

*Connecting to Power:  
Political Connections, Innovation,  
and Firm Dynamics*

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Disclaimer: The opinions expressed are the authors' own and do not reflect the views of the Bank of Italy or INPS.

## *Motivation*

- A growing empirical literature emphasizes the importance of factor reallocation from less productive to more productive firms (Bartelsman and Doms, 2000; Foster, Haltiwanger, and Krizan, 2001, 2006; Hsieh and Klenow, 2014).
- Theoretically, the basic premise of creative destruction models is that it is **sufficient for an entrant to come up with a better technology or quality product** to replace an incumbent (Aghion and Howitt, 1992; Grossman and Helpman, 1991).

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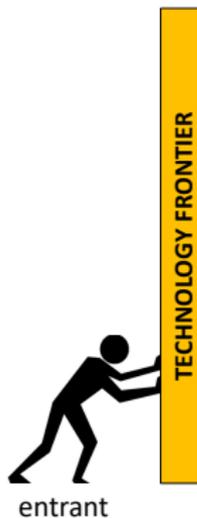
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***IS THIS REALLY THE CASE?***

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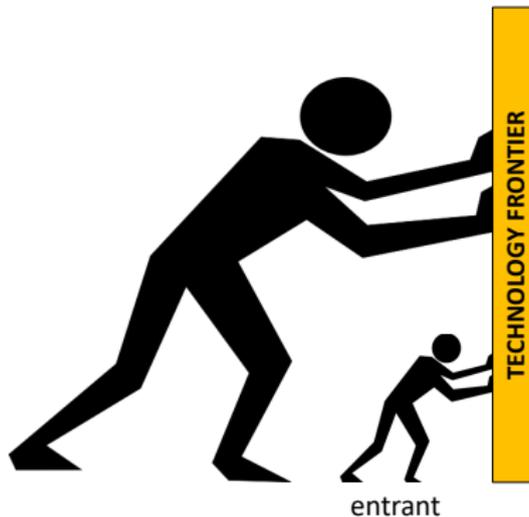
# Alternative Models: Innovation vs Protective Strategies

## Alternative Models



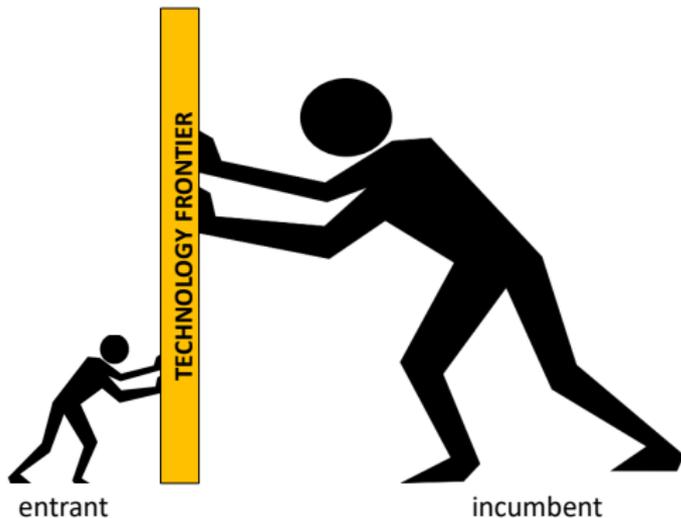
# Alternative Models: Innovation vs Protective Strategies

## Pro-Competitive Model



# Alternative Models: Innovation vs Protective Strategies

## Anti-Competitive Model



# *This Paper*

## Research Question:

How do political connections affect firm dynamics, reallocation, and productivity?



- I. Provide empirical evidence differentiating btw alternative models;
- II. Develop a model to gauge about aggregate implications.

# EMPIRICAL ANALYSIS

## *Which Politicians?*

**Local Politicians** – distinct feature in our analysis.

- Harder to detect, more pervasive:
  - In Italy – 8000+ municipalities, 110 provinces, 20 regions.
- Substantial power:
  - Issue permits and licenses, construction planning, provide local public goods and services (public utilities, health care, transport, waste management), taxes (in some cases).
  - Further increase in power since the 90's.

# Data

## Individual Level

### Registry of Local Politicians

**Source:** *Ministry of the Interior*

- Universe of local politicians (regional, province, municipality) 1985-2014.
- Demographics, position attributes, party affiliation.

### Elections Data

**Source:** *Ministry of the Interior + own data collection*

- Local elections (regional, province, municipality) 1993-2014.
- Candidates, parties/coalitions, allocation of votes and seats.

## Social Security Data

**Source:** *INPS*

*Universe of private sector employment 1985-2014.*

### Individual level:

Demographics,  
Employment history,  
Labor income,  
Job characteristics.

### Firm-level:

Entry/exit,  
Size,  
Worker  
characteristics,  
Industry, Location.

## Firm Level

### Firm-level Data

**Source:** *Cerved*

- Universe of limited companies 1993-2014.
- Financials: balance sheet, income statement.

### Patent Data

**Source:** *PATSTAT*

- All EPO patents filed by Italian firms in 1990-2014.
- Patent characteristics: patent families, grant status, technology classification, citations, claims.

## *Firms' Connections with Local Politicians*

- *Connection*: dummy equal to one at  $t$  if a firm employs any local politician at time  $t$ .
- *High-rank Connection*: dummy equal to one at  $t$  if a firm employs at least one mayor/president/vice-mayor/vice-president at  $t$ .
- *Majority-party Connection*: dummy equal to one at  $t$  if a firm employs at least one member of a local majority party at time  $t$ .

# *Empirical Analysis: Outline*

*I.* Summary Statistics.

*II.* Firm Moments:

1. Connection vs innovation;
  2. Survival;
  3. Growth in size;
  4. Growth in productivity.
- Causal inference using RD.

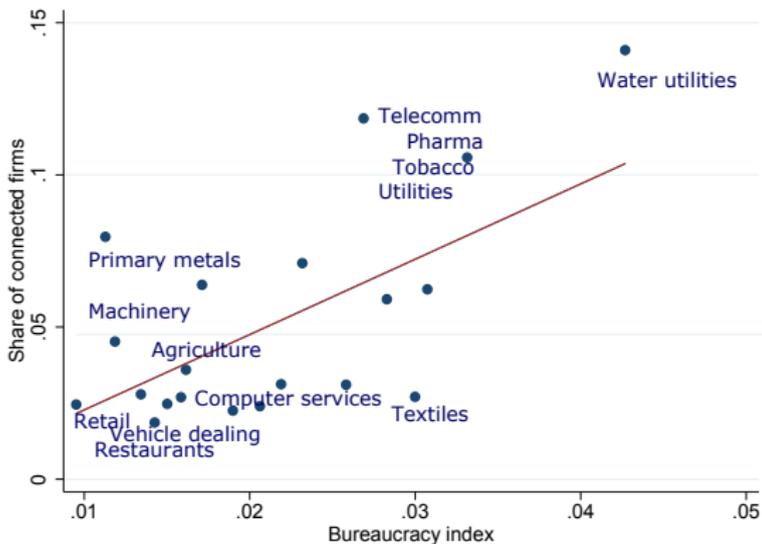
*III.* Politicians' Facts.

# I. SUMMARY STATISTICS

## Summary Statistics I

- Connections are widespread. Across industries:
  - 4.5% of all firms and 46% of large firms (> 100 workers);
  - 34% of employment.

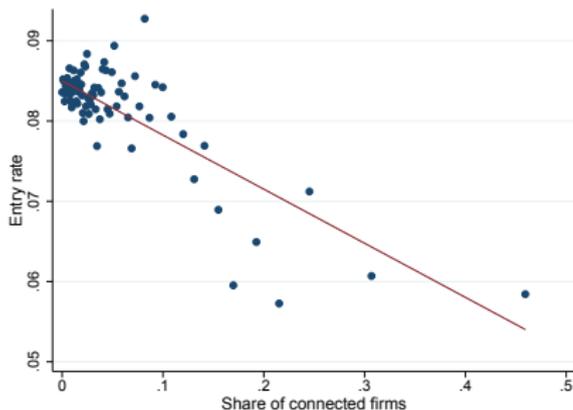
### INDUSTRY BUREAUCRACY/REGULATIONS AND CONNECTIONS



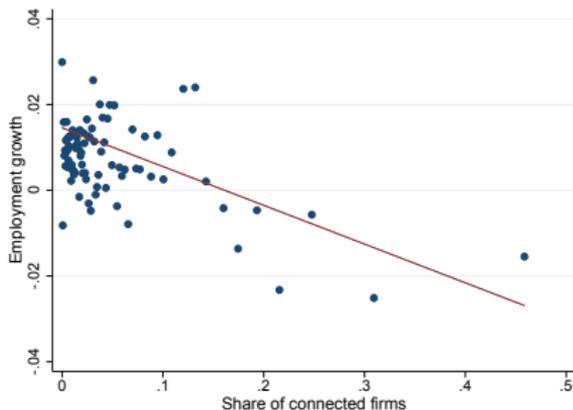
# Summary Statistics II

## CONNECTIONS AND INDUSTRY DYNAMICS

Entry Rate and Connections



Growth and Connections



Notes: Binscatter plots from industry  $\times$  region  $\times$  year level regressions. Variables on Y axis are adjusted for industry, year, and region fixed effects. Variables on X axis: share of firms connected.

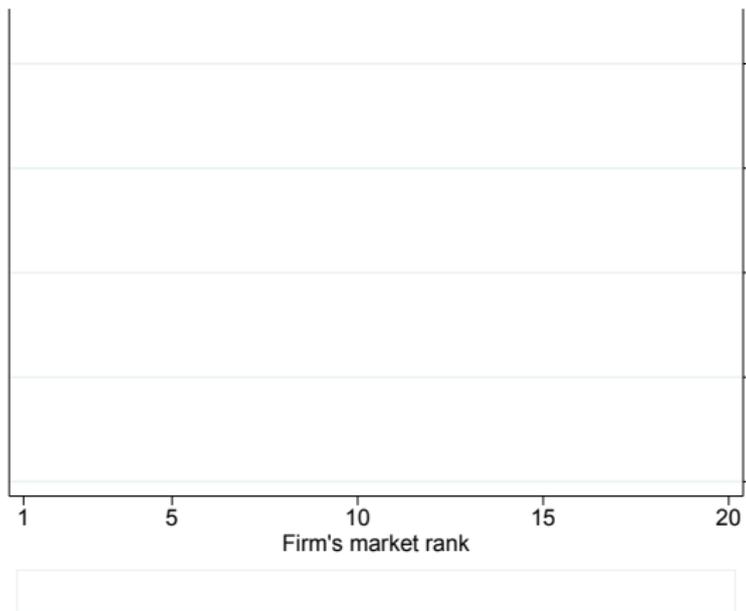
[▸ Details](#)

[▸ More](#)

## II. FIRM MOMENTS

## 1. Leadership Paradox: Connection vs Innovation

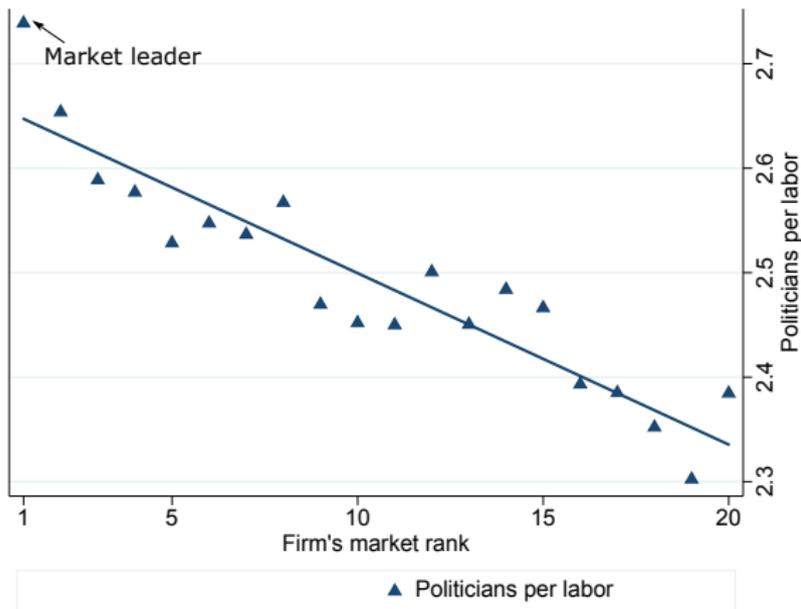
### Market Leadership, Innovation, and Political Connection



