Literature Review

Selected Issues for Tax Administration in Low-Income Countries

Edited by Adrienne Lees

It is well-known that lower-income countries need to increase revenue collection for their development and growth (Gaspar et al. 2016; Besley and Persson 2014). Mobilising sufficient revenue, however, is not a straightforward task. The tax policies that a country chooses to adopt will affect the allocation and distribution of economic resources, investment and growth. However, even the most well-designed policy will be ineffective if implemented poorly. If taxes were all administered perfectly, tax authorities would play a purely neutral role in the economy. However, in reality, the gap between tax policy as designed, and tax policy as administered, can be very wide. This can have real economic consequences, impacting the relative tax burden across industrial sectors and income groups, market efficiency, and the overall budget available to the government. Tax administration, therefore, has a crucial role to play in shaping economic development and the functioning of the state.

This review offers an incomplete tour of selected key issues for tax administration in low-income countries. It is organised into five sub-sections: (i) semi-autonomous revenue authorities, (ii) the determinants of tax compliance, (iii) the relationship between revenue authorities and taxpayers, (iv) tax structure, and (v) the digitalisation of tax administration.

1. Semi-Autonomous Revenue Authorities

The structure of revenue administration impacts the revenue collection, enforcement, compliance, taxpayer facilitation and public perception of the business environment.[1] Historically, tax collection and general administration worked as a single entity. Most revenue administrations were specialised government departments directly controlled by the government within a ministry, usually the Ministry of Finance. These departments would be staffed by permanent government employees, who follow standard public service policies. A revenue department staffed by bureaucrats was viewed as vulnerable to administrative slack and corruption, and being rigid and resistant to reform (Tanzi and Davoodi 2000). It was also perceived as unable to flexibly adapt to the evolving needs of business and the economy.

1 In this review, the discussion is focused on central or federal revenue collection. Sub-national revenue administration can be very different from administration at national level because of the different taxes involved and multiple authorities. For example, different local governments collect property taxes through their own mechanism, and may or may not be dependent upon provincial or state administration.

One of the most visible tax reforms in low-income countries in recent decades has been the creation of semi-autonomous revenue authorities (SARAs). This approach has been used more in Africa and Latin America than any other region of the world (Fjeldstad and Moore 2009). At a minimum, SARAs are administrative bodies located outside the traditional government structure that have an independent legal status (Von Haldenwang et al. 2014). While they usually do not set policy, and formally report to a Ministry of Finance or similar, they often do have autonomy over their budget, expenditure management and human resources. This is thought to help overcome a rigid civil service structure, recruit more qualified staff, pay them better, and improve productivity and efficiency (Kidd and Crandall 2006; Fjeldstad and Moore 2009). Moreover, explicit incentives to collect more revenue could be created by allowing SARAs to retain a portion of collections, which could again improve productivity and accountability. SARAs also became popular, particularly among donor communities, as a way to shield tax collection from political interference and to improve resource utilisation. Governments might cede control to an independent authority to signal to their citizens that tax collection will be fairer and less discretionary (Chand and Moene 1999; Taliercio 2004). This, in turn, could increase trust between citizens and their governments, boosting voluntary compliance (Therkildsen 2004; Fjeldstad and Moore 2009).

If all these expected benefits come to fruition, we should expect the establishment of SARAs to have an unambiguously positive effect on revenue performance. Why might this not happen? The move towards SARAs has been criticised as 'window dressing', with countries adopting the organisational structure to signal competence to citizens or in response to donor pressure (Jeppesen 2021). If the reform was donor-driven or simply imposed by external actors, the ruling elite may have agreed to the reform to secure aid, rather than due to a commitment to changing revenue administration (Moore et al. 2018). In countries where the Commissioner General of the revenue authority is politically appointed, and funding is based on an allocation from the general government budget, the SARA is vulnerable to political pressure and interference (Jeppesen 2021). Moreover, where the reform is not in the interests of the ruling elite, they might undermine the revenue authority's ability to perform – for instance, by granting large tax exemptions to powerful actors (Piracha and Moore 2016). These factors would dampen the potential effect of implementing a SARA on revenue performance.

The debate over the impact of SARAs

Has this restructuring yielded the theoretical benefits outlined above? The empirical evidence is still unclear. Initial increases in revenue collection following the introduction of a SARA are often not sustained (Fjeldstad and Moore 2009; Ahlerup et al. 2015; Chang et al. 2020). Using synthetic control methods, Sarr (2016) and Ebeke et al. (2016) examine the revenue effects of SARAs in developing countries. Sarr (2016) finds considerable cross-country variation in performance, while Ebeke et al. (2016) find a general positive effect. Von Haldenwang et al. (2014) take a local approach, using variation in revenue collection across municipalities in Peru to show that municipalities with SARAs collect more revenue than those with traditional tax administration, and have less variation in revenue around a long-term trend. More recently, Dom (2019) uses a long-run panel of African countries, controlling for pre-reform trends in revenue collection, and finds no evidence for a systematic relationship between the establishment of a SARA and total tax revenue, or for particular tax types. Figure 1 (taken from Jeppesen 2021) shows that the introduction of a SARA is, on average, preceded by a temporary dip in tax collection. Dom (2019) argues that this is likely due to a 'window of opportunity' effect, whereby governments and donors capitalise on revenue shocks to push through major reforms. This was true for Ethiopia, where revenue problems triggered administrative reforms (Mascagni 2016), but does not hold universally – Burundi seemed to adopt a SARA because all other countries in the East African Community had done so, and South Africa's reform was mainly attributed to the previous revenue administration being perceived as illegitimate (Jeppesen 2021). Nevertheless, not taking proper account of this pre-reform revenue dip may have led other studies to over-estimate the revenue effect of SARAs (Dom 2019).

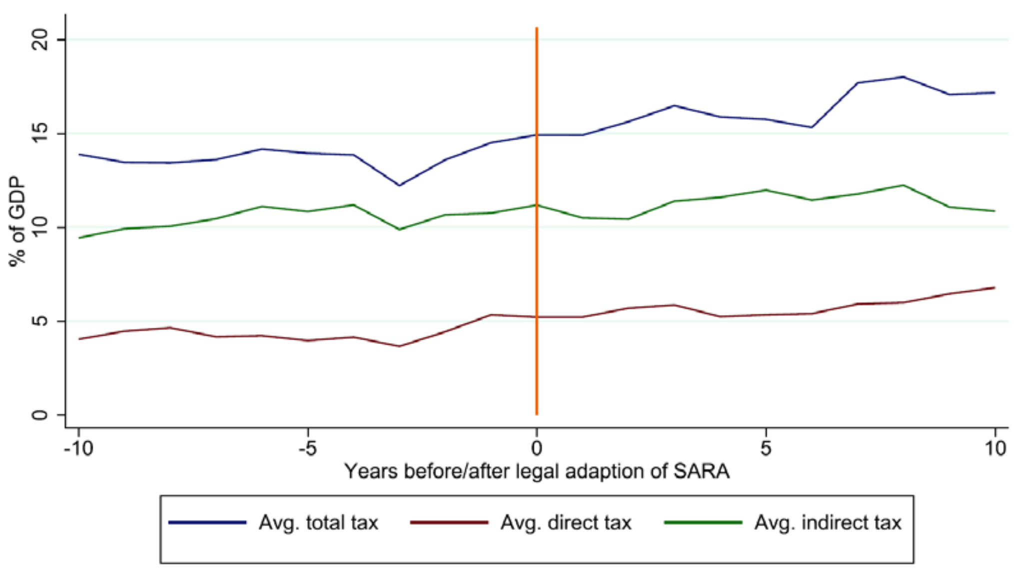

Figure 1 Tax-to-GDP ratios in selected African countries relative to the introduction of a SARA, from Jeppesen (2021).

Notes: This figure shows the averaged tax-to-GDP ratio for countries that established a SARA. The data is recentred so that the introduction of a SARA happens at year 0 for all countries, with data shown from 10 years before to 10 years after.

