VISITINPS

un anno dopo

formazione, ricerca e innovazione

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

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Research Question

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Research Question:

How do political connections affect firm dynamics and the overall economy?

Research Question

Static gains vs Dynamic losses

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Static gains vs Dynamic losses

This Paper

To answer this question:

- **A** new theory of firm dynamics and political connections:
  - Static vs dynamic gains/losses for aggregate economy.
- We construct a brandnew data that links
  - Firm-level data;
  - Social security data on individuals;
  - Registry of politicians;
  - Election data;
  - Patent data.
- Provide empirical analysis at the:
  - Micro level: firm performance.
  - Macro level: industry performance;
- To sharpen the identification:
  - Exploit marginal election outcomes.

An Illustrative Model

Potential Channels

- Potential channels through which political connections *directly* benefit firms:
  - Regulations/bureaucracy costs;
  - Access to credit;
  - Procurements/public demand.

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- Why?
  1. Empirical relevance:
     - Common obstacle to businesses in Italy (WB Doing business indicators, own empirical evidence, ample anecdotes.)
     - Public discussions and recent evidence for the the U.S.
  2. Model's tradeoff is more general.

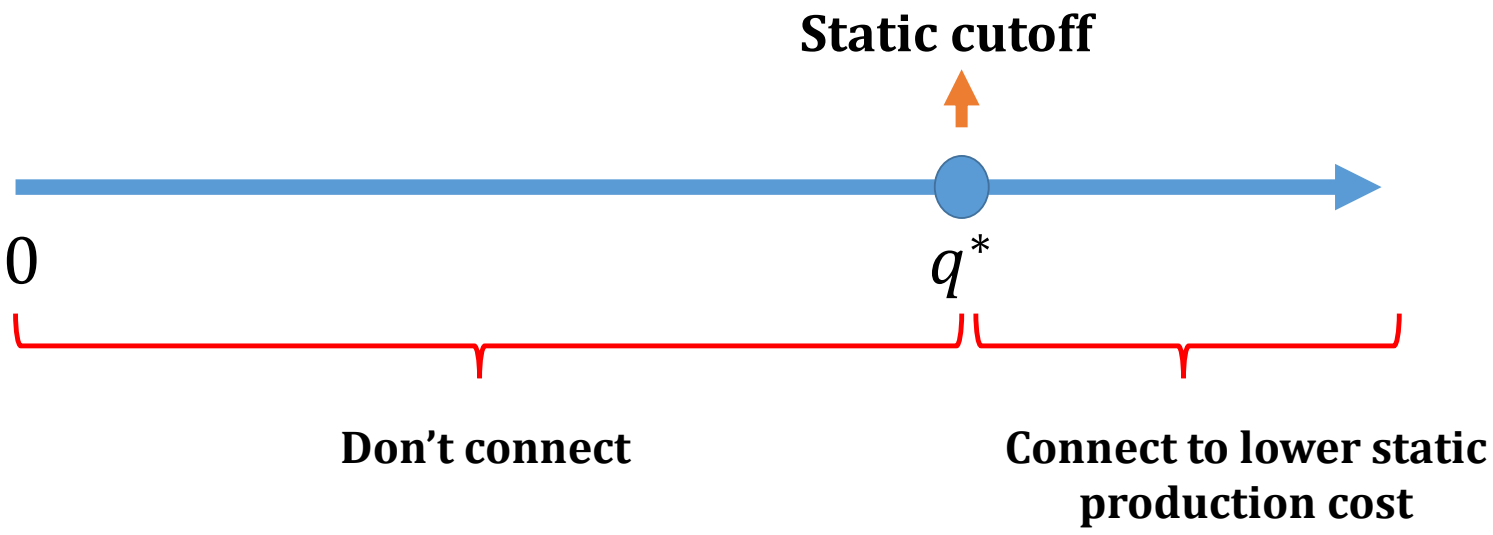
Model

- A simple model of firm dynamics and growth.
- Firms:
  - incumbents and new entrants;
  - decide on innovation and political connection.
- Entry and innovation – engines of (productivity) growth.
- Frictions: at each time, firms face regulation/bureaucracy costs (wedges).
- Political connections alleviate these frictions but come at a cost.

Model. Intuition 1

- Static problem: Compare static benefits from lowering the wedges to static costs of connections.

  PREDICTION 1: *Large incumbents are more likely to get connected.*



Model. Intuition 1

- Static problem: Compare static benefits from lowering the wedges to static costs of connections.

  PREDICTION 1: *Large incumbents are more likely to get connected.*

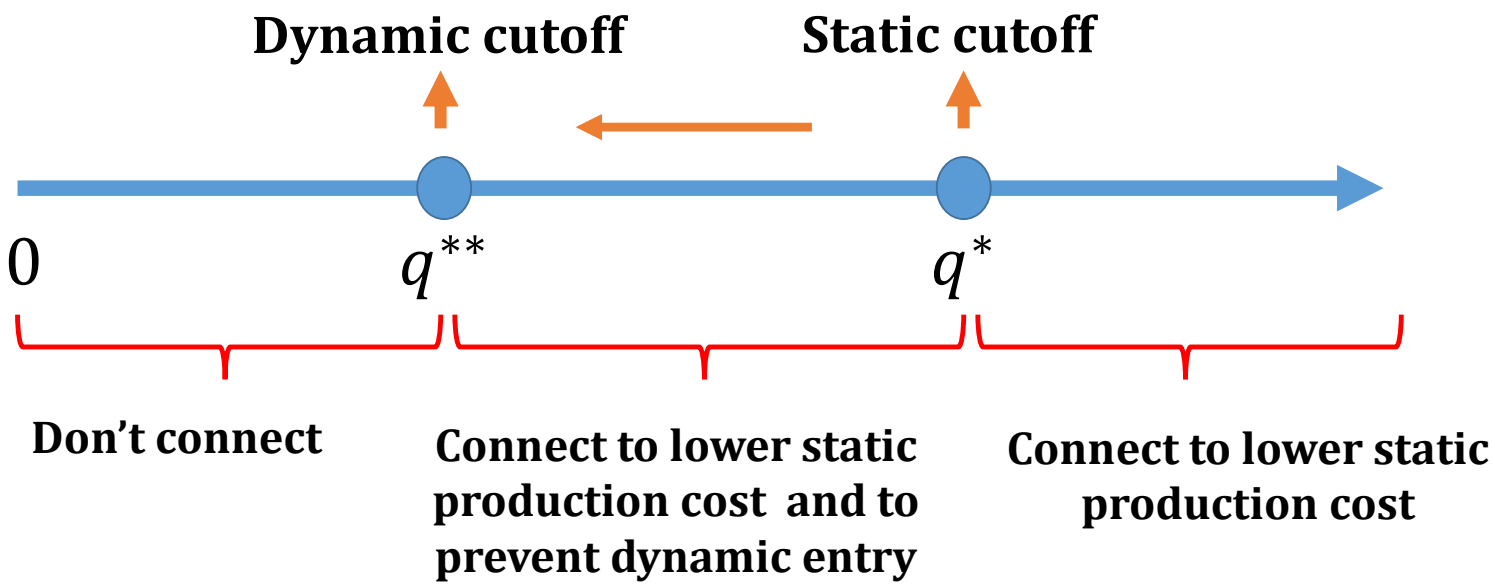
  PREDICTION 2: *Connections lead to higher employment, sales and profits BUT lower labor productivity.*

- **Two-way causality** between size and connections.

Model. Intuition 2

- Dynamic problem: Harder for entrants to take down connected incumbents.
- Incumbents anticipate and preempt entry by connecting earlier.

PREDICTION 3: *Lower reallocation if incumbents connected, hence connected firms survive longer.*



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  PREDICTION 3: *Lower reallocation if incumbents connected, hence connected firms survive longer.*

  PREDICTION 4: *Industries with more connections: face lower entry and have lower growth (both from entrants and incumbents).*

- So, **statically**, connections reduce frictions *BUT* **dynamically** markets are dominated by older and larger firms resulting in low reallocation and productivity growth.

Data

Individual Level

Registry of Local Politicians (RLP)

Source: Ministry of the Interior.

- Universe of local politicians (regional, province, municipality level) 1985-2014.
- Demographics, education, 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.
- Identify marginally contested elections and its winners and losers.

Social Security Data

Source: INPS

Universe of private sector (except agriculture), 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.
- Balance sheet, income statement, measure of firm's credit worthiness.

Patent Data

Source: PATSTAT.

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

Definition of Firm-level Connections

- *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.

Summary from the Data

- Connections are widespread. Across industries:
  - 4% of all firms and 44% of large firms ($>$ 100 workers);
  - 32% of employment.