Notes: Market rank – size rank across firms that operate in the same industry and region. Y axis is demeaned with industry, year and region fixed effects. [▶ More](#)

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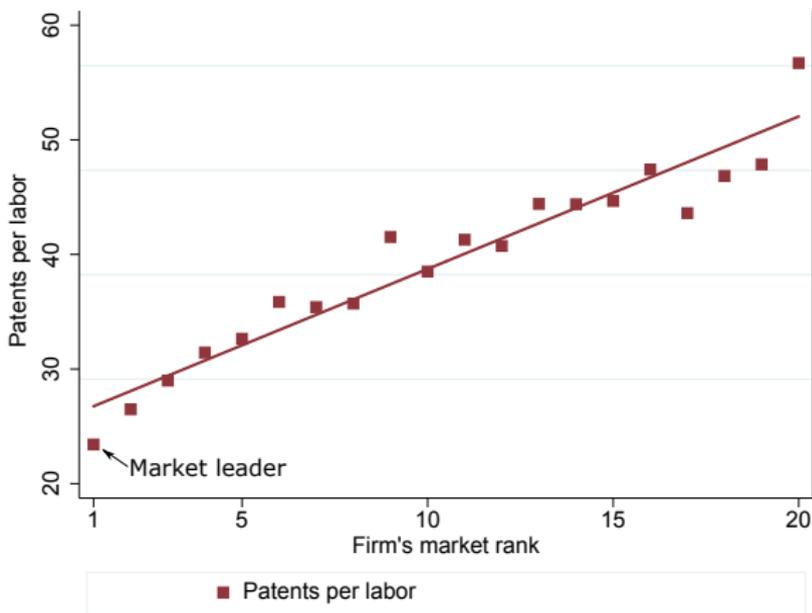
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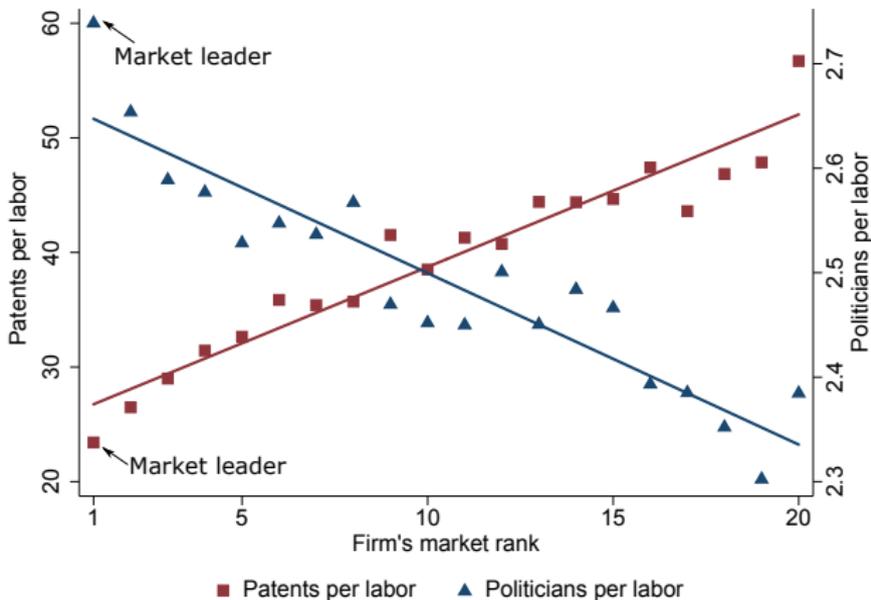
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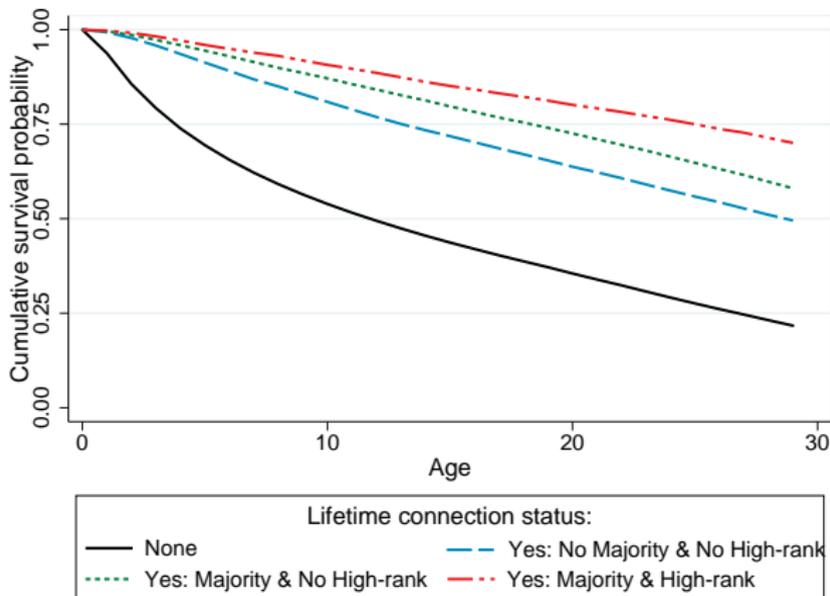
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Notes: Market rank – size rank across firms that operate in the same industry and region. Y axis is demeaned with industry, year and region fixed effects. [▶ More](#) [▶ Alternative](#)

*2. Firm Performance:  
Firm Survival and Political Connection*

## 2. Firm Performance: Firm Survival and Political Connection



- **Cox analysis:** Any conn.  $\rightarrow$  9.2%  $\downarrow$ ; majority-level conn.  $\rightarrow$  11.5%  $\downarrow$ ; high-rank conn.  $\rightarrow$  31.7%  $\downarrow$  exit hazard rate.

*3. Firm Performance:  
Firm Growth and Political Connection*

### *3. Firm Performance: Firm Growth and Political Connection*

	Empl growth (OLS)	Empl growth (FE)	VA growth (OLS)	VA growth (FE)
Connection	0.032*** (0.001)	0.040*** (0.002)	0.039*** (0.002)	0.014*** (0.002)
Connection major	0.003* (0.001)	0.007*** (0.002)	0.010*** (0.002)	0.002 (0.002)
Log Assets	0.065*** (0.000)	0.203*** (0.001)	0.036*** (0.000)	-0.091*** (0.001)
Log Labor	-0.077*** (0.000)	-0.384*** (0.001)	-0.080*** (0.000)	-0.235*** (0.001)
Age	-0.002*** (0.000)	-0.011*** (0.000)	-0.004*** (0.000)	-0.005*** (0.000)
Year FE	YES	YES	YES	YES
Region FE	YES	NO	YES	NO
Industry FE	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES
Observations	6545131	6585740	5684519	5710338

Notes: Connection/Connection major are dummy variables equal to one if firm is connected with any/majority party.

## *4. Firm Performance: Productivity Growth and Political Connection*

	LP growth (OLS)	LP growth (FE)	TFP growth (OLS)	TFP growth (FE)
Connection	-0.014*** (0.002)	-0.028*** (0.002)	-0.008*** (0.001)	-0.019*** (0.002)
Connection major	-0.001 (0.002)	-0.004 (0.003)	0.000 (0.002)	-0.003 (0.002)
Log Assets	-0.028*** (0.000)	-0.274*** (0.001)	-0.001*** (0.000)	-0.106*** (0.001)
Log Labor	0.021*** (0.000)	0.274*** (0.001)	-0.006*** (0.000)	0.125*** (0.001)
Age	-0.001*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	-0.003*** (0.000)
Year FE	YES	YES	YES	YES
Region FE	YES	NO	YES	NO
Industry FE	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES
Observations	5598367	5623077	5271002	5291979

Notes: Connections/Connection major are dummy variables equal to one if firm is connected with any/majority party.

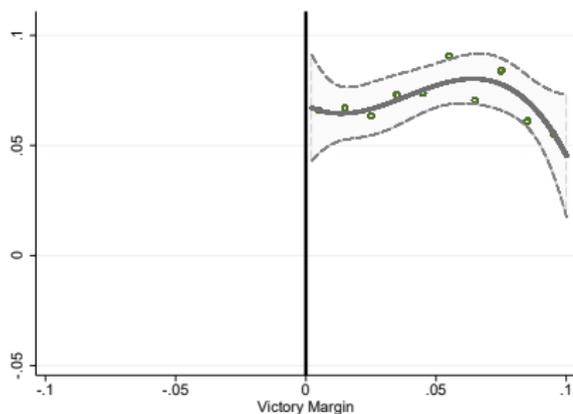
FIRM PERFORMANCE:  
CAUSAL INFERENCE

## *Causality: RD Design*

- **Causal identification** of the effect of majority-level connections on growth.
- **Regression discontinuity (RD) design:**
  - Sharp discontinuities caused by elections decided on a thin margin.
  - Close races determined by a “chance” (Lee, 2008): random assignment of treatment.
  - Compare firms connected with politicians from **marginally winning** vs **marginally losing** parties/coalitions right *before* the election.
- *Margin of victory* =  $p_{winner} - p_{loser}$
- 37,005 elections (2.3K with 2% margin) at municipal, provincial, and regional levels.

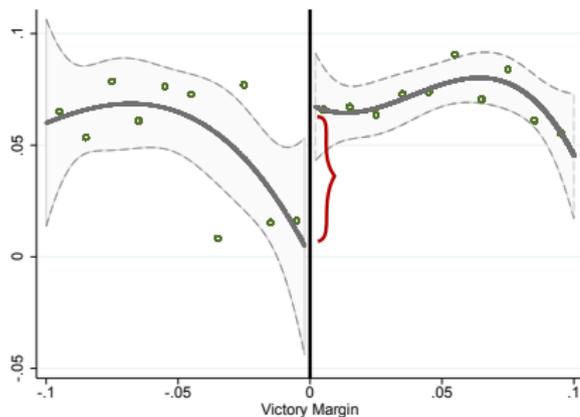
## *Employment and Productivity Growth After Election*

Empl Growth **After** Election ( $T \rightarrow T + 1$ )



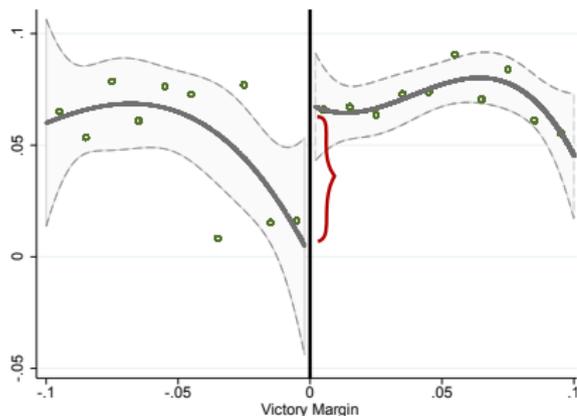
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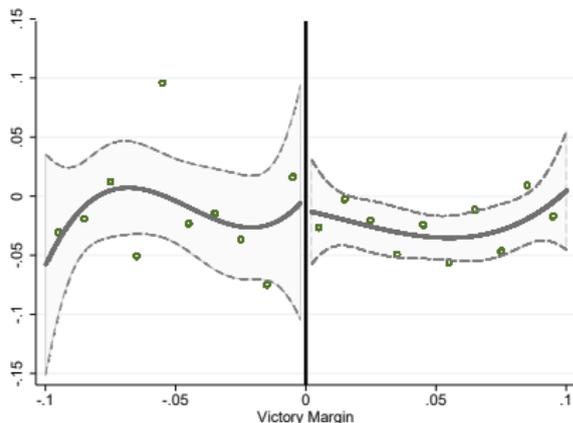
## *Employment and Productivity Growth After Election*

Empl Growth **After** Election ( $T \rightarrow T+1$ )



Large positive effect

LP Growth **After** Election ( $T \rightarrow T+1$ )



No positive effect

## RD Estimation

$$y_{iT(m)} = \alpha + \beta \text{Win}_{iT(m)-1} + f(\text{margin}_m) + (\delta_1 X_{iT(m)} + \delta_2 X_m + \delta_3 X_T) + v_{iT(m)}$$

- $T(m)$  - time of a marginal election  $m$ .
- $y_{iT(m)}$  - outcome for firm  $i$  at  $T(m)$ .
- $\text{Win}_{iT(m)-1}$  - dummy equal to one if at  $T(m) - 1$   $i$  is connected with a member of a winning party in the election  $m$  at  $T(m)$ .
- $\text{Margin}_m$  - margin of victory.
- Local linear regression:  $f(\text{margin}_m)$  – linear polynomial estimated on both sides of the threshold; optimal bandwidth (Imbens and Kalyanaraman (2012); triangular kernel.
- $X_{iT(m)}, X_m, X_T$ : firm controls, time, location F.E.

