Firms as tax collectors

Pablo Garriga
Brown University

Dario Tortarolo
Nottingham & IFS

NBER Business Taxation in a Federal System

October 7, 2021
Motivation

- Governments at all levels struggle to raise revenue and build tax capacity
- Large-scale compliance requires govs to modernize tax administrations
  - Recent evidence of dramatic returns to improved tax admin [Basri et al AER’21]

- **Withholding regimes** as a policy tool:
  - Collection systems where 3rd parties collect/remit taxes owed by related parties
  - e.g., income tax, VAT built-in mechanism, credit card companies
    [Besley & Persson, 2013; Waseem, 2020; Brockmeyer & Hernandez, 2019]

- Withholding of indirect taxes is widespread, but largely understudied
This paper

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

1. Do withholding regimes lead to an increase in revenue? **YES**
2. Does delegating collection duties on firms affect their own activity? **NO**
3. Does it affect the activity of linked firms (suppliers or clients)? **YES**
This paper

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

1. Do withholding regimes lead to an increase in revenue? YES

2. Does delegating collection duties on firms affect their own activity? NO

3. Does it affect the activity of linked firms (suppliers or clients)? YES

We address these questions by combining:
This paper

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

1. Do withholding regimes lead to an increase in revenue? **YES**

2. Does delegating collection duties on firms affect their own activity? **NO**

3. Does it affect the activity of linked firms (suppliers or clients)? **YES**

We address these questions by combining:

- Monthly **B2B admin data** in the City of Buenos Aires, Argentina
This paper

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

1. Do withholding regimes lead to an increase in revenue? **YES**
2. Does delegating collection duties on firms affect their own activity? **NO**
3. Does it affect the activity of linked firms (suppliers or clients)? **YES**

We address these questions by combining:

- Monthly **B2B admin data** in the City of Buenos Aires, Argentina
- An unprecedented **reform** that changed how business tax is collected, holding all else constant (tax base, tax rates, etc.)
The reform: A sharp increase in the # of collection agents (CAs)

- Subnational
- Turnover Tax

- Tax collection:
  1. Direct payments
  2. Withholding by CAs

- Nov 2016 reform: /uniFB01rms appointed as CA if 2015 sales > AR $60M (∼p97)

Implication: More tax collected at source by CAs in lieu of direct payments
The reform: A sharp increase in the # of collection agents (CAs)

- Subnational **Turnover Tax**

The graph shows the number of active CAs from 2001 to 2019. The reform in November 2016 is indicated by a vertical line. Before the reform, there were around 3656 active CAs. After the reform, the number increased to 3664, indicating a slight increase. The graph has a linear scale from 0 to 9K on the y-axis and from 2001 to 2019 on the x-axis.
The reform: A sharp increase in the # of collection agents (CAs)

- **Subnational Turnover Tax**

- **Tax collection:**
  1. Direct payments
  2. Withholding by CAs
The reform: A sharp increase in the # of collection agents (CAs)

- Subnational **Turnover Tax**

- **Tax collection:**
  1. Direct payments
  2. Withholding by CAs

- **Nov 2016 reform:** firms appointed as CA if
  2015 sales > AR$ 60M (∼p97)

Implication: More tax collected at source by CAs in lieu of direct payments
The reform: A sharp increase in the # of collection agents (CAs)

- Subnational **Turnover Tax**

- **Tax collection:**
  1. Direct payments
  2. Withholding by CAs

- **Nov 2016 reform:** firms appointed as CA if
  2015 sales > AR$ 60M (~p97)

Implication: More tax collected at source by CAs *in lieu* of direct payments
Macro evidence

Withholding

Increase in tax collected through withholding (~30% to 45%)

% of total tax raised by CAs

Reform Nov'16

2008m1 2009m1 2010m1 2011m1 2012m1 2013m1 2014m1 2015m1 2016m1 2017m1 2018m1 2019m1 2020m1
Indirect effect on linked firms
Strategy & First Stage

Strategy:
- Firms not directly targeted by the reform; but linked to CAs
- **Diff-in-Diffs:** exposure to new CAs
- Control: linked to old CAs
- Treatment: linked to new CAs
Indirect effect on linked firms
Strategy & First Stage

Strategy:
- Firms not directly targeted by the reform; but linked to CAs
- **Diff-in-Diffs:** exposure to new CAs
- **Control:** linked to old CAs
- **Treatment:** linked to new CAs

Number of CAs

DiD = 3.582 (0.026)
Indirect effect on linked firms

Strategy & First Stage

Strategy:
- Firms not directly targeted by the reform; but linked to CAs
- **Diff-in-Diffs:** exposure to new CAs
- **Control:** linked to old CAs
- **Treatment:** linked to new CAs

Share of tax withheld by CAs

Share of tax bill withheld

DiD = 0.143 (0.004)

Quarters since reform
Response of linked firms: Gross income (levels)

DiD = 5.524 (0.524)

Gross income (growth rel. to t=1, %)
Response of linked firms: Gross income (DiD)

DiD = 5.524 (0.524)
Response of linked firms: Tax liability (DiD)

