. On the one hand, sales to final consumers and purchases from non-registered suppliers would not show up on the list of B2B transactions. On the other hand, VAT law and income tax law tend to have quite different accounting requirements regarding when to report sales and purchases.⁶³ While proponents of the VAT (such as the IMF) have long emphasized the utility of information generated by the VAT in auditing corporate tax compliance, what is normally envisioned is consistency between the VAT and income tax returns of the same taxpayers, not the income tax returns of one taxpayer and the VAT tax returns of other firms.⁶⁴ It is thus not only unsurprising that many firms would report more sales and purchases on their income tax returns than B2B, VAT-able transactions reported with them, but also far from inconceivable that many firms (especially in a given year) would report less revenue and cost for income tax purposes than shown on the VAT returns of other firms they do business with.⁶⁵

If there is a predictable discrepancy between VAT reporting on B2B transactions and income tax return information, that would readily explain the lack of "bunching" around third-party reported amounts Carrillo et al observed.⁶⁶ Their conclusion that there is "widespread

⁶² In Carrillo et al's conceptual framework, taxpayers optimally engage in tax evasion by minimizing audit probabilities at a given level of reported receipt. Carrillo et al do not attempt to offer any interpretation of the behavior of the "non-amending" and "non-adjusting" firms, and nothing in their conceptual discussion suggests an answer. It is useful to contrast this with Slemrod et al's U.S. study, where only one type of strategic behavior is identified, namely Schedule C filers reporting increased revenue corresponding to 1099-K reported amounts and as well as increased expenses that largely offset the increased reported revenue. It is possible to rationalize such behavior as aiming to minimize audit probability without at the same time increasing tax liability. (As discussed in II.A., however, Slemrod et al did not claim to provide proof that the "bunchers" they studied engaged in such behavior, as opposed to a range of other quirky but benign strategic responses.) It is harder to interpret the Ecuadorian firms in Carrillo et al 2014 as doing the same because of the alternative of not responding to the government at all (or not making any adjustments).

⁶³ Under the income tax, the accrual method is typically used by businesses; under the VAT, transactions are typically reported at the earliest of cash payment, issuance of VAT invoice, and performance of services or delivery of goods. See Schenk et al 2015, Chapter 8.

⁶⁴ Moreover, the expected consistency is not absolute, the way information reporting on wage income sets a yardstick for self-declared wages income.

⁶⁵ For example, advanced receipt of cash for goods and services to be delivered in the future would be reported as revenue for VAT purposes but not income tax purposes. Purchase of capital assets would be reported for VAT purposes but only partially as costs for income tax purposes.

⁶⁶ The author's implied counterfactual claim that if the SRI had a stronger reputation for enforcement, more taxpayers would be bunching, seems to be only an assertion.

misreporting of both revenues and costs” simply based on the fact that firms’ self-reported revenues (costs) are lower than third-party reports in 24% (23%) of firm filings also seems hasty. Finally, given the uncertain relevance of VAT reporting, it is hard to interpret what the notified firms are doing relative to their true revenue, cost, and profits, as opposed to relative to their beliefs about the SRI’s likely actions.

None of this is to deny that the taxpayer responses solicited by the SRI’s notifications are worth studying: the analogies with the U.S. bunching taxpayers Slemrod et al 2015 seem robust. But the analogies precisely underscore the indeterminate utility of information reporting in the business income context. In both studies, a high-profile policy intervention failed to achieve its intended results—revenue was raised neither in the U.S. (through the initial implementation of 1099-K reporting) nor in Ecuador (through the SRI’s notification campaign). And in both studies, no definitive interpretation is readily available for taxpayers’ strategic behavior.

C. Do developing countries use information reporting and withholding less?

The comparison of Carrillo et al’s study with Slemrod et al 2015 shows that the main conclusion of the authors of the former study is unwarranted. Carrillo et al infer that in developing countries, third-party information reporting may be ineffective due to its incompleteness, and taxpayers can always evade on the margins that are hard for the government to verify. But developing countries and developed countries are no different in this regard. The incompleteness of information reporting stems from facts universal to all economies—I have suggested what some of these facts consist in in Part I.

To conclude the discussion of information reporting in the income tax context, it is worth noting that the question, “Do developing countries use information reporting and/or withholding less than developed countries?” has, in a sense been, directly studied. One study (co-authored by a staunch advocate of information reporting and withholding) suggests that the answer is No. Robinson and Slemrod 2012 code systematical comparative information about tax administration published by the OECD, which information covers 30 OECD and 17 non-OECD countries for the year 2005.⁶⁷ They construct numerous variables relating to information reporting and withholding for the income tax, including (1) the total number of income categories for which tax is withheld and remitted by the payer; (2) the total number of categories of income that are subject to information reporting; (3) the extent to which taxpayer identification numbers (TINs) are used as measured by the total number of payment types that use TINs; and (4) self-assessment, an indicator variable that equals one where individual income tax liabilities are self-assessed and zero otherwise. It turns out that all of these variables are negatively correlated with a country’s GDP per capita: the poorer countries use all of withholding, information reporting, matching and self-assessment *more*.⁶⁸

⁶⁷ The 17 non-OECD countries include, among others, Brazil, India, China, Malaysia, Russia, and South Africa.

⁶⁸ As constructed by Robinson and Slemrod, the self-assessment variable is not the opposite of withholding and information reporting: the countries that show more withholding and information reporting also display more self-assessment—and these are the poorer countries in the sample. Robinson and Slemrod also use factor analysis to construct a single variable that summarizes tax administration features of a country, which they label “Dispersed Responsibility”, and which they view as capturing “the extent to which the tax collection system disperses responsibility and the direct compliance burden away from the tax authority to the taxpayer and third parties such as

These patterns found in the OECD data can be criticized in various ways. One is that the non-OECD countries included in the sample are, for the most part, not low-income or “true” developing countries. They are instead small European (but non-OECD) countries or large middle income countries. Whether “true” developing countries fail to implement information reporting and withholding must be examined using other data. However, although no systematic comparative information is currently available, reports by the IMF suggest that many developing countries heavily rely on withholding.⁶⁹ The wide adoption of the VAT, and the dominance of VAT revenue over not only personal but also corporate income tax revenue in many developing countries, also testifies to the widespread use of withholding.⁷⁰ Whether developing countries make extensive use of information reporting is a different question. Even if they do not, it would also be readily explainable by the smaller tax bases of wage and financial income in developing countries, and by the fact that governments in developing countries are *less likely* to make non-observable characteristics of taxpayers determinative of tax liabilities.