Failing to find any significant impact on revenue collection, on average, does not imply that SARAs do not have other benefits. For example, it has been argued that implementing SARAs has driven the creation of professional tax networks across countries, such as the African Tax Administration Forum (Dom 2019; Fjeldstad and Moore 2008). Von Haldenwang (2010) analyses local semi-autonomous collection agencies in Peru, and finds that they positively impact citizen's perceptions of the tax system through increased transparency and a client-based approach. Therkildsen (2004) studies the Uganda Revenue Authority (URA), finding an initially improved perception among citizens, which slowly eroded over time through a loss of autonomy.

The debate on the impact of SARAs is further complicated as often they did not happen in isolation, but rather as a package of reforms in tax policy and administration (including the introduction of value added tax (VAT), discussed later). Furthermore, the creation of SARAs was usually accompanied by large salary increases to staff, resulting in SARA staff being paid much more than their counterparts in other ministries – generating resentment, and contributing to the overall high cost of tax collection in many African countries (Moore et al. 2018). However, this debate is largely rhetorical, with limited relevance for many of the other contemporary questions pertaining to tax administration. These agencies are almost universal, particularly in anglophone Africa, and are unlikely to be dismantled.

There is a large literature on the topic of SARAs. The interested reader can look at the following studies in particular:

- Ahlerup, Baskaran and Bigsten (2015) 'Tax innovations and public revenues in sub-Saharan Africa'
- Fjeldstad and Moore (2008) 'Tax reform and state-building in a globalised world'
- Jeppesen (2021) 'What we hoped for and what we achieved: Tax performance of Semi-Autonomous Revenue Authorities in Sub-Saharan Africa'
- Mann (2004) Are semi-autonomous revenue authorities the answer to tax administration problems in developing countries? A practical guide
- Sarr (2016) 'Assessing revenue authority performance in developing countries: A synthetic control approach'
- Taliercio (2004) 'Designing performance: The semi-autonomous revenue authority model in Africa and Latin America'
- Therkildsen (2004) 'Autonomous tax administration in sub-Saharan Africa: The case of the Uganda Revenue Authority'

2 The Determinants of Tax Compliance

Ensuring that taxpayers comply with existing tax laws is an important component of tax administration. Taxpayers respond to different economic and behavioural factors, which Fjeldstad et al. (2012) divide into five categories: (i) deterrence and coercion, (ii) fiscal exchange, (iii) social influence, (iv) comparative treatment, and (v) political legitimacy.

2.1 Deterrence and Coercion

Economic theory considers individuals and firms as rational agents who try to maximise their utility by increasing income or profits. Under this paradigm, altruistic or social considerations have no influence over economic choices. Based on these principles, Allingham and Sandmo (1972) develop a deterrence-based model of compliance. Here, the choice to evade taxes is based on the perceived probability of detection by the revenue authority. The taxpayer weighs the advantage of tax evasion (keeping some income that should be paid in tax for more productive purposes) against the cost of being caught (any fines or penalties imposed). Where the benefit outweighs the cost, taxpayers will evade taxes. This implies that the tax authority can only improve compliance by increasing the probability of detection, or by increasing fines and penalties.

Tax authorities rely heavily on economic deterrence. Empirical studies have found support for deterrence factors as an effective method of increasing compliance, at least in the short run (Slemrod 2019; Kleven et al. 2011). A growing number of large-scale field experiments in lower-income countries that focused on sending reminder messages to taxpayers find that deterrence-focused messages, which emphasise the legal consequences of non-compliance and/or the risk of being caught, are particularly effective. Relative to no communication from the authorities, deterrence messages increased tax compliance in Argentina (Castro and Scartascini 2015), Colombia (Ortega and Scartascini 2020), Costa Rica (Brockmeyer et al. 2019), and were more effective than other message types in Chile (Pomeranz 2015), the Democratic Republic of Congo (Bergeron et al. 2021), Ethiopia (Shimeles et al. 2017), and Uganda (Cohen 2020).

Targeting a single tax type is relatively common in the literature, but messages could also have indirect effects on compliance with other taxes. Castro et al. (2022) study this in the context of rental income tax in Peru. Messages highlighting the risk of detection produced a positive and sustained effect on rental income tax, but had a negative spillover effect on compliance with capital gains and self-employment income tax. This leads Castro et al. (2022) to argue that concentrating only on the direct effects might overestimate the revenue effect of nudging messages.

These messages are most effective when they are backed by a credible threat of enforcement. In Costa Rica, the effects of deterrence messages were stronger when firms also received an example of third-party reporting on their transactions (Brockmeyer et al. 2019). However, in the absence of strong enforcement capacity, a purely deterrence-based model starts to unravel. Tax compliance rates tend to be higher than low audit probabilities and small penalty rates would imply, suggesting that deterrence models do not fully match reality (Hallsworth 2014; Alm 2012). Bérgolo et al. (2021) test this with a field experiment among small and medium-sized firms in Uruguay. They sent letters to firms highlighting audit probabilities and penalty rates, inducing exogenous variation in the information firms had as inputs for their evasion decisions. The authors find that messages about audits generate fear and induce neglect of probability, with a significant effect on tax compliance, beyond what the Allingham-Sandmo model would have predicted. Economic deterrence, though an important determinant of compliance, does not explain the whole picture of compliance, because individuals and business do, in many cases, voluntarily pay their taxes.

2.2 Fiscal Exchange

More recent literature builds on insights from behavioural economics, emphasising the role played by tax morale – non-pecuniary factors that lead individuals and firms to voluntarily comply (Luttmer and Singhal 2014). One such factor is the fiscal exchange mechanism. Governments collect taxes and then redistribute them to the public through the provision of goods and services. This tax and transfer mechanism reduces inequality, and provides critical infrastructure for essential public services, such as health, education and policing. Taxpayers not only value the goods and services provided by the government, but also recognise that their contribution is necessary for financing them. Taxpayer compliance is now driven by reciprocity or fiscal exchange rather than by coercion (Fjeldstad and Semboja 2001). Survey evidence has also shown that taxpayers are more willing to pay taxes when they receive the desired services in return (Flores-Macías 2018). This can start a virtuous cycle: taxpayers' attitudes towards government improves when more public services are received, so citizens pay more taxes, which the government then spends on more services.

Prichard (2010) argues that, in the long term, measures to increase dialogue, transparency, equity and tax bargaining can be effective in building a culture of tax compliance. In this way taxation leads to a strengthened citizen-state relationship, because it engages taxpayers collectively in government, leads them to demand reciprocity (tax bargaining), and governments are obliged to respond to these demands to sustain state revenue. On the other hand the government may start focusing its expenditure on those who are paying taxes, when in fact the country or society would be better served by spending on the poorer segments of society (Timmons 2005). Many taxpayers believe that they get little in return for their taxes and have limited influence over government policies (Moore et al. 2018). In addition, there is evidence that relatively more marginalised groups frequently face a heavier tax burden, with no commensurate increase in their capacity to demand reciprocity (Moore et al. 2018).

The empirical evidence on fiscal exchange theory is somewhat mixed (D'Arcy 2011). A cross-country study found a positive and statistically significant relationship between compliance (tax collected) and government spending on social services (Timmons 2005). On the other hand, Fjeldstad (2004) found no effect of fiscal exchange in a survey of South African taxpayers. Field experiments, which typically go further in establishing causal relationships, have also found mixed evidence. In Ethiopia, Shimeles et al. (2017) find that messages sent to businesses that appealed to civic duty had tax compliance effects of a comparable size to more deterrence-focused messages. In Rwanda, researchers found that a friendly approach to taxpayers, highlighting how revenue is spent on public goods, was on average more effective than deterrence-focused messages (Mascagni and Nell 2022).

Finally, it should be noted that fiscal exchange nudging letters or messages can be used by tax administrations repeatedly. Unlike deterrence messages, which may have a negative effect if the tax administration does not follow through with the threat over time, fiscal-exchange-type messaging can yield positive dividends without a high risk of adversely affecting future behaviour.

