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Abstract

Why are there such significant differences across countries in governments' ability to extract a share of national income in taxation? What can low- and middle-income countries do to improve their ability to tax? How does the pursuit of tax collection depend upon and influence other objectives of a tax system such as equity, growth and the building of a strong state? This VoxDevLit summarises findings from the growing body of research on taxation and development that speaks to these questions. We organise the review along three important dimensions of taxation in low- and middle-income countries: constraints on effective taxation and enforcement; administrative reforms and communication; and equity.

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Summary

This VoxDevLit summarises findings from the growing body of research on taxation and development. The review is organised along three important dimensions of taxation in low- and middle-income countries: constraints on effective taxation and enforcement; administrative reforms and communication; and equity.

In the domain of effective taxation and enforcement, there are three main lessons. The first is that the existence of third-party reporting improves enforcement by creating paper trails on the activities of firms and citizens. There are, however, important qualifications: the paper trail 'breaks down' at the final consumer stage if the consumers have no incentive to ask for receipts; there are limits to the effectiveness of third-party reporting when firms and individuals can make offsetting adjustments on margins of activity that are less verifiable; the success of third-party reporting relies on the assumption that the tax authority has a certain capacity to cross-check information reported across parties and, perhaps more importantly, that taxpayers believe in this capacity. The second insight is that the lower third-party coverage in low- and middle-income countries can lead optimal tax policies to look very different than they do in high-income countries. For example, once we account for enforcement constraints, it may be desirable for optimal tax policy to implement policies that distort firms' and households' economic choices relatively more if they lead to less evasion and therefore greater revenue collection. The third insight is that tax authorities must use evidence to balance between statutory reforms (e.g. changing the tax rate) on the one hand, and direct investments in enforcement, on the other hand.

A promising domain to improve taxation in low- and middle-income countries lies within the tax authority itself. We emphasise administrative reforms and communication strategies with taxpayers as two 'building blocks' of a well functioning tax authority that are feasible policy levers for governments in most settings, including those with lowest levels of initial capacity, and that have potentially beneficial impacts beyond immediate improvements in enforcement. A critical focus area is personnel, where rationalising and professionalising personnel remains paramount. An important policy tool involves optimising the staff-to-taxpayer ratio, perhaps in particular for large firms and high-net-worth individuals. Furthermore, enhancing recruitment practices to attract and retain high-calibre personnel within tax authorities is crucial. Another critical area is that tax authorities can significantly enhance their effectiveness by improving communication with taxpayers. Beyond merely conveying tax liabilities, transparent and clear communication can play a crucial role in shaping taxpayers' perceptions of the state. It can influence their beliefs about the state's ability to detect noncompliance, its commitment to investing tax revenues in public goods rather than rent-seeking, and the fairness of tax burden distribution. These perceptions, in turn, may positively impact taxpayers' compliance but also their engagement with the state more broadly.

Finally, in the domain of equity, there are three main lessons. First, due to both structural factors and limited enforcement capacity, the effective distributional impacts of taxes often deviate from their 'statutory' objectives, in ways that are hard to predict based on evidence from high-income countries. Second, administrative reforms which are meant to be distributionally neutral may end up having significant equity impacts because of the practical realities of implementation. Third, the global challenges which tax authorities face to tax the very top of the income distribution appear to be even more pronounced in low- and middle-income countries.

1 Introduction - Taxation in low- and middle-income countries

There are vast differences in the size of government across countries today. In 2018, governments in low-income countries collected 13% of national income in taxes, on average, while middle-income countries and high-income countries collected 24% and 36%, respectively – a nearly three-fold increase between the low-income and high-income groups (Bachas et al. 2022; data from https://globaltaxation.world/). Improving the ability to tax can allow low- and middle-income countries to fund productivity-enhancing public goods and stimulate economic growth. By increasing domestic resource mobilisation, governments can become more independent from foreign economic and political influences that are associated with raising funds on international markets or from donors. Finally, a strengthened tax system can help the government achieve redistributive objectives and potentially improve the social contract between citizens and states. So, why are there such significant differences in governments' ability to extract a share of national income in taxation at various levels of development? What can low- and middle-income countries do to improve their ability to tax? How does the pursuit of tax collection depend upon and influence other important objectives of a tax system such as equity, growth and the building of a strong state?

This VoxDevLit summarises findings from the growing body of research on taxation and development that speak to these questions. The review is organised along three important dimensions of taxation in low- and middle-income countries. The first is effective taxation and enforcement – what are the sources of effective enforcement in low- and middle-income countries, how do constraints on enforcement impact the pursuit of production efficiency, and how should governments balance the use of limited resources between investing in enforcement capacity and reforming the statutory tax schedule? The second dimension is administrative reforms and communication – what are some feasible policy levers that are generally available to tax authorities in low- and middle-income countries that can help strengthen the tax authority's processes and interactions with firms and citizens? The third dimension is equity – what role can taxation play to curb the alarming income inequality trends in low- and middle-income countries?

This initial version of the VoxDevLit is primarily based on Bachas et al. (2024) and Jensen and Weigel (2024). Recent, complementary reviews that focus on topics at the intersection of taxation and development include Pomeranz and Vila-Belda (2019), Okunogbe and Tourek (2024), Brockmeyer et al. (2024), Mascagni (2018), Okunogbe and Santoro (2023). See also Slemrod (2019) for a related review of work on tax compliance and enforcement.

2 Constraints on effective taxation and enforcement

The size of governments varies across countries and changes over time. A key factor in the growth of the size of governments is their ability to extract a significant share of the national income through taxation. This section discusses the evidence on constraints to effective taxation and enforcement, and the implications of these constraints for policy design.

2.1 Information trails and third-party reporting

A tax authority that manages to have a high level of effective taxation hinges on a strong enforcement system. One of the pillars of enforcement is information. In most developed countries a significant share of taxes are collected through third-party institutions such as employers, banks and other financial institutions. Based on random audits data in Denmark, Kleven et al. (2011) show that compliance with income taxes is stronger whenever such third-party reporting is in place. Third-party reporting can take various forms. For example, when an employer submits information to the tax authority on the wages paid to employees, this constitutes third-party information. Another example is a financial institution that

provides information to the tax authority on the amount of capital income it has paid out to an account holder.

The existence of third-party reporting improves enforcement by creating paper trails on the activities of firms and citizens. Third-party institutions generally have a large number of employees, clients and business partners, and they need to use accurate records to carry out complex activities. These records are often seen by the employees of the firm itself (including in the case of a wage payment), and the business partners also ‘see’ the records by virtue of being either the client or the supplier in the transaction. Kleven et al. (2016) show that while the firm could in principle collude with its employees and business partners to under-report the value of its activities to government, this becomes increasingly hard to sustain when the number of employees and/or partners is larger. For this reason, due to the existence of a large number of informed employees/partners, and the existence of underlying business records evidence, enforcement based on third-party coverage can be successful.