Another critique of the OECD information is that the surveyed countries provided answers regarding tax administration on the basis of legal requirements on paper. Such information does not capture how well legal requirements are actually implemented. Thus poorer countries may require self-assessment just as often as (or even more so than) rich countries, but that does not mean that taxpayers are complying with such requirements. This is certainly a shortcoming of the type of surveys that the OECD has conducted. However, such a critique precisely also means that instituting information reporting, even if it does strengthen state capacity, is not merely a matter of writing it into the law. If individuals and firms have incentives not to comply with the tax law, they will also have incentives not to comply with information reporting requirements. When “state capacity” is low, the enforcement of information reporting will also be weak. It remains to be seen in what sense information reporting is a key to, as opposed to being a derivative feature of, state capacity.

III. Information Reporting under the VAT

In Part I.B, I claimed that in market transactions in goods and services, participants generally do not need to keep track of mutual identities. Consequently, outside the agency and financial claims contexts, to require market participants to furnish information to the government regarding parties with whom they transact would introduce costs—not only of transmitting but more importantly of gathering information—that would otherwise be absent. Interestingly, the only seeming exception to this generalization I can think of is the credit-invoice VAT, under which for at least transactions among registered VAT taxpayers, information is recorded (on invoices) regarding transactional amounts as well as the tax identification of the transacting parties. While such information on VAT invoices is not transmitted to the government under

employer withholders.” The same negative correlation with GDP per capita obtains for this variable. They thus observe: “In higher-income countries, the revenue body uses withholding and reporting on fewer types of income... and is less likely to use self-assessment principles.”

⁶⁹ See, e.g. IMF 2011, at 31 (receipts from the person income tax in developing countries come almost entirely from wage withholding on large enterprises and public sector employees), and at 41 (advance collection on imports is common in Africa).

⁷⁰ See Fiscal Affairs Department 2015. Robinson and Slemrod 2012 analyze only income tax administration.

many VAT systems (especially those in developed countries),⁷¹ it is so transmitted under other VAT systems, in Latin America, China, and elsewhere.⁷² Thus the generalization in Part I.C may seem incorrect. Moreover, if one views the transmission of VAT invoice information to the government as a form of information reporting, this would be one respect in which some developing countries engage in massively more information reporting than in most developed countries.

In this Part, I will first provide a description of VAT remittance mechanisms and reconcile it with the generalization in Part I.C. The description will demonstrate that the VAT, as normally conceived and as it is currently practiced in most developed countries, does not involve information reporting, and moreover, is not in any interesting sense “self-enforcing”. I will then examine one recent, widely-discussed study that purports to demonstrate that the VAT is “self-enforcing” and show that the result is based on a basic empirical mis-identification.⁷³ Finally, I will review some basic considerations that suggest that the VAT *should* not be made to support more information reporting.

A. Information and incentives under VAT remittance mechanisms

To evaluate much recent empirical work on the VAT, it is useful first to set out a commonsense description of how the remittance mechanisms under the invoice-credit VAT are *intended* to work.⁷⁴ The following description does not purport to capture how the VAT always works in the real world, because actual VATs tend to contain distortionary rules that undermine VAT logic. However, for purposes of evaluating recent empirical work, the compliance implications of distortionary VAT regimes (e.g. the use of VAT exemptions for small firms and for select sectors) are not relevant, since these studies purport to examine the information aspects of regular VAT regimes, and not special effects created by exemption regimes, etc.⁷⁵

Under a normal VAT, in a business-to-business (B2B) transaction where both the supplier (X) and purchaser (Y) are registered VAT taxpayers, the supplier, X, will charge a VAT on the sale: the purchaser, Y, will pay an amount that is the sum of the tax-exclusive price of the supply plus the VAT charged on the supply.⁷⁶ Having paid the VAT charged on the supply, Y will obtain a VAT invoice from X, stating the VAT that it has paid to X. X, having collected VAT on the transaction from Y, generally does not remit the whole amount to the government. Instead, on a periodic (e.g. monthly or quarterly) basis, X calculates the total amount of VAT that it has collected from customers—this is called the total “output tax”. It also calculates the total amount of the VAT that *it* has paid to its suppliers on its input purchases—this is the total “input tax”. Then X credits the input tax against the output tax to calculate the VAT that it

⁷¹ See Ebril et al 2001; Bird and Gendron 2011.

⁷² Inter-American Development Bank 2013; Schenk et al 2015.

⁷³ The same empirical error arguably affects a number of related studies aiming to show the significance of information reporting for the VAT. See, e.g. Naritomi 2014, Almunia and Lopez-Rodriguez 2015. But examining one study provides sufficient illustration for purposes of this article.

⁷⁴ Confusion about VAT mechanisms is surprisingly common not only among scholars in the U.S. (which has no VAT) but also among scholars from countries that rely heavily on the VAT.

⁷⁵ In Pomeranz 2015, the author helpfully notes that the Chilean VAT uses exemptions and special rates sparingly. 2543-4.

⁷⁶ See Schenk et al 2015 Chapters 5-6.

should remit to the government. This way, X's remittance liability to the government is determined by its value added (assuming uniform VAT rates).

X thus *pays* VAT to suppliers, *collects* VAT from customers, and *remits* VAT to the government. The sum of X's payments and remittances is recouped from the output tax X charges to, and collects from, Y and other clients.⁷⁷ X, and the vendors that made taxable supplies to X, are simply withholding tax that would ultimately be collected from final consumers by Y or other downstream firms.⁷⁸

1. Information

What is the role of information in this set-up? First, in B2B transactions VAT taxpayers keep track of mutual identities (e.g. VAT registration numbers) as a part of VAT compliance, even where they would not do so otherwise. But the reason for this is that the government is an implicit party in the transaction. On the one hand, X has collected funds from Y that are payable to the government; Y now has a financial claim against the government for an input credit or refund. This is why Y's identity needs to be recorded on the VAT invoice. On the other hand, X now holds funds that belong to the government (subject to input credits): it is thus the subject of a financial claim held by the government. X and Y keep track of mutual identities in order to sustain these financial claims.⁷⁹ Therefore, the invoice-credit VAT remittance arrangement does not contradict the generalization that without agency relationships and financial claims, market participants generally do not keep track of mutual identities.

Second, even though the implicit financial claims in VAT withholding generate the need to keep track of mutual identities, the information contained in VAT invoices is in many countries not transmitted to the government. Although some countries require information contained in VAT invoices to be submitted along with tax returns (as Carrillo et al 2014 shows for Ecuador), in many VAT systems this is not done. VAT invoices merely form a paper trail—as do other business invoices—that can be utilized during audits. This absence of information reporting under the VAT is not accidental. The only reason for information contained in VAT invoices to be submitted to the government (whether along with tax returns or not)⁸⁰ is for the latter to cross check the information provided by transacting parties. However, such cross-checking is, as will be seen below, contrary to the basic design of the VAT and, in any case, there are fundamental reasons not to adopt it. To understand these reasons, let us turn first to the incentives under VAT remittance arrangements. These incentives have been surprisingly misunderstood in recent empirical research by economists.

