Detection Without Deterrence: Tax Audits with Limited Fiscal Capacity

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Introduction

- Modern tax systems are based on the principle of **self assessment**
- Taxpayer assess their tax liability which becomes final unless the return is selected for **audit**
- Audit is the **sole instrument** to detect and deter tax evasion and a key determinant of the revenue a country can collect
  - US can generate around ***$1 trillion*** in a decade by improving IRS's audit capacity (Sarin & Summers, 2019)

Introduction

- Audits can reduce evasion by
  - detecting past evasion and punishing it
  - detering future misreporting
- Tax administrations cannot audit every taxpayer and so audits must be targeted
- Targeting rules need to balance these effects

This paper

- Use value added tax audits from Pakistan to ask

1. How much VAT evasion is there?
   - Use national scale **randomized audits**
2. Do audits deter evasion?
   - Use switch from randomized audits to audits with ***publicly disclosed*** targeting rule

How much evasion is there?

- Large tax evasion at the baseline
  - **One-third** of firms engage in some tax evasion
  - Evaders on average evade **40%** of their true tax liability
- Strong **heterogeneity** by firm size. Evaded amount
  - exceeds reported tax liability in bottom three size quartiles
  - is relatively mild in the top quartile (7%);
- Top quartile firms remit more than **99%** of the revenue

Do audits deter tax evasion?

- Audit has **NO** effect on firm behavior
- No response to
  1. increase in the likelihood of audit
  2. decrease in the likelihood of audit
  3. undergoing an audit
- Our variation is compelling and data rich. We can
  - examine multiple firm **outcomes**
  - exploit five audit **waves**
  - look at multiple **populations**
  - explore **heterogeneity** across rich set of firm xtcs

  but reach the same conclusion

Outline

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Legal Challenge → Randomization

- Risk-based selection in Pakistan was challenged in 2012
- While courts were hearing the case FBR had to pick audits using **random** ballots
- FBR **switched back** to risk based audits from 2016
- Targeting rule for these audits was ***disclosed publicly***

Descriptive Statistics

Tax	Ballot	Audits Assigned		Audits Conducted	
Year	Date	Mode	Number	Assigned	Unassigned
(1)	(2)	(3)	(4)	(5)	(6)
2013	September 13, 2013	Random	4,926	3,482	521
2014	September 25, 2014	Random	12,447	3,612	293
2015	September 14, 2015	Random	8,372	1,122	164
2016	January 05, 2017	Parametric	8,935	884	332
2017	April 12, 2018	Parametric	8,785	852	352

