

Firms as Tax Collectors

Pablo Garriga
World Bank

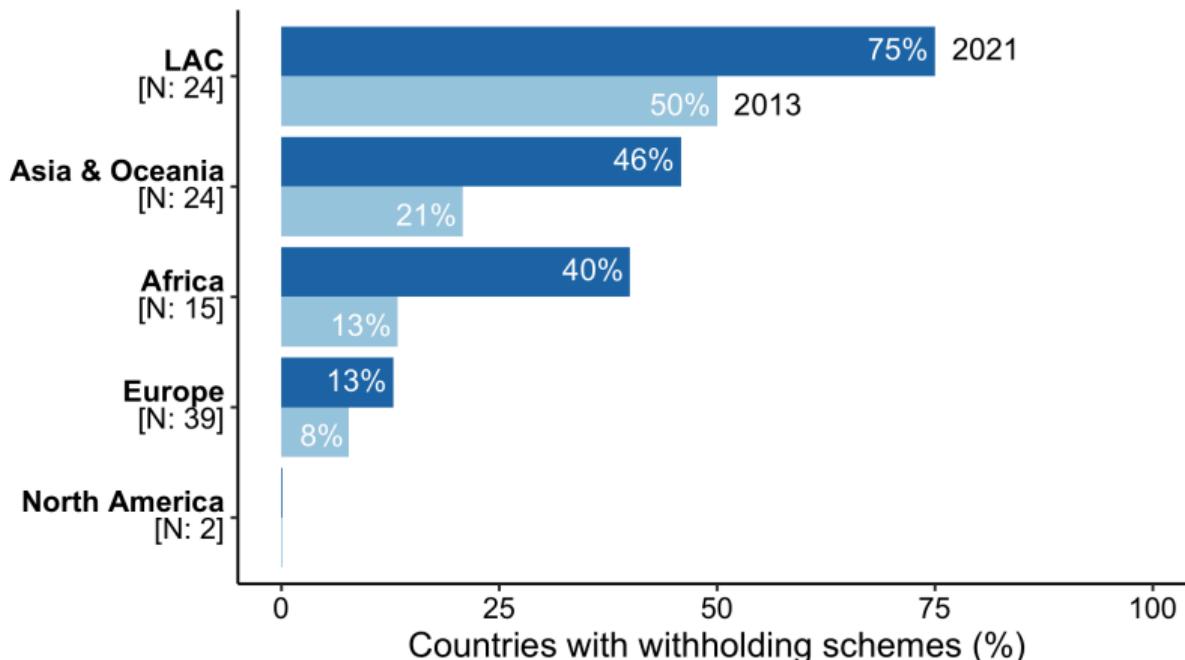
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- Govts in developing countries struggle to raise revenue and build tax capacity
 - ↑ taxes and/or ↓ non-compliance are standard tools
 - Yet achieving large-scale capacity requires fundamental transformations
 - Recent evidence of dramatic returns to improving tax administration (Basri et al., 2021)
- **Withholding systems** can help ease admin burden
 - Tax collection device where 3rd parties (large firms) collect/remit taxes on behalf of related parties (employees, firms)
 - Withholding of **personal income tax** is widespread (Besley and Persson, 2014)
 - Withholding of **indirect taxes** (VAT, sales, turnover) is increasingly used in developing countries, but remains largely understudied (Waseem, 2022; Brockmeyer and Hernandez, 2019)

Withholding of indirect taxes surged in many regions over the last years



Source: Own [Text analysis](#) on EY's 'Worldwide VAT, GST and Sales Tax Guide'

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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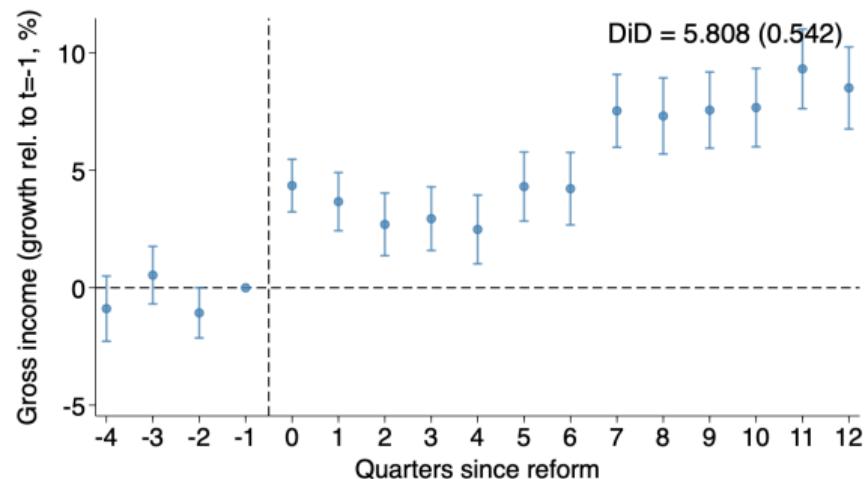
What we do:

- Exploit Δ in **turnover tax** collection system in the City of Buenos Aires
- Combine rich **admin tax data + two reforms** to the withholding system
 - Changed how the tax was collected, holding all else constant

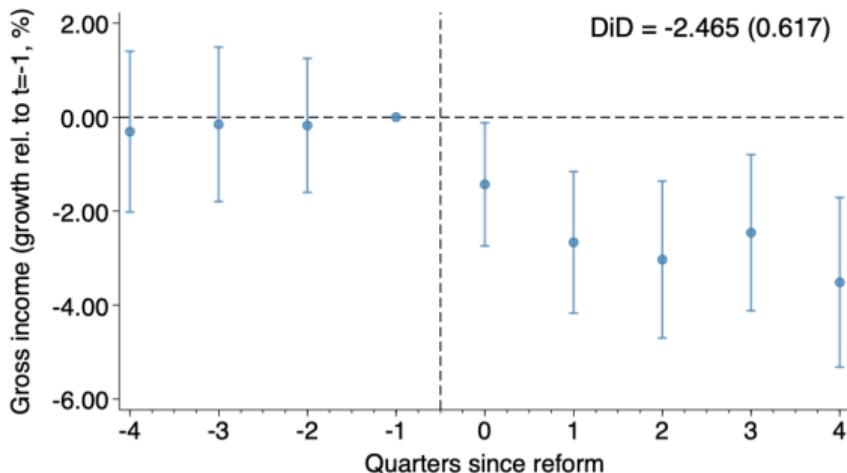
Preview of the findings

Changes in **tax collection** lead to sharp responses in taxpayer's self reported sales

↑ withholding \Rightarrow ↑ self reported sales



↓ withholding \Rightarrow ↓ self reported sales



Setting and Data

Subnational Turnover Tax

- Tax base: gross income (sales)
- Monthly electronic filing by taxpayer
- Collection methods: key source of variation
 1. Direct payments (self-reported sales)
 2. Withholding by collection agents (CAs) ← Reform 1
 3. Withholding by banks ← Reform 2

Outstanding balance = tax owed – amount withheld (if any)

Admin tax data

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

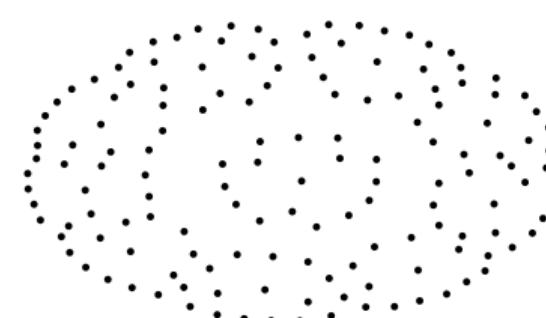
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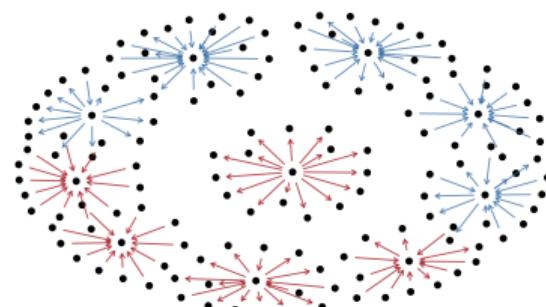
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Outline

Motivation

Setting and Data

Empirical Strategy and Results

Response to an \uparrow withholding

Response to a \downarrow withholding

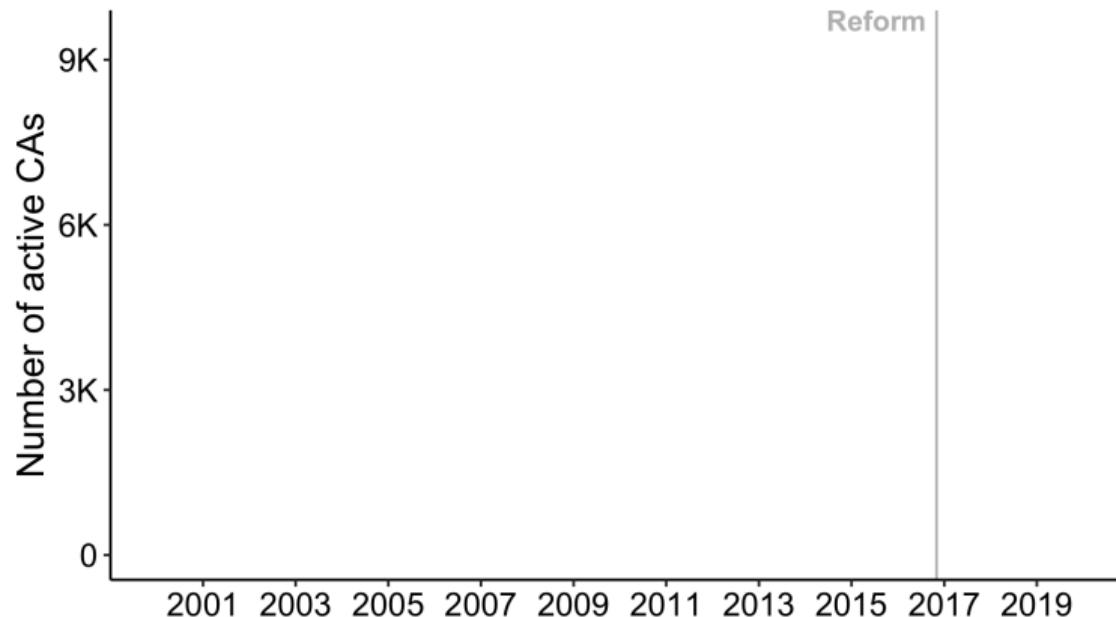
Interpretation of Results

Closing remarks

Reform 1: The net of tax collectors (CAs) doubled in size

[More details](#)

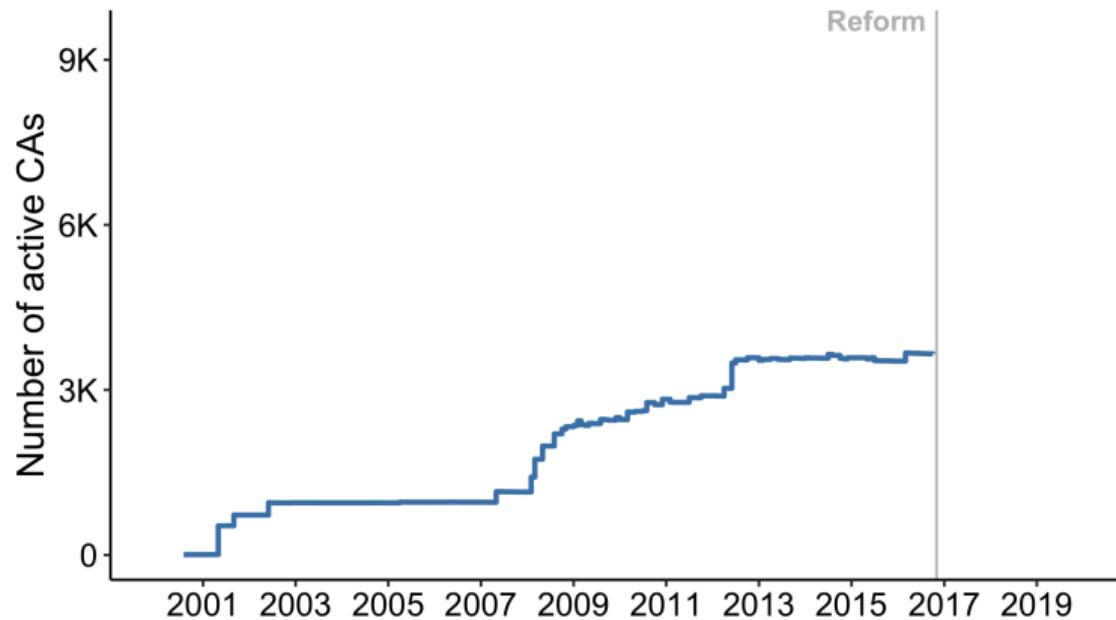
Nov 2016: firms appointed as CA if 2015 sales > AR\$60M (~97th ptile 



