Do Indirect Taxes Bite? How Hiding Taxes Erases Accountability Demands from Citizens *

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Abstract

Taxation is fundamental to citizen-government relations. Seminal accounts attribute democratization to direct taxation's rise, and recent evidence shows that direct taxes increase citizens' accountability demands. However, today many governments rely heavily on indirect taxes; evidence is mixed on whether they have similar effects. We present cross-national data demonstrating that indirect taxes are associated with lower levels of government accountability than direct taxes. We argue that the visibility of taxes affects their accountability consequences. We further posit that, on average, indirect taxes become less visible than direct once citizens have acclimated to higher prices. We combine lab-in-the-field experiments with survey experiments in a developing country to demonstrate that less visible taxes provoke less willingness to punish leaders politically and that established indirect taxes are not highly visible to citizens. The findings suggest that the growing reliance on indirect taxes may limit taxation's accountability dividends and impair democratic representation.

Keywords: political accountability, taxation, experiments, VAT, democracy, Uganda, tax visibility

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Replication files are available in the JOP Data Archive on Dataverse (https://dataverse.harvard.edu/dataverse/jop).The empirical analysis has been successfully replicated by the JOP replication analyst.

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A central claim in political science holds that how governments raise revenue has critical implications for democracy and accountability. Historically, taxation played a key role in the evolution of representative government (Tilly 1990; Bates and Lien 1985; Levi 1989; North and Weingast 1989). Today, greater government reliance on taxation—relative to non-tax sources like foreign aid or oil—correlates with lower corruption, higher levels of democracy, and higher public goods provision (Ross 2004; Timmons 2005; Baskaran and Bigsten 2013; Brollo et al. 2013; Gadenne 2017; Prichard 2015). Recent research indicates that taxation can improve government accountability and democracy because it increases citizens' accountability demands and therefore has profound political effects.[1] Taxation appears to make voters more willing to monitor government performance and to sanction leaders when dissatisfied (Paler 2013; Martin 2016; Weigel 2020).

A growing body of evidence, including detailed case studies of different taxes, suggests that taxation only promotes accountability when taxes are sufficiently visible (see e.g. Prichard (2015)). Indeed, research on how taxation affects citizen behavior typically studies direct taxes, such as property and income taxes, for which accountability dividends may be most likely (Paler 2013; Martin 2016; Weigel 2020). However, taxation has changed dramatically in the past forty years; this paper argues that these changes may significantly weaken the link between taxation and governance. As Panel A in Figure 1 shows, most tax revenues worldwide now come from indirect taxes, such as value added tax (VAT), sales tax, excise taxes, and trade taxes. These are indirect because the tax is paid to governments by vendors, suppliers, and distributors—in the case of VAT at each stage of the supply chain—even if the cost is ultimately borne by citizens upon final purchase. Moreover, since 1980, indirect taxes as a percent of global GDP have risen much more quickly than direct taxes have: from base rates of around 7 to 9 percent, direct taxes have increased 0.6 percentage points compared to 3 percentage points for indirect taxes. Panel B of Figure 1 shows that this increasing reliance

[1] Alternative revenue sources, namely foreign aid and natural resource rents, can lead to worse governance outcomes and may also result in lower taxation (Ross 1999; Morrison 2009).

on indirect taxes has been driven by the rise of VAT, which development organizations have heavily promoted as a way for low-capacity states to expand their tax base and increase revenues, especially as trade taxes have declined (Seelkopf and Bastiaens 2020).

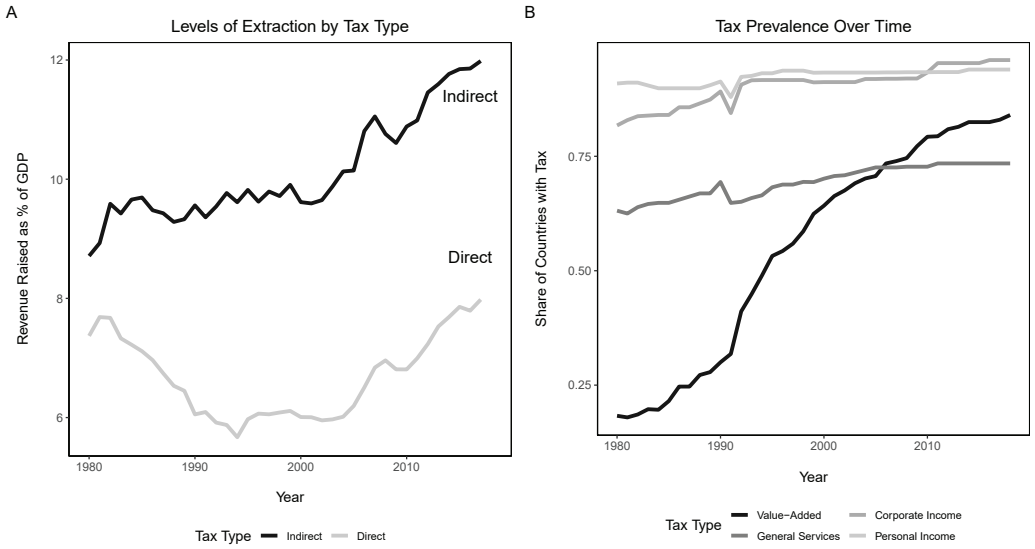

Figure 1: Taxation Over Time. Panel A plots $\frac{revenue}{GDP}$ for different tax types (ICTD 2019). Indirect taxes include VAT, General Services, Trade and Excise taxes. Direct taxes include personal income and corporate taxes. Panel B plots tax prevalence over time (Seelkopf and Genschel 2019).

Today, in both high- and low-income countries, relatively small shares of citizens pay significant income tax, and many governments are finding indirect taxes to be more politically palatable (Wilensky 2002). Recent numbers suggest that 44% of Americans and 43.4% of British citizens pay no income tax at all (Stallworth and Berger 2019; Joyce, Pope and Roantree 2019). According to Afrobarometer data, only 25% of Ugandans reported paying income tax in 2011-12. In contrast, almost all citizens in most countries, including Uganda, pay indirect taxes such as VAT and sales tax on almost every purchase. Understanding how citizens experience and respond to indirect taxation is thus critical in understanding when taxation will promote political accountability.

Researchers studying taxation have long worried that indirect taxes may be less visible to citizens, and that less visible taxes are less likely to promote accountability (see e.g. Wilensky (2002); Prichard (2015); Martin and Gabay (2018)). However, existing evidence is

mixed regarding whether indirect taxes do in fact generate fewer accountability pressures. While Wilensky (2002) finds that reliance on indirect taxes in OECD countries is associated with fewer protests, Martin and Gabay (2018) conclude that indirect taxes are just as likely as direct taxes to be the subject of protests that do take place. Outside the OECD, VAT's introduction in African countries has frequently led to protests, and both direct and indirect taxes tend to be strategically lowered during election years (Prichard 2015, 2016). Yet, common wisdom appears to hold that the lower visibility of indirect taxes limits the extent to which they generate government accountability (Joshi and Ayee 2008; Williamson 2017).

This paper develops and tests a theory of tax visibility and accountability to resolve these mixed findings. We argue that while indirect taxes are typically highly visible when first introduced, over time citizens *acclimate* to indirect taxes, making them on average less visible than direct taxes; this lowers their potential accountability dividends. This accords with prior work arguing that less visible taxes are on average less likely to motivate accountability demands (Prichard 2015; Martin and Gabay 2018).[2] Whether a tax is direct or indirect, and whether it is highly visible, are distinct dimensions with some degree of independence (Martin and Gabay 2018). Income taxes may be less visible absent annual tax filings, and indirect taxes may be more visible when governments mandate receipts or non-inclusive pricing (Prichard 2015; Martin and Gabay 2018). Our argument is that, on average, long-established indirect taxes will be less visible than similar direct taxes. Many governments obscure indirect taxes with tax-inclusive pricing, while paycheck statements and annual returns maintain direct tax visibility.