Outline

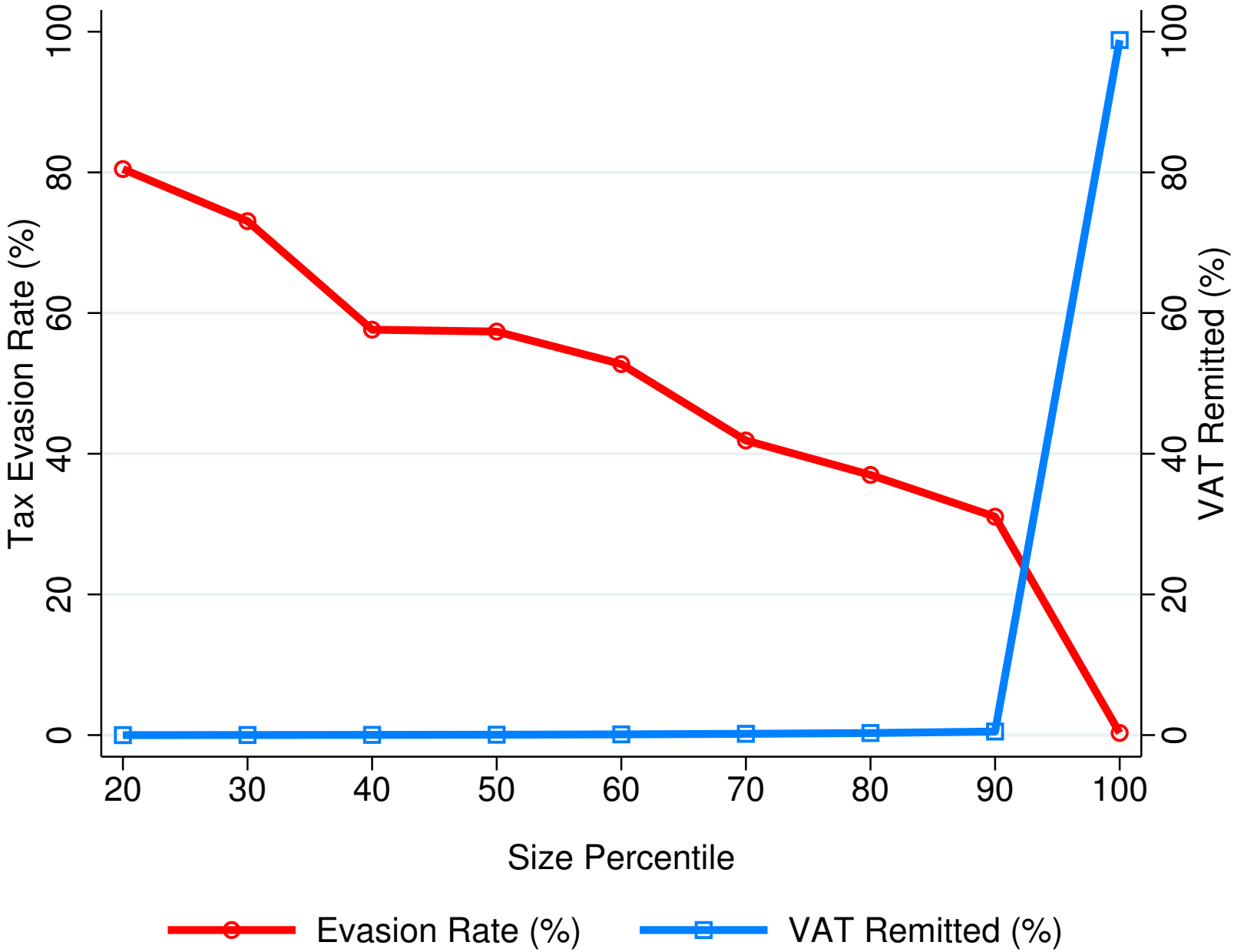
Tax evasion at baseline

- Random assignment $\rightarrow$ detected amount represents an unbiased estimate of the **evasion rate**
- Our results likely an ***underestimate*** because
  - Audits in general cannot detect every rupee of tax evasion
  - Our audits are not extensive in scope, done for the express aim of estimating the tax gap
- IRS for example **scales up** the amount detected by 3.28 to convert it into their official estimate of the tax gap

Tax evasion at baseline

	# Audits	Sales	Amount Detected		VAT Paid at the Baseline		Evasion Rate
			PKR	% of Sales	PKR	% of Sales	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A: First Audit Wave							
All Audited Firms	3,482	498.4	2.15	0.43	28.16	5.65	7.1
Amount Detected > 0	986	137.0	2.15	1.57	3.20	2.33	40.2
Size Quartile 1	1,057	0.0	0.06	684.76	0.00	8.78	98.7
Size Quartile 2	824	1.7	0.07	3.94	0.04	2.52	61.0
Size Quartile 3	809	12.3	0.22	1.75	0.21	1.67	51.1
Size Quartile 4	792	484.3	1.80	0.37	27.91	5.76	6.1
B: Second Audit Wave							
All Audited Firms	3,612	2200.0	2.24	0.10	88.37	4.02	2.5
Amount Detected > 0	1,220	264.6	2.24	0.84	7.52	2.84	22.9
Size Quartile 1	1,007	0.4	0.04	10.21	0.02	3.81	72.8
Size Quartile 2	892	4.9	0.17	3.37	0.11	2.15	61.0
Size Quartile 3	862	24.4	0.22	0.89	0.30	1.24	41.8
Size Quartile 4	851	2170.2	1.81	0.08	87.95	4.05	2.0