## RD Results

	Empl Growth	Empl Growth	LP Growth	LP Growth
Win dummy	0.0392** (0.0178)	0.0408** (0.0169)	-0.0128 (0.0308)	-0.0141 (0.0299)
Age		-0.0000 (0.0003)		-0.0005 (0.0006)
Log Size		0.0018 (0.0033)		-0.0106 (0.0076)
f(Victory margin)	YES	YES	YES	YES
Year FE	NO	YES	NO	YES
Province FE	NO	YES	NO	YES
Observations	19465	19362	10437	10422

Notes: RD estimates for employment growth (columns 1 and 2) and labor productivity growth (columns 3 and 4) based on regression specification above. Growth rates are defined from  $T$  to  $T + 1$ . The local linear regressions are estimated on the optimal Imbens and Kalyanaraman (2012) bandwidth and are weighted using a triangular kernel function. Robust standard errors reported in parentheses.

## *Robustness and RD Validation*

- Random assignment test - incumbency advantage.
- Pre-trends in outcomes;
- Balancing tests;
- Regressions with or without controls;
- $2^{nd}$  order local polynomials;
- Various victory margin bandwidths and kernel weighting;
- Firm survival using RD.

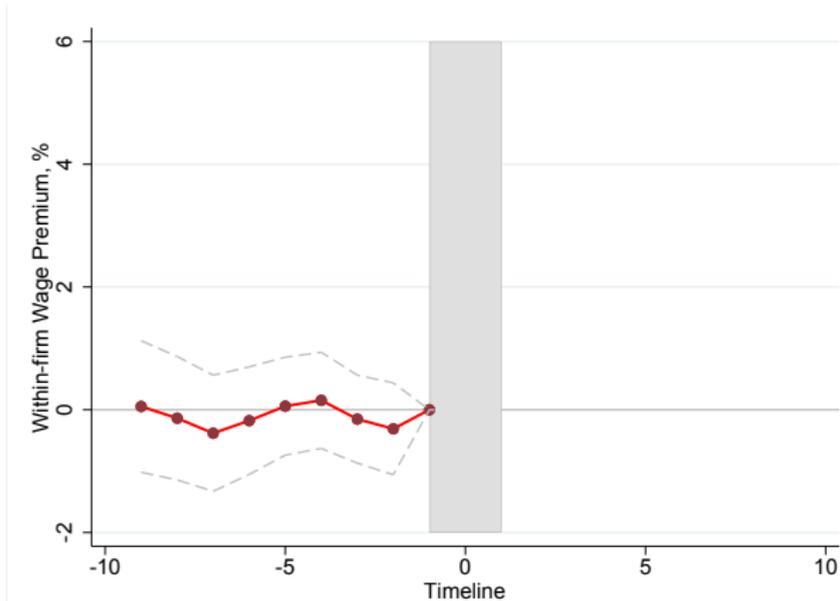
### III. POLITICIANS' FACTS

## *Politician's Wage Premium*

1. **Within-Firm Within-Group**: average wage premium 10%; increases with politician's rank.

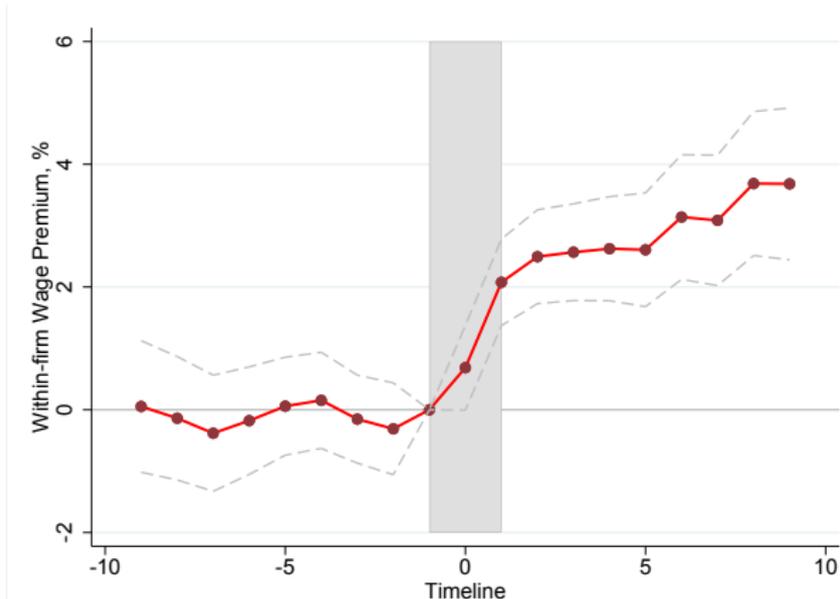
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2. **Within-Firm Within-Individual**: **Event study** before and after becoming a politician.



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## *Empirics, Summary*

### At the **micro** level:

1. Market **leadership** is associated with:
    - higher politicians intensity;
    - lower innovation intensity.
  2. **Connected firms** are less likely to exit.
  3. **Connected firms** experience
    - higher employment and sales growth;
    - lower productivity growth.
  4. **Politicians** enjoy significant wage premia over co-workers.
- } **Causality** using RD design.

### At the **macro** level:

5. **Industries** with more politically connected firms have
  - lower entry and higher share of connected entrants;
  - lower share of young firms, growth, and productivity.

MODEL

## *Model*

- Starting point: **Benchmark Schumpeterian Growth Model**
- Extension with political connections.
- Which mechanisms?
  - Help incumbent innovation;
  - Block entrant's innovation;
  - Help incumbent's production – input market.
- **Frictions:** firms face **wedges** in the input market – à la Hsieh and Klenow (2009) (e.g., bureaucracy and regulation costs).
- Political connections reduce these frictions but come at a cost.
- Start from a model where connections are “well-intended”.

## Static Problem 1

- Unique sectoral output ( $Y$ ) produced using different vintages of goods  $m \in 1, \dots, M$ .
- Sectoral good producer solves:

$$\max_{[y_m]} \left\{ \frac{1}{1-\beta} \left[ \sum_{m=1}^M q_m^{\frac{\beta}{1-\beta}} y_m \right]^{1-\beta} - \sum_{m=1}^M p_m y_m \right\} \quad (1)$$

- Different vintages are perfect substitutes after adjusting for their qualities.
- Hence, a best (price-adjusted)-quality vintage ( $q_M$ ) will be produced by a monopolist.
- Monopolist produces with the following technology

$$y = l. \quad (2)$$

## Static Problem 2

- Regulations create “wedges” –  $\tau$  – à la Hsieh and Klenow (2009).

- **Non-connected firm:**

$$\pi^n = \max_l \{py - (1 + \tau)wl\} \quad \text{subject to (1) and (2).}$$

- **Politically connected firm:**

$$\pi^P = \max_l \{py - wl - w^P\} \quad \text{subject to (1) and (2).}$$

where  $w^P$  is the cost of connection (*endogenized in the extension*).

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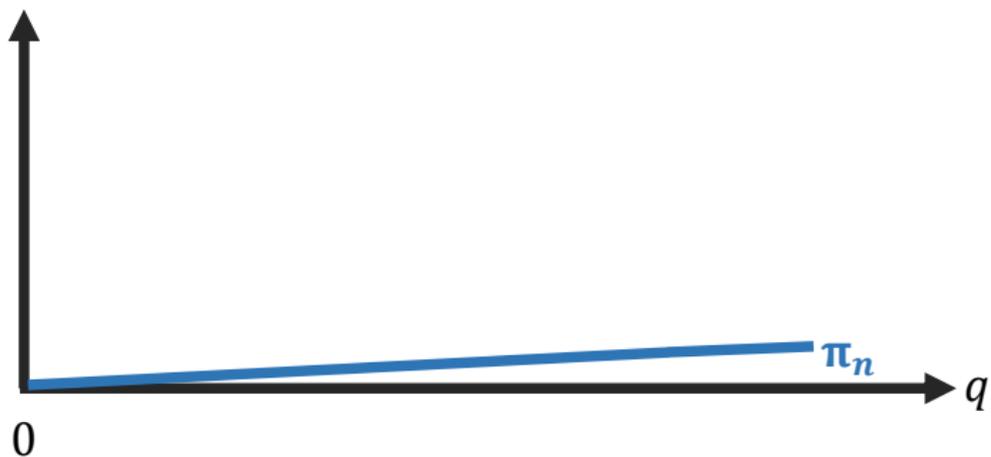
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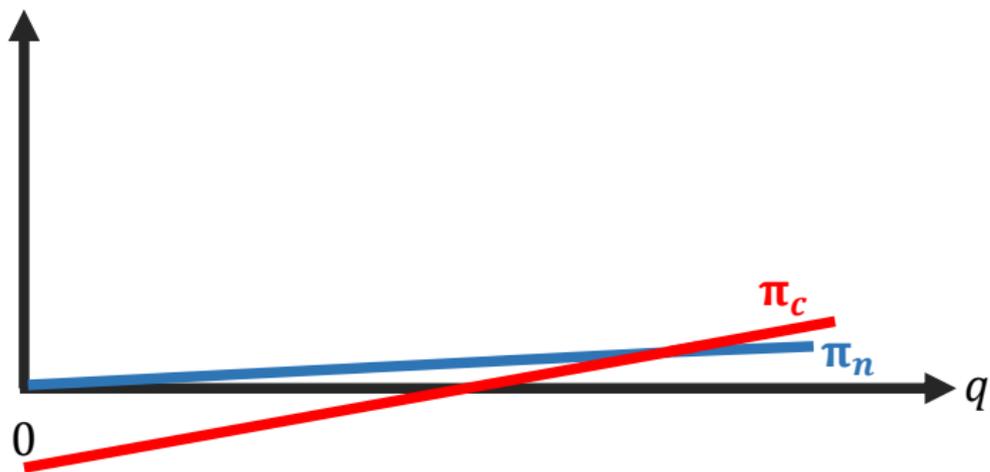
- Static optimization →

**PREDICTION 1:** *Connections lead to higher employment and revenue  
BUT not labor productivity.*

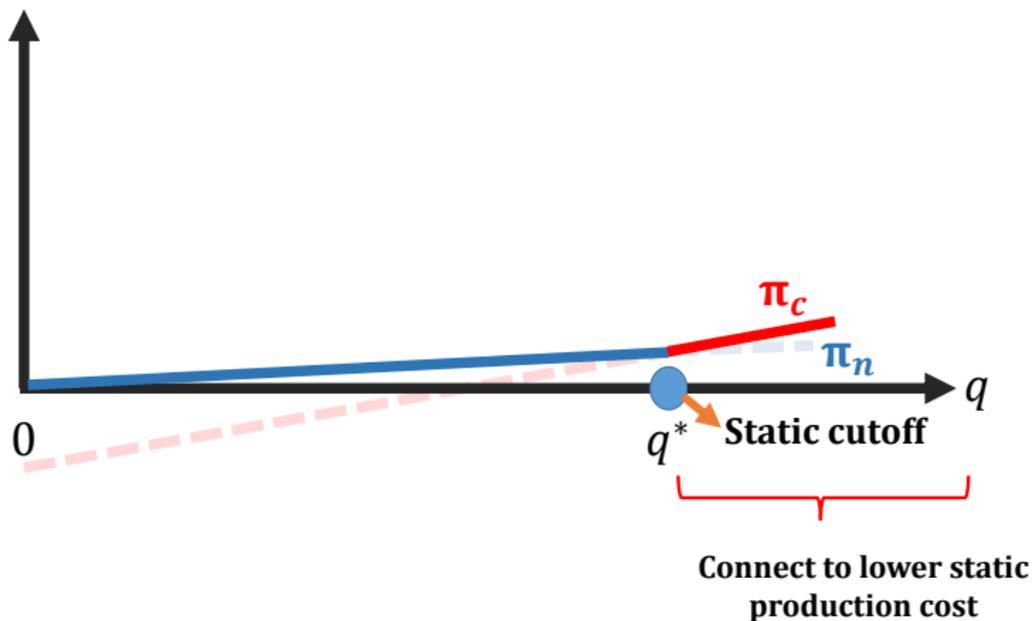
### *Static Problem 3: Choice of Connection*



## Static Problem 3: Choice of Connection



## Static Problem 3: Choice of Connection



**PREDICTION 2:** *Large firms* are more likely to get connected.

**PREDICTION 3:** For any given size, firms are more likely to get connected if the industry is *more regulated* ( $q^* \downarrow$  if  $\tau \uparrow$ ).