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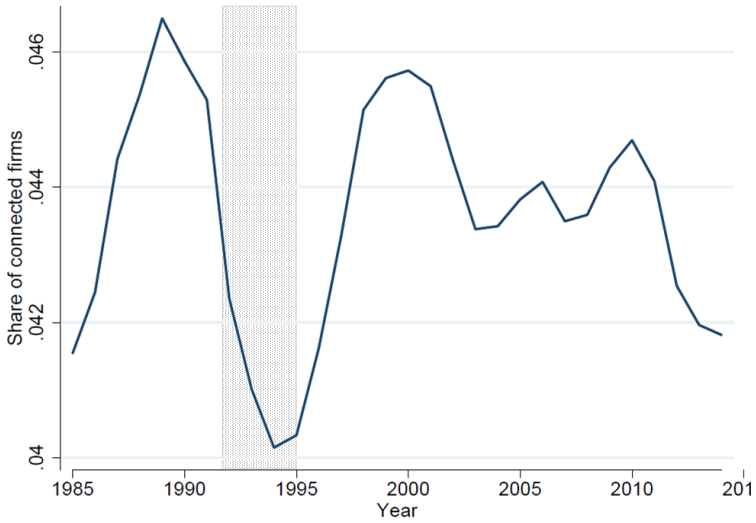
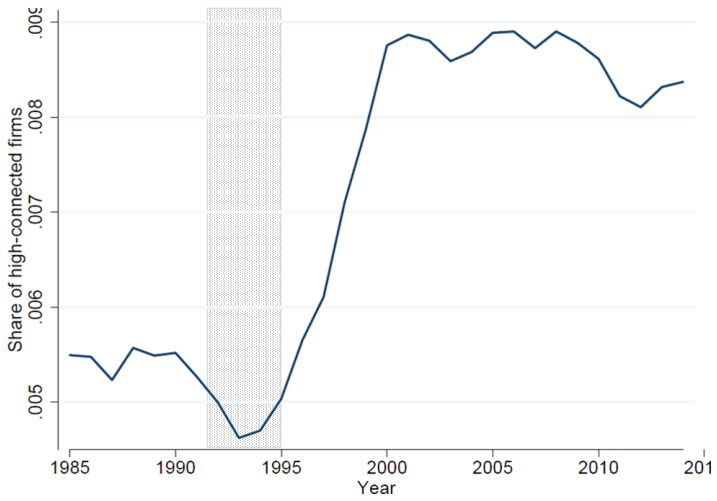
Share of Connected Firms



Share of High-rank Connected Firms



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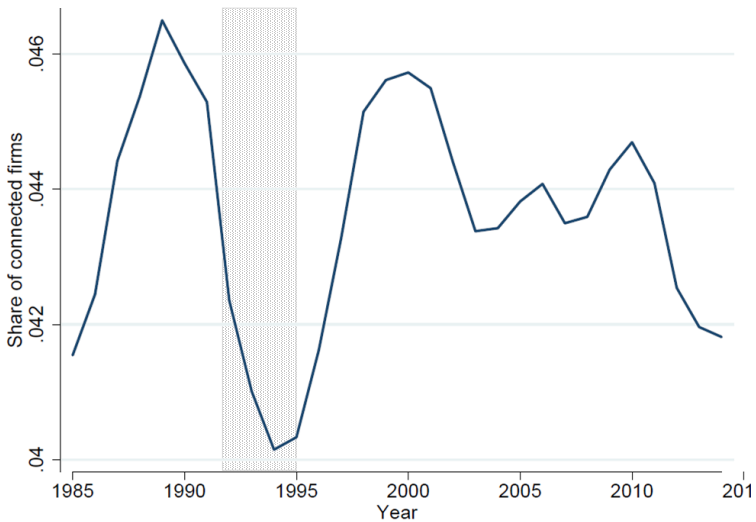

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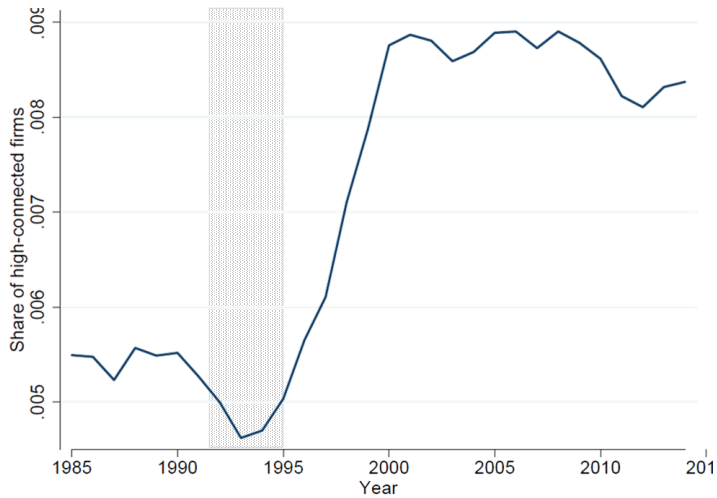

- Most connected industries: pharma, airlines, water/waste, utilities, telecomm, public administration;
- Least connected industries: personal services, sanitary/veterinary, repair/restoration, food industries.

▸ Bureaucracy/Regulations ▸ Wage premium

Stylized Facts

1. Market **leadership** is associated with:
   - higher political connection;
   - lower innovation intensity.

2. Connected firms are less likely to exit.

3. Connected firms experience
   - higher employment and sales growth;
   - lower productivity growth.

} **Causality** using RD design.

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

Fact 1: **Rent Seeking** vs Innovation

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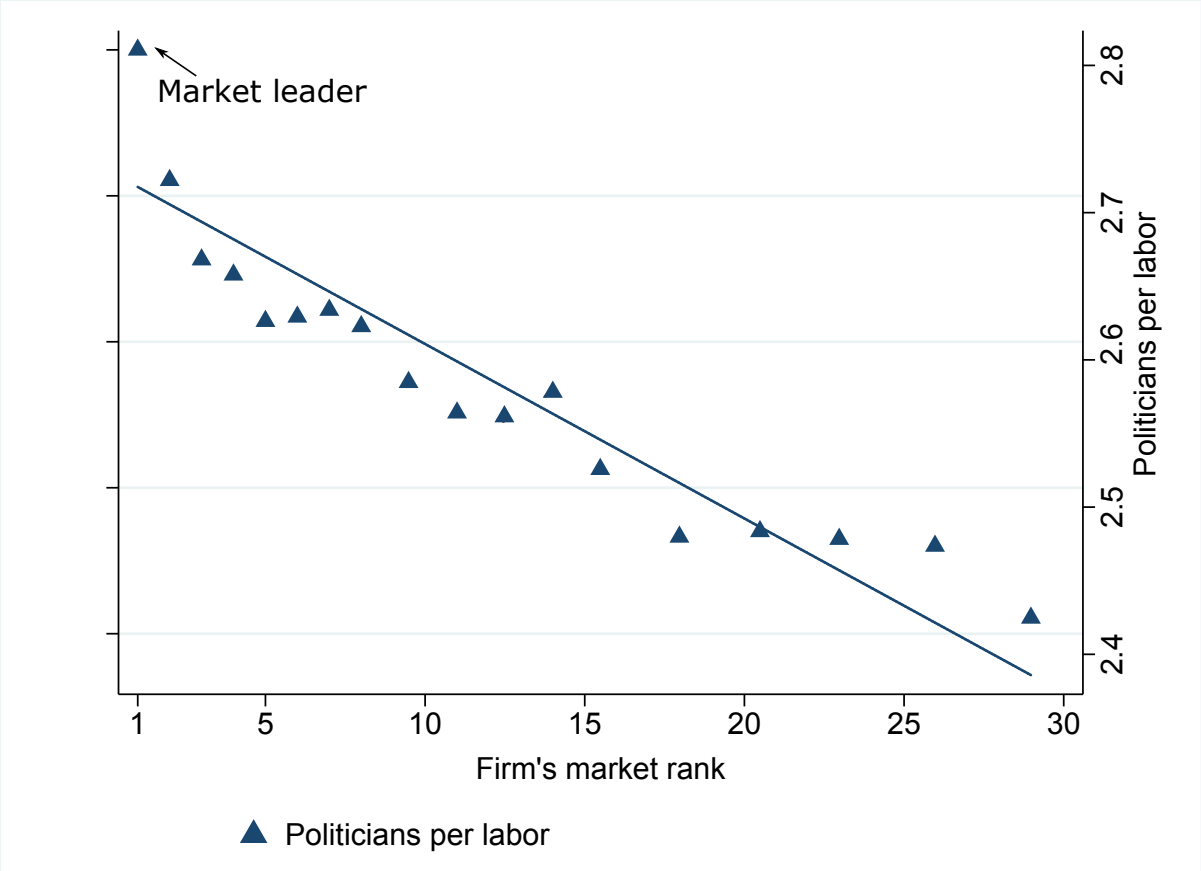
Market Leadership, Innovation and Political Connection

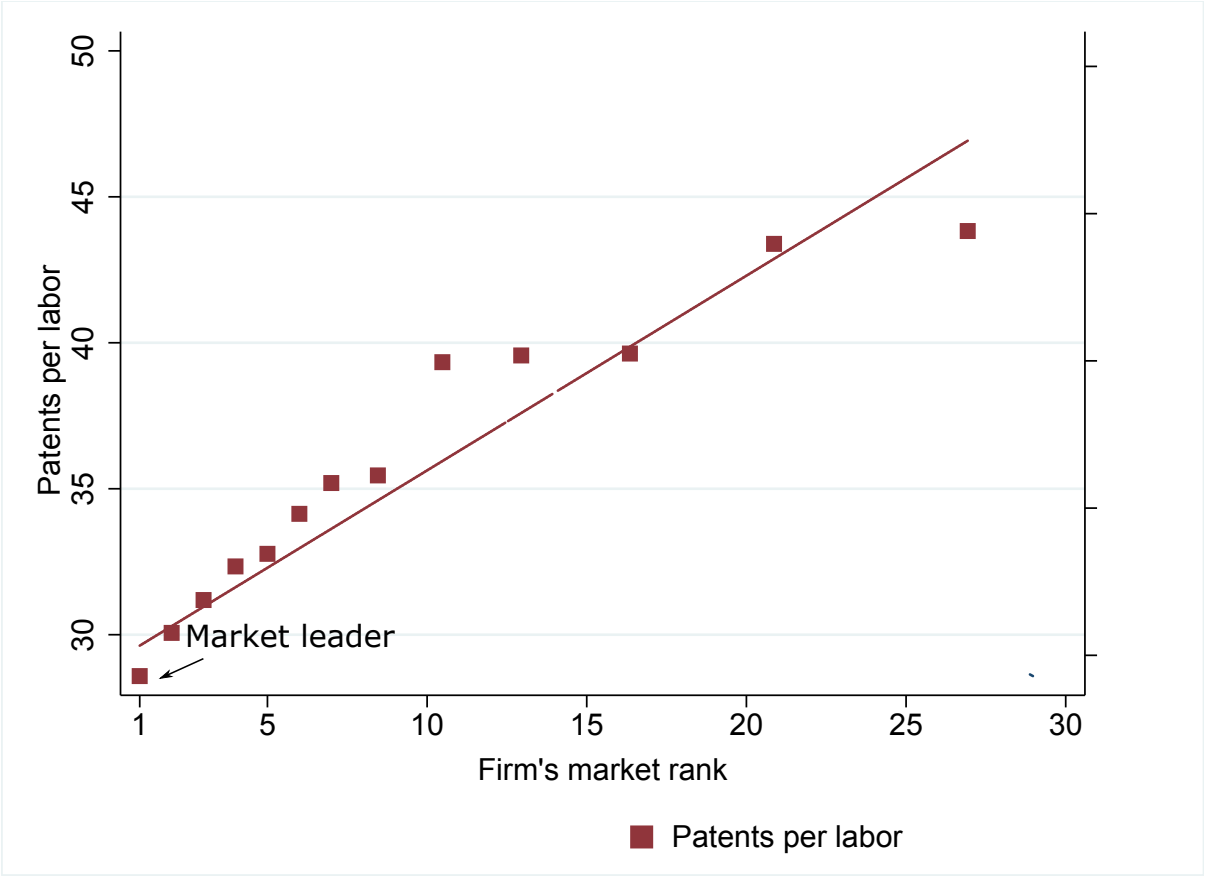


Notes: Market rank is defined as size rank across firms that operate in the same 6-digit industry and region. Y axis (per 100 white-collar workers) is demeaned with industry, year and region fixed effects.

