

Firms as Tax Collectors

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Motivation

- Governments in developing countries struggle to raise revenue and build tax capacity
 - Tax-to-GDP ratio: 23% LAC and 34% OECD (Oct 21 Semiannual Report)
- Usually rely on ↑ taxes, ↓ non-compliance
- Recent evidence of dramatic returns to improving tax administration Basri et al. (2019)
- **Withholding systems** are a policy tool that can help ease admin burden
- 3rd parties (large firms) collect/remit taxes owed by related parties (employees, firms)
- Withholding of personal income tax is widespread Besley and Persson (2014)
- **Withholding of indirect taxes** increasingly used in developing countries
Waseem (2020); Brockmeyer and Hernandez (2019)
 - Governments lack resources and capacity to accurately tax firm activity

This paper

What are the implications of delegating tax collection duties to firms?

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1. Does tax withholding have an impact on aggregate revenue? YES 
2. Are withholding agents affected by this task? NO 
3. How do firms respond when their commercial partners withhold taxes from them?

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3. **How do firms respond when their commercial partners withhold taxes from them?**
↑ coverage of withholding ⇒ ↑ self-reported sales and tax liability

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3. **How do firms respond when their commercial partners withhold taxes from them?**
↑ coverage of withholding ⇒ ↑ self-reported sales and tax liability

What we do

- Analyze changes to the way the **turnover tax** is collected in the City of Buenos Aires
- **Large firms appointed to withhold part of the tax** from other firms
- We combine rich **admin tax data** and **two reforms** to the withholding system

Setting and Data

Subnational Turnover Tax

- Tax base: gross income (sales)
- Monthly electronic filing by taxpayer
- Outstanding balance = tax owed – amount withheld (if any)
- Collection methods:
 1. Direct payments (self-reported sales)
 2. Withholding by collection agents (CAs) ← Main reform
 3. Withholding by banks ← Reform 2

Admin tax data

- Monthly tax filings
All line items required for filing TT
- Supplementary invoice summary from CAs
B2B transactions: CAs and trade partners

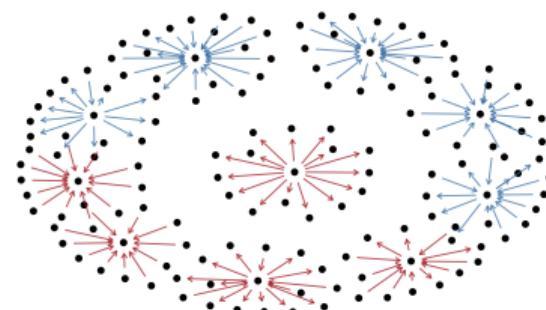
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Outline

Motivation

Setting and Data

Empirical Strategy and Results

Main reform: ↑ in withholding

Reform 2: ↓ in withholding

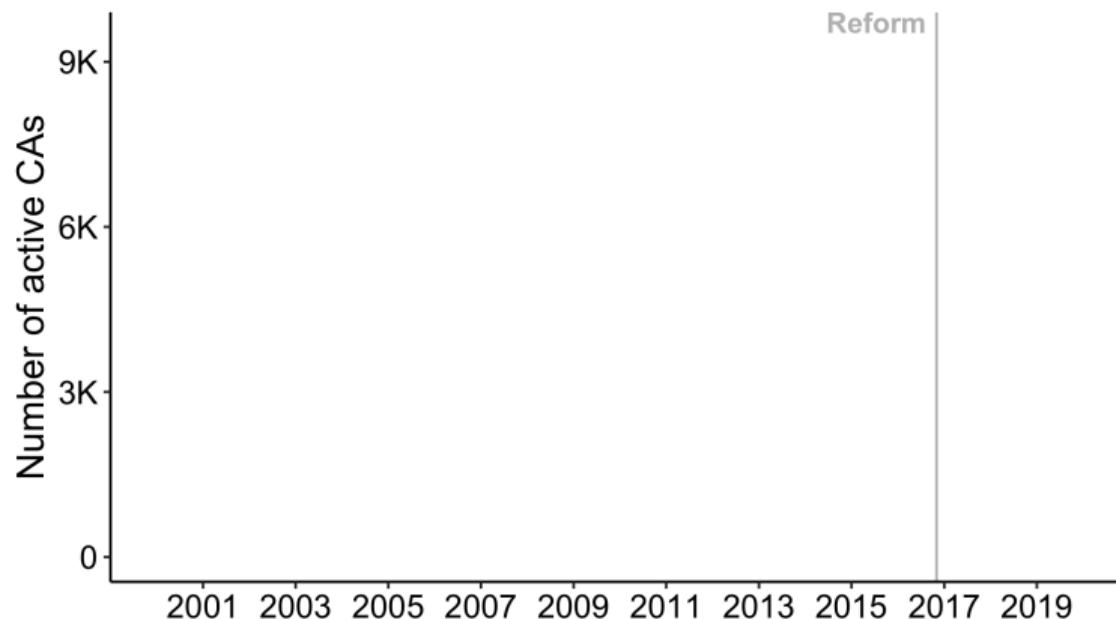
Interpretation of findings and closing remarks

Main reform: ↑ in the number of collection agents (CAs) [► More details](#)

Nov 2016: firms appointed as CA if [2015 sales > AR\\$60M](#) [► Firm size dist.](#)

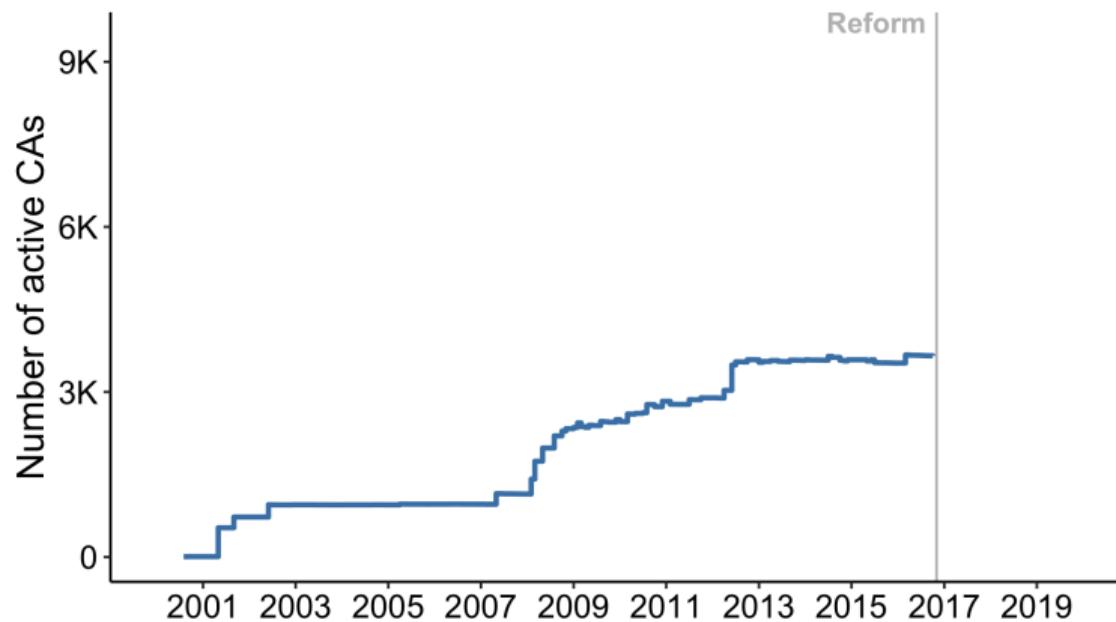
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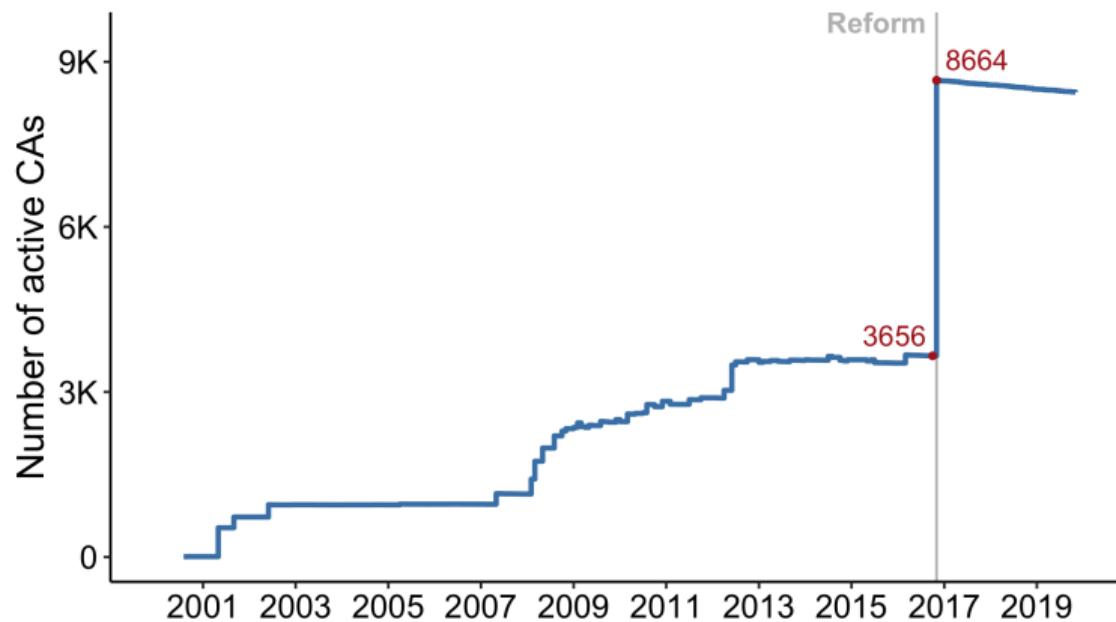
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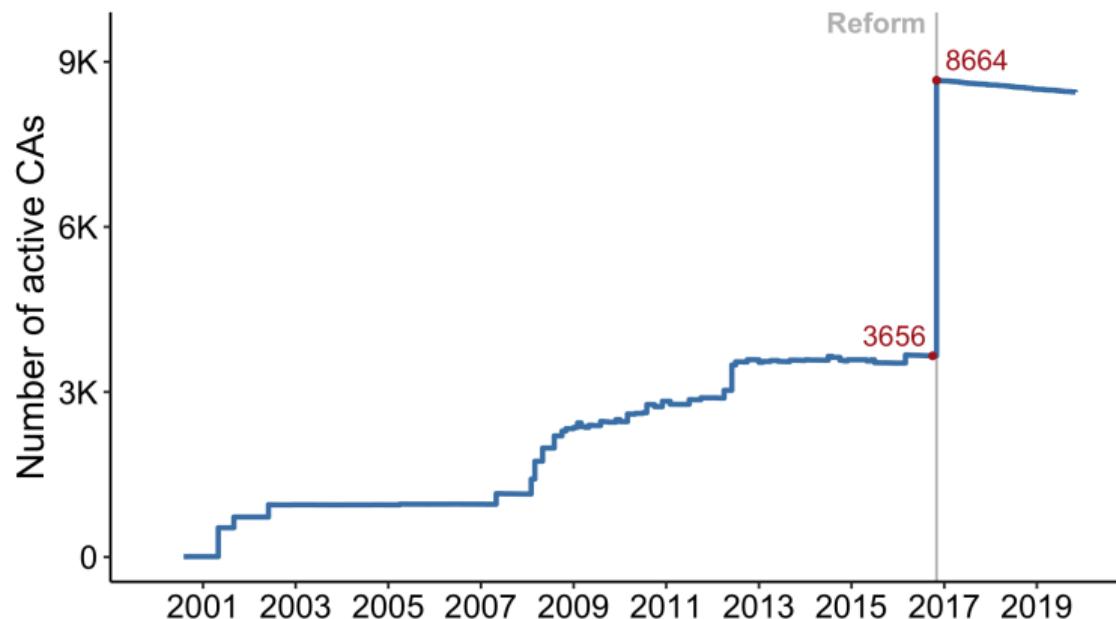
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Implication: More tax collected at source by CAs *in lieu* of direct payments [Macro evidence](#)