We combine observational and experimental data to test this argument and proposed mechanisms. First, cross-national estimation, using a modified version of extreme bounds analysis, suggests that indirect taxes have consistently worse effects on government accountability than direct taxes, as measured by multiple indicators. Building on the ques-

[2]By "visible," we intend both "capable of being seen" and "mentally perceived or observed" (OED-Online 2022). The next section links this definition of visibility to a tax's salience.

tions unanswered by the cross-national data, we next use lab-in-the-field experiments in Uganda to examine the effects of tax modality and visibility at the time a tax is introduced. We find that, when a simulated direct and indirect tax are equally visible, both taxes increase citizens' willingness to pay to punish leaders for low transfers back to citizens. However, making the indirect tax less visible reduces this effect significantly, cutting the effect size in half. This finding underscores that visibility, rather than other aspects of tax modality, drive taxpayer demands for accountability. The lab experiments also show that tax visibility affects two known mechanisms through which taxation causes citizens' accountability demands: the degree of ownership citizens feel over the budget and the sense of loss they experience from paying a tax.

Finally, we use survey experiments and observational data from Uganda to show that common, well-established indirect taxes are, on average, not highly visible to citizens. A survey experiment shows that priming citizens on established indirect taxes significantly decreases citizens' perceived utility from purchasing using a novel utility "ladder" measurement; we argue that such drops would be unlikely if indirect taxes were visible. We also show that Ugandans significantly under-report paying indirect taxes, relative to direct, and express much higher uncertainty about indirect tax burdens.

We also address several possible questions about these results. First, other research has focused on tax salience, rather than visibility more specifically. We argue that visibility is a necessary, albeit not sufficient, condition for tax salience, and that it is important to study in its own right. Our experimental design allows us to separate these two concepts by holding constant other factors that contribute to tax salience, including tax amount, frequency, coincidence with purchase, public debate, media coverage, distribution, and concentration (Prichard 2015; Martin and Gabay 2018). Second, we consider other causal pathways linking taxation and accountability such as tax bargaining and state capacity and determine that they likewise cannot explain our results. Together, the Uganda studies provide evidence that less visible taxes produce weaker accountability pressures, and that indirect taxes are

significantly less likely to be visible.

These results have important implications for the study of accountability and state development. Our theory provides a general framework for understanding how a tax's visibility affects its accountability dividends. More specifically, we show that it is likely that the positive effects of indirect taxation on democratic accountability will be weak unless the taxes remain visible. Our findings suggest that governments may strategically rely more heavily on hidden indirect taxation in order to reduce citizens' demands for political accountability; this helps explain earlier findings by Wilensky (2002) and others. If countries continue to increase less visible VAT, the positive relationship between taxation and accountability may weaken, although our evidence also suggests that indirect taxes are still better that non-earned windfalls. Further, low-income citizens paying only hidden indirect taxes may be less well represented politically than more wealthy direct taxpayers. However, our results also suggest one possible path for civil society groups to counteract the weakened accountability pressures of indirect taxes: public campaigns designed to increase visibility might generate stronger accountability pressures for indirect taxation.

Theory

Direct taxes are collected from the taxpayer by the government and typically apply to a certain form of income or assets, such as wages or capital gains. Indirect taxes, including VAT and excise duties, are levied on particular goods or services at the time of purchase, manufacture, or trade, and remitted to the government by the seller or producer. VAT, in particular, is collected at every stage in the supply chain, with tax paid on the price minus the prior taxes collected. This means that while consumers ultimately bear the cost of an indirect tax via higher prices, they do not directly pay the tax to the government.

A common intuition holds that indirect taxes "bite" less than direct taxes. For example, as Joshi and Ayee (2008, 209) write, in contrast to indirect VAT, income tax "is also the most likely tax instrument through which links of accountability and responsiveness are

likely to be established between the state and taxpayers." And, in describing interviews with American citizens about taxation, Williamson (2017, 51) writes that those who do not pay income tax "are quick to downgrade their status to quasi-taxpayer, or deny being a taxpayer at all." Relatedly, the fiscal illusion literature argues that citizens fail to internalize the costs of indirect taxes, leading to higher than optimal government spending and again suggesting less visibility for indirect taxes (Blumkin, Ruffle and Ganun 2012). However, as noted, the evidence on whether indirect taxes generate fewer accountability pressures is mixed. This section discusses previous work on tax modality, salience, and accountability, and builds a theory of how visibility mediates the effect of taxation on accountability pressures.

Direct and indirect taxes differ in several ways that could create a differential effect on accountability. Contrary to direct taxes, indirect taxes typically involve an *exchange*, in which a good or service is received at the same time as the tax payment; direct taxes have no such reciprocity built in. Indirect taxes are also typically paid more *frequently*, with every purchase rather than per paycheck. They are also typically paid in smaller *increments*. We argue that the most critical difference between direct and indirect taxes is that, on average, established indirect taxes are less *visible*, as measured by the degree to which citizens are aware 1) that they are paying a tax and 2) that the tax money is going to the government.

Visibility is a necessary precondition of tax *salience*, which prior research argues influences when taxes will generate accountability pressures. Salience is a broad concept encompassing a number of aspects. These include historical legacies, media coverage (Prichard 2015), tax increment, tax base, and whether the tax is perceived as fair (Martin and Gabay 2018). Prichard (2015) even includes visibility as part of his definition of salience, defining salient taxes as those that are "visible and broadly felt." We define salience slightly differently: a tax is more salient when it plays a larger role in an individual's utility function. This allows us to better separate out the role of visibility in increasing taxation.

A more salient tax could increase accountability demands in two ways. First, it could enable citizens to more easily overcome collective-action problems and engage in tax

bargaining, in which governments grant policy or institutional concessions in return for quasi-voluntary compliance (Bates and Lien 1985; Levi 1989; North and Weingast 1989; Moore 2004; Prichard 2015). Second, salience may mediate taxation's effects on citizens' political behavior, particularly their willingness to monitor government performance and take political action when dissatisfied (Paler 2013; Martin 2017; Weigel 2020). We focus on this second pathway and consider tax bargaining as an alternative explanation.

If citizens do not perceive a tax, and how it affects their wellbeing, it will be unlikely to generate accountability demands (Prichard 2015). Focusing on visibility, rather than salience more broadly, has multiple advantages. First, visibility is a concrete, generalizable concept that applies across different tax types and settings. This stands in contrast to salience writ large, which is difficult to describe concretely. Second, tax visibility can be manipulated experimentally and isolated from other aspects of taxation. Finally, visibility has a clear theoretical linkage to important causal mechanisms connecting taxes to accountability demands, including loss aversion and ownership. In sum, studying visibility rather than salience allows us to structure our study more precisely and produce a set of findings that are more easily applied across a range of taxes and settings.

We view visibility as a necessary but not sufficient condition for tax salience. For example, a highly visible tax that is paid only in rare conditions, such as when real estate changes hands, may not be viewed as salient by most paying the tax due to its rarity. Likewise, if a visible tax is extremely small, it may be ignored by taxpayers and thus not prove salient. On average, however, we argue that visible taxes are more likely to be salient than hidden taxes and thus to affect accountability pressures. In this our theory is akin to many others in political science. For example, studies of the role of information in politics similarly argue that while information may be a necessary precondition for citizens to hold governments accountable, it is not sufficient (Lieberman, Posner and Tsai 2013).

