

Casting a Wider Tax Net: Experimental Evidence from Costa Rica

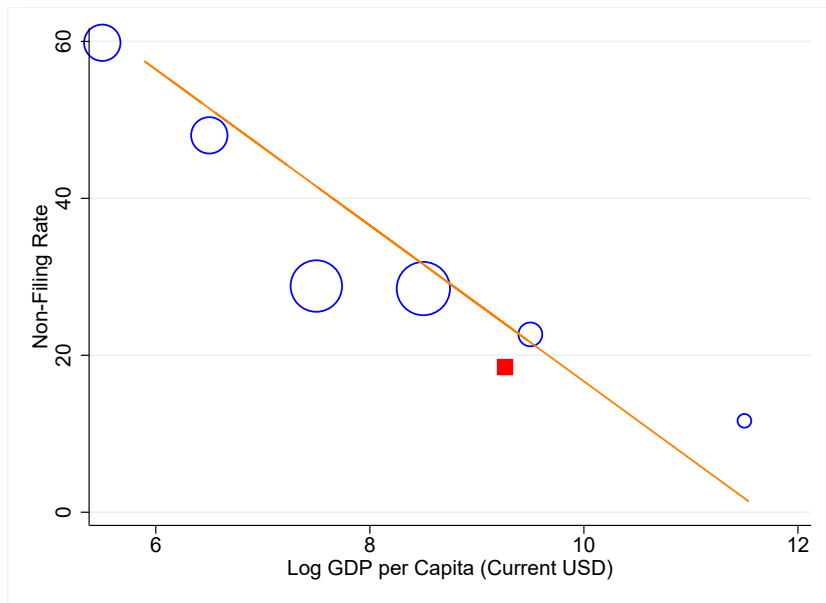
Anne Brockmeyer, Marco Hernandez, Stewart Kettle, Spencer
Smith