▸ More

Fact 1: Rent Seeking vs **Innovation**

Market Leadership, Innovation and Political Connection



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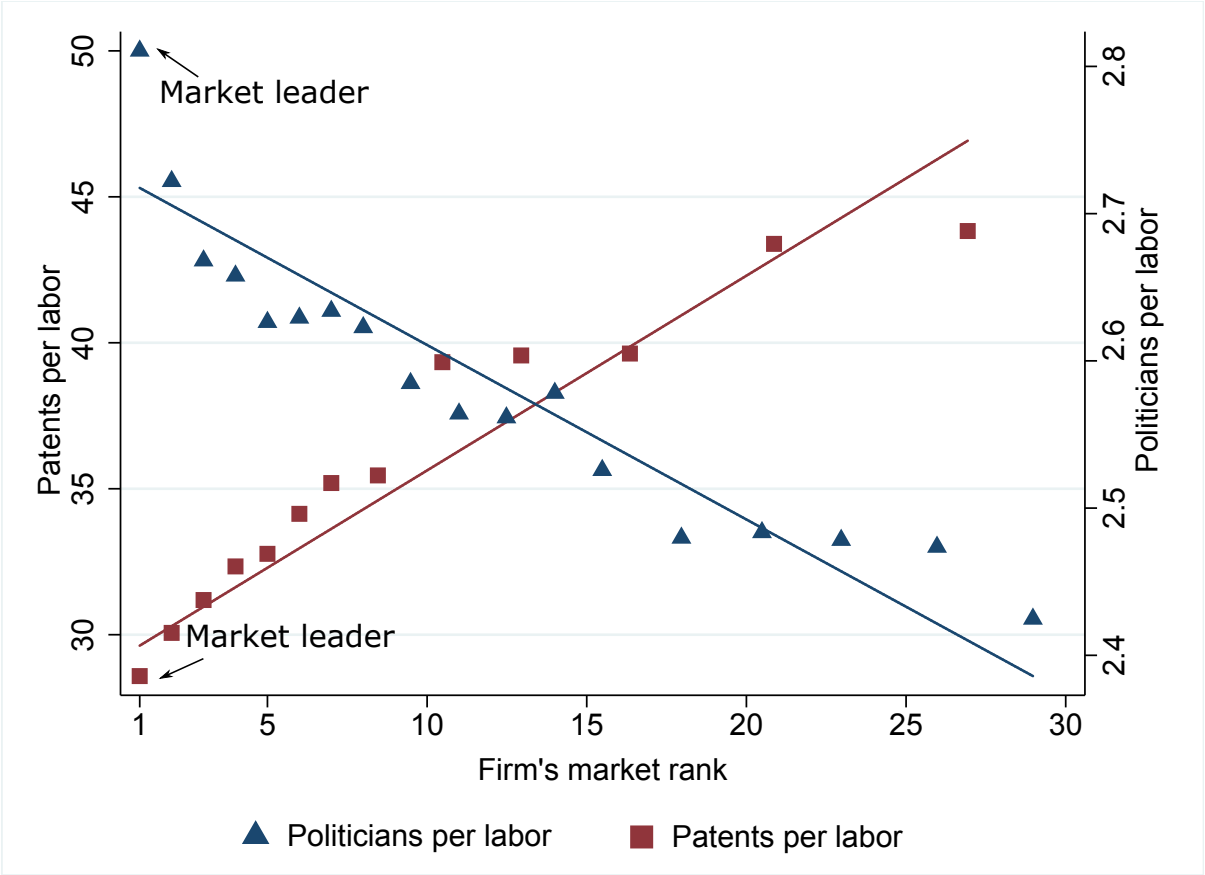

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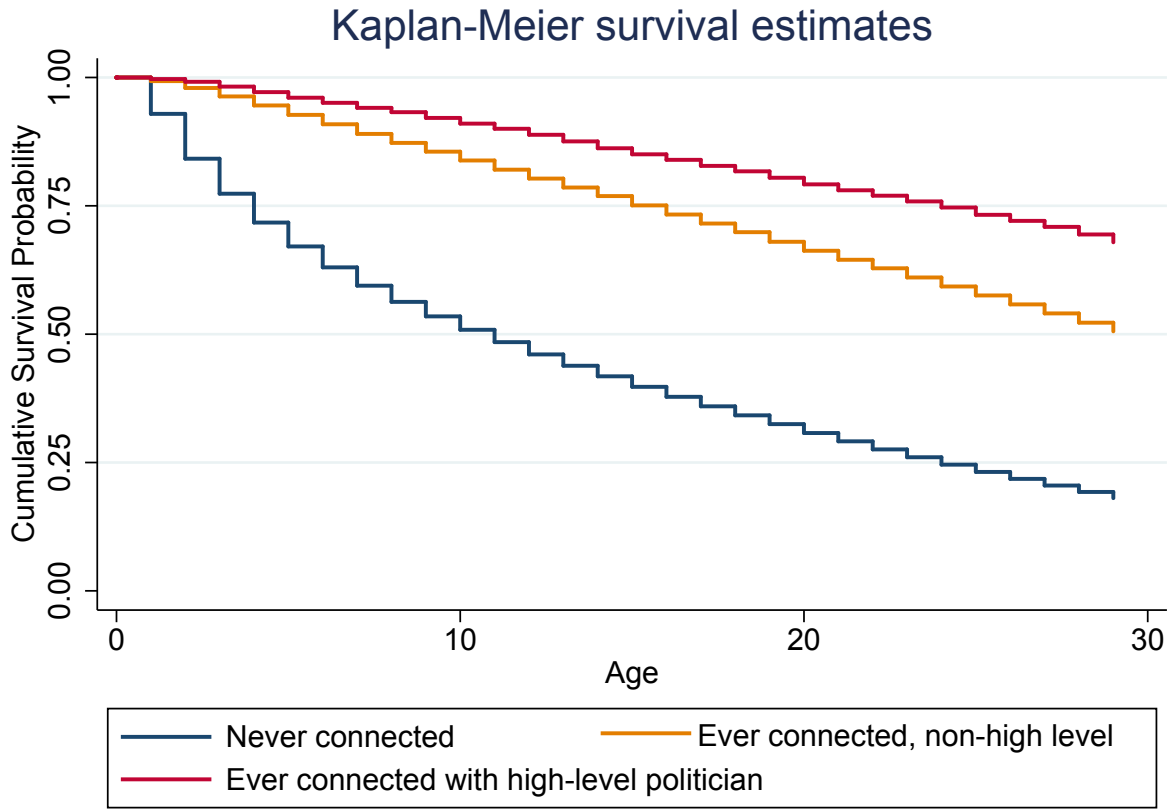
▸ More

Fact 2: Survival Estimates by Connection Status



- Cox analysis: *Connection* $\rightarrow$ 8% $\downarrow$ exit hazard rate; *high-level connection* $\rightarrow$ 25% $\downarrow$ exit hazard rate.

Fact 3: Connections and Firm Growth

Fact 3: Connections and Firm Growth

	(1) Empl growth	(2) Empl growth	(3) VA growth	(4) VA growth
Connection	0.032***	0.040***	0.039***	0.014***
	(26.40)	(26.11)	(24.33)	(6.65)
Connection major	0.003*	0.007***	0.010***	0.002
	(1.96)	(3.78)	(4.87)	(0.99)
Log Assets	0.065***	0.203***	0.036***	-0.091***
	(267.14)	(268.76)	(118.75)	(-89.75)
Log Size	-0.077***	-0.384***	-0.080***	-0.235***
	(-256.15)	(-490.37)	(-217.56)	(-251.16)
Age	-0.002***	-0.011***	-0.004***	-0.005***
	(-89.31)	(-142.02)	(-145.67)	(-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 regressions. *Connections*/*Connection major* are dummy variables equal to one if firm is connected with majority-level politician at time *t*.

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Fact 3: Connections and Productivity Growth

	(1) LP growth	(2) LP growth	(3) TFP growth	(4) TFP growth
Connection	-0.014***	-0.028***	-0.008***	-0.019***
	(-8.22)	(-12.48)	(-6.03)	(-10.65)
Connection major	-0.001	-0.004	0.000	-0.003
	(-0.27)	(-1.55)	(0.15)	(-1.30)
Log Assets	-0.028***	-0.274***	-0.001***	-0.106***
	(-83.23)	(-236.12)	(-4.86)	(-116.33)
Log Size	0.021***	0.274***	-0.006***	0.125***
	(55.72)	(255.00)	(-18.20)	(145.41)
Age	-0.001***	-0.002***	-0.001***	-0.003***
	(-47.83)	(-17.48)	(-46.37)	(-31.58)
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Facts 2 & 3 Causality: RD Design

- **Causal identification** of the effect of connections on growth and survival.
- **Regression discontinuity (RD) design**:
  - Sharp discontinuities caused by local elections decided on a thin margin.
  - Close races determined by a "chance" (Lee, 2008).
  - Compare firms connected with politicians from marginally winning vs marginally losing parties/coalitions right before the election.
- Identification vs external validity.