# Dynamic Problem 1

Introduce entry and innovation – incumbents or entrants can introduce a better vintage.

## Entry I: Connection

- Empirical fact: connected firms are **larger** and **older** ▶ Table.
- Assume ability to develop political connections takes time (getting exposed to a network).
- Two types of firms:
  - **type=0**: unable to get connected;
  - **type=1**: able to connect *if* they want to – share  $\alpha$  of firms at entry.
- Switch from type=0 to type=1 at a Poisson arrival rate of  $\zeta$ .

## Dynamic Problem 2

### Entry II: Productivity

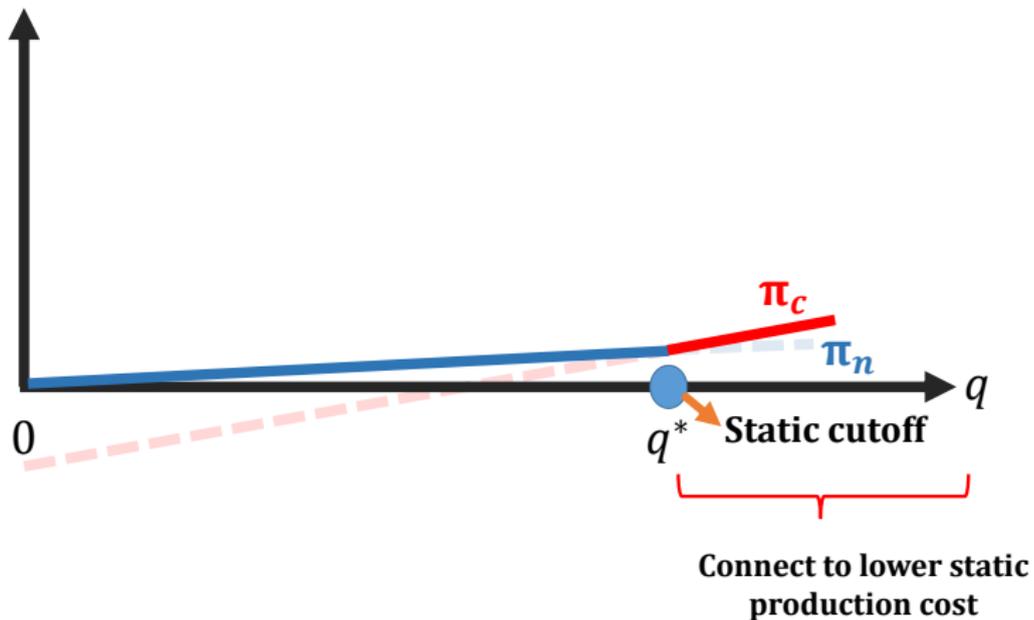
- Entrants' innovation arrival rate is  $p$ .
- Draw an innovation size  $\lambda$ :  $q_{M+1} = (1 + \lambda)q_M$

**Tradeoff:** *Entrants have a better technology BUT are relatively disadvantaged in removing the regulatory burden.*

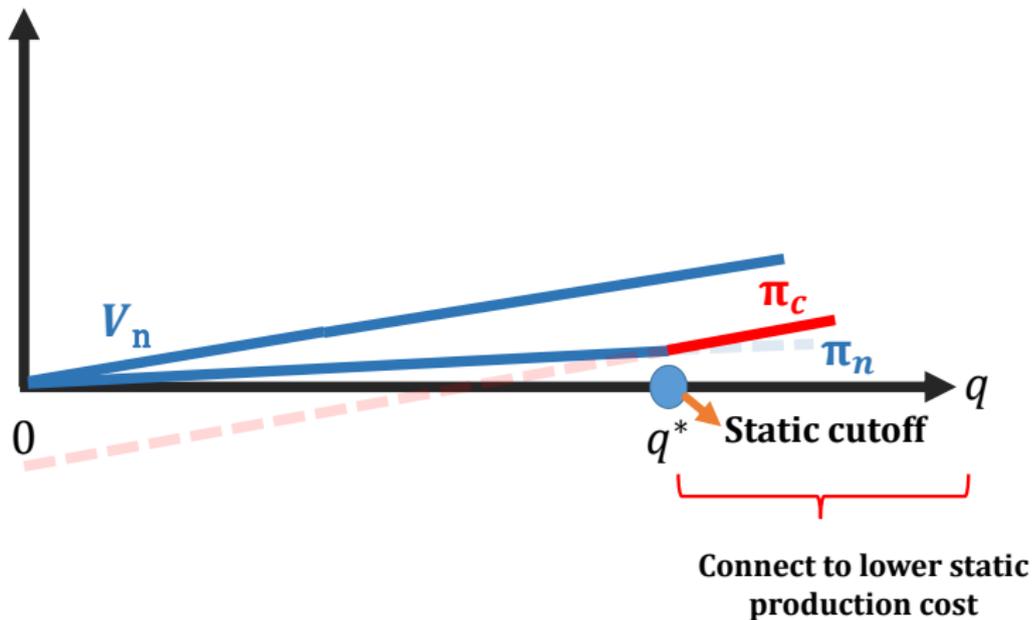
→ Implications for **creative destruction** –  $\tilde{p}$ .

- Case 1 – symmetry btw entrant and incumbents:  $\tilde{p} = p$  ( $\forall \lambda > 0$ ).
- Case 2 – asymmetry:  $\tilde{p} < p$  ( $\lambda > \lambda^* \equiv \tau$ )

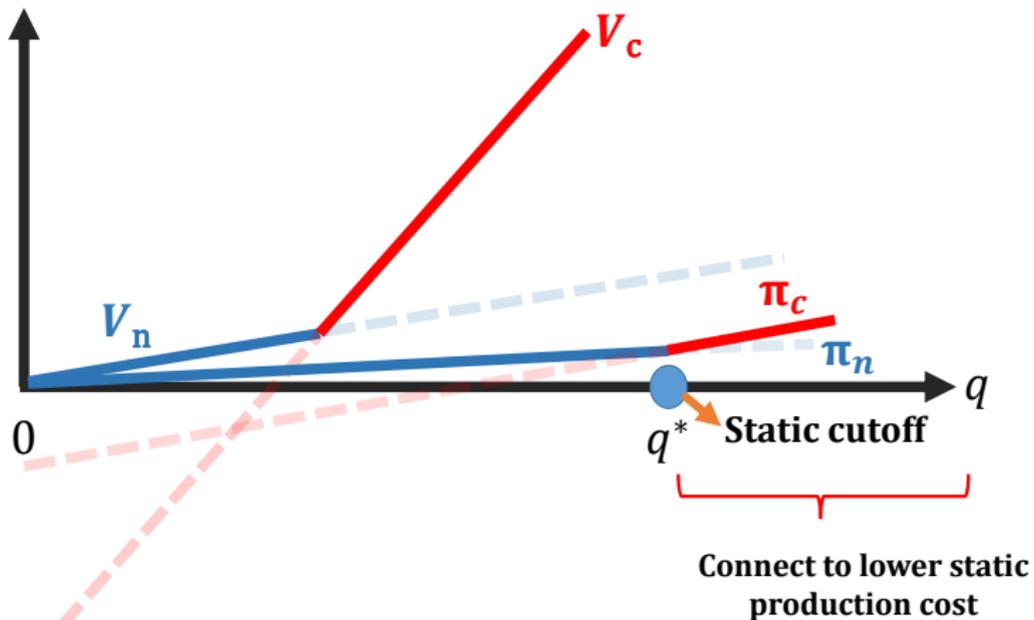
## *Static vs Dynamic connection choice I*



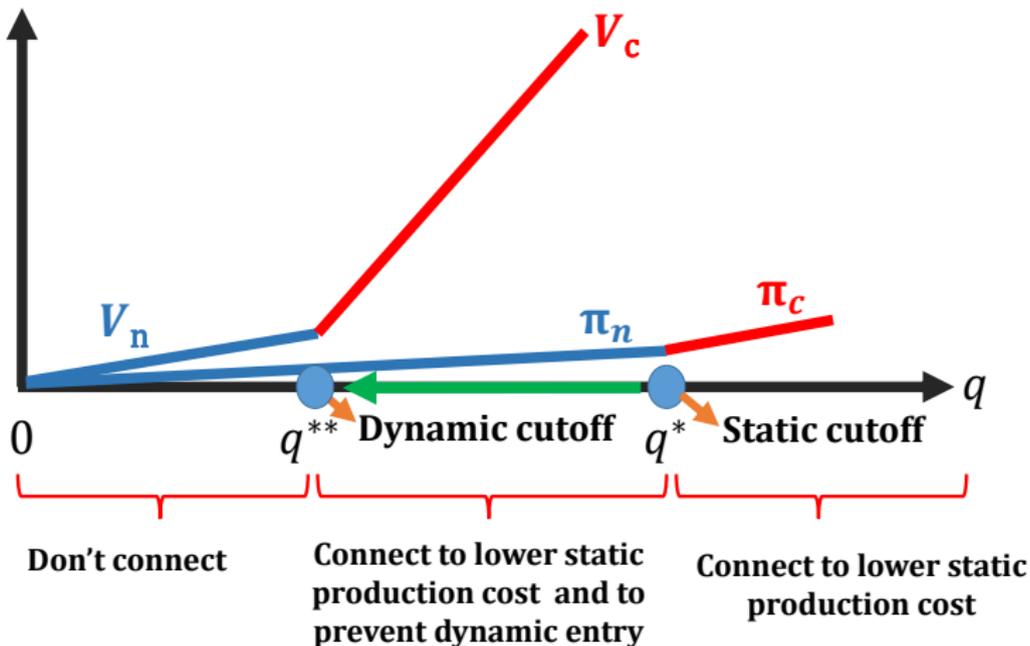
## *Static vs Dynamic connection choice I*



## *Static vs Dynamic connection choice I*



## Static vs Dynamic connection choice I



**Preemptive motives to connect:** firms connect earlier to reduce incentives of others to enter and compete.

## *Static vs Dynamic connection choice II*

PREDICTION 4: *Connected incumbents are less likely to exit.*

PREDICTION 5: *Connected incumbents are more likely to be replaced by **connected** entrants* .

PREDICTION 6: *Connected industries have lower reallocation.*

## *Model. Discussion*

### Static

- Gains by removing frictions in the economy. “Well-intended” connections.