World Bank, BIT, Oxford University

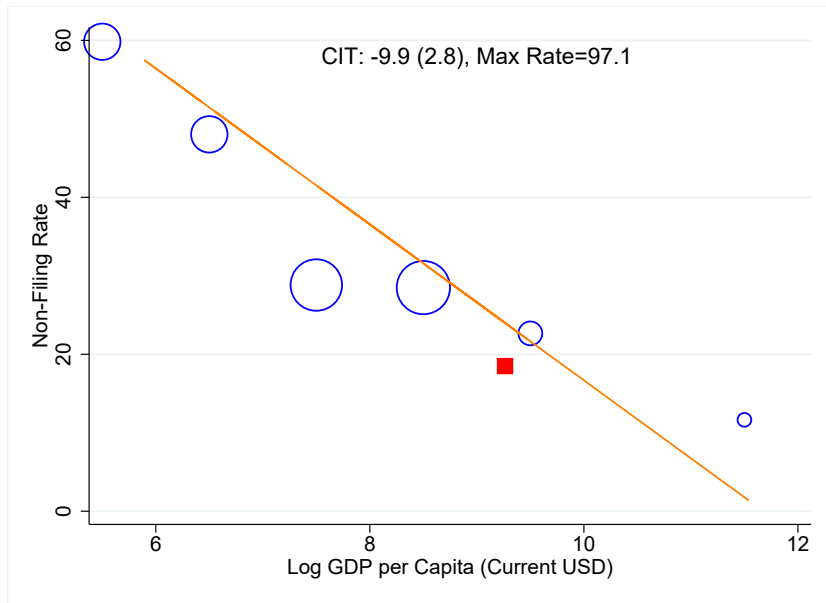
NEUDC, Cornell University

October 27, 2018

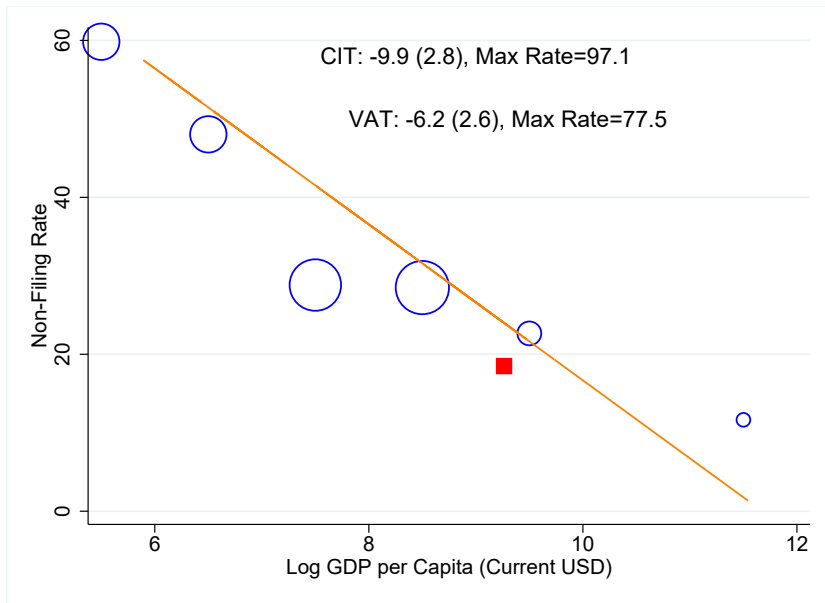
Non-Filing of Taxes and Development



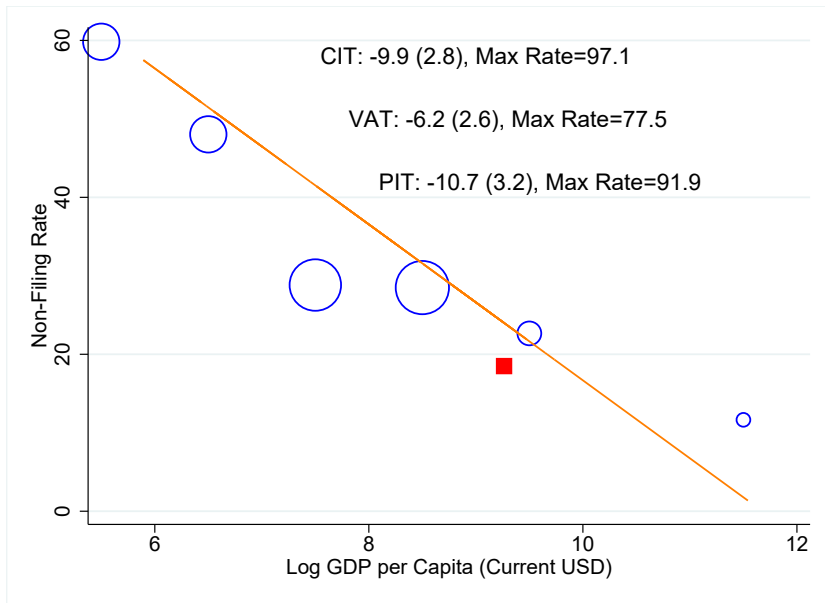
Non-Filing of Taxes and Development



Non-Filing of Taxes and Development



Non-Filing of Taxes and Development



Non-Filing of Taxes and Development

- ▶ **Non-filing is costly to economies on various dimensions:**
 - ▶ Government revenue
 - ▶ Factor allocation, productivity
 - ▶ Tax morale
 - ▶ Information about economy
- ▶ **Literature so far:** misreporting on intensive margin, informality
- ▶ **This paper:** compliance on the filing margin can be enhanced with simple and highly cost-effective intervention

A Nationwide RCT to Increase Tax Filing

- ▶ **Target registered firms that don't file (regularly)**

- ▶ Higher benefit from compliance
- ▶ Address and (sometimes) third-party information available

- ▶ **Emails:**

- ▶ **Credible deterrence:** variety of enforcement activities
- ▶ **Behavioral insights:** simplified, personalized, social norm
- ▶ **Third-party information:** supplier/client/financial reports

