Do tax administrative interventions targeted to small businesses improve tax compliance and revenue collection? Evidence from Ugandan tax administrative data

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Outline

Motivation

▶ Many developing countries have established a presumptive tax regime for small and medium-sized enterprises to improve tax compliance and simplify the tax regime

  ▶ Tax based on estimated turnover and not profits -> no obligation to keep accounts

▶ In developing countries, large informal sector and weak institutions create challenges to governments to improve both tax compliance and tax revenue collection which are needed to support development

  ▶ Tax administrative interventions and innovations are useful tools to increase both

  ▶ Different administrative interventions have been studied before, for example audits by Kleven et al. (2011) and third-party information by Carrillo et al. (2017)

Research questions

- ▶ Has 'Taxpayer Register Expansion' project (TREP) targeted to informal small and medium sized businesses increase the number of taxpayers and new entries of businesses?
    - ▶ Outcome: Estimation for extensive margin responses
- ▶ What is the impact of the new simpler e-filing system on extensive margin?
    - ▶ Outcome: DiD estimation for extensive margin responses
- ▶ How have the administrative reforms impacted on tax compliance and tax revenues?
    - ▶ Outcome: descriptive analysis of tax revenues using both return and payment data
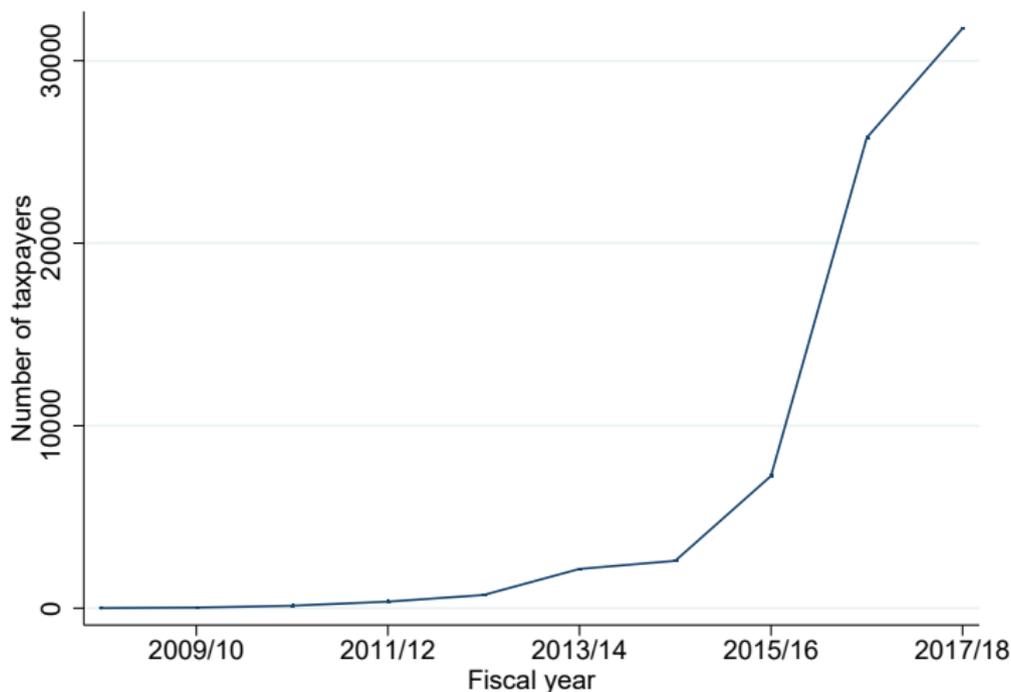
What is explaining this?

