Stanford | King Center on Global Development

Governance and Institutions

OCTOBER 2022

Building State Capacity with Increased Tax Revenue

Evidence from the Democratic Republic of the Congo on Low-Cost Solutions

Summary

Low-income countries bring in relatively little revenue from taxation, hampering their ability to provide basic services to residents and invest in economic development.

One major challenge is weak state capacity—governments often cannot enforce payment of taxes and lack information about residents' incomes and ability to pay. Researchers conducted policy evaluations in the Democratic Republic of the Congo to evaluate ways to improve low-income countries' capacity to collect taxes and generate more revenue.

Results suggest tax rates and tax enforcement are complementary and should be addressed in tandem.

A fragile state seeking to establish rudimentary fiscal capacity benefitted from having traditional authorities collect taxes, as these local authorities had better information about residents than government agents.

Assigning higher-performing tax collectors to work together in teams, and matching high-performing teams to households with a higher propensity to pay their taxes increased tax revenue without increasing administration costs.

Background

Governments everywhere need tax revenue to provide public services and infrastructure. These public investments not only provide essential services and infrastructure but help facilitate economic growth. Yet low-income countries only collect 10 percent of GDP in taxes compared to 40 percent in rich countries. In absolute terms, the numbers are even starker: for example, the Democratic Republic of the Congo raises US$63 per person in taxes, compared to US$22,781 in the United States.

The problem of low tax revenue stems from several sources, including less wealth, of course, but also from having a much smaller tax base. Many people are engaged in economic activities that aren't registered with the government—from selling fruit by the side of the road to operating a small business that's not registered—and therefore aren't subject to taxation.

Another related and significant challenge stems from weak state capacity. Unlike in high-income countries, where citizens have tax identification numbers and digital means of calculating what residents owe, lower-capacity states have much less information about residents' employment and incomes, even those who work formal jobs. They also have relatively limited capacity to enforce payment of taxes, resulting in very low payment rates.

In the Democratic Republic of the Congo, a country with low state capacity and very limited tax revenue, Augustin Bergeron and his co-authors conducted three related research experiments that aimed to answer key policy questions on how to increase tax revenue in low-capacity states, namely:

- **What tax rate leads to the highest amount of revenue?** While raising tax rates may sound like an intuitive way to increase taxes, evidence suggests tax hikes can lead to higher delinquency and lower revenue when governments have low enforcement capacity. If lower tax rates lead more people to pay, then lower taxes might translate into higher revenue. But what level of reduction, if any, leads to higher revenue? Does better enforcement change the tax rate that maximizes revenue?

- **Is it effective to hire traditional authorities to work as tax collectors?** Previous research suggests local elites, like city chiefs, may be better at collecting taxes in contexts where the state lacks the legal and operational capacity to enforce payment. Does working with city chiefs—who have better information about residents in their community—bring in more revenue?
- **What is the optimal assignment of tax collectors?** In some contexts, simply firing low-performers may not be a viable option—either due to patronage networks or because replacing low-performers with high-performers is very challenging. In these contexts, how should tax collectors be grouped to maximize payment rates? A body of evidence from the private sector suggests that when it comes to productivity, worker assignment can make a significant difference without high costs.

The Context

The Democratic Republic of the Congo is the most populous country in Africa and one of the poorest. In 2017, its tax-to-GDP ratio was ranked 188th out of 200 countries.[1] This research took place in the city of Kananga, the country's fourth-largest city (approximately 1.5 million) and the provincial capital of the Kasaï-Central Province. The median monthly household income in Kananga is roughly US$106 (or PPP US$168).

The city started implementing city-wide property tax collection in 2016. As is common in low-income countries with weak tax enforcement, the property tax in Kananga is a flat fee and no arrears are collected.[2] Tax collectors go door to door to register properties and collect the annual property tax. Tax collectors issue receipts to residents after payment, enabling the government to track and monitor collection.

The Research

Researchers partnered with the provincial tax ministry of Kasaï-Central to conduct three related policy evaluations in 356 neighborhoods of Kananga. The research was embedded in the 2018 property tax collection campaign for the city of Kananga.

To investigate low-cost ways to increase payment rates and revenue, researchers tested three sets of interventions: 1) reducing tax rates and increasing enforcement, 2) working with city chiefs to collect taxes, and 3) identifying the optimal assignment of tax collectors both to teams based on performance and to properties based on households' likelihood of paying.

1 See: https://data.worldbank.org/indicator/gc.tax.totl.gd.zs
2 Franzsen, Riel and William McCluskey, Property Tax in Africa: Status, Challenge, and Prospects, Lincoln Institute of Land Policy, 2017.