Empirical strategy and First Stage

Goal: Analyze the response of taxpayers when commercial partners withhold taxes from them

Empirical strategy: Diff-in-Diff
exploit Δ in exposure to new CAs
across taxpayers

Control: firms linked to old CAs

✗ # CAs in Nov 16

Treatment: firms linked to new CAs

↑ # CAs in Nov 16

► Reg. details

► Identification

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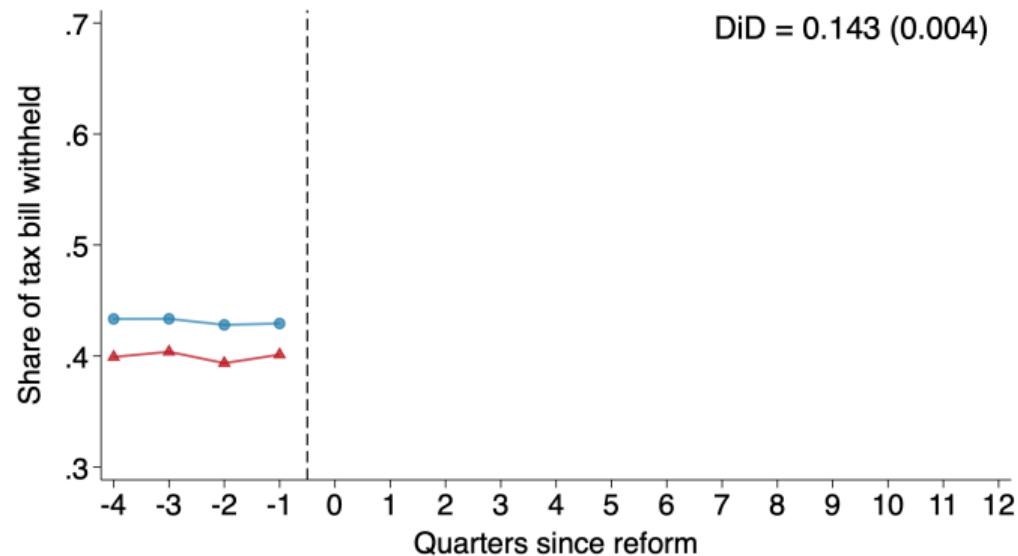
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Share of tax withheld by CAs

DiD = 0.143 (0.004)



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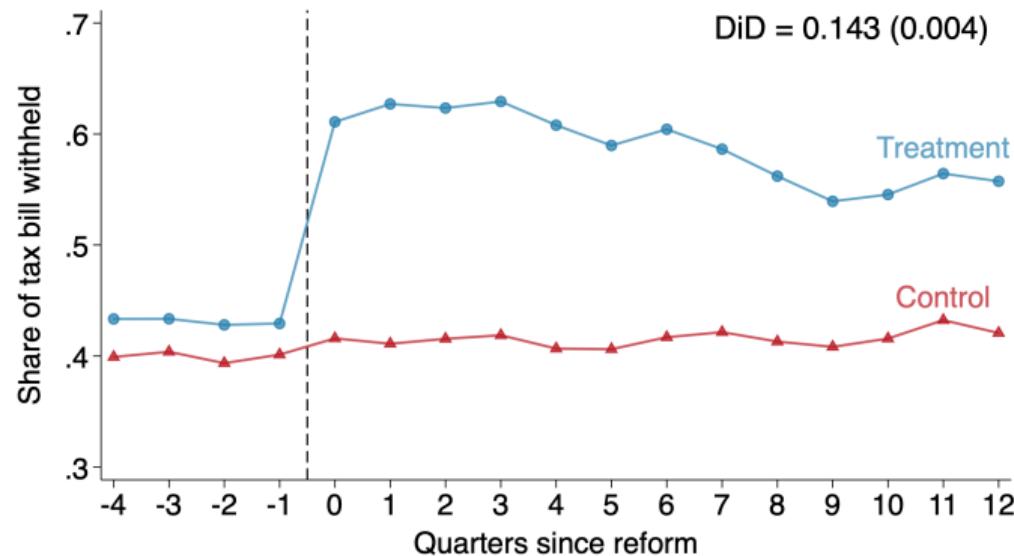
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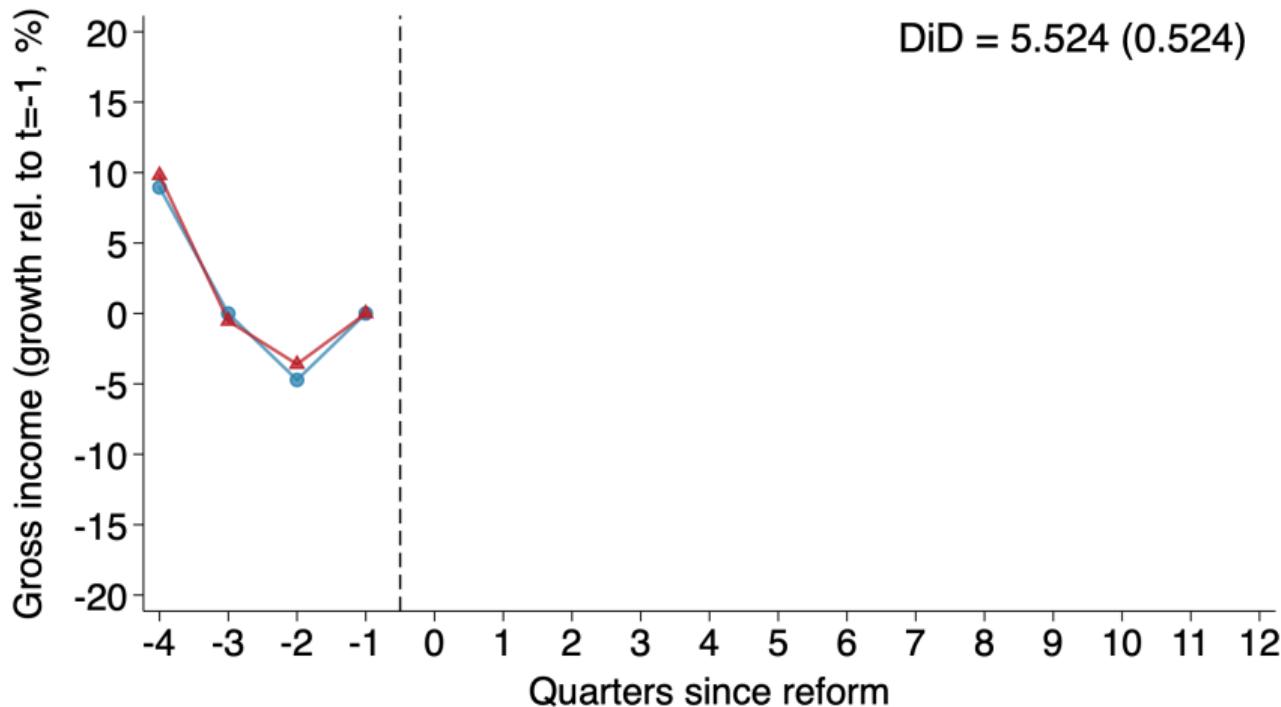
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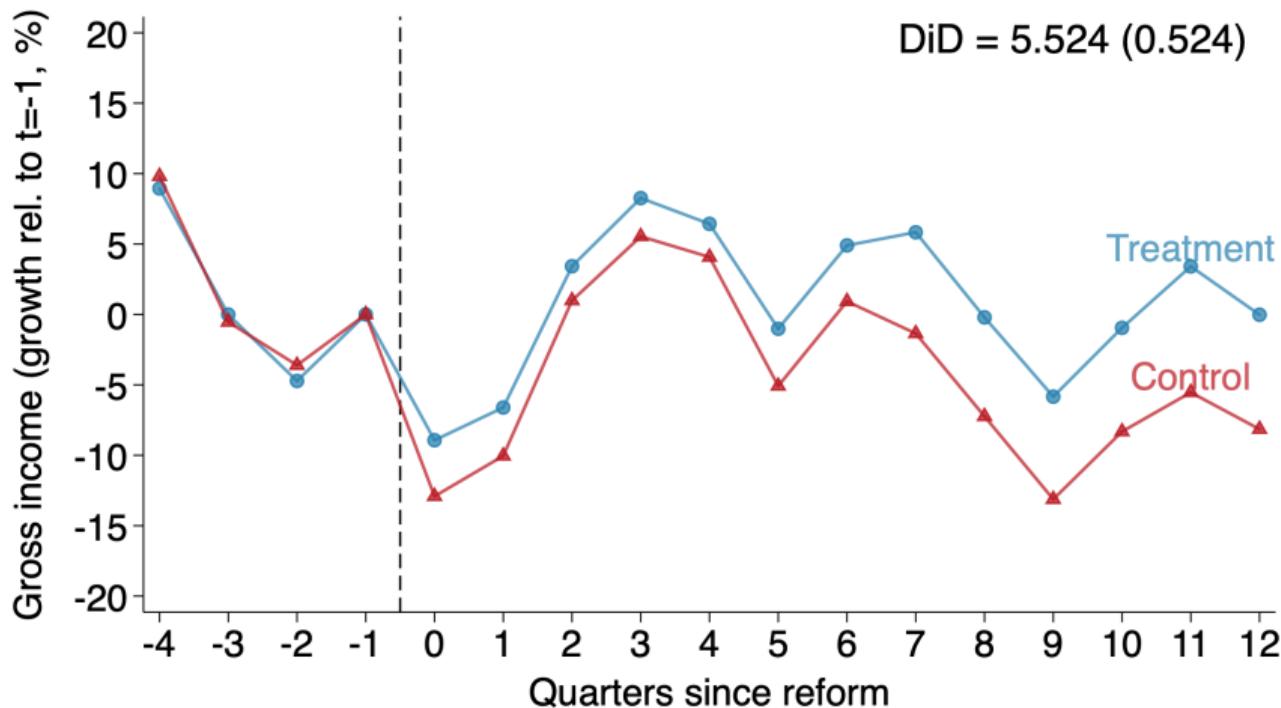
Response to an increase in withholding