In Chile, Pomeranz (2015) compellingly shows that the value-added tax (VAT) facilitates tax enforcement by generating information trails on transactions between firms. The VAT is widely adopted across low- and middle-income countries today (Keen and Lockwood 2007). The popularity of the VAT is likely due in part to the built-in incentive structure that creates third-party reported paper trails on transactions between firms – as both the client and the seller are required to report the value of the transaction to the tax authority. While the seller would prefer to under-report this value, the client would prefer to over-report the value (see also Brockmeyer et al. 2024 on the VAT in low- and middle-income countries]. In two experiments, Pomeranz shows that the existence of this paper trail has a preventive deterrence effect on evasion and that a tax enforcement shock transmits through the production chain due to the existence of this paper trail.

These results support the idea that, as the third-party coverage of an economy grows, enforcement will be strengthened and lead to an improved ability to collect taxes. There are, however, three important qualifications that are relevant in low- and middle-income countries. The first is that the paper trail ‘breaks down’ at the final consumer stage if the consumers have no incentive to ask for and maintain receipts from their purchases at retailers. Naritomi (2019) studies an anti-tax evasion programme in Sao Paulo, Brazil, which creates monetary rewards for consumers to ensure that firms report final sales transactions. Naritomi finds that, by enlisting consumers as tax auditors, this programme was effectively able to increase the available third-party information which, in turn, led to a meaningful increase in collected tax revenues. The second point is that there are limits to the effectiveness of third-party reporting when firms and individuals can make offsetting adjustments on margins of activity that are less verifiable. In Ecuador, Carillo et al. (2017) show that when firms are notified by the tax authority about detected revenue discrepancies based on third-party reports, they increase reported revenues but also adjust reported costs, such that the ultimate impact on tax collection is muted. Importantly, firms adjust their inputs in cost-categories that have little or no third-party coverage (e.g. “other administrative costs”). Third, the success of third-party reporting relies on the assumption that the tax authority has a certain capacity to cross-check information reported across parties and, perhaps more importantly, that the firms and individuals in the economy believe in this capacity and, as a result, keep accurate records. Using transaction data from Uganda, Almunia et al. (2024) show that sellers and buyers report different amounts for the same transaction in 79% of cases. Additional analyses show that 75% of Ugandan firms engage in advantageous mis-reporting which leads to a reduction in their tax liability. Thus, third-party reporting is a helpful starting point to improve tax collection but it must be combined with complementary investments in the tax authority’s enforcement capacity.

Beyond the informational capacity, third-party institutions can also help to improve tax collection through withholding. Withholding occurs when the third-party institution remits some or all of the tax due directly to the tax authority. For example, withholding would occur when an employer withholds the estimated tax that is due on an employee’s wage and directly sends the tax payment to the tax authority (on behalf of the taxpayer, effectively). Brockmeyer and Hernandez (2022) show that the use of withholding is more

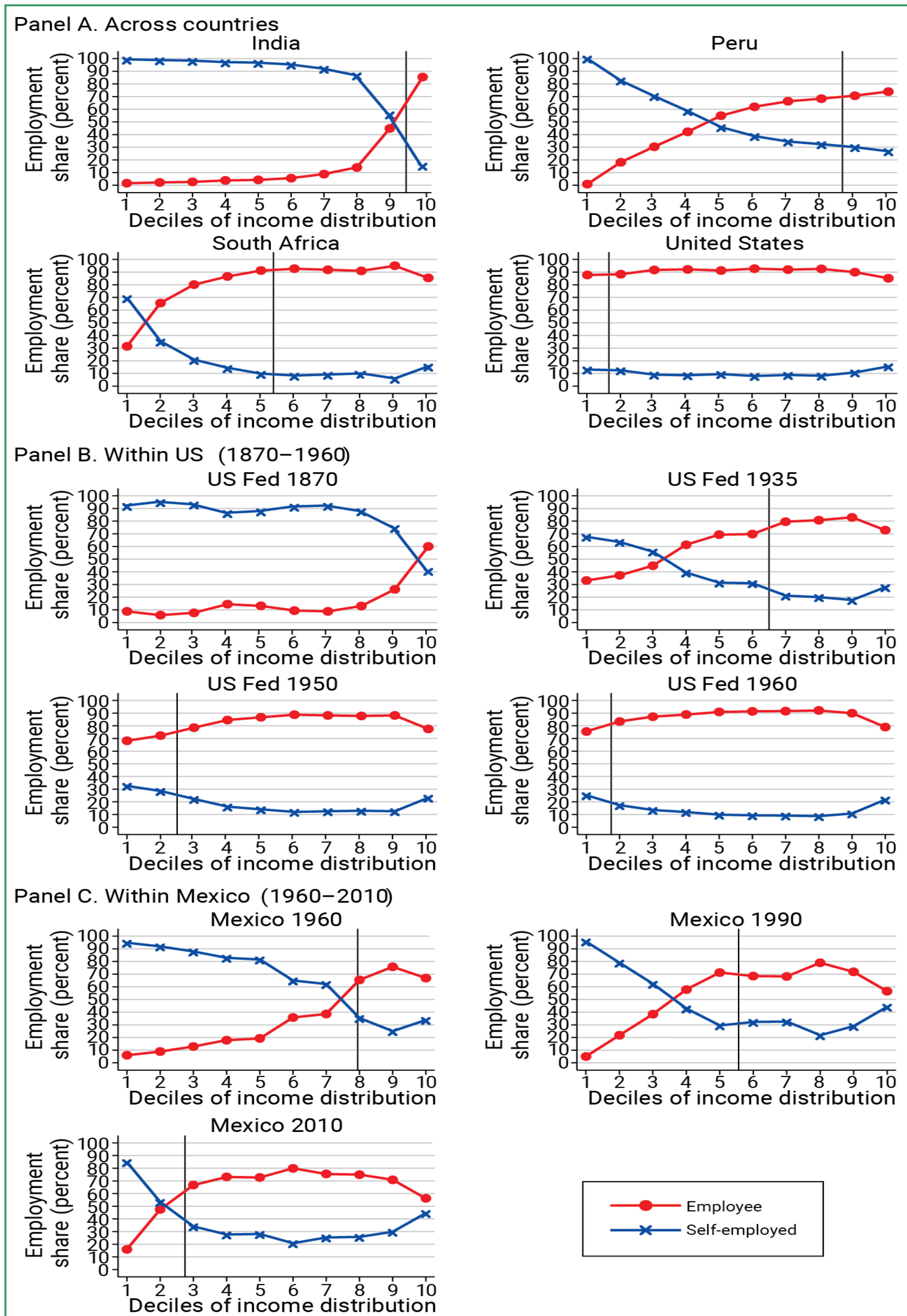
prevalent in lower-income countries, which also apply this tool more broadly and with higher withholding rates than in higher-income countries. These facts suggest that withholding may be particularly desirable for collection purposes in settings with otherwise limited enforcement capacity. Moreover, Brockmeyer and Hernandez (2022) show, using micro-data from Costa Rica, that an increase in the withholding rate led to a significant ultimate increase in the taxes paid by firms. Additional analyses suggest that the surprisingly large, positive impact of withholding on collection operates through both a 'default remittance' effect, where firms do not attempt to reclaim the withheld tax to reduce their ultimate tax liability, and an enforcement perception effect, where firms perceive the tax authority to have stronger enforcement capacity following the reform (although the reform only changed the withholding rate). Relatedly, Garriga and Tortarolo (2024) study a reform in Argentina which appointed the task of collecting taxes to large firms. They find that this delegation led to a significant increase in self-reported sales and tax payments among the trading partners with the treated firms, with the effects concentrated among downstream firms that lack significant paper trail coverage.