2.3 Social or Peer Influence

Apart from purely economic considerations, people also base their decisions on social norms, and are influenced by their friends, relatives, neighbours, colleagues and families. For example, if a shopkeeper observes that everyone in their business community is paying tax in a certain way or evading it altogether, they may follow a 'herd approach' (Grasmick and Green 1980; Grasmick and Scott 1982). Those who believe that others are paying taxes correctly would have higher compliance levels compared to those who believe that others are evading. Banerjee (1992) tries to connect this social behaviour with economic theory, suggesting that social influence affects the perceived probability of detection for Allingham-Sandmo type models. This strand of the literature also suggests that public disclosure of deceptive behaviour, such as naming-and-shaming in newspapers, could deter evasion.

Empirical studies on whether social norms or pressures influence tax compliance have again found mixed results. A field experiment in the United Kingdom (Hallsworth et al. 2017) tested the effects of messages emphasising social norms – such as, 'nine out of ten people in the UK pay their tax on time. You are currently in the very small minority of people who have not paid us yet' – versus those emphasising concern over public goods. All letters increased the probability of payment, but the strongest effects were seen from the social norm treatment. In contrast, similar messages sent to council taxpayers reduced compliance compared to sending the standard annual tax bills (John and Blume 2018). Messages combining social norms with deterrence may be more effective. For instance, in Guatemala (Kettle et al. 2016) and Peru (Del Carpio 2014) deterrence messages that included text on social norms and pressure were more effective than deterrence alone.

The lack of conclusive evidence for social factors could be due to several reasons. Evaders could have less trust in government in general, making these appeals less effective (Mascagni 2018). Moreover, in low-income countries, where tax compliance levels are lower, appealing to social norms might backfire – citizens might infer that they are paying their dues while everyone else is not, and so compliance decreases.

2.4 Comparative Treatment or Equity

An important principle of taxation is equity. Horizontal equity means that everyone with the same income level pays the same amount of tax. Vertical equity means that those with higher incomes pay more taxes (Denison and Facer 2005). Equity theory predicts that people would be more willing to comply if they perceive the system to be fair (McKherchar and Evans 2009). For example, if taxpayers believe that everyone with a similar income is paying the same amount of taxes, and the government is not giving them any preferential treatment, then compliance is more likely. On the vertical equity side, citizens might want the wealthy to shoulder a greater burden of taxes. This assumption of preferences for redistribution has not found substantial empirical support. Poor people are not uniformly supportive of more redistributive income taxes (Kuziemko et al. 2013; Hoy and Mager 2021). Hoy and Mager (2021) examine whether this is due to overestimating where one falls in the national income distribution, finding that respondents who are told that they are relatively poorer than they thought are not more supportive of redistributive taxation than those who received no information.

A particular concern in the equity and fairness debate is the tendency for high-net-worth individuals to park significant wealth in offshore tax havens. Zucman (2015) estimates that 30 per cent of African wealth is kept in offshore tax havens like Switzerland. Londono-Velez and Avila-Mahecha (2021) use administrative tax data from Colombia on income and wealth, merged with the leaked Panama Papers, to estimate that roughly 1.7 per cent of GDP is 'hidden wealth'. Two-fifths of the wealthiest 0.01 per cent of Colombians admit to hiding wealth, and the wealthiest 0.01 per cent are 55 times more likely to evade than the top 5 per cent. Survey experiments have shown that the electorate are broadly in favour of taxing wealth, particularly if it comes from inheritance (Fisman et al. 2020). However, if citizens perceive that the wealthy are rigging the system in their favour by evading taxes, voluntary compliance might decline (Kangave et al. 2016).

2.5 Political Legitimacy

There is a strong history of linking taxation to governance in the political science literature. If taxation generates political mobilisation, which in turn makes governments more responsive and accountable to taxpayers, this could ultimately promote tax compliance. The political legitimacy of the governing regime and trust in political institutions therefore plays an important role in tax compliance (Torgler and Schneider 2007; Kirchler et al. 2008; Fauvelle-Aymar 1999). Torgler et al. (2008) find a positive correlation between tax compliance attitudes and trust in government institutions or public officials. Picur and Riahi-Belkaoui (2006) study 30 countries, both developed and developing, and find that tax compliance is highest in the countries with a small bureaucracy and a lot of control on corruption.

None of these various motivations for tax compliance is inherently correct. In reality they probably all play a role, to a different degree for different actors. Research in the field is growing exponentially, particularly in low-income countries, to understand how tax administrations might pull these levers most effectively. A recent meta-analysis of 45 tax-compliance-nudging experiments conducted in various countries across Europe, Africa, the Americas and Australia, offers one synthesis of the literature. The authors find that deterrence nudges increase compliance on average, although the effects are modest in magnitude, while interventions related to tax morale are on average ineffective (Antinyan and Asatryan 2020). Figure 2 below shows histograms plotting the distribution of treatment effects from these studies. There is a degree of bunching around a zero treatment effect, but deterrence nudges appear responsible for stronger compliance effects (a higher frequency of large coefficients from deterrence interventions).

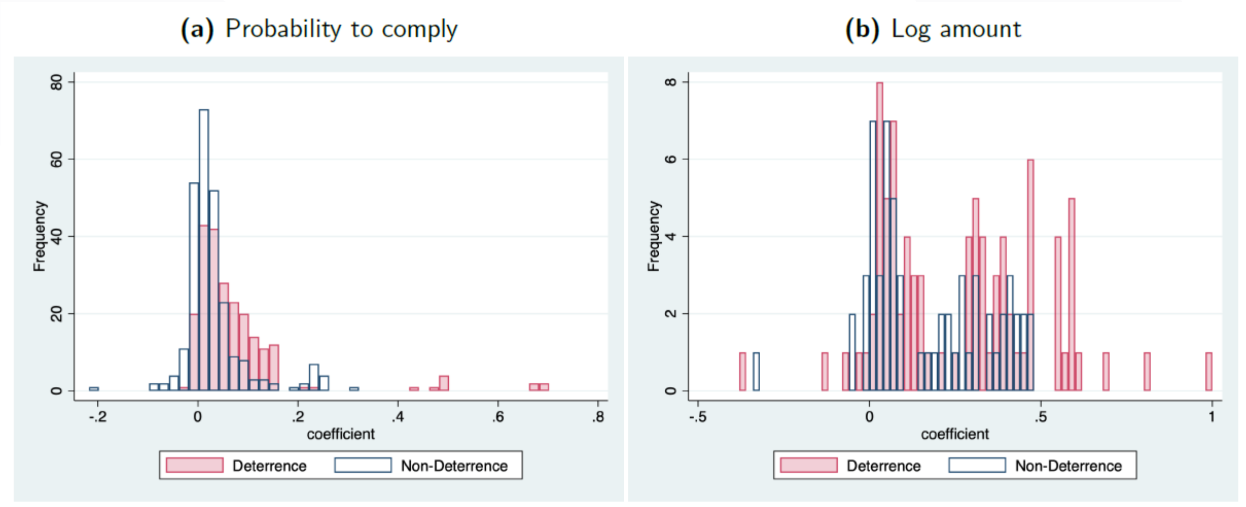

Figure 2 The distribution of treatment effects for 45 tax-nudging experiments performed in 28 countries, from Antinyan and Asatryan (2020).

Notes: Sub-figure (a) and (b) show histograms of treatment effects on the extensive (probability to file or pay taxes) and intensive (logged amount of tax or income reported) margins. Treatment effects for deterrence and non-deterrence nudges are plotted separately.