If indirect taxes are on average less visible and thus less salient *ceteris paribus*, this may affect the mechanisms through which taxation increases citizens' accountability

demands. Prior work has argued that taxation increases citizen engagement by increasing the psychological benefits citizens receive from punishing poor government performance politically through their effect on loss aversion and ownership. Loss aversion theories posit that citizens expect to receive their earned income, and taxation forces a painful loss of earnings that citizens are eager to regain through government spending (Martin 2016; Paler 2013; Sandbu 2006). This makes taxpaying citizens more willing to demand higher government transfers to replace lost income. Ownership complements the loss-aversion mechanism. Recent work demonstrates that citizens' sense of ownership over government budgets predicts willingness to punish leaders politically, and that direct taxation increases punishment in part by activating budget ownership (de la Cuesta et al. 2022). The loss-aversion mechanism requires that citizens see and feel the loss from the tax payment, while the ownership mechanism necessitates that citizens are aware that their earned income has been transferred to the government. Thus, both require that a tax be visible.

It is important to emphasize that indirect taxes can be highly visible when introduced, or when governments mandate the reporting of VAT alongside items' prices (Chetty, Looney and Kroft 2009; Prichard 2015). Consumers are also highly sensitive to the prices of critical goods; food and fuel price increases have led to large-scale protests (Ballard-Rosa 2016; Prichard 2015). For example, introducing a VAT increases prices and noticeably decreases citizens' purchasing power, inducing a sense of loss. Media coverage may also highlight the link between higher prices and the budget, increasing ownership. In the short term, this can increase citizen political demands on government similar to direct taxes, and it can generate collective action around bargaining or other demands. This accords with evidence that indirect taxes can spur protest in many cases (Martin and Gabay 2018; Prichard 2015). Alternatively, exact tax withholding systems or systems that do not require taxpayer filing may decrease direct tax visibility (Holtzblatt 2007). Nevertheless, many governments require the disclosure of direct taxes to citizens through paychecks and annual filing while obfuscating indirect taxes through allowing or mandating tax-inclusive prices.

We contend that one reason indirect taxes are on average less visible is *acclimation*: tax visibility can change over time, and this may vary by tax modality. When a direct tax is introduced, or when rates increase, it is highly visible. Citizens feel a loss from payment and, as direct taxes are paid straight to the government, this also activates the ownership mechanism. Tax bargaining may be spurred, and citizens update their beliefs about state capacity. Thus, in general we expect direct taxes to increase political accountability pressures at the time of introduction. This accords with existing evidence (Paler 2013; Martin 2016; Weigel 2020; Prichard 2015). Over time, we expect direct taxes to remain relatively visible. Even when individuals pay income tax via withholding, the amounts are transparently reported on paychecks, and any requirement to file annual income-tax returns further clarifies tax burdens. Likewise, the budget link remains apparent as direct taxes are remitted directly to the government. This should hold for income tax, and it should also apply to other common direct taxes such as property or business taxes. It is less likely to apply to payroll taxes that are often hidden from citizens (Martin and Gabay 2018).

We argue that, in contrast to direct taxes, indirect taxes are likely to become less visible over time for three reasons. First, individuals adapt to the higher consumer prices under indirect taxes and adjust their expected post-consumption utility accordingly. This is similar to price shocks like inflation; they create temporary dissatisfaction, but consumers ultimately adjust. Governments may even assist this process by phasing in VAT rates (Prichard 2015), and governments can also mandate tax-inclusive shelf prices that effectively obfuscate the tax. Second, indirect taxes are paid to a merchant instead of directly to the government; this obscures the connection between tax payments and government spending. Third, unlike direct taxes, indirect taxes are paid as part of a contemporaneous exchange for a good or service, and consumers' focus turns to the good purchased rather than the tax paid.

In the long run, citizens may begin to view tax-inclusive prices as the "real" price of a good. They may be aware on some level that these prices include taxes, but the tax loses its visibility. Meanwhile, direct taxes will on average remain more visible in most

countries. We expect this to cause a divergence in which citizens who pay visible direct taxes will likely demand more from government, but those who only pay indirect taxes are less likely to make such demands. This is consistent with evidence that visibility affects political outcomes. Finkelstein (2009) demonstrates that E-ZPASS electronic toll collection, which lowers toll visibility, made U.S. state politicians more willing to raise toll rates in election years. Moreover, consumers appear to systematically underestimate indirect tax rates (Sausgruber and Tyran 2005; Blumkin, Ruffle and Ganun 2012).

Discussion and Hypotheses

Our theory argues that visibility affects taxation's accountability dividends and that established indirect taxes are on average less visible. Thus, the degree to which a government relies on direct or indirect taxes should predict aggregate levels of political accountability. This first hypothesis was not pre-registered but follows from our theory. We test H1 using country-level panel data on taxation and accountability.

> **Hypothesis 1:** *A country with higher reliance on direct (indirect) taxation will display higher (lower) average accountability.*

Our next hypothesis is that visibility mediates taxation's effect on accountability demands.

> **Hypothesis 2:** *More visible taxes will on average generate higher political accountability demands from citizens than less visible taxes.*

This is predicted by the theoretical mechanisms linking taxation and accountability. We test two implications of H2. First, if we hold tax type constant and manipulate visibility, then the same tax will have a smaller impact on citizens' willingness to punish poor leader performance when it is less visible. Second, when two different taxes are equally visible, they will impact citizens' accountability demands similarly. We test H2 using laboratory experiments that exogenously vary tax visibility while holding constant other aspects of taxation. The experiments enable the clear separation of tax modality from tax visibility, producing clear causal inferences regarding visibility's effects on citizens' accountability demands. We test

H2 in the context of a simulated, newly introduced tax. The lab experiments also allow us to test the causal mechanisms underlying the effect of visibility. While visibility can affect multiple mechanisms, we focus on those that are feasible to study in the lab setting: loss and ownership. We predict that visibility will affect the losses from paying a tax and the degree to which paying a tax increases individuals' ownership over a budget.

Finally, our theory implies that citizens acclimate to indirect taxes over time, rendering them less visible. We test H3 using a survey experiment and observational data from a nationally representative survey of Ugandan citizens. Hypotheses 2 and 3 were pre-registered. While we do not test the actual process of acclimation, we test the end result:

Hypothesis 3: *Established indirect taxes are on average less visible to citizens.*

Direct and Indirect Taxation Have Different Country-level Accountability Effects

If indirect taxes are less visible than direct taxes, governments will face fewer citizen demands for how they use indirect tax funds. H1 predicts that—on average—a country's reliance on indirect taxation should have either a null or negative effect on overall levels of accountability, while greater direct tax reliance should have a more positive correlation with accountability levels. This hypothesis only requires that indirect taxes are less visible on average: there may be individual cases in which direct taxes are less, or indirect taxes more, visible. We test this prediction using panel data on 194 countries from 1980 to 2018.

Several elements of the taxation-accountability link make Hypothesis 1 challenging to test and increase the chances of a null result. First, it is not clear what the temporal sequencing of any effect should be. In the simplest model, an increase in direct taxation, through its greater visibility, leads to a subsequent increase in accountability. However, governments may also preemptively improve accountability outcomes to win citizen assent for a tax increase; in this case, accountability will change before and not after taxation changes. Second, our theory is about the actual direct and indirect taxes that citizens pay. However, the best available measure of taxation is tax-to-GDP ratios, and this measure will

be affected by underlying economic conditions, as well as changes in actual tax rates. Only in the latter case would we expect changes in accountability.