Tax evasion at baseline

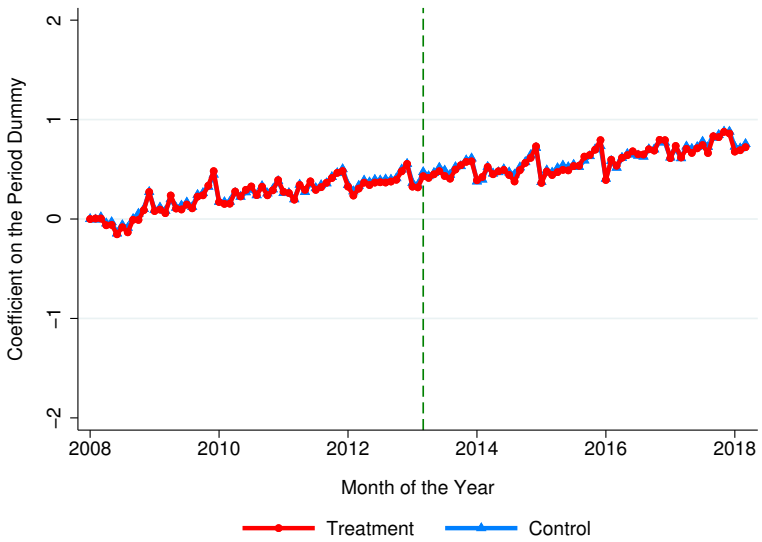


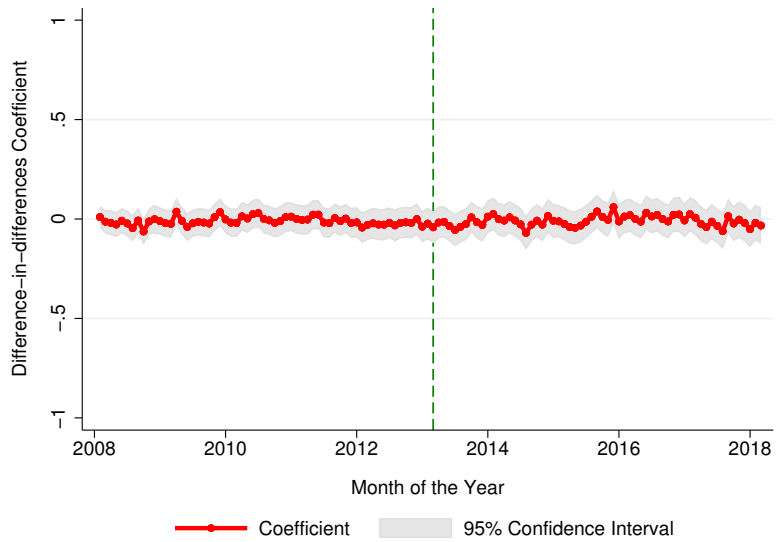
Outline

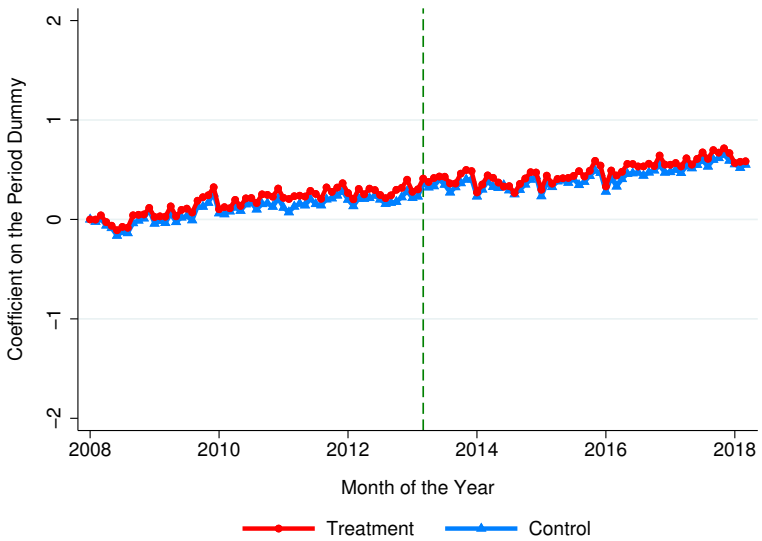
Do audits deter evasion?

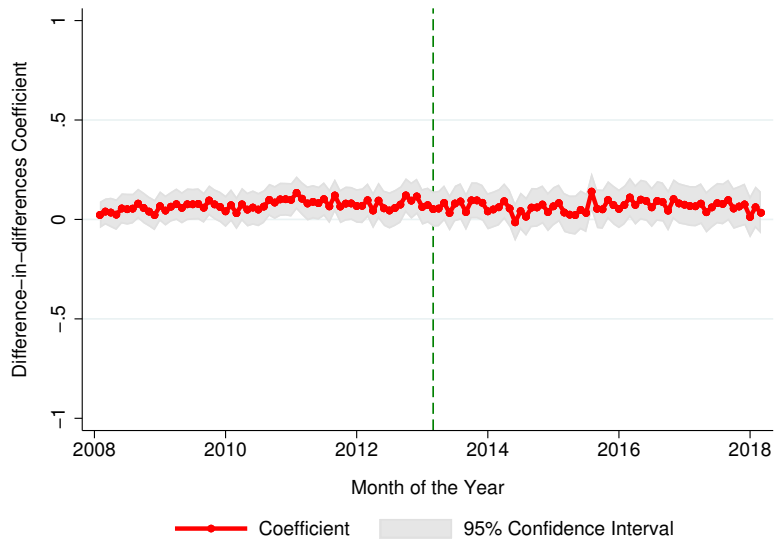
- If audit deters evasion, audited firms will pay more than others in future months
- We look for this by comparing firms selected for audit with others
- We look at sales, purchases, output tax, input tax, and tax payable reported on tax returns

Dynamic response to audit (first wave)