Figure 1: Trend of presumptive taxpayers in 2009/10-2017/18

Outline

Administrative reforms: 'Taxpayer Register Expansion' project (TREP):

- ▶ TREP is a collaborative project of different authorities
  - ▶ The objectives are to improve tax compliance and formalization of small and medium sized businesses by simplifying the business and tax register processes and thus reducing compliance costs
  - ▶ Different methods includes for example door-to-door visits, establishment of one-stop-centers and providing tax education
- ▶ TREP was implemented in three phases:
  - ▶ TREP I: Kampala based municipalities in 1 July 2013
  - ▶ TREP II: Wakiso district municipalities in 1 July 2014
  - ▶ TREP III: Another 31 municipalities around Uganda in 1 July 2016
  - ▶ TREP is not active country-wide: 7 municipalities and all towns and trading centers are not in TREP

Administrative reforms: The new e-filing system

▶ The change in how to file presumptive returns in the e-tax system

▶ Before 2015 presumptive returns were declared using the Excel form which was submitted online to URA

▶ After 2015 presumptive returns are declared directly using the simple online tax form on URA's webpage

Outline

Data

▶ We have tax administrative data from URA which contains 1) presumptive tax returns in two separate data sets, 2) corporate income tax returns, 3) tax registration data set from fiscal years 2009/10-17/18 and 4) presumptive tax payment data set from 2015/16-17/18

Table 1: Summary statistics: presumptive return data

Year	Average turnover (sd)	Average tax payable (sd)
2012/13	13,109,268 (14,130,384)	114,450 (136,055)
2013/14	15,810,497 (13,651,331)	141,309 (134,802)
2014/15	10,984,285 (9,708,643)	249,508 (300,303)
2015/16	8,070,480 (13,972,154)	229,783 (205,075)
2016/17	17,106,809 (13,043,937)	227,987 (166,678)
2017/18	18,559,127 (13,379,091)	211,275 (173,613)

Notes: All monetary values are in local currency (UGX)

Outline

Estimation: TREP

- ▶ Variable TREP takes value one if taxpayer is in TREP area and after TREP has started in that area, otherwise it is zero
- ▶ Control variable for example industry
- ▶ The simple estimate to analyse TREP:

$$Y_{i,t} = \beta_0 + \beta_1 Area_i + \beta_2 Year_t + \beta_3 TREP_{i,t} + \beta_4 X_{i,t} + \varepsilon_{i,t}$$

Estimation: E-filing system

▶ Treatment group presumptive taxpayers and control group corporate income taxpayers which have turnover UGX 150-400 million

▶ Pre-reform years are 2012/13-14/15 and post-reform years are 2015/16-2017/18 ($Online_t$)

▶ Controlling tax reforms $Presumptive_i x Year_{2014/15}$ and $TREP_{i,t}$

▶ The DiD equation for the new e-filing system:

$Y_{i,t} = \beta_0 + \beta_1 Area_i + \beta_2 Year_t + \beta_3 TREP_{i,t} + \beta_4 Presumptive_i +$

$\beta_5 Presumptive_i x Online_t + \beta_6 Presumptive_i x Year_{2014/15} + \beta_7 X_{i,t} + \varepsilon_{i,t}$

Impact on tax revenue and tax compliance

- Descriptive analysis of tax revenues using both return and payment data
  - How tax revenues have evolved in recent years and what is the potential revenue calculated from tax returns
  - Comparing 1) potential revenue to official statistics and 2) potential revenue to how much reporters actually paid (compliance gap)
  - Caveat: we have only payment data after 2015/16

