BACKGROUND NOTE

Evidence-Based Insights to Build Tax Capacity in Developing Countries: A Critical Review of the Literature

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EVIDENCE-BASED INSIGHTS TO BUILD TAX CAPACITY IN DEVELOPING COUNTRIES: A CRITICAL REVIEW OF THE LITERATURE

INTRODUCTION

In developing countries, including in Asia, the global health pandemic has both placed severe strains on the pre-existing tax bases and has triggered a need for additional tax revenues to fund the post–coronavirus disease (COVID-19) recovery efforts. In this context, the importance of tax capacity—the ability of governments to raise meaningful levels of taxes in an equitable and efficient manner, while minimizing distortions—has taken center stage. In this article, I review evidence-based insights in three areas of tax systems, which shed light on policies that are effective in developing countries to help improve enforcement and alleviate capacity constraints.

I. LIMITED INFORMATION: ORIGINS AND IMPLICATIONS FOR POLICY DESIGN

A. Information trails are at the heart of effective taxation.

In today's developed economies, most taxes are collected through third-party institutions, such as employers and financial institutions. These large companies have complex operations, hire many employees, and often both source inputs from multiple suppliers and sell to numerous clients. Therefore, these firms have a need to maintain accurate accounting records to fulfill business purposes. Moreover, these firms routinely supply the tax authority with information on both the taxable income of their employees and clients, and they can be asked to present proof of the transactions with their suppliers. These large entities, therefore, act as third-party agents between the government, on the one hand, and households and other firms, on the other hand.

It is well established, both among practitioners and academics, that tax enforcement is strong whenever third-party reporting covers a large share of a firm or individual's activities; and that tax enforcement is weak, even in high-capacity settings, whenever third-party coverage is absent. In an important study using Danish tax returns, Kleven et al. (2011) find that there is less than 5% evasion on income taxes whenever there is extensive information reporting, while more than 50% of taxes are evaded when there is no or very little third-party coverage. Similar results have also been found in the United States. Kleven et al. (2016) show that the existence of information that is widely observed by many third-parties makes it almost impossible for the firm to collude with those third-parties to under-report taxable activities.

B. Evidence on Information Trails in Developing Countries

The existence of information trails alleviates tax enforceability constraints in developing countries. In an important study in Chile, Pomeranz (2015) studies the importance of information coverage for the value-added tax (VAT). When a business-to-business (B2B) transaction is conducted, both firms have an incentive to keep records of the transactions and report the true value to the tax authority. In this context, Pomeranz shows that the existence of information trails on the B2B transaction significantly deters misreporting. In contrast, the information coverage breaks down at the 'last mile' of the production

process, when a business sells to a final customer (B2C). This is because the final consumers have no incentive to maintain a record of the transaction. For these B2C transactions, Pomeranz finds substantial misreporting. The existence of information trails has also been found to matter for other tax bases. In Pakistan, Best (2014) finds that employees are much less likely to evade personal income taxes than self-employed because of the large difference in third-party coverage. Brockmeyer and Hernandez (2019) finds that the withholding of corporate income taxes for firms in Costa Rica by third-parties dramatically increases tax collection. Finally, Avila-Mahecha and Londono-Velez (2021) find that the sudden release of third-party information on high net wealth individuals improves reporting of taxable income and wealth held abroad.

C. Limits to Effectiveness of Information Trails

While information trails improve tax enforcement, there are also limits to their effectiveness. First, third-party information has little impact if some activities fall outside its coverage. In Ecuador, Carillo et al. (2017) show that firms strongly update their tax returns when receiving a notification by the tax authority that details information provided by third-parties. However, the updates are limited to the exact activities covered by the third-party reports (most importantly sales), and firms increased the misreporting on activities that were not subject to information coverage (miscellaneous cost-categories). In this setting, the existence of third-party reporting did not increase taxes collected because the information coverage was incomplete. Second, information trails have to be actively leveraged to impact tax collection. Lediga et al. (2020) find that cross-checking tax returns with the third-party information contained in the national commercial business registry allowed the South African tax authority to significantly expand the business taxpayer net, but resulted in relatively little tax revenues collected. The limited revenue effect was driven by low tax revenue potential of those firms that were brought into the tax net, and limited administrative efforts to further use the third-party information to enforce taxes owed.