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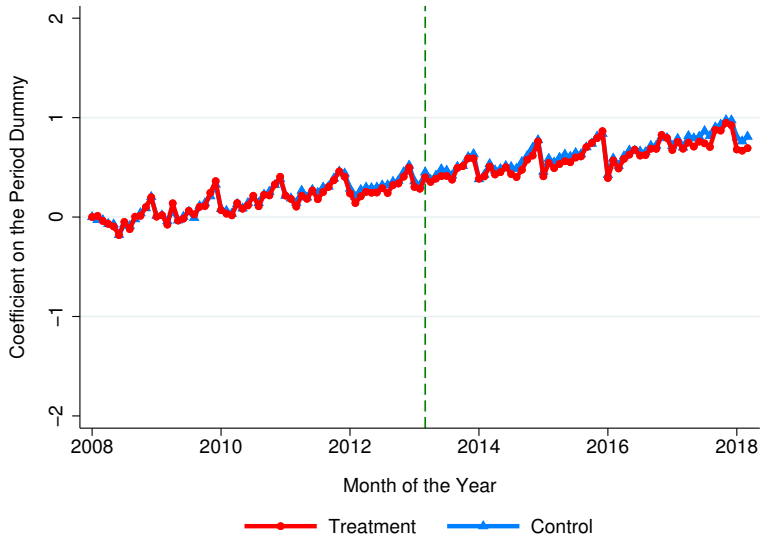
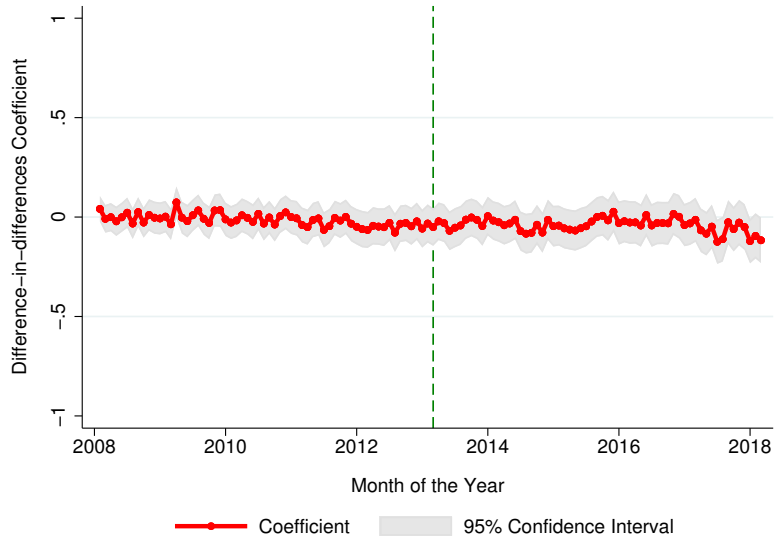
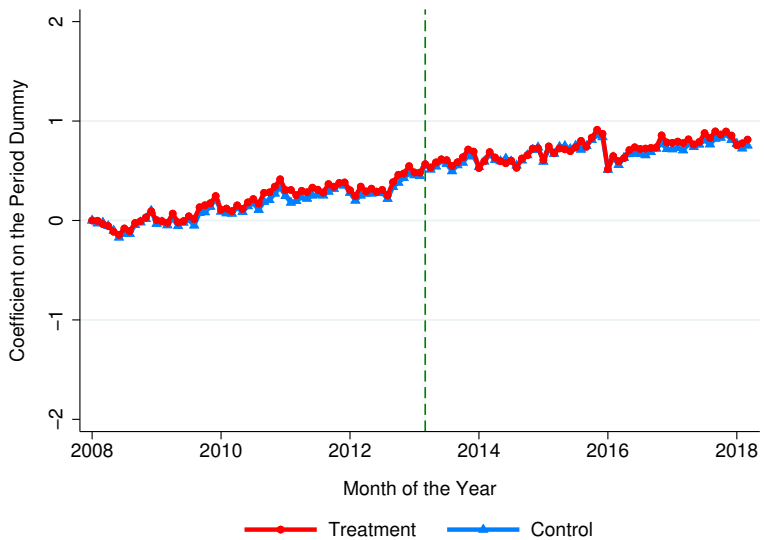
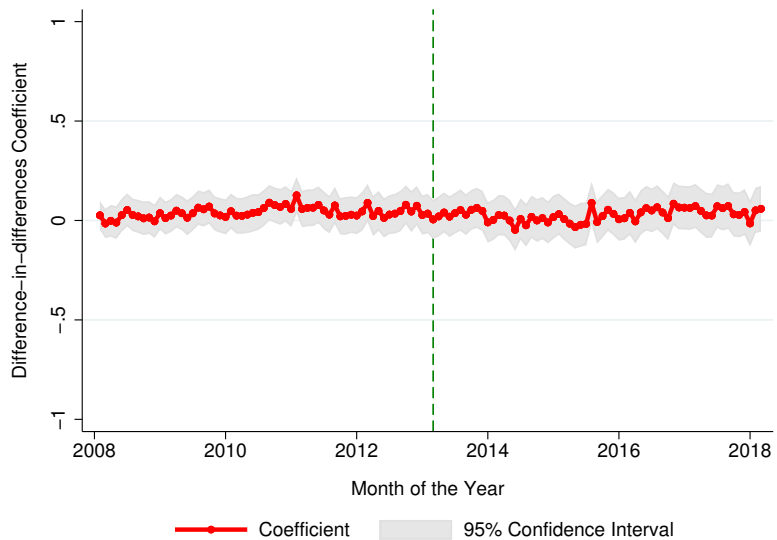
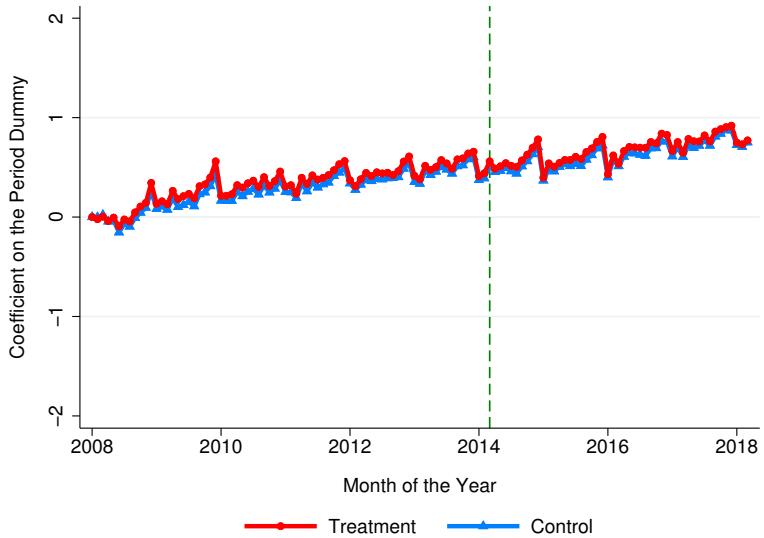