⁷⁷ If input tax exceeds output tax, X either gets a refund on the tax it previously paid over to suppliers or carries forward the input tax credit.

⁷⁸ The foregoing is simply a description of the mechanisms of VAT remittance where all firms involved are non-exempt VAT taxpayers. The description is not based on any naïve assumption about the incidence of the VAT, e.g. that the burden of the VAT fully passes onto final consumers. It simply describes how VAT is collected. How the VAT that is collected is borne by market participants is another story. Incidence will depend on the elasticities of demand for different consumer goods and on the market structures facing firms. Price adjustments will determine incidence, but price adjustments occur as a result of the remittance scheme described above.

⁷⁹ X's role as an agent for the government in VAT collection is primarily reflected in its VAT registration, and not primarily in the invoices that it issues.

⁸⁰ In the handful of VAT systems that rely heavily on cross-checking of VAT invoices, the invoices themselves are more important than the VAT returns.

2. Incentives

What incentives follow from the remittance scheme described above? Three consequences are particularly relevant.

First, neither X nor Y, in theory, is “out of pocket” for either the VAT they pay to suppliers or the VAT they remit to the government. The total of X’s payment and remittance is equal to the VAT it collects from Y and other customers. Y, in turn, will recoup its payment to X and other suppliers from customers down the chain. To repeat, the VAT is simply a system of withholding for the tax that would ultimately be charged to final consumers. Such a system of withholding has two administrative advantages that have nothing to do with information transmission. If a retail firm fails to collect any tax from final consumers, the tax on the sales to consumers are not completely avoided, since some VAT would already have been collected by upstream firms. This is the administrative advantage of the VAT over a retail sales tax. Moreover, if firms fail to charge VAT on B2B transactions, it is not the end of the world, since under-withholding at an earlier stage can be fully compensated by the proper charging of VAT later on (e.g. eventually to final consumers). The recording of transacting parties’ information under the VAT is entirely derivative upon the adoption of withholding.

Second, because (or insofar as) VAT payment and remittance are a matter of withholding, firms are indifferent to them. This ideal incentive effect is central to both the economic theory of consumption taxation (i.e. a tax on final consumption achieves production efficiency and taxes economic rent when and only when such rent is used to finance final consumption) and to the VAT laws of most countries (i.e. the VAT should achieve “neutrality” for businesses). Final consumers are expected to be sensitive to the VAT (even one with uniform rates) insofar as consumer demand is generally price sensitive. Therefore, escaping the VAT on sales to final consumers is beneficial to consumers, which creates incentives for tax evasion. However, under a well-implemented VAT, firms have no incentives to avoid the VAT on B2B transactions *if* VAT is properly collected downstream from them. Specifically, suppliers have no incentives to under-state sales, and purchasers of business input have no incentives to overstate input purchases.⁸¹

Third, there is no “opposing incentives” between supplier and purchaser, and no mutual monitoring among taxpayers that the government can rely on. In the mechanisms described above, the purchaser (Y) gets a creditable VAT invoice from the supplier (X) simultaneously as it pays (to X) VAT charged on the supply. One can think of the VAT paid as the “price” for the VAT invoice. Y does not get to claim any input credit for any tax that *it has not paid* to vendors (and that somehow these vendors are remitting to the government).⁸² Similarly, X does not gain anything by failing to report its sales to Y. It will remit less to the government as a result, but that is because it has collected/withheld less from the customer.⁸³ Moreover, X and Y are also

⁸¹ In B2B transactions, unless vendors are absconding with VAT withheld, under-stating sales would simply mean withholding less VAT, but has no impact on the seller’s bottom-line. Similarly, buyers over-stating input purchases can only mean fraudulently claiming more VAT input credit than the VAT they paid to suppliers.

⁸² Y does not gain anything by making sure that X pays tax, because X does not “pay” tax on sales: it collects taxes from customers and remits them (after claiming input tax credits).

⁸³ Therefore, X does not hurt Y by under-reporting sales for VAT purposes.

indifferent to any unilateral VAT fraud committed by the other. For example, X may engage in unilateral fraud by absconding with VAT collected from Y and other customers. These customers typically have no incentives to prevent this from happening, since they can claim input credits (for VAT they have paid over to X) regardless of whether X properly remits.⁸⁴ Conversely, Y may engage in unilateral fraud by fabricating input purchases. But this creates no additional tax liability for any seller, including X, insofar as they have remitted VAT in connection with all their genuine sales.

This commonsense—even banal—analysis implies that systematically cross-checking VAT records for B2B transaction defeats the purpose of the VAT in two fundamental ways. First, the VAT is designed so that (most) firms are indifferent about paying the VAT. Cross-checking VAT records for B2B transaction basically means devoting social resources to ensuring compliance precisely where non-compliance should be low. Second, the VAT is also designed precisely so that the failure of withholding on B2B transactions does not need to lead to revenue loss (since VAT can still be collected further downstream). Cross-checking VAT records for B2B transaction basically amounts to foregoing this fundamental and intended administrative advantage.⁸⁵

I now turn to some recent empirical work that purports to demonstrate the information reporting advantages of the VAT.

B. Mis-interpretations in recent empirical work on VAT compliance

Dina Pomeranz’ widely-cited study “No Taxation without Information” sets out to “[investigate] the effectiveness of the Value Added Tax in facilitating tax enforcement and [shed] light on the role of information and third-party paper trails for taxation.” The study claims to provide “the first micro-empirical evidence for the self-enforcing power of the paper trail in the VAT and for spillovers in tax enforcement through firms’ trading networks more generally, and [to show] that in line with a growing recent literature, information reporting plays a crucial role for effective taxation.”⁸⁶ As these quotes suggest, the study emphasizes the administrative properties of the VAT and their implications for tax compliance. The intent is not to test the economic consequences of the VAT while taking administration and compliance as givens. However, a careful examination of the study suggests that it is perfectly plausible to interpret its empirical findings as demonstrating the economic and accounting consequences of typical VAT design, but as shedding no light on the VAT’s administrative properties.

1. Empirical differences inter-firm sales and sales to final consumers

Pomeranz’ study comprises two randomized field experiments carried out in cooperation with Chilean tax authorities. In the first, the Letter Message Experiment, the government mailed letters threatening increased VAT audits to over 100,000 randomly selected Chilean firms, while a sample of over 300,000 firms received no such letters (and served therefore as the control

⁸⁴ Keen and Smith.