→ **Triples tax filing rate, doubles payment rates, improves reporting behavior**

→ **Persistent results & highly cost-effective**

▶ Taxation and development

- ▶ Gordon & Li 2009, Besley & Persson 2013, Best et al. 2015
- ▶ Third-party information: Kleven et al 2016, Pomeranz 2015, Naritomi 2015, Carillo et al 2016, Brockmeyer & Hernandez 2016
 - ▶ *Third-party information is tool to identify non-filers, strengthen enforcement, by-product of better compliance*

▶ Formalization of informal firms

- ▶ McKenzie & Sakho 2010, Andrade et al. 2014, Bruhn & McKenzie 2013, de Mel et al. 2013
 - ▶ *Focus on non-filers, with higher cost-effectiveness*

▶ Communication experiments

- ▶ Blumenthal et al 2001, Fellner et al. 2013, Hallsworth 2015, Castro & Scartascini 2015, Ortega & Scartascini 2015, Dwenger et al 2016
 - ▶ *Richer data, larger variety of outcomes (incl. dynamics)*

1. **Experiment Design**
2. **Results**
 - 2.1 Main Results
 - 2.2 Mechanisms
 - 2.3 Spillovers
 - 2.4 Persistence
3. **Conclusion**

Experiment Design

- ▶ **Tax revenue** ~ 15.3% of GDP; 360,000 registered firms
- ▶ **Target population:** ~**50,000** non-filers
 - ▶ Registered but did not file income tax for 2014
 - ▶ Average non-filer > below-median filer
 - ▶ Today: focus on firms covered by third-party information (TPI)
- ▶ **Third-party reporting:**
 - ▶ Firms' suppliers & clients, state institutions, credit/debit card companies

Baseline Email

SUBJECT: Urgent: Please submit your tax return now

Attention: NAME,

PLEASE FILE YOUR INCOME TAX RETURN IN THE NEXT 10 DAYS

Declare now by visiting:

<https://www.haciendadigital.go.cr/tribunet/loginDeclaraciones.jsp>

According to our records, you have not filed your tax return (Form D101). 8 out of 10 Costa Ricans have already filed their 2014 income tax return. You are part of a small minority of citizens who have not.

It is a serious offense to not file your taxes.

We have third-party information confirming that you or your client performed activities in 2014 which require you to pay taxes.

If you do not file, you could be audited and your business may be closed. Furthermore, [your name may be published on our website](#) as someone who did not contribute.

If you have any questions, you can contact me by PHONE or E-MAIL. I'll be checking whether you respond to this message.

Sincerely,

NAME OF OFFICIAL
POSITION

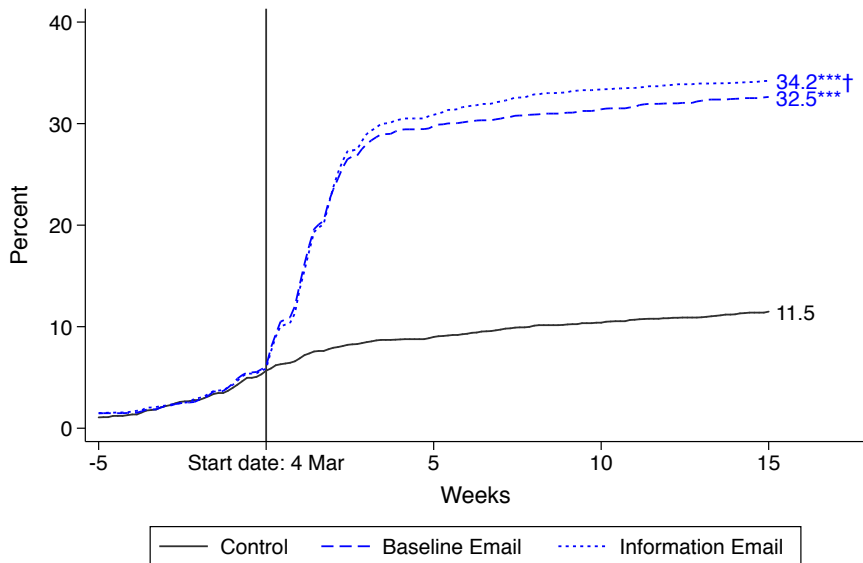
Third-Party Information Email

We have third-party information confirming that you or your client performed activities in 2014 which require you to pay taxes. From third-party returns (D150, D151 and D153), we know about your operations, for example:

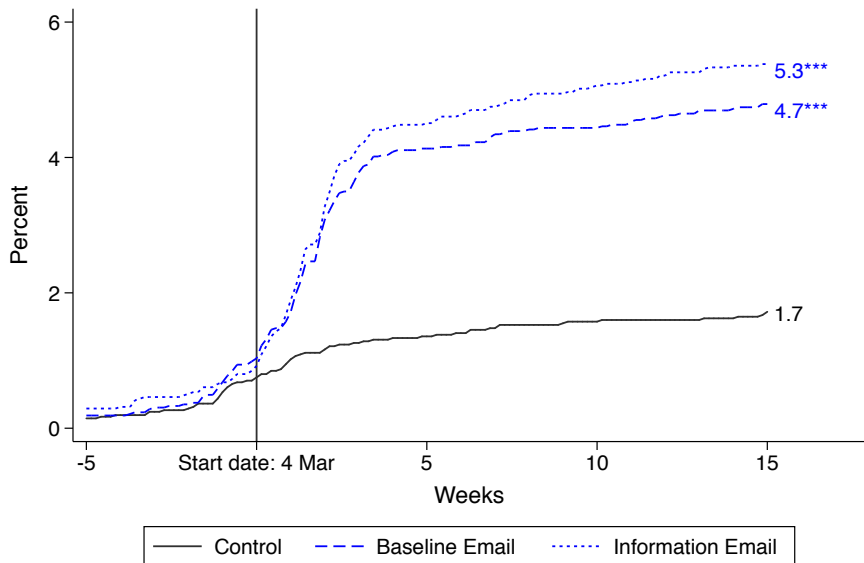
- **Revenues of at least XXX reported by COMPANY,**
- **Revenues from credit/debit cards of at least ZZZ reported by BANK,**
- **Sales or contracts with state entities of at least WWW.**

