

# Wealth Taxes and Firms' Capital Structures: Credit Supply and Real Effects\*

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# Introduction

- Taxing wealth is a tax policy used by governments from both advanced and emerging economies.
- Taxing wealth is intended to increase revenues, substitute other taxes, or reduce wealth inequality (Piketty, 2014; Perret, 2018; Saez and Zucman, 2019)
- However, this policy may not be free of costs and can have larger negative effects than other taxes on efficiency, investment, and economic growth (Hansson, 2010; Atkinson and Stiglitz, 2015; Scheuer and Slemrod, 2021)
- Besides of increasing tax avoidance, evasion, and risks of capital flight (OECD, 2018).
- Behavioral economics of wealth taxes focused on advanced economies (Seim, 2017; Jacobsen et al., 2020; Advani and Tarrant, 2021; Brulhart et al., 2022).
- Personal wealth taxes in Colombia linked to the Panama Papers (i.e., the offshoring to Colombia's most relevant tax havens) (Londoño and Ávila, 2021; 2023)
- Corporate income tax affects the firms' capital structures by increasing leverage (Heider and Ljungqvist, 2015)
- Corporate income taxes on banks increase leverage, resulting in lower credit supply to firms affecting their debt financing and investment decisions (Sobiech et al., 2021)
- **However, little is known on the financial and real effects from wealth taxes on SMEs**

## Wealth tax at OECD (% of GDP)...

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Belgium					0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
Canada	0,4	0,3	0,3	0,2	0,2	0,2	0,2	0,2	0,1	0,1	0,1	0,1										
Colombia			0,5	0,5	0,2	0,1	0,1	0,3	0,7	0,4	0,4	0,7	0,6	0,6	0,5	0,7	0,5	0,4	0,0	0,1	0,1	0,1
Finland	0,1	0,1	0,1	0,1	0,1	0,1																
France	0,2	0,2	0,2	0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,1	0,1	0,1	0,1
Greece	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,6	0,6	0,6	0,6	0,6	0,6	0,7	0,7	0,7	0,7	0,7	---
Hungary											0,5	0,5	0,5	0,4	0,4	0,4	0,2	0,1	0,1	0,1	0,2	0,1
Iceland	0,7	0,7	0,7	0,3	0,4	0,3	0,0	0,0	0,0	0,0	0,2	0,4	0,5	0,5	0,5							
Luxemburg	2,8	2,6	2,2	2,0	2,0	2,3	2,3	2,3	1,8	1,8	2,0	1,9	1,9	2,0	2,1	2,4	2,5	2,6	2,8	3,0	2,9	3,0
Norway	0,5	0,5	0,5	0,5	0,6	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,6	0,6	0,6	0,5	0,5
Spain	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,3	0,1	0,1	0,1	0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
Switzerland	1,1	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,1	1,2	1,1	1,1	1,1	1,1	1,2	1,2	1,3	1,3	1,3	1,4	1,4	1,4

Source: <https://stats.oecd.org/index.aspx?DataSetCode=REV>

Notes:

Level of government: Federal or Central government

Tax revenue: 4200 Recurrent taxes on net wealth

Indicator: Tax revenue as % of GDP

## Wealth tax at OECD (% of total tax revenues)...

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Belgium	0,0	0,0	0,0	0,0	0,1	0,1	0,1	0,2	0,2	0,1	0,2	0,2	0,2	0,2	0,3	0,3	0,4	0,6	0,5	0,5	0,5	0,5	0,5
Canada	1,1	0,9	0,8	0,7	0,8	0,7	0,7	0,6	0,4	0,4	0,3	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Colombia	0,0	0,0	3,1	2,7	0,8	0,8	0,7	1,4	3,5	2,1	2,0	3,6	3,2	3,0	2,8	3,3	2,7	2,2	0,2	0,4	0,5	0,5	0,5
Finland	0,3	0,2	0,2	0,2	0,2	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
France	0,4	0,4	0,4	0,3	0,4	0,4	0,5	0,5	0,5	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,2	0,2	0,2	0,2
Greece	1,5	1,5	1,4	1,5	1,6	1,7	1,6	1,6	1,6	1,8	1,8	1,8	1,8	1,7	1,6	1,7	1,7	1,7	1,6	1,6	1,8	---	---
Hungary	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,3	1,3	1,2	1,1	1,1	1,0	0,4	0,3	0,3	0,3	0,6	0,3	0,3
Iceland	2,0	2,1	2,1	0,9	1,0	0,7	0,0	0,0	0,0	0,0	0,7	1,1	1,5	1,3	1,4	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Luxemburg	7,4	6,9	5,8	5,3	5,4	6,2	6,6	6,5	5,2	5,1	5,5	5,4	5,3	5,5	5,8	7,0	7,1	7,1	7,1	7,5	7,5	7,5	7,7
Norway	1,2	1,2	1,3	1,3	1,3	1,3	1,2	1,3	1,3	1,3	1,2	1,2	1,3	1,3	1,4	1,2	1,4	1,5	1,4	1,5	1,4	1,4	1,2
Spain	0,7	0,6	0,6	0,5	0,5	0,5	0,6	0,6	0,8	0,2	0,2	0,2	0,4	0,6	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,6	0,5
Switzerland	4,1	4,5	4,6	4,6	4,7	4,5	4,6	4,7	4,5	4,5	4,4	4,2	4,2	4,3	4,5	4,5	4,8	4,8	4,8	5,0	5,1	4,9	4,9