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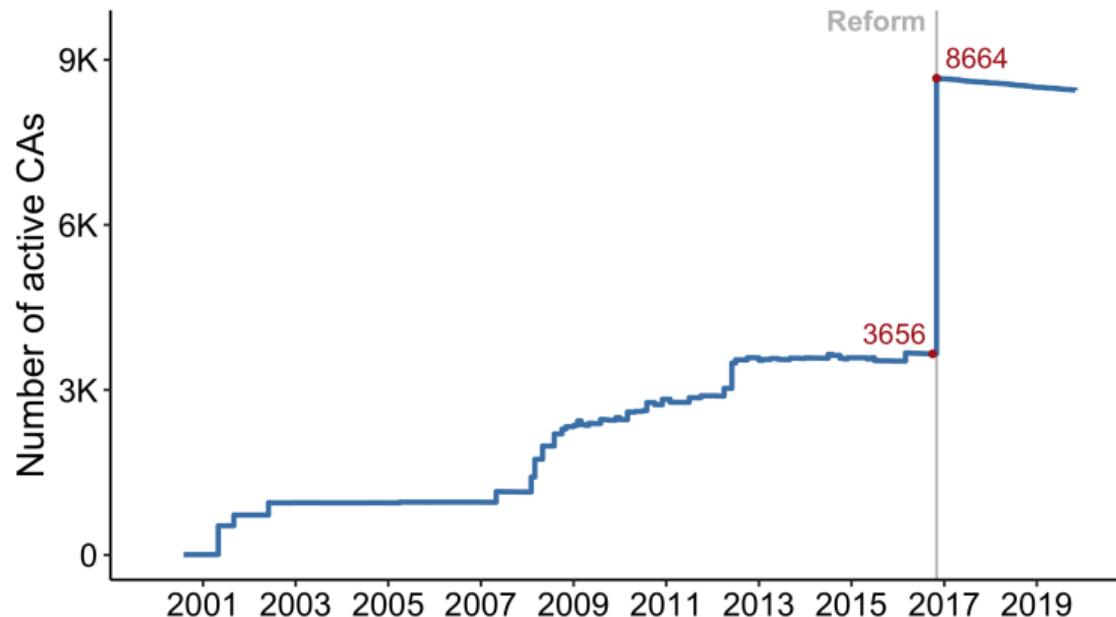
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Implication → more tax collected at source by CAs *in lieu* of direct payments

[Macro evidence](#)

Empirical Strategy and First Stage

- Goal: analyze taxpayers' responses to \uparrow in withholding
- **Diff-in-Diff** exploiting Δ in exposure to new CAs across taxpayers:

Control: linked to old CAs

\nexists # CAs in Nov 16

Treatment: linked to new CAs

\uparrow # CAs in Nov 16

► Reg. details

► Identification

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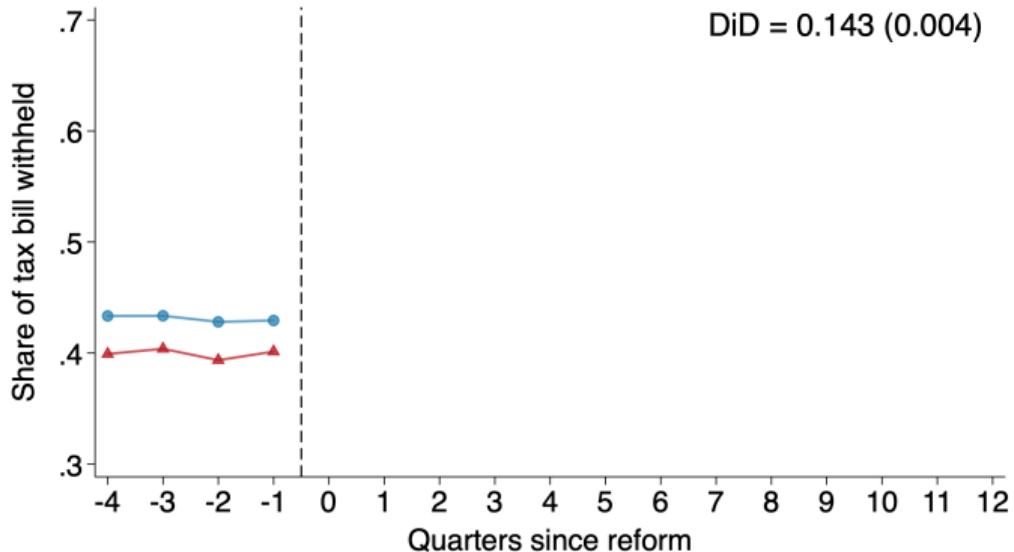
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Share of tax withheld by CAs

DiD = 0.143 (0.004)



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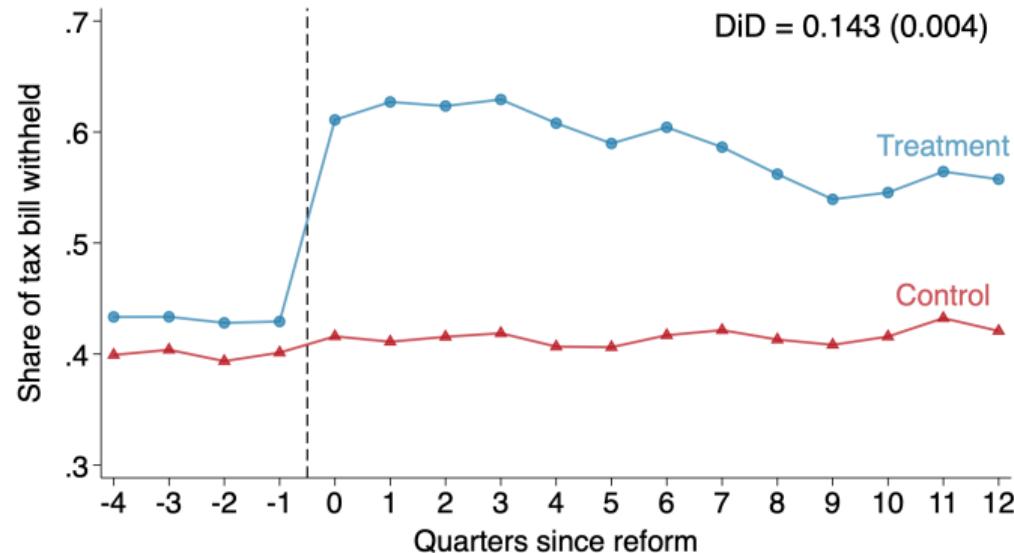
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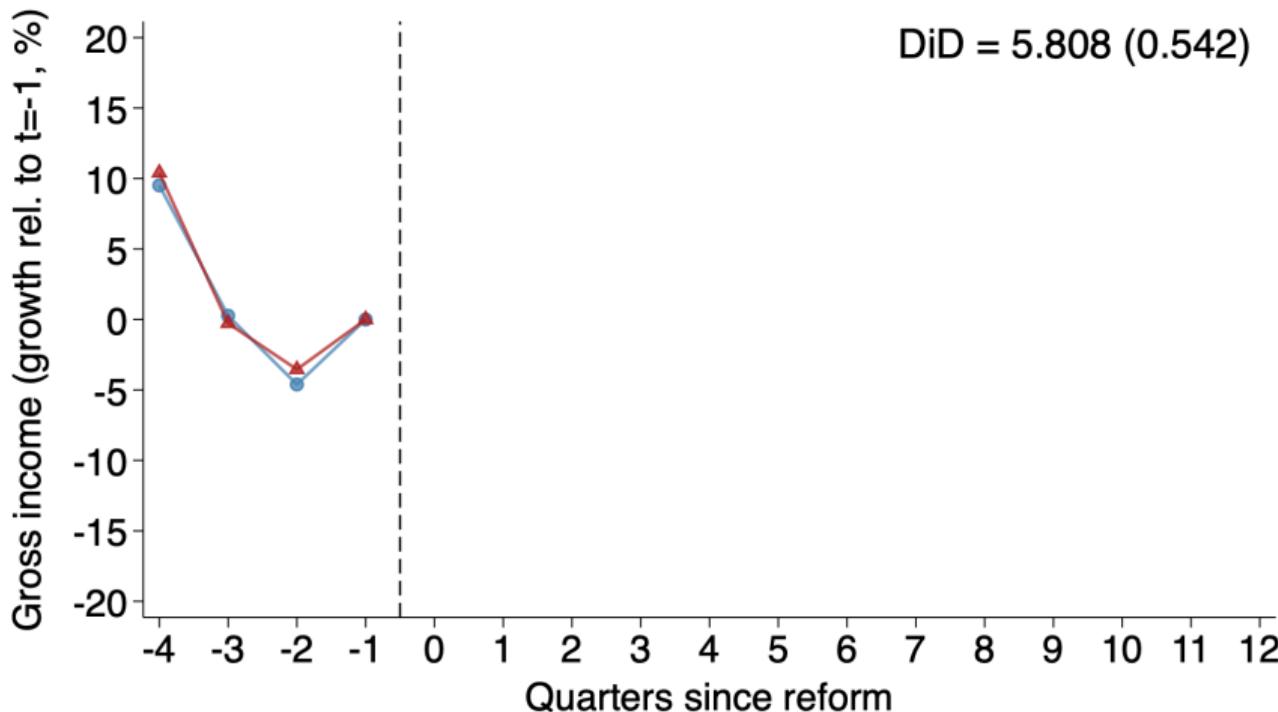
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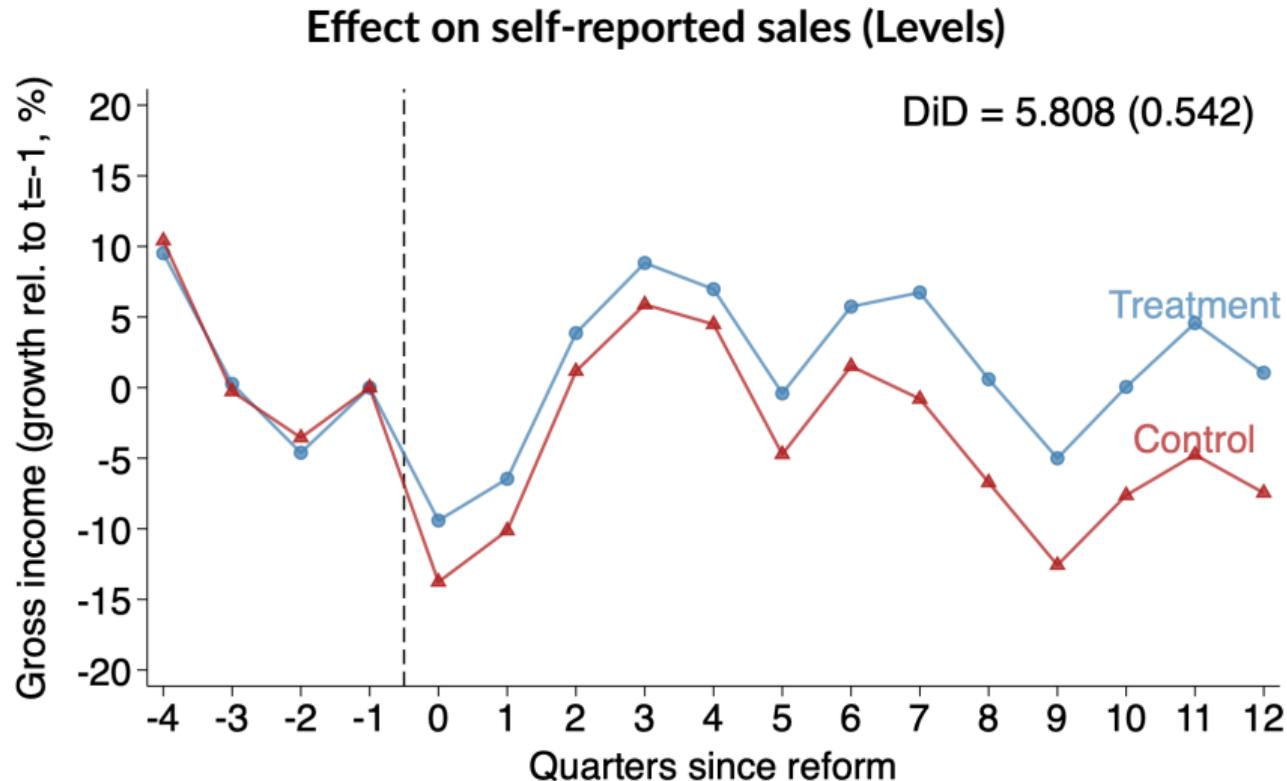


