



Endogenous audits, uncertainty, and taxpayer assistance services: Theory and experiments[☆]

Christian A. Vossler^{a,*}, Scott M. Gilpatric^b

^a Department of Economics and Howard H. Baker Jr. Center for Public Policy, University of Tennessee, Knoxville, TN 37996, USA

^b Department of Economics, University of Tennessee, Knoxville, TN 37996, USA

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ABSTRACT

In recent years there has been a sharp rise in the information available to individual income taxpayers, such as through tax preparation software provided by third parties and support available by tax agencies, but the effects of this information on tax reporting are not well understood. Within a setting characterized by an endogenous audit process and taxpayer uncertainty, this study uses theory and laboratory experiments to investigate the effects of taxpayer assistance services that better inform taxpayers about their tax liability and the audit process. The endogenous audit rule we study is simple, yet relative to existing work is more likely to characterize the actual incentives facing taxpayers. Among our findings, and in contrast to the case of purely random audits, in theory the effect of providing more accurate information on tax liability is ambiguous, and we find support empirically for increased tax underreporting even in a setting where theory predicts the opposite. This unanticipated result is mitigated when services provide better information on both liability and the audit process, suggesting that audit information may be more salient to participants.

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1. Introduction

In a voluntary reporting tax system, such as the US individual income tax, the opportunity for underreporting liability exists for income sources and deductions that are neither subject to withholding nor to third party reporting, leading to a significant tax “gap”.^{1,2} Taxpayers often have considerable uncertainty over tax liability for these sources,

given complexities of the tax code, imperfect bookkeeping and other factors. Moreover, many taxpayers are poorly informed of audit rules.³ In response, there has been a sharp rise in available information related to individual income tax reporting, although it remains unclear how such information signals impact compliance. This includes the effects of services provided by tax agencies, such as telephone help lines and internet information documents, as well as information provided by third parties, including tax preparation software (e.g. TurboTax and TaxAct), professional tax preparers, and publications with insight on tax agency operations. For instance, some software is likely to provide signals on how the audit process works through, for example, suggestions of audit flags and information on what like-taxpayers report in charitable contributions. Within a setting characterized by an endogenous audit process and taxpayer uncertainty, this study uses theory and experiments to investigate the effects of taxpayer assistance services that better inform taxpayers about their tax liability and the audit process.

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* Corresponding author at: Department of Economics, 523 Stokely Management Center, University of Tennessee, Knoxville, TN 37996, USA.

E-mail address: cvossler@utk.edu (C.A. Vossler).

¹ Bloomquist et al. (2012) estimates a tax gap of \$300 billion for the 2006 tax year (\$235 billion in individual income tax and \$57 billion in the self-employment tax).

² Common examples include tip and self-employment income, capital gains and rental income, and charitable contributions.

³ The most recent survey evidence we can find for US taxpayers supports this claim, although the evidence is admittedly dated (Harris and Associates, Inc., 1988).

Limited by resource constraints, it has long been recognized that many tax agencies use endogenous rules that base audit chances on taxpayer characteristics and tax reporting behavior. Such rules can be crudely characterized as ones that, for a given peer group of taxpayers (i.e. an audit class), lead to audit chances that are increasing with the level of noncompliance (Phillips, 2011). Indeed, as audits are costly, there is an efficiency argument for rules that do well in targeting those taxpayers with the highest expected taxes evaded. In turn, when facing an endogenous audit rule, individuals contemplating how much tax to evade may take into account available information signals on how the audit process is perceived to work.

The particular audit rule we develop and examine determines the audit probability, separately for each taxpayer, as a strictly increasing function of one's expected level of tax evasion.⁴ Although this rule represents a simplification of actual audit processes, it captures the key incentive present in most endogenous processes in the field and, in expectation, leads to audits that target the worst offenders. Alternatively, some have modeled the audit process as imposing a threshold, where reporting taxes above the threshold results in a zero audit chance. Although this may explain some audit rules in practice, field evidence is largely inconsistent with theoretical predictions from such threshold models (Andreoni et al., 1998).

A handful of prior theoretical and experimental studies have examined endogenous audit mechanisms that establish an agent's audit probability based on the observed, relative behavior within a regulated group (Alm and McKee, 2004; Cason et al., 2016; Gilpatric et al., 2011) or based on compliance history (Alm et al., 1993; Cason and Gangadharan, 2006; Clark et al., 2004). Models dependent on peer evaluations create interactions between taxpayers – e.g. a competition effect to avoid being selected for audit or an incentive to coordinate reports to lower the equilibrium audit probability – and are most relevant when the regulated group is small, which does not characterize individual tax compliance.⁵