Effect on self-reported sales (Levels)



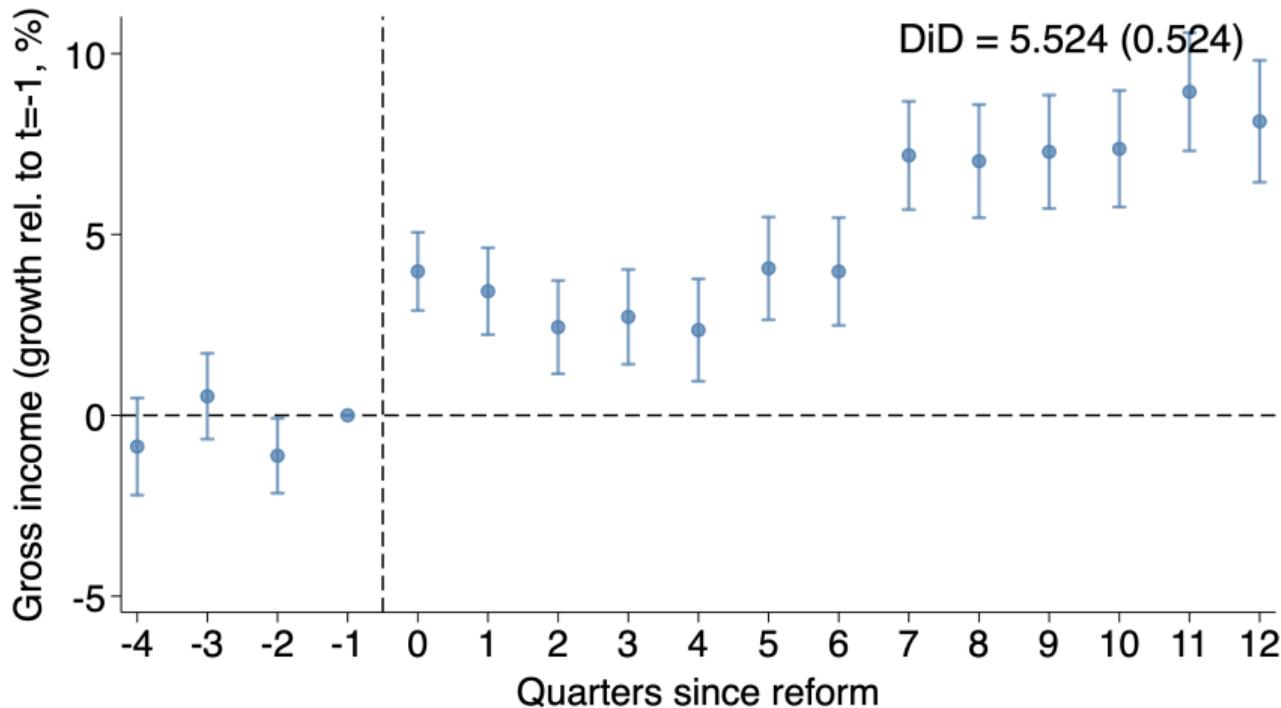
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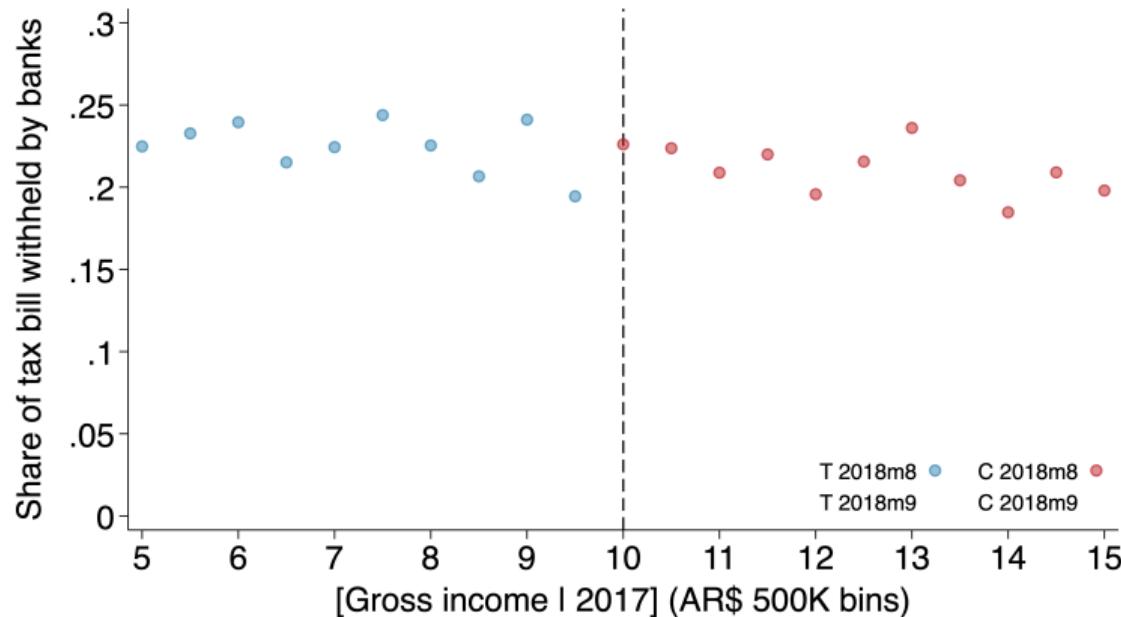
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Reform 2: Bank withholding waived for small taxpayers

Sep 2018: withholding by banks waived if [2017 sales < AR\\$10M](#)

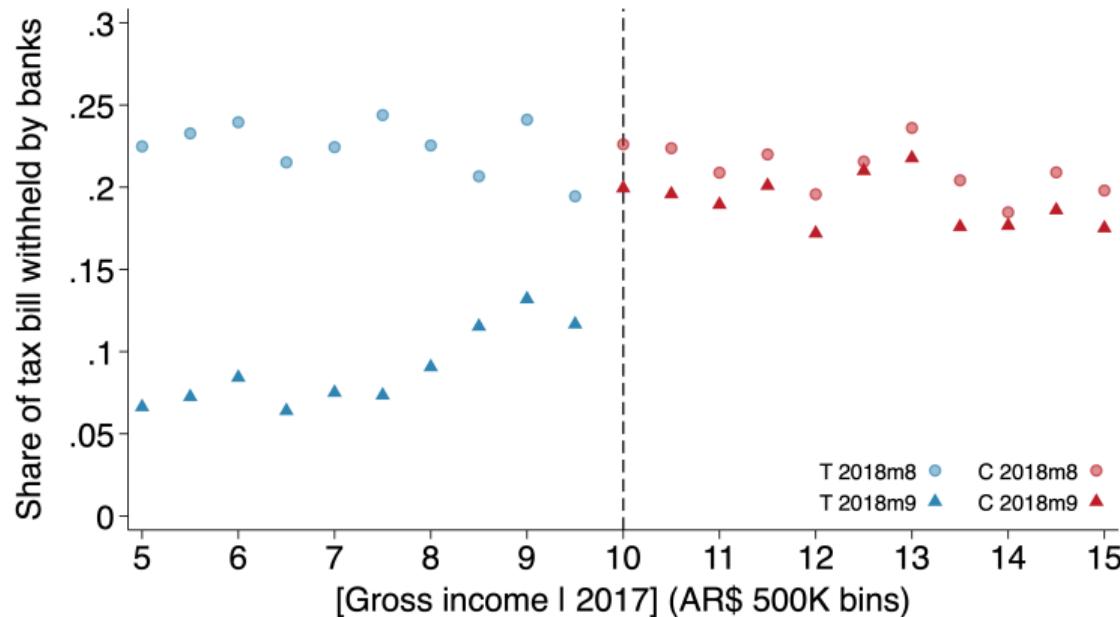
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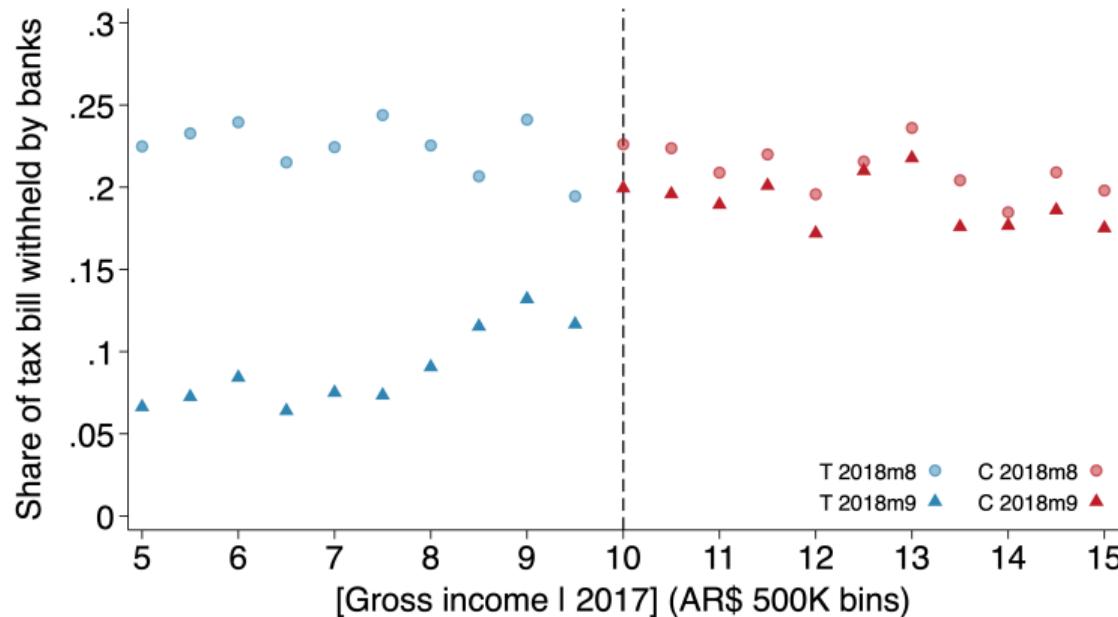
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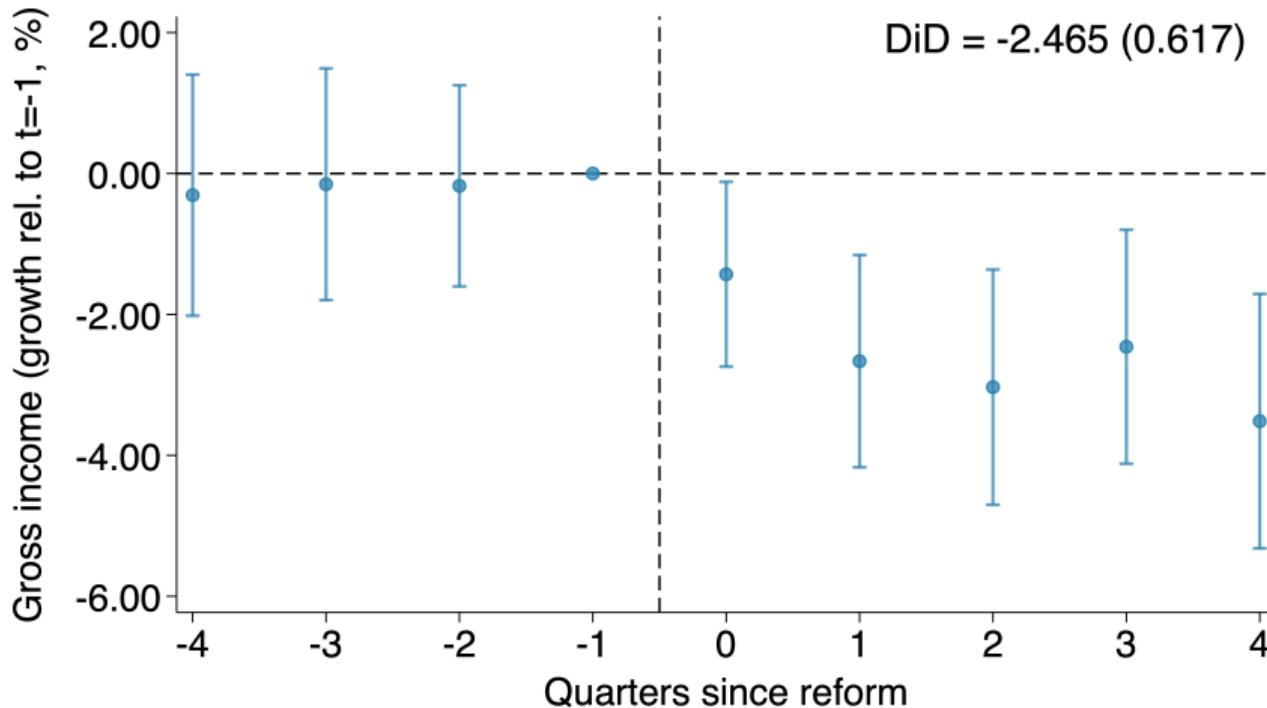
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Empirical strategy: Diff-in-Diff comparing firms below vs. firms above threshold [More info.](#)