Source: <https://stats.oecd.org/index.aspx?DataSetCode=REV>

Notes:

Level of government: Total (Supranational+Federal or central government+State/regional+Local government+Social security funds)

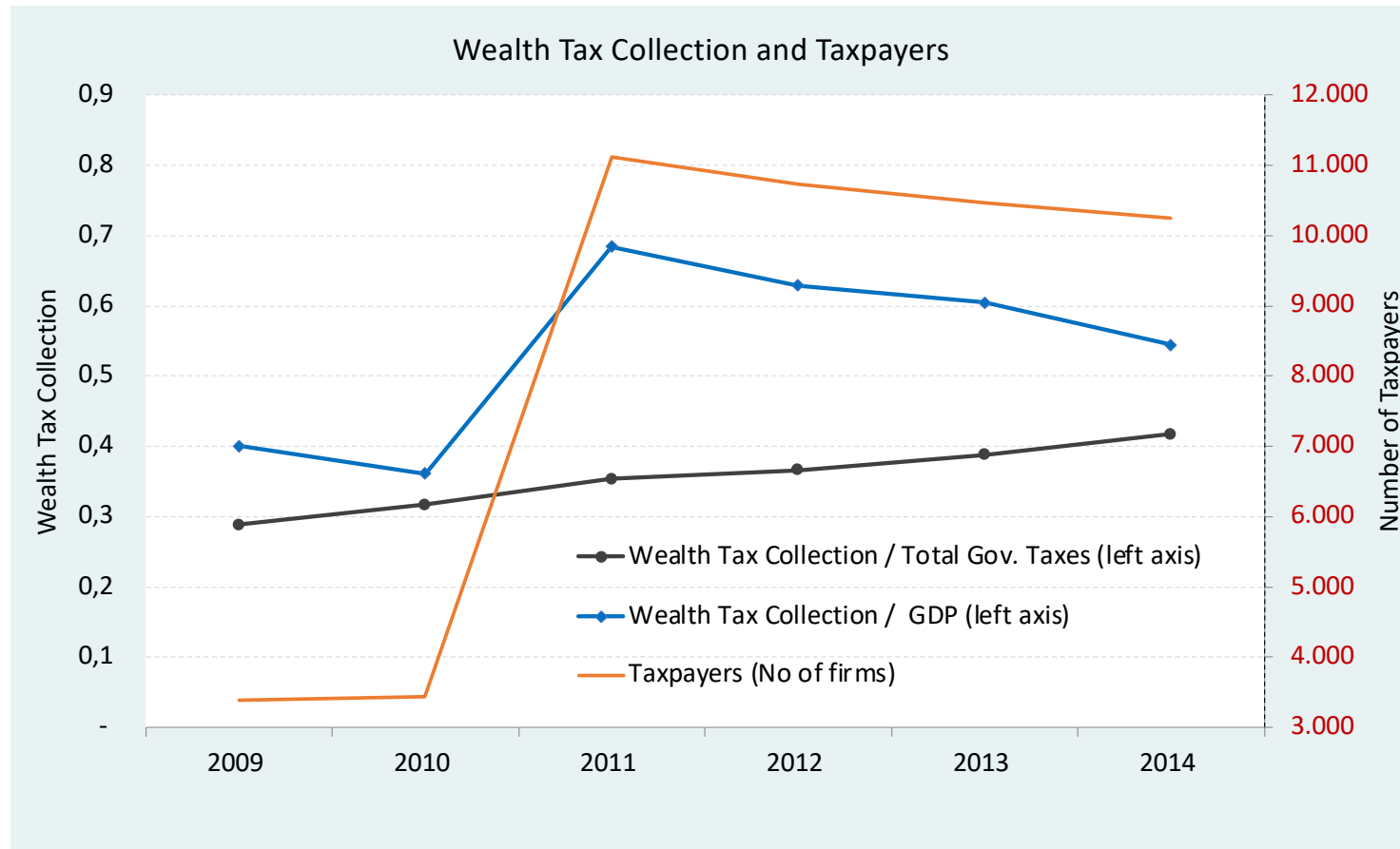
Tax revenue: 4200 Recurrent taxes on net wealth

Indicator: Percentage of total tax revenues

## What we do?

- We study the financial and real effects of a wealth tax reform (i.e., *Impuesto al Patrimonio*) implemented in Colombia in December 2010 (effective by Jan/2011)
- The tax reform took place during a “serious public calamity” due to **climate affectations (“La Niña”)** and was introduced by a **government emergency decree**.
- The 2010 tax reform established a **one-off wealth tax** on financial and non-financial firms and individuals with net wealth between COP 1 billion (USD 285,000) and COP 3 billion (USD 860,000) (i.e., **SMEs as new taxpayers**)
- The reform was a *de facto* one and **might be anticipated** by a few firms on the new wealth bracket cutoffs.
- Remarkably, 94% of the wealth tax revenues come from firms.
- **We evaluate the financial and real effects of the wealth tax reform on the new taxpayers**

## Wealth tax collection in Colombia



Source: DIAN and Ministry of Finance.