Jensen (2022) constructs a database that covers 100 countries at all income levels today, as well as a long-run time series in the United States (1870-2010) and Mexico (1960-2010), and finds that as countries develop, revenue from income taxes also increase as more of the workforce transitions from self employment to being an employee. Motivated by the Danish evidence on the difference in third-party coverage between employees and the self-employed, and the resulting difference in evasion, Jensen uses the employee share in the active workforce as a proxy for the share of individual income that is enforceable. At low income levels, the employee-share is concentrated at the top of the country's income distribution (i.e. most employees are amongst the highest earners). As countries develop, the employee share gradually rises at higher levels of income (Figure 1).

Jensen (2022) also finds that at the lowest levels of development, the income tax exemption threshold, the nominal level of income beneath which an individual is legally exempt from paying personal income taxes, is located at the top of the income distribution. As countries develop, the threshold gradually decreases in the income distribution, in close co-movement with increases in employee share to its left. As a result, the size of the personal income tax base grows significantly as countries develop while the share of all taxpayers that are employees remains high, between 85% and 95%, even as the size of the tax base (the share of the income distribution that is subject to the income tax) grows. These findings are consistent with a government's enforcement costs rising with a higher self-employed share. The transition from self-employment to employee-employment over time improves the government's ability to enforce taxes, expand the tax base and increase income tax revenue.

Motivated by the micro-evidence cited so far on information trails, these descriptive results suggest how the long-run transition from self-employment to employee-employment increases the government's enforcement capacity and drives expansions of the income tax base.

Figure 1



2.2 Limits to enforcement and production efficiency

The results in Jensen (2022) highlight how low- and middle-income countries differ in the extent to which their economy is characterised by information trails. As a result of the much lower third-party coverage, optimal tax policies may look very different than they do in high-income countries. In particular, many low- and middle-income countries implement policies that are at odds with second-best approaches (Gordon and Li 2009, Best et al. 2015) – the idea that, in a context with some informational barriers, tax policies should aim to maximise social welfare with the instruments available that tax observable transactions. An important result in public economics is that second-best approaches should promote production efficiency, i.e. they should seek to minimise distortions on economic choices by firms and households (Diamond and Mirrlees 1971). This result permits taxes on consumption, wages and profits, but precludes taxes on intermediate inputs, turnover and trade. The challenge is that the production efficiency result was derived in an environment with perfect tax enforcement – which is clearly at odds with the situation in low- and middle-income countries that are characterised by limited enforcement capacity (for several reasons, including weak information coverage, constrained human and technological resources, and corruption).

Best et al. (2015) use administrative data from Pakistan to show how, once we allow for tax evasion, it may be desirable for optimal tax policy to implement 'third-best' policies that deviate from production efficiency if they lead to less evasion and therefore greater revenue efficiency. Their specific setting is the policy design choice between a firm tax on profits versus on turnover. Pakistan implements a minimum tax scheme, where firms are taxed either on profits or turnover, depending on which tax liability is larger. While a profit tax can be evaded through the over-reporting of costs, this evasion strategy does not help evade the turnover tax. Best et al. (2015) show that turnover taxes, implemented for smaller firms that have more scope to over-report costs, can reduce evasion by up to 70%. Thus, even though the turnover tax is production inefficient relative to the profit tax, it may ultimately be implemented because of its relatively stronger revenue efficiency.

Recent studies have provided related insights on the taxation of firms when evasion is prevalent. Bachas and Soto (2021) find, in the context of corporate taxation in Costa Rica, that firms respond to an increase in the tax rate by reducing revenue but considerably increasing costs - leading to a large elasticity of corporate taxable profits, in the range of 3 to 5. In Honduras, Lobel, Scot and Zúniga (2024) find that corporations over-report true costs when their profits are taxed. These results speak to the design of corporate taxes in the presence of evasion: in particular, the results from Costa Rica suggest that a policy which lowers the statutory rate while broadening the taxable base has the potential to achieve a higher amount of tax revenue collected from these firms.

2.3 Balancing investment in enforcement versus other tax reforms

The results above illustrate how governments trade off between different statutory tax policies to raise revenue while accounting for constraints on enforcement. A complementary policy design question is how a tax authority should balance between statutory reforms, on the one hand, and direct investments in enforcement, on the other hand. Keen and Slemrod (2017) provide a theoretical discussion of this policy choice, which is highly relevant in low- and middle-income countries where the tax authority has limited resources and often has to choose one of the two alternatives in order to raise revenue.

In Indonesia, Basri et al. (2021) compare two approaches to increase corporate tax revenues: creation of 'medium size taxpayer offices' (MTOs) and changes to the statutory tax rate. The authors find that the administrative reform caused a large increase in taxes collected amongst corporations. One strength of this study is that the authors can compare this return to the returns from a statutory reform in the same exact context (using the same data and based on the same set of corporate firms). Based on the full set of results, the authors conclude that to obtain the increase in corporate income tax paid by the MTO taxpayers alone, the top marginal Corporate Income Tax (CIT) rate on all firms would have to be raised

by 8 percentage points. The welfare gain of any reform depends not only on the change in revenues collected but also the impacts on firms (e.g. the change in firms' administrative costs from complying with taxes under the reformed regime). The authors discuss how it is likely that the welfare gains from raising revenue through improved administration exceed those from increased rates. In other words, low- and middle-income countries appear to have significant space to raise revenue through enforcement reforms and the scope to improve collection may even be stronger than through statutory reforms.

Drawing on multiple sources of policy variation in Mexico City, Brockmeyer et al. (2023) investigate if tax rate increases and enforcement policies raise property tax revenues and whether one instrument is more effective at raising welfare than the other. The analysis emphasises how the revenue gain via either policy must be weighed against the potential hardship it causes to households, including through exacerbating household liquidity constraints. For the property tax, the authors find that welfare can be enhanced by raising rates rather than escalating enforcement.

While the papers in this subsection shed light on potential trade-offs, there are also potential complementarities between statutory and enforcement reforms. Indeed, the ability of governments to collect revenue from a statutory rate increase will be enhanced if there is a stronger supporting enforcement environment. Consistent with this intuition, Bergeron et al. (2024) provide experimental evidence from property taxes in the DRC which show that the revenue maximising tax rate increases with the strength of enforcement.