D. Implications of Limited Observability for Tax Policy Design

The informational barriers are arguably more severe in developing countries than in developed countries, and this has important implications for tax policy design. Developing countries are characterized by labor markets where self-employed make up a larger share of the economically active workforce. This severely limits the scope of the personal income tax (Jensen 2021). Indeed, the personal income tax in many developed countries only taxes the top part of the income distribution where the employees make up a larger share of the workforce. Over the development path, the gradual transition from self-employment to employee-jobs increases the observability on the potential income tax base; this allows governments to expand the personal income tax base to cover a larger share of the income distribution. The growth of the modern tax system with high tax collection levels and broad abilities to tax progressively along the income distribution is thus intimately related to gradual growth in information trails. On the firm side, the capacity constraints induced by limited observability may produce very different policies than would be recommended in developed countries. As an example, the corporate profit tax is considered superior to other taxes on firms because it introduces less economic distortions on firm production decisions. However, when evasion on taxable profits is high, it may be preferable to implement other firm taxes, such as turnover taxes: even if they introduce more distortions, these taxes are also harder to evade (because sales are more easily observable than profits). The trade-off between revenue needs versus economic distortions may be such that turnover taxes are preferred to corporate income taxes for segments of firms where observability constraints are particularly severe (Best et al. 2015).

E. How to Build Information Trails

Governments can make active investments to expand information coverage. Fan et al. (2021) study a reform in the People's Republic of China which introduced a new technology for VAT—a digital invoice system—which both increased the speed at which information on B2B transactions were digitized, and reduced the scope for falsification of transaction records. The authors find that the technology adoption led to a 27.1% increase in VAT revenue. The large effect was mainly driven by a reduction in over-reporting of input costs, which the expanded information trails made harder to misreport. In an effort to improve enforcement, many governments around the world have similarly implemented electronic invoice systems for VAT firms. Eissa and Zeitlin (2014) find that the adoption of invoice systems in Rwanda led to a 6.75% increase in taxes collected. Finally, governments can also seek to enroll consumers as auditors to increase information coverage at the B2C stage of the production chain. Naritomi (2019) studies a program implemented from Sao Paulo in which consumers were rewarded for ensuring that firms accurately report their sales to the government and which established a verification system to aid whistle-blowing. The program managed to gather strong participation for consumers, and led to a 21.0% increase in reported sales and a 9.3% increase in tax revenues over 4 years.

F. General Lessons

Several general lessons emerge from this review of evidence. First, tax systems in developing countries which account for informational barriers and limited enforcement capacity may justifiably produce very different policies and outcomes than those observed in developed countries. Certain taxes, such as income taxes on individuals and firms, are prevalent in developed countries but they are inherently harder to enforce in developing countries. This is because of structural differences in firm-size and labor markets which limit third-party coverage of income activities. Faced with such constraints, developing countries rely, to a greater extent, on indirect taxes, such as the VAT and turnover taxes for small firms. Second, governments can make meaningful investments to incrementally improve the information coverage, including through technology adoption and programs which incentivize third-party reporting. However, the expansion of information coverage has to be combined with administrative improvements, which allow governments to fully leverage the additional information sources for enforcement purposes.

II. COST-EFFECTIVE WAYS TO INCREASE COMPLIANCE AND IMPROVE TAX MORALE

Tax authorities can communicate with taxpayers in various ways, and it is possible that such communication can help to raise compliance and tax morale. Since the cost of communicating with taxpayers is comparatively small (in relation to other administrative interventions), these policies have the potential to be strongly cost-effective.

A. Effectiveness of Deterrence Messages

Many tax authorities make use of communication channels to convey information about the audit and enforcement environment. These messages are meant to increase taxpayers' perception of the tax authority's enforcement capacity, and thereby lead to higher tax compliance. Many studies around the world exist that test the effectiveness of such letter interventions. Most studies use the *randomized control trial* (RCT) evaluation method. In the RCT, only a random subset of taxpayers from an initial sample will receive the letter ('treatment group'); the remaining taxpayers receive no letter, or receive a letter

without the content that is related to the enforcement intervention ('control group'). The randomization of the information provision ensures that a simple comparison of compliance rates between the treatment and control group yields a causal evaluation of the letter intervention. The exact content of the letter intervention varies across settings: (i) in some cases, tax authorities indicate that the taxpayer's return may be subject to further inspection; (ii) in other cases, the tax authority explicitly indicates the audit or enforcement probability; and (iii) finally, in some settings, the tax authority outlines the penalties and fees that the taxpayer would incur if found guilty of evasion.