DiD = 5.255 (0.577)
Closing remarks

Appointing firms as tax collectors is a promising tax administration tool

1. Does not harm the activity of the collector
2. Leads to increased reported income of linked firms
3. Overall, increases tax revenue

How? Implications for linked firms

- Third-party information reporting → enforcement perceptions
- Withheld amount → imposes a lower-bound on self-reported sales & tax owed

Next step

- Did policy distort choice of trade partners away from CAs? A priori, no
Thank you!
pablo_garriga@brown.edu
Appendix
Related literature

- Tax capacity, compliance, and development

- Behavioral responses to tax collection & info reporting

- Network effects of taxation schemes
Details of the previous figure:

- **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

Tax revenue

Increase in tax revenue (relative to a comparable district)
Administrative Data

- Universe of taxpayers: 1M firms
- Sample: 250K firms
  - 78% of total TT revenue
- Period: Sep 2015 – Dec 2020
- Observe monthly filings for all firms
- Observe B2B transactions for 3000 CAs and their partners
Admin Data: Networks

Example
Admin Data: Networks

Example
Admin Data: Networks

Example
Admin Data
Firm size distribution

Pre-reform gross income 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.
Notes: Average annual rates by taxpayer.
**Turnover Tax & Collection**

- **Subnational Turnover Tax**
  - Tax base: levied on gross income, no deductions for expenses
  - Tax rates: typically vary from 1% to 5%
  - Applies to B2B and B2C transactions (classic “cascading effects”)
  - Applies to local and out-of-jurisdiction transactions
  - Distortive but simple: Largest source of own revenue (∼ 75%)
  - Imposed in each of the 24 jurisdictions in Argentina
    Note: **National VAT** (built-in self-enforcing incentives already in place)

- **Tax collection:**
  - Monthly electronic filing
  - **Outstanding balance = tax owed − amount withheld by CAs (if any)**
  - We exploit an exogenous and sharp increase in the number of CAs
The reform

Indirect collection of Turnover Tax

- Provinces rely on Turnover Tax as the main source of revenue
- **Historically**: part of the tax payed through direct payments, some firms acted as *collection agents (CAs)* and withheld the rest
  - Buyer: subtract a portion of the tax from suppliers’ invoice
  - Seller: charge a portion of the tax on clients' invoice
- **Nov 2016 reform**: a substantial # of firms appointed as CAs
  - **Rule**: firms with 2015 annual sales > AR$ 60M (≈ p97)
  - More tax collected at source by CAs *in lieu* of direct payments

Timeline

- Large firms appointed on a case-by-case basis
- Large firms appointed if 2015 sales > AR$ 60M
- No new appointments

2001  Nov 2016  2019
Macro evidence

Withholding

Increase in tax collected through withholding (~30% to 45%)
Empirical strategy

\[
y_{it} = \sum_{\tau=-q}^{-1} \delta_{\tau} \cdot D_{it\tau} + \sum_{\tau=0}^{m} \beta_{\tau} \cdot D_{it\tau} + \theta_i + \gamma_t + \epsilon_{it}
\]

- \( i \) indexes firms and \( t \) calendar-quarters
- \( D_{it\tau} \): event-study indicator for each quarter relative to the baseline period
  - Baseline period: Nov16-Jan17
- \( \theta_i \) firm FE, \( \gamma_t \) calendar-quarter FE
- SE clustered by firm
- Balanced panel of firms
Conceptual framework

Tax collection mechanisms

**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 $\tau' X - \alpha \tau' X$
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 CAs:**
  - Administrative burden
  - “Cash-flow benefit”
  - Scrutiny from govt (enforcement perceptions)

- **For linked firms:**
  - Third-party information reporting (enforcement perceptions)
  - Withheld amt → lower-bound on self-reported sales & tax owed
  - Might distort the choice of trade partners towards non CAs
Direct effect on CAs

- **Nov’16 reform:** large firms appointed to collect taxes on behalf of clients/suppliers
- **Rule:** firms with 2015 annual sales > AR$ 60M (≈ p97)
- **Empirical strategy:**
  1. Document expansion of withholding net
     Probability to: (i) be appointed as CA; (ii) start withholding
  2. **RDD:** response of newly-appointed CA firms
     Compare changes in gross income (sales) close to the 60M cutoff
Appointment as CA

Probability to be appointed as CA

Cutoff

Pr(Treat=1)

N: [46268] [1489] [439] [215] [100] [60] [49] [44] [22] [16] [9] [18] [70]

Gross income (10M AR$ bins)

0-10 10-20 20-30 30-40 40-50 50-60 60 70 80 90 100 110 120+
Response of appointed CAs

Gross income growth

Gross income (growth relative to 2015, %)

2016

2017

2018

2019

[N below: 564; N above: 336]
Direct effect on CAs: summary

- CAs activity does not seem to be affected

- **Explanation:** These are large/formal firms
  - Collecting taxes from others is not an administrative burden, already have professional accountants in-house
  - These firms are not financially-constrained, so no “cash-flow benefit”
  - Scrutiny from govt does not induce higher compliance as they are already formal
No. of transactions with CAs
jump with reform and remain stable thereafter

Average transaction amount with CAs
jump with reform and remain stable thereafter

DiD = 8.888 (0.097)

DiD = 2.856 (0.176)