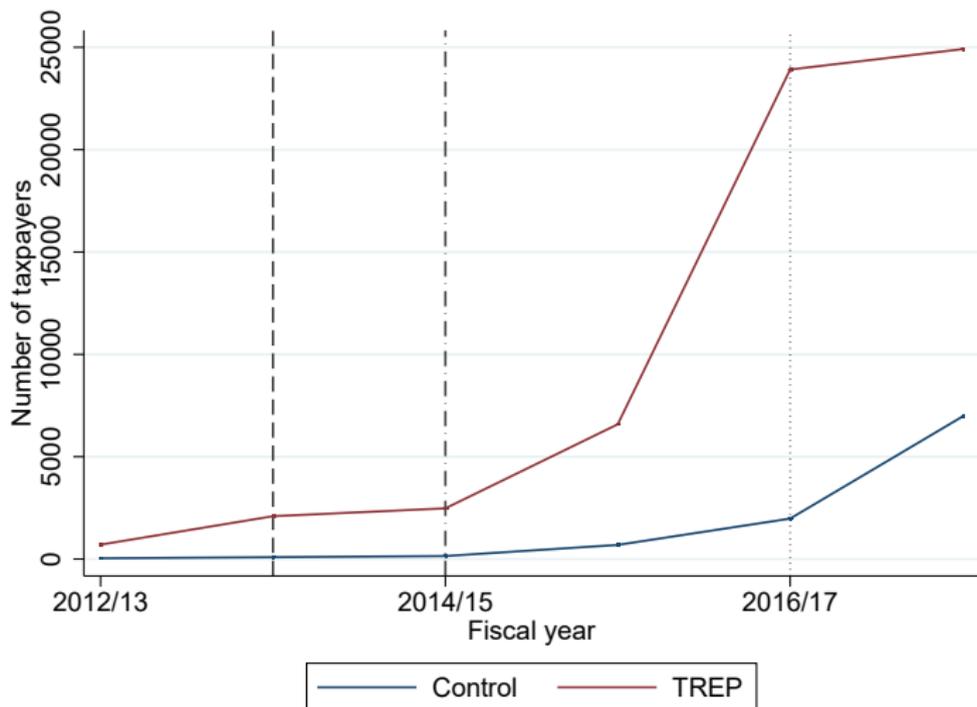# Outline

Graphical findings: TREP

Figure 2: The number of taxpayers in TREP and control areas

Preliminary estimation results: TREP

VARIABLES	(1) Number of taxpayers	(2) Number of taxpayers	(3) Number of taxpayers
TREP	16,415***	1,941	1,937
	(1,179)	(1,389)	(1,379)
Area: TREP I		15,298***	15,200***
		(1,612)	(1,588)
Area: TREP II		15,629***	15,556***
		(1,341)	(1,324)
Area: TREP III		15,752***	15,662***
		(1,253)	(1,236)
Year dummies		Yes	Yes
Industry dummies			Yes
Constant	5,080***	-13,951***	-14,146***
	(250.8)	(1,945)	(1,938)
Observations	70,417	70,417	70,417
R-squared	0.493	0.970	0.970

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

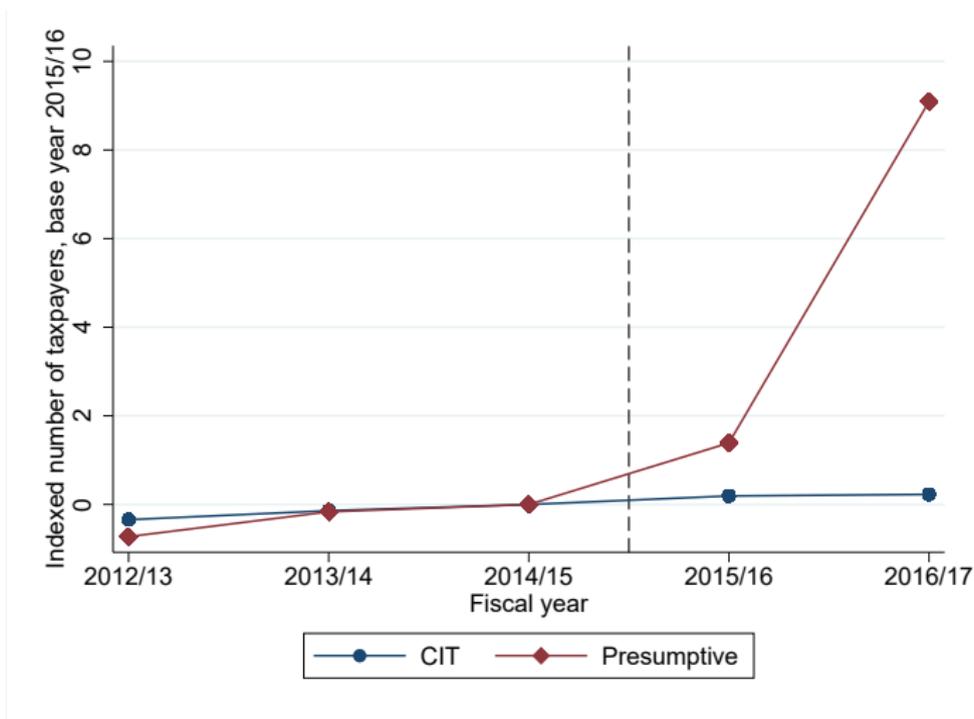Table 2: The estimation results of TREP: The number of taxpayers