Self-reported sales \uparrow by 6 p.p. in response to 14.3 p.p. \uparrow in withholding

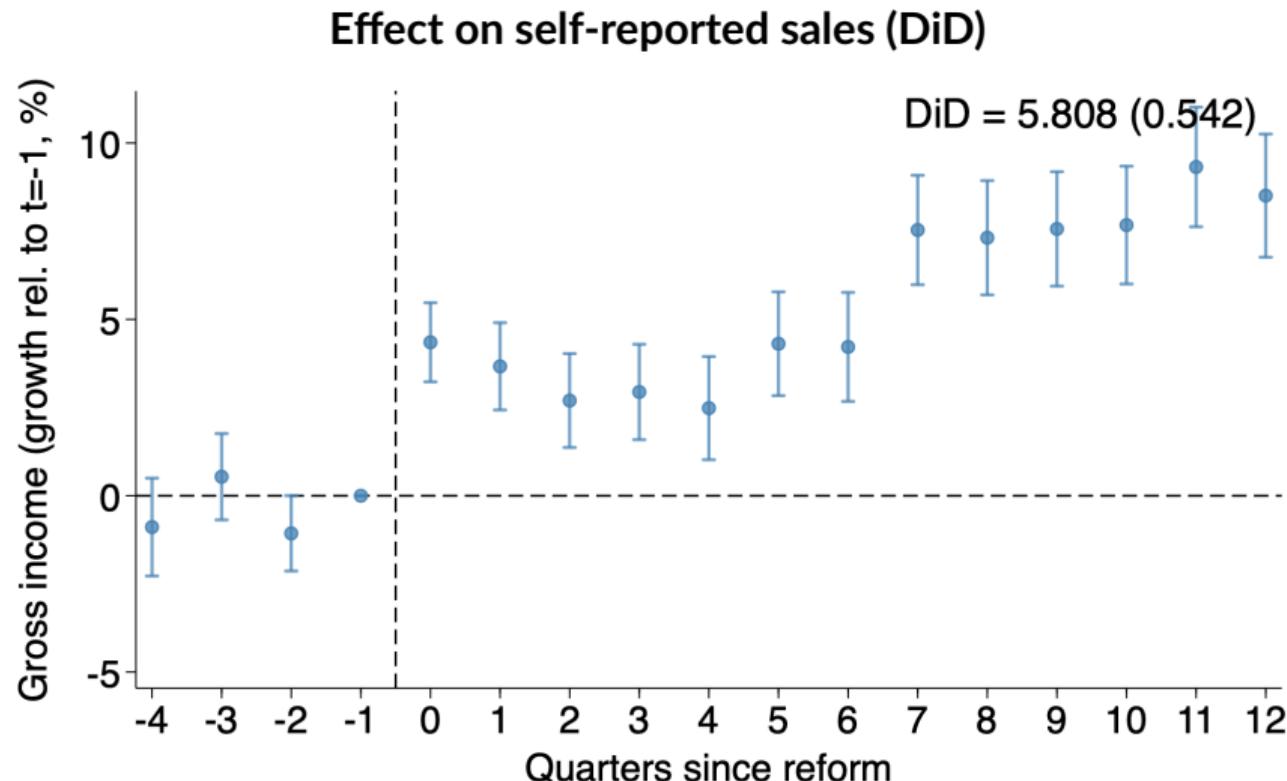
Sales growth evolves in parallel trends pre-reform



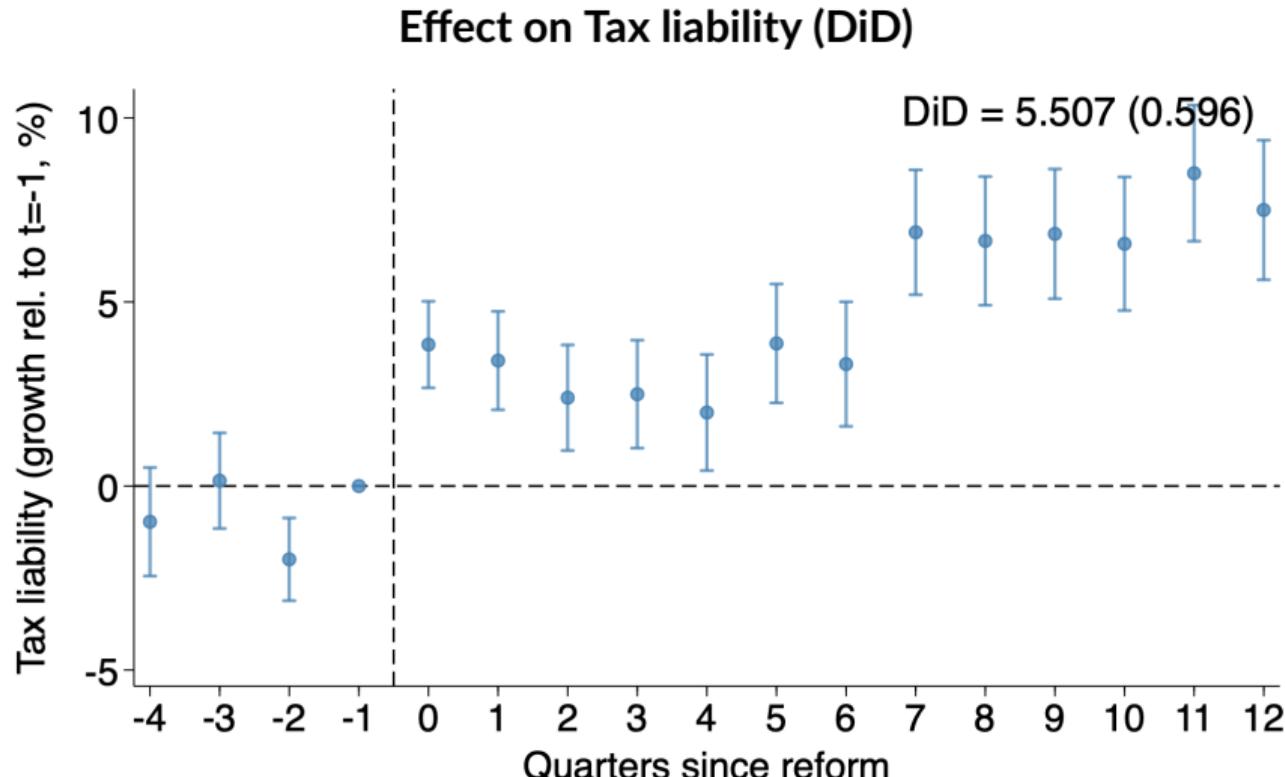
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Self-reported sales \uparrow by 6 p.p. in response to 14.3 p.p. \uparrow in withholding



In consequence, affected firms face higher taxes



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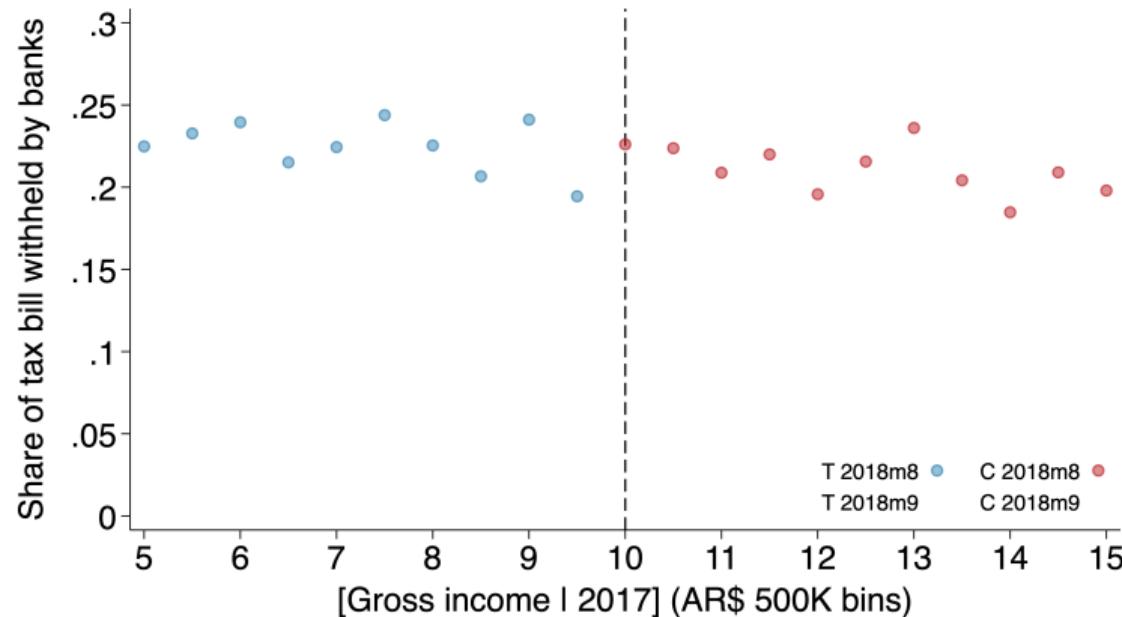
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Reform 2: Bank withholding fully waived for SMEs firms

Sep 2018: withholding by banks waived if 2017 sales < AR\$10M (~80th ptile)

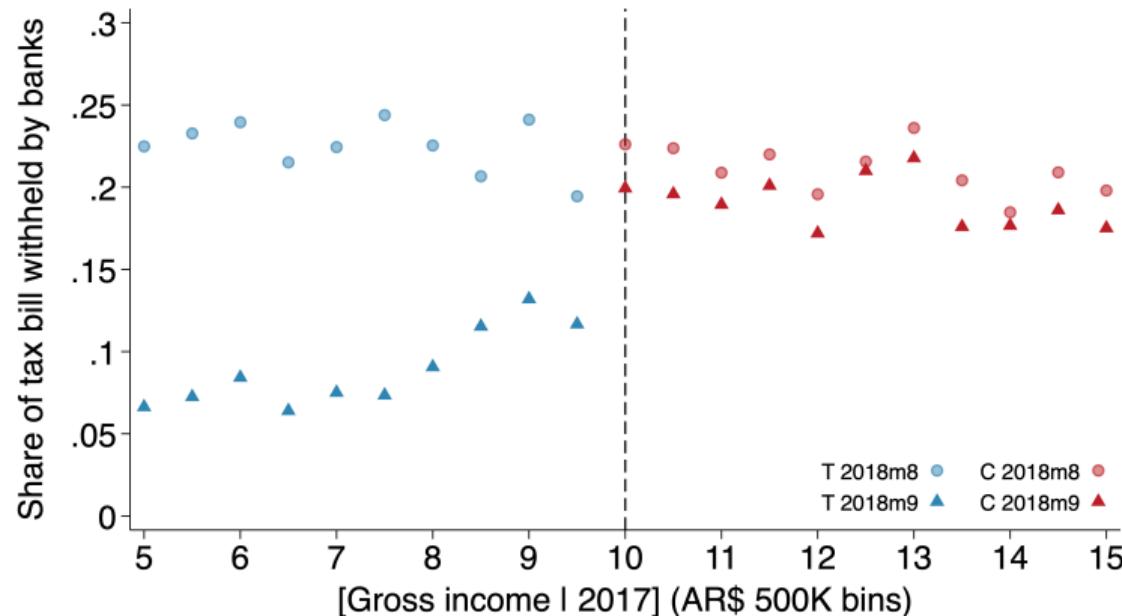
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Implication → decrease in tax withheld by banks for SMEs firms