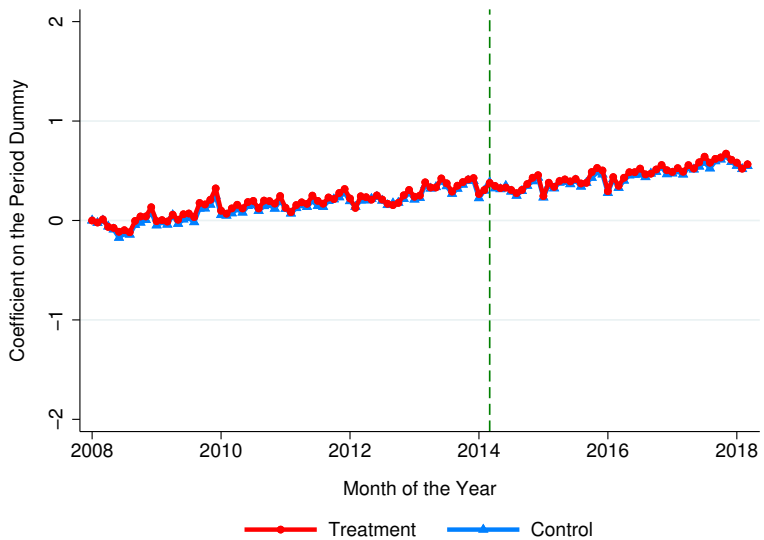


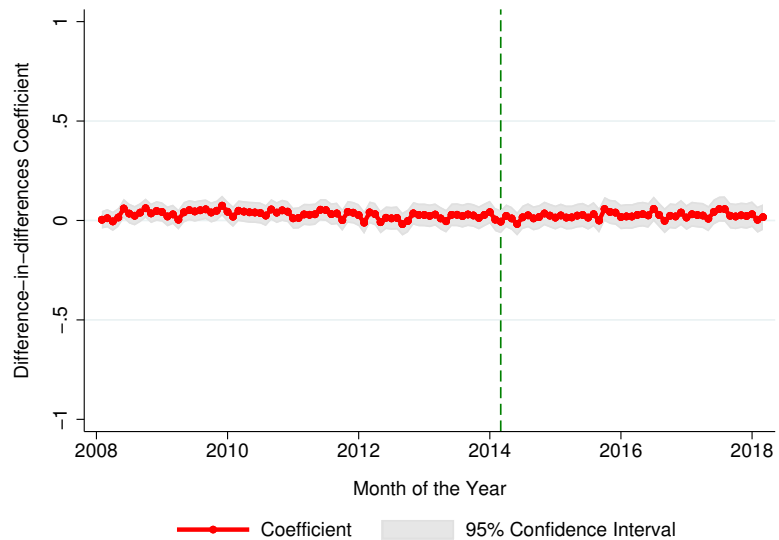




Dynamic response to audit (second wave)







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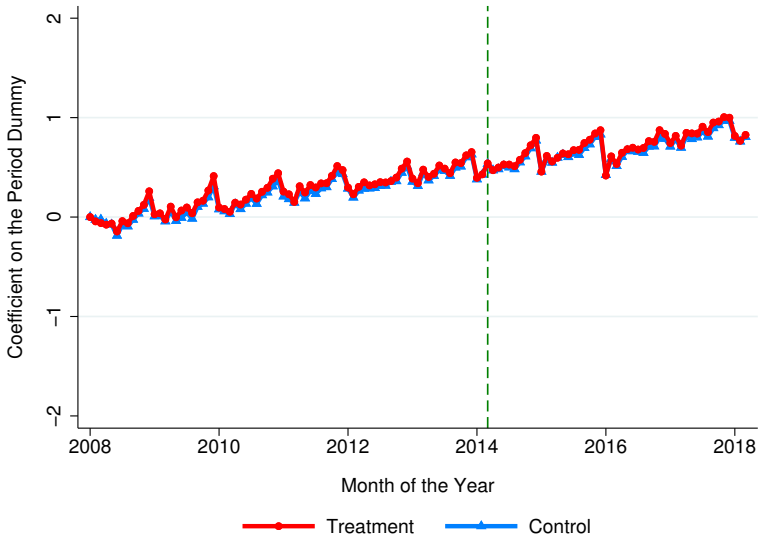
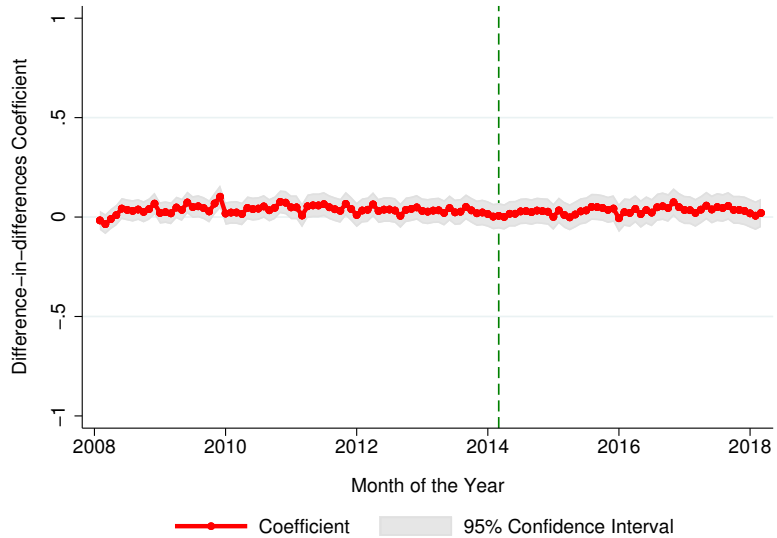
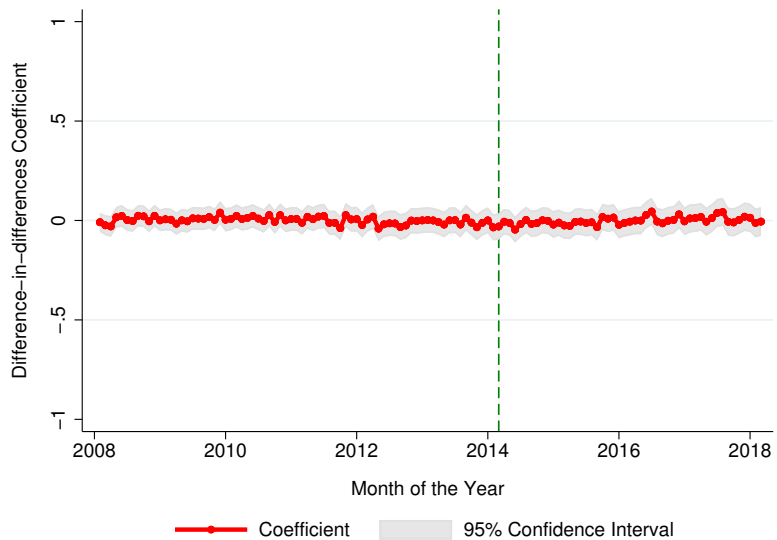
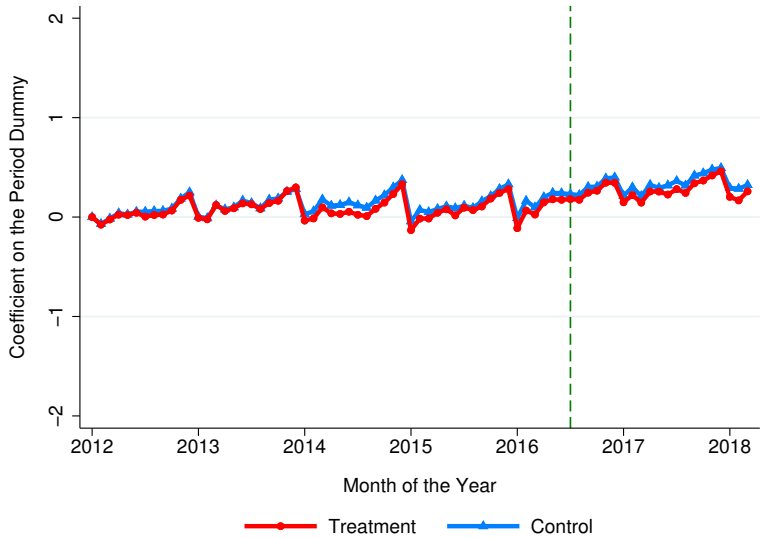
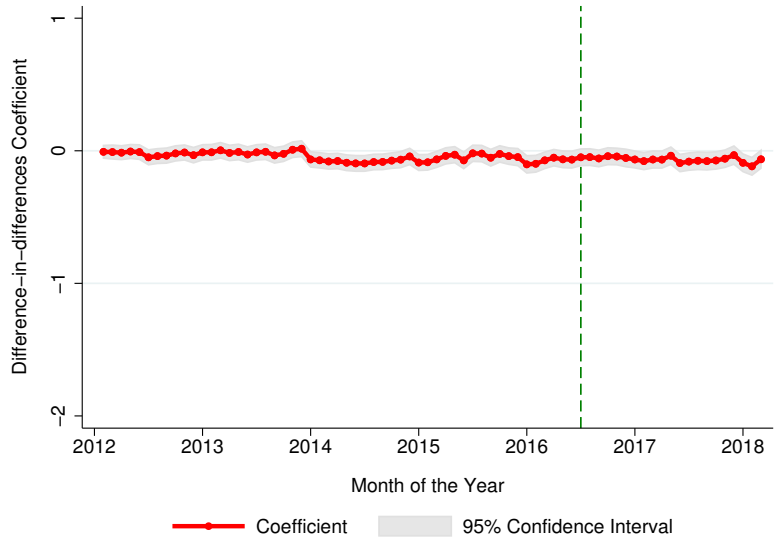