⁸⁵ If any cross-checking is to be done, one should do it as far down in the production chain as possible. In fact, it may be better just to have a retail sales tax if B2B VAT withholding is avoided for the most part.

⁸⁶ Pomeranz (2015).

group).⁸⁷ Pomeranz' main findings are: first, the receipt of the audit-threat letter significantly increased the VAT remitted by the treatment group as compared to the control group; and two, the increase in remittance is driven entirely by increased report of sales to final consumers. This second finding is confirmed both by intra-firm comparisons between sales to final consumers and sales to other firms (thus controlling for individual firms' characteristics) and inter-firm comparisons.

How should one interpret these findings? Pomeranz' interpretation, which has become quite popular among scholars who cite the study, is that the empirical difference between increased reporting of consumer sales and essentially unchanged reporting of sales to other firms is attributable to the fact that the VAT leaves no paper trail for sales to final consumers, but maintains a paper trail for inter-firm transactions. She argues that a paper trail "has a preventive deterrence effect on evasion": that is, firms already evade less on inter-firm sales because of the existence of a paper trail there; therefore they will respond less to an increase in perceived audit probability. She further characterizes the purported "preventive deterrence effect" of the paper trail as underscoring the "self-enforcing" property of the VAT. The Letter Message Experiment thus supposedly produces novel and robust empirical evidence for such property.⁸⁸

There, however, is a much more obvious explanation of the findings of the experiment. As discussed above, the VAT, by its design, is a way for a tax on final consumer sales to be withheld through the chain of production.⁸⁹ Therefore, firms, as withholding agents, should generally be expected to be indifferent to VAT collected and remitted on intermediate sales. However, firms may try to evade tax on final sales to consumers, as that will effectively reduce the overall tax collected on consumer sales. Thus, independently of any effect of the paper trail, firms can be expected to display little evasion behavior on inter-firm sales, but some such evasion for consumer sales. A brute empirical difference between the reporting responses for inter-firm sales and consumer sales therefore fails to identify the effect of paper trails. To put it differently, firms' indifference to VAT collected on inter-firm sales simply reflects the "production efficiency" property of the VAT (much theorized by economists), not the "self-enforcement" property of the VAT as a matter of administration.⁹⁰

⁸⁷ The experiment was *economy-wide*—an astounding feat of scholar-government collaboration.

⁸⁸ By Pomeranz' account, the existence of such property has previously received only anecdotal support.

⁸⁹ By its design, the failure to withhold VAT on inter-firm sales need not result in the failure to collect tax on final consumer sales, since the failure to withhold earlier in production may simply increase withholding further down the production chain.

⁹⁰ This basic identification problem can be stated in Pomeranz' own terms. In discussing the research design for the Letter Message Experiment, she writes: "*At a given level of evasion, one would... expect firms to respond more to an increased audit risk on transactions with a paper trail. The anticipation of this ease of detection can lead firms to reduce evasion ex ante on transactions with a paper trail*" (emphasis added). Pomeranz 2015, at 2545. However, both theory and conventional wisdom about the VAT precisely predict that the levels of evasion on sales to firms and to final consumers are different, independently of any effect of paper trails. It is difficult to justify the assumption that evasion responses on the two types of transactions would be the same, in the absence of paper trails. See also 2540 ("Since a paper trail facilitates detection of evasion during the audit, one would expect firms to respond more to an increase in the audit probability where a paper trail is present, *if evasion levels are equal across transactions,*") 2561 ("*Since* for a given level of evasion, an audit can be expected to be more effective where a paper trail is present, the fact that the response is lower suggests that the paper trail had a preventive deterrence effect, leading to lower levels of evasion on transactions covered by the paper trail.") Emphasis added in both.

VAT specialists generally reject the claim that the VAT is self-enforcing.⁹¹ Thus an empirical demonstration that the VAT *is* self-enforcing would be contrary to conceptual predictions (and interesting in a sense not intended). The Letter Message Experiment, however, does not offer such a demonstration.

2. Spillover effects?

In the second experiment in Pomeranz' study, the Spillover Experiment, around 1,500 mostly rural, micro-size firms were scheduled for, and received, an audit. Half of them were randomly selected to receive a pre-announcement of an upcoming audit. During the subsequent audit, auditors recorded information about 2,829 trading partner firms from the transaction records in the audited firms' books for the three months prior to the mailing of the preannouncement. According to Pomeranz, "this made it possible to identify the firms' main suppliers and clients in a period not yet affected by the treatment." The empirical test is whether "trading partners of treated firms increase their declared VAT compared to trading partners of control firms."

Several unusual features of the sample firms in the Spillover Experiment are worth noting. First, despite the micro-size of the firms,⁹² they are found to make sales mostly to other firms: only 20% of sales on average are sales to final consumers.⁹³ This raises the question how evasion incentives for these firms arise, since at least for the 80% of sales to other (larger) firms, they could simply be charging VAT to the clients. Second, these micro firms were selected for audit because "they continually reported sales smaller than their input costs, without going out of business." This suggests that the firms are somehow under-reporting their sales—presumably to final consumers. Somehow, though, the firms choose not to keep input purchases off the book to avoid suspicion.⁹⁴ Third, Pomeranz establishes that the audited firms' trading partners tend to be much larger (and are more likely to be compliant) than the audited firms.⁹⁵ What is not established is what percentage of the sales of the supplier partner firms is to the audited firms, or what percentage of the input purchase of the client partner firms is from the audited firms.

The main empirical findings of the Spillover Experiment appear to be the following. First, although not explicitly discussed, the audited firms appear to increase reported VAT liability (and presumably remittance) post-announcement.⁹⁶ Second, the suppliers of the audited firms increased their VAT remittance after the audit announcement, while the VAT remittance of

⁹¹ See Keen and Smith 2006 (the idea that the VAT is "self-enforcing" is "illusory"). III.A.2 *supra* offers the basic reasons for such rejection.

⁹² Pomeranz 2015 notes that the Chilean VAT has "no minimum size threshold for firms to be subject to the VAT" (at 2544). Thus the micro firms selected for audit in the experiment would likely have been exempt from the VAT in other VAT systems.

⁹³ Table 3. Pomeranz does not discuss whether this may be a consequence of under-reporting of sales to final consumers.

⁹⁴ Pomeranz states that under the Chilean VAT, "firms are allowed to claim rebates, but in practice few do so as it is time consuming and triggers an automatic audit." (2543) Thus the sample firms in the Spillover Experiment presumably have not been claiming rebates, although they already invite tax administration scrutiny by claiming negative VAT liabilities. This pattern is inconsistent with a central prediction in Carrillo 2014, namely firms understate costs to enable under-reporting of revenue.