### Dynamic

- Existence of wedges (regulations) + ability to influence wedges through political connections → un-leveled playing field leading to dynamic inefficiencies – lower entry and reallocation:
1. Endogenous response to the asymmetric distribution of power;
  2. Strategic anticipation by entrants.

## *Final Remarks*

- New data with empirical findings on the relation between political connections and number of micro and macro moments.
- A new model of firm dynamics, innovation, and political connections.
- Future work: quantify importance for aggregate productivity and welfare.
- Potential implications for the U.S. in light of increasing market concentration, increased lobbying, and declining business dynamism.

# APPENDIX

## Literature

### Reallocation, firm dynamics:

- Foster et al. (2000, 2006), Bartelsman et al. (2013), Restuccia and Rogerson (2008), Acemoglu et al. (2013), Aghion and Howitt (1992), Klette and Kortum (2004).

### Private returns from political connections:

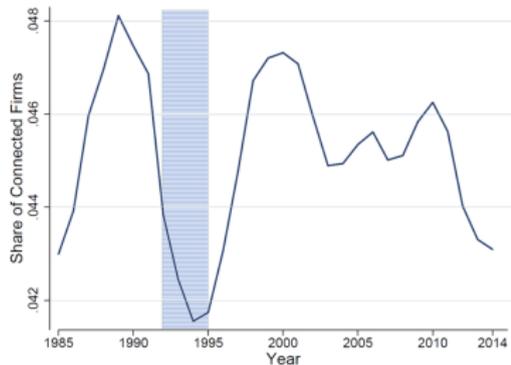
- Fisman (2001), Johnson and Mitton (2003), Khwaja and Mian (2005), Dinc (2005), Faccio and Parsley (2006), Goldman et al. (2013), Akey (2015), Acemoglu et al. (2017), Fang et al. (2018).

### Social costs from political connections:

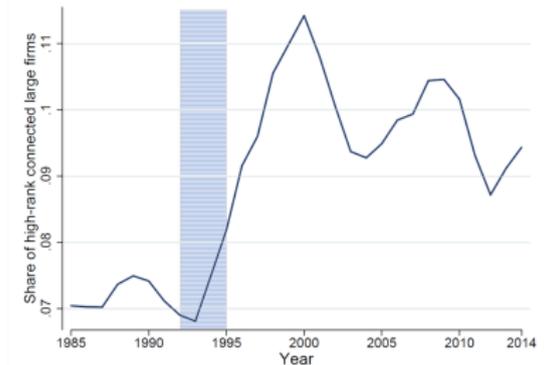
- *Greasing wheels* (Kauffman and Wei (1999), Shleifer and Vishny (1994)) vs *grabbing hands* hypothesis (Shleifer and Vishny, 2002).
- Public good provision – Cingano and Pinotti (2013); misallocation – Garcia-Santana et al. (2016), Arayavechkit et al. (2017)

# Political Connections over Time

## Share of connected firms



## Share of high-rank conn large firms

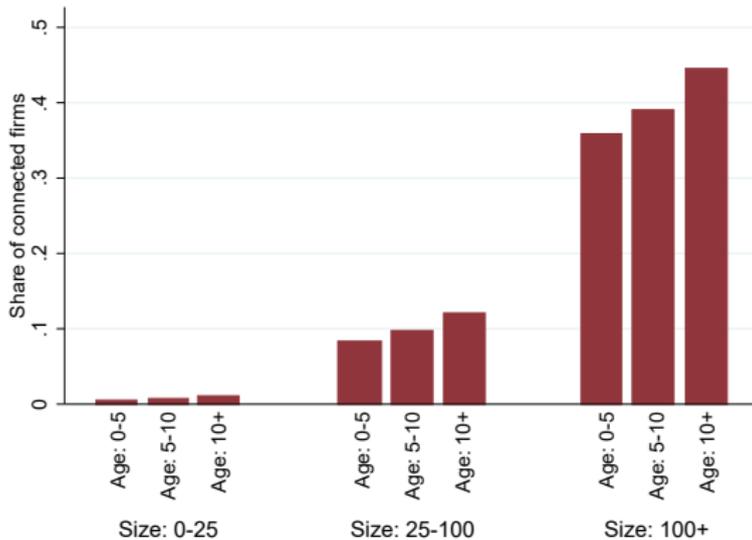


## Connections and Bureacracy Index across Industries ▶ [Back](#)

<i>Code</i>	<i>Industry description</i>	<i>Connection intensity</i>	<i>High-rank connection intensity</i>	<i>Bureacracy Index 1</i>	<i>Bureacracy Index 2</i>
E36	Water Utilities	0.254	0.065	0.046	0.159
K64	Banking/Credit Or Investing/Securities	0.222	0.075	0.027	0.110
D	Electricity/Gas Utilities	0.155	0.032	0.033	0.191
C12	Tobacco Products	0.146	0.005	0.028	0.092
C21	Pharmaceuticals	0.139	0.024	0.031	0.087
C24	Primary Metals	0.119	0.026	0.011	0.057
J61	Telecommunication Services	0.114	0.040	0.031	0.095
B	Mining/Quarrying	0.101	0.008	0.011	0.057
C29	Motor Vehicles Or Motor Vehicle Parts	0.099	0.008	0.017	0.062
C11	Beverages/Drinks	0.083	0.005	0.023	0.059
C19	Downstream Operations	0.080	0.015	0.012	0.071
E38	Waste Treatment/Disposal	0.060	0.005	0.013	0.085
C26	Computer Hardware/Consumer Electronics	0.059	0.005	0.023	0.060
C22	Rubber Products Or Plastics Products	0.057	0.009	0.018	0.058
C20	Chemicals	0.057	0.006	0.026	0.081
C28	Machinery	0.051	0.005	0.015	0.051
...	...	...	...	...	...
I55	Lodgings	0.017	0.001	0.027	0.073
C16	Wood Products	0.016	0.001	0.014	0.044
C25	Metal Products	0.016	0.001	0.008	0.048
C32	Jewelry/Musical Instruments/Sports Goods/Games	0.016	0.001	0.030	0.065
C18	Printing	0.015	0.002	0.014	0.039
M	Legal and Professional	0.015	0.002	0.027	0.145
C10	Food Products	0.014	0.001	0.022	0.064
G46	Wholesalers Not Auto/Auto Part Wholesale	0.014	0.001	0.016	0.055
C14	Clothing	0.013	0.002	0.028	0.057
K	Financial Services	0.011	0.001	0.031	0.118
L68	Real Estate	0.011	0.000	0.011	0.048
G45	Motor Vehicle Dealing/Repair/Maintenance/Auto Stores	0.009	0.000	0.018	0.053
F43	Special Trade Contractors Or Building Refurbishment	0.009	0.000	0.010	0.044
G47	Retail Not Auto Parts/Tire Stores Not Auto Dealing	0.007	0.000	0.013	0.046
I56	Bars/Public Houses Or Restaurants/Cafes	0.005	0.000	0.015	0.051
E39	Waste Management/Recycling Services	0.003	0.000	0.020	0.080

# Connections by Size and Age

SHARE OF CONNECTED FIRMS BY SIZE AND AGE



## *Building Industry-level Bureaucracy Index*

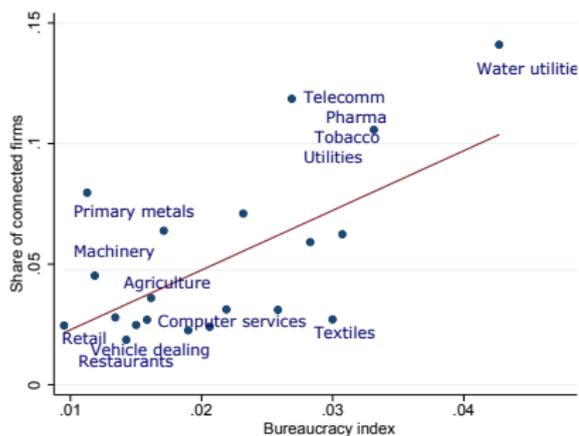
- **Factiva News** search: Industry-level **bureaucracy index** – share of international newspaper articles about the industry that contain the government regulation or bureaucracy-related words:

$$\text{Bureaucracy Index}(i) = \frac{[\text{All articles in } i] \cap [\text{All articles with keywords}]}{\text{All articles related to } i}.$$

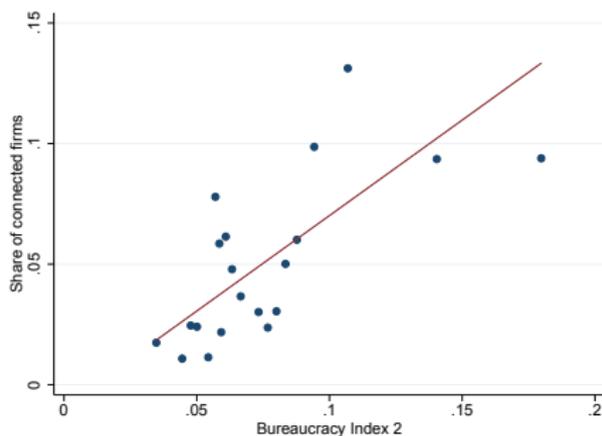
- **Keywords 1:**  
*regulation, bureaucracy, deregulation, paperwork, red tape, license.*
- **Keywords 2:**  
*Authority, liberalization, reform, Agency, commission, policymakers, government, official form, official procedure.*

# Bureaucracy and Connections across Industries

## INDEX 1



## INDEX 2



## Bureaucracy, Connections, and Growth

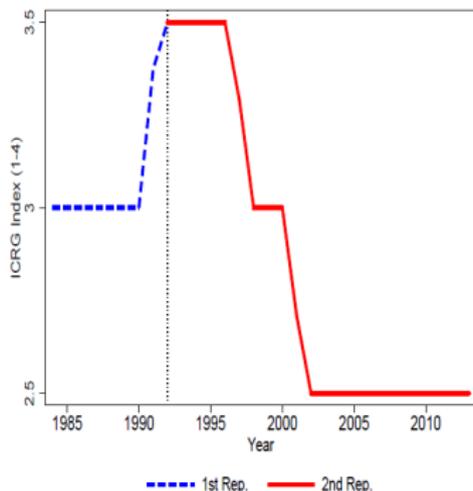
	(1)	(2)	(3)	(4)
	Empl growth	Empl growth	VA growth	VA growth
Connection	0.069*** (64.08)	0.062*** (37.68)	0.041*** (34.19)	0.012*** (7.05)
Connection × Bureaucr Top 25	0.024*** (9.27)	0.025*** (5.97)	0.014*** (4.99)	0.013*** (3.11)
Log Assets	0.083*** (280.42)	0.231*** (264.02)	0.036*** (118.83)	-0.091*** (-89.76)
Log Size	-0.136*** (-349.01)	-0.566*** (-525.60)	-0.079*** (-217.57)	-0.235*** (-251.22)
Age	-0.004*** (-174.14)	-0.010*** (-119.99)	-0.004*** (-145.64)	-0.005*** (-44.34)
Year FE	YES	YES	YES	YES
Region FE	YES	NO	YES	NO
Industry FE	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES
Observations	6545131	6585740	5684519	5710338

Notes: Firm-level OLS regressions. *Connections* is a dummy variable equal to one if firm is connected with a politician at time  $t$ . *Bureaucracy Top 25* is dummy equal to one for top 25% industries by Bureaucracy index 2. [▶ Back](#)

## *The Collapse of Bureaucratic Efficiency*

- Gratton, Guiso, Micheclacci, Morelli (2017) provide strong evidence for the collapse of bureaucratic efficiency in Italy's Second Republic.

