

Do Tax Audits have a Dynamic Impact? Evidence from Corporate Income Tax Administrative Data

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The views expressed in this paper do not necessarily reflect those of the
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Road map of presentation

- Motivation
- Assessing the impact of audits: What can we expect?
- Existing research/objective of study/summary of results
- Data
- Results
- Concluding remarks

Motivation

- Tax audits perform an important function in compliance
- Understanding the impact of tax audits is a pressing issue, especially for developing countries and revenue mobilization
- ... And is also important for how to optimally design the tax audit function
 - This issue has now become more pressing for tax administrations following the challenges faced following **COVID-19**
 - ... Which has resulted in many countries (re)focusing on **less** comprehensive tax audits and **more** on narrow-scope ones

Assessing the impact of audits: What can we expect?

- The impact of audits on future compliance is **ambiguous**
- Compliance might **increase**, as audited taxpayers (especially noncompliant) might think that they will be audited again
- Compliance might **reduce**, as audited taxpayers might think that 'lightning does not strike twice'

- Research has looked at the impact of a number of policy interventions on compliance (utilising data from different audit samples (random/risk-based), and different methodological approaches) e.g.
 - ⇒ Kleven et al., 2011; Gemmell and Ratto, 2012; Pomeranz, 2015; DeBacker et al., 2018a, DeBacker et al., 2018b; Advani, Elming and Shaw, 2019; Løyland et al., 2019; Beer et al., 2020;
 - ⇒ Brockmeyer et al., 2019; Li, Pittman and Wang, 2019; Lediga, Riedel and Strohmaier, 2020; Best, Shah and Waseem, 2021; Waseem, 2021; Balán et al., 2021

More work is needed

- But thus far research has focused, predominantly, on PIT and VAT, and without assessing the different **types of audits**
- This is part of the objective of this research, to zoom into the different types of audits and evaluate their effectiveness:

The objective of this study is to assess. . .

- **The impact of:**
 - ① **Tax audits** on **detering future** Corporate Taxable Income (CTI) noncompliance (and therefore the revenue implications of tax audits)
 - ② **Different types** of tax audits on **detering future** CTI noncompliance

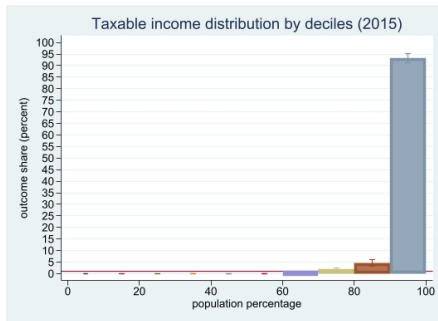
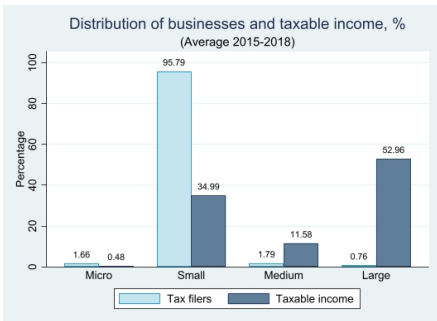
Summary of results

- Tax audits in Rwanda deliver sizeable pro-deterrence effects on future reporting behaviour
 - Corporate Taxable Income (CTI) declared by audited firms one year **after** the audit increases by **20.7%**
 - This corresponds to **12.3%** more Corporate Income Tax (CIT) paid
- But zooming into the different types we find that
 - Comprehensive audits **drive the pro-deterrence impact**
 - **Narrow-scope audits** have a counter-deterrence effect after 2 years of **-23.5%** on CTI and **-9.5%** on CIT paid