The effects of liability information services have been examined (Alm et al., 2010; Vossler and McKee, 2017), albeit under random audits, with the basic findings that providing more precise information on tax liability leads to less tax underreporting and higher filing rates, both theoretically and experimentally.⁶ This work builds on earlier models of compliance behavior given uncertain liability (Beck and Jung, 1989; Snow and Warren Jr, 2005; Evans et al., 2009). With the endogenous audit rule, and in contrast to the case of purely random audits, providing more accurate tax liability information in theory has an ambiguous effect on tax underreporting. In particular, liability information can alter expected liability, which in turn affects beliefs regarding the audit probability associated with any level of underreporting. For example, when a service alerts the taxpayer that her liability is lower than expected, this increases the expected audit probability tied to a given level of underreporting and thus increases the marginal incentive to comply. Furthermore, the effect of improved information on reporting is ambiguous even if it does not change expected liability but reduces the uncertainty regarding it. When uncertainty is reduced this decreases the expected penalty the taxpayer faces for any given level of underreporting of taxable income, which in turn reduces the value of

avoiding an audit. A lower expected penalty conditional on being audited reduces the benefit of lowering the probability of audit by reporting more taxable income, and may lead to reduced compliance.

The effects of providing more accurate information regarding audit probabilities has not been previously examined, either in a random or endogenous audit setting. Whereas more accurate tax liability information has a complex and generally ambiguous affect, more accurate audit information has a straightforward impact on predicted behavior. If the information reveals the audit probability to be higher than expected this increases predicted compliance, and if it reveals the audit probability to be lower than expected this reduces predicted compliance. More accurate information that does not change the expected audit probability has no impact on predicted behavior.

We further examine two additional dimensions of taxpayer assistance services. First, we consider the possibility of partial audits, which characterizes a situation where particular tax form line items (e.g., itemized deductions) may be subject to differential scrutiny. If information services reveal which of the two line items, income or deductions, is more likely to be audited, this is predicted to lead to increased compliance on the line with a higher probability of audit, and reduced compliance on the other line. Second, many tax service providers (e.g. H&R Block, TaxSlayer) back their service through guarantees of minimum tax payments (maximum refunds), filing accuracy, and reimbursement of penalties and interest charges. These guarantees thus decrease the expected cost of a tax audit. To characterize this in a stylized way, we consider a guarantee that insulates the taxpayer from any penalties accruing from an audit, conditional on the taxpayer meeting reporting requirements. The effect of a guarantee on reported taxable income is ambiguous theoretically, depending on the relationship between the level of reporting that invokes the guarantee and the report that would minimize the taxpayer's expected costs absent the guarantee. The guarantee may increase reported tax liability if a sufficiently small increase in reporting is required to capture the guarantee. In such a case, the taxpayer benefits from reporting a higher tax liability because, although she incurs a higher tax payment, this is offset by the reduction in possible penalties.

In our experiment, in a setting with deliberate income tax framing, participants face uncertainty over tax liability and the endogenous audit process, and report income and deductions through a simplified tax form. Our experiment is designed to test whether subjects respond as predicted to the endogenous-audit enforcement mechanism, and the various aspects of taxpayer information services as described above within that mechanism. Thus we test whether subjects respond with an increase in reported taxable income to either an increased audit probability *ceteris paribus* or an increased sensitivity of the audit probability to their report. From a baseline of predicted underreporting, we test the effect of a liability information service that reduces the variance of possible tax liability while holding constant the expected value.⁷ The model predicts that subjects will increase reported taxable income in this case. We test whether subjects respond as predicted in a partial audit environment to information regarding which line item is more likely to be audited. Finally, we test whether subjects respond to a service guarantee by increasing reported taxable income as the theory predicts in the setting we employ.

The experimental results serve to both confirm and challenge the theoretical model. The most striking finding is that providing more accurate information on tax liability has either a null effect or increases tax underreporting. This contrasts with prior work, which suggests significant reductions in underreporting (Alm et al., 2010; Vossler and McKee, 2017). In fact, one prominent theme of this study is that we

⁴ Our discussion of the literature focuses on related work examining endogenous audit rules or the effects of information services on income tax compliance. Of course, the literature on tax compliance (evasion) is vast, and we point the interested reader to Alm (2012), and references therein, for a discussion of the broader literature.

⁵ A taxpayer is unlikely to know the size and membership of her audit class, and further – given the large number of taxpayers with similar observable characteristics – it is improbable that any individual taxpayer believes she can actually influence the audit chances of others through her reporting behavior. Models based on compliance history, while they may capture an important tax consideration, introduce a complicated dynamic game between the taxpayer and the regulator. Importantly, aside from using history to apply differential audit efforts to previously compliant and noncompliant taxpayers, audits are randomly determined.

⁶ Alm et al. (2015) provide a discussion, along with supportive evidence, of the external validity of laboratory experiments on individual income tax compliance.

⁷ Ayers et al. (1989) survey third-party tax preparers and find they tend to have pro-taxpayer interpretations of tax regulations. While this may be generally true for third-party information providers, as we are also interested in the effects of (presumably unbiased) information provided by tax agencies, in our design we focus on the provision of unbiased information.

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