### ICRG INDEX OF QUALITY OF BUREAUCRACY



"An indicator of quality of bureaucracy in the International Country Risk Guide by the PRS group. The index ranges from 1 to 4; high scores indicate that the bureaucracy is strong and has the expertise and competence to govern without drastic changes in policy or interruptions in services"

## Connections and Industry Dynamics

- Industry (2-digit Ateco)  $\times$  Region  $\times$  Year -level results are presented. 88 industries, 20 regions, 1985-2014;
- Results are very robust if instead we use 6-digit Ateco  $\times$  Year level data.
- Robust if use lagged values of connections instead of contemporaneous.
- Robust (and stronger than results with high-level connections) if use definition of connections based on connections with top parties at the national level.
- Define *conn share* at  $i \times r \times t$  is share of firms that are hiring local politicians in industry  $i$ , region  $r$  and time  $t$ .
- $Y_{irt} = \beta_0 + \beta_1 \times \text{conn share}_{irt} + \text{year FE} + \text{ind FE} + \text{region FE} + e_{ijt}$
- Binscatter Adjusted  $Y_{irt} (= \hat{\beta}_0 + \hat{\beta}_1 \times \text{conn share}_{irt} + \hat{e}_{ijt})$  against *conn share*<sub>irt</sub>. [▶ Back](#)

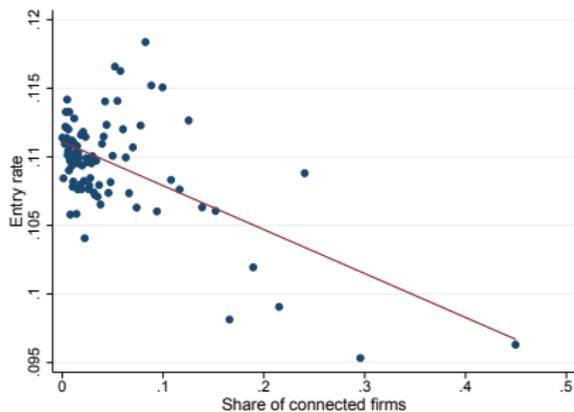
### Connections and Industry Performance

	Growth	Log LP	Share young	Share small	Entry rate	Share conn. entry
Share of connected firms	-0.0980*** (0.0289)	-1.243*** (0.114)	-0.290*** (0.0215)	-0.992*** (0.0180)	-0.0309*** (0.0114)	0.234*** (0.00900)
Year FE	YES	YES	YES	YES	YES	YES
Region FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Observations	34214	33569	36049	36049	35857	30411

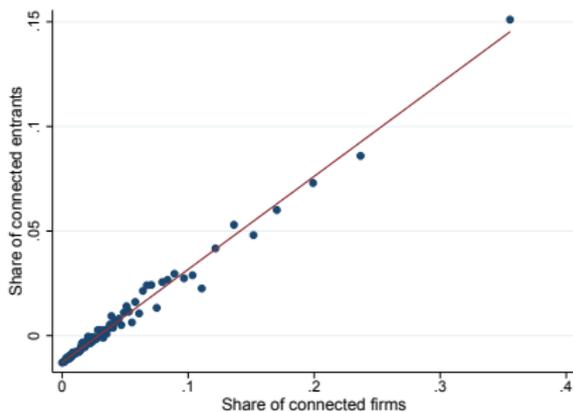
Notes: Table reports the coefficients from OLS regressions at the industry  $\times$  region  $\times$  year level of various industry moments on the share of connected firms (share of connected incumbents in the case of columns 5 and 6). Columns list various outcome variables: 1) industry growth; 2) industry productivity; 3) share of firms younger than 5 years old; 4) share of small firms ( $\geq 5$  workers); 5) entry rate of new firms; and 6) share of connected firms among entrants. Regressions include year, region, and industry fixed effects. Regressions are weighted by number of firms in each industry  $\times$  region  $\times$  year to weight more representative markets more heavily. Standard errors are in parentheses. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

## Connections and Industry Dynamics, ctd

Entry rate and Connections



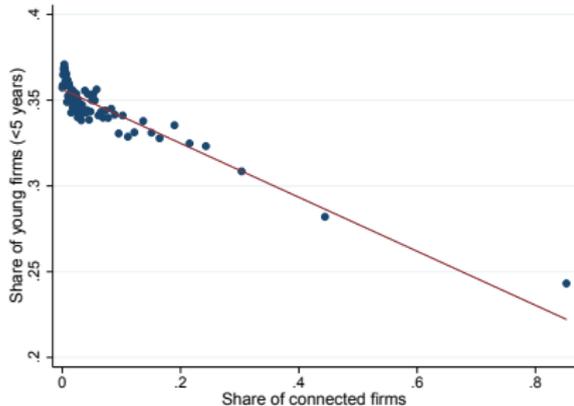
Share of Connected Entrants and Conn's



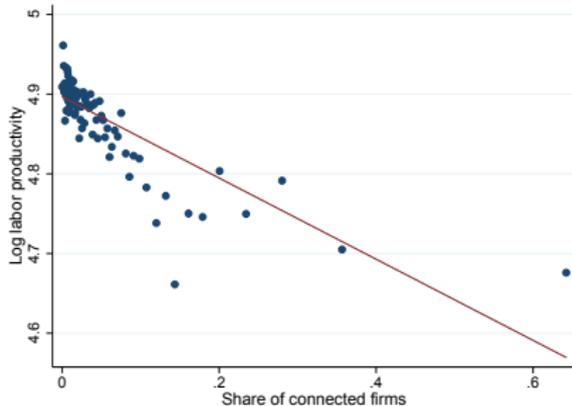
Notes: Binscatter plots from industry  $\times$  region  $\times$  year level regressions. Variables on Y axis are adjusted for industry, year, and region fixed effects. Regressions also control for size of top 5 firms in the market. Variables on X axis: share of firms connected. [▶ Back](#)

## Connections and Industry Dynamics, ctd

Share of Young Firms



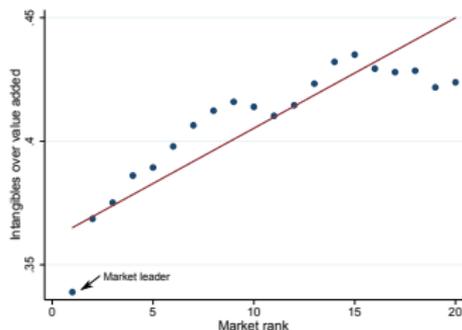
Industry Productivity



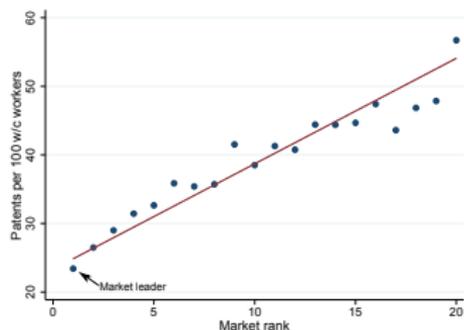
Notes: Binscatter plots from industry  $\times$  region  $\times$  year level regressions. Variables on Y axis are adjusted for industry, year, and region fixed effects. Variables on X axis: share of firms connected. [▶ Back](#)

# Connection vs Innovation

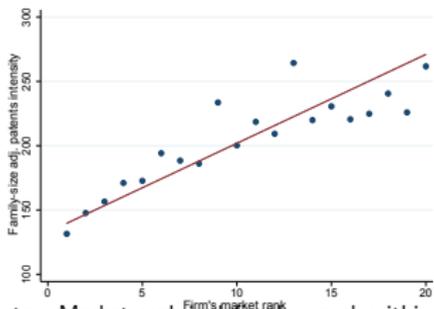
## Intangibles share in Value Added



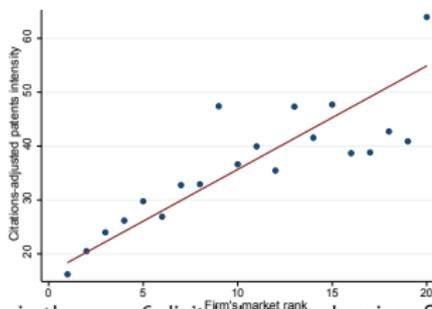
## Patent per 100 w/c labor



## Family-size-adjusted Patent Intensity



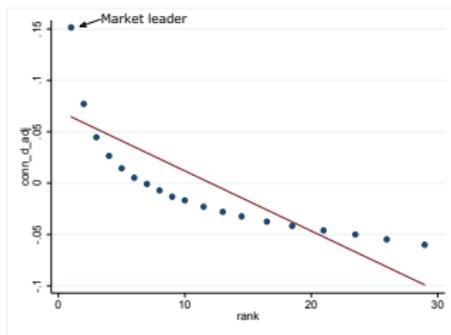
## Citations-adjusted Patent Intensity



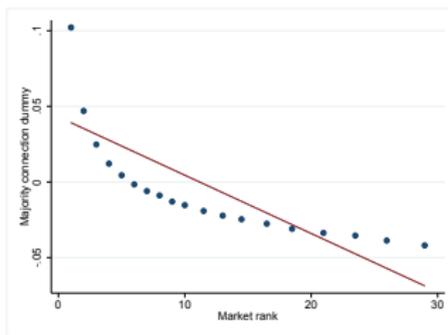
Notes: Market rank is defined as rank within firms that operate in the same 6-digit industry and region. Similar results if do not disaggregate by regions. X axis is demeaned with industry, year and region fixed effects.

# Connection vs Innovation

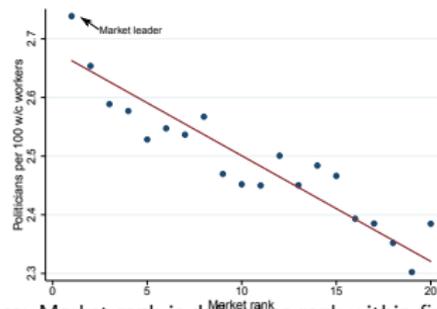
## Connection dummy



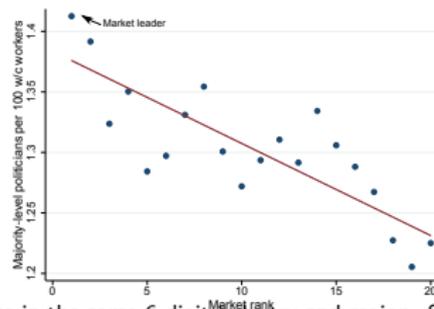
## Majority-party connection dummy



## Politicians per 100 w/c workers



## Maj-party Politicians per 100 w/c workers



Notes: Market rank is defined as rank within firms that operate in the same 6-digit industry and region. Similar results if do not disaggregate by regions. Y axis is demeaned with industry, year and region fixed effects

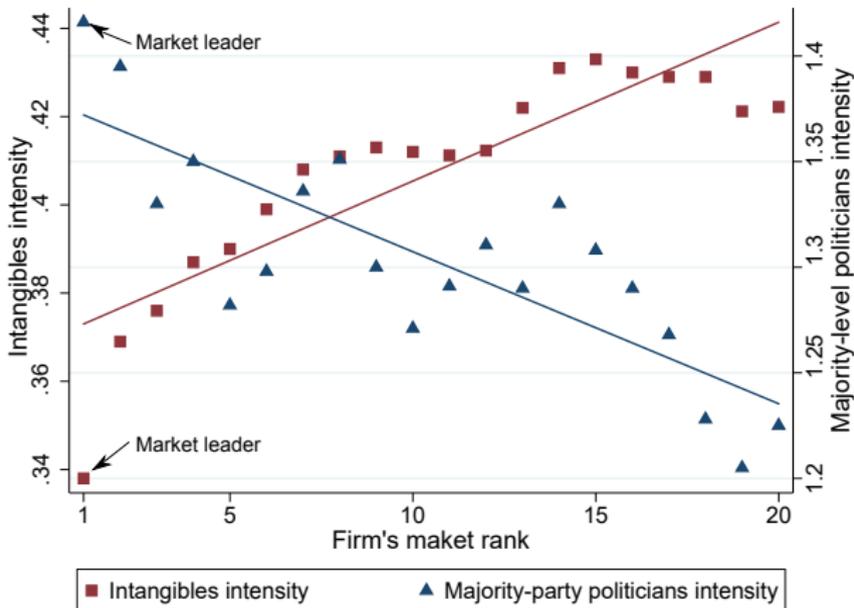
## Political Connections and Innovation Intensity over Market Rank