Response to a decrease in withholding

Effect on self-reported sales (DiD)



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Taking stock of the **findings**

- ↑ coverage of withholding ⇒ ↑ self-reported sales and tax liability
 - Mechanism: withheld tax acts as a lower bound on tax liability 
- Firms appointed as CAs not affected by their new status 
- Government collects 10% more revenue 
- Appointing firms as tax collectors is a promising tax administration tool

More research needed to understand its **broader implications**

- Abusing of this policy tool can have negative consequences
- Example: differential treatment of firms from other districts
Higher withholding rates → over-withholding
- May lead to liquidity constraints and impact survival/long-term growth

Thank you!

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Appendix

Related literature

Tax compliance and enforcement

Standard tax compliance model: which side of a taxed market remits is irrelevant, it affects the timing of tax remitted but not its amount

Remittance matters because avoidance/evasion opportunities differ across agents

[Slemrod \(2008\)](#), [Slemrod \(2019\)](#), and [Slemrod and Yitzhaki \(2002\)](#)

Modern tax systems

Firms play a crucial role: less costly to enforce taxes if there are fewer units to monitor, and if there is third-party reporting

[Kopczuk and Slemrod \(2006\)](#), [Pomeranz \(2015\)](#), and [Carrillo et al. \(2017\)](#)

Withholding of indirect taxes

No remittance invariance: revenue increases when tax collection is moved upstream

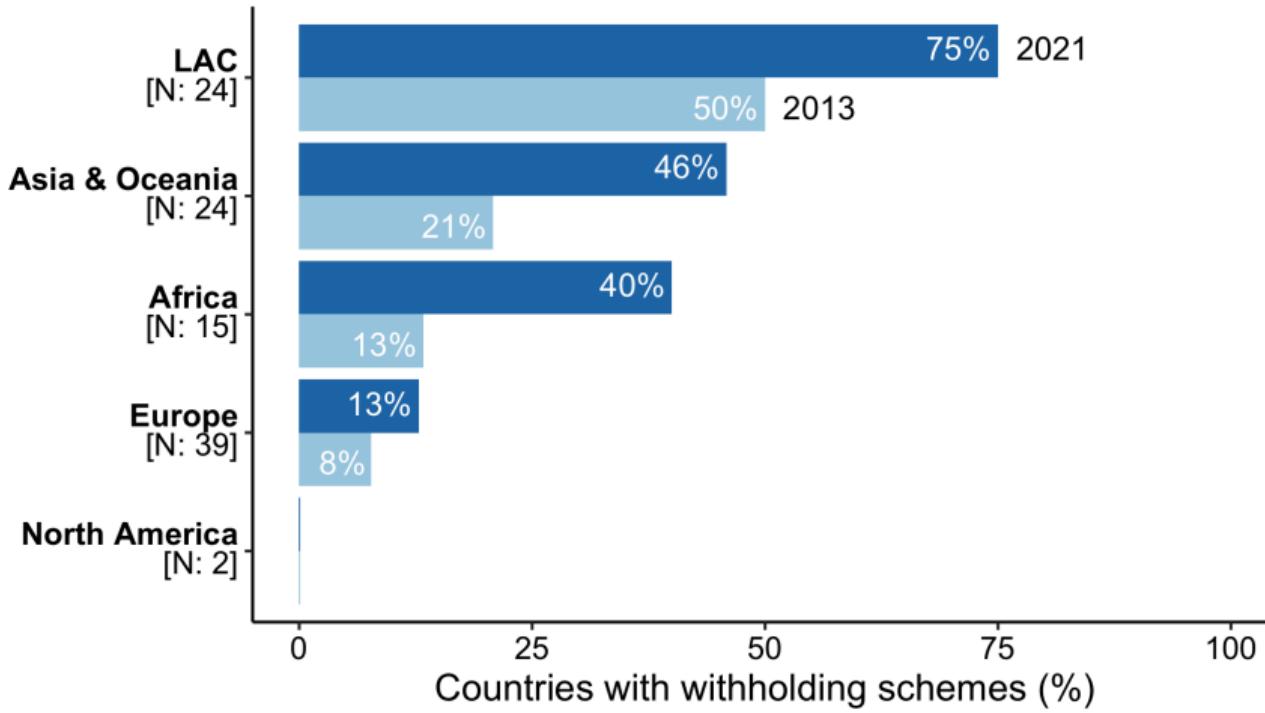
Mechanisms: default payment, enforcement perc., withholding as a lower bound

[Kopczuk, Marion, et al. \(2016\)](#), [Brockmeyer and Hernandez \(2019\)](#), and [Waseem \(2020\)](#)



Prevalence of withholding

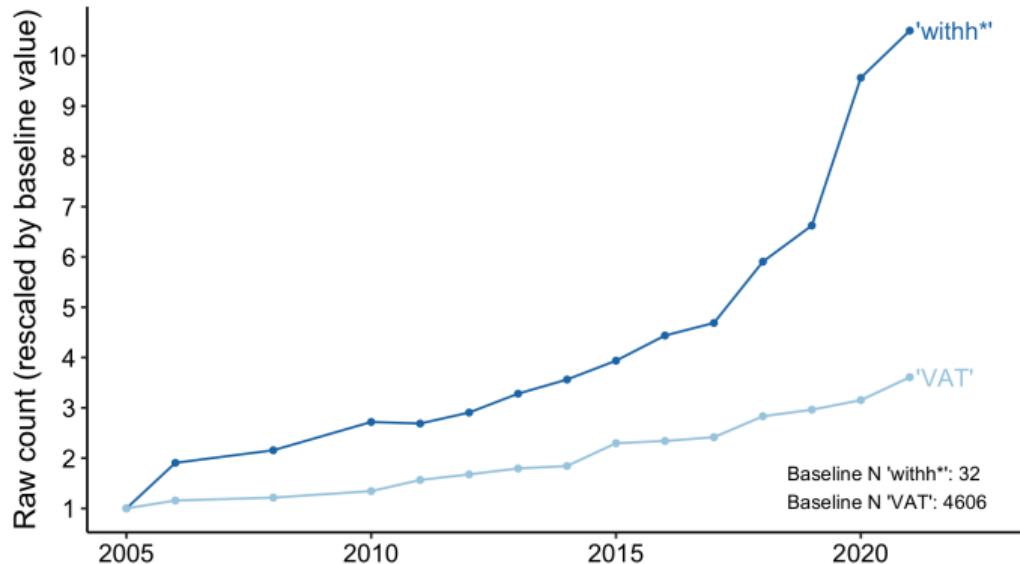
Withholding of indirect taxes by region



Text analysis

- Text analysis of EY's reports:
 - Match strings containing "withh*" (e.g., "withholding, withheld, withhold", etc.)
 - Split into country chapters where possible (2013 onwards)
 - Binary indicator if a country's chapter contains any matching strings
- There's a sharp increase in the number of matches over time