Marginal Election Counts by Provinces (municipality + province elections)

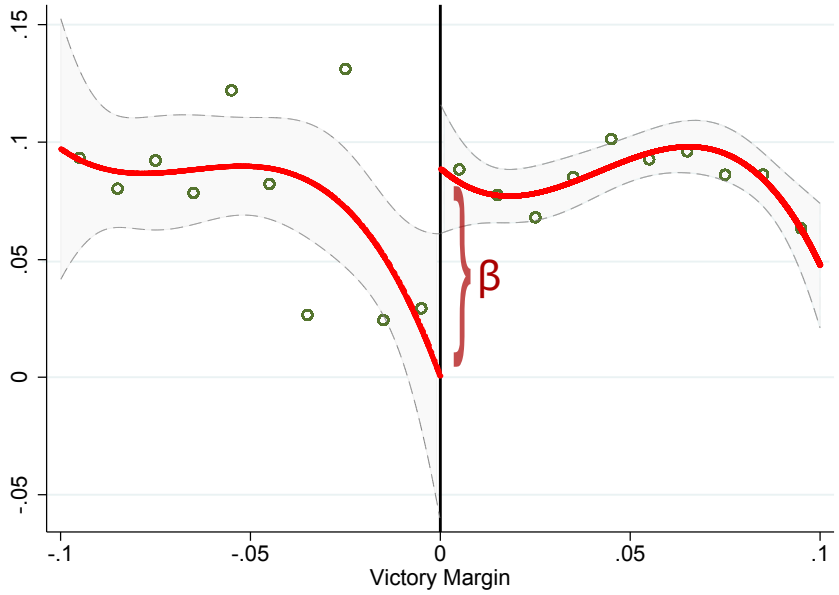
2% VICTORY MARGIN

5% VICTORY MARGIN

- Local elections in Italy (1993-2014):
- 37,005 elections at municipality, province and regional level;
- 2.3K (5.7K) with 2% (5%) margin of victory.

RD Results: Employment and Productivity Growth

Empl Growth After Election $(T \to T+1)$



Large Positive Effect

$$\beta(g_{L_T}) = 0.089^{**}(.039)$$

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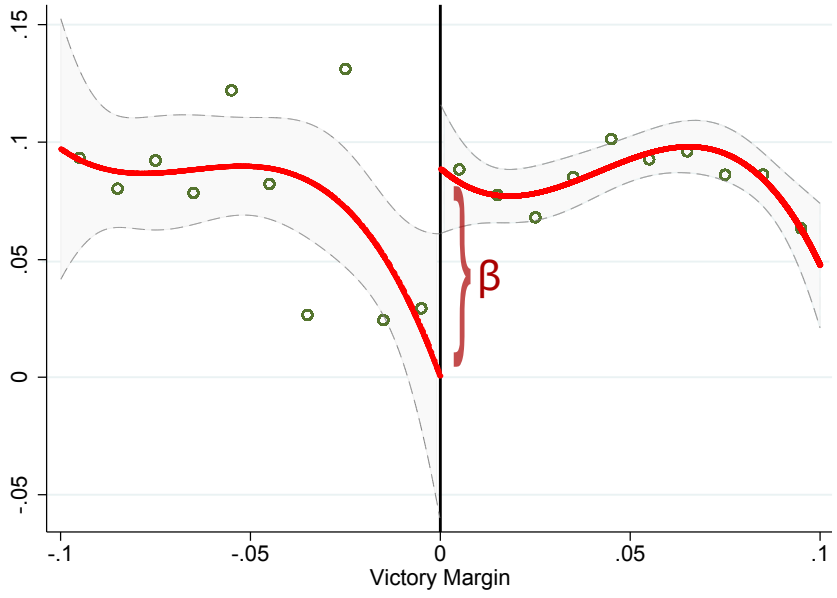
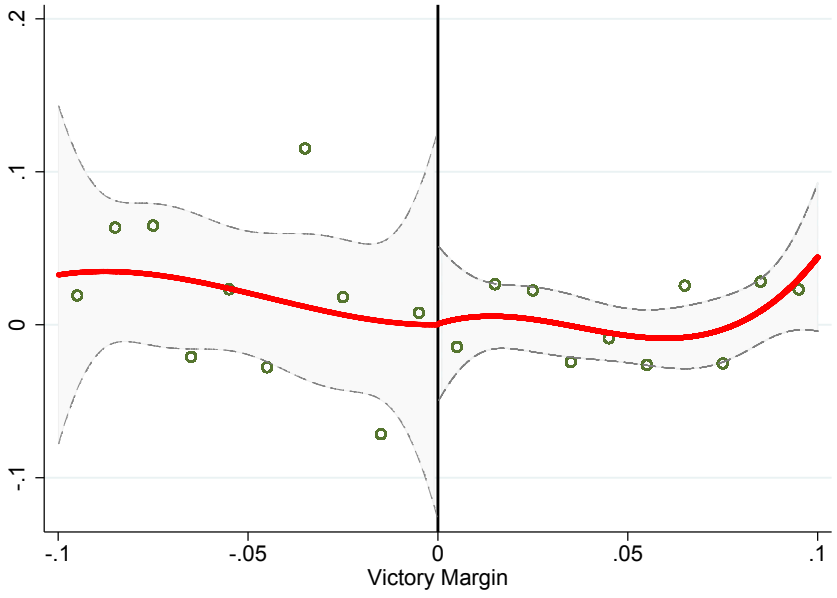


LP Growth After Election $(T \to T+1)$



Large Positive Effect

$$\beta(g_{L_T}) = 0.089^{**}(.039)$$

No positive effect

$$\beta(g_{LP_T}) = 0.001(.078)$$

RD Robustness and Validation

- Various margins of victory bands;
- Pre-trends;
- Balancing tests;
- Regressions with and without the controls.

Fact 4: Connections and Industry Dynamics

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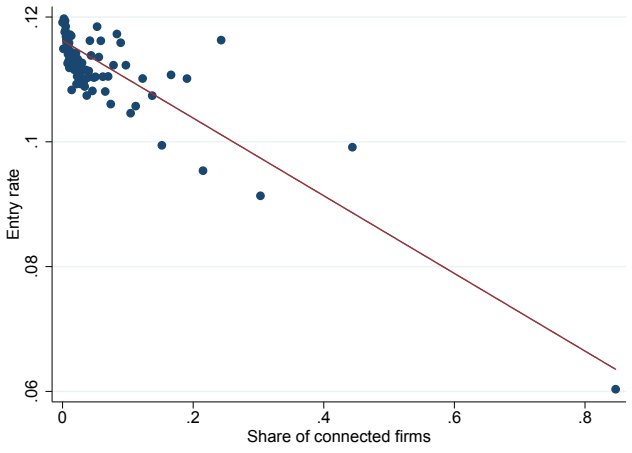
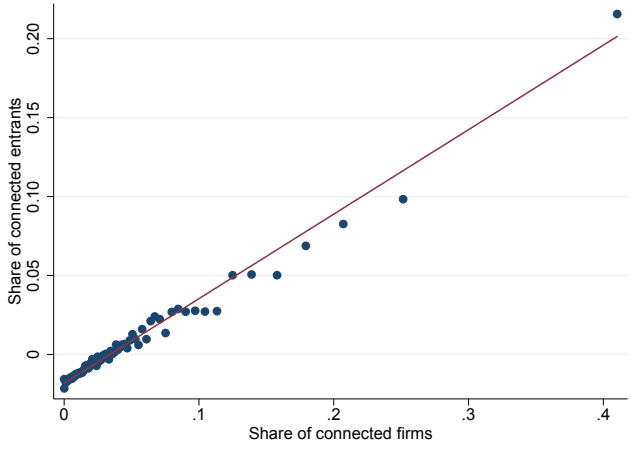
Entry Rate and Connections