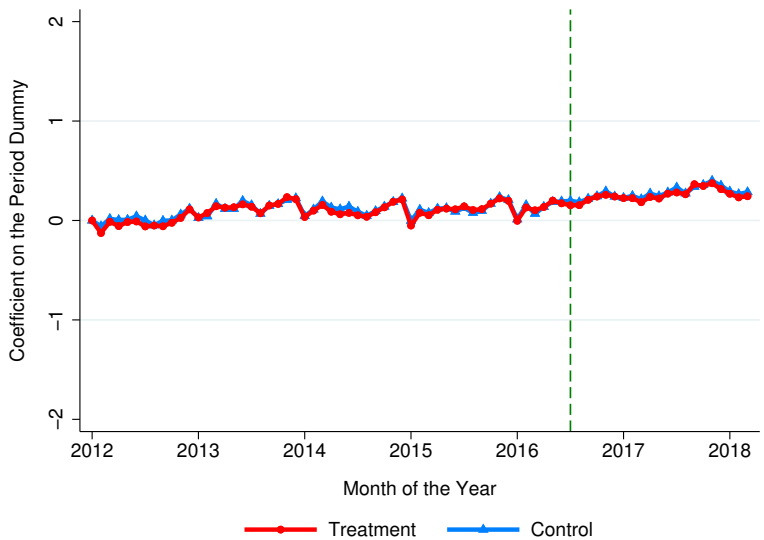


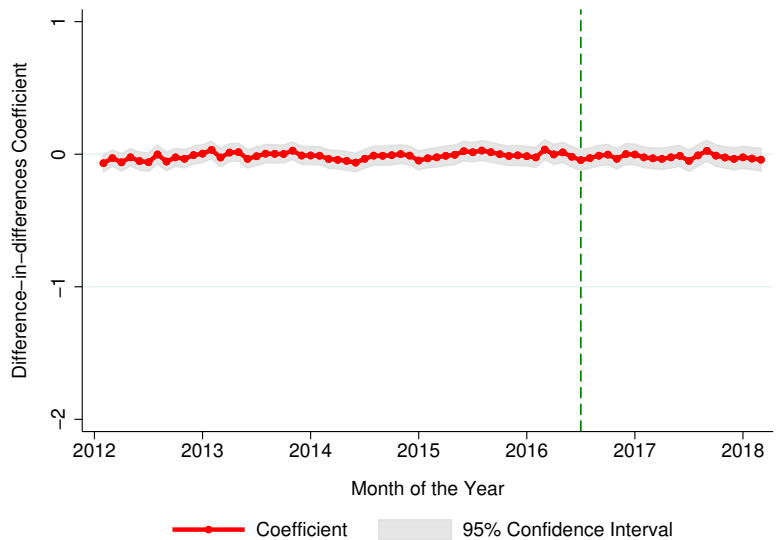


Dynamic response to audit (risk-based audits)