1. **Reducing tax rates and increasing enforcement.** 38,028 properties were randomly assigned to either the status quo tax liability, or to a treatment group that got a tax reduction of either 17 percent, 33 percent, or 50 percent. Those in the treatment group were informed of how much they owed but did not learn they had received a discount. This design allowed researchers to evaluate the revenue maximizing tax rate (RMTR) under the status quo enforcement conditions.

   Given that tax compliance is very low, researchers also tested whether sending property owners an enforcement letter, noting the penalty for not paying taxes, increased compliance and changed the RMTR. They also used the random assignment of tax collectors to evaluate to what extent higher-performing tax collectors increased compliance and changed the RMTR.

2. **Working with city chiefs to collect taxes** Neighborhoods were randomly assigned to either have government tax agents, hired by the provincial tax ministry, or local city chiefs serve as tax collectors. Apart from the profile of the collector, all other aspects of tax collection were the same, including property registration and assessment, tax liabilities, the machines used to issue receipts, and compensation.

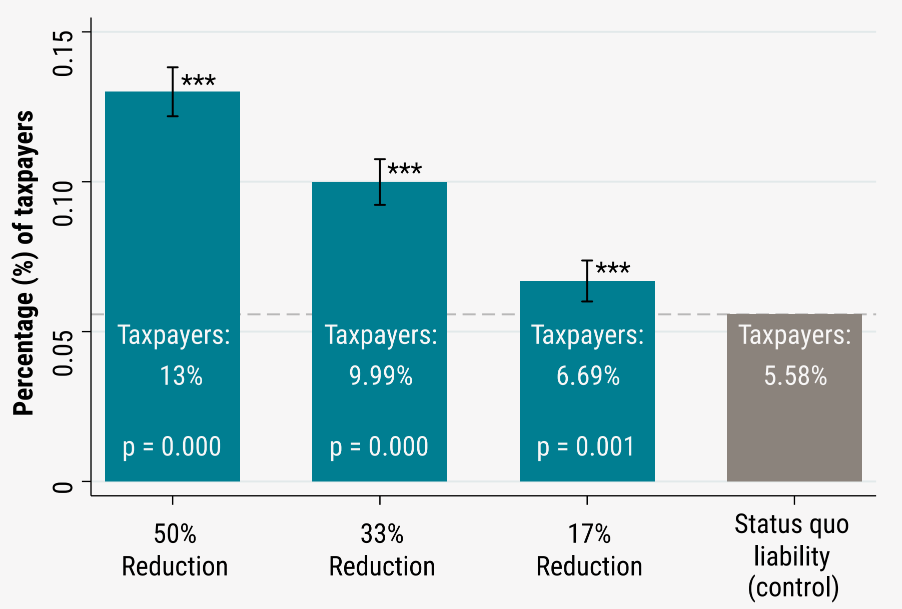
3. **Assigning tax collectors to different groups and properties.** Tax collectors were randomly reshuffled to new two-person teams each month of the seven-month campaign to evaluate how grouping together high-performers (defined as those who achieve compliance above the median level) or teaming them up with lower performers affected residents' payment compliance. Using information from local chiefs on households' likelihood of paying, they also studied whether the tax authority could increase revenue collection by optimizing the assignment of teams to properties.

Key Findings

Reducing tax rates increased payment rates and revenue.

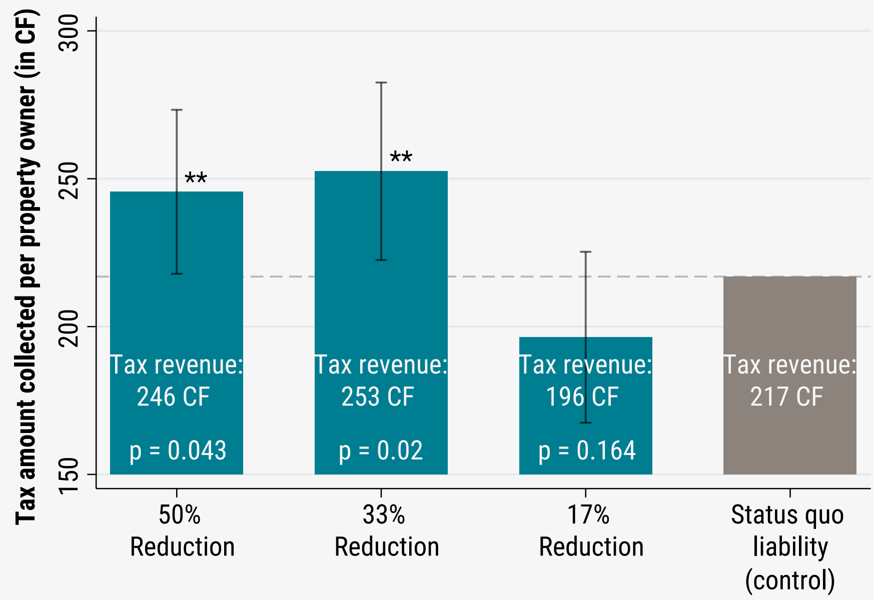
Only 5.6 percent of the control group paid their property tax. Compliance was 6.7 percent in the group that received a 17 percent reduction, 10 percent in the 33 percent reduction group, and 13 percent in the group that received a 50 percent reduction (see Figure 1). The increase in payment rates from the discount was largest among cash-strapped households, suggesting poor households only enter the 'tax net' when rates are sufficiently low.