On average, we expect these challenges to increase the noisiness of our estimates, making it more difficult to detect taxation's effects on accountability. For this reason, we frame our expectations in terms of differences between direct and indirect taxation. To the extent that changes to direct and indirect taxation affect citizens, greater reliance on direct taxation should be associated with more positive (less negative) accountability outcomes than with indirect taxation. That is, we should not see that direct and indirect taxes have the same effects. Because tax policy is not exogenous, this analysis is not causal, but it does provide suggestive and general evidence on whether direct and indirect taxes have systematically different correlations with measures of accountability. We also cannot demonstrate here that this is due to visibility, but in later sections we make that connection.

Our main independent variables are the tax-to-GDP ratios for direct or indirect taxes in each country-year (on a 0-to-100 scale), taken from the ICTD's Government Revenue Dataset (GRD). To measure accountability, we considered 10 measures in the Varieties of Democracy (VDEM) database that had good geographic coverage for at least 25 years. We then selected two that were 1) good proxies for accountability and 2) likely responsive to changes in citizens' demands. First, we use the VDEM vertical accountability index, which "captures the extent to which citizens have the power to hold the government accountable." It includes "formal political participation on part of the citizens...and participat[ion] in free and fair elections." We avoided direct measures of citizen punishment, as they will not pick up cases where government preemptively improves its behavior.

To complement the accountability index, we use VDEM's corruption severity index. This index includes executive, judicial, and legislative corruption and was rescaled to run from 0 (most corrupt) to 100 (least corrupt). While corruption levels do not directly measure demands for accountability, they do measure whether government is meeting citizens' demands for good governance. Corruption directly inhibits governments' ability to

implement citizens' preferred policies, and it is a critical election issue in many countries. If direct and indirect taxes have different effects on accountability demands, this may lead to lower corruption levels among countries that rely on direct taxes, while indirect tax reliance will have little effect. Appendix C provides additional discussion of our variable choices.

As this analysis was not pre-registered, and as there are many plausible specifications, we avoid picking a single regression model for each dependent variable. Instead, we run a modified version of the extreme bounds analysis used by Sala-i Martin (1997). We first specified a baseline model of the effect of taxation on our outcomes that included our independent variables—the tax/GDP ratios for direct and indirect taxes—as well as 11 "core" control covariates whose absence would clearly bias a model of taxation and accountability.[3] We then randomly draw between 1 and 5 additional covariates from a set of 15 plausible auxiliary variables; Drawing more than 5 variables generated unacceptably high levels of missingness. This process yields 4,943 possible specifications for each dependent variable. The use of a set of core controls removes many specifications that would omit obvious confounders, improving internal validity. Each model is of the following form:

$$\text{Accountability}_{i,t+1} = \alpha_i + \delta_t + \beta \text{RelianceIndirect}_{it} + \gamma \text{RelianceDirect}_{it} + \boldsymbol{\eta}\mathbf{X}_{it} + \epsilon_t.$$

RelianceIndirect and RelianceDirect are country i's indirect- and direct- tax/GDP ratios in time t. The subscripts on α and δ denote country and year fixed-effects. $\mathbf{X}_{it}$ is comprised of a set of core covariates and the basket of theoretically plausible auxiliary covariates discussed above. The model's identifying variation comes from over-time, within-country variation in accountability and corruption that is unrelated to temporal shocks or the included time-varying covariates. Standard errors are clustered by year to account for changes in model fit

[3]Total revenue, non-tax revenue, civil war, GDP growth, inflation, indicators for legislative and for presidential elections, log GNI per capita, log population, and a three-category regime type measure. See Appendix C for additional details and aggregation of estimates.

that could occur due to dynamic changes in the underlying data-generating process.

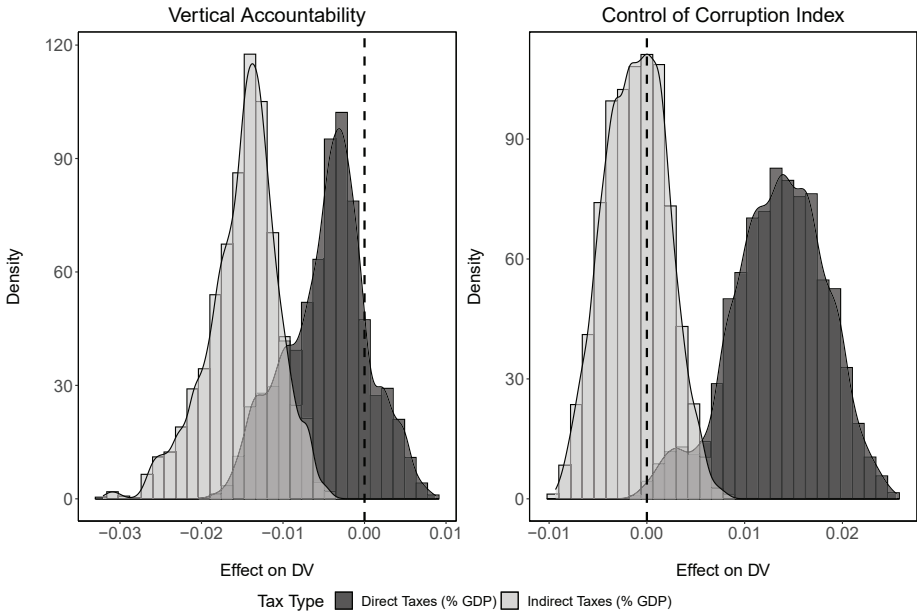

Figure 2: Coefficient Distribution for Direct and Indirect Taxes on Vertical Accountability and Corruption. Each histogram plots the estimates from 4,943 models.

The quantity of interest is the distribution of beta coefficients for RelianceIndirect and RelianceDirect. H1 proposes that the effect of RelianceDirect on the accountability and corruption measures should be consistently "better" than the effect of RelianceIndirect, although as discussed above we do not necessarily expect direct taxation to have a strictly positive effect. Figure 2 plots the kernel-smoothed densities of these coefficient distributions for each dependent variable. As expected, the distributions are visibly different. An increase in direct taxation is associated with no change in accountability, while indirect taxation is associated with lower accountability. Similarly, direct taxation is associated with lower corruption, while the effects of indirect taxation are mostly null and centered close to zero. Critically, in both graphs the distribution of coefficients for each tax type is significantly different, with direct tax reliance predicting higher values of accountability than indirect taxes. A Kolmogorov-Smirnov test rejects the null that the two distributions in each panel are the same ($p \approx 0$). All models pass the modified Durbin-Watson test for AR(1) autocorrelation in unbalanced panels proposed by Baltagi and Wu (1999).

Appendix C reports four sets of robustness tests. First, our results hold for three different configurations of fixed effects and time trends. Second, we find similar effects for alternative dependent variables, including VDEM's measures of patrimonial behavior by elected officials, horizontal accountability, diagonal accountability, and a general accountability index. Third, we find very similar results using a 5-year moving average for the independent and dependent variables. Finally, our results are robust to a more sophisticated approach in which we weight coefficients by the product of their models' R^2 and the proportion of non-missing data after listwise deletion. Combined, our findings indicate significant differences in the correlations between measures of political accountability for indirect and direct taxes over many countries and years, consistent with our theory.

Effects of Tax Visibility in Lab Experiments

We next test whether tax visibility, and tax modality, could account for these differences. We expect that the same tax will induce higher citizen accountability demands when it is more visible, while two equally visible taxes will generate similar accountability demands (H2). Testing this involves creating separate, exogenous variation in tax modality and tax visibility and separating visibility from other aspects of tax salience. While these dimensions are difficult to manipulate independently in the real world, laboratory experiments allow us to isolate the effect of tax visibility from other potential differences between direct and indirect taxes, particularly the exchange mechanism discussed above and other aspects of salience. The lab setting also allows us to precisely measure how visibility affects the loss and ownership mechanisms and to document citizens' expressive benefits from punishing leaders. While we do not explicitly test other accountability aspects such as collective action, we view this section as testing a likely precondition for any increases in successful citizen action. Experimental protocols and tests were pre-registered with EGAP prior to data collection.