In general, these studies have found that providing information about enforcement raises the likelihood of complying and the amount of taxes paid. In a study conducted with the Danish tax authority, providing information to individual taxpayers about the audit likelihood led to 14.5% increase in the likelihood that taxpayers increased their taxable income and taxes due (Kleven et al. 2011). In a study conducted in Belgium (De Neve et al. 2021), a deterrence message to taxpayers which highlighted the level of fines associated with late and irregular payments also improved compliance. Letter interventions also appear to raise compliance among firms. In a study that involved more than 20,000 firms registered for the VAT in Uruguay, Bergolo et al. (2021) create letter interventions which emphasize the link between irregular behavior and the likelihood of a tax audit: this led to an increase in compliance of 7.4%. There are many other enforcement letter interventions. (Please refer to Slemrod (2019) for a comprehensive review.)

B. Deterrence messages require careful design.

While such interventions do seem to have a positive impact on compliance, additional studies have highlighted important nuances that are relevant for policy design. First, letter interventions may have spillover effects. In the context of a study in Austria, Drago et al. (2020) find that neighbors of the households that received the inspection-letter are themselves more likely to comply with taxes due. Using additional analyses, the authors find that this spillover effect arises because of communication between the treated taxpayer and the (indirectly treated) neighbors. In the context of firms, Boning et al. (2020) find that letter interventions spread to indirectly treated firms that share the same tax accountant as the firm that received the letter. Letter interventions thus have the potential to raise aggregate compliance both through direct effects and through indirect effects because of a 'social multiplier'. Tax authorities can usefully conduct investigate work to best understand the individuals and firms that are central in communication networks; targeting those central agents will likely lead to even larger multipliers and further raise aggregate compliance. Second, deterrence messages sometimes have been found to backfire and either have small impacts or increase noncompliance. Based on a collaboration with the Rwanda Revenue Authority, Mascagni and Nell (2021) find that deterrence messages backfire relative to messages that serve as reminders or that highlight the civic usefulness of paying taxes. Slemrod et al. (1999) find a similar effect among United States taxpayers. In both settings, the negative effect on tax payment appears to be concentrated among those taxpayers that have the highest income and make the largest tax contributions. These taxpayers may behave differently from other taxpayers, either because the deterrence message crowds out their intrinsic motivation to pay or because they have access to tax accounts that help them manipulate tax liabilities.

C. Information provision has limited impacts on intrinsic motivation.

Tax authorities may also use communication channels to stimulate tax morale. Tax morale refers to the nonfinancial incentives to comply with taxes and include intrinsic motives, social considerations, and reciprocity. Intrinsic motives refer to individuals' private views of what is moral and what constitutes the

'right thing to do'. Based on a study of compliance with the local church tax in Germany, Dwenger et al. (2016) find that the behavior of some taxpayers is consistent with stronger intrinsic motivation than other taxpayers. However, the evidence to-date suggests that tax authorities struggle to stimulate or improve those intrinsic motives: for the most part, letter interventions which highlight that paying taxes is the 'right thing to do' or is a 'civic duty' fail to produce any impact on tax compliance. (For a review, kindly refer to Luttmer and Singhal 2014.)

D. Social shaming and recognition programs may improve tax compliance.

Turning to social considerations, several studies have analyzed whether priming taxpayers about the social norm to comply impacts behavior. Unfortunately, the evidence from these studies is mixed. A few studies have found positive effects. In a Norwegian study, Bott et al. (2020) find that a letter intervention which emphasized that most taxpayers in the country report their income and assets correctly has a positive impact on the amount of reported income held abroad. In a study with 200,000 United Kingdom taxpayers, Hallsworth et al. (2017) find that messages which highlighted that most citizens pay their taxes on time increased the likelihood of timely tax payments. However, the majority of studies have found either no impact, or backfired impact, from messages about social norms. (For a review, refer to Luttmer and Singhal 2014.) Interestingly, tax authorities have found much more success with programs which seek to stimulate the social considerations by making information about taxpayers public. The national tax authority of Pakistan conducted two important interventions: in one intervention, the largest 100 taxpayers would be socially recognized; in another intervention, the universe of taxpayers, along with their name and amount of taxes paid, was made publicly available. Slemrod et al. (2021) find that these programs significantly improved compliance because of social considerations; per example, those delinquent taxpayers who were most likely to be singled out after tax records were made public saw the largest increases in reported taxable income. Dwenger et al. (2019) find that a Slovenian program which published all taxpayers with an outstanding tax debt above a certain threshold significantly reduced tax debt. Importantly, most of the effect came during an intermediary period after the policy was announced but before it was actually implemented, which highlighted that social reputational concerns can be a powerful driver of tax compliance.