For more on the determinants of tax compliance, the interested reader can look at:

- Alm (2019) 'What motivates tax compliance?'
- Antinyan and Asatryan (2020) 'Nudging for Tax Compliance: A Meta-Analysis'
- Fjeldstad, Schulz-Herzenberg and Sjursen (2012) 'People's Views of Taxation in Africa: A Review of Research on Determinants of Tax Compliance'
- Hallsworth (2014) 'The use of field experiments to increase tax compliance'
- Mascagni (2018) 'From the Lab to the Field: A Review of Tax Experiments'
- Prichard (2022) *Unpacking 'Tax Morale': Distinguishing Between Conditional and Unconditional Views of Tax Compliance*
- Slemrod (2019) 'Tax Compliance and Enforcement'
- Torgler, Demir, Macintyre and Schaffner (2008) 'Causes and Consequences of Tax Morale: An Empirical Investigation'
- J-PAL have put together a summary of the literature on improving tax compliance through reminder messages for taxpayers: https://www.povertyactionlab.org/policy-insight/improving-tax-compliance-through-reminder-messages-taxpayers
- Also see Dom et al. (2022), *Innovations in Tax Compliance*

3. The Relationship Between Revenue Authorities and Taxpayers

Tax authorities interact with taxpayers in many ways. They register taxpayers, conduct audits, run training programmes, recover tax liabilities, increase awareness of tax procedures, and may implement different economic and welfare programmes through tax credits and exemptions. Taxpayers' willingness to pay taxes could feasibly be influenced by how they are treated by the revenue authority (Feld and Frey 2002). At one end of the spectrum tax authorities could treat taxpayers respectfully, taking on more of a role as tax educators and facilitators. At the other end, tax authorities might adopt the approach of a strict enforcer. For instance, if tax officials detect an error on a declaration, they could give the taxpayer the benefit of the doubt and offer an opportunity to amend the declaration. If the authorities instead take an aggressive approach, and assume that the taxpayer intended to cheat, this could weaken tax morale and crowd out any intrinsic motivation to comply.

Some of these dynamics have been captured in theoretical frameworks such as the 'slippery slope framework', which considers taxpayers' perceptions of their interaction with revenue authorities, alongside other factors related to tax morale and taxpayers' willingness to comply (Kirchler 2007; Kirchler et al. 2008). However, this conceptualisation is theoretical, and most studies using this framework specifically look at the willingness to comply with taxes by comparing hypothetical scenarios with different levels and kinds of trust in government and enforcement (Lisi 2014; Gangl et al. 2015; Olson et al. 2018; Antinyan et al. 2020). How the taxpayer-tax official relationship pans out in practice remains relatively under-studied in the literature, including how it affects both taxpayers (in terms of their compliance, perceptions and attitudes) and tax officials (in terms of attitude to enforcement, corruption and job satisfaction).

Yet there are still some important insights. We will briefly look at five dimensions: (i) incentivising tax officials, (ii) taxpayer registration, (iii) taxpayer training and education, (iv) taxpayer interactions, and (v) tax compliance costs.

3.1 Incentivising Tax Officials

Performance incentives for tax collectors have been considered particularly in contexts where opportunities for corruption might be widespread – for example, with tax collectors offering reduced tax payments in exchange for bribes. Evidence on these incentives is mixed – they seem to raise revenue substantially (Kahn et al. 2001; Khan et al. 2016), but they might also increase bribes (Khan et al. 2016). The literature also considers other types of incentive, such as performance-based postings (Khan et al. 2019) and feedback incentive schemes (Amodio et al. 2018). Both were shown to increase tax revenue. A recent literature examining the effectiveness of tax administration in low-income countries analyses the impact of various measures. Regarding the type of agent hired as tax collectors, hiring local elites instead of state agents seems to increase revenue due to the city chiefs' local information, allowing them to target households more efficiently, with high payment propensities (Balán et al. 2022). Another study explores the optimal assignment of bureaucrats to teams, and kind of taxpayer. The authors conclude that high (low) ability collectors should be paired together, and high (low) ability teams should be paired with high (low) payment propensity households because high-type collectors exert greater effort in taxing high-type households when matched with other high-type collectors. In this case, improving the assignment of tax collectors outperforms replacing low-type collectors or increasing wages (Bergeron et al. 2022), Finally, the increase of the staff-to-taxpayer ratio through larger taxpayer offices has been shown to increase tax revenue (Basri et al. 2019).

3.2 Taxpayer Registration

Moore (2022) highlights two puzzling phenomena in African tax systems – tax administrations maintain vast records of taxpayers that may or may not submit returns but fail to actually provide any revenue, and they continually invest significant resources into registering even more 'unproductive' taxpayers. Data on the number of unproductive taxpayers is scarce, but there is some indicative evidence from recent studies:

- The Nigerian federal revenue authorities indicated in 2016 that 98 per cent of registered personal income tax (PIT) payers were unproductive, as well as 94 per cent for corporate income tax (CIT), and 95 per cent for VAT (IMF 2018: 7)
- Mascagni and Mengistu (2019) examined annual CIT returns in Ethiopia, and found that among the firms who filed returns, around half filed nil returns – meaning that they reported zero economic activity, revenue and tax due
- More careful attempts to classify unproductive taxpayers have been made in Rwanda and eSwatini, where estimates of the proportion of inactive taxpayers range from 60-80 per cent of registered taxpayers (Mascagni et al. 2020; Santoro and Mdluli 2019).

A taxpayer register filled with unused data on unproductive taxpayers surely undermines the efficiency of tax administrations. In addition, much of the data that exists in the registry is inaccurate or incomplete. Statistics from the Uganda Revenue Authority (URA) indicate that more than half of registered taxpayers had not communicated or engaged with the URA for at least two years, and many taxpayers had inaccurate contact information (Mayega et al. 2019). This problem was largely due to the 'success' of a large-scale campaign to register new taxpayers – from 2009 to 2017, the number of registered taxpayers increased from 20,000 to over 1.3 million (Mayega et al. 2019). Moore (2022) argues that the pursuit of registration targets overshadowed the practical usefulness of new registrations for revenue collection.

Moore (2022) suggests that this 'registration obsession' has developed, at least in part, due to a strong prevailing narrative that the so-called informal sector does not pay their fair share, which works to the advantage of certain more privileged groups. Politicians and those who run national tax administrations can point to increased registration as evidence of their performance, rather than doing the hard work of actually collecting revenue.

This informal sector framing also implies that a major cause of inadequate tax collection in low-income countries is the failure of poorer people and small-scale enterprises to pay tax, which diverts attention from larger sources of potential additional revenue, especially the incomes and assets of wealthier individuals (Moore 2022).

3.3 Taxpayer Training and Education

Taxpayer education and training has also become an important point of interaction between taxpayers and tax authorities, especially in low-income countries. The concept of interaction through training is new, and has quickly expanded due to the introduction of new technologies – particularly the electronic filing of returns (see Section 5). Many countries run taxpayer training programmes to increase tax filing compliance (Mascagni and Santoro 2018; Chetty and Saez 2013). Some programmes may focus on increasing revenue through training (Chetty and Saez 2013). Lower education levels or a lack of familiarity with the tax system can result in some taxpayers overestimating their tax obligations. For example, Tourek (2022) shows that tax cuts aimed at simplifying taxes for small businesses had perverse effects, with some firms paying just as much as they did before the reform. This was explained by these firms consistently targeting an identical amount of tax payable year-on-year, rather than responding to changes in income and tax rates. Through survey evidence, Tourek (2022) shows that this targeting heuristic is due to constraints on measuring and documenting revenue to determine tax liabilities. In these cases training and education can have a direct benefit for these taxpayers.

Mascagni and Santoro (2018) divide taxpayer education and training into five different categories – national campaigns, tax education through schools, edutainment, training and seminars, and mobile tax units. National campaigns to register taxpayers and educate them about the benefits of paying taxes for society are common in many low-income countries. For example, educational events in Burundi and Mozambique, carried on since 2010 and 2011 respectively, focused on increasing income tax registration through awareness (OECD 2015). A campaign in Senegal was more broad-based, and utilised various media platforms and information stands to encourage movement from the informal to formal economy. Waseem (2020) reports on a Pakistani taxpayer survey campaign in the early 2000s that brought many businesses into the tax net, but this drive also involved a great deal of coercion and deterrence. These national campaigns connect back to the challenges of a bloated tax register highlighted in Moore (2022).

Tax training and seminars are structured programmes where tax authorities impart education in a classroom-style setting. These sessions typically involve training of taxpayer representatives, consultants and licensed tax agents. They are often organised as specific short modules. For example, the Ethiopian tax administration provided compulsory training to corporate taxpayers' representatives on electronic filing and payment; and Uganda operates 250 tax clinics across the country, with 70 taxpayers on average at each clinic, with a focus on information about tax obligations. Mascagni et al. (2019) study a tax education programme run by the Rwanda Revenue Authority targeted at newly registered taxpayers. Through repeated half-day sessions for the first year of operation, the programme increased the probability of firms making a tax declaration by 27 per cent. The authors also find that this once-off tax training can create a habit of declaration, as firms who file in their first year of operation are significantly more likely to continue filing in future years.