Our experiments, based on those in Martin (2016), all model a strategic interaction between a single Citizen and a Leader (both roles are played by ordinary citizens). There are

three tax treatments, which vary in tax modality and visibility, and one non-tax, Windfall condition. In all treatments respondents first earned a wage, then used part to purchase a real item. The Citizen then paid any required tax (see below). In all conditions the Leader then received a group fund of 1,000 Ugandan Shillings (UGX) that, in the tax treatments, came in part from the tax paid by the Citizen. In all conditions the Leader then allocated the group fund between herself and the Citizen. Simultaneously, the Citizen decided, for each feasible allocation decision, whether he would wish to pay 100 UGX of his remaining wage to make the Leader pay a 400 UGX fine; no one received any money lost in punishment.

We designed our four treatments to vary both the source of the group fund and the visibility of any tax. The control group is the "Windfall" condition, and the three treatment groups are the Direct Tax, Visible VAT, and Hidden VAT conditions. The stages of each condition are summarized in Table 1. All treatments share the basic structure outlined in the previous paragraph; the key differences are in the initial wage; the cost of purchasing; the type and visibility of taxation; and the source of the group fund. Note that the three tax treatments are designed to model taxation at the time of introduction and do not test acclimation. The differences between the treatments are as follows:

Initial wage. In each condition, the Citizen begins by completing a short effort task to earn her wage for the round. The wage is 1,000 UGX in the Windfall condition, and 1,500 UGX in the three tax conditions. The higher endowment in the tax conditions was necessary to keep the total amount of money in the game "economy" constant, and to make the games structurally identical at the time decisions are made.

Purchasing. Once wages were earned, citizens in all conditions purchased a small item—which they kept—with a street price of 500 UGX; piloting confirmed street prices were common knowledge. Available goods were rice, soap, cooking oil, candles, and maize meal. The price of the good was the 500 UGX street price in the Windfall and Direct Tax conditions, but 1,000 UGX in the Visible and Hidden VAT conditions. In the Visible VAT condition, respondents were told that the price included a new 500 UGX tax. In the Hidden

VAT condition, the tax was mentioned during a group training, but not reinforced during the purchasing phase of the actual game, as described further below.

Taxation and the Group Fund. In the Windfall condition, there is no tax: a group fund of 1,000 UGX is simply given to the Leader. The group fund was described as foreign aid, oil revenues, or unspecified, according to session-level random assignment; these conditions are pooled for analysis (See Appendix A). In all tax conditions the Citizen pays a 500 UGX tax immediately after the purchasing phase, but the modality and visibility of the tax varies, allowing us to separate the two tax characteristics.

In the Direct Tax and Visible VAT conditions, the tax was highly visible but tax modality varied. A group training stressed the exact amount of the tax. During enumeration, in the Direct Tax condition the tax was taken from the Citizen's post-purchase income and respondents physically handed over coins representing the tax, then saw it doubled and transferred to a tile representing the Leader. In the Visible VAT condition, Citizen respondents saw enumerators take the 500 UGX tax out of the purchase price previously paid, double it to 1,000 UGX, and transfer it to the Leader. Any differences between the Visible VAT and Direct Tax conditions are therefore due to tax modality and not visibility. If we see differences in punishment between the two visible taxes, it suggests that other mechanisms, like exchange or the way citizens process direct and indirect taxes, may be driving the differences in the previous section, rather than visibility.

In the Hidden VAT condition, taxation was implicit. In the group training, respondents were told only that "the Government has decided to introduce a tax on goods, similar to VAT, so now the goods cost 1,000." During subsequent gameplay the tax was not explicitly mentioned, and the group fund was not explicitly linked to taxation. Rather, the enumerator simply removed the amount paid during purchasing from the board, and then added the 1,000 UGX group fund. In pretesting, we confirmed that our respondent pool had excellent knowledge of the street price of the small items, meaning that the amount the price had increased due to taxation should have been clear. As the Hidden VAT condition reduces

tax visibility, we can compare citizen behavior in the Visible and Hidden VAT conditions to test whether visibility affects political punishment, controlling for the type of tax. The treatment also controls for other potential aspects of tax salience, including the tax increment (held constant at 500 UGX) and tax base, and rules out many other potential salience factors such as historical legacies, media coverage, and views of tax fairness.

Decision-making and outcomes. Across all treatments, the games were structurally identical at the time Leaders and Citizens made strategic decisions: the Citizen always had a wage of 500 UGX remaining, plus the good they purchased, and the Leader had the group fund of 1,000 UGX. Thus, all treatments are essentially strong framing conditions.

Direct Tax	**VAT (Hidden and Visible)**	**Windfall**
Citizen gets wage of 1,500 UGX.	Citizen gets wage of 1,500 UGX.	Citizen gets wage of 1,000 UGX.
Citizen pays 500 UGX for a small item.	Citizen pays 1,000 UGX for a small item.	Citizen pays 500 UGX for a small item.
Citizen pays 500 UGX direct tax, which is doubled and given to Leader as group fund.	Of the 1,000 paid for the good, 500 UGX in tax is taken, doubled, and given to the Leader as group fund.	Leader gets group fund of 1,000 UGX.
Leader decides how to allocate the 1,000 UGX group fund.		
Citizen decides whether to pay 100 UGX to fine the Leader 400 UGX.		

Table 1: Timing of Lab Experiments

The game was implemented as five single-shot rounds: absent expressive benefits, a citizen should never punish and the leader should offer 0 UGX. This allows us to test how visibility and tax type affect expressive benefits of political punishment. Our experiments control for the alternative mechanisms discussed above that could differentiate direct and indirect taxation or could affect tax salience. To control for tax structure, in all tax conditions the tax is 33% of the Citizen's endowment, is paid exactly once, and is mandatory. The tax rate is comparable to average OECD income and social security taxes (OECD 2020). Our structure rules out the possibility that treatment effects are caused by differing payment frequency or tax size. Second, the Visible and Hidden VAT treatments hold constant whether

a good is received in return at the time of the tax payment. If citizen punishment differs across these conditions, it cannot therefore be due to a difference in the exchange mechanism.

Lab Experiment Implementation

Our lab setting, Uganda, is well-suited to comparing the differential political effects of indirect and direct taxation, and of tax visibility. Uganda's per-capita GDP and other development indicators are at or near the means for the continent (World Bank, 2016). Taxation is in general politically important: almost all citizens pay value-added and excise taxes, and direct taxation has played a key role in several recent elections (Persson and Rothstein 2015). This means that citizens are familiar with both direct and indirect taxes; prior work has found that lab experiments are best able to pick up the effects of taxation on political behavior when respondents have experience as taxpayers (de la Cuesta et al. 2022).

We conducted 72 sessions of 16 respondents each in Kampala, Uganda. Treatment was randomly assigned by session. After a group training, respondents met individually with enumerators, were told whether they were a Citizen or Leader, then played five single-shot rounds of the treatment, changing pairings between rounds.[4] All pairings were anonymous, and the single-shot nature of each round was stressed between rounds; debrief questions show 84.8% of respondents believed the games were single-shot. Appendix A provides additional sampling and enumeration details.