E. Information provision does not impact reciprocity but actual delivery of public goods might.

Finally, an important question is to understand the importance of reciprocity in determining tax compliance and the role, if any, of tax policy interventions to stimulate reciprocity. Reciprocity refers to the idea that taxpayers are more willing to comply with taxes when they receive something in return from the government—most importantly, public goods and services. Tax authorities can seek to activate the reciprocity link in letter interventions: this usually takes the form of a reminder of the link between public goods delivery and tax payments, or the display of information about the types of public goods that are being funded with taxpayer money. The evidence to-date on the effectiveness of these interventions is unfortunately mixed. In a study in collaboration with the Rwanda Revenue Authority, Mascagni and Nell (2021) find that priming taxpayers about the link between taxes paid and public goods led to a substantial increase in tax payments—a positive effect that was larger than deterrence messages. In contrast, using a sample that covers all taxpayers in Belgium, De Neve et al. (2021) find that providing simple information on the shares of taxpayer money devoted to different essential public goods categories actually led to a decrease in tax payments. Between these two contrasting studies, Hoy et al. (2021) collaborate with the tax authority of Papua New Guinea and find that providing information about the public benefits of tax

compliance does increase the number of tax declarations, but only among those taxpayers who claim to be exempt from paying any actual taxes. Many other studies have found no effect of reciprocity letter interventions (Luttmer and Singhal 2014).

In the context of studying reciprocity, an important concern with the letter interventions is that they are 'artificial' since they provide information about the level and allocation of public goods, but do not actually *change* the amount or quality of public goods delivered. Related, the letter interventions may increase the taxpayers' awareness of the usefulness of public goods, but it may not change the taxpayers' trust in the government's ability to actually provide public goods. Recent studies have attempted to study reciprocity in the real context of actual public goods delivery. Carillo et al. (2021) collaborate with the local tax authority in the municipality of Santa Fe in Argentina. In the main treatment, taxpayers that manage to clear their outstanding tax debt are entered into a lottery; the lottery winner receives public recognition as well as the construction or renovation of a sidewalk in their neighborhood. The authors find that winning the lottery improves tax compliance for up to 3 years. Moreover, there is a positive spillover effect whereby other taxpayers that live close to the lottery winner (and that observe and use the new side-walk) also increase their tax payments. In a study in Haiti, Krause (2020) shows that randomly improving the quantity and quality of waste collection in a neighborhood has a strong positive effect on the likelihood that people pay the local property tax. Finally, in a large-scale RCT, Khwaja et al. (2020) study several ways in which the government can stimulate reciprocity. In one intervention, the local government commits to allocating a larger share of property tax collected from a neighborhood to the same neighborhood, thereby strengthening the geographical link between tax payment and public good delivery. In a second intervention, local officials collect information from citizens on their most preferred public goods and a ring-fenced portion of newly collected taxes are dedicated to funding the most preferred public good. Initial results are encouraging: by stimulating reciprocity in various ways, the interventions have led to an increase in tax compliance concentrated among those households that did not previously make any tax payments.

Taken together, the results from the 'real-life' studies on reciprocity thus appear to deliver positive impacts on tax compliance. Two notes of caution are worthy to mention. First, the cost to implement the actual changes in public goods delivery were large in all studies to an extent where the costs were not outweighed by the increased taxes collected. In contrast to letter interventions or social shaming and recognition programs, these programs may possibly have a comparatively low return to investment. Second, in order for these costly programs to be effective, they must be combined with active information dissemination: in short, the actual delivery of additional public goods is unlikely to have large impacts on taxpayer attitudes and behavior if the taxpayers are unaware of the changes made in the field.

F. General Lessons

Several general lessons emerge from the large body of evidence that exists on communication between taxpayers and the tax authority. First, information provision about the enforcement environment is a cost-effective way to increase tax collection. This is an important insight for tax authorities in developing countries, which operate with limited resources and in limited capacity settings. However, it is not guaranteed that information provision can lead to sustained increases in tax collection over the long run. Most importantly, information about enforcement threats is only effective if it is followed up by actual and continuous enforcement efforts. Moreover, taxpayers may infer the limits of the tax authorities' enforcement capacity based on repeated interactions, and this may actually backfire and lead to higher

evasion in the longer run. Second, while both intrinsic motivation and reciprocity are plausibly important determinants of tax compliance, it is unclear whether policy tools available to tax administrations can meaningfully shift these dimensions of tax morale. The views held by citizens and firms are likely to be shaped over the long run, and evidence suggests that these attitudes are not changed by simple information provisions done by the tax administration. The scale of public goods improvement that will meaningfully alter such beliefs perhaps lie beyond the scope of the tax authority's mandate and tool kit. Third, programs which provide either social rewards for compliance or social punishments for noncompliance appear to be effective. Similar to the enforcement interventions, there is however an important concern over their sustained impact in the long run. Moreover, public disclosure programs raise important privacy and security concerns, and they have also been found to significantly impact peoples' well-being (Perez-Truglia 2020). These considerations mut be combined with tax collection impacts to determine such programs' overall societal desirability.