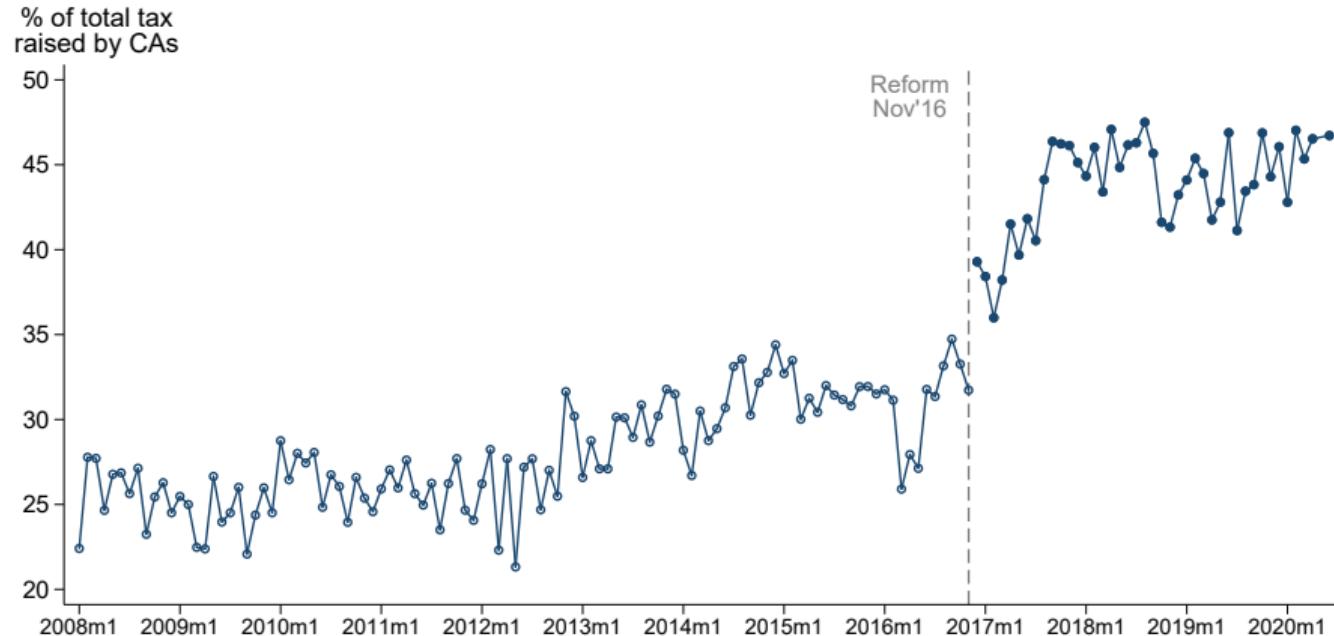
Number of matches per document:
"withh*" vs "VAT" (used as benchmark)



Macro evidence

Share of tax withheld

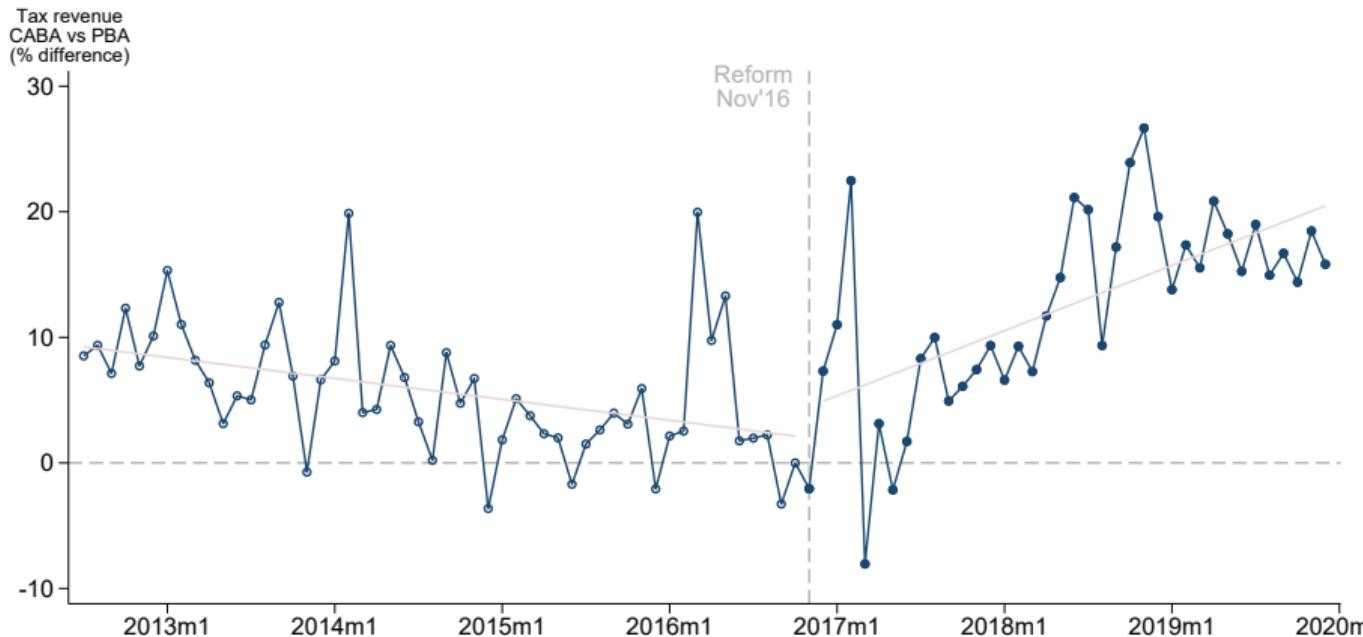
Increase in share of tax withheld by CAs



Macro evidence

Tax revenue

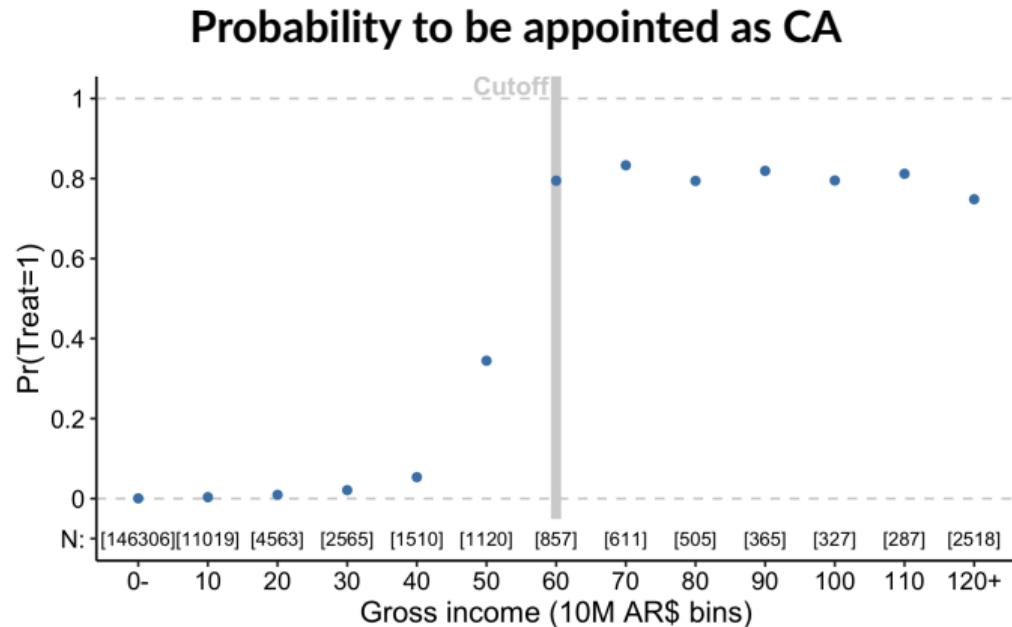
Increase in tax revenue (relative to a comparable district)



Response to appointment as CA

Empirical strategy and first-stage

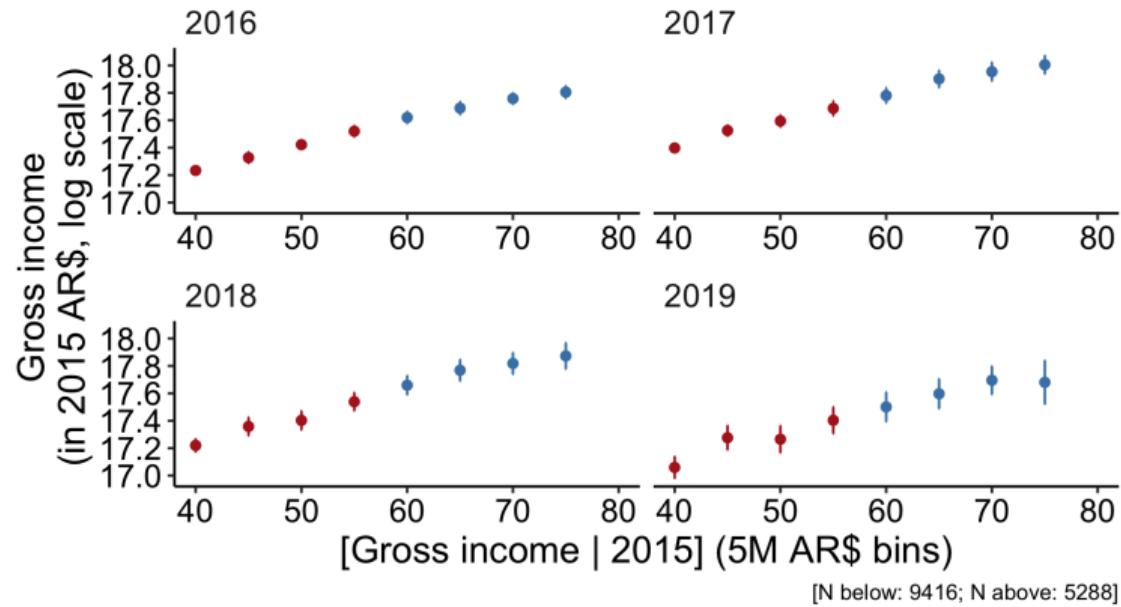
- **Nov 2016:** large firms appointed to collect taxes on behalf of clients/suppliers
- **Rule:**
2015 annual sales > AR\$60M
- **RDD:**
Compare sales of firms close to the AR\$60M cutoff
- Sales as proxy for commercial activity



Response to appointment as CA

Reduced-form

Gross income growth



Response to appointment as CA

Interpretation of results

- CAs activity does not seem to be affected
- **Explanation:** These are **large/formal firms**
- Cash-flow benefit: small upside since it is short term and large firms are probably not financially constrained
- Administrative burden: may not be too high as these firms are likely to have streamlined accounting practices
- Scrutiny from govt: does not induce higher compliance as they are already formal



Conceptual framework

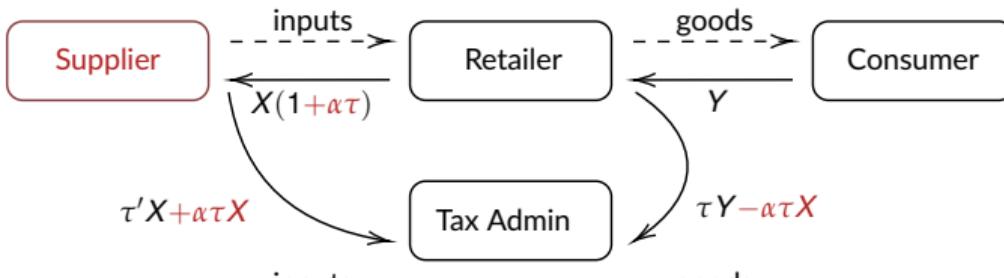
Direct payment

- $\tau'X, \tau Y$ self-reported



Withholding (Seller)

- Supplier now charges $X(1 + \alpha\tau)$ with $\alpha \in (0, 1)$
- Remits $\alpha\tau X$ to TA
- Retailer only owes $\tau Y - \alpha\tau X$



Withholding (Buyer)

- Retailer now pays $X(1 - \alpha\tau')$ with $\alpha \in (0, 1)$
- Remits $\alpha\tau'X$ to TA
- Supplier only owes $\tau'X - \alpha\tau'X$