Source treatments were repeatedly reinforced in the enumerator scripts and on game boards used during enumeration, with the exception of the Hidden VAT condition, as described above. To increase realism, enumeration used real 100 UGX coins. The protocols also stressed the political nature of the game by linking each game component to the desired practical concept. The money the Leader keeps was described as "her own personal salary,"

[4]Each session had 12 Citizens and 4 Leaders. Respondents knew roles and pairings were randomly assigned, and that pairings changed each round. To avoid deception, each Leader played with 3 citizens per round. One pairing was randomly chosen for the Leader's payout, making all pairings payoff-relevant in expectation.

while the Citizen transfer was described as "money that politicians send to a community for development or other services that benefit the people living there." Punishment was described as similar to protesting or voting—it imposes political costs on a leader but is also costly for citizens. Subjects understood the mapping of the game to practical politics and quickly made connections between the experiment's dynamics and the on-the-ground political reality in their communities as demonstrated in their common remarks to enumerators.

Pre-specified manipulation tests confirm that our treatments affected tax visibility. Post-treatment, 68.6% of respondents could correctly identify the group fund's source in Visible VAT compared to 29.8% in Hidden VAT. While it may seem strange to view such low pass rates as evidence that a treatment worked, we argue that "failing the manipulation check" is what happens fundamentally to real taxpayers when a tax is not visible.[5]

Lab Experiment Measurement

Our main dependent variable is a Citizen's punishment threshold in each round, defined as the smallest Leader transfer at which the Citizen does not punish. For example, if a Citizen would punish Leader transfers of 0-300 UGX, but not 400 UGX, the punishment threshold is 400 UGX. Thus, higher Citizen demands result in a higher punishment threshold. H2 predicts higher punishment thresholds for more visible taxes, implying higher thresholds in the Visible compared to Hidden VAT condition. Appendix A discusses results for Leaders.

We also measured two of our proposed mechanisms: the effect of tax visibility on perceived losses from a tax payment and the degree of ownership citizens feel over the budget. To measure ownership, following the final round we asked respondents how much, on a zero-to-ten scale, they agreed with the statement "I feel strong ownership over the group fund." We expect to find lower group-fund ownership for less visible taxes. de la Cuesta et al. (2022) shows that ownership is causally related to punishment and political action.

To assess loss we developed a precise way to measure respondents' subjective well-

[5]In the Direct tax condition 99% of subjects correctly identified the source of the group fund.

being. Citizens were shown a ladder with 21 rungs, where 0 represented someone "not at all happy/not well off" and 20 represented someone "very happy/well off." At the start of each round, Citizens were anchored at rung 10. They then updated their position on the ladder following purchasing but before the group fund had been created, any direct taxes paid, or any indirect taxes transferred to the leader (See Appendix A for details.) This allows us to test each treatment's effect on subjective utility from purchasing. We expect to see ladder values below 10—indicating utility losses—in the two VAT conditions, where prices exceed the market price, and ladder values above 10—indicating gains—in the Windfall and Direct Tax conditions. H2 predicts smaller losses in the Hidden VAT condition relative to the Visible VAT condition.

Lab Results: Visibility affects punishment

The lab experiment results are presented in Table 2. Column 1 shows the results for the effects of each treatment on punishment. All models are OLS and include subject covariates; the Leader transfer from the previous round; and fixed effects for each enumerator, each round, and the item purchased that round. Standard errors are clustered by subject.

Hypothesis 2's first implication was that visibility would affect citizens' willingness to punish low transfers, controlling for tax type. Supporting this, we find that thresholds are on average 27.5 UGX higher in the Visible than the Hidden VAT condition ($p = 0.011$). H2's second implication was that an equally visible direct and indirect tax would produce similar punishment levels; this would not be the case if other differences between tax types were driving punishment behavior. As expected, we find that the two visible tax conditions—Direct Tax and Visible VAT—have similar average punishment thresholds. Interestingly, we still see a significant increase in punishment thresholds in the Hidden VAT condition, relative to the Windfall condition, suggesting that even less visible taxes may impact accountability pressures at the time of introduction. Together, these results support our theory that a tax's visibility drives the extent to which it increases citizens' demands on leaders.

	Dependent Variable		
	Threshold	Ownership	Ladder Position
Visible VAT - Hidden VAT	27.46**	0.34*	−0.44*
	(10.70)	(0.19)	(0.23)
Visible VAT - Direct Tax	12.44	0.03	
	(11.11)	(0.19)	
Hidden VAT - Windfall	28.18**		
	(10.90)		
Round FE	✓	N/A	✓
Item FE	✓	N/A	✓
Covariates	✓	✓	✓
N	4150	829	4150

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Table 2: Treatment Effects on Punishment, Ownership, and Ladder Position. Columns 1 and 3 use subject-round data with subject-clustered (CR2) SE; Column 2 uses subject-level data with robust (HC3) SE. N includes all treatment conditions. See Figure A.3 for reports by-treatment means and 95% confidence intervals. Results robust to alternative specifications (Appendix A). Covariates are gender, age, education, poverty, and an index of local public goods.

Lab Results: Tax Visibility Affects Ownership and Loss

We predicted that tax visibility would affect political punishment through the ownership and loss mechanisms; low visibility may limit the extent to which taxation increases budget ownership or induces losses in citizens. We test these implications for the two measures described above. We expect that ownership of the group fund will be higher for more visible taxes. We also predict that purchasing will induce utility losses in both VAT conditions, but these losses will be larger when the tax is more visible.

Column 2 of Table 2, using a similar OLS model to Column 1, shows that group-fund ownership is 0.343 points higher in the Visible VAT condition compared to the Hidden VAT condition ($p = 0.07$). The difference is significant at the 5% level if we use the pooled Visible VAT and Direct Tax conditions as the reference category. However, when we compare the equally visible Direct Tax and Visible VAT conditions, the coefficient is close to zero: equally visible taxes produce similar ownership levels. Appendix A shows that ownership in the Visible VAT and Direct Tax conditions is significantly higher than in the Windfall

condition, while ownership in Hidden VAT is not. Together, these results suggest that while visible taxes increase citizens' budget ownership, reducing tax visibility mutes this effect.

Our results also support the loss mechanism. In both VAT treatments, utility decreased after purchasing the taxed good, relative to the pre-purchase anchor of 10; this was expected due to the high cost of the good. Column 3 of Table 2 shows that, as predicted, losses are 0.44 points larger in the Visible than Hidden VAT condition ($p = 0.064$), a striking 14% increase in loss from making the same tax more visible. The ladder results imply that citizens interpret the exact same monetary loss differently depending on whether a tax visibly caused the higher price. Additional ladder results (Appendix Table A.4) show that larger losses are associated with larger expressive utility gains from punishment.

Survey Data: Indirect Taxes Are Less Visible

So far our results show that reliance on direct taxes has a more positive association with government accountability than indirect tax reliance, and that tax visibility affects both citizens' willingness to punish and the loss and ownership mechanisms. It remains to show that, as predicted by our theory of acclimation, long-established indirect taxes have low visibility (H3). We test two implications of H3 using original survey data from Uganda, including a survey experiment, and using Afrobarometer data on perceived tax burdens.

First, recall that in the lab experiments, implementing a consumption tax led to lower post-purchase utility, with larger utility losses for more visible taxes. H3 predicts that, once citizens have acclimated to a tax, tax-inclusive purchases should no longer lead to utility losses. It also implies that making the tax more visible could still generate losses: it is not that citizens simply accept the tax, but that they are not thinking about it when they make a purchase. If indirect taxes are indeed highly visible, simply reminding citizens of such taxes should not significantly affect utility from purchasing. The second implication of H3 is that citizens will be more aware of direct, relative to indirect, tax burdens. We expect that those who pay direct taxes should be cognizant of the payments, while many citizens

may not be aware when they pay indirect taxes. Likewise, we expect citizens to have more certainty about direct than indirect tax burdens. While this is a less direct implication of visibility, we argue that highly visible taxes should make calculating a tax burden easier.