Main Results: Income Tax Compliance

Tax Filing



Tax Payment

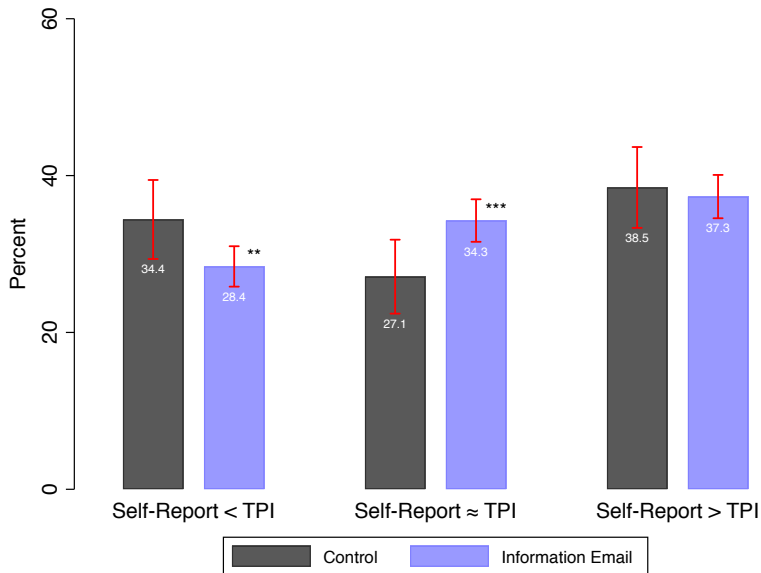


Mechanisms: Improvements in Reporting Behavior

Reporting Behavior

	(1)	(2)	(3)	(4)	(5)
	Log Sales	Log costs	Log profits	Log tax liability	Log payment
T1: Baseline email	0.256 (0.318)	-0.504 (0.386)	0.514 (0.341)	0.565** (0.255)	0.437** (0.222)
T2: Information email	0.845*** (0.308)	-0.387 (0.383)	1.102*** (0.336)	0.633** (0.248)	0.450** (0.221)
Other controls	Yes	Yes	Yes	Yes	Yes
Control group avg.	13.12	10.44	11.48	2.669	1.484
T1=T2 p-value (Wald test)	0.001	0.652	0.004	0.677	0.929
Observations	2,692	2,692	2,692	2,692	2,692

Self-Reported Sales vs TPI



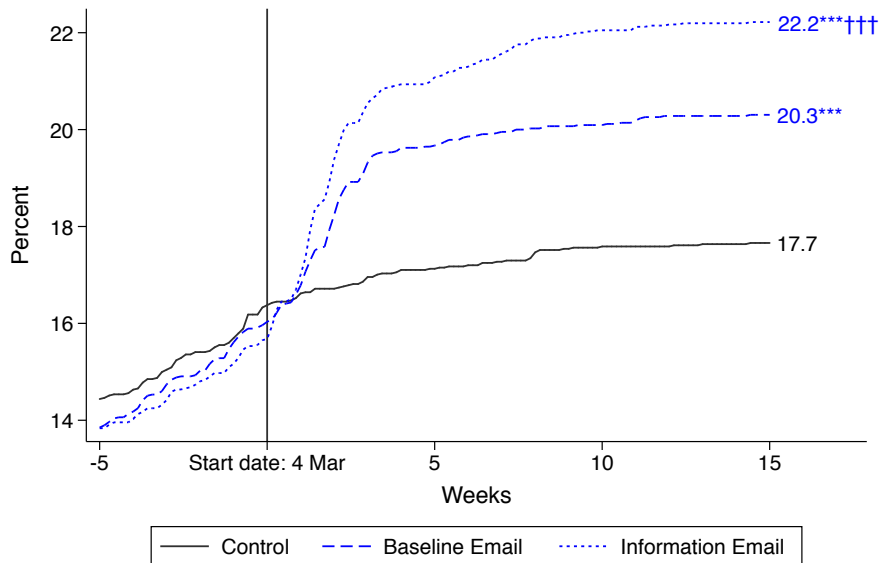
Why is there no evasion shifting to costs?

Deduction rule for self-employed:

- ▶ Standard deduction of 25% of sales (no receipts required)
- ▶ Itemized deduction without limit (but receipts required)

Spillovers: Other Compliance Aspects

Third-Party Reporting



The Value of Additional Third-Party Reports

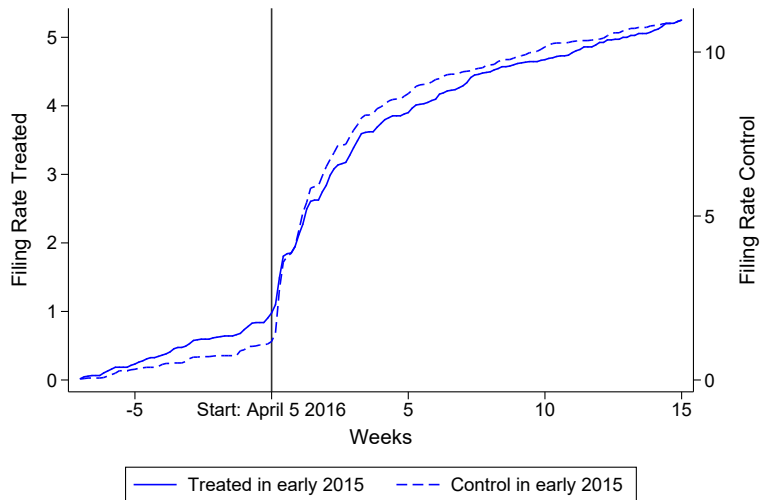
	(1)	(2)	(3)	(4)	(5)	(6)
	No. of third-party reports filed	No. of reports about clients	No. of reports about suppliers	No. of unmatched reports	No. of reports about non-filers	No. of reports about under- reporters
T: Any email	0.098*** (0.024)	0.070*** (0.012)	0.027 (0.017)	0.051*** (0.016)	0.004** (0.002)	0.030*** (0.008)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Control group avg.	0.101	0.046	0.055	0.038	0.003	0.028
Observations	12,515	12,515	12,515	12,515	12,515	12,515