⁹⁵ Pomeranz 2015, 2554.

⁹⁶ See Columns 1-2 in Table 7 on p 2565.

client firms displayed statistically insignificant decrease.⁹⁷ Although Pomeranz argues that these findings fit a theory about the “directionality” of spill-over in self-enforcement in the VAT that she developed,⁹⁸ it is useful to explore, using commonsense, how one might explain these findings. It seems plausible to reason as follows:

- If the audited firms have indeed engaged in VAT evasion (as the Chilean tax authority and Pomeranz suspect), then they have most likely under-reported sales to final consumers. The audit pre-announcement may have increased the report of such sales. However, by definition this will not show up in the client firms’ books. This explains the insignificant change to the remittance of the client firms, although other explanations, such as the small size of audited firms relative to client firms, may also be relevant.
- If the audited firms expect to increase report of sales, they are likely to increase reported input purchases as well. How much they will do so, in light of the fact that they previously were already in excess input credit positions, depends on how and how much the firms have evaded tax.
- Increased report of input purchases by the audited firms will correspond to VAT invoices issued by suppliers of the audited firms. Therefore, it could be expected the suppliers would be reporting marginally more sales. However, since the audited firms’ trading partners tend to be much larger (and are more likely to be compliant) than the audited firms, it is not clear why there would be substantially higher reported sales at supplier firms.⁹⁹ One possibility is that the supplier firms are reporting more sales, including to final consumers, knowing that audits might be triggered as a result of the audits of the small firms. However, this “spillover” effect is not limited to the paper trail between the supplier and audited firms.

Pomeranz’ study does not offer sufficient information to corroborate the above speculations. However, these speculations do help rationalize the oddness of her sample of firms—firms purportedly mainly making sales to other firms but running negative VAT tax liabilities. Moreover, the logic of these speculations is more coherent than the theory of the “self-enforcing VAT” that Pomeranz offers.¹⁰⁰

⁹⁷ In contrast to the Letter Message Experiment, Pomeranz only reports (for both audited firms and their trading partners) changes in the overall VAT remittance, not the types of transactions reported. In particular, there is no data on the changing sales of suppliers (corresponding in part to the purchases of the audited firms) or the changing purchases of clients (corresponding in part to the sales of the audited firms). It is ironic that Pomeranz intends the Spillover Experiment specifically to reveal the mechanisms of self-enforcement in the VAT: since the total VAT remittance by trading partner firms is determined by those firms’ other transactions (in particular, the suppliers’ input purchases and the clients’ sales), changes in VAT remittance patterns are rather likely to hide the “spillover” from audited firms.

⁹⁸ At 2544-6.

⁹⁹ Pomeranz finds an increase of around 4% (relative to firms in controlled firms). Whether this is substantial for the supplier firms is not clear. She also does not discuss whether supplier firms are responding to perceived increase in audit risk only for those firms receiving audit notices or for all firms.

¹⁰⁰ Much of Pomeranz’ conceptual analysis of the purported “self-enforcing” property of the VAT goes against the conventional narrative of the workings of the VAT laid out in III.A above. For example, a core premise of her analysis is that buyer and seller firms have “opposing incentives”: buyers want deductions, which increase the tax liabilities of sellers. *Id.*, at 2544-5. This simply ignores the nature of the VAT as a withholding system: very few (supplier) firms are remitting *anything* to the government that was not in fact collected from clients; and very few (client) firms are claiming deductions for any VAT that was not charged to and paid by them. To be fair, it is not

C. The controversy surrounding cross-checking VAT invoices

In both developed and developing countries, the VAT suffers from fraud, evasion, and distortionary rules. In these real world contexts, withholding under the VAT (by compliant taxpayers) mitigates the damage from evasion (by non-compliant taxpayers); but it does not introduce incentives for third parties to monitor against evasion. Businesses can—and do—engage in collusion among themselves or with final consumers to evade the VAT.¹⁰¹ And either in anticipation of evasion on consumer sales or in the presence of exemptions and other breaks in the VAT chain, businesses may cease to be indifferent on the VAT collected on B2B transactions.

Might systematically cross-checking VAT invoices—thus turning VAT remittance into a form of information reporting where it would not otherwise be—play a role in preventing VAT fraud and evasion in the imperfect VAT systems in the real world? This is a question regarding which there is actually intense disagreement among policymakers around the world—and large discrepancies between developed and developing countries. On the one hand, a small number of countries (especially China and South Korea) have invested heavily in invoice cross-checking technologies, to a much greater extent even than the Latin American countries studied by Pomeranz 2015 and Carrillo et al 2014.¹⁰² And bolstered by technological advances, more countries appear to be considering making such investments. On the other hand, IMF experts who provide extensive technical advice on VAT administration to developing countries have strongly advocated against systematic cross-checking.¹⁰³ How these competing positions will resolve in the future is yet to be seen. But it is ample clear what is NOT the case: we do not observe developed countries practicing systematic cross-checking under the VAT and boasting of superior state capacity in this regard. Quite the opposite: it is a small number of developing countries that possess the relevant technology, even if developed countries may better afford it.

entirely clear how much Pomeranz thinks that buyers and sellers in intermediate sales have opposing incentives in VAT compliance. She also discusses “collusive evasion” under the VAT, by which she means that a transaction is kept off the books (and unreported for VAT purposes) for both buyer and seller. (The idea of buyer-seller collusion surely suggests that the two sides do not necessarily have opposing incentives but instead can gain by colluding against the government.) She also seems to recognize a phenomenon well-known to those who work with the VAT, i.e. in the absence of exemptions and other breaks in the VAT chain, collusion produces no advantage unless the chain of collusion reaches all the way to the final sale to consumers. Nonetheless, whatever is correct in her characterization of VAT mechanisms does not go beyond the description of VAT remittance given in Part II.A above.

¹⁰¹ Under-reporting sales to final consumers is a form of collusion: both seller and buyer benefit from such under-reporting.

¹⁰² Under these systems, completion of cross-checking may be a precondition for the claim of input tax credit, which does not appear to be the case in Latin America. See Schenk et al 2015, Chapter 14 (on China’s Golden Tax Project); Krever 2014 (on South Korea’s revived cross checking system)

¹⁰³ The following statement summarizes their arguments: “Large-scale cross-checking systems are a poor substitute for well-designed audit programs based on risk assessments, selective cross-checking, intelligence gathering, and targeted fraud investigation. The net benefits of large-scale crosschecking systems are yet to be proven, with associated costs to businesses and tax administrations continuing to be unacceptably high. Cross-checking should be directed at industries and taxpayer groups exhibiting the highest potential for invoice-related fraud, and should be applied on a sample basis or where a tax auditor has grounds for suspicion.” Harrison and Krelove 2005, at 28. See also Keen and Smith 2006.