**Government revenues increased by 90% and taxpayer firms by 223% => the wealth tax reform was successful in increasing the government's revenues and the tax base.**

# Methodology

- Employ D-in-D models to compare the effects of the wealth tax reform among similar SMEs that differs in their liquid capital that conditions their tax treatment
- Employ a **unique administrative dataset** composed by:
  - Corporate credit (bank-firm-loan level data from the Colombian credit registry)
  - Non-financial firms' banks balance-sheet data (regulatory information from *Superintendencia de Sociedades, SS*)
  - Banks' balance-sheet data (regulatory information from *Superintendencia Financiera de Colombia, SFC*)
  - Confidential **tax reports** at the firm and bank level from Tax Authority (*Dirección de Impuestos y Aduanas Nacionales, DIAN*)
    - The tax information at the firm level allows us to accurately identify taxpayers and non-taxpayers of the wealth tax
- ✓ **We identify the changes in the supply of credit, loan rates, amount of trade credit, and real outcomes of new taxpayers' firms relative to non-taxpayers' firms**

# Preliminary Findings

- The wealth tax on SMEs is associated with lower bank credit and significantly higher loan rates, especially for high-leveraged taxpayers.
  - **Channel:** Reallocation of credit within the SMEs segment (i.e., preference for less leveraged-firms, **less bank risk taking**)
- Affected firms increased the reliance on trade credit as a potential substitution of bank credit.
- The new taxpayer firms exhibited substantial real effects compared to non-taxpayer firms, especially those with high leverage: lower indebtedness, income, investment, and capital accumulation
  - **Channel:** Trade credit is not a perfect substitute of bank credit: **lower amount** (based on inputs vs. working capital) and **less maturity** (3-6 months vs. 6-24 months)
- **Taxing wealth of SMEs has significant financial and real distortions as those firms are highly dependent on bank credit.**



## Related Literature and contributions

- Corporate taxes and firms' leverage (Miller, 1977; Gertler and Hubbard, 1990; Rajan and Zingales, 1995; Faccio and Xu, 2015, Heider and Ljungqvist, 2015).
  - Corporate taxes, banks' funding cost, and firms' capital structures (Gambacorta et al., 2017; Horváth, 2020; Bremus et al., 2020)
  - Bank taxation and corporate credit (Sobiech et al., 2021)
  - SMEs and bank credit dependency (Berg et al., 2018; Delis et al., 2021)
  - Trade credit and bank credit during bank liquidity shocks (Hardy et al., 2022; Amberg et al., 2021; García and Montoriol, 2013; Restrepo, et al., 2019)
  - Wealth taxes and real effects (Piketty, 2014; Perret, 2018; Saez and Zucman, 2019; Guvenen et al., 2019; Adam and Miller, 2021; Scheuer and Slemrod, 2021).
- **We extend this literature by showing the financial and real effects from wealth taxes on SMEs**
- Reallocation of bank credit and reliance on trade credit (credit substitution)
  - Higher real effects from wealth taxes on high-leveraged firms (bank dependent)