Empirical Strategy and First Stage

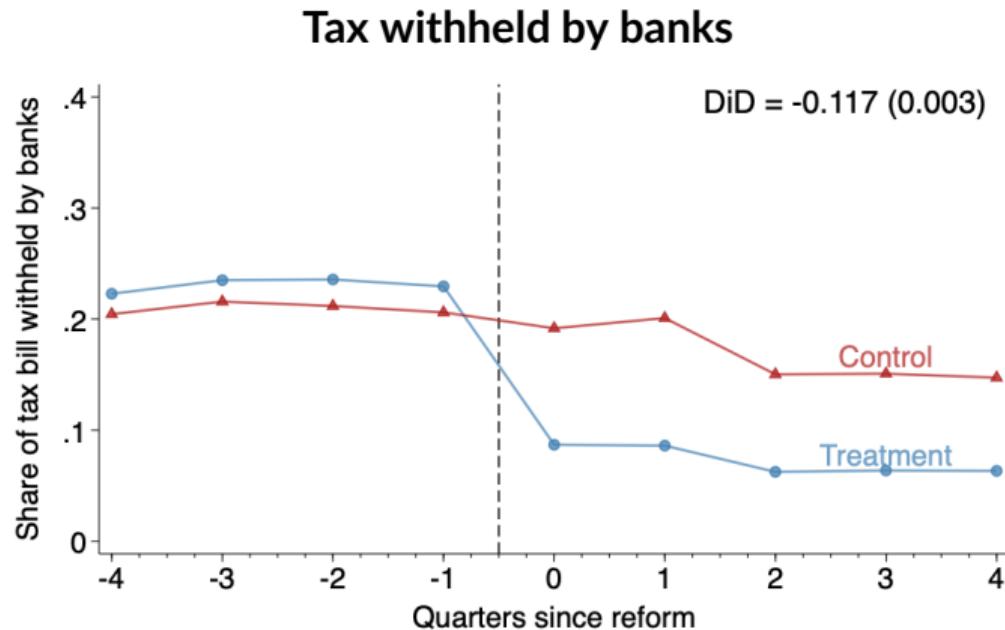
- Goal: analyze taxpayers' responses to ↓ in withholding
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Control: AR\$10M and 20M
✗ bank withholding in Sep 18

Treatment: AR\$5M and 10M
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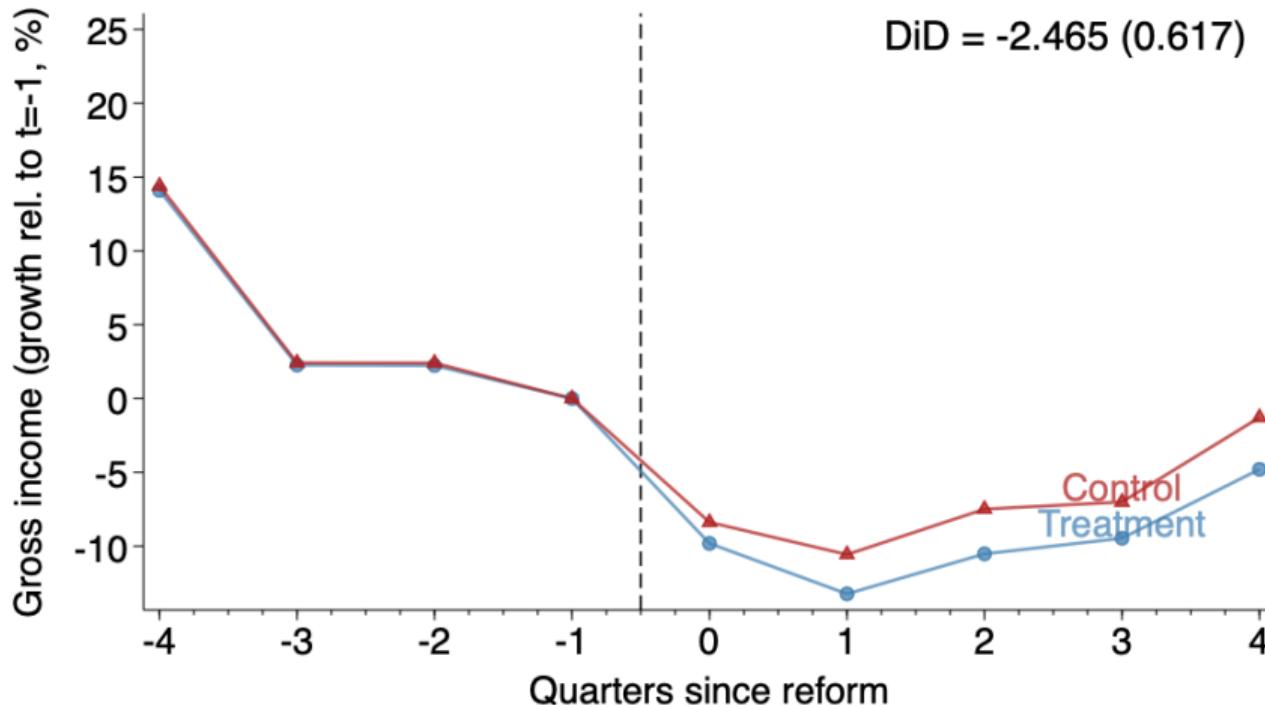
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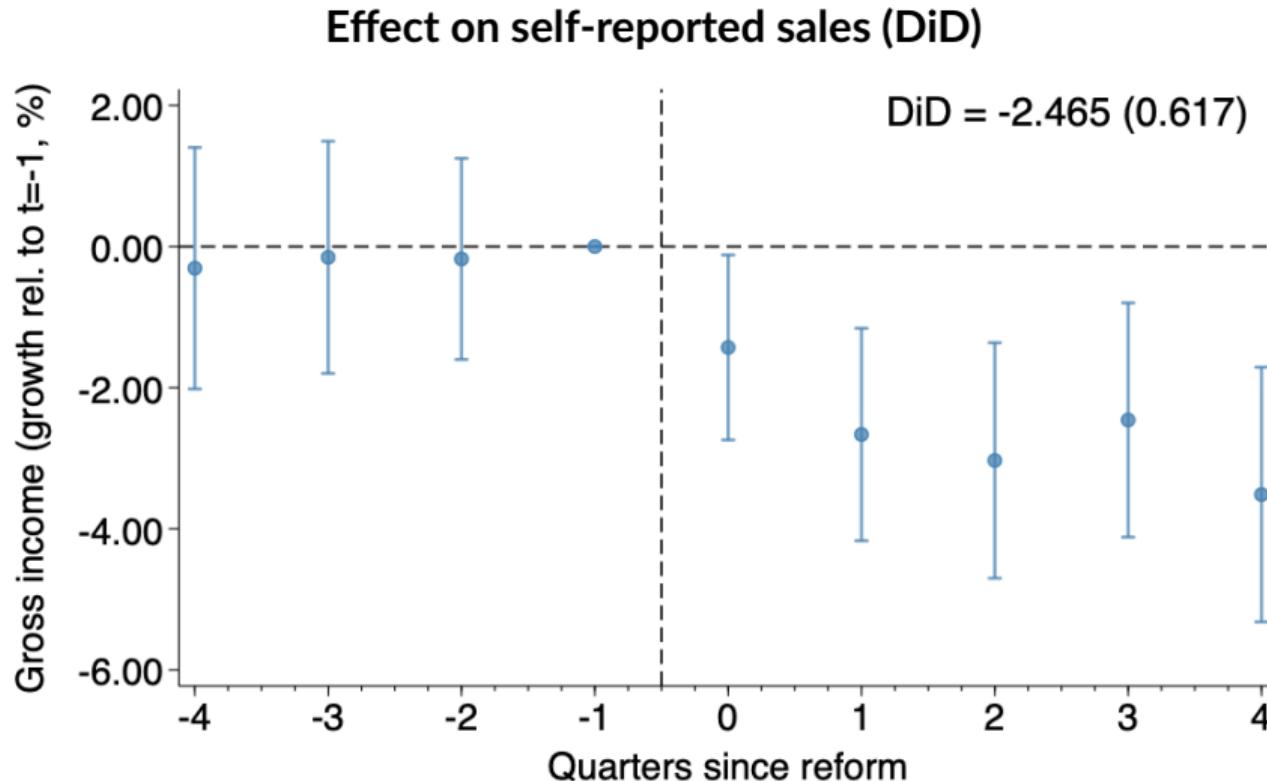


Self-reported sales ↓ by 2.5 p.p. in response to 11.7 p.p. ↓ in withholding

Effect on self-reported sales (Levels)



Self-reported sales ↓ by 2.5 p.p. in response to 11.7 p.p. ↓ in withholding



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What's driving the response of self-reported sales?

- Aggregate impact should be interpreted as the **joint effect** of **3rd-party info** and **withholding** itself—as CAs do both simultaneously
- We can't separate the role of withholding vis-à-vis information reporting
- Yet, the **joint effect** is of first-order policy interest!
→ implementing/expanding withholding typically encompass both features

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Closing remarks and future work

Appointing firms as tax collectors is a promising tax administration tool

- ↑ coverage of withholding ⇒ ↑ reported income by taxpayers ⇒ ↑ 10% revenue 
- Extra burden does not harm (large) CAs 
- Downside: Tax admin have incentives to over-withhold (interest-free loan)

Why not have every firm do this?

- Extra burden may hurt SMEs (e.g., need accountants, segmentation) [Gadenne et al, 2022]
- Over-withholding and unrefunded credits can affect firm activity [Pinto & Scot, 2022]

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

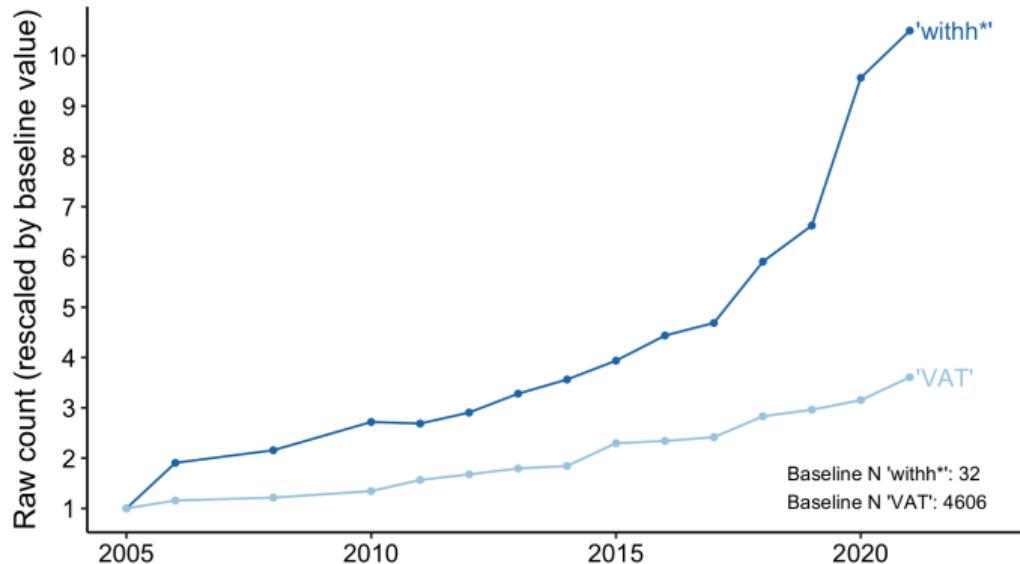
[Kopczuk, Marion, et al. \(2016\)](#), [Brockmeyer and Hernandez \(2019\)](#), and [Waseem \(2022\)](#)