Persistence of Treatment Effect & Response to Repeated Interventions

Persistence of Treatment Effects

	(1) Filed income tax	(2) Paid income tax	(3) Reported client	(4) Reported by state institution	(5) Reported by private client or supplier	(6) Reported by card company
T effect in 2015	0.080*** (0.009)	0.013** (0.004)	0.023*** (0.006)	-0.001 (0.004)	-0.004 (0.009)	0.002 (0.006)
T effect in 2016	0.026** (0.010)	0.016** (0.005)				
T effect in 2017	0.020** (0.010)	0.010* (0.005)				
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,515	12,515	12,515	12,515	12,515	12,515

Response to Repeated Interventions



- ▶ **Cost Benefit analysis** (taking into account costs of follow-up):
 - ▶ Cost-benefit \approx 1:4 (1:6 for firms with third-party information)
- ▶ **Welfare Considerations:**
 - ▶ Investment of Δa in enforcement capacity is welfare enhancing if

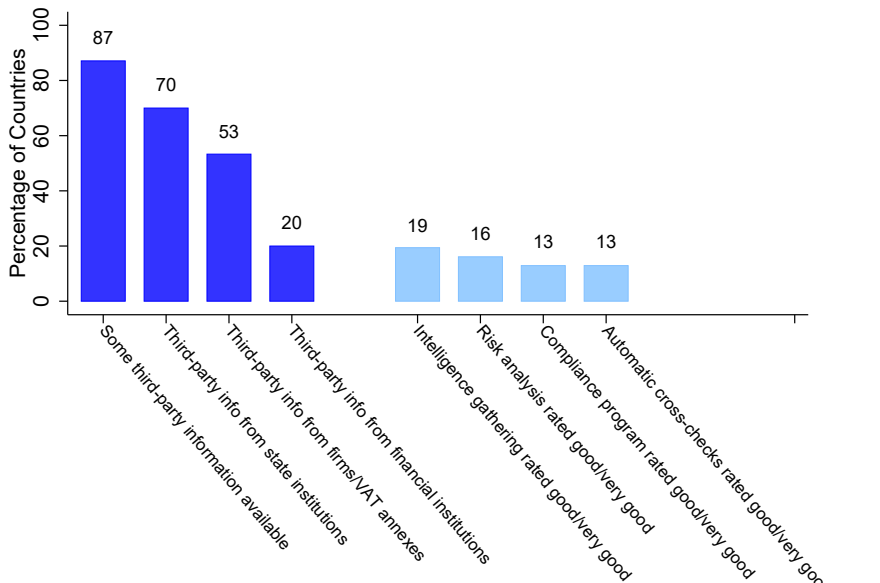
$$v' \Delta R > \Delta R + \int_{\bar{y}_1}^{\bar{y}_0} (f - p_0 \theta y) dy + \int_0^{\bar{y}_1} \Delta p \theta y \cdot dy + v' \Delta a$$

- ▶ If $v' = 1.4$, intervention is welfare improving if filing costs $< 5\%$ of ΔR

- ▶ **Non-filing of taxes important in lower-income countries**
- ▶ **Emails with deterrence + behavioral insights + third-party information**
 - ▶ Increase tax filing, payment, reporting accuracy
 - ▶ Increase compliance with third-party reporting
 - ▶ Effects persist in the medium term
 - ▶ Cost effectiveness \approx 1:4