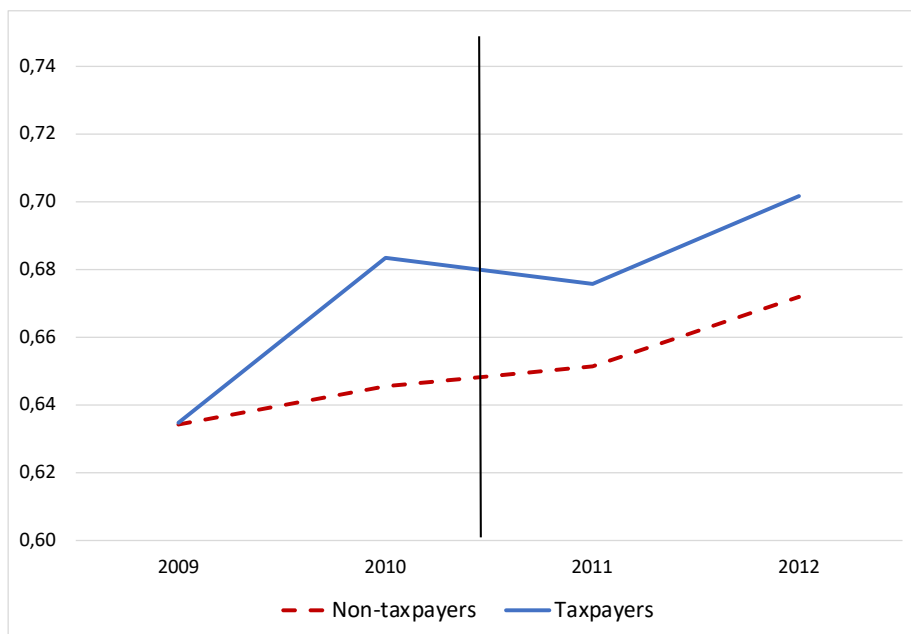
# Background

- The **2010 wealth tax reform** is caused only once (**one off tax**) and on financial and non-financial firms' and individuals' that, on Jan/01/2011, had a net wealth equal or above COP 1 billion (b).
- The **tax base was defined as assets minus liabilities** (including debt) and discounting the value of shareholdings on national corporations.
- No tax on **dividends**
- The tax had to be paid in 8 equal installments during 2011 to 2014.
- The reform to the wealth tax created a progressive tax system in which each tax bracket has a different statutory tax rate:
  - 1.0%, if COP 1 b (USD 0.5 million)  $\leq$  net wealth  $\leq$  COP 2 b (USD 1 million)
  - 1.4%, if COP 2 b < net wealth  $\leq$  COP 3 b (USD 1.6 million)
  - 2.4%, if COP 3 b < net wealth  $\leq$  COP 5 b (USD 2.6 million)
  - 4.8%, if net wealth > COP 5 b
- The tax reform also introduced a 25% surcharge on the tax rate of the COP 3 b cutoff.
- **Affected firms:** Firms with net wealth between COP 1 b and COP 3 b (i.e., **new wealth taxpayers**)

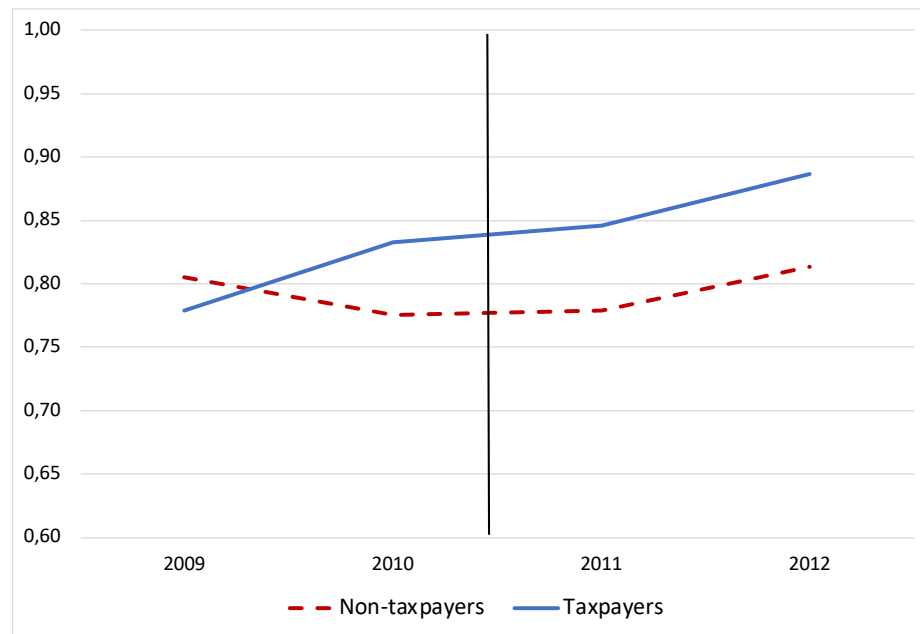
## New taxpayer firms operate with higher leverage than non-taxpayer firms

### Leverage Ratio among Taxpayers and Non-taxpayers of the Wealth Tax

Panel A: Debt-to-Cash ratio (firm-level)



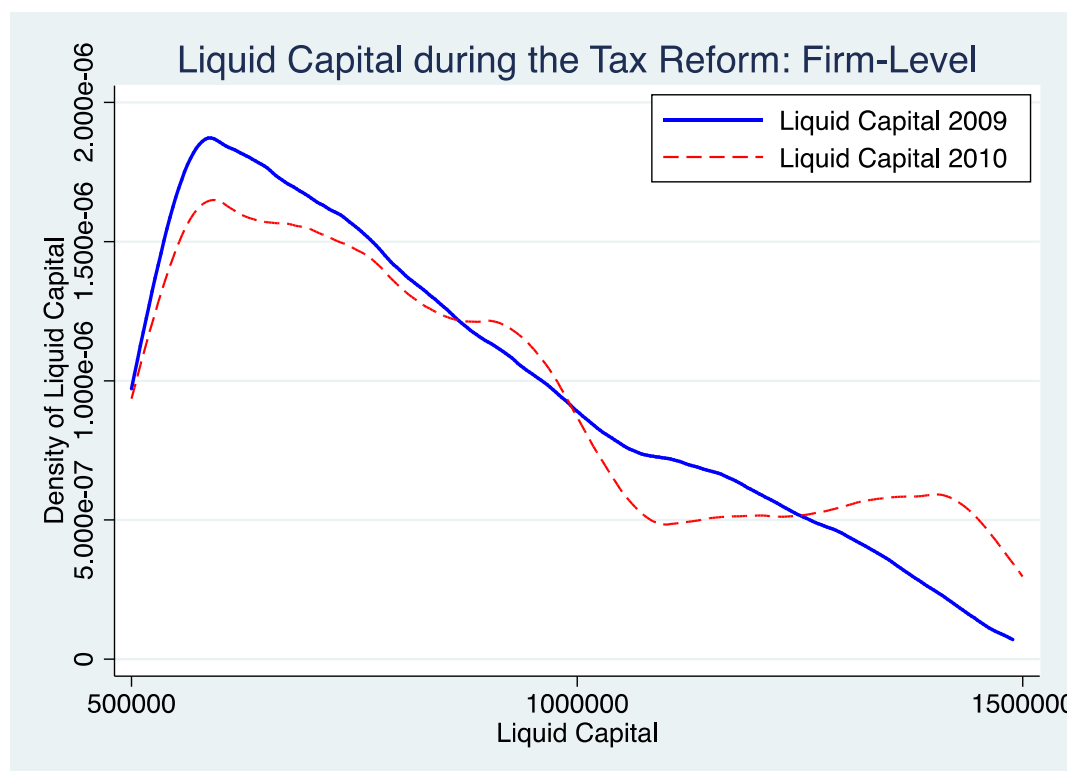
Panel B: Debt-to-Assets ratio (firm-level)