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

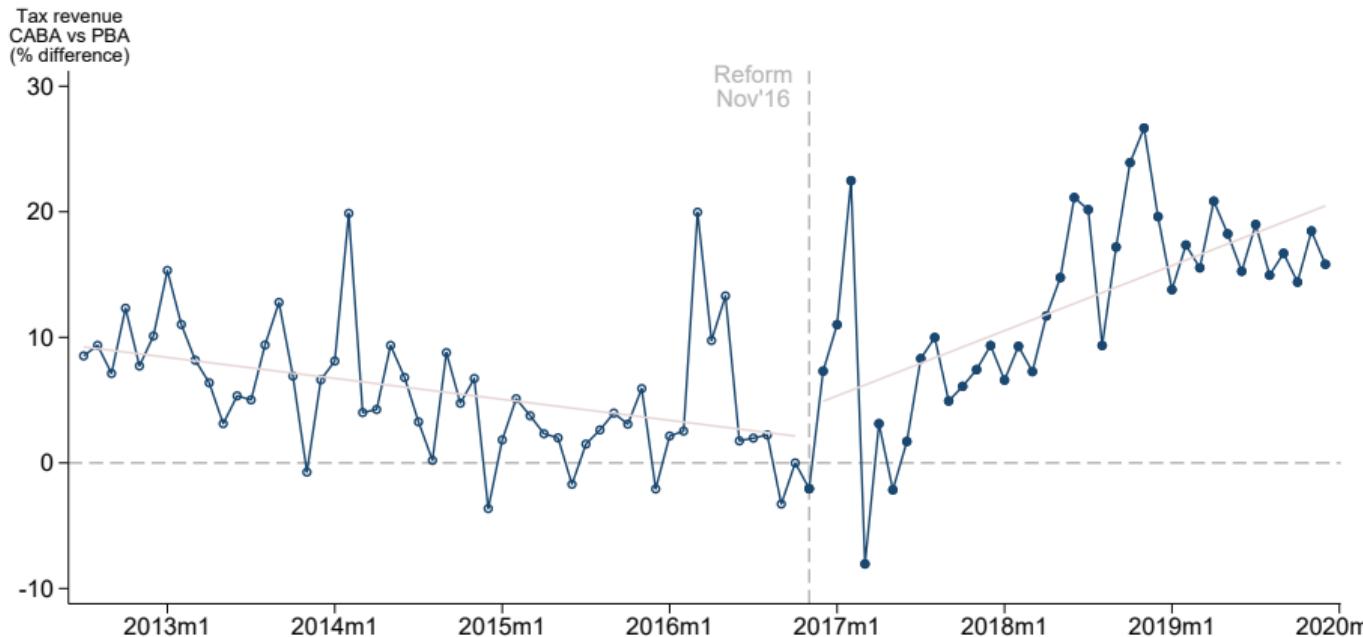
Increase in share of tax withheld by CAs



Macro evidence

Tax revenue

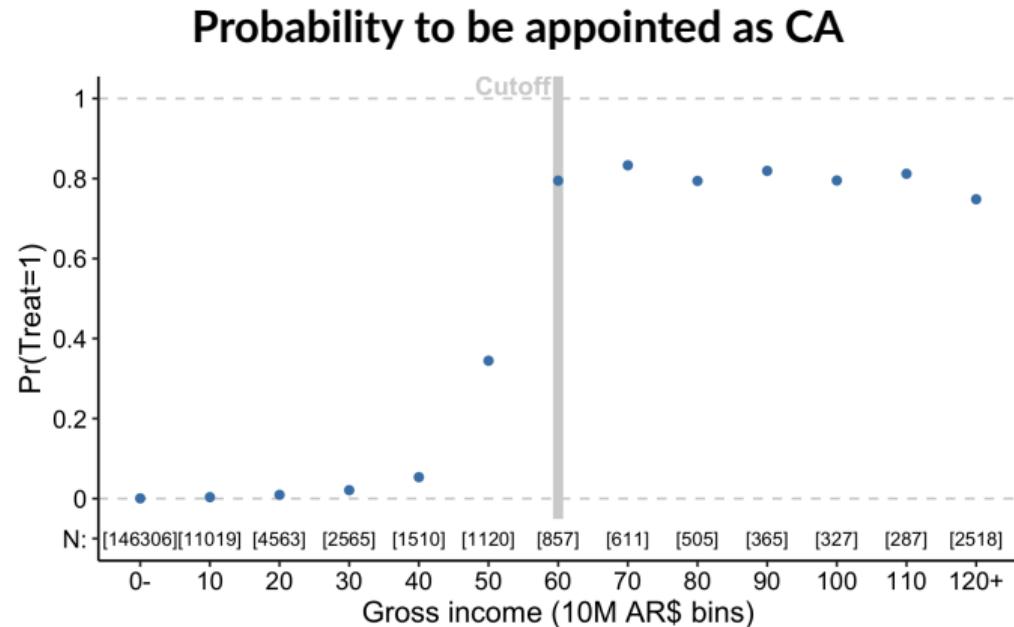
Increase in tax revenue (relative to a comparable district)



Response to appointment as CA

Empirical strategy and first-stage

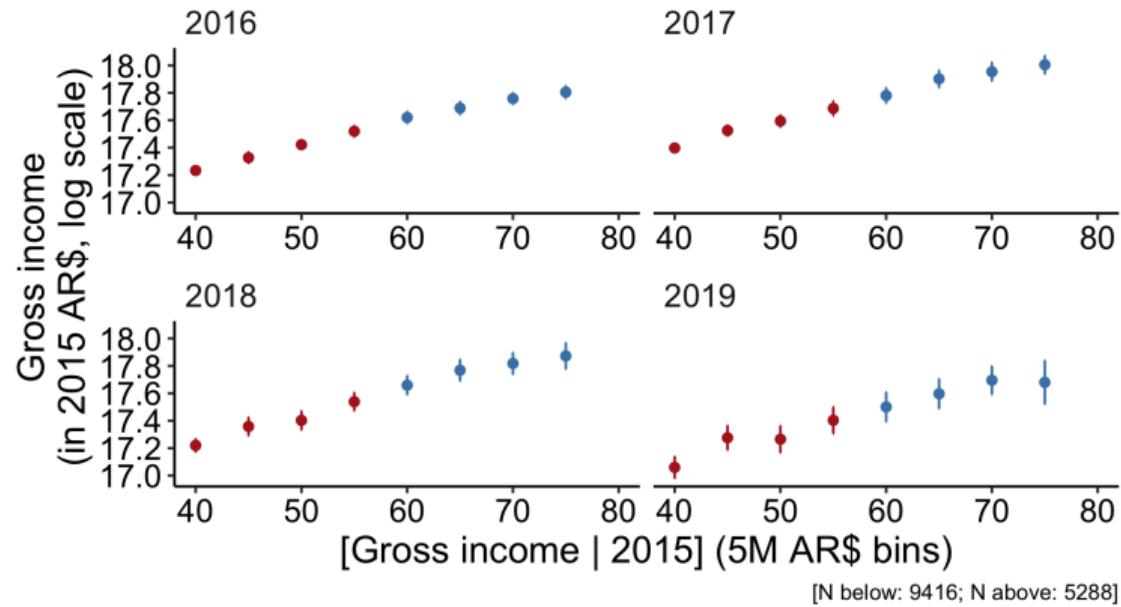
- **Nov 2016:** large firms appointed to collect taxes on behalf of clients/suppliers
- **Rule:**
2015 annual sales > AR\$60M
- **RDD:**
Compare sales of firms close to the AR\$60M cutoff
- Sales as proxy for commercial activity



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



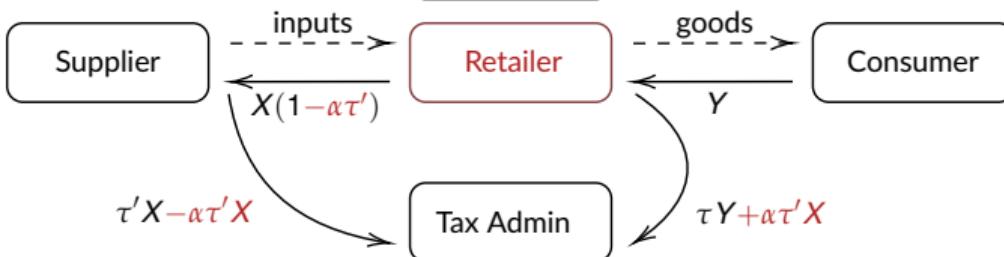
Withholding (Seller)

- 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 $\tau'X - \alpha\tau'X$



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:
 - 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

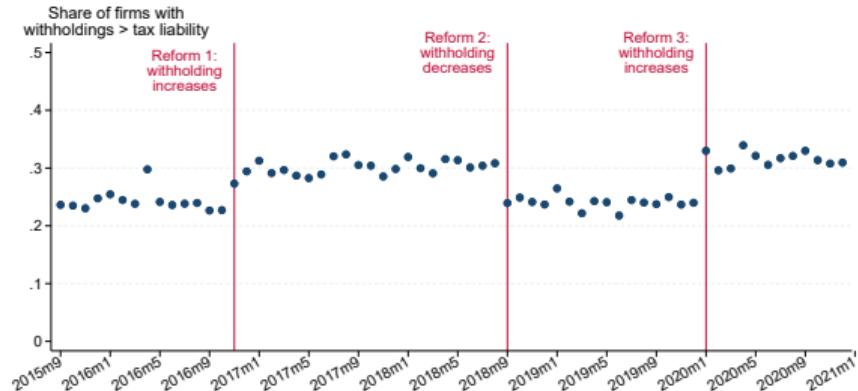
Documenting the reforms with raw data

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.

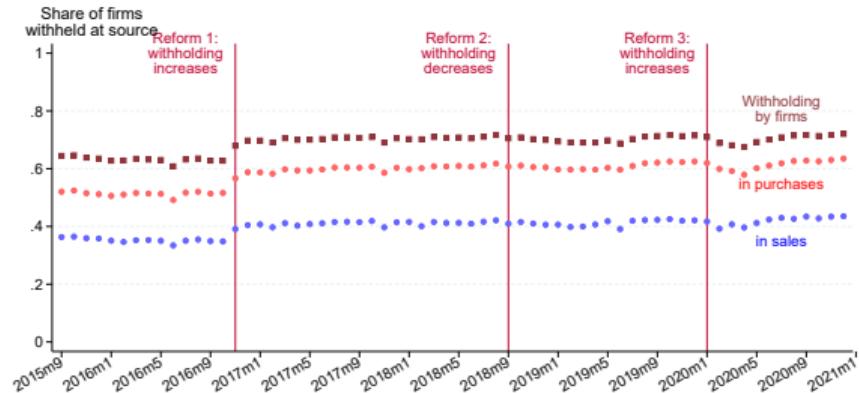
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Tax withholdings: extensive margin

Share of withheld firms per month



Withholding in sales and purchases



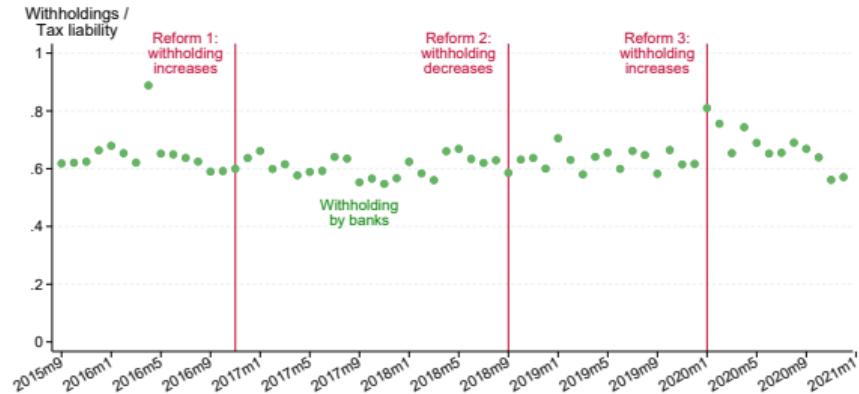
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Tax withholdings: intensive margin