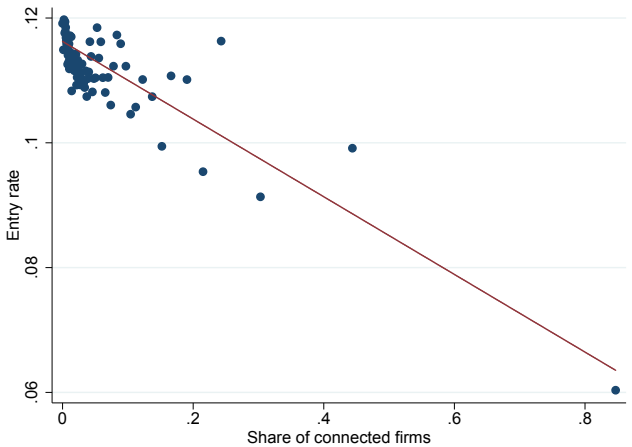


Share of Connected Entrants and Conn's



Fact 4: Connections and Industry Dynamics

Entry Rate and Connections



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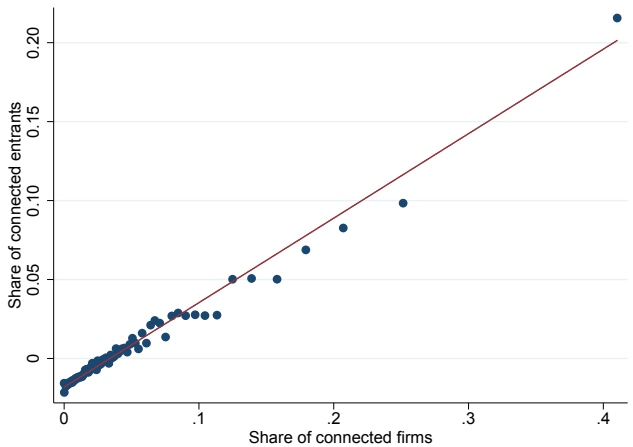
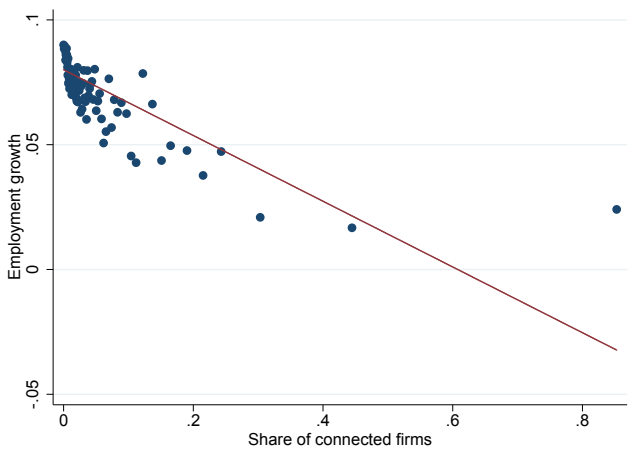
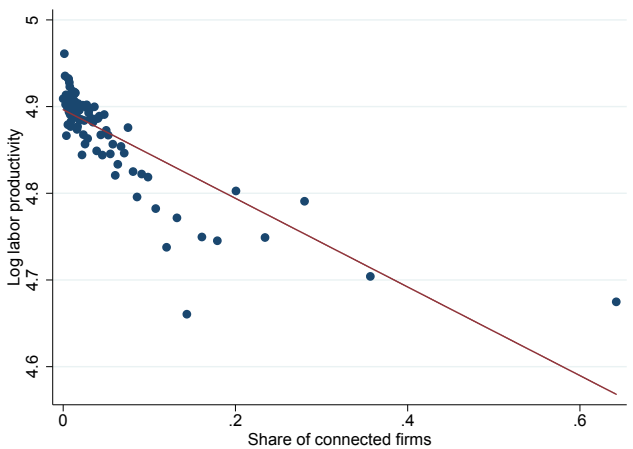


Employment Growth and Connections



Log LP and Connections



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

Stylized Facts, recap

1. Market **leadership** is associated with:
   - higher political connection;
   - lower innovation intensity.

2. Connected firms are less likely to exit.

3. Connected firms experience
   - higher employment and sales growth;
   - lower productivity growth.

} **Causality** using RD design.

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

Final Remarks

- Effect of political connections on the economy may entail both static gains and dynamic losses.
- New empirical findings on the relation between political connections and number of micro and macro moments in Italy.
- Future work should quantify importance for aggregate productivity growth and welfare.

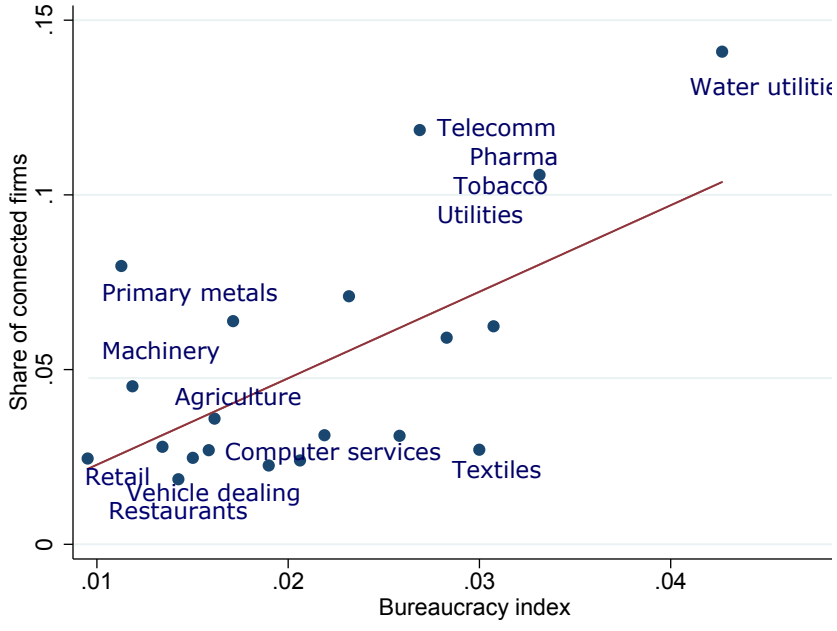
APPENDIX

Building Industry-level Bureaucracy Index

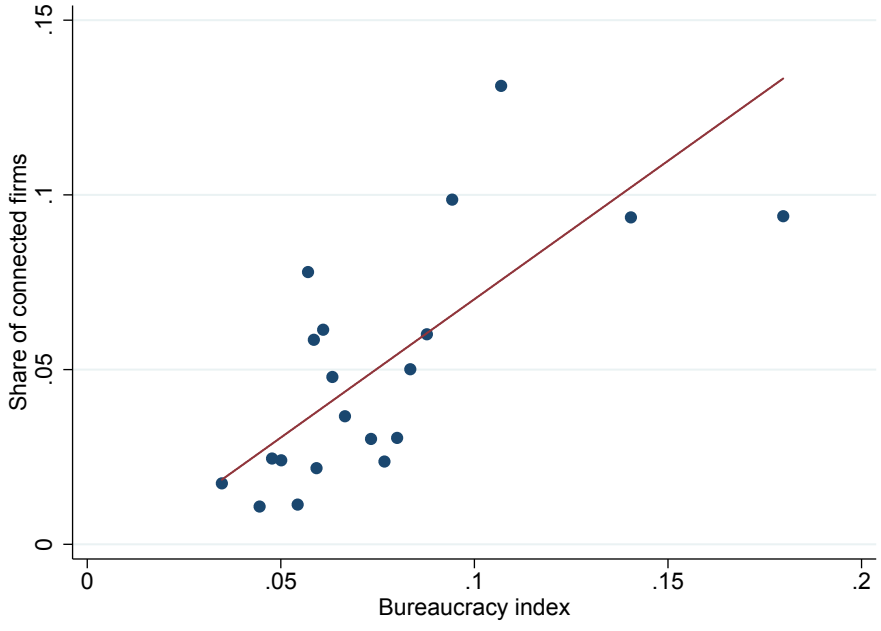
- Industry-level bureaucracy index – share of international newspaper articles about a sector from **Factiva News** search that have government regulation or bureacracy-related words from List 1 or List 2.
- **List 1**:
  regulation, bureaucracy, deregulation, paperwork, red tape, license.
- **List 2**:
  Authority, liberalization, reform, Agency, commission, policymakers, government, official form, official procedure.

Bureaucracy and Connections across Industries

INDEX 1



INDEX 2



▸ Growth effect ▸ Back

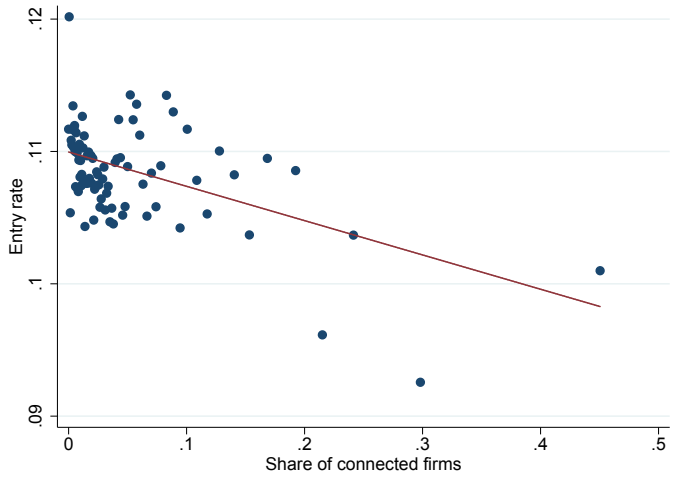
Bureaucracy and Importance of Connections for Growth

	(1) Empl growth	(2) Empl growth	(3) VA growth	(4) VA growth
Connection	0.069***	0.062***	0.041***	0.012***
	(64.08)	(37.68)	(34.19)	(7.05)
Connection × Bureaucr Top 25	0.024***	0.025***	0.014***	0.013***
	(9.27)	(5.97)	(4.99)	(3.11)
Log Assets	0.083***	0.231***	0.036***	-0.091***
	(280.42)	(264.02)	(118.83)	(-89.76)
Log Size	-0.136***	-0.566***	-0.079***	-0.235***
	(-349.01)	(-525.60)	(-217.57)	(-251.22)
Age	-0.004***	-0.010***	-0.004***	-0.005***
	(-174.14)	(-119.99)	(-145.64)	(-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

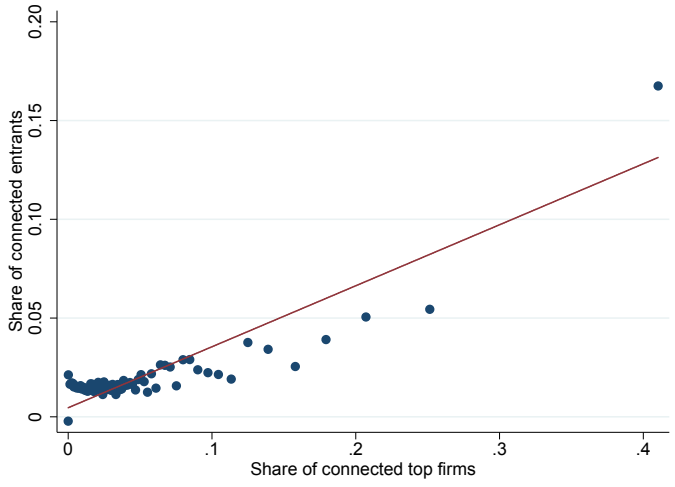
Notes: Firm-level OLS regressions. *Connections* is a dummy variable equal to one if firm is connected with a politician at time *t*. *Bureaucracy Top 25* is dummy equal to one for top 25% industries by Bureaucracy index 2. Back.