Finally, it is important to note that while there is some direct evidence on the efficiency costs of tax systems in low- and middle-income countries, more work is needed in this area. Several studies have used the VAT as a setting to directly study the real impacts of taxation on firm outcomes, leveraging the various institutional features (such as size thresholds for registration, differing VAT rates by products, and delays in processing and disbursing VAT refunds) - see Brockmeyer et al. (2024) for a detailed review of the VAT in practice in low- and middle-income countries. Gadenne et al. (2022) find there is significant segmentation in trade between VAT and non-VAT registered firms around the threshold for VAT registration. Liu et al. (2021) and Harju et al. (2019) find that VAT registration thresholds affect firm growth and inter-firm trade in several European contexts. Relatedly, there may be important efficiency costs arising from imperfections in the processing of tax credits or refunds, which in turn may alter firms' demand for specific inputs. Chandra and Long (2013) find large effects of VAT rebates on export volume of Chinese firms. Some of these real effects arise due to limited administrative and enforcement capacities, which impact how a particular tax is implemented in practice (versus in theory). Similarly, when evasion is prevalent due to limited enforcement, there can also be efficiency costs on other firms. For example, in Italy, Di Marzio et al. (2024) show that individual firms' non-compliance decisions create an uneven playing field and distort the economic outcomes of firms that compete with the evading firms, leading to an overall reduction in market productivity. Given the natural importance of efficiency costs as a theme that links taxation to economic growth, providing rigorous and direct evidence on these costs is an area that deserves more attention in the future.

3 Administrative reforms and communication[1]

So far, we have discussed evidence on the determinants of enforcement and how constraints on effective taxation impact policy design. Tax authorities play an important role in shaping enforcement and policy. In this section, we review evidence on tax authorities, focusing on two main areas: administrative reforms and communication with taxpayers. Administrative reforms and communication strategies sometimes serve a purpose of directly strengthening enforcement, but they often serve additional objectives in a tax system such as improving the ability of government to implement a policy as initially intended

1 This section draws primarily on Jensen and Weigel (2024): "No Taxation without the State: Bringing the State back into the Study of Tax Capacity", Working paper. Please refer to the paper for a more detailed review. See also Okunogbe and Tourek (2024, Journal of Economic Perspectives) for a review of evidence on tax administrations.

and strengthening tax morale by making the collection process more systematic and predictable. We emphasise administration and communication as two 'building blocks' of a well functioning tax authority that are feasible policy levers for governments in most settings, including those with lowest levels of initial capacity, and that have potentially beneficial impacts beyond immediate improvements in enforcement.

3.1 Administrative reforms: Personnel, rendering the collection process systematic, and legibility

There are several specific strategies through which tax authorities can bolster their administrative capabilities.

Personnel

Firstly, a critical focus area is personnel. The effectiveness of any state endeavour hinges on its human resources (Xu et al. 2023). Without skilled and well-managed tax collectors, inspectors, and auditors, efforts to enhance tax capacity are likely to fall short. Rationalising and professionalising personnel, as advocated by Weber's ideal bureaucracy, remains paramount. Recent empirical work provides further motivation for thinking about the personnel margin: the individual bureaucrats who make up the state often explain a large share of the variation in state effectiveness (Best et al. 2023) and tax collection is not likely to be an exception. Within personnel, an important policy tool involves optimising the staff-to-taxpayer ratio, perhaps in particular for large firms and high-net-worth individuals. Given the skewed distribution of corporate and individual income in most settings, establishing specialised units for these segments can significantly enhance scrutiny, communication, and audit probabilities, thereby curbing tax avoidance and evasion. Evidence from Indonesia suggests that medium corporate taxpayer units increased tax revenues by 128% over six years (Basri et al. 2021). Similar units targeting high-net-worth individuals have yielded positive outcomes in countries like Uganda (Kangave et al. 2018).

Furthermore, enhancing recruitment practices to attract and retain high-calibre personnel within tax authorities is crucial. In economies dominated by informal and cash transactions, high human capital is indispensable for accurately assessing liabilities, detecting non-compliance, and implementing effective enforcement strategies. Studies in other sectors of government underscore the efficacy of competitive wages in attracting talent and improving public sector performance (Dal Bo et al. 2013). Such incentives are likely to yield comparable benefits within tax administrations. Khan et al. (2016, 2019) provide evidence on the impact of different incentive structures on local tax collectors' performance in Pakistan, finding that performance-based compensation, i.e. receiving a higher share of collected taxes as compensation, and performance-based postings, i.e. allowing high-performing tax inspectors to get their top post choices, led to significantly higher collection of taxes.

Alternatively, enhancing the performance of existing tax inspectors through better team and taxpayer assignments can yield substantial improvements. Research indicates that optimal pairing of skilled collectors and strategic assignment to high-revenue potential areas can enhance tax compliance by up to 37% compared to random assignments (Bergeron et al. 2022).

In fragile or low-capacity settings, collaborating with local elites such as chiefs can also enhance tax collection outcomes. Chiefs often enjoy higher legitimacy and possess valuable local knowledge that can complement state efforts. Studies in the DRC highlight that chiefs involved in tax collection outperformed state collectors, increasing tax revenues by 44% despite some instances of increased informal payments (Balán et al. 2022).

Systematising the collection process

In settings of low state capacity, firms' and households' interactions with the tax authorities are often unpredictable, idiosyncratic, and arbitrary. Collectors in the field often target certain subgroups for opaque reasons; tax liabilities depend on arrangements and connections; the rich and powerful are often exempt.

Rationalising and systematising processes to follow transparent rules, not discretion, is one of the tenets of Weberian bureaucracy. Levi (1989) argues that the fairness and transparency of tax procedures lies at the heart of a strong state because it fosters trust in the integrity of the collection process and underpins tax morale (as we discuss further below). The absence of a regular collection process, and the uncertainty over policy changes, is likely to cause important distortions to firms' decisions and induce inefficiency through misallocation.

The systematic registration of taxpayers can help patch holes in tax collection and enforcement while also strengthening citizens' motivations to pay. In the DRC, Weigel and Ngindu (2023) study a campaign regularising property tax collection, from the systematic registration of properties with unique taxpayer IDs to the use of handheld tablets to issue receipts to taxpayers. The registration achieved near-universal coverage – a major increase in regularisation relative to the status quo where registration was sporadic and seemingly arbitrary. This campaign increased tax compliance by over 10 percentage points, largely because of the mechanical increase in the tax base. The campaign also improved citizens' attitudes about the government, which might have independently increased compliance. In Senegal, Knebelmann et al. (2023) provide experimental evidence showing that when tax officials have discretion in the valuation method, the resulting profile of local property taxes becomes more regressive.

Attempts to render the collection process more systematic can also be implemented at later stages of the collection process. In a collaboration with the tax authority in Tajikistan, Okunogbe and Pouliquen (2022) study electronic filing, which regularises the filing and payment process. The system they study first loads pre-recorded information to create a common, automated starting point for filing; second, it removes the need for physical collection of forms which may otherwise create idiosyncratic differences in filing across taxpayers; third, it removes the need for in-person interactions with tax officials, which may create systematic differences in exposure to coercive or collusive bribes by officials. Although e-filing did not cause an average increase in tax revenue, it made the distribution of tax payments more equitable.

3.2 Communication: Intrinsic Motivation, Social Considerations, Fiscal Contract

Tax authorities can improve their functioning by implementing appropriate communication with taxpayers. Beyond merely conveying tax liabilities, transparent and clear communication can play a crucial role in shaping taxpayers' perceptions of the state. It can influence their beliefs about the state's ability to detect noncompliance, its commitment to investing tax revenues in public goods rather than rent-seeking, and the fairness of tax burden distribution. These perceptions, in turn, may impact taxpayer compliance. In this context, optimising communication strategies may bolster tax morale — the set of non-monetary motivations driving tax compliance. Our synthesis of evidence across different contexts (outlined below) refutes the notion that non-monetary factors have no bearing on actual tax behaviour. It is, therefore, perhaps precisely in environments where enforcement constraints are more present that cultivating tax morale becomes a potentially important lever for compliance. We focus on intrinsic motivations, social dynamics, reciprocity, and public goods, motivated by the classification used in Luttmer and Singhal (2014).