To test whether paying established indirect taxes induces losses, we use a survey experiment embedded in a 2018 national survey of Ugandan citizens (See Appendices B and D for details). Respondents first earned 2,600 UGX through an effort task, then chose to purchase either some soap or a cellphone airtime voucher for the good's actual local market price, typically 500-700 UGX. Respondents were randomly assigned to one of three treatment conditions: Control, Hidden Tax, or Visible Tax. All groups were told "This is [ITEM] that costs [FINAL PRICE] Shillings." The Hidden Tax group was also told to "Remember that this price includes taxes levied by the government." The Visible Tax group was told that "If there were no taxes on [ITEM], it would cost [BASE PRICE]—you could buy it and have [REMAINDER] Shillings left over. But, because there is [TAX] the total cost of the [ITEM] is [FINAL PRICE] Shillings." For each item, we used the actual taxes levied on that good in Uganda: 18% VAT for both goods, plus a 12% excise tax for airtime. As VAT was introduced in Uganda in 1996, it is likely that most citizens had acclimated to the indirect tax.[6]

Our outcome measure is the same 21-rung utility ladder used in the lab experiments. Respondents were anchored at rung 10, then updated their ladder position after the purchase. As soap and airtime are valued goods, we expect the control group to gain utility from purchasing, with ladder values greater than 10. If indirect taxes are not visible, we expect that the simple reminder in the Hidden Tax condition will decrease utility; if the tax is already visible, this reminder should have no effect. We expect the Visible Tax treatment to have a larger negative effect on utility, as it emphasizes the amount of the tax and its effect on purchasing power. We view the Hidden Tax treatment as a pure visibility treatment by definition: it makes the tax more evident, manifest, or obvious. The Visible VAT treatment

[6]The airtime tax was instituted in the spring of 2018 and was thus recent, but our data suggest that much acclimation has already occurred.

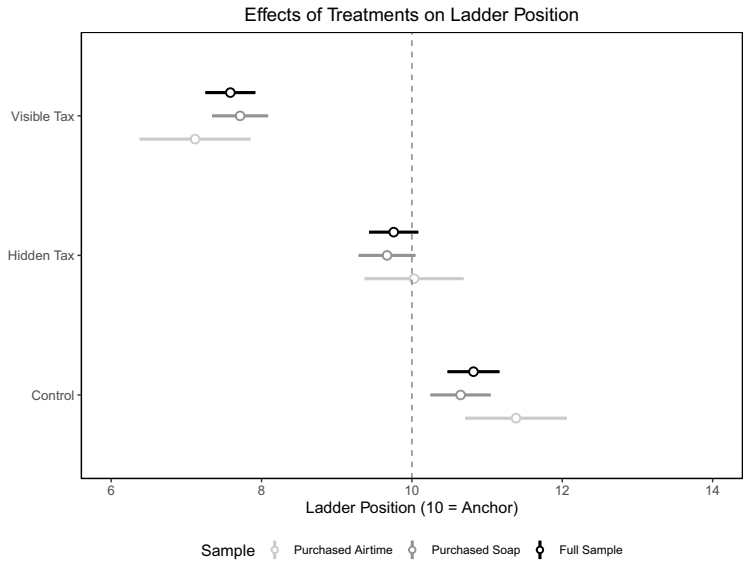

Figure 3: Effect of Visibility on Subject Utility.

also targets visibility, but we cannot rule out that it also targets other aspects of salience by stressing the precise degree of economic loss. Any decreases in utility from the treatments corroborate the acclimation argument: a reminder of the tax is needed to make it bite.

Figure 3 plots average ladder values and confidence intervals in each condition, pooled and by item purchased. The vertical line indicates the pre-purchase anchor. Control-group respondents have average ladder values of 10.8, modestly but statistically significantly in the realm of gains. In the Hidden Tax condition the average drops significantly, to 9.76; simply reminding respondents of taxes wipes out *all* gains from purchasing. Average ladder values in Visible Tax drop to 7.58; reminding respondents of the specific taxes they pay puts them significantly in the realm of losses. Losses are higher in the airtime condition, where taxes are highest. These results support H3, showing that a simple reminder increases the perceived losses from tax payments. These significant differences for treatment compared to control should not occur if taxes were visible and already affixed in consumers' minds. While the Visible Tax condition could be interpreted as manipulating salience in ways other than visibility, the significant results in the Hidden Tax condition, where only visibility is manipulated, alleviates concerns that visibility is not a factor.

H3's second implication is that citizens should, due to greater visibility, have better information about the direct taxes they pay relative to indirect. Data from Afrobarometer's 2011-12 Uganda survey supports this claim (See Appendix B.6 for more detail). When asked if they paid VAT on purchases, only 38.5% of respondents said they did: the true number should be 100%, suggesting many individuals are not aware of indirect taxes. In comparison, 25% of respondents said that they paid income tax. World Bank data from the same period suggests around 30% of Ugandans earned enough to pay income tax. This suggests that citizens are aware of the direct taxes they pay, but not the indirect taxes.

Our own survey data shows that Ugandans are much less certain about their indirect than their direct tax burdens. In our survey, respondents reported which taxes they paid, how much they thought they paid for each tax, and (on a 10-point scale) how certain they were about that amount (See Appendix C for details.) Panel A of Figure 4 shows that few citizens report paying direct taxes, while a majority report paying at least one indirect tax. This is expected due to the tax structure in Uganda. Our relatively high reported rates of paying VAT, relative to the Afrobarometer data, are likely due to the fact that this module was asked after other taxation-related questions. Panel B reports the results of the certainty module. As expected, average certainty is lower for VAT and excise taxes than the three direct taxes. Appendix B shows that the results are similar if we limit the sample to only those who reported paying at least one direct tax; lower certainty is not being driven by different samples paying direct and indirect taxes. We argue that this is likely driven in part by lower visibility of indirect taxes. Thus, both observational and experimental data demonstrate that direct taxes are more visible to Ugandans than indirect taxes.

Discussion

The results support our three hypotheses. In support of H1, our cross-national analysis shows that direct and indirect taxes have different correlations with country-level political accountability and corruption, with a more positive effect for direct taxation. Sup-