Tax training provides an opportunity for taxpayers to learn, as well as to become more familiar with the tax authority. The evidence about efficacy of training is mixed, although no rigorous evaluation of large-scale tax training programmes has been conducted (see Chetty and Saez 2013; Mascagni and Santoro 2018). It should also be noted that many training programmes are not geared towards directly increasing tax revenue, which makes this usual parameter of interest less meaningful in this context. Instead, many training programmes are more oriented towards sensitisation, and the aim is to improve the relationship between the taxpayer and tax authority.

3.4 Taxpayer Interactions

One key point of interaction between taxpayers and tax authorities are audits. These might improve compliance through three channels. First, there is a direct effect on tax reported, and hopefully paid, through the verification and subsequent adjustment of a tax return. Second, for taxpayers who have undergone an audit, there might be a deterrence effect on future tax compliance. Third, there is an indirect deterrence effect on taxpayers who were not themselves audited, but hear about audits through their networks. However, audits and similar enforcement actions can be very costly, so understanding how much they actually affect compliance is critical.

Recent empirical evidence from low-income countries has shown somewhat disappointing results. Best et al. (2021) study VAT filers in Pakistan, and show that audits have no real effect on the behaviour of taxpayers. If the traditional enforcement strategies of detection through audit do not reveal significant benefits, then both taxpayers and tax authorities would be better served by employing strategies that increase voluntary compliance. In Rwanda, Kotsogiannis et al. (2021) study the impact of audits on future non-compliance of CIT payers. They find that there is a sizeable deterrence effect of tax audit on reported income and tax paid by audited businesses, but that the effect is short-lived. Importantly, however, only comprehensive audits – in-depth, in-person examinations of firms – improved tax compliance, while narrow audits, focused on reviewing returns and other documents submitted to the authority, had no significant effect. The short-lived nature of these impacts is generally in line with many studies from high-income studies, summarised in Slemrod (2019).

In the message experiment literature, Ortega and Sanguineti (2013) observe that just being contacted by revenue authorities can have a positive impact on compliance, especially when this contact involved an in-person interaction. Similar conclusions were drawn by Shimeles et al. (2017) in a study of Ethiopian taxpayers' responses to letters hand-delivered by tax officials. Both deterrence and fiscal exchange framings had significant effects on compliance, but the response might have been more attributable to personal delivery. However, hand delivery is difficult and expensive to scale up. Therefore, the results may not be replicable for a larger number of taxpayers, or for other delivery mechanisms.

One option for increasing enforcement, without relying on comprehensive audits or in-person interactions with tax officials, is the introduction of specialised units or offices for specific taxpayer types. Many tax administrations have introduced these offices, particularly for large and medium-sized firms or high-net-worth individuals; they can be thought of as more intensive, as they usually significantly increase the staff-to-taxpayer ratio. The goal of these offices is to increase enforcement and facilitate more dedicated customer service. Basri et al. (2021) study the tax filing and payment effects of introducing a Medium Taxpayer Office in Indonesia. The authors find that enhanced tax administration dramatically increased tax revenue at very low cost – moving firms to the Medium Tax Office more than doubled overall tax collection from these firms, and, importantly, all types of taxes paid by these firms increased.

Finally, the control of corruption has been a major theme in tax administration, in low-income and high-income countries. Tax collectors are well-placed to extract bribes from taxpayers in exchange for a reduced assessment (Moore et al. 2018). It is likely that there is appreciably more corruption in customs administration than other parts of the administration, and that the frequency of corruption is especially high at the subnational level (Moore et al. 2018). Technology has been seen as a way to curb corruption, by reducing the number of in-person contact points between tax officials and taxpayers. For instance, the electronic submission of returns limits tax officials' discretion in verifying submissions, and thus reduces the scope for bribe-seeking. A recent paper from Okunogbe and Pouliquen (2022) finds that the adoption of e-filing in Tajikistan increased the share of tax revenue coming from firms who were more likely to evade beforehand, suggesting that, under paper filing, these firms were able to collude with tax officials to reduce their tax liabilities.

3.5 Tax Compliance Costs

Paying taxes remains a time-consuming interaction with the government for many in low-income countries. There is some literature showing that compliance costs are an important determinant of taxpayer compliance. For lower-income countries, these compliance costs might be even greater than in higher-income countries, because of weaker capacity in tax administration and lower knowledge amongst taxpayers (Mascagni and Santoro 2018; Santoro et al. 2020). Importantly, compliance costs have been shown to be highly regressive (Coolidge 2012), and they can result in regressive effective tax burdens (Mascagni et al. 2021). These issues are therefore particularly relevant for smaller firms, the majority of taxpayers in low-income countries. Costly compliance processes can also be regarded as a waste of economic resources, increasing the total effective tax burden on individuals and businesses, without increasing revenue flowing to the government. Empirical evidence on tax compliance costs is quite limited, however, including detailed assessments of the size and source of compliance costs, the burden across the firm-size distribution, and whether efforts to simplify tax compliance have had the intended effects. For policymakers interested in minimising compliance costs, a comprehensive understanding of their magnitude and causes is needed.

Recommended additional reading:

- Basri, Felix, Hanna, and Olken (2021) 'Tax Administration vs. Tax Rates: Evidence from Corporate Taxation in Indonesia'
- Kotsogiannis, Salvadori, Karangwa and Mukamana (2022) *Do Tax Audits Have a Dynamic Impact?* Evidence from Corporate Income Tax Administrative Data'
- Mascagni and Santoro (2018) *What is the role of taxpayer education in Africa?*
- Moore, Prichard and Fjeldstad (2018) *Taxing Africa*, Chapter 6: Taxing at the National Level
- Slemrod (2019) 'Tax compliance and enforcement'

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4. Tax Structure

The choice of tax structure has important economic and administrative implications. A good tax structure should be grounded in economic theory, but also consider the practical realities of the economic environment in which it is implemented. Ideally, a government would want to levy taxes in a manner that is broadly fair, supports business development and growth, and does not create undue distortion in economic activity. Taxes should also be designed in a way that minimises the administrative cost of collection and compliance costs for taxpayers, while still generating enough revenue to fund government services. OECD (2015) provides a detailed discussion of these core principles of 'good' taxation and their implications for global tax structures.

Lower-income countries tend to levy the same tax policy instruments as high-income countries, including direct taxes on personal and corporate income, and indirect taxes such as VAT and excise duties, usually designed to address negative externalities or alter behaviour. However, while the structure of tax legislation might look similar, the share of total revenue from these different sources looks quite different in low-income versus high-income countries. First, higher-income countries tend to collect a much higher share of tax revenue from income taxes, as shown in Figure 3 below. Meanwhile, many low-income countries are much more reliant on trade taxes than high-income countries. In part this is due to the ease of collection – levying trade taxes only requires the observation of goods moving across borders, while accurately levying income taxes requires a much more elaborate system of reporting, monitoring, enforcement and compliance (Besley and Persson 2014). More broadly, these differences in the make-up of revenue reflect the economic structure of many low-income countries – many businesses and individuals operate partly outside the formal economy, avoiding their full tax obligation (La Porta and Shleifer 2014), as well as the preponderance of truly small-scale enterprises, many of which do not earn taxable amounts of income. These challenges are aggravated by resource constraints and limited enforcement capacity.

The remainder of this section will concentrate on two major tax policy issues in low-income countries: (i) the apparent under-performance of VAT, and (ii) under-exploited tax measures with significant revenue potential.