Intrinsic motivation

Intrinsic motivation is the set of privately held beliefs, perceptions and feelings that impact tax compliance. Intrinsic motivation may relate to individuals' perceptions and expectations of a duty to comply with the law. Intrinsic motivation may also relate to individuals' sense of positive self-view, warm glow or pride that are often associated with honesty and the fulfilment of civic duties and altruism towards others. Finally, intrinsic motivation is related to individuals' trust in others and in the government, which in turn can affect their willingness to contribute to the provision of general public goods.

Tax authorities have employed communication strategies to foster intrinsic motivation among taxpayers. However, the effectiveness of these strategies varies. Hallsworth (2014) reviews studies from high-income

countries, while Mascagni (2018) examines evidence from low- and middle-income countries, highlighting mixed results. Dwenger et al. (2016) provide direct evidence on intrinsic motives by studying tax payment behaviour in a setting with minimal enforcement: the local church tax in Bavaria. They find that 20% of taxpayers pay exactly what they owe, possibly driven by a sense of duty, while 80% evade taxes, revealing significant variability likely linked to intrinsic motivation. Bergolo et al. (2020) in Uruguay use survey data and laboratory games to measure intrinsic motivation proxies, such as attitudes towards tax honesty and moral justifiability of evasion, finding substantial heterogeneity among taxpayers. However, these proxies show limited association with actual tax evasion rates. Cullen et al. (2021) explore the relationship between political alignment, trust in government, and tax evasion in the US. Their findings suggest that political alignment with the governing party correlates with higher trust in government and reduced tax evasion.

Perceptions of fairness, including redistributive and procedural aspects, are critical to intrinsic motivation for tax compliance. Redistributive fairness ensures that taxes reflect individuals' ability to pay, preventing feelings of unfairness that could undermine compliance. Some studies highlight this link, including on the poll tax in the UK (Besley et al. 2023). Procedural fairness concerns whether the tax system adheres to its intended rules and schedules. Levy (1998) argues that transparent and fair tax procedures are essential for fostering voluntary compliance. Horizontal inequity, where similar groups face different tax burdens, can indicate procedural unfairness (Scheve and Stasavage 2018).

Social considerations

Individual tax decisions can be influenced by social norms and interactions in several ways. Firstly, there is a social conformity effect, where individuals derive psychological payoffs from adhering to standard behavioural patterns within their reference group. Secondly, through social learning, observing others' behaviour allows individuals to understand the enforcement environment better, discover new tax strategies, and gain insights into the tax system overall. Thirdly, by comparing their own tax situation to others', individuals form beliefs about the fairness of the tax system, known as the social fairness effect.

Tax authorities worldwide have implemented communication strategies that provide aggregate information on taxpayer behaviour. Hallsworth (2014), in a review of 22 experiments, found mixed results from these strategies. The impact of social information messages may depend on underlying norms and individual beliefs, contributing to observed variations in effectiveness. Beyond experiments, studies like Drago et al. (2020) show that compliance behaviour spreads through neighbourhood networks in Austria, indicating significant social effects. Similarly, Nathan et al. (2024) demonstrated that informing property owners in Texas about their tax perceptions relative to averages influences their likelihood to protest tax liabilities.

These studies challenge canonical taxpayer models by demonstrating that tax decisions are influenced by social contexts rather than being isolated actions. Publicly disclosing tax information or implementing shame and honour programmes, as observed in Pakistan and Slovenia (Slemrod et al. 2022, Dwenger and Treber 2018), may effectively enhance compliance. However, concerns in low- and middle-income countries include signalling weak enforcement and potentially reinforcing non-compliance among extrinsically motivated taxpayers. Perez-Truglia and Troiano (2018) highlights that public visibility of tax debtors increases payment likelihood, but only for smaller debts. Moreover, it is important to consider the local context when designing these disclosure policies. Manwaring and Regan (2023) find that property owners in Uganda consider it to be socially costly to be known as tax-eligible, while social sanctions for tax delinquency are limited.

Social reciprocity

Reciprocity is the relationship that citizens have with the state in relation to the delivery of public goods and services. Individuals may consider this a social contract (or fiscal exchange): tax payments are made in exchange for services and public goods provided by the state. Besley (2020) studies the role of civic culture in expanding tax capacity, based on a model of reciprocal obligations where citizens pay their taxes and the state provides public goods. Recent work has provided evidence showing that, as the government extracts more taxes, citizens in return demand more from the government (see Gadenne 2017, Weigel 2020).

Evidence reviewed in Hallsworth (2014) shows that information provision about actual public goods has produced mixed results on tax payments in highly developed countries. In low- and middle-income countries, Castro and Scartascini (2015) find null effects on tax compliance in Argentina, while Mascagani and Nell (2022) find large positive effects of public expenditure information amongst corporate taxpayers in Rwanda. Interestingly, while information treatments have muted impacts on compliance, they do seem to impact taxpayers' beliefs and attitudes. Conducting survey experiments in 17 Latin American cities, Ortega et al. (2016) find that information on actual public goods delivery does lead to increases in respondents' appreciation of the value of public goods, but has no impact on tax compliance. Similarly to the literature on information treatments about inequality (Kuziemko et al. 2015), these results could reflect citizens' theoretical appreciation of the social contract combined with their practical distrust in government's ability to improve this fiscal exchange.

One implication of this interpretation is that actual changes in the delivery of public goods may stimulate taxpayers' willingness to reciprocate more than the communication about public goods. Carillo et al. (2021) study a programme in Santa Fe, Argentina, where taxpayers without outstanding property tax debt were eligible to win a lottery prize which consisted in the construction or renovation of the sidewalk immediately in front of their house. The authors find positive tax compliance impacts of winning the lottery for up to three years, both for the lottery winner and for the winner's neighbours. In particular, the existence of an effect amongst neighbours is consistent with reciprocity – if neighbours benefit from the provided good, or visualise the provision of the good, it may increase their belief that the government is honouring the fiscal contract. Krause (2020) conducts an RCT in Port-au-Prince, finding positive impacts of public goods provision (in the form of waste management) on tax payments. Finally, in an on-going study in Punjab, Khwaja et al. (2020) experimentally study different ways to improve the link between local taxation and urban services: one treatment strengthens the geographical link from tax payment to service delivery by ensuring that the local government commits to allocating 35% of taxes to funding public goods in the same neighbourhood where they were collected; another treatment stimulates citizen voice, by eliciting taxpayer preferences on the local goods that should be prioritised. Preliminary results show limited but positive impacts on actual tax payments and attitudes towards government. Finally, Brockmeyer et al. (2024) leverage the randomised provision of urban infrastructure in Mexico City, but find that compliance did not change amongst households living in communities where there was an increase in public goods provision.