Moreover, based on experience in developed countries, experts from the IMF and elsewhere are advising developed countries not to develop/acquire such “state capacity”.

We have already seen (in III.A.2) that for a properly working VAT, cross-checking VAT invoices would be wasteful.¹⁰⁴ Two further considerations suggest that cross-checking VAT invoices might be ineffective even in environments characterized by high levels of tax evasion and fraud. First, it is well known that firms can form production chains outside the VAT in order to avoid or minimize advance withholding on ultimate sales to final consumers. They can do so by not registering as VAT taxpayers, or by simply leaving transactions off their books. Cross-checking VAT invoices would have no impact on this form of tax evasion, any more than information reporting based on credit card purchases helps to limit tax evasion in the cash economy. Second, there is ample experience demonstrating that invoice cross-checking does not prevent most significant types of VAT frauds, especially of the collusive type.¹⁰⁵ For some important types of VAT fraud, cross-matching of invoices would be as ineffective as monthly statements issued to credit-card holders are in preventing credit card fraud.

IV. Fundamental Choices in Theorizing about Tax and Development

Recent empirical research on information reporting and tax compliance boasts of unprecedented access to administrative data and close collaboration between scholars and tax administrations. However, some limitations are also obvious. Where studies are based on particular policy interventions, the interventions frequently turn out to be ineffective.¹⁰⁶ More importantly, many of the hypotheses that the researchers set out to test are arguably weak and theoretically simplistic, notwithstanding novel-sounding formulations. This Part first briefly reviews some of the popular formulations and show that they are rather traditional in thrust. It will then probe one possible cause for the dearth of novel hypotheses.

A. Old hypotheses in new disguise

Some popular hypotheses that recent empirical research has purported to test include:

- 1) The VAT (or some other tax or tax rule) is self-enforcing;¹⁰⁷
- 2) Paper trails are substitutes to audits;¹⁰⁸
- 3) Paper trails are complements to audits;¹⁰⁹ and

¹⁰⁴ Firms should be largely indifferent to VAT collected on B2B transactions, and the VAT does not rely entirely on collection on B2B transactions.

¹⁰⁵ In the well-known type of missing trader fraud in Europe, for example, the claims for sales by vendors and purchases by customers all match; it is just that the vendor can abscond with VAT collected after the customers have claimed input credit. Even where cross-matching is performed before the granting of input tax credits—as is done in China—VAT fraud is still rampant.

¹⁰⁶ Slemrod et al 2015 and Carrillo et al 2014, discussed in Part II supra, are merely illustrative in this regard and by no means unique. See also Naritomi 2014 (“consumer as auditors” experiment improved firm reporting of receipts but at large revenue cost due to lottery awards given to consumers), Pomeranz 2015 (one-time randomized audit announcements increase reporting with little cost of collection, but the method cannot be used repeatedly).

¹⁰⁷ See, e.g. Kopczuk and Slemrod 2006, Naritomi 2014, Carrillo et al 2014, Pomeranz 2015, Almunia and Lopez-Rodriguez 2015, and Slemrod 2016.

¹⁰⁸ See especially Pomeranz 2015.

¹⁰⁹ See e.g. Pomeranz 2015, Almunia and Lopez-Rodriguez 2015.

- 4) Information reporting explains the high degree of observed compliance in developed countries even where audit risk and penalties fall short of providing such explanations.¹¹⁰

In relation to hypothesis (1), Part III already explained why the VAT is, even by design, not self-enforcing (and no evidence has been produced that somehow, it turns out willy-nilly to be self-enforcing in practice). Moreover, despite occasional suggestions to the contrary, one should probably say that no rule under the income tax is self-enforcing, either, in the sense that it being always in the interest of some parties to taxable transactions to ensure that other parties pay the appropriate amount of tax.¹¹¹ For example, under the income tax, sellers and buyers are sometimes said to have opposite interests in purchase price allocation.¹¹² However, this outcome obtains only when the parties to the transactions (both the party that must declare income inclusions and the party that claim expense deductions) are subject to the same effective tax rates. When this is the case, the government also collects no net revenue. “Self-enforcement” therefore has no net benefit for the government. When parties are not subject to the same tax rates and different allocations can lead the government collecting net revenue, then the potential opens for the parties to collude and lower the net payment to the government. Self-enforcement may then cease to operate.

It is possible that the talk of VAT or some other tax being “self-enforcing” is just loose talk. Perhaps the claim is simply that the VAT, by creating a paper trail, increases the probability of detection should the government conducts an audit.¹¹³ But if a tax is defined as self-enforcing as long as there are mechanisms for increasing the probability of detection (conditional on audit), then the “self-enforcing” property holds not just for the VAT but any tax with substantiation requirements.

This brings us to hypotheses (2) and (3). One focus of Pomeranz 2015, for example, is that paper trails themselves may sufficiently improve compliance even in the absence of effective audits. Paper trails are in this instance substitutes for audits in a colloquial sense.¹¹⁴ Some may find this an intriguing idea deserving of rigorous empirical testing.¹¹⁵ But ultimately,

¹¹⁰ See e.g. Kopczuk and Slemrod 2006, Kleven et al 2011; Kleven 2014; Kleven et al 2015.

¹¹¹ This is closely related to the issue, discussed by Pomeranz 2015, of when taxpayers in transaction with each other may have “opposing incentives” in tax payments. Part III.A already argued that in the VAT there are no such opposing incentives.

¹¹² Buyers subject to regular effective tax rates want more purchase price allocated to depreciable property to increase future deductions, whereas sellers want more purchase price allocated to non-depreciable property in order to minimize recaptured gain (taxed as a high rate) and maximize capital gain (taxed at a low rate). When this is the case, the government can take any bargaining outcome among market participants as stating the appropriate price allocation, without the fear of the two sides colluding to defraud the government.

¹¹³ Indeed Pomeranz 2015 acknowledges that “the word ‘self-enforcement’ is...misleading, since it can be expected to work only in interaction with credible deterrence on the part of the tax authority.”

¹¹⁴ In the U.S., for example, information reporting on individual income introduced in 1960 supposedly increased compliance in self-declaration with respect to such income, even during the ensuing two decades in which the IRS was not able properly to make use of the information reports. See Doernberg 1982.