Notes: Panel A depicts the ratio of total financial obligations over operational income (Debt-to-Cash ratio) and panel B shows the ratio of total debt to total tangible assets at the firm-level (Debt-to-Assets ratio). Both figures show the median computed for the period 2009 to 2012. Vertical line corresponds to 2011 (i.e., the year of the implementation of the wealth tax reform). Taxpayers are those firms subject to the wealth tax and with capital between COP 1,000 million and COP 1,500 million, while non-taxpayers (control) firms are those with capital between COP 500 million and COP 999 million (i.e., the wealth tax threshold). Source: Authors' own calculations.

¿Anticipation? We control for the potential anticipation by removing from the sample those firms that reduced their liquid capital the year before

### Liquid capital among taxpayers and non-taxpayers of the wealth tax



Notes: This figure compares the change in the liquid capital (net wealth) of firms around the tax threshold between 2009 and 2010. We find that 188 firms out of the 1,552 firms of the control group (12%) reduced their liquid capital in 2010 from the observed level in 2009. This could suggest a potential anticipation of the wealth tax (or a negative shock that affected their liquid capital). We dropped from the sample those firms to avoid potential anticipation issues. However, we are using those firms as an alternative control group in robustness exercises. Remarkably, the wealth tax law established hard sanctions to firms that reduced their liquid capital in 2010 compared to 2009. Source: Authors' own calculations.

# Data

We employ four administrative data sources:

1. Information from the Colombian **credit registry** (*SFC*) that includes the universe of corporate loans at the **bank-firm-loan level**
  - Sample: bank-firm-quarter loans among 28 banks with 5,320 firms (SMEs)
  - 71,406 observations spanned during the period 2009-2012
2. Regulatory data on **firms' balance sheet** including financial statements (SS)
  - Firm-year level financial information on: Assets, Liabilities, Capital, Debt, **Leverage**, Investments, Revenues and **Trade Credit (credit with suppliers)**
3. **Banks' balance-sheet** data from SFC
  - Measures of capitalization, liquidity, etc., at the bank-quarter level (252 obs).
4. Data on **tax reports** at the bank and firm-level from DIAN
  - Taxpayers and amount paid by firm id (confidential data)
  - **Treatment and control groups are defined using both the firms' liquid capital and the tax reports of the taxpayer firms**

## Bank Credit

- We analyze the effects of the wealth tax reform on the **supply of bank credit**.
- These SMEs **neither** issue bonds, stocks, **nor** access to international credit markets, thereby they depend on bank credit and trade credit
- We use a D-in-D model that evaluates the effect of the change in the wealth tax on the **supply of corporate credit**
  - We compare the amount of credit granted to firms subject to the tax (treated) and those that were not subject to the tax, but have similar characteristics (control)
  - The sample is restricted to firms with **multiple banking relationships** to allow firms to substitute credit across banks ([Khwaja and Mian, 2008](#)).
  - Region-Time and Industry-Time FE are included to control for demand ([Jiménez et al., 2014](#), [Degryse et al, 2020 JFI](#))

## Supply of Bank Credit: Regression model

$$Credit_{f,b,q} = \alpha + \beta_1 Post_q + \beta_2 Treated_f * Post_q + \beta_3 Treated_f * Post_q * High-Leverage_{f,q-1} + \beta_4 Firm_{f,q-1} + \beta_5 Macro_{q-1} + \gamma_b + \gamma_{b,q} + \gamma_{s,q} + \gamma_{r,q} + e_{f,b,q} \quad (1)$$