[◀ Tax details](#)

Conceptual framework

Withholding through CAs implies **2 main changes on tax payments**

- **WHEN:** tax filing date (end of the month) vs in advance (at source)
- **WHO:** direct payment vs withheld amount remitted by 3rd party

Implications

- **For linked firms:**
 - Withheld amount is reclaimed automatically:
 - Signal of appropriate tax liability to declare (rule-of-thumb)
 - Lower-bound on self-reported sales and tax owed
 - Third-party information reporting (enforcement perceptions)
 - Might distort the choice of trade partners towards non CAs
- **For CAs:**
 - Administrative burden
 - “Cash-flow benefit”
 - Scrutiny from govt (enforcement perceptions)

Tax filing example

Mi Portal - Clave Fiscal ARBA No seguro | www10.arba.gov.ar/IBPresentaciones/detalleDJView.do#

Datos de la DJ	
Vencimiento	01/06/2020
Inicio	02/03/2021
Cierre	
Ingreso año anterior	\$ 114.926,00
Resumen de totales	
Gravados	\$ 3.500,00
No gravados	\$ 0,00
Exentos/Gravados Tasa 0 %	\$ 0,00
Deducciones declaradas por los agentes	\$ 104,00
Deducciones declaradas por el contribuyente	\$ 104,00
Compensaciones	\$ 0,00
Impuesto determinado de periodo	\$ 466,00
Monto imponible declarado total	\$ 3.500,00

Withheld tax

Tax liability

Volver Eliminar Enviar Imprimir resumen

Tax filing example

Mi Portal - Clave Fiscal ARBA

No seguro | www10.arba.gov.ar/IBPresentaciones/preCerrarDJ.do

CUIT:
Razón social:
Nro comprobante:

Año - Periodo:
Régimen:
Tipo de DJ:

Datos de la DJ

Impuesto determinado o monto mínimo	\$ 466,00
Deducción Art. 208 CF (T.O. 2011)	\$ 0,00
Saldo a favor anterior	Ingrese saldo y recalcule \$ 0,00
Pagos a cuenta registrados(Original)/RFOCB	\$ 0,00
Crédito fiscal COPRET	\$ 0,00
Honorarios profesionales (posterior Año 2003)	\$ 0,00
Crédito por pago CIC	\$ 0,00
Deducciones	\$ 104,00
Compensaciones	\$ 0,00
SALDO A FAVOR DE ARBA	\$ 362,00
Monto no gravado	\$ 0,00

Tax liability

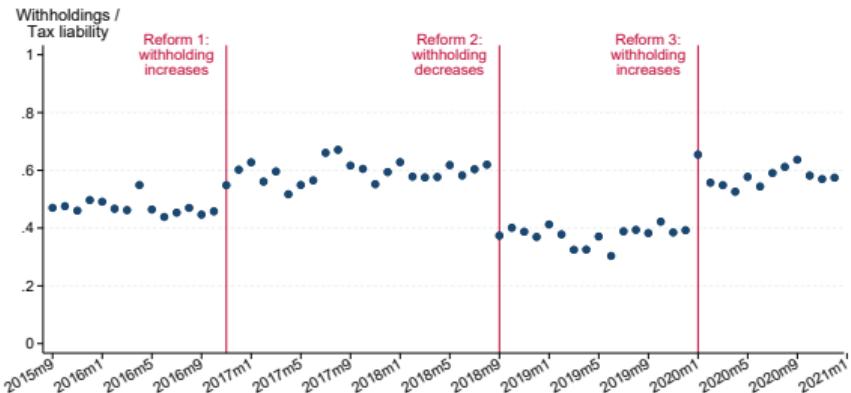
Withheld tax

Outstanding balance

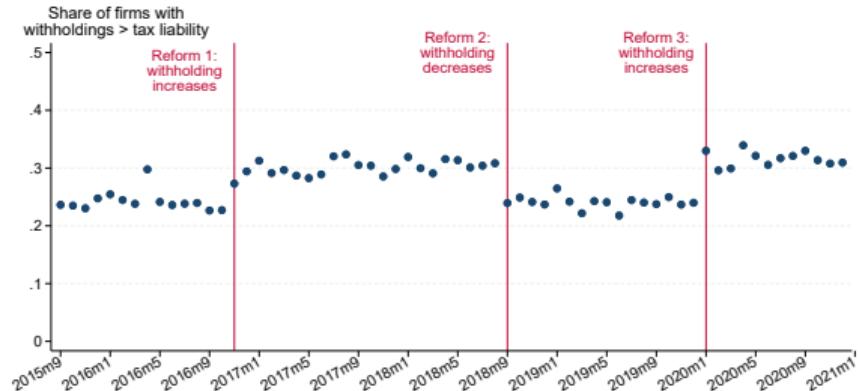
Documenting the reforms with raw data

Tax withholdings versus tax liability

Share of withholding to liability (median)



Share of firms overwithheld



- R1: ↑ withholding explained by a combined extensive- and intensive-margin increase of reverse withholding in the purchase of inputs
- R2: ↓ withholding driven by an extensive-margin decrease in bank withholding.

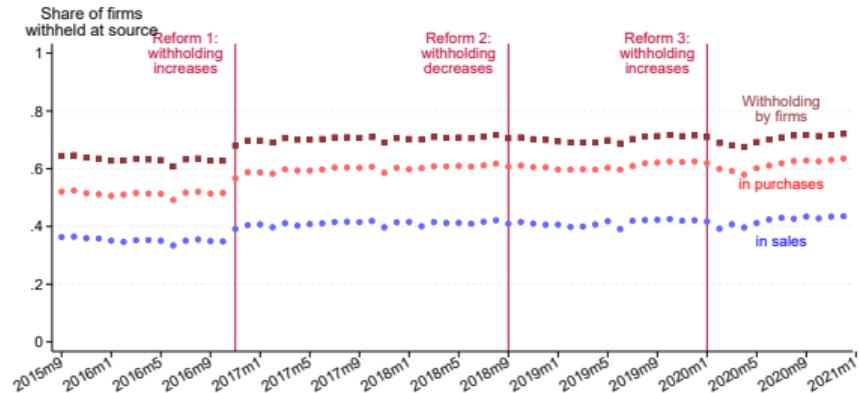
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Tax withholdings: extensive margin

Share of withheld firms per month



Withholding in sales and purchases



Documenting the reforms with raw data

Tax withholdings: intensive margin

Withholding by commercial partners



Withholding from banks



Summary Statistics

Firm statistics (Jan–Oct 2016)

	N firms	Gross revenue				Tax liability			
		p5	p50	mean	p95	p5	p50	mean	p95
<i>Panel A: Full sample</i>									
Firms	183,503	0	42	249	1,052	0	1	6	28
Collection agents	9,366	3	2,757	19,209	39,947	0	85	942	1,451
<i>Panel B: Estimating sample</i>									
Firms	80,208	7	123	415	1,664	0	3	11	45

Withholding statistics (Sep 2016)

	N Firms	Withheld firms		Withholdings / Tax liability					
		share	p5	p50	p75	p95	mean		
Total withholding	132,897	0.806	0.029	0.434	0.969	2.643	0.770		
<i>By type of withholding:</i>									
Sales to CAs	132,897	0.351	0	0	0.188	1.094	0.256		
Purchases from CAs	132,897	0.514	0	0.002	0.116	0.923	0.214		
Bank deposits	132,897	0.473	0	0	0.280	1.373	0.279		

Main reform: more details

Nov 2016 reform

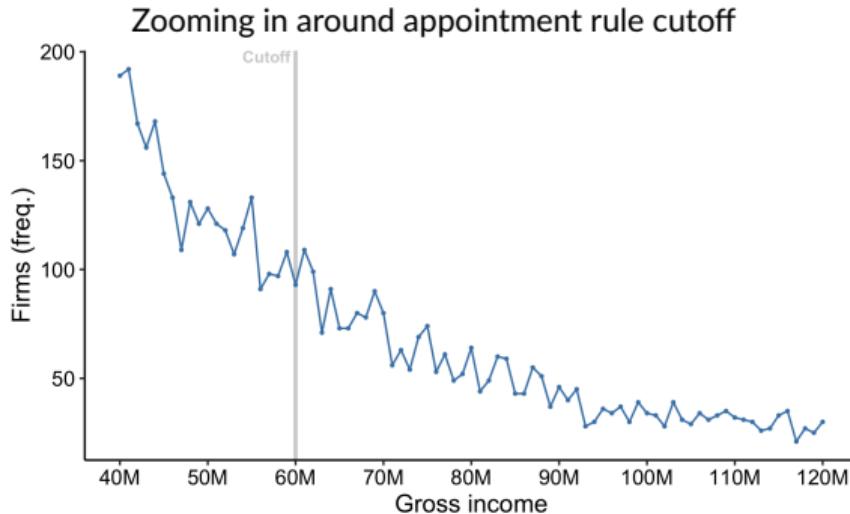
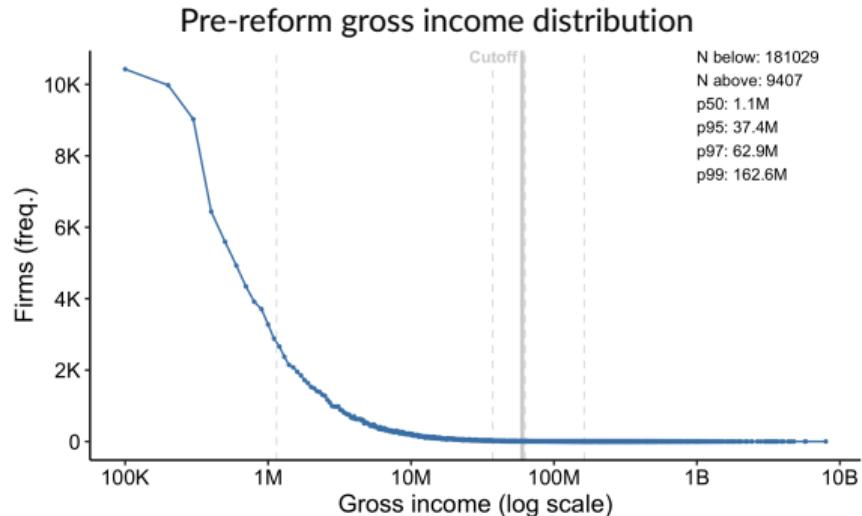
- **Appointment rule:** firms enrolled as CAs if **2015 annual sales > AR\$60M**
- Appointment was binding, firms were not allowed to opt out
- Firms in some industries were included/excluded regardless of size
- One time policy, no further implementations of the rule beyond Nov 2016

Implications for CAs

- **Pros:** Cash-flow benefit (short term, monthly remittance)
- **Cons:** Administrative burden (manage other's taxes), scrutiny from govt (comply with more rules)



Firm size distribution



Notes: Gross income bins of size 100K and 1M AR\$ ($\sim 8K$ and $\sim 80K$ \$), respectively; "Cutoff" indicates the location of income threshold; Dashed lines indicate p50, p95, p97, p99, respectively; Showing relevant part of support in each plot.