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

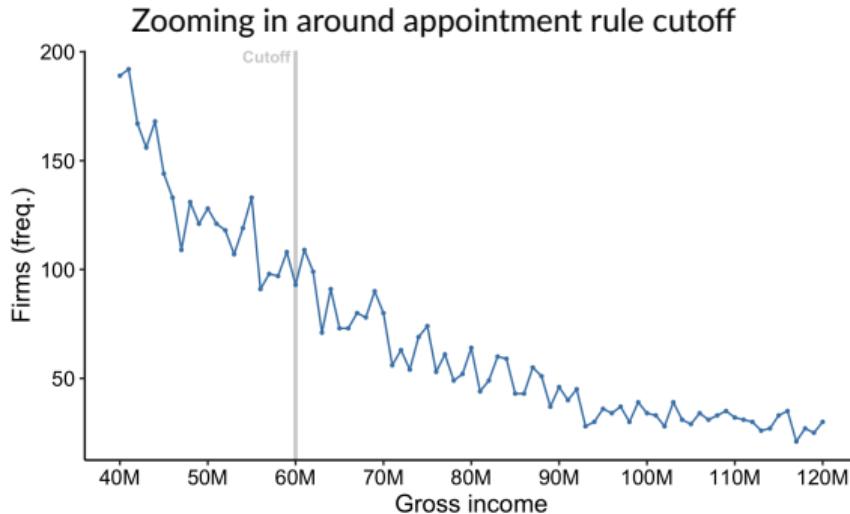
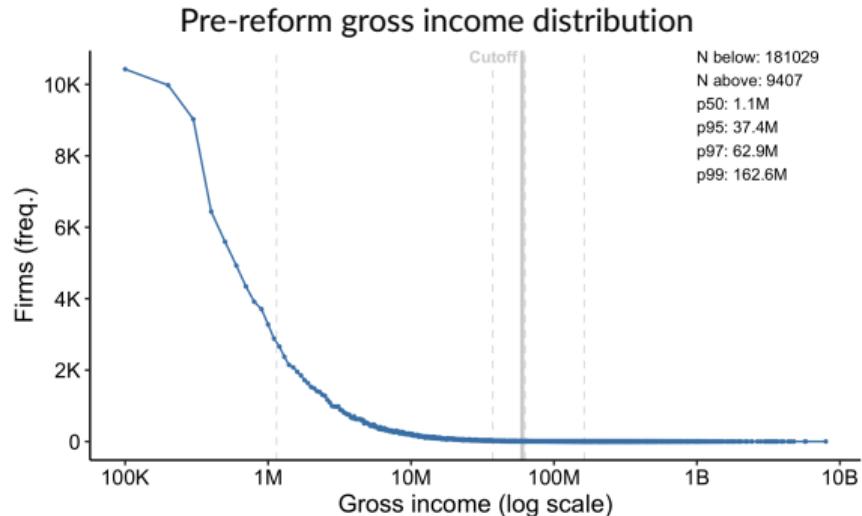
- **Appointment rule:** firms enrolled as CAs if **2015 annual sales > AR\$60M**
- Appointment was binding, firms were not allowed to opt out
- Firms in some industries were included/excluded regardless of size
- One time policy, no further implementations of the rule beyond Nov 2016

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

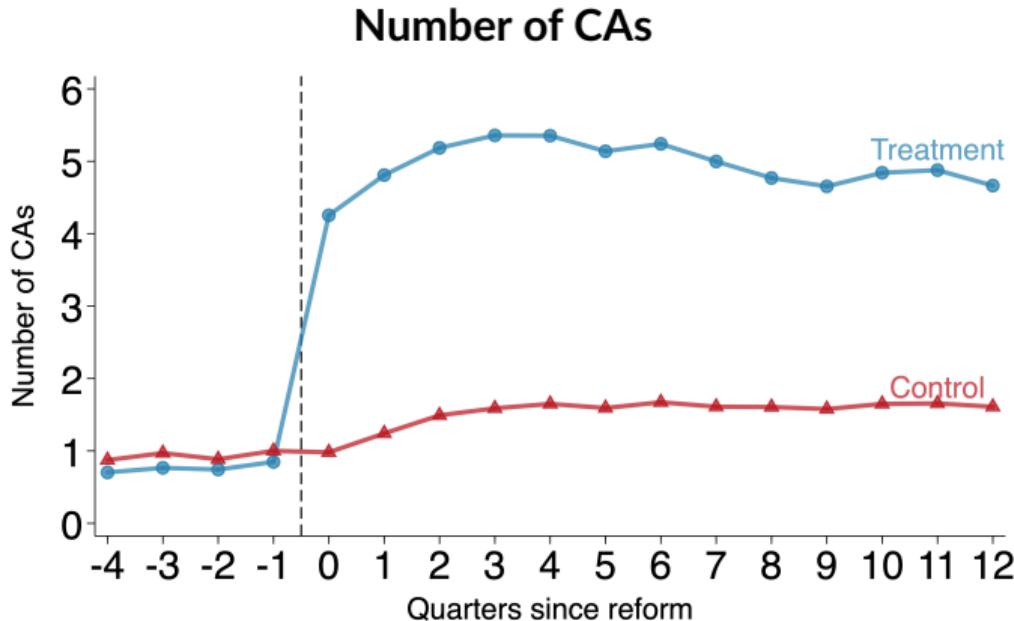
- At least one firm has to be CA to observe commercial links
- Firms connected to new CAs, November 2016 or later
- Assume links are stable within the first 6-months after reform
- **Construct T and C based on observed links between Nov 16-Apr 17**
- Short-run churning → measurement error in the assignment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



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Linkages persist beyond 6-months of the reform:

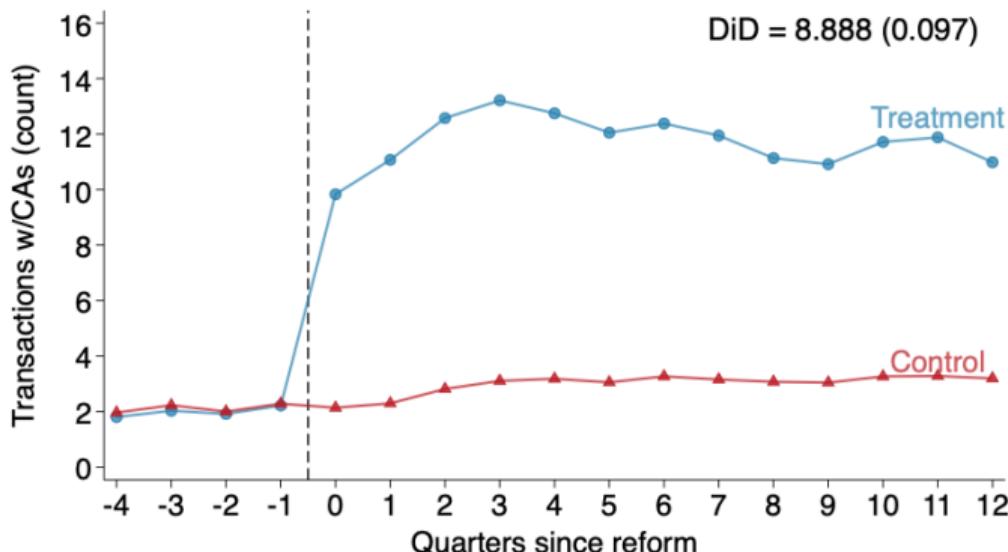


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Linkages persist beyond 6-months of the reform:

No. of transactions with CAs

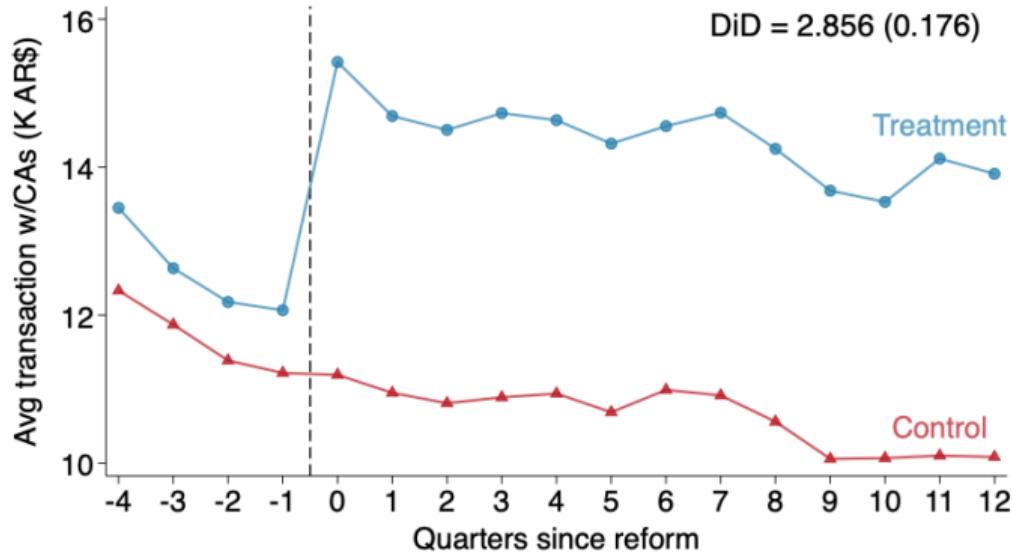


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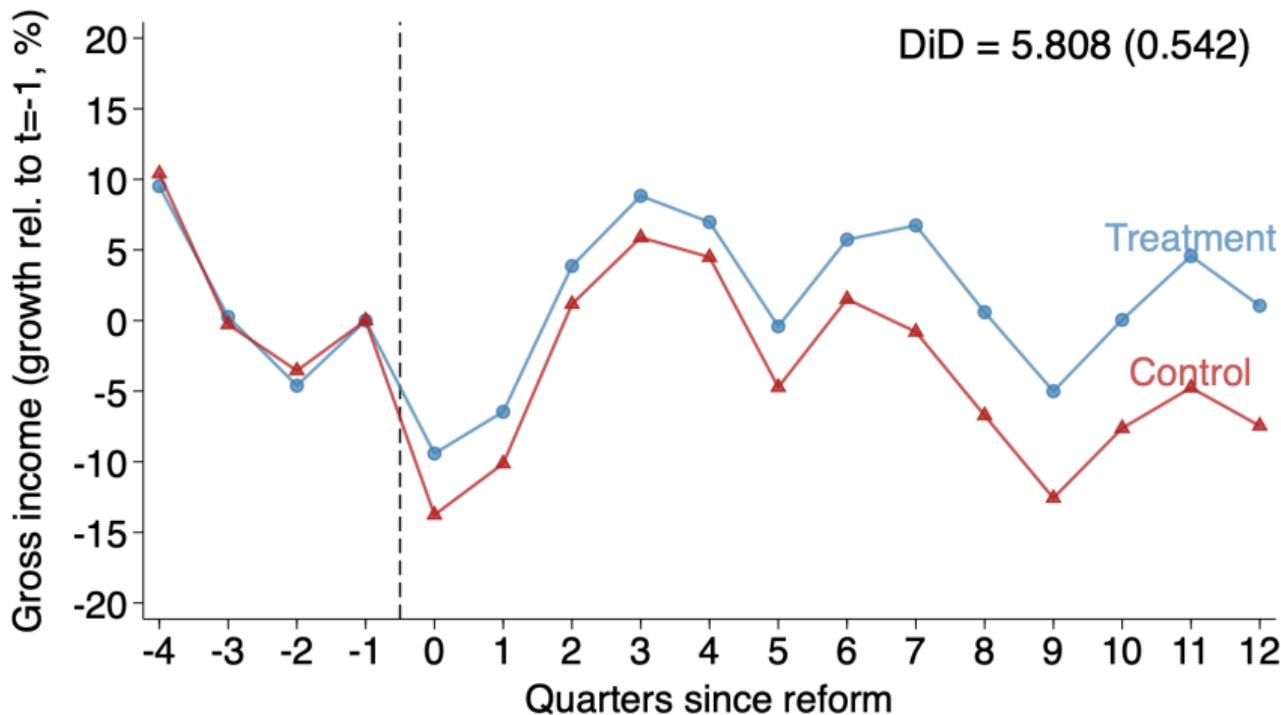
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Avg. transaction amt. with CAs