4 Equity[2]

Taxes are sometimes thought of primarily as a tool to raise revenue to fund productivity enhancing public goods. But taxes can also serve redistributive purposes – what role can or might taxation play in reducing income inequality in low- and middle-income countries? This question is important as income inequality is high in these countries, and has either stabilised or increased over the past 30 years. Recent estimates from Africa show that, at the regional level, the share of pre-tax income of the top 10% is close to 55% (Chancel et al. 2023); similarly high levels of inequality are found in other large low- and middle-income countries, including Brazil at 58%, China at 43%, India at 57%, and Indonesia at 47% (World Inequality Database at https://wid.world/).

4.1 Statutory, de facto and economic incidence

When evaluating the equity effects of a tax system, economists and policymakers focus on three key aspects of tax payment:

1. **Statutory Incidence**: This aspect defines the taxes legally imposed by the government and identifies who is expected to pay taxes directly. For example, many countries have a progressive

2 This section is based on Bachas et al. (2024). Please refer to the paper for a more detailed review.

personal income tax where marginal tax rates rise with income, resulting in a higher statutory tax burden for wealthier individuals.

2. **De Facto Incidence**: This reflects who actually pays taxes, taking into account the possibility of tax evasion or avoidance. The capacity and willingness to evade taxes can vary among individuals. For instance, wealthier individuals often have access to advanced evasion or avoidance strategies, reducing their actual tax burden. If such strategies are less available to lower-income individuals, it decreases the progressivity of the tax system, as the actual tax burden gap between rich and poor narrows compared to the statutory gap.

3. **Economic Incidence**: This describes how taxes influence market prices, potentially shifting the tax burden from the entities that remit taxes to those with whom they conduct business. For example, while businesses collect sales or value-added taxes, the cost is often passed on to consumers through higher prices.

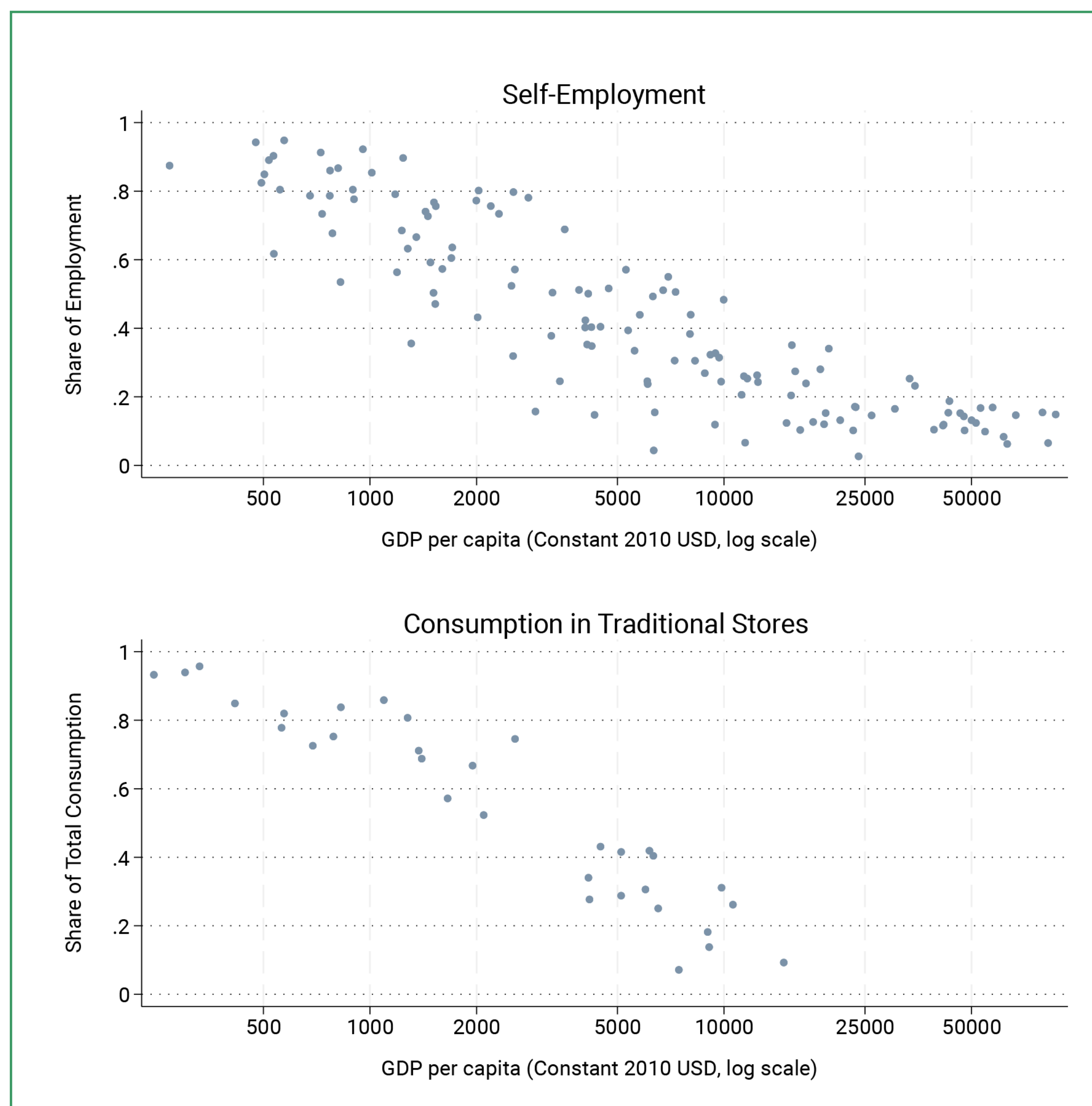
These three elements together shape the equity impact of a tax system, altering the distribution of income from “pre-tax” to “post-tax.”

A significant challenge for tax collection in low- and middle-income countries is the presence of a substantial informal sector within their economies (Ulyssea et al. 2023). Here, informality is defined as the lack of complete tax payment by firms or individuals. Informality can occur either because a firm or individual is evading part or all of the taxes they are legally obligated to pay according to the tax code, or because they are legally exempt from any tax payment under the tax code.

Figure 2 introduces two proxy measures for informality at the national level and examines their relationship to development. The first proxy is the proportion of self-employed individuals within the active workforce. Globally, including in developed countries, it is more difficult to enforce income tax collection from the self-employed compared to employees, primarily due to the lack of third-party reporting and withholding mechanisms, which employers typically handle for their employees (Section 3). The second proxy is the percentage of household spending at traditional retailers — such as street stalls, public markets and corner stores (often referred to as “non-brick and mortar” stores), as well as home-based production. Compared to modern retailers like supermarkets and department stores, traditional retailers are generally much smaller in terms of sales volume and physical size, employ fewer workers, have a more limited customer base, and interact with fewer suppliers. These characteristics are strongly linked to informality, making the proportion of household budgets allocated to traditional stores a valuable proxy for informal consumption (Bachas et al. 2023).