Graphical findings: E-filing

Figure 3: The indexed number of taxpayers in presumptive and CIT data The base year 2014/15. The dashed line is the introduction of the new e-filing system.

Preliminary estimation results: E-filing

VARIABLES	(1) Number of taxpayers	(2) Number of taxpayers	(3) Number of taxpayers
DiD	4,245*** (181.1)	12,131*** (309.5)	12,115*** (303.2)
TREP		-48.19 (325.5)	-61.71 (329.1)
Presumptive		-14,183*** (57.57)	-14,230*** (59.94)
Area dummies	No	Yes	Yes
Year dummies	No	Yes	Yes
Industry dummies			Yes
Constant	17,859*** (256.8)	12,595*** (148.1)	12,497*** (192.5)
Observations	127,282	127,282	127,282
R-squared	0.087	0.750	0.750

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: The Difference-in-differences estimation results of new e-filing system: The number of taxpayers

Tax revenue results: Descriptive analysis

Year	2015/16	2016/17	2017/18
(1) Potential revenue, calculated from tax return data	1,672,129,000	5,903,028,000	6,734,818,000
(2) Payment revenue for return reporters	940,493,300	3,166,037,000	4,148,953,000
(3) Revenue collected in URA statistics	1,605,129,136	3,597,964,456	5,113,749,870
(4) No. of taxpayers in tax return data	7,277	25,892	31,877
(5) No. of taxpayers, return reporters	4,203	12,944	17,079
(6) No. of taxpayers in URA statistics	7,382	15,058	22,494
Difference: reported and paid taxes (1) - (2)	731,635,700	2,736,991,000	2,585,865,000
Difference: No. of taxpayers reported and paid taxes: (4) - (5)	3,074	12,948	14,798
Difference: potential revenue and URA statistics: (1) - (3)	66,999,864	2,305,063,544	1,621,068,130
Difference: No. of taxpayers potential and URA stats: (4) - (6)	-105	10,834	9,383

Table 4: Tax revenue statistics after e-filing system reform years 2015/16–17/18

Outline

Summary

- ▶ We analyse two tax administrative interventions which are targeted to small and medium-sized enterprises
    - ▶ We use Ugandan tax return and payment data from 2009/10-2017/18
    - ▶ Estimated using DiD approach and descriptive and graphical analysis
- ▶ Main preliminary findings:
    - ▶ Graphical evidence and DiD estimation results show that number of taxpayers has increased because of the change in the e-filing system
    - ▶ Graphical evidence and estimation results suggest that TREP is not explaining the increase in the number of presumptive taxpayers
    - ▶ Potential revenues are larger than collected -> businesses are reporting incomes to URA but only around half of them are actually paying taxes

References I

Carrillo, P., D. Pomeranz, and M. Singhal (2017, April). Dodging the taxman: Firm misreporting and limits to tax enforcement. *American Economic Journal: Applied Economics 9*(2), 144–64.

Kleven, H. J., M. B. Knudsen, C. T. Kreiner, S. Pedersen, and E. Saez (2011). Unwilling or unable to cheat? evidence from a tax audit experiment in denmark. *Econometrica 79*(3), 651–692.