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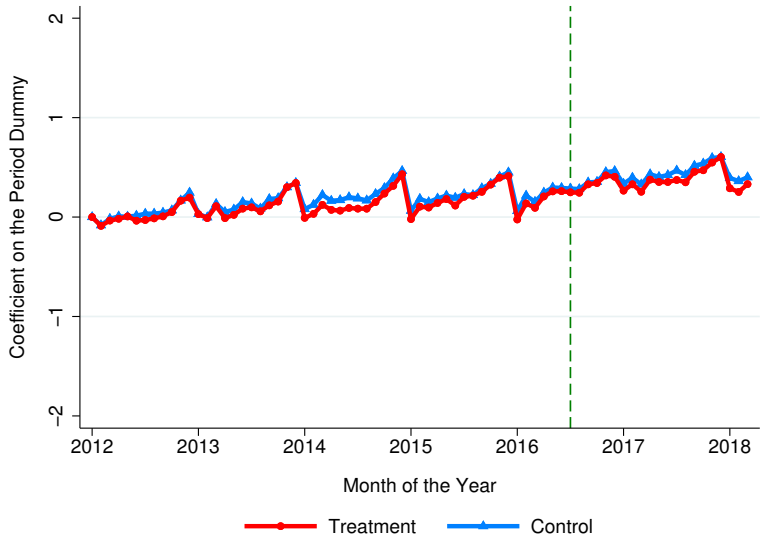