Figure 2 reveals a clear trend: the size of the informal sector within the economy significantly diminishes as GDP per capita increases. In low-income countries, informal consumption accounts for 86%, which drops sharply to 12% in high-income countries. Similarly, informal labour comprises 81% of the workforce in low-income countries but falls to 16% in high-income countries. This stark contrast highlights a major challenge for tax design in low- and middle-income countries, where a substantial portion of economic activities and participants remain outside the formal tax system. Conversely, high-income countries have a more comprehensive tax net. As we will see below, whenever these measures of informality vary systematically with household income within a country, they will have important implications for the overall equity of a tax system.

Figure 2



4.2 Direct and Indirect Taxation: Personal Income Tax and VAT

In low- and middle-income countries, the tax structure is defined by relatively low personal income tax revenues, heavy dependence on indirect taxes, and a significant portion of economic activity occurring in the informal sector. This configuration affects the equity characteristics of two primary tax instruments: personal income tax and value-added tax (VAT). Two insights can be established based on recent research.

The first key insight draws from Jensen's (2022) findings on the evolution of the personal income tax base and employment structure as countries develop. Enforcement constraints, which occur when a significant portion of the workforce consists of self-employed individuals, heavily influence statutory decisions regarding tax policies. Governments often face difficulties in taxing lower-income individuals who are primarily self-employed, leading them to exempt large segments of the workforce from personal

income tax. This results in a narrow tax base, which limits the personal income tax's capacity to serve as a substantial revenue source in low- and middle-income countries. This narrow tax base impacts the "optimal" methods for achieving redistribution according to economic theory. The prominent result in public finance, as outlined by Atkinson and Stiglitz (1976), suggests that redistribution should ideally be achieved exclusively through personal income tax, implying that using other tax instruments like consumption taxes for redistribution is suboptimal. However, this theoretical result assumes that governments can apply broad and flexible income tax schedules across the entire income distribution—a premise that does not align with the realities faced by most low- and middle-income countries (Figure 1). When considering the actual enforcement constraints influencing statutory tax policies, utilising consumption taxes for both revenue generation and equity objectives can be a pragmatic and effective approach to tax policy (Huang and Rios 2016).

The second key insight concerns the equity effects of indirect (consumption) taxes in low- and middle-income countries. Conventional wisdom, informed by the experience of high-income countries, suggests that consumption taxes have limited or negative redistributive effects because they tax households in proportion to their consumption (Warren 2008). Given that low- and middle-income countries rely more heavily on indirect taxes and less on personal income taxes, one might conclude that their tax systems do little to achieve redistribution. However, considering the actual impact of consumption taxes can significantly alter this perspective.

Lower-income households are more likely to shop in the informal sector. Therefore, a consumption tax that effectively applies only to formal purchases may have positive redistributive effects. To determine if there is a systematic relationship between the type of store where households shop and their income level, it is essential to have data on the place of purchase for each expenditure. Bachas et al. (2023) provide this data by compiling and harmonising household expenditure diaries for 32 low- and middle-income countries, enabling them to observe the type of store for each purchase. Drawing on evidence from retail censuses and the literature on informality (e.g. Lagakos 2016), they classify expenditures at modern retailers as formal and those at traditional retailers or from home production as informal.

Bachas et al. (2023) explore how shopping patterns correlate with household income in order to measure a modified Engel curve. A traditional Engel curve illustrates how an increase in household income changes the proportion of income spent on a particular good. The authors adapt this concept to reflect the widespread informality in the setting, introducing the Informality Engel Curve. This curve demonstrates how changes in household income affect the extent to which a household purchases from the informal sector. For example, in Rwanda, the share of household budget spent in informal stores decreases from 90% for the lowest income decile to 70% for the highest decile. In Mexico, it declines from 55% to 25%.

The presence of an Informality Engel Curve carries significant implications for the equity of consumption taxes. Firstly, its downward slope suggests that, under certain assumptions regarding economic incidence, consumption taxes are effectively progressive, affecting higher earners more. Secondly, there is a substantial overlap between consumption of food items and purchases made in informal stores. Many countries globally implement reduced tax rates on food products to enhance equity, driven by the downward-sloping conventional Engel curve for food consumption. However, in practice, this policy often fails to enhance progressivity in low- and middle-income countries because much of the food consumed by poorer households is already effectively exempt from taxation. Thirdly, while recognising that the Informality Engel Curve can enhance the equity benefits of a consumption tax, it also amplifies the economic distortions in the economy relative to a setting without informal consumption. Finally, the optimal extent to which there should be differentiation of consumption tax rates across goods will be limited—both because the equity gains from subsidising necessity goods relative to other goods is limited, and because such rate-differentiation introduces additional efficiency costs.

Implicit in our preceding discussion has been an assumption regarding economic incidence: namely, that consumption taxes are fully reflected in prices at formal stores, while they have minimal impact

on prices at informal stores. How realistic is this assumption? To assess the validity of this economic incidence assumption, one needs data on (tax-inclusive) prices from both formal and informal stores, along with evidence from a tax reform that alters the consumption tax rate. Such data requirements were met in Mexico, where Bachas et al. (2023) analysed a reform that increased the value-added tax rate in select regions of the country in 2014. Consistent with the baseline assumption, the reform resulted in a significant price pass-through of the increased consumption tax rate at formal stores, while the pass-through at traditional stores, although present, was considerably smaller.

4.3 Taxing the top of the income distribution

Currently, a primary focus of global policy is devising effective methods to tax the wealthy in a globalised economy (Scheuer and Slemrod 2021, Bergolo et al. 2022, Bergolo et al. 2023), a move that would significantly enhance progressivity. However, two critical challenges hinder the enforcement of taxes on high-income individuals. Firstly, affluent individuals derive a substantial portion of their income from businesses they directly or indirectly control (for US-based evidence, see Kopczuk and Zwick 2020). Taxing business owners is complex due to their ability to strategically allocate income across various categories (such as salaries and profits), defer taxation, and utilise business income for personal consumption. Effective enforcement requires robust audit capabilities, the ability to link businesses to individuals, and access to third-party information on all income sources - resources often limited in low- and middle-income countries. Secondly, high-income individuals often hold wealth abroad, particularly in tax haven jurisdictions with low tax rates and limited transparency. As of 2022, offshore financial wealth in tax havens is estimated to be equivalent to 12% of global GDP (Alstadsæter et al. 2023). While not all offshore wealth is unreported, historically a significant portion remains undisclosed, even in countries with strong tax enforcement capabilities. Low- and middle-income countries are disproportionately affected; financial wealth held in tax havens accounts for up to 18% of GDP in Africa and the Middle East, 13% in Latin America, and 5% in Asia, compared to 12% in Europe and 7% in North America (Alstadsæter et al. 2018).

What does the progressivity of personal income taxation look like in practice? While systematic studies on taxes paid by the very richest (e.g. top 1 or 0.1 %) are lacking, household survey data, combined with assumptions on taxes paid by salaried versus self-employed workers, allows for cross-country comparisons of effective income taxes paid by income decile. For methodology details, refer to Commitment to Equity (Lustig 2022), with updated data for 74 countries by the World Bank (2022). In the first panel of Figure 3, the share of household budgets paid in personal income taxes by income decile is plotted across countries categorised by development levels. Some key patterns emerge. The average effective tax rates for income taxes are higher in high-income countries across all deciles of the income distribution, and tax rates for the top deciles increase steeply with development. In high-income countries, the richest 10% pay around 20% of their income in direct taxes, compared to 5-8% in low- and middle-income countries. These disparities partly stem from the shift from informal to formal employment during development, as discussed earlier. The middle panel of Figure 3 illustrates that the proportion of the workforce legally liable for personal income taxes increases significantly with development, primarily affecting only the top deciles in low- and middle-income countries. The bottom panel of Figure 3 shows that the top statutory tax rates are only slightly lower in poorer countries (29% on average) compared to high-income countries (35%). This difference in statutory rates cannot account for the substantial variation in de facto income tax rates observed over development (first panel of Figure 3).