Fact 4 ctd': Connections and Industry Dynamics

Entry rate and Connections



Share of Connected Entrants and Conn's

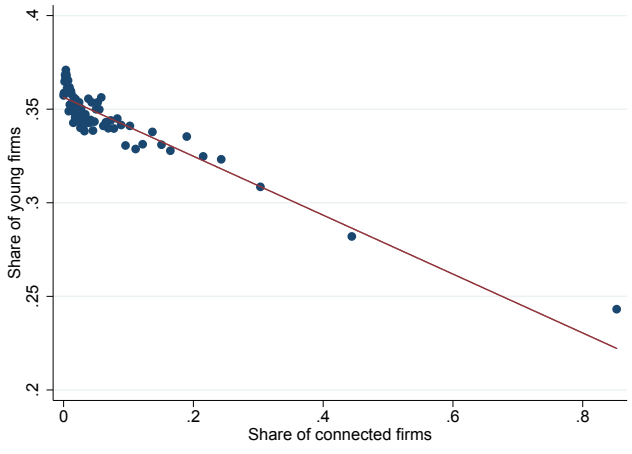


Notes: Binscatter plots from industry × region × year level regressions. Variables on Y axis are adjusted for industry, year, and region fixed effects. Regressions also control for size of top 5 firms in the market. Variables on X axis: share of firms connected.

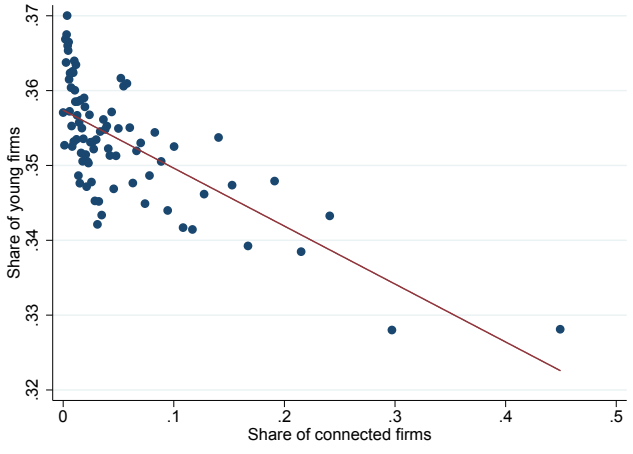
▸ Back

Fact 4 ctd': Connections and Industry Dynamics

Share of Young Firms



Share of Young Firms, control for size

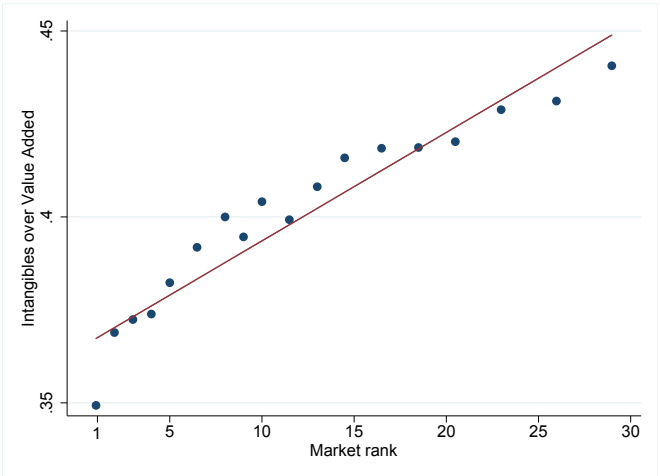


Notes: Binscatter plots from industry × region × year level regressions. Variables on Y axis are adjusted for industry, year, and region fixed effects. Variables on X axis: share of firms connected.

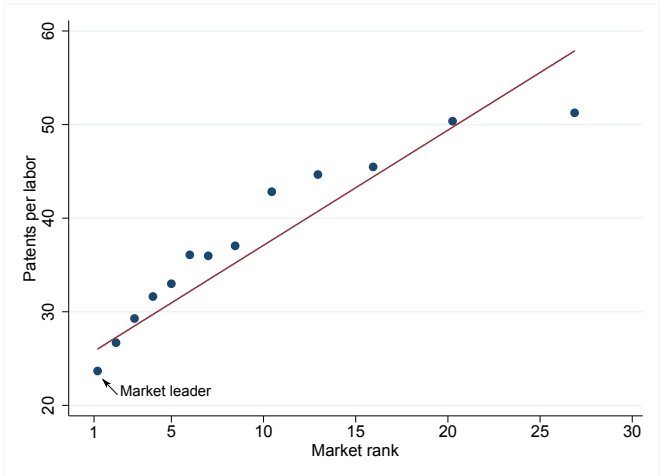
▸ Back

Fact 1 ctd': Rent Seeking vs Innovation

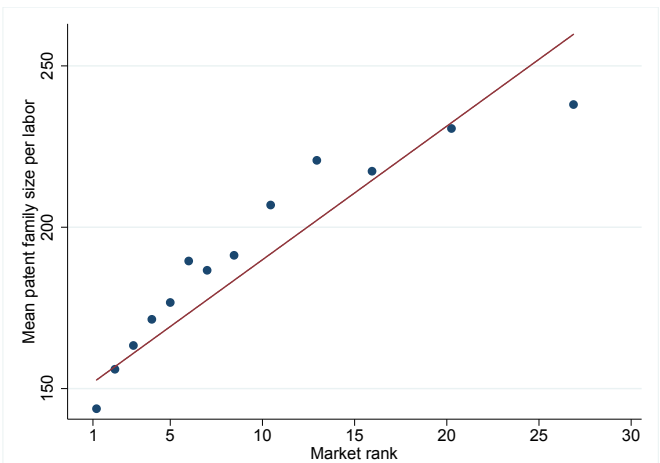
Intangibles share in Value Added



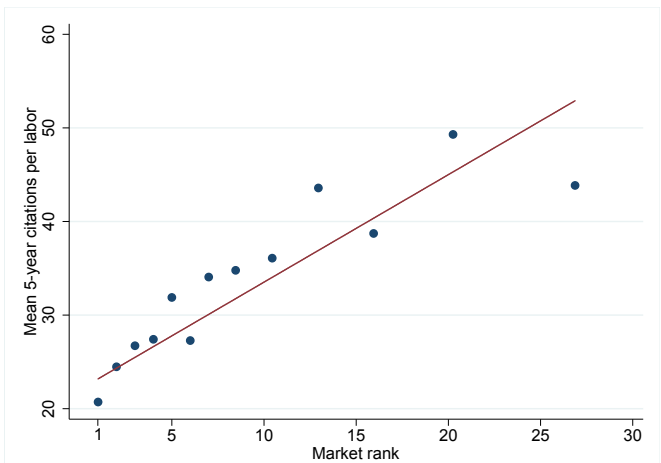
Patent per 100 w/c labor



Patent Family Size per 100 w/c labor



5-yr Citations per 100 w/c labor

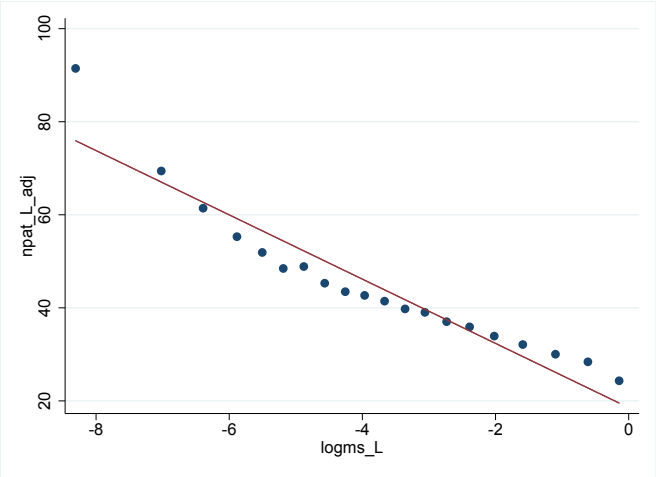


Notes: Market rank is defined as rank within firms that operate in the same 6-digit industry and region. Similar results if do not disaggregate by regions. Y axis is demeaned with industry, year and region fixed effects