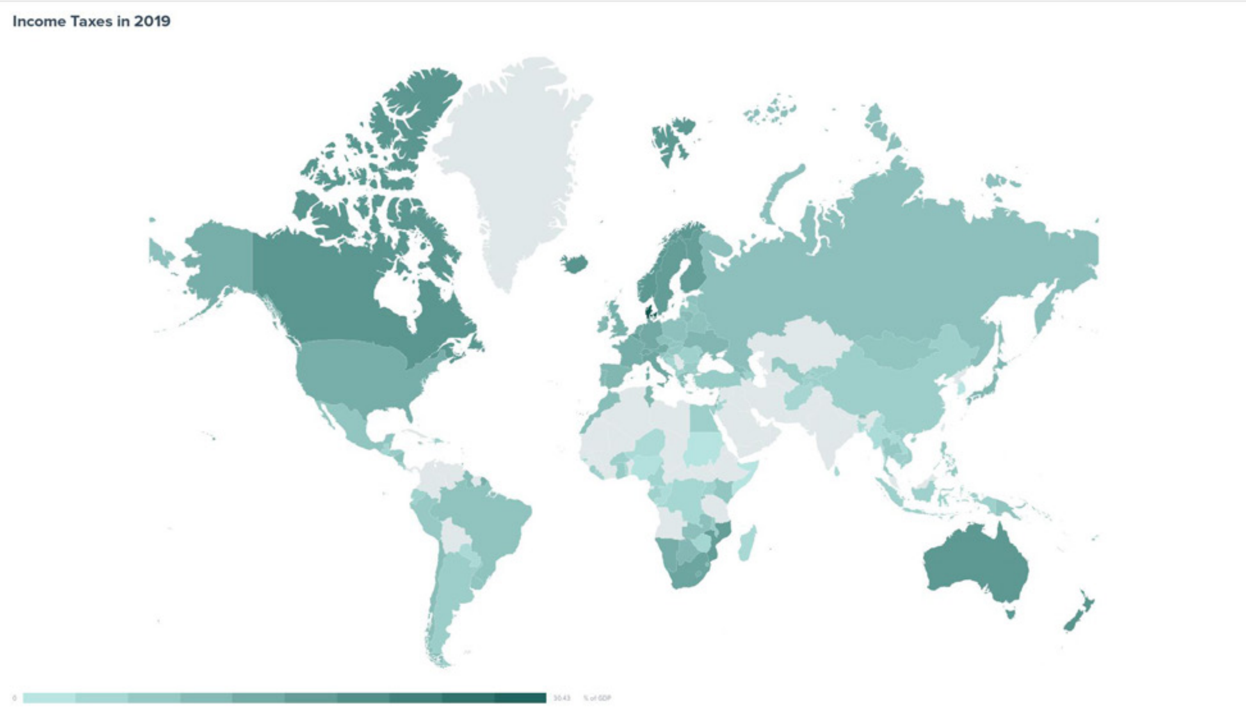

Figure 3 The share of total tax revenue coming from income taxes (PIT and CIT) in 2019.

Source: UNU-WIDER/ICTD Government Revenue Dataset

4.1 The Virtues and Vices of Value Added Tax

The rapid adoption of VAT marks one of the most significant developments in tax policy and administration in lower-income countries (Keen 2013; Moore et al. 2018). In the early 1980s, only 30 countries had a VAT on consumption; by 2020 it is globally ubiquitous and has been adopted by over 160 countries. On average, it accounts for about 30 per cent of total tax revenue (Slemrod and Velayudahn 2022), and nearly 40 per cent in African countries (ATAF 2019). It is meant to be an efficient and self-enforcing tax, facilitating compliance by creating incentives for trading partners to accurately report transactions and leaving a paper trail in both partners' records. Since both buyers and sellers know that their information will be reported to the tax administration, they have no incentive to manipulate true declarations – if a seller firm under-reports, this will be detected in the buyers reports of their purchases (Keen 2008; Keen and Smith 2006). While ostensibly a consumption tax, it is collected at every stage of the production chain, including final sales to consumers. Refund mechanisms allow firms to claim back the VAT that they have already paid on their inputs, which is usually offset against the final VAT charged on their sales. The difference is paid to the tax administration or offset against future tax liabilities if a firm has paid more VAT than it charged (which is often the case for exporters, who do not charge VAT on their export sales, or new firms).

VAT is a complex tax, and can be difficult to administer. While a large amount of data on firm-to-firm transactions is created by VAT, this data is only useful to the extent that the tax administration has the capacity to store and analyse it. In addition, the self-enforcement mechanism only works if taxpayers believe that the tax administration uses the information for enforcement (Pomeranz 2015; Carrillo et al. 2017). The refund mechanism is also open to fraud, as it requires some capacity to verify firms' input claims to detect fictitious claims (Waseem 2019). Using the administrative data of returns filed in Pakistan, Shah (2020) estimates that on average 50 per cent of input tax credit claims in Pakistan were fraudulent. Finally, it can impose high compliance costs on taxpayers, as they need to keep records (paper or electronic) of every transaction, periodically aggregate these records for the tax administration, and make input claims based on these records. These compliance costs might deter taxpayers from registering for VAT in the first place (Harju et al. 2019; Slemrod and Velayudahn 2022; Roy and Khan 2021).

For this reason, tax administrations usually apply a turnover threshold below which firms are not obliged to register for VAT. Enforcing VAT on small firms would be too costly, so registration exemptions are usually justified from an efficiency perspective. However, this can have unintended consequences. First, it risks creating a bifurcation in the value chain, as the debit-and-credit system for VAT creates incentives for firms to trade only with other firms in the same regime. As a result, non-VAT-registered firms might be unable to access the larger markets of VAT-registered firms (Gadenne et al. 2019; Bellon et al. 2022), creating distortions in production decisions and potentially stifling firm growth. Second, introducing thresholds might also give firms whose sales are above the threshold an incentive to under-declare, to avoid registration and the compliance costs of VAT (Liu et al. 2021). Gerard et al. (2018) find evidence of a bunching effect (an abnormal density of firms) just under the exemption threshold in Brazil, suggesting that firms are actively choosing to report revenue amounts that avoid mandatory registration. This can have spillover effects on compliance with other taxes, particularly CIT. Third, unregistered businesses would bear the burden of tax already paid at an earlier stage, as they cannot claim input tax credits if they do not charge VAT on final sales (Keen 2008).

Another constraint on the implementation of VAT is the so-called 'last mile' problem. The self-enforcing mechanism of VAT depends on truthful reporting by buyers and sellers. However, the last firm in the supply chain, usually a retailer, is selling to consumers who have little incentive to insist on an accurate tax receipt (Gerard and Naritomi 2018). In Chile, Pomeranz (2015) finds that, in the absence of credible deterrence and enforcement, retailers strategically misreport their sales and evade taxes. Some countries have experimented with anti-evasion strategies that incentivise consumers to ensure that firms report sales correctly. Naritomi (2019) studies a programme in Brazil that provided consumers who asked for correct receipts with monetary rewards through a lottery, and created an online system for consumers to verify firms' receipts and act as whistle-blowers. The programme increased reported revenue by 21 per cent in the retail sector, with especially strong effects for segments of the market more prone to collusion (Naritomi 2019). The effects on final tax liability are positive but more muted, as firms simultaneously increased reported expenses.

Technological innovations have been proposed as a solution for this problem, particularly electronic receipting and invoicing tools that record and store sales data electronically and transfer this data to the revenue authority in real time. Using Rwandan administrative tax data, Mascagni et al. (2022) study whether the transformative potential of these interventions for VAT implementation have been realised. They find significant discrepancies between electronic sales records and taxpayers' declarations, as well as discrepancies between the tax records of trading partners (Mascagni et al. 2022). These inconsistencies suggest that technological innovations alone do not always improve the accuracy of taxpayer data and tax compliance. Where tax administrations are unable to perform the systematic cross-checks and verification required to ensure effective VAT enforcement, the potential of these innovations has not been fully realised. This has important distributional effects – smaller firms are less likely to claim input credits in full, resulting in a larger effective tax burden and over-payment of VAT (Mascagni et al. 2022). These findings are in line with evidence from other African countries, including Uganda (Almunia et al. 2021) and Ethiopia (Mascagni et al. 2021).