- $Credit_{f,b,q}$  are loan margins (i.e., loan volumen and loan rates at the bank-firm-quarter level)
- Loan volume  $_{f,b,q}$  is the log of credit amount (COP m) grated by bank  $b$  to firm  $f$  at time  $q$
- Loan rate  $_{f,b,q}$  is the loan rate (in %) charged by bank  $b$  to firm  $f$  at time  $q$
- $Post_q$  is 1 if the obs is between 2011q1 and 2012q4 and 0 if it is between 2009q1 and 2010q4
- $Treated_{f,q}$  is 1 if the firm's equity is between COP 1 b and COP 1.5 b (and subject to the wealth tax since 2011q1) and 0 if the firm's equity is between COP 500 m and COP 999 m
- $High-Leverage_{f,q-1}$  is 1 if the firm has a Debt-to-Cash ratio greater than p75, and 0 otherwise
- $Firm_{f,q-1}$  are firm characteristics (leverage, assets, income, liabilities, etc.) lagged one period
- Macro controls (GDP gap, inflation, and current account balance to GDP)
- Firm FE and Bank FE are included to control for unobserved heterogeneity
- Bank\*Firm FE are included to control for the bank-firm relationship
- Region\*Time FE and Sector\*Time FE to control for demand at the region and industry level.

- **The wealth tax on SMEs is associated with lower bank credit, especially for high-leveraged taxpayer firms.**

### The supply of bank credit and the wealth tax

VARIABLES	(1)	(2)	(3)	(4)
	Log credit <sub>b,f,q</sub>	Log credit <sub>b,f,q</sub>	Log credit <sub>b,f,q</sub>	Log credit <sub>b,f,q</sub>
Post <sub>q</sub>	0.0836 (0.0578)	0.0825 (0.0664)		
Post <sub>q</sub> x Treated <sub>f</sub>	-0.0794*** (0.0252)	-0.0871*** (0.0240)	-0.0783*** (0.0169)	-0.0632*** (0.0174)
Treated <sub>f</sub>	0.1232*** (0.0263)	0.1371*** (0.0221)	0.1366*** (0.0234)	0.1372*** (0.0248)
High-Leverage <sub>f,q-1</sub> x Post <sub>q</sub> x Treated <sub>f</sub>		-0.0243*** (0.0553)	-0.0214*** (0.0032)	-0.0207*** (0.0022)
High-Leverage <sub>f,q-1</sub>	-0.0934** (0.0322)	-0.0891* (0.0312)	-0.0827* (0.0308)	-0.0973*** (0.0301)
Observations	71,406	71,406	71,406	71,406
R-squared	0.47	0.47	0.48	0.51
Firm FE	YES	YES	YES	YES
Bank FE	NO	YES	YES	YES
Bank-Time FE	NO	YES	YES	YES
Region-Time FE	NO	NO	YES	NO
Region-Sector-Time FE	NO	NO	NO	YES

Source: Authors' estimates.



- **The wealth tax on SMEs is associated with significantly higher loan rates, especially for high-leveraged taxpayer firms.**