Figure 3

Taxing the rich may be particularly difficult in low- and middle-income countries because of the ample evasion and avoidance opportunities available to high earners, which could lead to large behavioural responses in the form of reductions in reported income when tax rates increase. The size of behavioural responses is typically measured with the elasticity of taxable income, which estimates the percent change in reported income for a 1% change in the "net-of-tax rate" (one minus the tax rate). Only in the last few years has the elasticity of taxable income of rich individuals been estimated in some low- and middle-income countries, thanks to increased collaborations between tax administrations and researchers. In both Uganda and South Africa, increases in the marginal income tax rate for the richest 1% led to large reductions in reported income, with elasticities estimated at just below one, indicating most of the potential increase in tax revenue was lost due to reported incomes being manipulated (Jouste et al. 2021, Axelson et al. 2023). In Uruguay, the elasticity was estimated to be around 0.6 (Bergolo et al. 2022). Studies of capital taxation in low- and middle-income countries similarly find large behavioural responses: in Colombia, the elasticity of reported wealth to the wealth tax rate is estimated at around two, driven by the underreporting of hard-to-verify assets (Londoño-Vélez and Ávila-Mahecha 2022). Changes to reported taxable income can even be sufficiently large that raising top tax rates leads to lower total revenue collection - for evidence from Pakistan, see Waseem (2018); for evidence from Brazil, see Locks (2023).

However, the elasticities of reported income for top earners are not fixed. Instead, they depend on the availability of opportunities for tax evasion and the enforcement capacity of tax administrations. In Colombia, a programme incentivising the voluntary disclosure of hidden wealth in exchange for tax breaks had a significant impact on tax revenues and progressivity (Londoño-Vélez and Ávila-Mahecha 2021). Similarly , Argentina's 2016 tax amnesty revealed assets equivalent to 21% of the country's GDP, with over 80% of these assets previously concealed abroad, primarily in the United States and tax havens (Londoño-Vélez and Tortarolo 2022). In Ecuador, a tax on dividends distributed to shareholders in tax havens prompted income repatriation and enhanced tax progressivity (Brounstein 2023). The success of recent tax amnesties is partly attributed to the introduction, since 2016, of automatic information exchange between tax authorities across borders (Alstadsæter et al. 2023).

Several challenges persist despite recent progress. One critical issue is the exclusion of real estate wealth from international information exchanges. This gap potentially undermines the progressivity of tax systems (Alstadsæter et al. 2022). Moreover, a significant portion of income among the wealthiest individuals stems from business earnings and retained profits, which are inadequately captured by personal income tax systems. Here, corporate income tax serves as a crucial complement, ensuring some taxation of business incomes and bolstering overall tax progressivity (Fuest and Neumeier 2023). However, globally, the effectiveness of corporate taxation as a backstop has diminished, with declining statutory rates and the proliferation of low-tax regimes benefiting large corporations disproportionately (Tørsløv et al. 2023, Johannesen et al. 2020).

5 Conclusion - What we know, and what we need to find out, about taxation and development

This VoxDevLit has reviewed the literature on taxation and development. Countries at different levels of development differ significantly in their ability to extract a share of national income in taxation. What can current low- and middle-income countries do to improve their ability to tax? How does the pursuit of tax collection depend upon and influence other objectives of a tax system such as equity, growth and the building of a strong state? Our review has been organised around three important dimensions of taxation in low- and middle-income countries.

The first dimension is constraints on effective taxation and enforcement. Enforcement depends on the extent to which tax authorities can observe the activities of firms and individuals. Enforcement is strengthened when third-party reporting creates such information trails, though these sources of information must be accompanied by administrative investments. When effective enforcement is

constrained, optimal tax policy in low- and middle-income countries may deviate from 'second best' policies and instead implement 'third-best' policies that distort economic choices more but yield higher revenue collection. In the area of enforcement, there are important areas of future research. More work is needed to understand, both conceptually and empirically, how the optimal tax design combines enforcement interventions and reforms to the statutory schedule. In addition, the emergence of new technologies and digitisation may represent opportunities for low- and middle-income countries to enhance enforcement, but these opportunities will crucially depend on the underlying data-quality and the extent to which the digital data-sources are concentrated amongst large firms or cover the large segment of smaller, initially informal firms. Finally, there is relatively little empirical work which directly establishes the real effects of taxation. What are the real efficiency costs of commonly implemented tax instruments, and how do the costs depend on constrained administrative capacity?

The second dimension is the tax authority itself. We emphasise administrative reforms and communication strategies with taxpayers as two 'building blocks' of a well functioning tax authority that are feasible policy levers for governments in most settings, including those with lowest levels of initial capacity, and that have potentially beneficial impacts beyond immediate improvements in enforcement. Tax authorities in even the most resource-constrained settings can reform their personnel in ways that are cost-effective yet deliver significant impacts to the taxation process. Moreover, tax authorities can make low-cost investments to systematise the collection process and to render citizens and firms more legible to the state, with positive impacts on revenue that may be mediated through quasi-voluntary compliance. Most tax authorities attempt to communicate with citizens and firms in various ways. These communication interventions may backfire if the local context and priors of taxpayers are not fully taken into account. In this area, there are many interesting areas of future research. Systematisation holds promise, but also presents challenges: while systematising the collection process, local officials are likely to gain more information and knowledge on existing and potential taxpayers. This information can be co-opted or abused by officials, and it is important to know how policies can be designed to minimise these adverse effects. Moreover, communication strategies can enhance perceptions of both redistributive and procedural fairness. Understanding when and how these improvements are perceived by taxpayers, thereby boosting compliance, remains a crucial area for investigation.

The third dimension is equity. De facto incidence is a key channel through which the equity of a tax system is determined. For direct taxes, the existence of a large set of self-employed individuals, for whom effective income taxation is challenging, leads to a narrow personal income tax base in low- and middle-income countries. For indirect taxes, the existence of a large informal consumption sector causes the VAT to be naturally progressive. Taxing the top of the income distribution is challenging in low- and middle-income countries, and it is likely that globalisation further exacerbates these challenges. In this domain, there are many important areas of future work. In principle, the co-existence of formal and informal sectors means that some agents in the economy may benefit from tax increases; this is true not only in retail, but also in other areas such as labour markets. Understanding who benefits from the existence of an informal sector is an understudied area of research. Moreover, the equity effects of any tax change ultimately depend in part on the economic incidence, yet there is very little empirical work on this front. The economic incidence of any tax reform will depend on many factors, including the market structure and relative market-power of the different relevant agents; as these factors will vary across settings, there is a strong need to build evidence on economic incidence 'from the bottom up', across a variety of environments.

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