- ▶ **Non-filing of taxes important in lower-income countries**
- ▶ **Emails with deterrence + behavioral insights + third-party information**
 - ▶ Increase tax filing, payment, reporting accuracy
 - ▶ Increase compliance with third-party reporting
 - ▶ Effects persist in the medium term
 - ▶ Cost effectiveness \approx 1:4
- ▶ **Do countries use third-party information optimally?**

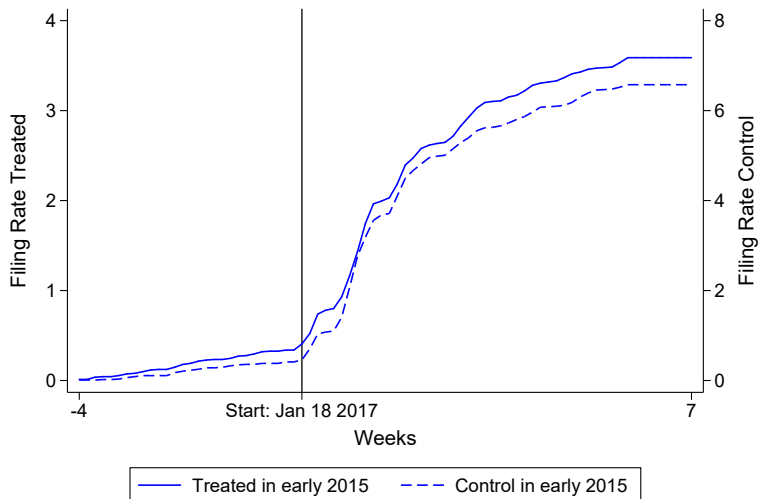
Availability and Use of Third-Party Information



Thank you!