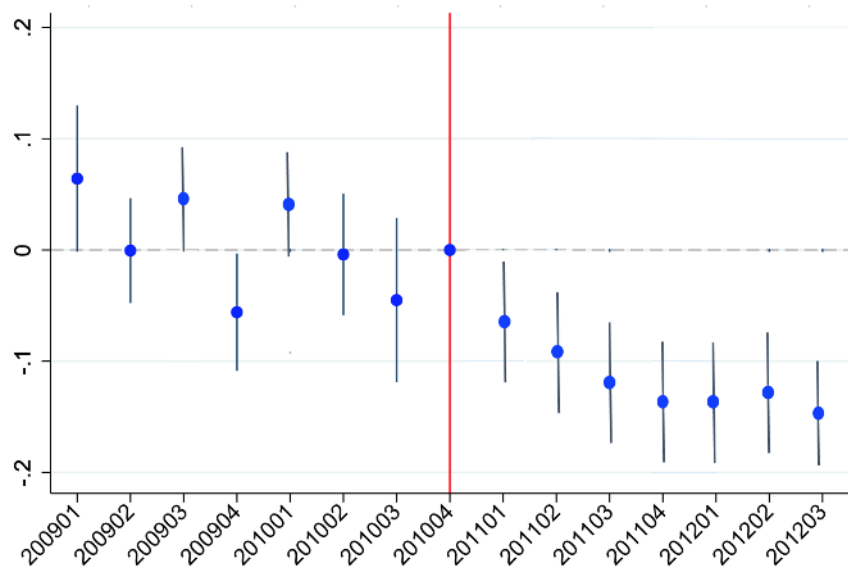
### Loan rates and the wealth tax

VARIABLES	(1) Loan Rate <sub>b,f,q</sub>	(2) Loan Rate <sub>b,f,q</sub>	(3) Loan Rate <sub>b,f,q</sub>	(4) Loan Rate <sub>b,f,q</sub>
Post <sub>q</sub>	1.1173*** (0.0278)	1.1265*** (0.0352)		
Post <sub>q</sub> x Treated <sub>f</sub>	0.4722*** (0.1447)	0.4943*** (0.1530)	0.3742** (0.1418)	0.3481*** (0.1161)
Treated <sub>f</sub>	-1.1394*** (0.3424)	-1.1436*** (0.3824)	-1.5812*** (0.3002)	-1.5941*** (0.2210)
High-Leverage <sub>f,q-1</sub> x Post <sub>q</sub> x Treated <sub>f</sub>		0.3631*** (0.0724)	0.3114*** (0.0917)	0.3385*** (0.0902)
High-Leverage <sub>f,q-1</sub>		0.1631* (0.0823)	0.1745* (0.0804)	0.1831** (0.0912)
Observations	71,406	71,406	71,406	71,406
R-squared	0.41	0.41	0.42	0.43
Firm FE	YES	YES	YES	YES
Bank FE	NO	YES	YES	YES
Bank-Time FE	NO	NO	YES	YES
Region-Time FE	NO	NO	YES	NO
Region-Sector-Time FE	NO	NO	NO	YES

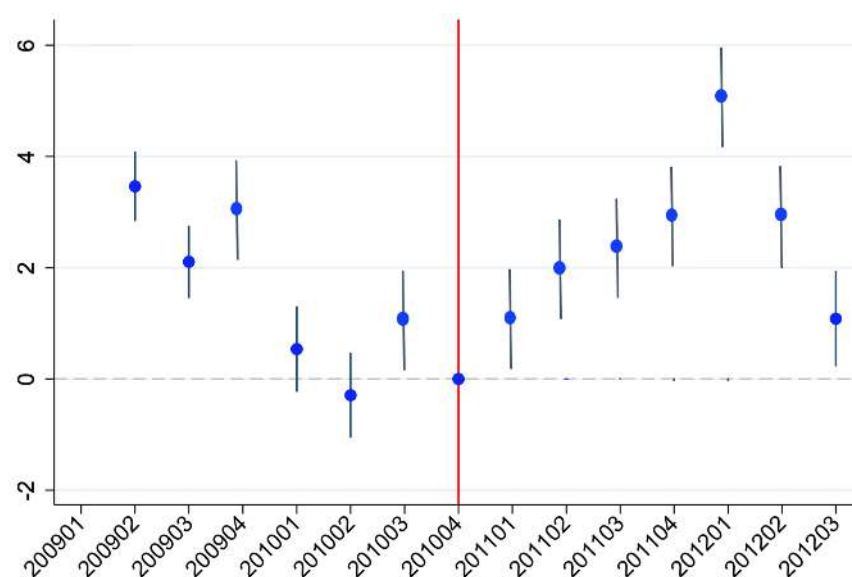
Source: Authors' estimates.

- **¿Parallel trends? After the implementation of the wealth tax reform, banks reduced the supply of credit to affected firms and increased loan rates significantly.**

**Panel A. Loan Volume**



**Panel B. Loan Rates**



Notes: The figure displays the coefficients of the interaction of Post\*Treated at each quarter around the wealth tax reform using a similar specification than Eq. (1). Loan value (measured in COP) (Panel A) and loan rates (measured in percent) (Panel B). We exclude the quarter prior to the implementation of wealth tax reform—2010Q4—so that all coefficients of interest are estimated relative to that quarter. The vertical bar in all panels includes the quarters around the implementation of the wealth tax reform. Standard errors are double clustered at the firm-bank and quarter level. The vertical bars display the 95 percent confidence levels. Source: Authors' estimates.

## Trade credit

- Evaluate whether **trade credit** (non-financial firm-to-firm credit) increased as a source of financing among affected firms
- SMEs tend to rely on trade credit, especially those financially constrained firms
- In trade credit, goods (inputs) act as collateral and there are less information asymmetries than in bank credit ([Klapper, Laeven and Rajan, 2011](#))
- Trade credit is used for firm to cope with bank liquidity shocks ([García and Montoriol, 2013](#); [Restrepo, et al., 2019](#))
- **However, trade credit has lower maturity and is subject to inputs (no working capital)**

- **Affected firms increased the reliance on trade credit as a potential substitution of bank credit. However, this is not the case for high-leveraged taxpayers.**

### Trade credit among firms and the wealth tax

	(1)	(2)	(3)
VARIABLES	Log(Trade Credit <sub>f,y</sub> )	Log(Trade Credit <sub>f,y</sub> )	Log(Trade Credit <sub>f,y</sub> )
Post <sub>y</sub>	-0.0237*** (0.0021)		
Post <sub>y</sub> x Treated <sub>f</sub>	0.1593*** (0.046)	0.1512*** (0.0519)	0.1587*** (0.0582)
Treated <sub>f</sub>	-0.0508*** (0.0186)	-0.0551*** (0.0172)	-0.0571** (0.0242)
High-Leverage <sub>f,y-1</sub> x Post <sub>y</sub> x Treated <sub>f</sub>	-0.0484*** (0.0212)	-0.0423** (0.0272)	-0.0416** (0.0278)
Observations	27,866	27,866	27,866
R-squared	0.27	0.28	0.32
Firm FE	YES	YES	YES
Sector-Time FE	NO	YES	YES
Region-Time FE	NO	NO	YES

Source: Authors' estimates.