Empirical strategy

$$y_{it} = \sum_{\tau=-q}^{-1} \delta_\tau \cdot D_{i\tau} + \sum_{\tau=0}^m \beta_\tau \cdot D_{i\tau} + \theta_i + \varepsilon_{it}$$

- i indexes firms and t calendar-quarters
- $D_{i\tau}$: event-study indicator for each quarter relative to the baseline period
 - Baseline period: Nov16-Jan17
- θ_i firm FE
- SE clustered by firm
- Balanced panel of firms



Identification

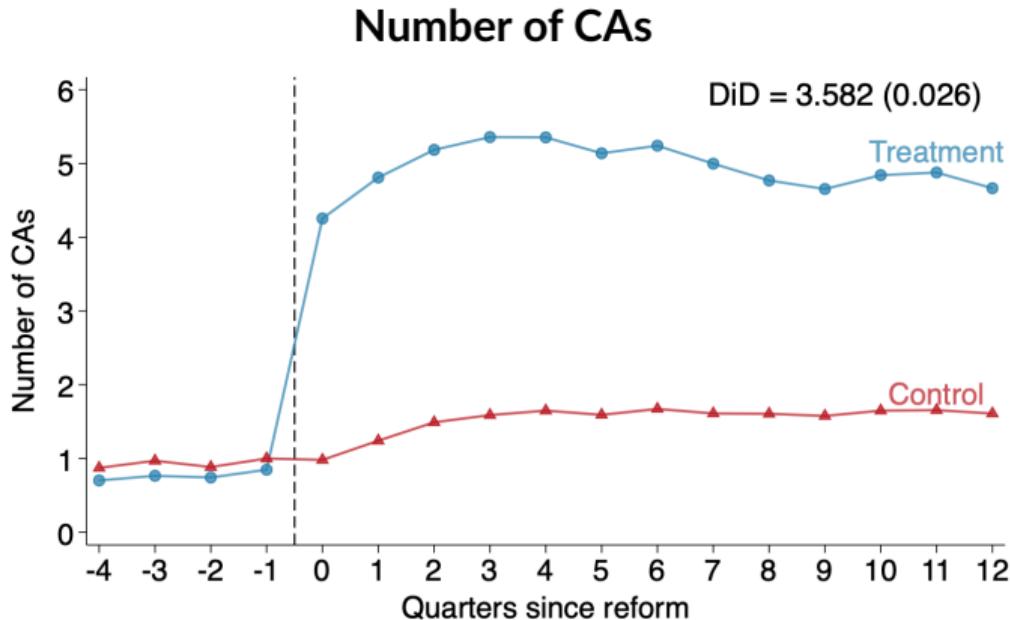
- At least one firm has to be CA to observe commercial links
- Firms connected to new CAs, November 2016 or later
- Assume links are stable within the first 6-months after reform
- **Construct T and C based on observed links between Nov 16-Apr 17**
- Short-run churning → measurement error in the assignment to T and C



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Linkages persist beyond 6-months of the reform:

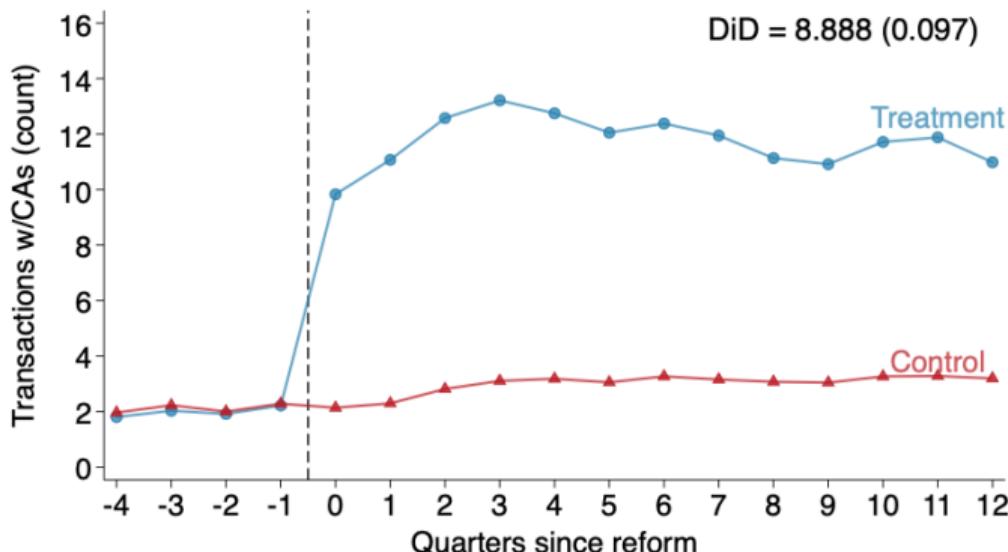


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Linkages persist beyond 6-months of the reform:

No. of transactions with CAs

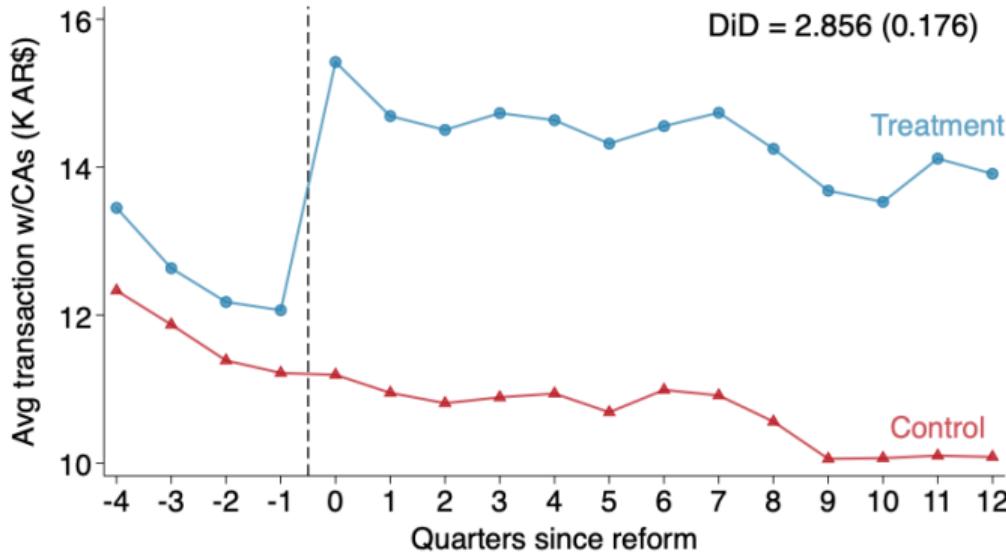


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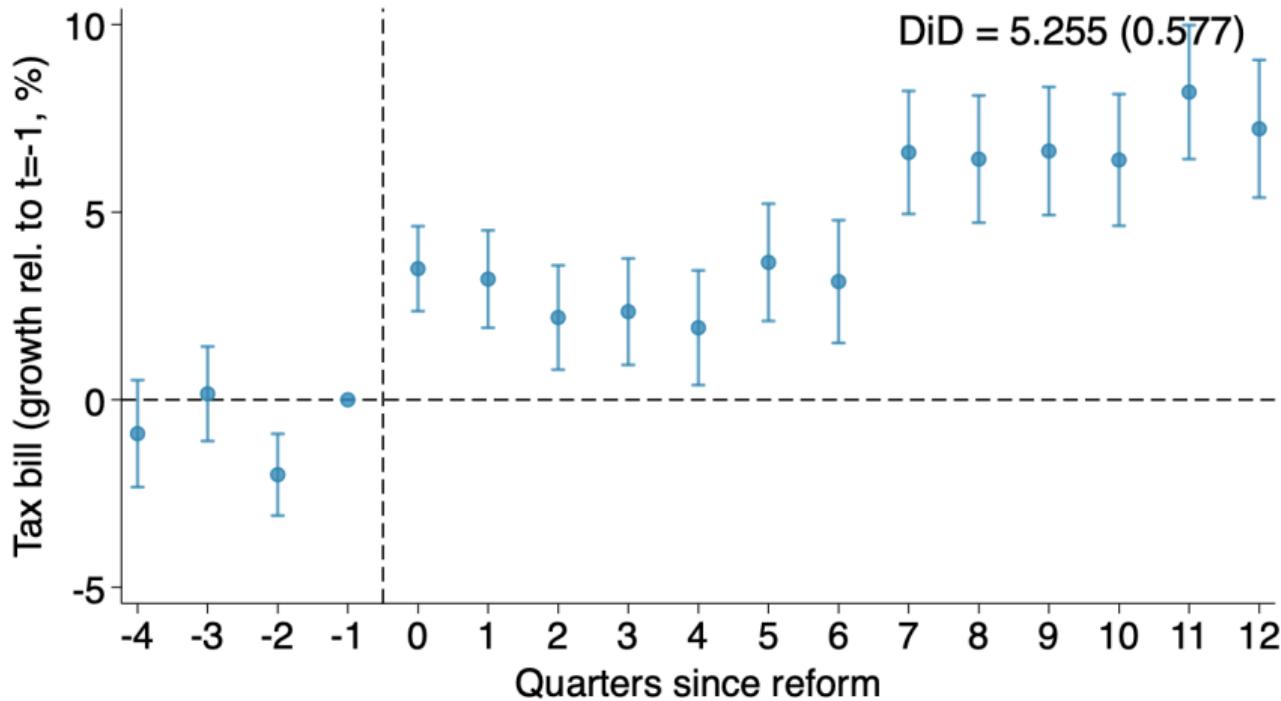
Linkages persist beyond 6-months of the reform:

Avg. transaction amt. with CAs



Response to an increase in withholding

Effect on Tax liability (DiD)



Empirical strategy and First Stage

Goal: Analyze the response of taxpayers when banks stop withholding taxes from them