Recommended further reading:

- Almunia, Hjort, Knebelmann and Tian (2021) *Strategic or confused firms? Evidence from 'missing' transactions in Uganda*
- Gerard and Naritomi (2018) *Value Added Tax in developing countries: Lessons from recent research*
- Mascagni, Dom, Santoro and Mukama (2022) 'The VAT in Practice: Equity, Enforcement and Complexity'
- Pomeranz (2015) 'No Taxation without Information: Deterrence and Self-Enforcement in the Value Added Tax'
- Slemrod and Velayudhan (2022) 'The VAT at 100: A Retrospective Survey and Agenda for Future Research'

4.2 Under-Exploited Taxes

High Net Worth Individuals (HNWIs)

As highlighted earlier, low-income countries have, by and large, adopted the same or very similar tax policy measures as their high-income counterparts. However, there is strong evidence of significant under-utilisation of two tax heads in particular: (1) the personal incomes of a growing number of wealthy individuals, and (2) property taxes.

Personal income taxes (PITs) typically account for less than 10 per cent of all tax revenue in most low-income countries, versus an average of over 25 per cent in OECD countries (Keen 2012). These are primarily collected from employees in the formal sector through the pay-as-you-earn system (Moore et al. 2018). However, a large number of self-employed professionals, often earning significant income, can hide behind weak design and enforcement of PIT, and pay very little. The problem is exacerbated by the wealthy exploiting the offshore financial system. For instance, Zucman (2014) estimates that 30 per cent of all African financial wealth is held offshore, resulting in a total tax revenue loss over US$15 billion. A case study from Uganda revealed that only 5 per cent of company directors remitted any PIT, and among a group of 71 top-ranking government officials with large business assets, only one had ever paid PIT (Kangave et al. 2016). Further, just 13 per cent of individuals registered as taxpayers with the URA made any tax payments.

Increasing tax compliance from the wealthy is especially challenging, as economic elites usually wield significant political influence. Uganda created a specialised HNWI unit at the URA, which saw early successes: within the first six months, the unit collected over US$5 million in additional taxes. In part this success was due to sensitive treatment of politicians and politically influential people. The unit focused on starting with tax education and obtaining commitments to pay some taxes, rather than harsh enforcement. In addition, the senior management team of the URA displayed a strong commitment to investigate HNWIs, and in some cases attended initial meetings with those identified as HNWIs (Kangave et al. 2016).

Recommended further reading:

- Kangave, Byrne and Karangwa (2020) *Tax Compliance of Wealthy Individuals in Rwanda*
- Kangave, Nakato, Waiswa, and Zzimbe (2016) *Boosting Revenue Collection through Taxing High Net Worth Individuals: The Case of Uganda*
- Zucman (2014) 'Taxing across Borders: Personal Wealth and Corporate Profits'

Property taxes

Amidst rapid urbanisation, cities in many low-income countries need much more revenue to meet urgent spending priorities and build the foundation for stronger local social contracts. Yet in practice local government revenue-raising efforts – and property taxes in particular – are frequently ineffective, inequitable and unaccountable. While low-income countries on average collect less revenue as a share of GDP than higher-income countries, this gap is particularly large for property taxes, as shown in Figure 5. Given the easy observability of property, why do low-income countries not leverage this revenue source more?

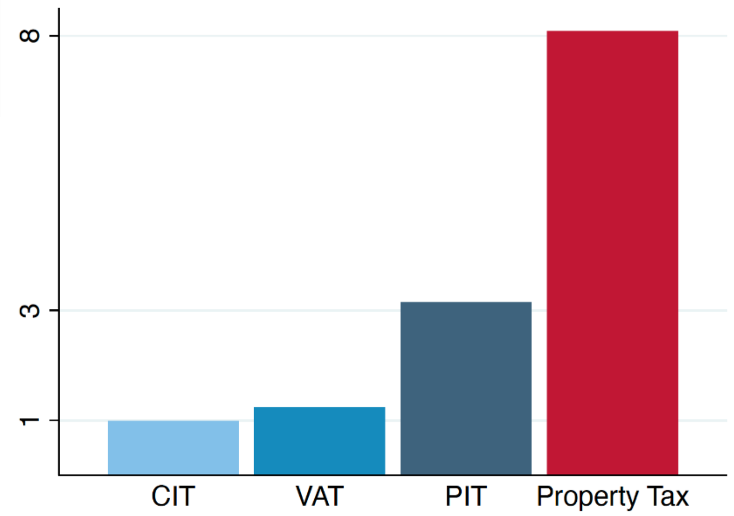

Figure 5 Ratio of tax revenue-to-GDP in high- versus low-income countries (from Brockmeyer et al. 2021)

Part of the explanation goes back to weak administrative capacity and tax enforcement on the wealthy. This was confirmed in research on property tax reform in Sierra Leone, where local elite cohesion strengthened resistance to tax reform, particularly since elites have little interest in the small-scale services funded by local taxes such as property tax (Jibao and Prichard 2015). Weigel (2020) studies whether paying property taxes can create a participation dividend in the Democratic Republic of Congo, testing the hypothesis that when states demand taxes, citizens respond by demanding more from the government. The tax campaign, which involved going door-to-door to register taxpayers and make in-person appeals to pay, significantly raised tax compliance (Weigel 2020). It also led to a more engaged citizenry, who then expected a higher level of public goods. Weigel (2020) argues that this relationship between direct taxation and increased political participation might explain why many non-democratic governments under-exploit property and income tax, as they seek to minimise citizen participation. Getting the political economy of property taxation right is crucial to reform efforts.

Brockmeyer et al. (2022) examine the impact of a property tax reform in Mexico City, which combined increases in the effective tax rate on property with a contemporaneous enforcement initiative. The authors find that, while raising the tax rate increased tax payment amounts, it also decreased compliance, and that this behavioural effect persisted for at least several years. Enforcement messages delivered to non-compliant taxpayers also raised tax revenue. However, the rise in tax revenue imposed welfare costs on households with liquidity constraints, since property taxes are levied on an illiquid asset rather than a flow of income or consumption (Brockmeyer et al. 2022). Nonetheless, overall, the authors show that property tax increases are welfare-enhancing under moderate assumptions on the value of public goods paid for by the increase in revenue. Overall, this suggests that a welfare-maximising government could increase tax rates without increasing enforcement on those with lower incomes.

Another growing trend in property tax reforms is the use of technology to expand identification, automate the valuation of properties, improve collection and increase transparency. One innovation is using property valuation models to enable replicable, transparent, accurate and cost-effective mass valuation. Although certain characteristics can reliably predict property values, preparing the input data for these models, and then accurately predicting property values, remains a complex and technical endeavour (Bower et al. 2022). One promising application is to use the machine-generated property values as a cross-check to detect implausibly low self-declaration.

Recommended further reading:

- Bower, Kundert, McSharry and Brimble (2022) *How data can improve property tax implementation in Rwanda*
- Brockmeyer, Estefan, Arras and Serrato (2022) *Taxing Property in Developing Countries: Theory and Evidence from Mexico* (also summarised on this blog)
- Jibao and Prichard (2015) 'The political economy of property tax in Africa: Explaining reform outcomes in Sierra Leone'
- ICTD (2021) *Five Tenets for Consideration When Undertaking Property Tax Reform in Africa*
- Weigel (2020) *The Participation Dividend of Taxation: How Citizens in Congo Engage More with the State When it Tries to Tax Them*

4.3 Simplified tax regimes for small firms

The preponderance of small firms in low-income countries has led tax policymakers to experiment with various simplifications in the ordinary tax regime to try to recover some revenue from smaller firms, as well as foster a 'culture of compliance', by bringing growing firms into the tax net early on. One example is the creation of presumptive tax regimes, broadly referring to different procedures used to determine a firm's tax liability base, without directly measuring taxable income. For instance, using turnover rather than profits as a basis for taxation, levying lump sum taxes, or using observable characteristics of businesses, such as their location and business sector, to determine the tax rate.