¹¹⁵ For reasons discussed in Part III.B.1, Pomeranz 2015’s research design failed to identify this effect, but it is not hard to imagine how such an effect could be identified in other contexts. Suppose, for example, that the general audit probability is 10% under the status quo. If an audit catches evasion at a firm with a paper trail with certainty, then the overall risk of being caught for evasion is 10%. This may already be too risky for a particular firm. Suppose that as a consequence the firm chooses to be compliant. In this case, any increase of the audit probability beyond 10%

whether paper trails are substitutes or complements for audits is not a meaningful question: colloquially speaking, they are both. This is because within the deterrence model of tax compliance, the probability of detection (A) of tax evasion is the product of the audit probability (B) and the probability of detection conditional on audit (C). One can reduce B (or C) while holding A equal by increasing C (or B). One might therefore say that B and C are substitutes. However, even if one increases B (or C), one can still see a decrease in A if there is simultaneously a sufficient decline in C (or B). Hypotheses (2) and (3) are merely colloquial expressions of this simple relationship.

With respect to hypothesis (4), Parts I and III collectively argued that there is no evidence for it under either the income tax or the VAT. What is remarkable, therefore, is that all of the hypotheses tested by recent empirical research involve either factual mis-characterizations that can be identified through mere reflection, or verbal twists on a traditional claim. Why do we face such slim theoretical pickings?

B. Taxation without Information

Overall, it is not hard to trace the lineage of recent empirical work on tax and development to the Allingham and Sandmo model. Although scholars have pondered over the poor explanatory power of the model for four decades, in the new tax and development discourse, the model is being presented afresh as a self-evident truth. Consider the following opening statements from Pomeranz 2015:

“A fundamental constraint for taxation is that governments need to be able to observe transactions in order to impose a tax on them. A growing literature therefore argues that understanding information flows is central to effective taxation. When governments imperfectly observe transactions, important differences emerge between forms of taxation that are equivalent in standard models of taxation but differ in the information they generate for the government. Third-party reporting, verifiable paper trails, and whistle-blowers are thought to play an important role in facilitating tax enforcement.” (Pomeranz 2015 at 2539, citations omitted)

That “governments need to be able to observe transactions in order to impose a tax on them” is neither a theorem derived from more basic assumptions nor a hypothesis intended to be tested. It is simply an assertion. As such, it does not require acceptance. Quite the contrary: the statement seems to be false precisely for modern taxes introduced in the 20th century, e.g. the individual and corporate income tax, payroll taxes, the VAT, broad-based sales taxes, and taxes

will not make any difference to the firm with a paper trail. In contrast, for a second firm without a paper trail, But clearly, all that is going on is that the first firm is not responding to audit because it has already reached a maximum. suppose that the detection probability upon an audit is only 10%. The firm thus faces only a 1% chance of being detected for evasion, and even a 100% audit rate would only raise the risk of detection to 10%. This second firm would thus respond to increased probabilities of audit only weakly. Nonetheless, given that the first firm (with paper trail) will not respond to increased audit probabilities beyond 10% at all, the second firm (without paper trail) would be responding more. If one assumed that the first firm should be responding to increased audit probabilities just like the second firm, then the fact that it does not respond may seem to create a negative correlation (a substitutive relationship) between paper trail and audit.

on economic rent. It seems more plausible only when made with respect to traditional taxes like real property taxes, tariffs, and narrow excises collected by state-regulated monopolies. For the modern taxes that represent the hallmarks of 20th century taxation, a different claim seems much more plausible: these taxes rely on *voluntary compliance*, understood to mean precisely that most taxpayers do not take advantage of their information asymmetry viz-a-viz the government. That is, the government does not possess detailed information about most taxpayers, but taxpayers nonetheless apply the law, using their private information, to determine the payment obligations that they then satisfy. Arguably, modern tax systems are characterized by a single equilibrium comprising two components: voluntary compliance on the part of most taxpayers, combined with enforcement against the most non-compliant (“risky”) portion of the taxpayer population. These two parts form a single equilibrium, in the sense that just as much as voluntary compliance depends on the maintenance of effective enforcement, what enforcement strategies would be effective depends on how much voluntary compliance there is.

Using this alternative characterization of the functioning of modern tax systems, the central question for scholars of tax and development could be formulated not as, “How do governments of developed countries collect so much taxpayer information?” but rather as, “Why can developed countries accomplish so much *taxation without information*?” The alternative characterization does not necessarily imply any particular explanation of why taxpayers voluntarily comply. It does not imply, for example, that taxpayers act altruistically, as contingent reciprocators, irrationally, or in any other specific way. Explaining the emergence and maintenance of voluntary compliance is a core task of social scientific inquiry. Using the traditional deterrence model to pursue this explanation is one approach. Essentially, this amounts to offering a reductive account of one component of the equilibrium described above (voluntary compliance or “unwillingness” to cheat) in terms of the other component (enforcement making taxpayers “unable to cheat”). But it is neither the only approach nor one that has been shown to be particularly promising.

In many ways, it is remarkable how the theory of tax compliance has clung to the Allingham and Sandmo model. Taxation involves massive social cooperation: governments are put in place on the basis of systematic transfers of wealth. The deterrence model of tax compliance purports to explain taxpayers’ participation in such social enterprise by how they might be punished for free-riding. If social cooperation in general can be explained simply by reference to how free-riders are deterred, the social sciences would be in a very different place from where they stand today. Conversely, if the emergence of social cooperation in human societies cannot be explained by simple detection and punishment mechanisms, it is not clear why government and taxation should constitute an exception. To put it differently, it is fine to model the rational decisions of a tax evader as those made by a criminal. But if the social scientific question is why human beings do not murder one another when convenient, surely one could not offer criminal punishment for murders as the explanation. But this is exactly what explaining tax compliance in terms of deterrence of tax evasion amounts to.

Conclusion

This paper has urged caution against embracing a number of claims that have gained popularity in recent scholarly literature. These claims include, most centrally, that:

1. Information reporting substantially improves compliance, as demonstrated by the greater-than-95% compliance rate in the reporting of wage, interest, and dividend income in the U.S., Denmark, etc.
2. Certain taxes such as the VAT are designed to be self-enforcing (and sometimes are self-enforcing in practice).

These two claims are usually regarded as statements of fact. They are thus distinguishable from, although related to, certain claims that are practical judgments about the impact of possible policies not yet implemented, such as:

3. Information reporting can and should be made more complete to allow the government to determine taxable income for a wider range of types of income, especially business income.
4. Cross-matching VAT invoices will improve tax compliance in developing (and developed) countries.