	Politicians intensity	Majority politicians intensity	Intangibles intensity	Patents intensity
Rank 1	0.318*** (0.0180)	0.139*** (0.0127)	-6.511*** (0.228)	-23.04*** (0.793)
Rank 2	0.258*** (0.0190)	0.128*** (0.0135)	-3.856*** (0.241)	-20.20*** (0.978)
Rank 3	0.221*** (0.0200)	0.0845*** (0.0142)	-2.893*** (0.255)	-18.09*** (1.093)
Rank 4	0.192*** (0.0210)	0.0891*** (0.0149)	-2.195*** (0.268)	-15.98*** (1.250)
Rank 5	0.176*** (0.0219)	0.0602*** (0.0156)	-1.563*** (0.279)	-16.18*** (1.411)
Year FE	YES	YES	YES	YES
Region FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Observations	5555108	5555108	5068902	23616

Notes: Firm-level OLS regressions of political connection and innovation intensity over firm's market rank. Market is defined at (6-digit) industry  $\times$  region  $\times$  year level. *Rank n* is dummy equal to one if a firm is ranked *n*'th in the market in that year based on its employment level. Omitted group pools firms that are ranked 6 and above. All regressions control for year, region, and year dummies. [▶ Back](#)

## 1. Leadership Paradox: Connection vs Innovation

Market Leadership, Innovation, and Political Connection - alternative



Notes: Market rank – size rank across firms that operate in the same industry and region. Y axis is demeaned with industry, year and region fixed effects. [▶ Back](#)

# Political Connections and Innovation Intensity over Market Rank

	Politicians intensity	Majority politicians intensity	Intangibles intensity	Patents intensity
Rank 1	0.298*** (0.0181)	0.125*** (0.0129)	-3.485*** (0.227)	-18.71*** (0.798)
Rank 2	0.240*** (0.0191)	0.116*** (0.0136)	-1.443*** (0.239)	-16.81*** (0.972)
Rank 3	0.204*** (0.0202)	0.0734*** (0.0143)	-0.804*** (0.253)	-15.39*** (1.080)
Rank 4	0.179*** (0.0212)	0.0792*** (0.0150)	-0.442* (0.265)	-13.15*** (1.234)
Rank 5	0.163*** (0.0221)	0.0525*** (0.0157)	0.0955 (0.277)	-13.67*** (1.392)
Log age	0.0377*** (0.00331)	0.0249*** (0.00235)	-5.178*** (0.0413)	-7.186*** (0.302)
Year FE	YES	YES	YES	YES
Region FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
N	5441271	5441271	4962755	23409

Notes: Firm-level OLS regressions of political connection and innovation intensity over firm's market rank. Market is defined at (6-digit) industry  $\times$  region  $\times$  year level. *Rank n* is dummy equal to one if a firm is ranked *n*'th in the market in that year based on its employment level. Omitted group pools firms that are ranked 6 and above. All regressions control for year, region, and year dummies.

## *Firm Survival and Political Connection: Cox Model*

	Exit	Exit	Exit
Connection	-0.088*** (0.009)	-0.059*** (0.013)	-0.067*** (0.010)
Connection major		-0.050*** (0.019)	
Connection high-rank			-0.208*** (0.033)
Log Size	-0.415*** (0.001)	-0.413*** (0.001)	-0.415*** (0.001)
Log market share	-0.024*** (0.0008)	-0.024*** (0.0008)	-0.024*** (0.0008)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Observations	25,773,082	25,842,288	25,773,082

## *Employment and Value Added Growth*

	Empl growth (OLS)	Empl growth (FE)	VA growth (OLS)	VA growth (FE)
Connection	0.034*** (0.001)	0.043*** (0.001)	0.043*** (0.001)	0.015*** (0.002)
Connection high	-0.005** (0.002)	0.011*** (0.003)	0.011*** (0.003)	-0.005 (0.005)
Log Assets	0.065*** (0.000)	0.203*** (0.001)	0.036*** (0.000)	-0.091*** (0.001)
Log Size	-0.077*** (0.000)	-0.384*** (0.001)	-0.080*** (0.000)	-0.235*** (0.001)
Age	-0.002*** (0.000)	-0.011*** (0.000)	-0.004*** (0.000)	-0.005*** (0.000)
Year FE	YES	YES	YES	YES
Region FE	YES	NO	YES	NO
Industry FE	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES
Observations	6545131	6585740	5684519	5710338

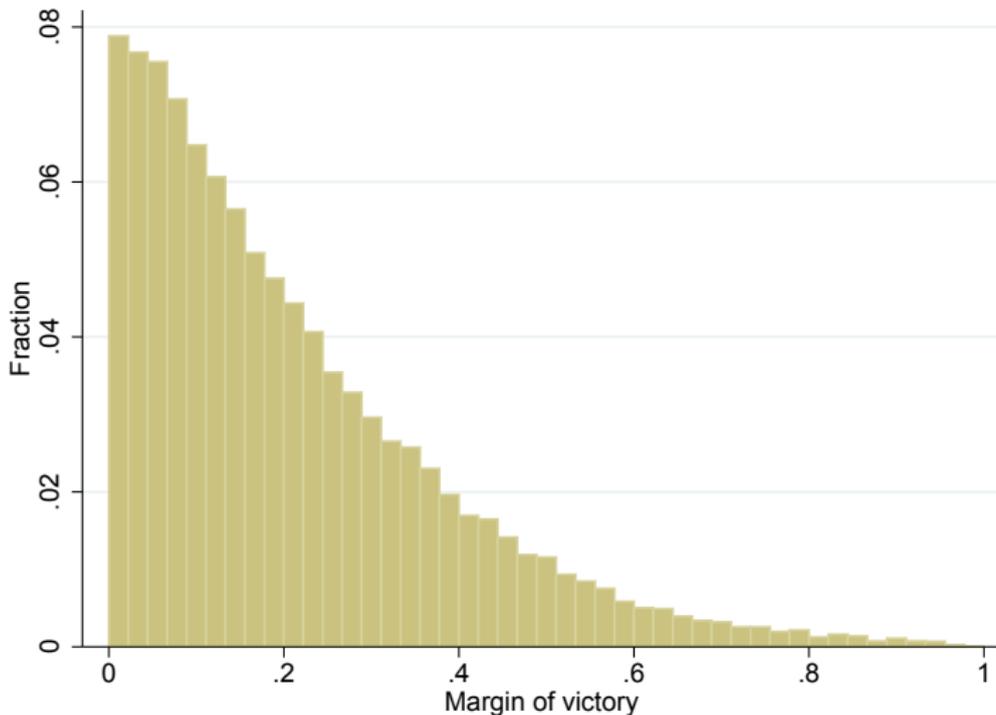
Notes: Regressions similar to the main table but controlling for high-rank connection.

## *Labor Productivity and TFP Growth*

	LP growth (OLS)	LP growth (FE)	TFP growth (OLS)	TFP growth (FE)
Connection	-0.015*** (0.001)	-0.030*** (0.002)	-0.009*** (0.001)	-0.020*** (0.001)
Connection high	0.005 (0.003)	-0.011** (0.005)	0.004 (0.003)	-0.008* (0.004)
Log Assets	-0.028*** (0.000)	-0.274*** (0.001)	-0.001*** (0.000)	-0.106*** (0.001)
Log Size	0.021*** (0.000)	0.274*** (0.001)	-0.006*** (0.000)	0.125*** (0.001)
Age	-0.001*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	-0.003*** (0.000)
Year FE	YES	YES	YES	YES
Region FE	YES	NO	YES	NO
Industry FE	YES	NO	YES	NO
Firm FE	NO	YES	NO	YES
Observations	5598367	5623077	5271002	5291979

Notes: Regressions similar to the main table but controlling for high-rank connection.

## *Distribution of Elections by Margins of Victory*

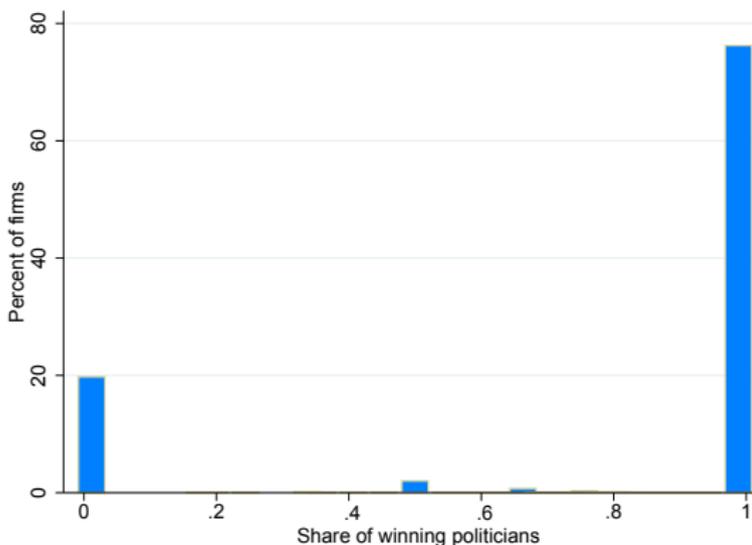


Notes: Histogram plotting distribution of elections by their respective margins of victory. Margin of victory is equal to the difference between share of votes received by a winning candidate minus the share of votes by a runner-up. [▶ Back](#)

## Do Firms Diversify in Close Elections?

$$\text{Share of winning politicians}_{it} = \frac{\text{Winning-party members}_{it-1}}{[\text{Winning-party members}_{it-1}] \cup [\text{Losing-party members}_{it-1}]}$$

Distribution of Share of Winning Politicians across Firms



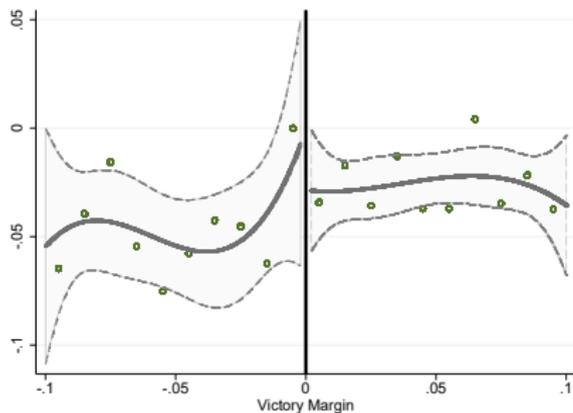
\* Firms "bet" on one side of an election.