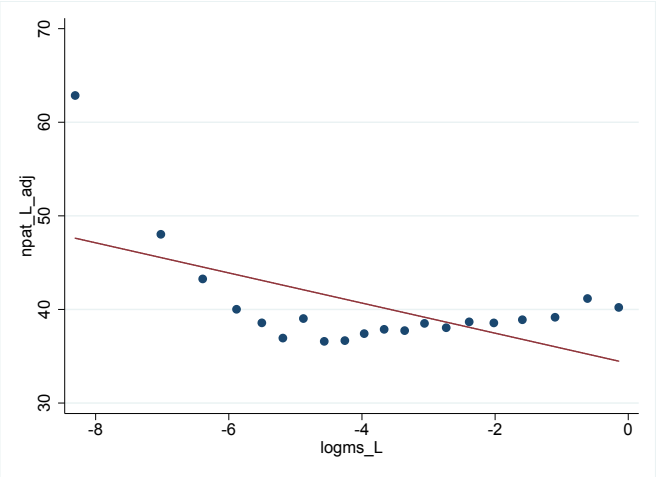
Back

Fact 1 ctd': Rent Seeking vs **Innovation**

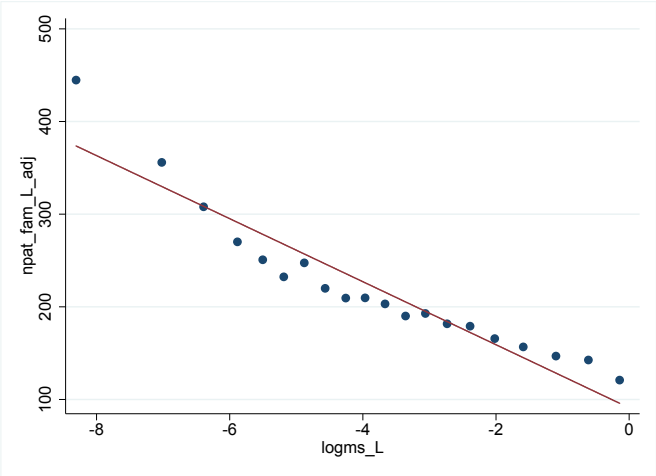
Patents Per Labor



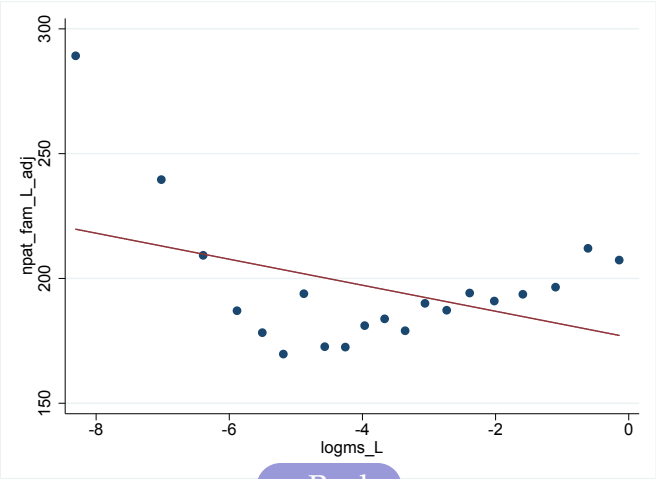
Patents per Labor, control for logL



Fam-size adjusted Patents Per Labor



Fam-size adjusted Patents per Labor, control for logL

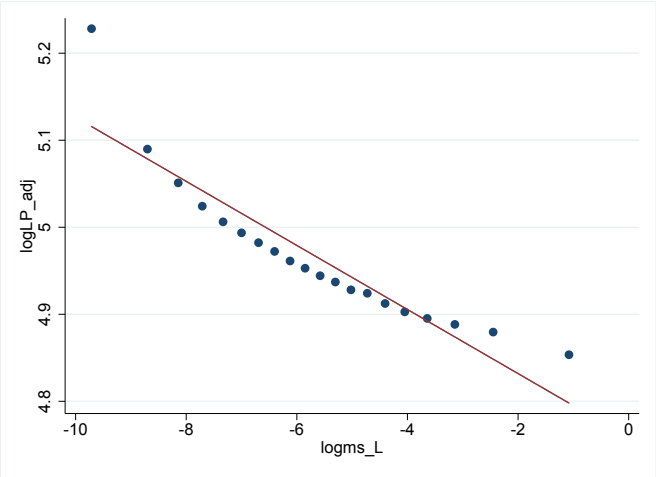


Binscatters after adjusting Y axis for for industry, year, and region fixed effects.

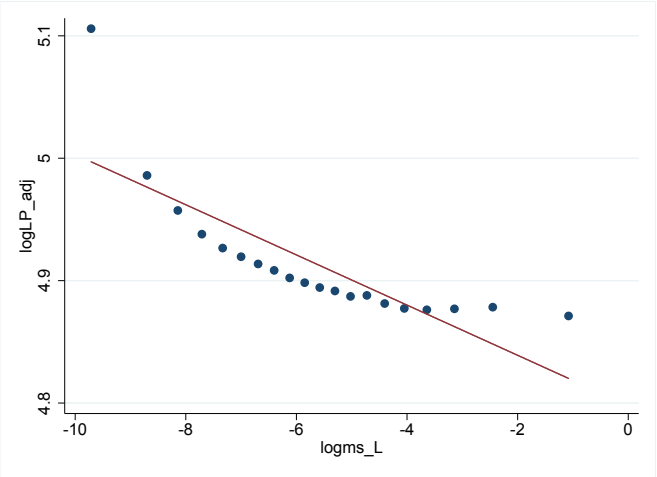
Back

Fact 1 ctd': Rent Seeking vs **Innovation**

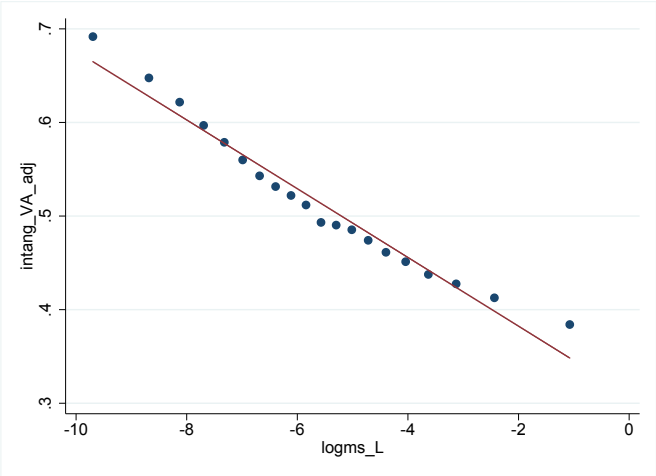
Labor Productivity



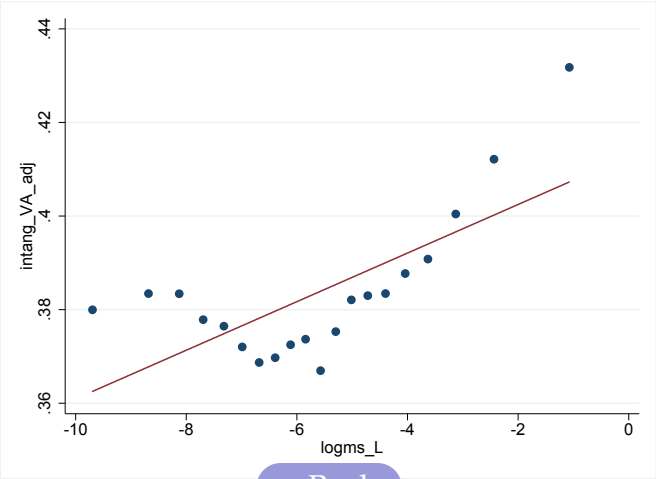
Labor Productivity, control for logL



Intangibles Share in Value Added



Intangibles Share in Value Added, control for logL

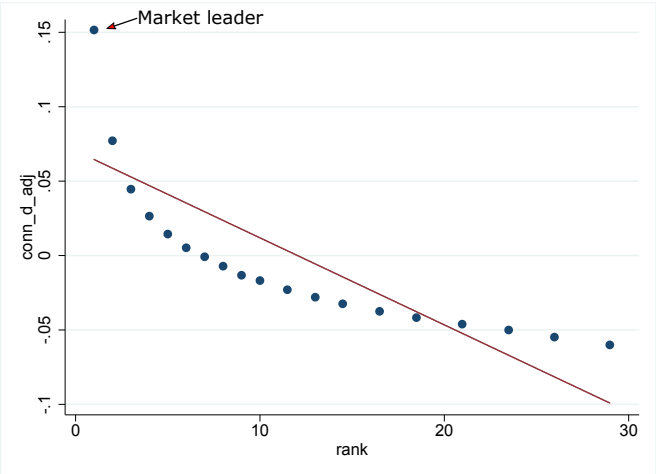


Binscatters after adjusting Y axis for for industry, year, and region fixed effects.

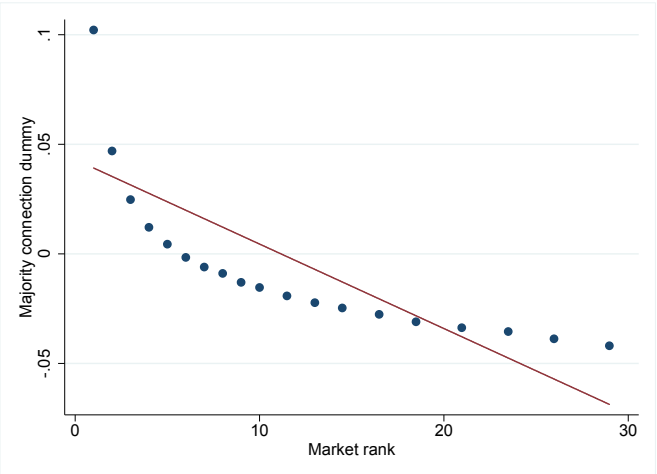
Back

Fact 1 ctd': Rent Seeking vs Innovation

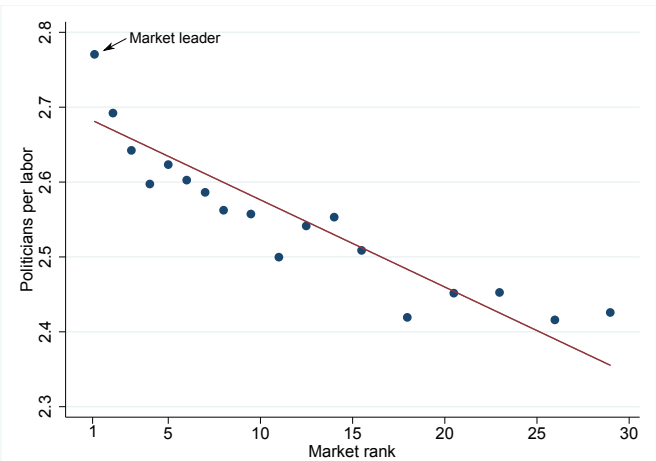
Connection dummy



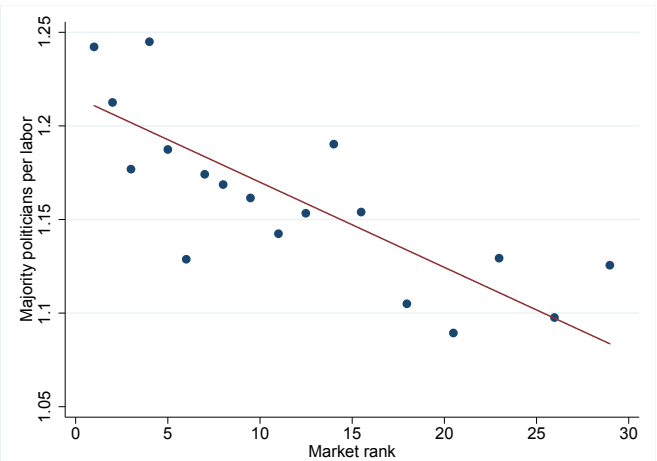
Majority-party connection dummy



Politicians per 100 w/c workers



Maj-party Politicians per 100 w/c workers

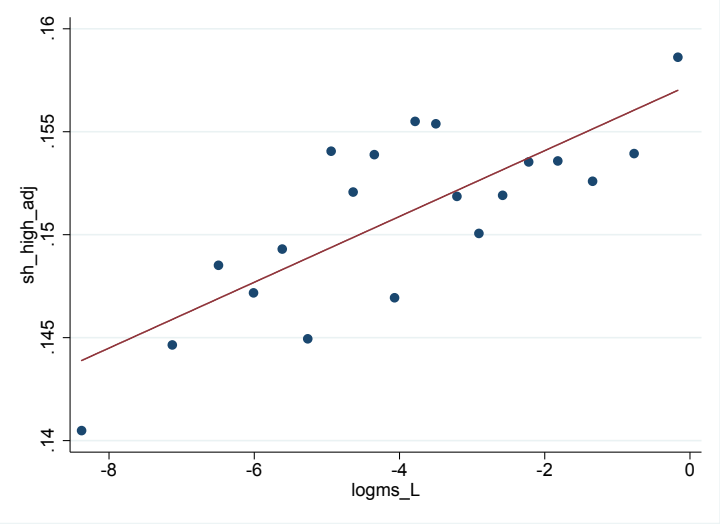


Notes: Market rank is defined as rank within firms that operate in the same 6-digit industry and region. Similar results if do not disaggregate by regions. Y axis is demeaned with industry, year and region fixed effects