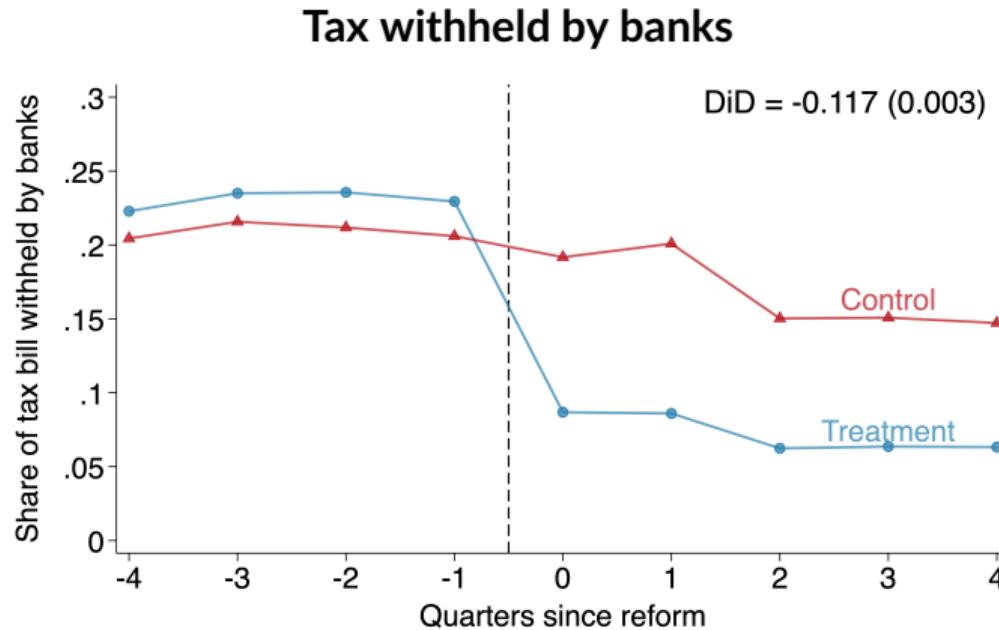
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✗ bank withholding in Sep 18

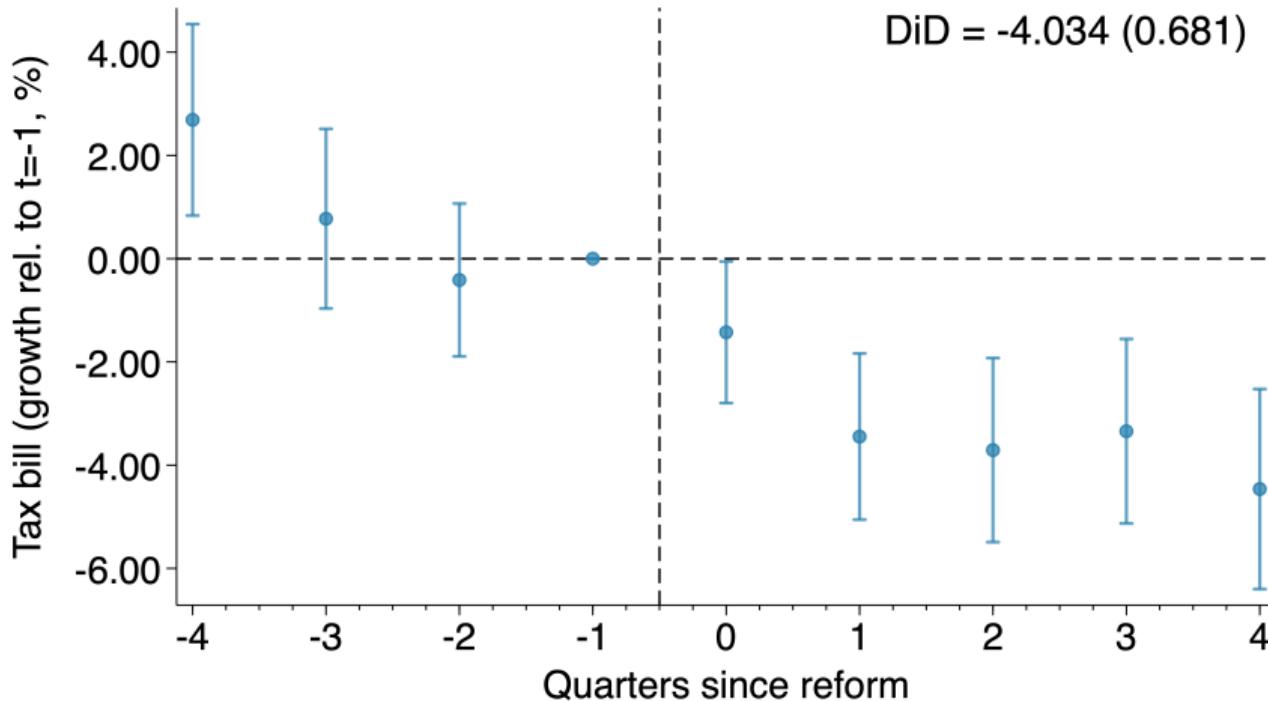
Treatment: firm size AR\$5M-10M

↓ bank withholding in Sep 18



Response to a decrease in withholding

Effect on Tax liability (DiD)



Mechanisms

Withheld amount as lower bound

- Negative tax liability (withheld amount > tax liability) may trigger an audit
- If firm was initially underreporting and ↑ withholding
⇒ avoid negative tax liability by ↑ self-reported sales
- Additionally: bunching at tax liability = withholdings
⇒ suggests firms are targeting the withheld value when filing

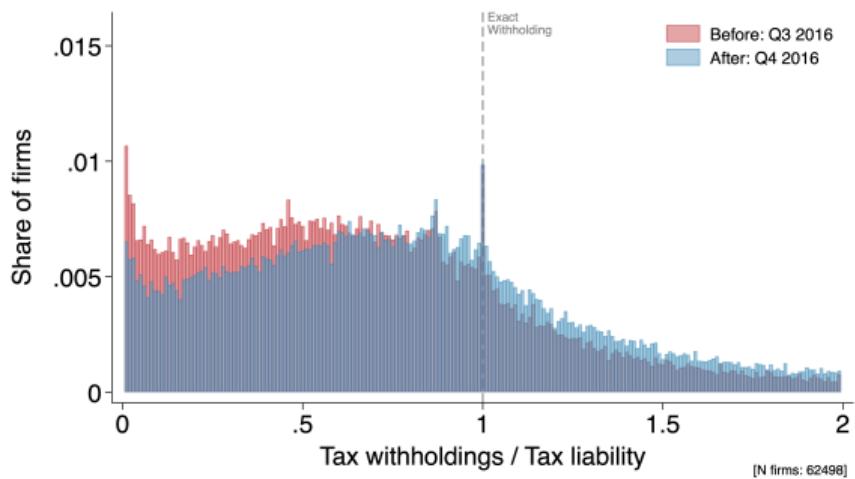
Why not 3rd party info and enforcement perceptions?

- Prior to Reform 2: 3rd party info available
- After Reform 2: ↓ self-reported sales even though information that has already been revealed and enforcement perceptions are in place

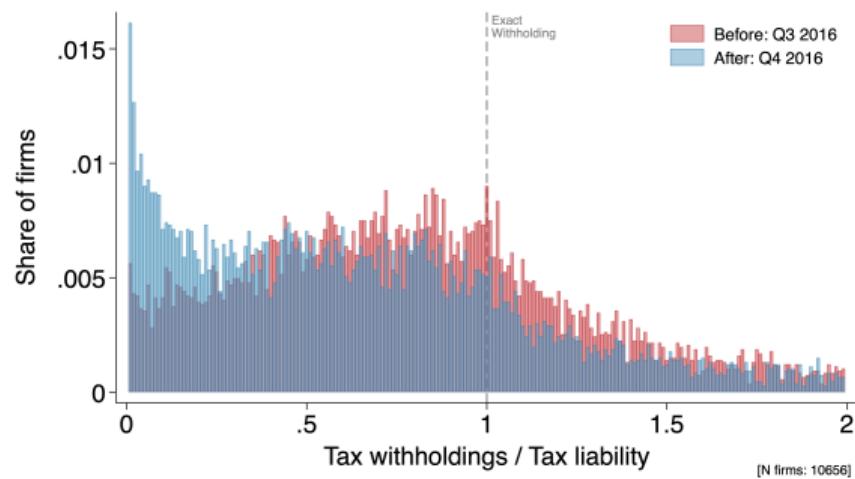


Mechanisms: Evidence of bunching

Reform 1

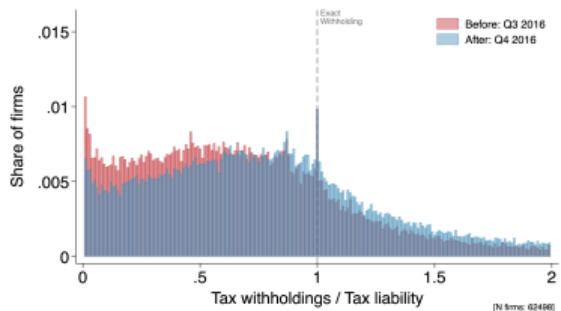


Reform 2

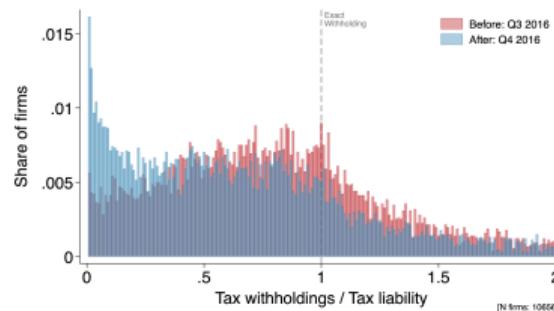


Mechanisms: Evidence of bunching

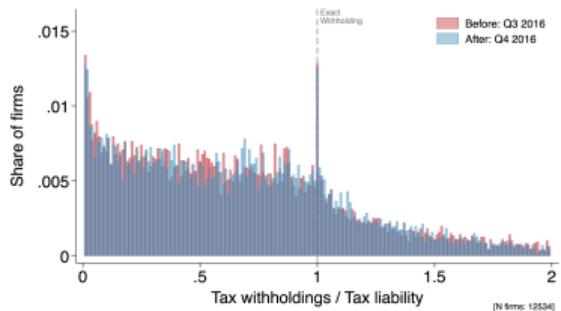
R1: Treated



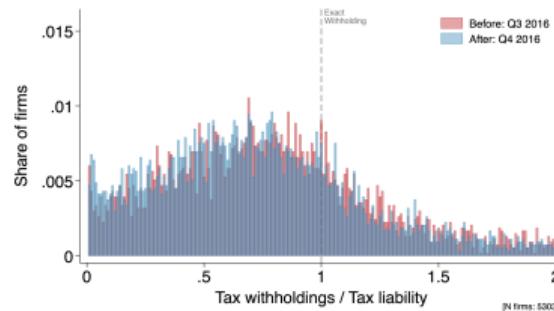
R2: Treated



R1: Control



R2: Control



Interpretation of results: Magnitudes

- How do the magnitudes compare relative to other papers?
- Waseem (2020): VAT base expansion to manufacturing sector
 - Reported sales ↑ 40%
 - Previously untaxed sector responds by ↑ sales to claim tax on inputs
- Brockmeyer and Hernandez (2019): sales tax withholding rate increase
 - Gross tax liability ↑ 20%
 - Change in enforcement perceptions, example: first-time withholdees
- Our paper: increase in the coverage of TT withholding
 - Reported sales ↑ 5%
 - Setting with high intensive- and low extensive-margin informality
(i.e., firms keep some transactions off the books)
 - Enforcement perception may be already high as VAT is in place