## RD Robustness

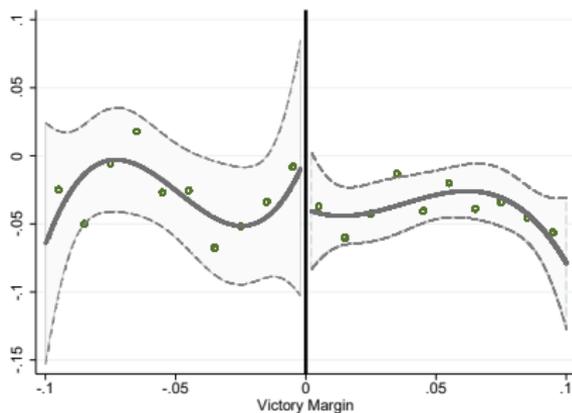
<i>— Panel A. Uniform kernel function —</i>				
	Empl Growth	Empl Growth	LP Growth	LP Growth
Win dummy	0.0329** (0.0154)	0.0300** (0.0146)	-0.0153 (0.0279)	-0.0114 (0.0272)
f(Victory margin)	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
<i>— Panel B. Second-order local polynomial —</i>				
Win dummy	0.0482* (0.0278)	0.0556** (0.0262)	0.0057 (0.0491)	-0.0058 (0.0487)
f(Victory margin)	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
<i>— Panel C. 20% victory margin bandwidth —</i>				
Win dummy	0.0360** (0.0163)	0.0355** (0.0155)	-0.0099 (0.0285)	-0.0091 (0.0277)
f(Victory margin)	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
<i>— Panel D. 10% victory margin bandwidth —</i>				
Win dummy	0.0451* (0.0243)	0.0513** (0.0229)	0.0048 (0.0421)	-0.0049 (0.0416)
f(Victory margin)	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes

## RD Validation II: Pre-Trends in Employment and Productivity Growth

Empl Growth **Before** Election ( $T-1 \rightarrow T$ )



LP Growth **Before** Election ( $T-1 \rightarrow T$ )



## RD Validation III: Balancing Tests

### Differences in Pre-determined Firm Characteristics

<i>Dependent variable:</i>	Log Size	Log Value Added	Log Assets	Log Intangibles
Win Dummy	0.0472 (0.0656)	-0.0152 (0.102)	-0.0344 (0.108)	-0.0956 (0.161)
f(Victory margin)	Yes	Yes	Yes	Yes
Observations	12956	7666	8369	8005

<i>Dependent variable:</i>	Log Labor Productivity	Log Profits	Empl growth (last period)	LP growth (last period)
Win dummy	-0.0342 (0.0358)	-0.0672 (0.124)	0.0101 (0.0225)	0.0001 (0.0392)
f(Victory margin)	Yes	Yes	Yes	Yes
Observations	12855	7680	16063	7066

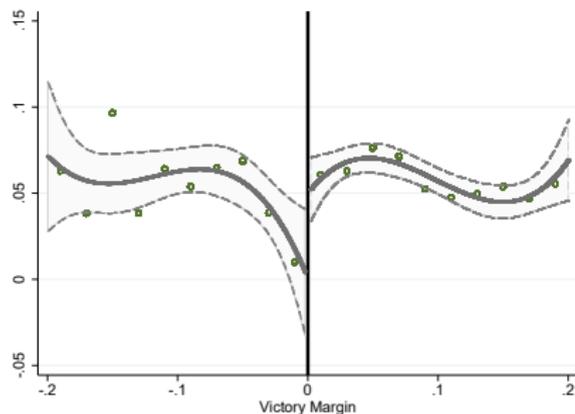
  

<i>Dependent variable:</i>	Age	Center	North
Win dummy	-1.105** (0.556)	-0.0129 (0.0203)	0.0117 (0.0181)
f(Victory margin)	Yes	Yes	Yes
Observations	17164	11355	21197

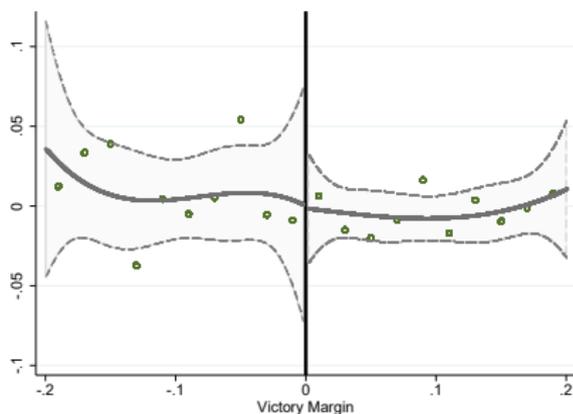
Notes: Table reports balancing tests for various pre-determined firm-level variables at time  $T - 1$  (before the election). For each covariate, we employ a local linear estimation with an optimal bandwidth and triangular kernel (similar to our benchmark RD design from specification). Robust standard errors are in parentheses.

## Employment and Productivity Growth, 20% band

Empl Growth **After** Election ( $T \rightarrow T+1$ )

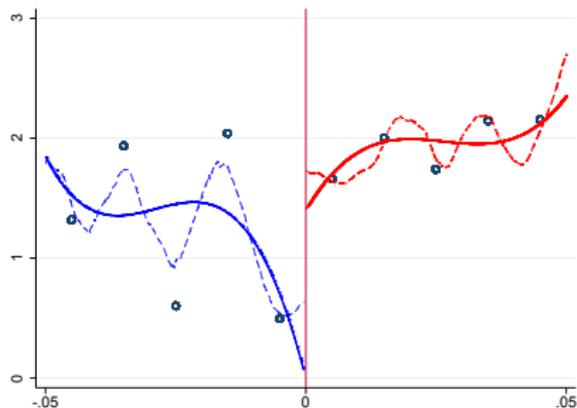


LP Growth **After** Election ( $T \rightarrow T+1$ )

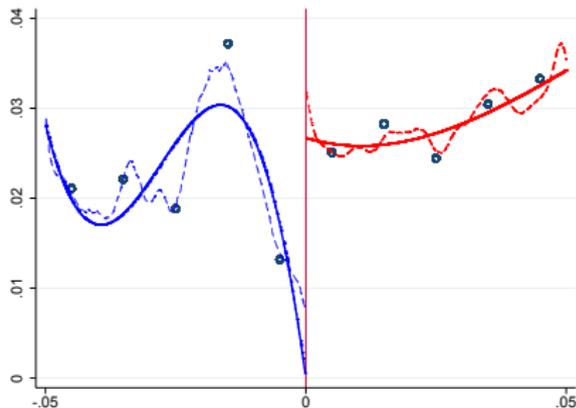


## *RD Results: Firm Survival*

Years survived **After** Election  
(Elections < 2006)



One year survival **After** Election  
(Elections < 2013)



## *Politicians' Within-Firm Wage Premium*

Politicians' Within-Firm Wage Premium

	MUNICIPALITY LEVEL POLITICIANS		PROVINCE LEVEL POLITICIANS	
	Female	Male	Female	Male
Blue-collar	1.06	1.08	1.15	1.04
White-collar	1.10	1.10	1.19	1.19
	REGIONAL LEVEL POLITICIANS		HIGH-RANK POLITICIANS	
	Female	Male	Female	Male
Blue-collar	.	.	1.09	1.08
White-collar	2.08	1.57	1.25	1.18

Notes: Table shows politicians' within-firm wage premium by type of job and gender. Premium in each cell is defined as average wage paid to politicians divided by average wage paid to non-politicians within same firm conditional on same type of job and gender. Four different panels present wage premia calculated for politicians at the municipality level, province level, regional level and high-rank politicians, respectively. Cells are empty if number of observations in that cell are less than 100.

## Event Study

Kleven, Landais, Sogaard (2018)

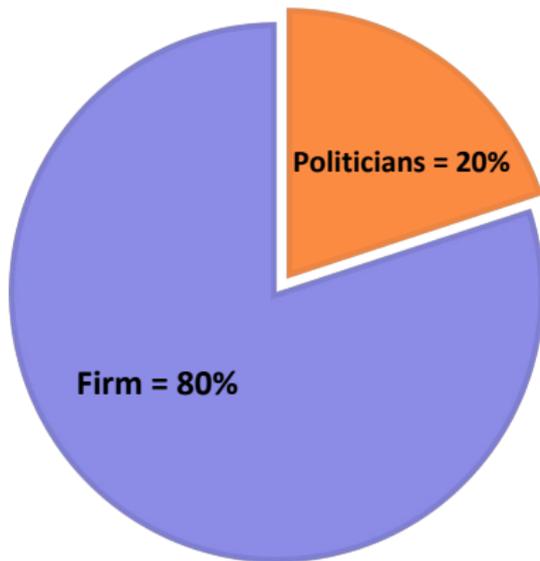
$$y_{ist} = \sum_{j \neq -1} \alpha_j I[j = t] + \sum_k \beta_k I[k = \text{age}_{st}] + \sum_y \gamma_y I[y = s] + \varepsilon_{ist}$$

$y_{ist}$  – wage premium: the percentage difference between politician's weekly wage and other co-workers' average weekly wage of individual  $i$  in year  $s$  at event time  $t$ .

Hence, the regression includes event time dummies, full set of year dummies, and individual's age dummies.

## *Surplus Division*

- Back of the envelope calculation for the rent division:
  - Politician: Estimated yearly wage premium in a firm.
  - Firm: Estimated profit gain from connection.

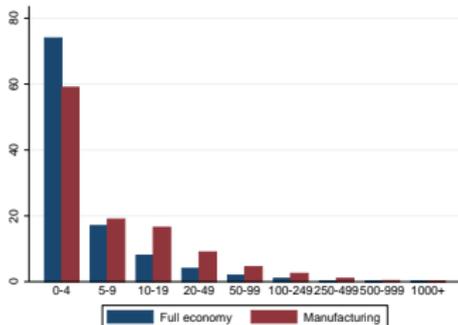


# Size distribution, Italy vs U.S.

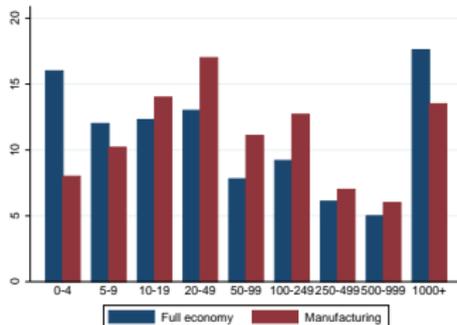
\*Italy: Overwhelming share of small firms accounting for large share of employment.

\*Large firms do not account for big share of employment.

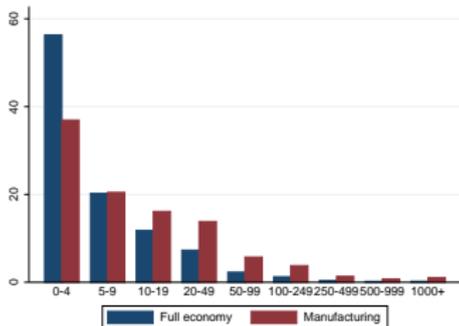
Share of firms by size, Italy



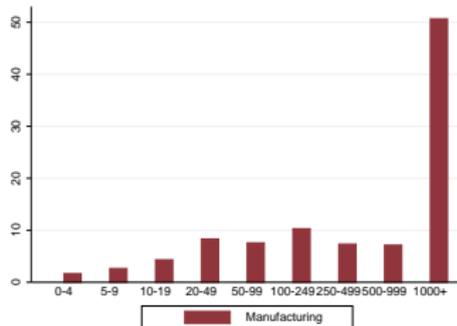
Employment share by size, Italy



Share of firms by size, U.S.

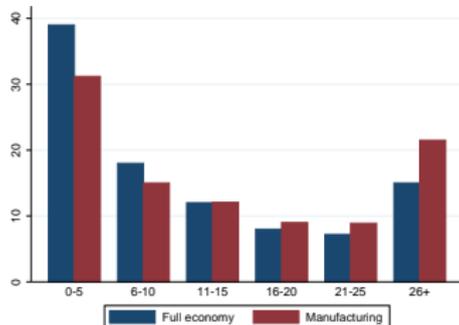


Employment share by size, U.S.

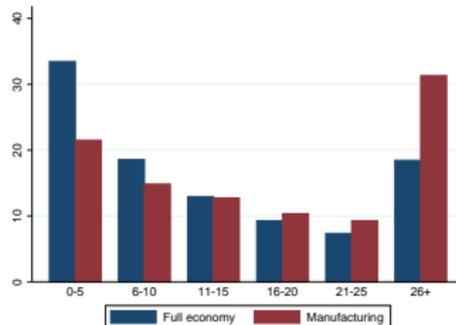


## *Firms distribution by Age, Italy vs U.S.*

Share of firms by age, Italy



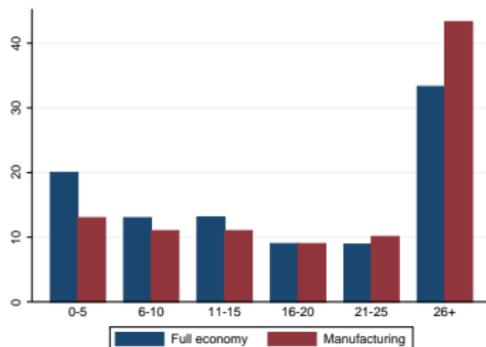
Share of firms by age, U.S.



## Employment Share by Age, Italy vs U.S.

*\*Italy: Lower "up-or-out" dynamics – old firms are not necessarily large.*

Employment share by age, Italy



Employment share by age, U.S.