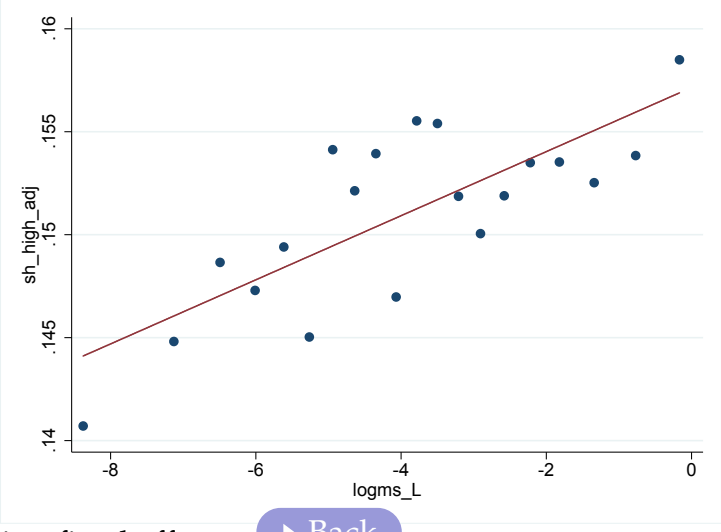
Back

Fact 1 ctd': Rent Seeking vs Innovation

Composition of connections



Composition of connections, control for logL

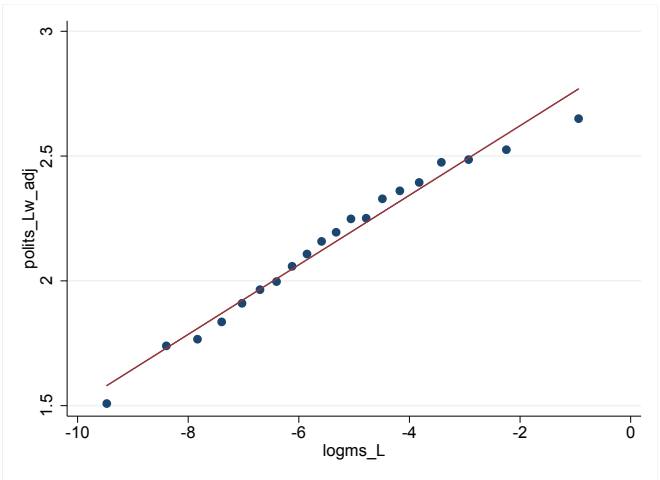


Binscatters after adjusting Y axis for for industry, year, and region fixed effects.

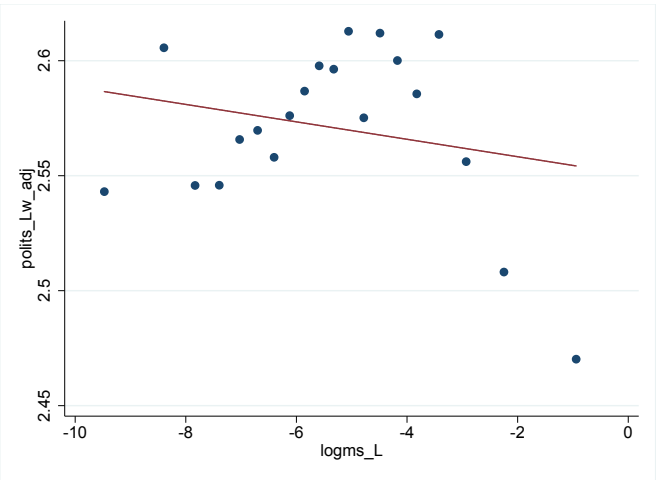
Back

Fact 1 ctd': Rent Seeking vs Innovation

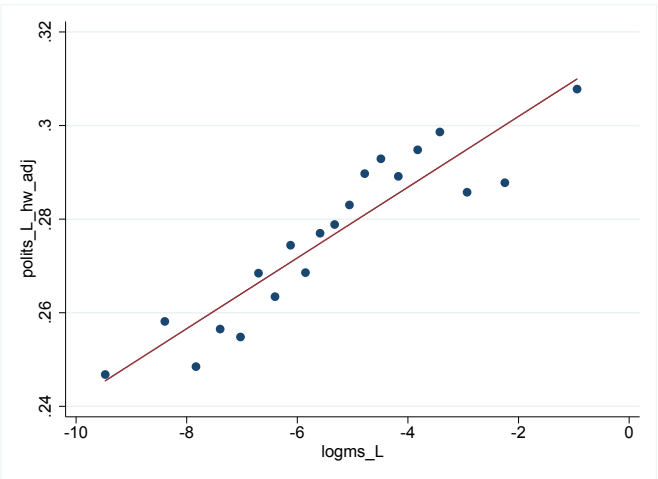
Politicians per 100 w/c workers



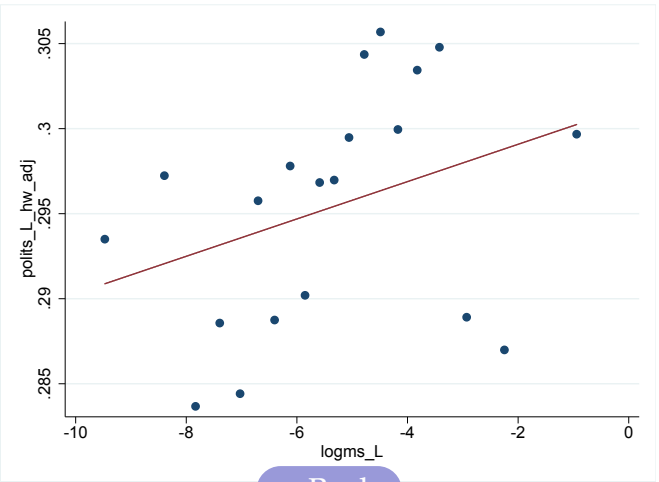
Politicians per 100 w/c workers, control for logL



High-level Politicians per 100 w/c workers



High-level Politicians per 100 w/c workers, control for logL

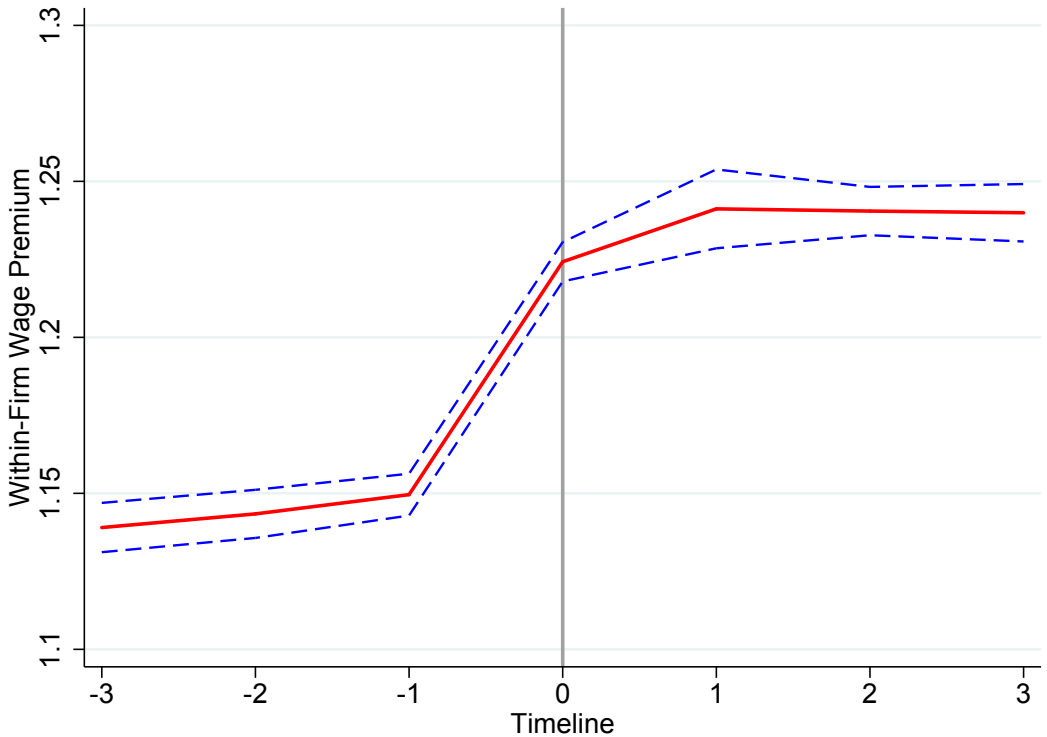


Binscatters after adjusting Y axis for for industry, year, and region fixed effects.

Back

Evolution of Within-Individual Within-Firm Wage Premium for Politicians

Within-Firm Wage Premium Before and After Becoming a Politician



Notes: Vertical line at zero corresponds to the event when a worker becomes a politician for the first time. Premium is calculated as the ratio of individual's weekly wage to her coworkers' average weekly wage.

Back