The main arguments of the paper are against Claims 1 and 2: the suggestion is that they involve mischaracterizations of actual facts. Insofar as one might support Claims 3 and 4 on the basis of Claims 1 and 2, then the arguments of the paper may be viewed as going against Claims 3 and 4 as well. However, it is possible to be an agnostic (rather than a skeptic) about Claims 3 and 4, while at the same time rejecting Claims 1 and 2. The reason is that whether Claims 3 and 4 might be true depend on many factors that we do not yet completely understand. But insofar as Claims 1 and 2 purport to portray facts that we do understand, this paper suggests that they are likely to be incorrect. Finally, the paper suggests that a fifth claim, which appears to be the intuition fueling much recent research in tax and development, is likely to be incorrect:

5. Developed countries make use of information reporting to a greater extent than developing countries, which results in greater tax compliance.

References

- Allingham, Michael G. and Agnar Sandmo (1972) "Income Tax Evasion: A Theoretical Analysis," *Journal of Public Economics*, 1972, 1 (3-4), 323–338.
- Alm, James and Jay A. Soled (2014), "Improving Tax Basis Reporting for Passthrough Entities," 145 *Tax Notes*, 809-818
- Almunia, Miguel, & David Lopez-Rodriguez (2015), *Under the Radar: The Effect of Monitoring Firms on Tax Compliance* (Working Paper).
- Ault, Hugh J. and Brian J. Arnold (2010) *Comparative Income Taxation. A Structural Analysis*, 3rd edition (Kluwer Law International)
- Bankman, Joseph (2007) "Eight Truths About Collecting Taxes from the Cash Economy," 117 *Tax Notes* 506-16.
- Besley, Timothy & Torsten Persson (2013) "Taxation and Development," in Auerbach, A., R. Chetty, M. Feldstein & E. Saez (eds.), *Handbook of Public Economics Vol 5* (Amsterdam: North Holland): 51-110.
- Besley, Timothy & Torsten Persson (2014), "Why Do Developing Countries Tax So Little?" *Journal of Economic Perspectives* 28(4): 99-120 (2014).

- Carrillo, Paul, Dina Pomeranz, and Monica Singhal (2014), *Tax Me if You Can: Evidence on Firm Misreporting Behavior and Evasion Substitution* (Harvard Kennedy School, Working Paper).
- Dincecco, Mark (2015) “The Rise of Effective States in Europe,” *Journal of Economic History* 75(3), 901-918.
- Doernberg, Richard L. (1982) The Case Against Withholding, 61 *Texas Law Review* 632.
- Ebrill, Liam, Michael Keen, Jean-Paul Bodin, and Victoria Summers (2001) *The Modern VAT* (Washington: International Monetary Fund).
- Fiscal Affairs Department (2015) *Understanding Revenue Administration: An Initial Data Analysis Using the Revenue Administration Fiscal Information Tool* (International Monetary Fund)
- Fooken, Jonas, Thomas Hemmelgarn and Benedikt Herman, 2014, “Improving VAT Compliance—Random Rewards for Tax Compliance,” European Commission Taxation Working Papers, 51-2014.
- Harrison, Graham and Russell Krellove. 2005. “VAT Refunds: A Review of Country Experience,” International Monetary Fund Working Paper WP/05/218
- Inter-American Development Bank (2013) State of the tax administration in Latin America 2006-2010
- International Monetary Fund (2011), *Revenue Mobilization in Developing Countries*, (Washington: International Monetary Fund).
- International Monetary Fund (2015), *Current Challenges in Revenue Mobilization: Improving Tax Compliance*, (Washington: International Monetary Fund).
- Jensen, Anders (2015), Employment Structure and the Rise of the Modern Tax System (unpublished working paper)
- Keen, Michael and Stephen Smith, “VAT Fraud and Evasion: What Do We Know and What Can Be Done?,” *National Tax Journal*, 2006, 59 (4).
- Kleven, Henrik J. (2014), “How Can Scandinavians Tax So Much?” *Journal of Economic Perspectives* 28(4): 77–98.
- Kleven, Henrik J., Martin B. Knudsen, Claus T. Kreiner, Soren Pedersen & Emmanuel Saez (2011), “Unwilling or Unable to Cheat? Evidence from a Tax Audit Experiment in Denmark”, *Econometrica* 79(3): 651-692.
- Kleven, Henrik J., Claus Kreiner & Emmanuel Saez (2015), *Why Can Modern Governments Tax So Much? An Agency Model of Firms as Fiscal Intermediaries* (National Bureau of Economic Research Working Paper 15218).
- Kopczuk, Wojciech and Joel Slemrod (2006) “Putting Firms into Optimal Tax Theory,” *The American Economic Review: Papers and Proceedings*, 96 (2), 130–134.
- Krever, Richard (2014) “Combating VAT fraud: lessons from Korea?” *British Tax Review* 2014(3) 329-341
- Kumler, Todd J., Eric A. Verhoogen & Judith Frias (2013), *Enlisting Employees in Improving Payroll-Tax Compliance: Evidence from Mexico* (National Bureau of Economic Research Working Paper 19385).
- Lederman, Leandra (2007) Statutory Speed Bumps: The Roles Third Parties Play in Tax Compliance, *Stanford Law Review*, Vol. 60, p. 695
- Lederman, Leandra (2010). Reducing Information Gaps to Reduce the Tax Gap: When Is Information Reporting Warranted? *Fordham Law Review* 78: 1733.

- Naritomi, Joana (2014), *Consumers as Tax Auditors* (London School of Economics Working Paper).
- Pomeranz, Dina (2015), “No Taxation without Information: Deterrence and Self-Enforcement in the Value Added Tax,” *American Economic Review*, 105(8): 2539–2569
- Robinson, Leslie & Joel Slemrod (2012), “Understanding Multidimensional Tax Systems”, *International Tax and Public Finance* 19(2): 237-267.
- Schenk, Alan, Victor Thuronyi and Wei Cui (2015) *Value Added Tax: A Comparative Approach* (2nd Edition), Cambridge University Press.
- Slemrod Joel, Brett Collins, Jeffrey Hoopes, Daniel Reck & Michael Sebastiani (2015), *Does Credit-Card Information Reporting Improve Small-Business Tax Compliance* (National Bureau of Economic Research Working Paper 21412).
- Slemrod, Joel (2016) *Tax Compliance and Enforcement: New Research and its Policy Implications*, working paper available at ssrn.com/abstract=2726077.
- Thorndike, Joseph J. (2006) “Wall Street, Washington, and the Business of Information Reporting,” at <http://www.taxhistory.org/thp/readings.nsf/ArtWeb/A518AE7D8D5EAF23852571360068FC5E?OpenDocument>.
- U.S. Department of Treasury (2003) “Return-Free Tax Systems: Tax Simplification Is a Prerequisite,” available at www.ustreas.gov/offices/tax-policy/library/noreturn.pdf