Figure 1: Tax compliance



Importantly, tax revenue increased among those who received a 33 percent reduction and a 50 percent reduction (see Figure 2). The results suggest that reducing rates by about one-third would maximize government revenue by increasing tax compliance.

Figure 2: Tax revenue

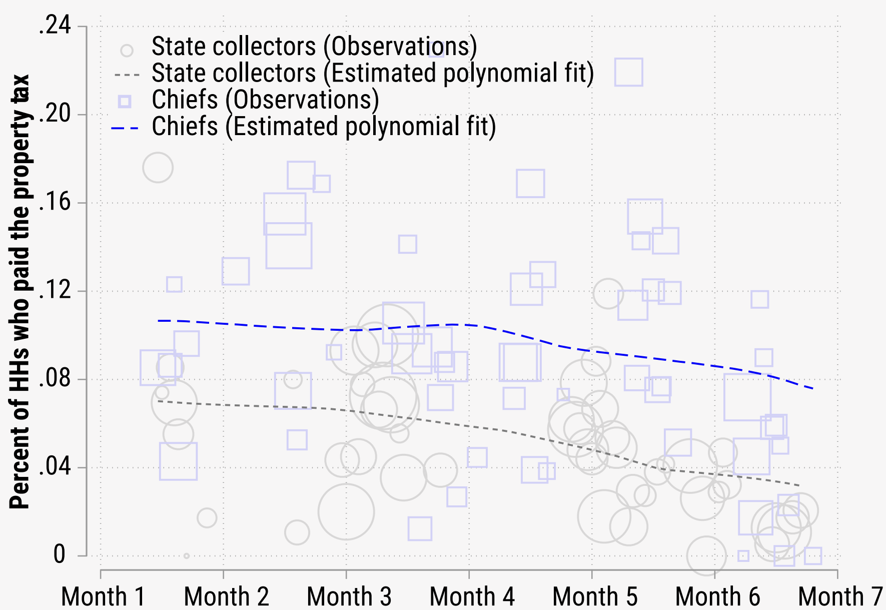


Enforcement increased compliance, suggesting that investing in enforcement capacity would allow governments to levy higher tax rates.

Researchers found that using enforcement letters and high-ability collectors increased compliance, effectively making the RMTR higher. In fact, they calculate that replacing tax collectors in the bottom quartile of enforcement capacity by average collectors would raise the RMTR by 42 percent.

In sum, identifying the RMTR is critical—and in this case, it was lower than the status quo rate—yet that rate is not static and can go up with better enforcement. In fact, researchers calculate the government could raise 26 percent more revenue by jointly optimizing tax rates and enforcement, rather than by optimizing them independently.

Figure 3: Tax compliance by treatment area over campaign



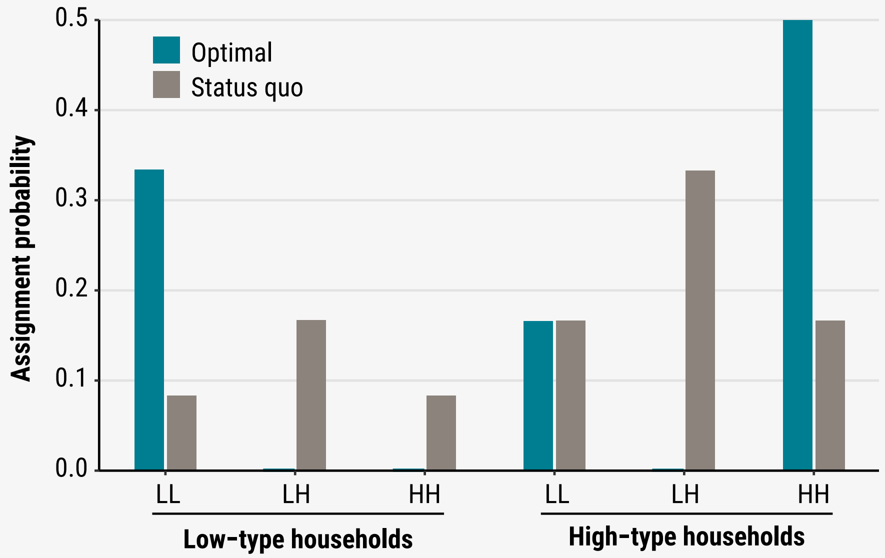
City chiefs outperformed state agents in collecting taxes (see Figure 3).