## Real Effects

- Want to evaluate whether the financial changes associated to the wealth tax reform had **real effects** on the new taxpayers
- - We employ firm-level outcomes:  $\text{Income}_{f,y}$ ,  $\text{Investment}_{f,y}$ ,  $\text{Total Debt}_{f,y}$ , and capital accumulation ( $\Delta\text{Capital}_{f,y}$ ).
- First, analyze whether the wealth tax reform affected the **firms' performance** of the new taxpayers relative to non-taxpayers
- Second, study whether the effects were more pronounced on **high-leveraged** firms

- **The new taxpayer firms exhibited lower income and investments relative to non-taxpayers.**

### Effects of the wealth tax on firms' performance

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Income <sub>f,y</sub>	Income <sub>f,y</sub>	Income <sub>f,y</sub>	Investment <sub>f,y</sub>	Investment <sub>f,y</sub>	Investment <sub>f,y</sub>
Post <sub>y</sub>	0.0012 (0.0083)	0.0012 (0.0081)		0.0421 (0.0318)	0.0513 (0.0322)	
Treated <sub>f</sub>	0.1102*** (0.0383)	0.1133*** (0.0310)	0.1212*** (0.0352)	0.1624*** (0.0399)	0.1733*** (0.0571)	0.1681*** (0.0412)
Post <sub>y</sub> x Treated <sub>f</sub>	-0.0617** (0.0322)	-0.0640*** (0.0289)	-0.0784** (0.0405)	-0.1132** (0.0523)	-0.1241** (0.0670)	-0.1135*** (0.0418)
Observations	27,866	27,866	27,866	27,866	27,866	27,866
R-squared	0.31	0.32	0.36	0.41	0.44	0.46
Firm FE	YES	YES	YES	YES	YES	YES
Sector FE	NO	YES	YES	NO	YES	YES
Region*Time FE	NO	NO	YES	NO	NO	YES
Sector-Time FE	NO	NO	YES	NO	NO	YES

Source: Authors' estimates.

➤ **The new taxpayer firms exhibited lower indebtedness and capital accumulation relative to non-taxpayers.**

**Effects of the wealth tax on firms with high leverage**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Total Debt <sub>f,y</sub>	Total Debt <sub>f,y</sub>	Total Debt <sub>f,y</sub>	Δ Capital <sub>f,y</sub>	Δ Capital <sub>f,y</sub>	Δ Capital <sub>f,y</sub>
Post <sub>y</sub>	0.0406 (0.0518)			0.1106** (0.0457)		
Treated <sub>f,y</sub>	0.0823*** (0.0312)	0.0756*** (0.0240)	0.0691** (0.0376)	0.1826*** (0.0512)	0.1762*** (0.0440)	0.1691** (0.0403)
Post <sub>y</sub> x Treated <sub>f</sub>	-0.1180*** (0.0421)	-0.1173*** (0.0418)	-0.1253*** (0.0389)	-0.0574** (0.0205)	-0.0587** (0.0274)	-0.0731*** (0.0304)
High_leverage <sub>f,y-1</sub>	0.0230** (0.0108)	0.0217** (0.0103)	0.0221** (0.0106)	-0.0430*** (0.0358)	-0.0346*** (0.0349)	-0.0324*** (0.0379)
High_leverage <sub>f,y-1</sub> x Post <sub>y</sub>	0.0150 (0.0140)	0.0141 (0.0128)	0.0145 (0.0134)	0.1180 (0.0910)	0.0931 (0.0511)	0.1193 (0.0851)
High_leverage <sub>f,y-1</sub> x Post <sub>y</sub> x Treated <sub>f</sub>	-0.0469*** (0.0212)	-0.0482** (0.0229)	-0.0513*** (0.0198)	-0.0324** (0.0156)	-0.0382* (0.0164)	-0.0418*** (0.0179)
Observations	27,866	27,866	27,866	27,866	27,866	27,866
R-squared	0.34	0.34	0.36	0.26	0.26	0.32
Firm FE	YES	YES	YES	YES	YES	YES
Sector FE	YES	YES	NO	YES	YES	NO
Region*Time FE	NO	YES	YES	NO	YES	YES
Sector*Time FE	NO	NO	YES	NO	NO	YES

Source: Authors' estimates.

# Conclusions

- **Wealth taxes create financial and real distortions when they are imposed on SMEs**
- The change in the wealth tax base is associated with lower bank credit and significantly higher loan rates, especially for taxpayers with high leverage.
- This is consistent with a reallocation of credit in the segment of firms affected by the reform (lower bank risk taking).
- Affected firms increased the reliance on trade credit (potential substitution of bank credit) except for high-leveraged firms.
- The taxpayers' firms exhibited substantial real effects (i.e., lower indebtedness, income, investment, and capital accumulation), especially those with high leverage.
- **Taxing wealth of SMEs has significant financial and real distortions.**



# Extensions and Robustness

- Risky firms (credit ratings)
- Bank characteristics (low capital / high nonperforming loan ratios)
- Real effects (employment, productivity)
- Alternative control group (12% of firms that reduced liquid capital in t-1)

# Thanks!