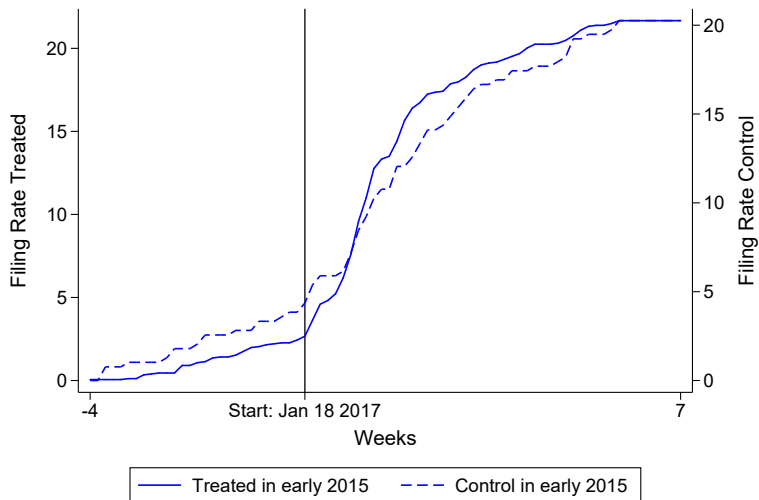
Response to Repeated Interventions

Figure 1: Non-filers, Income Tax Intervention 2017

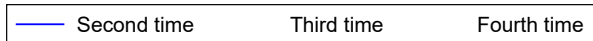
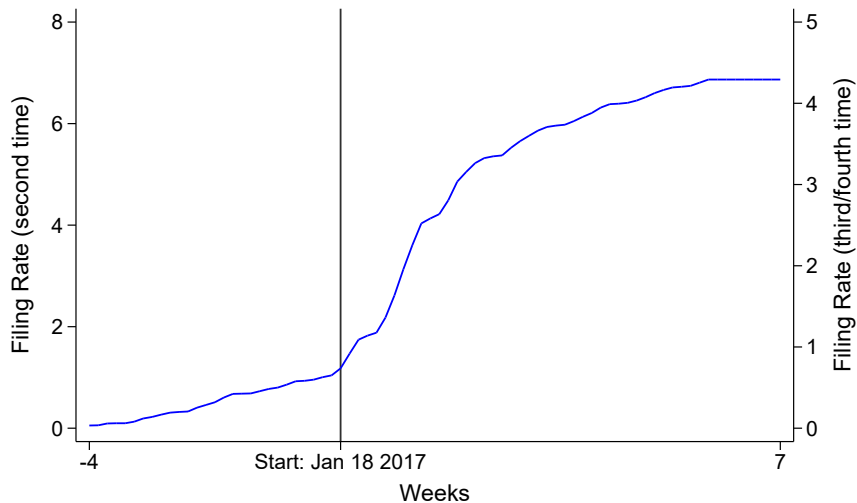


Response to Repeated Interventions

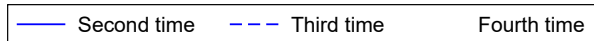
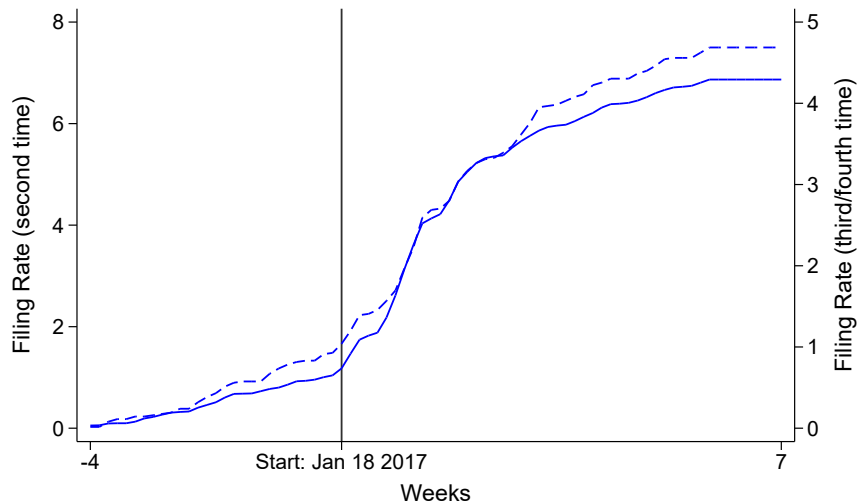
Figure 2: Filers, Income Tax Intervention 2017



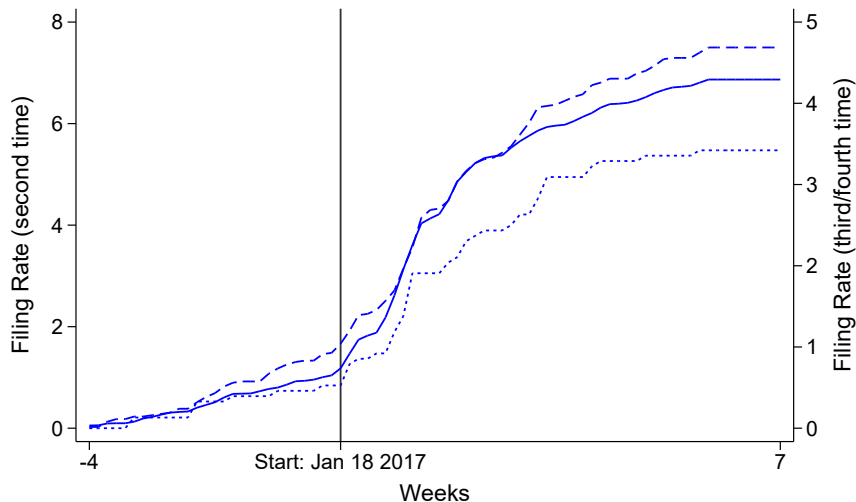
Response to Repeated Interventions



Response to Repeated Interventions



Response to Repeated Interventions



— Second time - - - Third time Fourth time