In theory presumptive taxes can simplify tax compliance, and reduce the compliance burden for small taxpayers and the administrative burden for tax authority, who no longer need to audit or comprehensively monitor these firms. Presumptive taxes may also curtail evasion, by using indicators to determine the tax liability that are easier to assess and do not require much accurate record-keeping of sales and expenses. Finally, presumptive taxes might make the tax system slightly fairer, by imposing some taxes on likely evaders, and promoting compliance from larger firms who might otherwise feel undercut by untaxed competition.

It is not clear, however, that these sorts of measures are effective. First, the amount of revenue collected from these small firms is typically negligible, and the prospect for substantial growth in collection is small. For example, in Uganda, while small businesses make up over 90 per cent of firms, the presumptive tax regime generates less than 0.05 per cent of total tax revenue (Lees et al. 2019). Eissa et al. (2017) study a Rwandan reform that created a presumptive 'flat fee' for both PIT and CIT payers below a certain threshold. They demonstrate that the new regime reduced overall tax collection from affected taxpayers, and these losses were only partially offset by estimates of the number of new firms entering the tax net. Second, they might not promote tax compliance. In an evaluation of efforts to synchronise business and tax registers in South Africa, Lediga et al. (2020) show that, although more small firms were then registered for tax, many firms failed to file and pay after registration. Jouste et al. (2021) show that a new online filing system for presumptive taxpayers in Uganda only temporarily increased tax compliance, with most presumptive taxpayers filing the minimum possible taxable amount of sales, and effects dropped off after the first year. Survey evidence from Ethiopia indicates that the presumptive tax system did not improve perceptions of fairness, and was not successful in simplifying the tax system (Getachew 2019).

Proponents also argue that taxing small firms, even nominally, has broader benefits – encouraging formalisation, which improves access to public services, financial markets and credit, promotes business investment, and ultimately leads to better business performance and growth (see Figure 4). Several studies have been conducted to evaluate formalisation interventions, such as taxpayer registration campaigns, and largely find that these initiatives do not substantially increase the number of formal firms, and firms often need incentives to register which negate any revenue gains (Bruhn and McKenzie 2014; Floridi et al. 2020). In addition, studies have found that small firms often do not see the benefits of formalisation, as simply registering with the tax authorities does not inherently change a firm's relationship with other government authorities or formal financial services providers (Gallien and Van den Boogaard 2021). In reality, these positive externalities are only likely to arise if tax registration and compliance is accompanied by increased legal security, reduced costs, improved market access, and increase scope for engagement with government (Moore et al. 2018). A number of empirical studies show that these advantages do not ordinarily accrue to firms, and the results of formalisation, in terms of sales, profits, firm growth, inter alia, are usually limited (Bruhn and McKenzie 2014; Ulyssea 2020; Benhassine et al. 2018).

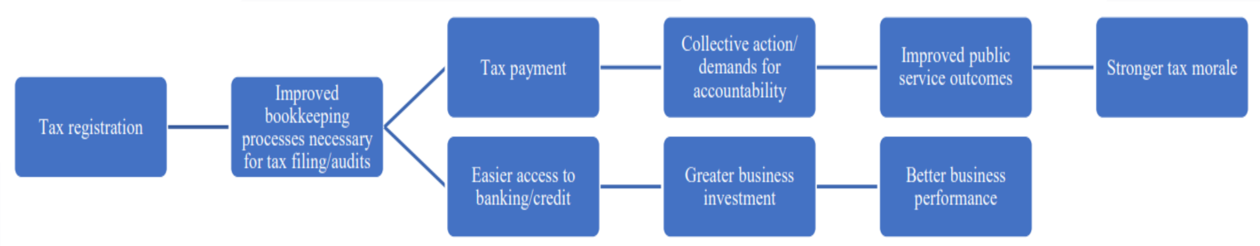

Figure 6 Assumed causal chain leading from tax registration to firm-level benefits (from Gallien and Van den Boogaard 2021)

Recommended further reading:

- Bruhn and McKenzie (2014) 'Entry Regulation and the Formalization of Microenterprises in Developing Countries'
- Eissa, Murray and Zeitlin (2017) *Fiscal impacts of a presumptive tax for microenterprises in Rwanda*
- Gallien and Van den Boogaard (2021) *Rethinking Formalisation: A Conceptual Critique and Research Agenda*
- Moore, Prichard and Fjeldstad (2018) *Taxing Africa*, Chapter 7: Small Taxes and Large Burdens

5. ICTs in Tax Administration

The potential for digitalisation to improve compliance is increasingly recognised, with many tax authorities adopting new technologies as part of a customer service orientation (OECD 2021), and to enhance their overall effectiveness. Traditionally, tax compliance has been characterised by time-consuming manual processes and frequent interaction with tax officials. These features may contribute to the low fiscal capacity of low-income countries (Besley and Persson 2014). Automated data checks, cashless payments and digital taxpayer interfaces could reduce the time spent filing and paying taxes (Estevão 2021; Okunogbe and Santoro 2022; Moore 2020). Removing direct interaction with tax officials might also limit opportunities for rent-seeking and corruption (Okunogbe and Pouliquen 2022).

However, digitalisation is not an obvious solution for facilitating compliance in countries with limited connectivity and other necessary infrastructure, incomplete or inaccurate data, low taxpayer knowledge, and weak enforcement capacity (Okunogbe and Santoro 2022; Moore 2020). In this context, technological solutions could be prohibitively expensive, inaccessible or even less efficient than analogue systems. The literature from low-income countries is so far limited, but has pointed to mixed effects. In the first experimental study of e-filing in a lower-income country, Okunogbe and Pouliquen (2022) find that e-filing in Tajikistan reduces the time spent on tax activities, but find no significant effects, on average, for total taxes or bribes paid. Santoro et al. (2022) examine the impact of an e-filing mandate in Eswatini, showing that filing behaviour and accuracy improves for those firms that comply with the mandate, but many smaller firms struggle to adapt to online filing.

Other studies have examined the impact of electronic fiscal devices (EFDs), also known as electronic billing machines or electronic sales registry machines, which automatically record transactions and remit the data to the tax administration. EFDs can improve the accuracy of reporting, although ensuring full utilisation can be difficult (Eissa and Zeitlin 2015), smaller taxpayers face practical difficulties using these devices (Mascagni et al. 2022), and firms are prone to offset increases in reported sales with simultaneous increases in costs, dampening the overall revenue gain (Ali et al. 2021; Mascagni et al. 2021). In addition, large inconsistencies in taxpayer data persist even after the adoption of EFDs (Mascagni et al. 2022). These challenges have led some to argue that the digitalisation of tax systems can lead to adverse outcomes for welfare and inclusion, due to the 'premature formalisation' of small firms, where compliance costs increase faster than any gains in productivity (Roy and Khan 2021).

Tax authorities are also increasingly adopting technology to monitor compliance. Data analytics tools, such as automated cross-checks of self-reported information against other data sources, and automating audit case selection based on risk parameters, could result in more targeted and effective compliance management and enforcement. However, the potential of each of these components is significantly weakened if they stand alone. Rather, their success relies on proper integration and data management systems, usually supported by an integrated tax administration system. A recent review of the limitations of information technology for tax administrations in low-income countries also highlights that successful digitalisation initiatives require proper change management, a clear organisational strategy, and a regulatory framework with an appropriate balance between tax collection and data privacy and security (Okunogbe and Santoro 2022).

Recommended additional reading:

- Ali, Abdulaziz, Shimeles, and Woldeyes (2021) 'Building Fiscal Capacity in Developing Countries: Evidence on the Role of Information Technology'
- Occhiali, Akol and Kargbo (2022) *ICTD and Tax Administration in Sub-Saharan Africa: Adopting ITAS in Uganda and Sierra Leone*
- Okunogbe and Pouliquen (2022) 'Technology, Taxation, and Corruption: Evidence from the Introduction of Electronic Tax Filing'
- Okunogbe and Santoro (2022) *The Promise and Limitations of Information Technology for Tax Mobilisation*
- Roy and Khan (2021) 'Digitizing Taxation and Premature Formalization in Developing Countries'
- Mascagni, Mengistu and Woldeyes (2021) 'Can ICTs increase tax compliance? Evidence on taxpayer responses to technological innovations in Ethiopia'

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