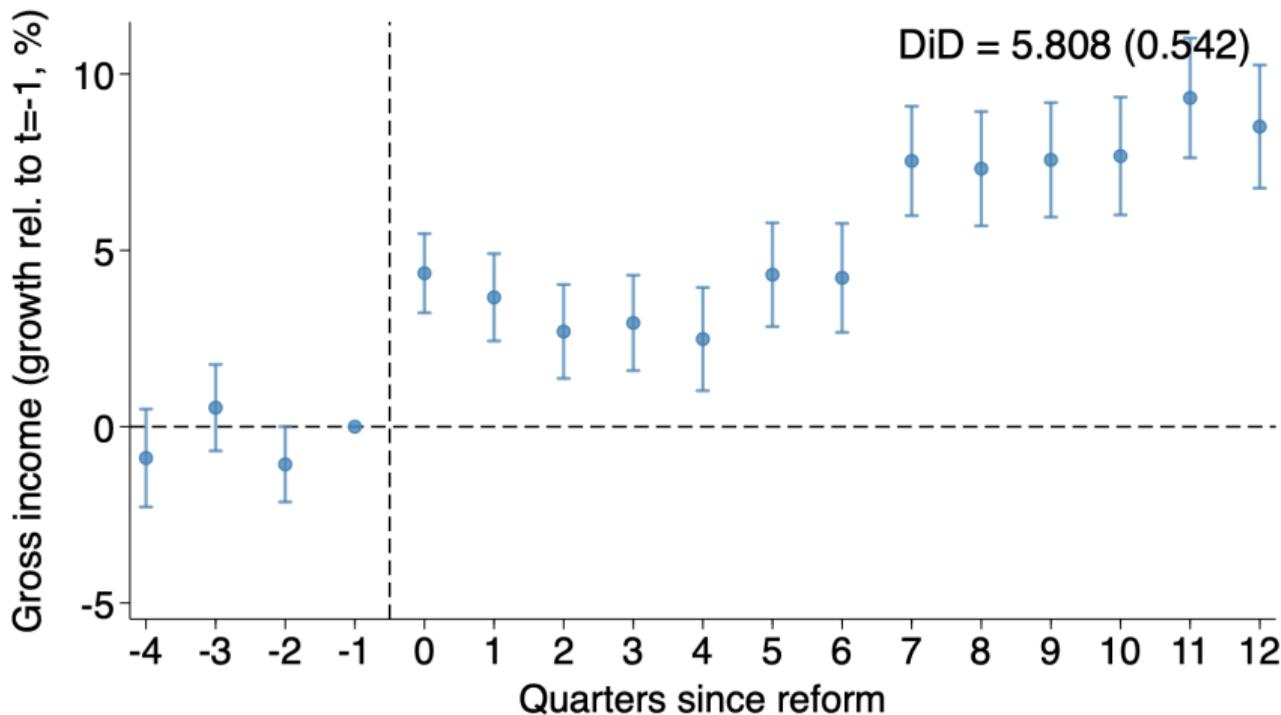
Response to an increase in withholding

Effect on self-reported sales (Levels)



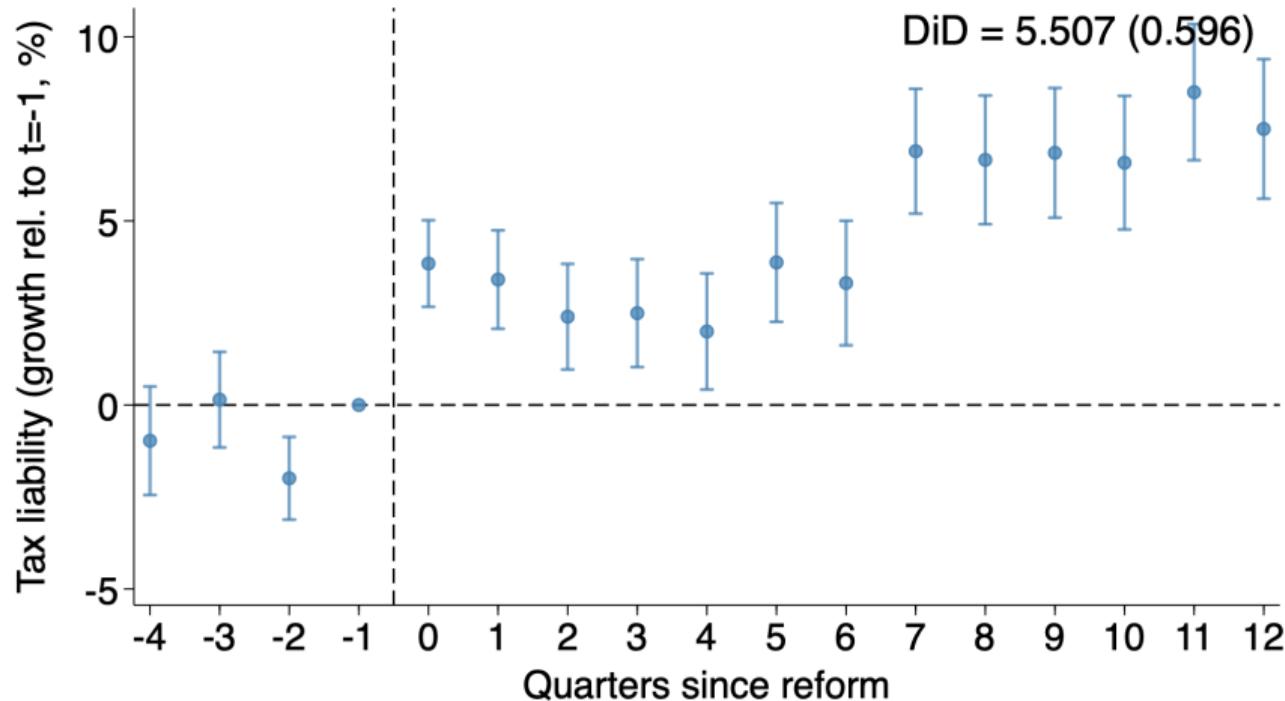
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Effect on self-reported sales (DiD)



Response to an increase in withholding

Effect on Tax liability (DiD)



Empirical strategy and First Stage

Empirical strategy:

- Diff-in-Diff:

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Empirical strategy and First Stage

Empirical strategy:

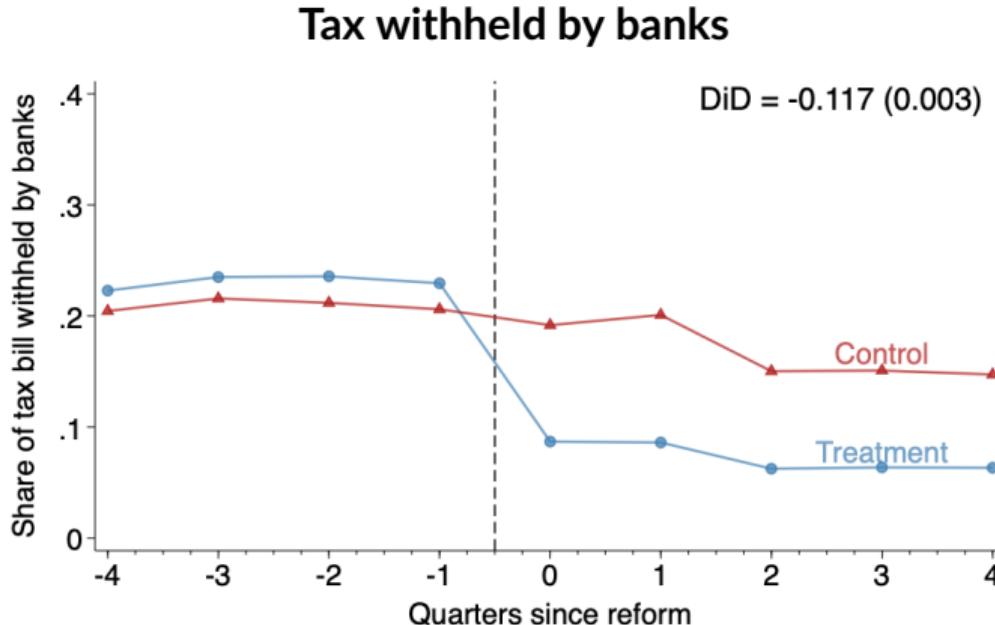
- Diff-in-Diff:

Control: AR\$10M and 20M

✗ bank withholding in Sep 18

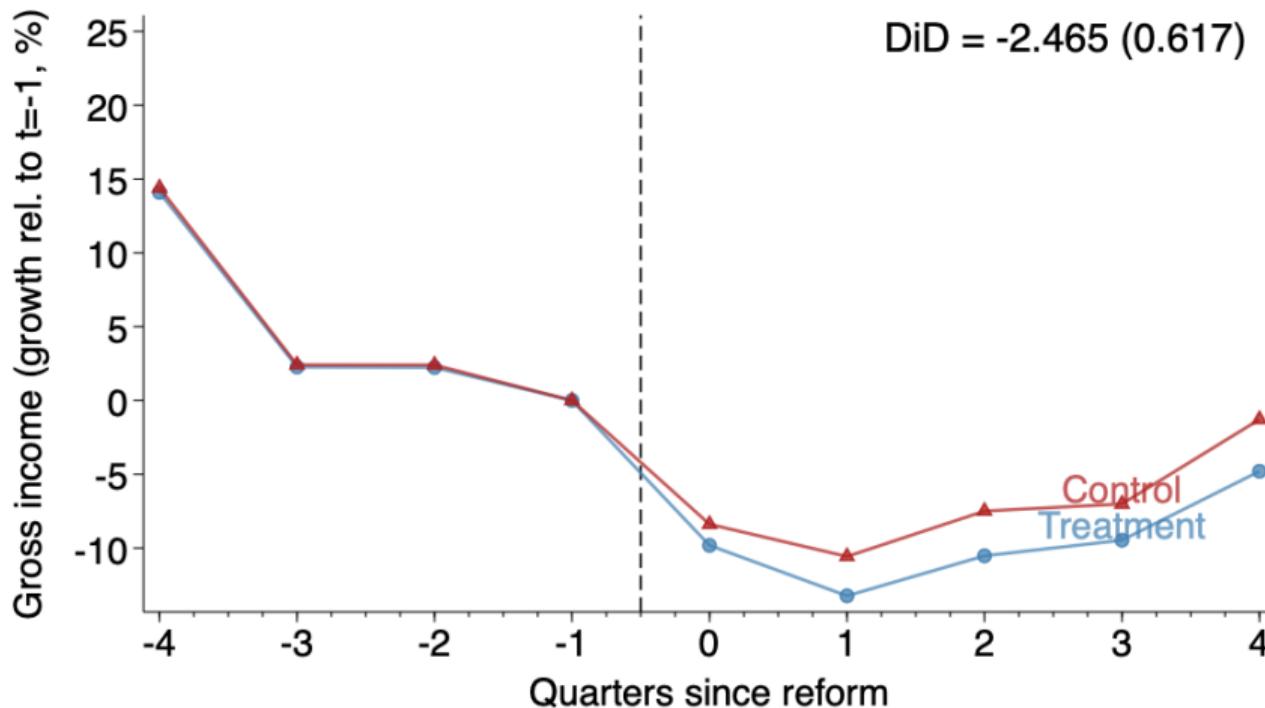
Treatment: AR\$5M and 10M

↓ bank withholding in Sep 18



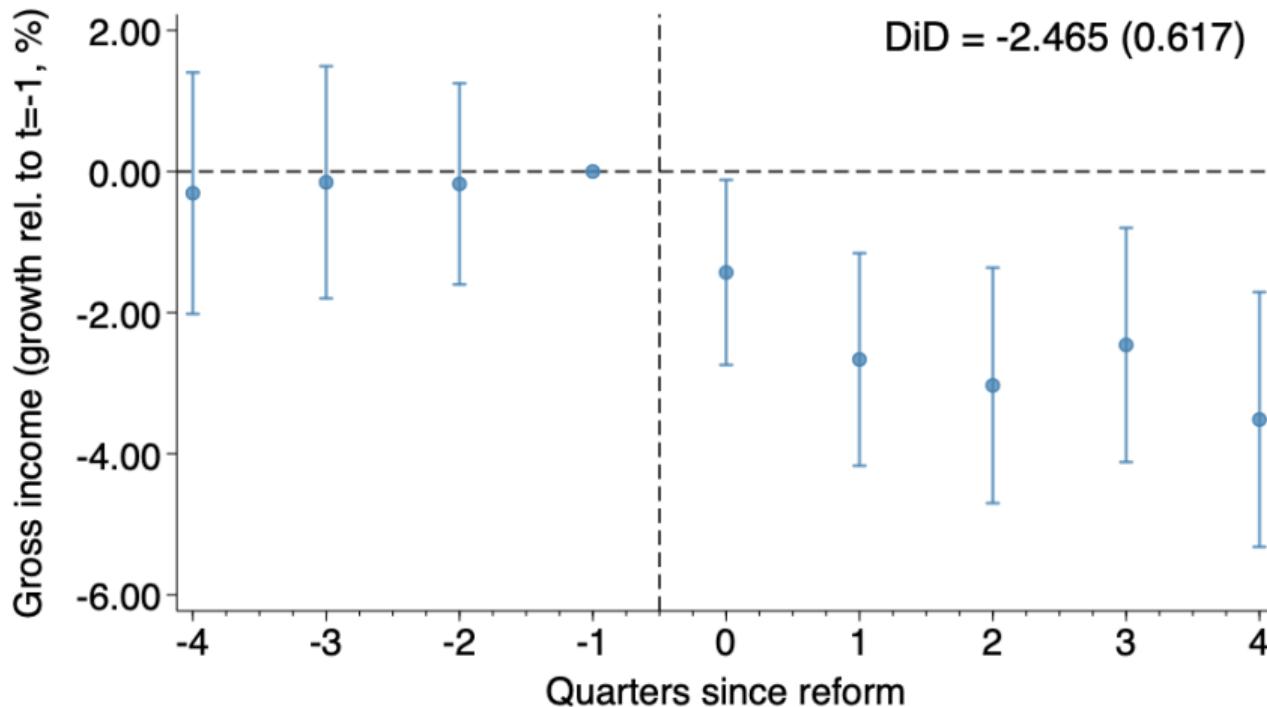
Response to a decrease in withholding

Effect on self-reported sales (Levels)



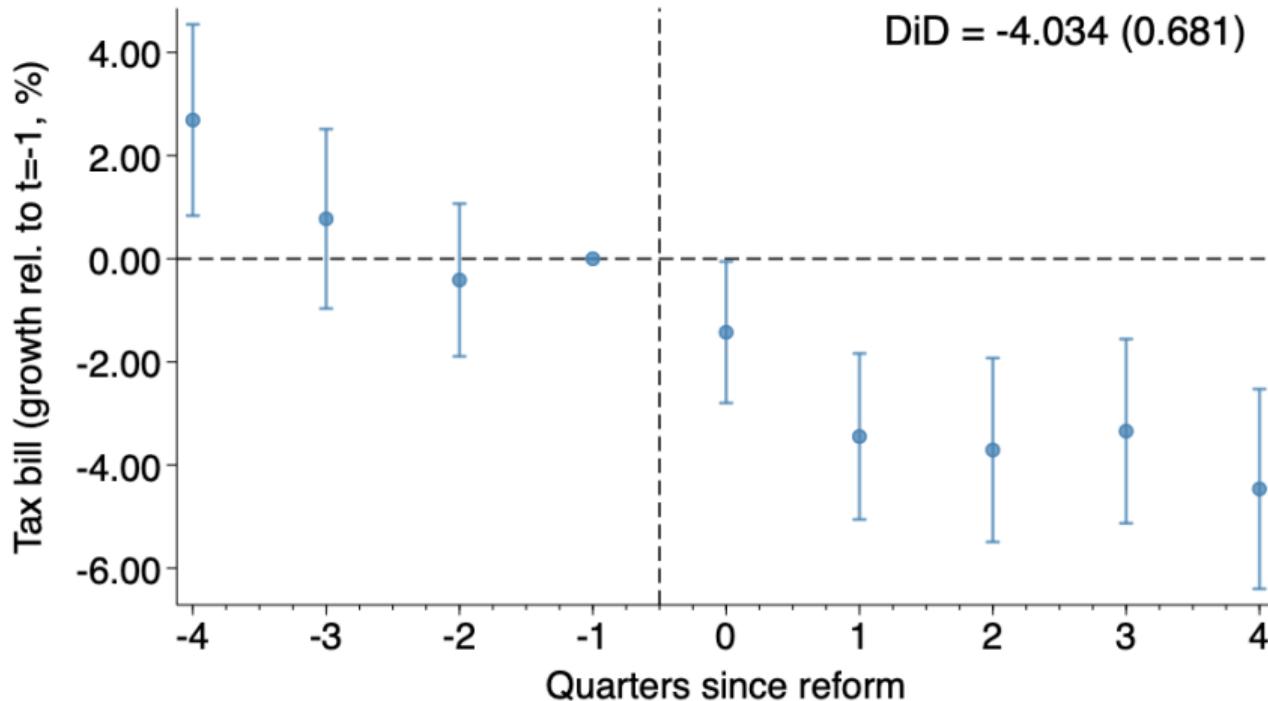
Response to a decrease in withholding

Effect on self-reported sales (DiD)



Response to a decrease in withholding

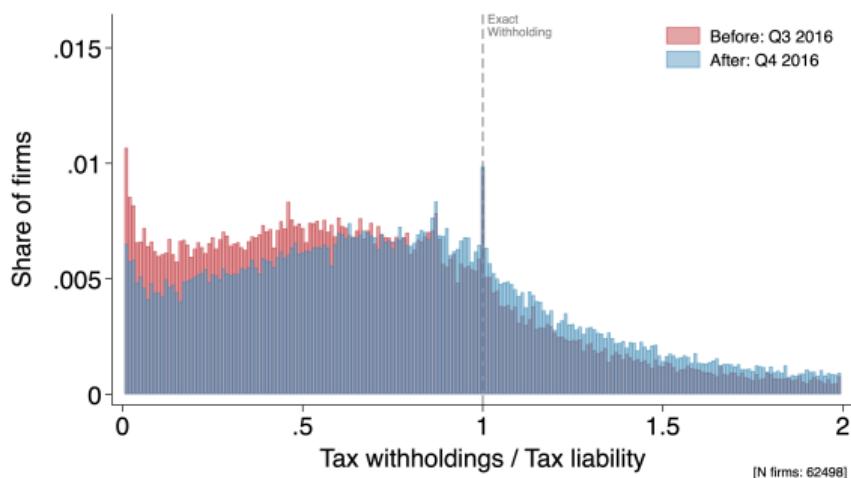
Effect on Tax liability (DiD)



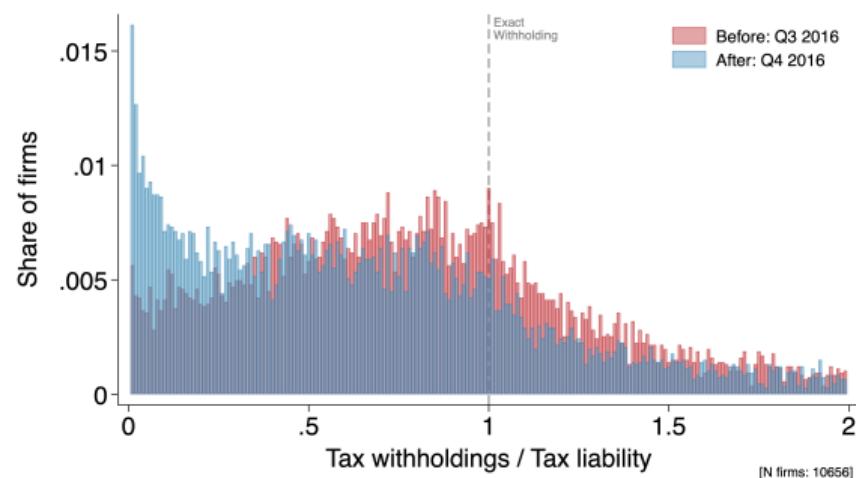
Interpretation of results

- Weak-enforcement setting: firms underreport Sales
- Most firms have Withholding/Tax liability ≤ 1
- Lower bound: taxpayers aim to report Sales such that Tax liability $>$ Withholding
- If withholding increases, reported sales must go up to keep the ratio low

R1: $\uparrow W \rightarrow \uparrow S \rightarrow \uparrow T$

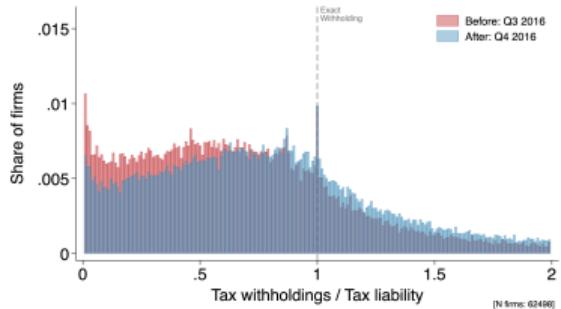


R2: $\downarrow W \rightarrow \downarrow S \rightarrow \downarrow T$

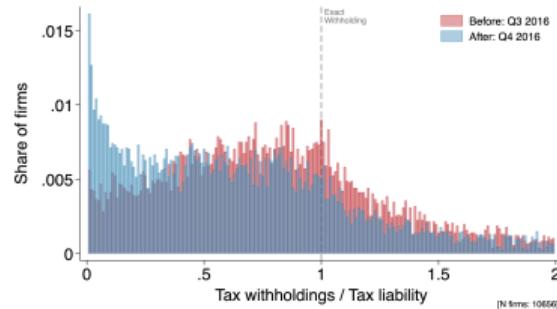


Interpretation of results: T and C

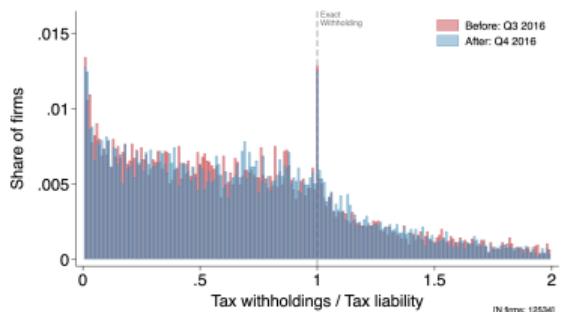
R1: Treated



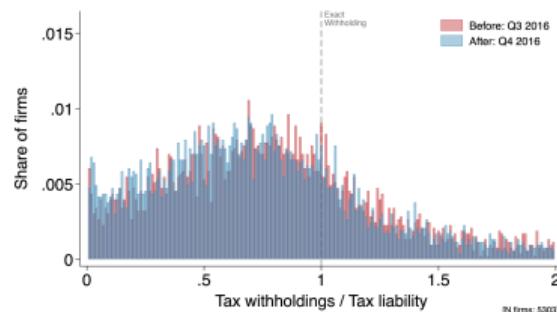
R2: Treated



R1: Control



R2: Control



Interpretation of results: Magnitudes

- How do the magnitudes compare relative to other papers?
- Waseem (2022): 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