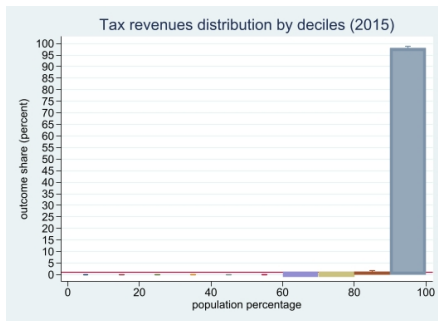
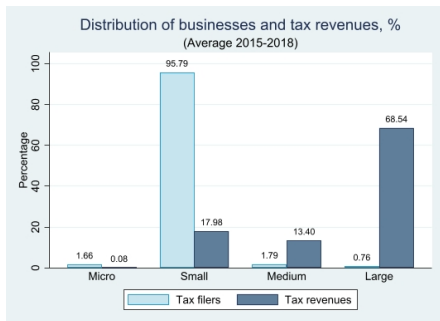
Data: Classification of businesses and CIT regimes

- Four types of businesses depending upon turnover:
micro/small/medium/large
- CIT regimes:
 - **CIT-real**: Corporate tax rate of 30% on profits with some deductions
 - **CIT-lump-sum**: Simplified revenue-based tax regime 3% on turnover (small businesses)
 - **CIT-flat-tax**: Lump-sum tax, depending on turnover (micro-businesses)

- Most **corporate taxable income** comes from large businesses

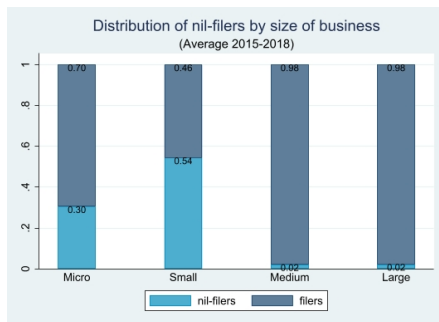


- And therefore most **corporate tax revenue** comes from large businesses



- Data consists of the universe of (over the years 2013-2018):
 - The universe of CIT administrative income declarations of incorporated businesses
 - The universe of risk-based/audit outcomes (verification/fines etc)
 - Tax disputes (closed cases) arising as a consequence of 2015 audit wave

- Significant share of CIT filers are **nil-filers** (0 sales and 0 across of items)



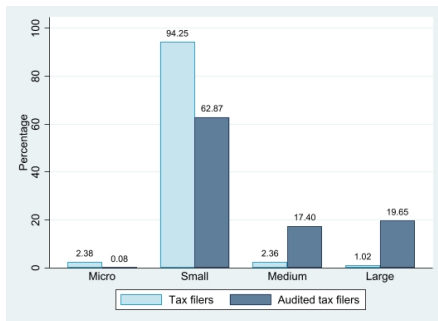
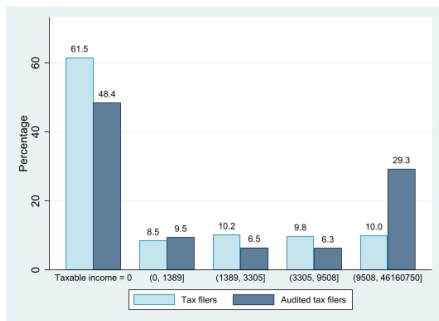
Data: Audits cont.

- **Narrow-scope audits (63%)**: They are conducted using information already submitted to RRA and usually focused on a single tax type, single aspect or single tax period (and desk-based)
- **Comprehensive audits (37%)**: They are in-person, in-depth and time-intensive across tax bases

Variable	Obs	Measurement Unit	Mean	Std.Dev	Min	Max
Audit outcome	435	1000 US \$	101.15	969.81	0	19,369.84
Total fines	435	1000 US \$	56.36	585.85	0	11,621.90
Total audit outcome	435	1000 US \$	157.50	1555.13	0	30,991.74
Total audit outcome (%)	435	% Potential tax base	62.23	42.27	0	100

Data: Audits cont.