III. TAX ADMINISTRATIONS

Even the most sound tax policies will have muted impacts if they are not implemented effectively (Bird 2010). Constraints on the ability of tax administrations to implement policies is a first-order topic in developing countries. Indeed, as the saying goes: "in developing countries, tax administration *is* tax policy." This insight suggests that, beyond reforms to statutory tax policies themselves (such as the choice of tax base and marginal rates), important improvements to administrations can alleviate tax capacity constraints.

A. Administrative Reforms and Incentives for Tax Officials

Over time, an increasing number of governments in developing countries have introduced large and medium taxpayer offices, with increased resources devoted to larger firms in the economy. In an important study from Indonesia, Basri et al. (2021) show that such administrative reforms can yield substantial increases in tax collection. The government shifted some firms into medium taxpayer offices, which had much higher staff-to-taxpayer ratios. While all tax policy parameters were held constant for the treated firms, this administrative change led to a 128% increase in revenue over 6 years. The authors can compare the revenue effects to those obtained from reforming statutory tax rates: they find that the corporate income tax rate would have to be raised by as much as 23 percentage points on those firms in the medium taxpayer office. Meaningfully large increase in tax collection can thus be achieved from purely administrative reforms.

A key input to any administration is the recruitment and incentives provided to the tax officials. In a study conducted in Punjab with the local property tax, Khan et al. (2016) study the effects of financial incentives (performance pay) on collection performance. The incentivized schemes led to a substantial increase in taxes collected. However, the intervention also led to an increase in the frequency of bribe requests reported by the property owners. These findings caution against considering financial incentives as a blanket policy: rather, the incentive structure must be accompanied by monitoring tools which limit the potentially adverse impacts. Some tax authorities may face constraints in their ability to provide financial incentives, because of civil service regulations. In this rigid setting, tax authorities can provide other incentives: one relevant dimension in many developing countries is to control where officials are posted in the country. Khan et al. (2019) implement a performance-scheme which accounts for tax officials'

preferences in posting locations. They find that taxes collected increase between 30% and 41% when using such schemes.

B. Improvements to tax administrations can raise the effectiveness of other tax policies.

It is important to note that efforts to improve tax administrations can yield higher tax collection per se, but will also reinforce the effectiveness of tax policies. Bergeron et al. (2021) study a policy experiment in the Democratic Republic of Congo that randomly assigned both individual tax rates and enforcement letters to individual property owners. The authors find that improved enforcement and higher tax rates are complementary. The increase in tax revenues resulting from an increase in the tax rate is larger in the strong enforcement environment than in the weak enforcement environment.

The evidence from around the world thus suggests that improvements to tax administrations can improve tax collection, both directly and also indirectly, by improving the effectiveness of tax policies. As such, administrative reforms are key to expanding the feasible set of reform options that are available to governments. Moreover, some administrative reforms can be done without incurring large costs; per example, through reshuffling of tax officials without any additional hires. As such, these reforms can improve tax capacity without further burdening the government budgets.

IV. CONCLUSION

This paper has reviewed evidence-based insights which shed light on what works and what does not to improve enforcement and alleviate capacity constraints. The review has focused on three main areas. First, developing countries are characterized by informational barriers which are much less pronounced in developed countries; the limited visibility on the activities of firms and citizens limits the extent of taxation, but also determines the effectiveness of individual tax instruments. Thus, because of differences in information constraints, developing countries may justifiably choose to implement very different tax policies than developed countries. Second, communication with taxpayers and information provision are important policies in the tax authorities' tool kit which, if effectively designed, can yield significant tax collection returns at a relatively low cost. Importantly, the evidence to-date suggests that deterrence messages are more effective than 'tax morale' messages. Third, robust design must take into account improvements to the broader tax administration since policies implemented in low administrative capacity settings will have very muted impacts. In this context, reforms to administrations (such as personnel incentives) can have large direct impacts on tax performance and can enhance the effectiveness of standard tax policies (such as rate changes).

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