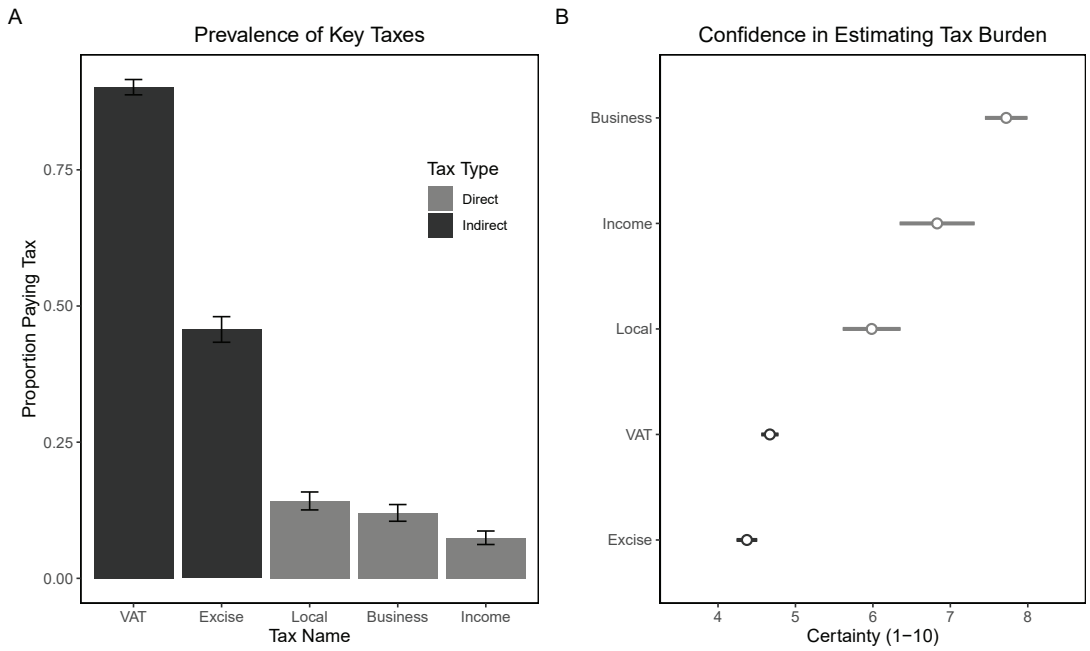

Figure 4: Tax Prevalence and Certainty for Most Common Taxes. Panel A shows the proportion of the sample that reports paying common taxes. Panel B shows how confident respondents were in reporting the amount paid for each tax.

porting H2, the lab experiments demonstrate that taxation's effect on citizens' willingness to punish political leaders is contingent on visibility: equally visible direct and indirect taxes induce similarly high citizen demands compared to untaxed citizens, while a less visible indirect tax has a significantly smaller effect. Additional results show that low visibility mutes the effect of taxation on the loss and ownership mechanisms. These results strongly suggest that it is tax visibility that matters for accountability rather than other aspects of tax modality. We are also able to separate visibility from other proposed aspects of tax salience.

Finally, we show that established indirect taxes are in fact less visible than direct (H3). In a survey experiment, making established consumption taxes more visible significantly decreased subjective utility from purchasing, which suggests that these indirect taxes had become invisible to Ugandans. Citizens also under-report indirect taxes and have significantly greater confidence in the amounts they pay for direct over indirect taxes. This section examines possible challenges to our results.

One potential concern is that our results are driven by other differences between

direct and indirect taxes, not visibility. Our theory section discussed three additional aspects that might matter for tax modality: whether paying a tax involves receiving something in return at the time of payment (exchange), the frequency of payment, and the tax increment. While we agree that these dimensions might impact tax salience, our experiments were designed to isolate tax visibility. Our lab experiments separate the visibility and exchange mechanisms by comparing punishment in the Hidden and Visible VAT conditions, which both involve an exchange and only vary visibility. The lab experiments also hold the frequency of payment and the size of the tax increment constant across all tax conditions. Thus, the treatment effects cannot be due to the tax payment's size, frequency, or concurrence with an exchange for a valued good. To the extent these alternative mechanisms have an independent effect, we argue that they will reinforce the gap between direct and indirect taxation. Other aspects of tax salience, such as historical legacies, the tax base, perceptions of fairness, and media coverage, are also either excluded or held constant across treatments.

Another potential difference is the degree to which paying a tax is voluntary. Direct taxes are involuntary in that anyone who is part of the targeted income or tax base must pay them. Indirect taxes are technically voluntary in that an individual can avoid a tax by refusing to make a particular purchase. This could decrease accountability pressures if it decreases the losses citizens feel from paying taxes. Yet there is little evidence that citizens feel that indirect taxes are voluntary in any meaningful sense. For example, Uganda's recent tax on social media use is "voluntary," but its introduction generated significant citizen discontent.

A final concern is that our lab experiments cannot test other mechanisms linking taxation and accountability, notably tax bargaining (Levi 1989) and the potential for taxation to signal high state capacity (Weigel 2020). If tax bargaining is more likely for indirect taxes, or indirect taxes send a signal of higher state capacity, this could undermine our results. We expect the opposite: that both mechanisms will strengthen the effects of visibility. Tax bargaining is most likely when taxes fall on a small, well-defined group (Martin and Gabay

2018); indirect taxes typically have a broad base. Similarly, for a tax to send a signal about state capacity (Weigel 2020), it must be visible. Indirect taxes are also often promoted specifically because they require lower state capacity than many direct taxes (Seelkopf and Bastiaens 2020), limiting whether they can signal high-capacity states.

Conclusion

Over the past forty years, indirect taxes have expanded relative to direct, with consumption taxes driving the increase (Bastiaens and Rudra 2018). This change has significant implications for whether taxation will continue to generate political accountability demands and promote democracy as it has in the past. Previous evidence on tax modality and accountability dividends is mixed, and we have lacked a clear theory of how tax visibility affects citizen behavior. This paper presented a theory linking tax visibility to the extent to which taxation will increase citizens' demands for accountability. We find that cross-nationally, direct taxes are associated with higher values on measures of government accountability than indirect taxes. Lab experiments in Uganda showed that making a tax less visible limits its effects on loss aversion and budget ownership and reduces citizens' willingness to politically punish low transfers from leaders. Survey data from Uganda shows that citizens under-report and have a high degree of uncertainty about the indirect taxes they pay, relative to direct taxes, and that priming citizens on indirect taxation decreases their utility from purchasing.

Together, the evidence suggests that tax visibility affects the political accountability dividends of taxation. When an indirect tax is first introduced, it is likely to be highly visible and may lead to protests or citizen demands. This is consistent with the case studies in Prichard (2015). However, in the long run, citizens may acclimate to the new tax. Indirect taxes included in the prices of goods become less visible over time, and while citizens may be aware those taxes exist, they appear less important in day-to-day life. Such hidden taxes may have some accountability dividends compared to windfalls, but they will be significantly

weaker.

To summarize, the results presented here provide systematic causal evidence supporting arguments in prior research that less visible taxes have smaller accountability dividends (Brautigam, Fjeldstad and Moore 2008; Joshi and Ayee 2008; Prichard 2015). And, we find that established indirect taxes are less visible, on average, in price-inclusive systems after citizen acclimation. Moreover, the results imply that strategies might be adopted to increase (or decrease) the visibility of different taxes, both indirect and direct, that may significantly enhance (or diminish) demands for government accountability by citizens.

These findings are especially important given the increasing importance of indirect taxation in many countries. In part this may be because indirect taxes are often easier to collect. However, this study suggests that governments who wish to avoid accountability pressures may also have strategic reasons for focusing on indirect taxes that they can, through acclimation, hide from citizens over time. This accords with Wilensky (2002), which finds that welfare states typically rely heavily on indirect taxes. This threatens to weaken the long-standing link between taxation and good governance, raising questions about whether the negative political effects of indirect taxes may outweigh their economic benefits (Seelkopf and Bastiaens 2020).

These results suggest several avenues for future research. While we focus on the general differences in average visibility between direct and indirect taxes, more work is needed on the ways in which direct taxes can be hidden, and indirect taxes made more visible, especially by policy or civil society interventions like those in our survey experiment. Second, while we show that visibility is an important aspect of taxation, taxes differ in other ways discussed above, and more work is needed to examine how these other potential mechanisms affect the taxation-accountability relationship.

Few matters in public life are more central to politics and accountability than how governments extract money from their citizens to pay for public goods and services. Historically, the particulars of tax policy have driven the evolution of democracy and the

accountability mechanisms enabling citizens to demand responsiveness from leaders. The changing forms of taxation in the modern world—and the especially the increasing dominance of potentially hidden indirect taxes over visible direct taxation—may necessarily alter this fundamental citizen-government connection. The research reported here suggests the need for much more attention to how the mode of taxation drives political accountability demands and thus affects democracy.

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