- Audits follow U-shape across the corporate taxable income distribution



- RRA performs risk-based audit selection
 - Assigning risk scores to all tax declarations, including VAT, and also accounting for the likelihood of revenue yield
 - This is useful information used in the empirical analysis

How to estimate the impact?

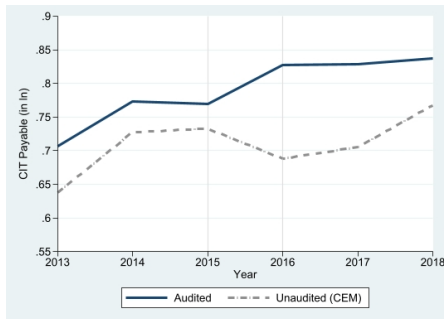
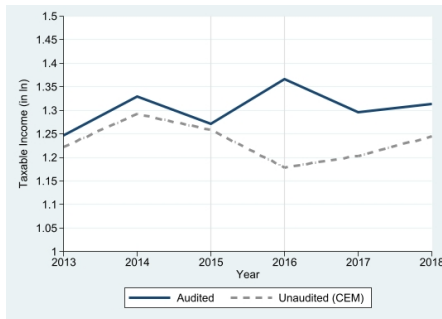
- **Bad news:** Assessing audits requires to know how an audited business would have behaved, had it not been audited, something which is not observable in the data
- **Good news:** There are methods which can estimate this (robustly)
- **Approach:** We combine 'matching methods' with a 'difference-in-difference approach'

Main Results – Aggregate

Dependent Variable Years after the audit	Corporate Taxable Income			Corporate Income Tax payable		
	1	2	3	1	2	3
Matching estimator	(1)	(2)	(3)	(4)	(5)	(6)
Coarsened Exact Matching	0.175 (0.023)***	0.080 (0.147)	0.056 (0.111)	0.103 (0.017)***	0.087 (0.107)	0.033 (0.081)
Kernel - MHD	0.208 (0.023)***	0.003 (0.147)	0.025 (0.111)	0.124 (0.017)**	0.030 (0.107)	0.012 (0.081)
Kernel - PSM	0.148 (0.081)*	-0.074 (0.107)	-0.145 (0.117)	0.119 (0.059)**	0.023 (0.073)	-0.059 (0.081)
Nearest Neighbour	0.297 (0.099)***	0.125 (0.120)	0.195 (0.143)	0.147 (0.072)**	0.079 (0.084)	0.097 (0.096)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The results in graphs



Note: *Aggregate impact* of audits on audited taxpayers (under CEM): Taxable income in ln (left panel); CIT Payable in ln (right panel)

Main Results – Audit type

Dep. Variable	Corporate Taxable Income			Corporate Income Tax payable		
	1	2	3	1	2	3
Years after audit	(1)	(2)	(3)	(4)	(5)	(6)
Comprehensive	0.285 (0.162)*	0.130 (0.228)	-0.040 (0.241)	0.246 (0.128)*	0.136 (0.185)	0.030 (0.161)
Narrow-scope	0.020 (0.030)	-0.235 (0.066)***	-0.170 (0.046)***	0.006 (0.026)	-0.095 (0.047)**	-0.078 (0.042)*

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Conclusions

- Tax audits in Rwanda deliver a **sizeable pro-deterrence** effect on future reporting behaviour
 - Corporate Taxable Income declared by audited firms one year after the process increases by **20.7%** (Corporate Income Tax (CIT) payable by **12.3%**)
 - Noncompliant taxpayers drive the results
- ... But:
 - Comprehensive audits drive the pro-deterrence impact
 - Narrow-scope audits have counter-deterrence effect after 2 years (**-23.5%** on TI, **-9.5%** on CIT)

- Must be emphasized that what the results point to is that the effectiveness of auditing requires **careful evaluation**
 - ⇒ Frequently, policies enacted have unintended consequences and to avoid those they must be carefully evaluated

Thank you for listening



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