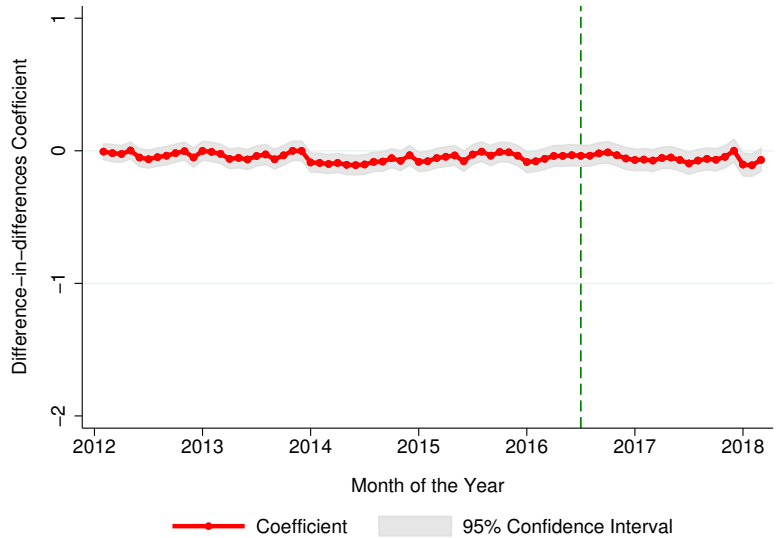

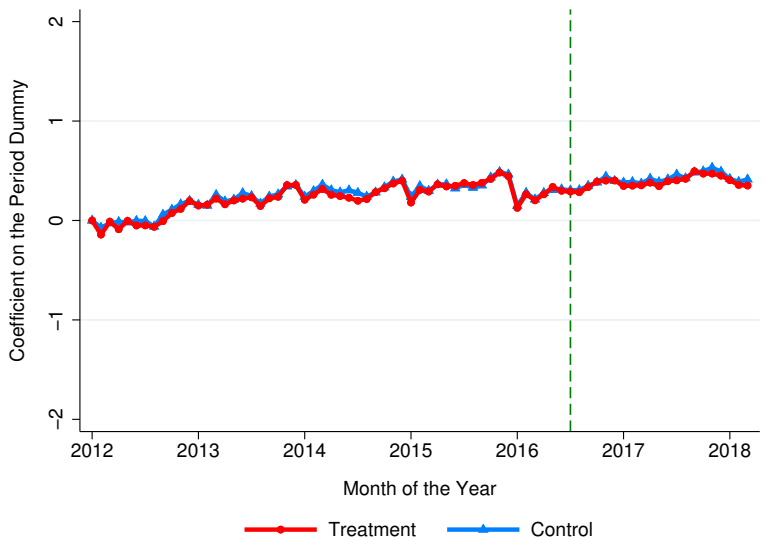

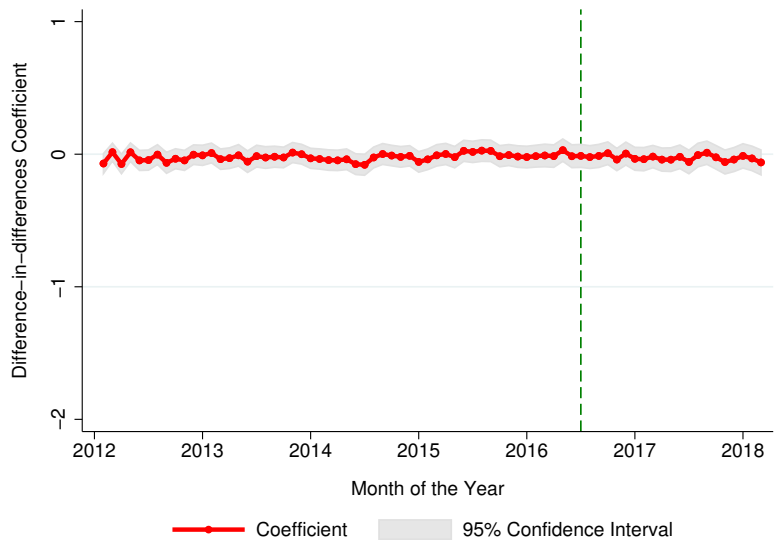

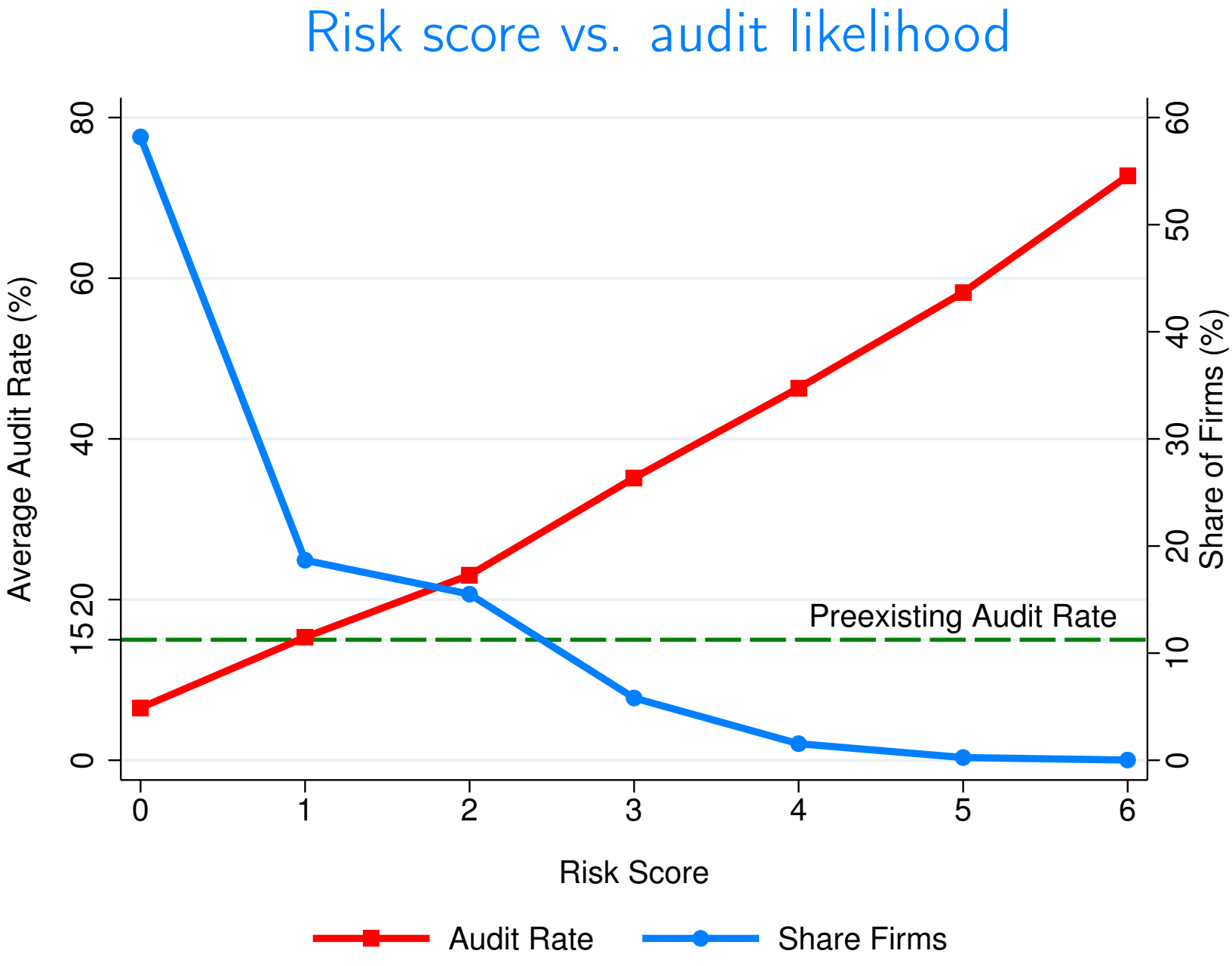
Risk score vs. audit likelihood
Average Audit Rate (%)
0
15 20
40
60
80
Share of Firms (%)
0
10
20
30
40
50
60
Preexisting Audit Rate
0
1
2
3
4
5
6
Risk Score
Audit Rate
Share Firms

Do audits deter evasion?

- Deterrence depends on how much liability (taxes+penalty) firms end up paying after audit
- We find
  - Large detection of evasion by audit
  - No response to audit
  - No response to targeting rule
- Together this implies recovery capacity is lacking
- Other evidence is consistent with this
  - Only 2% of the amount detected by audit is recovered

Outline

Conclusions

- We document that audit do not create deterrence even when large tax evasion exists
- Too much focus so far has been on audit policy
  - Increasing number of audits (more auditors; desk audits etc.)
  - Improving audit targeting (AI and other technologies)
- This ignores that audit policy and audit technology are ***complements***
- Our results $\rightarrow$ governments in developing countries need to invest more on post-audit recovery which is a more binding constraint in creating deterrence