According to the government's tax database, chiefs achieved 52 percent (3.2 percentage points) higher tax compliance than state collectors. This increase in compliance amounted to a 44 percent increase in property tax revenues. As a benchmark, enforcement messages on tax letters—an intervention used by tax authorities around the globe—increased revenues by one-fifth as much as tax collection by chiefs. Researchers' analysis suggests that chiefs' superior local information about potential taxpayers is the driver of their better performance.

Optimizing the assignment of tax collectors significantly increased tax revenue and compliance at little or no added cost.

The optimal assignment matches high-ability collectors into teams—and high-ability teams to households with a high propensity to pay (see Figure 4). Implementing the optimal assignment would increase tax compliance by an estimated 2.94 percentage points (37 percent) relative to the status quo group.

Figure 4: Optimal versus status-quo assignments



By contrast, to achieve a similar increase under the status quo assignment, the government would have to replace 63 percent of low-ability collectors with high-ability ones or increase collectors' performance wages by 69 percent.

One downside of the optimal policy is that it would cause a slight increase in household payment of collusive bribes to tax collectors instead of taxes. However, estimated bribe payments under the optimal assignment would remain low in frequency (about 2 percent of property owners) and magnitude (500 Congolese Francs, about 17 percent of the statutory property tax rate for most properties). Researchers also find no evidence that the optimal policy would crowd out payment of other taxes or erode attitudes toward the government.

Policy Implications

This research provides key insights for the provincial government that implements tax policy in Kananga, as well as for tax policy in low-income countries more broadly. Based on the findings, the government may consider the following low-cost changes to its tax policy:

- Reduce tax rates by about one-third, while also increasing enforcement.
- Increase tax rates as enforcement increases since the revenue-maximizing tax rate increases with greater enforcement.
- Engage local city chiefs as tax collectors, at least for the short-term while the state continues to build its enforcement capacity.
- Form teams of exclusively high- or low-performing collectors (no mixed teams), and assign high-ability teams to households with higher ability to pay, and lower ability teams to households with lower ability to pay.

More broadly, the findings suggest:

- **Governments should work to optimize both enforcement and tax rates at the same time.** Tax rates and tax enforcement are complementary—policymakers need to identify the revenue—maximizing tax rate, yet that rate is not static and can increase with greater enforcement capacity.
- **Involving local elites in tax collection is beneficial for fragile states.** Involving local chiefs was much more effective (53 percent) than state collection. Researchers conclude that it is valuable to engage traditional authorities in tax collection until the capacity of the state develops further.
- **Assignment of bureaucrats matters.** Optimizing the assignment of workers to teams and neighborhoods is another promising way for cash-strapped governments to increase tax revenue without increasing administration costs.

This policy brief is based on the following papers:

Balán, Pablo, Augustin Bergeron, Gabriel Tourek, and Jonathan L. Weigel. "Local Elites as State Capacity: How City Chiefs Use Local Information to Increase Tax Compliance in the Democratic Republic of the Congo." *American Economic Review* 112, no. 3 (2022): 762-97. Available at: https://www.aeaweb.org/articles?id=10.1257/aer.20201159

Bergeron, Augustin, Pedro Bessone, John Kabeya, Gabriel Tourek, and Jonathan L. Weigel. "Optimal Assignment of Bureaucrats: Evidence from Randomly Assigned Tax Collectors in the DRC." *CEPR Discussion Paper* No. DP16771. (2021). Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4210001

Bergeron, Augustin, Gabriel Tourek, and Jonathan Weigel. "The state capacity ceiling on tax rates: Evidence from randomized tax abatements in the DRC." *Working Paper* (2021). Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3846228

ABOUT THE FEATURED RESEARCHER

Augustin Bergeron was a King Center Postdoctoral Fellow from 2021-2022 and is now an Assistant Professor of Economics at the University of Southern California. His research agenda explores the determinants of state capacity and tax capacity, as well as focuses on the origins of social ties (especially kinship) and their effects on development.

OCTOBER 2022

Author
Laura Burke

Featured Researcher
Augustin Bergeron
King Center Postdoctoral Fellow 2021-2022