Discussion on:

Government Procurement and Access to Credit: Firm Dynamics and Aggregate Implications

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Central Result in di Giovanni et al. (2022)

Complex interdependencies in firms' sales in private & public markets:

Static substitutabilities (for credit-constrained firms) across markets:

Public market sales today $\uparrow$ $\Longrightarrow$ Private market sales today $\downarrow$

Dynamic complementarities within and across markets:

Public market sales today $\uparrow$ $\Longrightarrow$ Public market sales tomorrow $\uparrow$

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Importance of Studying Interdependencies Across Markets

- These interdependencies mediate how changes in procurement policies affect firms' behavior in the private market.
- The careful modeling of such interdependencies thus makes di Giovanni et al. (2022) a very important contribution towards understanding the implications of procurement policies in the economy in general equilibrium.

Single Market Assumption

- However, there is not a single public market nor a single procurement policy: private and public markets are themselves aggregates of a myriad of markets.
- Prior work has documented static & dynamic interdependencies across many private markets; e.g., work on firm dynamics within & across export markets.
- This work shows how changes in trade policy in a country (e.g., the US) may impact some markets (e.g., Mexico) differently from others (e.g., Australia).
- No work measuring static & dynamic interdependencies across many public markets: no work on firm dynamics within & across procurement markets.
- No tools, e.g., to determine how changes in procurement policies in a region will affect subsequent procurement outcomes in the same and other regions.

Many Market Reality

- Jointly with Pietro Buri and Manuel García-Santana, we have done a (very preliminary) descriptive analysis of the procurement market in Spain.

Main Conclusions

1. Large number of very heterogeneous procurement markets. Markets
2. Firms participating in procurement markets are also heterogeneous. Firms
3. Participation in procurement suffers from high attrition rate. Attrition
4. Firms' participation in procurement grows with age in the market. Selection
5. Political parties in power correlate with which firms earn contracts. Elections

Data

Conclusion

- Di Giovanni et al. (2022) is an excellent first study of how aspects of public procurement affect the macroeconomy.
- The world of public procurement at the national level is very complex, with many heterogeneous buyers and sellers, and relatively understudied.
- Modeling the dynamics of firms within and across specific public markets has the potential to be of a first-order importance when evaluating the impact of changes in procurement rules in any of these markets.

SLIDES WITH PRELIMINARY RESULTS

Procurement Data: Tender Electronic Daily (TED)

- Same data used as in García-Santana and Santamaría (2022)
- Tenders above a threshold must be published in Official Journal of the EU.
- Threshold currently determined in by the EU Directive 2014/24/EU.
  - e.g., threshold for supplies and services contracts is 139,000 euros.
- Information provided for each tender:
  - Good or service provided (approx. 6,000 different codes).
  - Agency awarding the contract (approx. 10,000 agencies in Spain).
  - Estimated and final price of the contract.
  - Firm to which contract is awarded.
- Information available for all EU countries.

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Heterogenous Markets

Agency Type	Agencies		Contracts		Value		Products
	Num.	%	Num.	%	Billions	%	Num.
Local Ayto. Valladolid	2,289	40	26,371	16	26	19	1,857 cleaning services
Provincial Soc. Prov. Desarrollo	332	5	7,550	5	4,2	3	790 road passenger-transport
Regional - C.A. Gerencia Reg. Salud	1,756	30	60,387	36	49	35	2,391 pharmaceutical products
Hospital Hosp. Clinico Valladolid	349	6	31,659	19	1	7	835 medical consumables
University Rectorado UVa	140	2	6,520	4	3,2	2	708 laboratory equipment
National Delegación Agencia Trib.	804	14	32,700	20	45	32	2,020 food and beverage

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Heterogenous Firms

- 27,395 different establishments selling at least once between 2009-2019
  - E.g. "Fruta Hermanos Ruiz Gómez" sells one product (fruit) to a few of hospitals
  - E.g. "Abbott" sells 80+ products (chemicals) to 177 agencies in 70 cities
- Skewed distrib. (across establishments) in extensive and intensive margins

	Mean	P50	P75	P90	P95	P99	P99.9
agencies	3.34	1	2	5	11	44	135
contracts	6.34	1	4	10	21	82	459
cities	2.21	1	2	4	7	24	62
products	2.48	1	2	5	8	22	68
sales (milllions)	5	0.3	1	5	14	79	560
sales to different C.A (%)	11	0	0	50	72	89	97

- Strong positive sorting: 10% Δ in buyer's size $\rightarrow$ 4.4% Δ in seller's size

  - similar when computed within agency types

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Attrition

	Entry Cohort										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	total
2010	3,032	.	.	.	.	.	.	.	.	.	5,645
2011	512	2,295	.	.	.	.	.	.	.	.	4,208
2012	186	399	2,113	.	.	.	.	.	.	.	3,617
2013	107	190	476	2,540	.	.	.	.	.	.	4,062
2014	75	116	256	654	2,704	.	.	.	.	.	4,442
2015	53	84	166	315	643	2,684	.	.	.	.	4,518
2016	41	66	116	199	321	606	3,321	.	.	.	5,169
2017	32	58	88	143	210	321	838	3,945	.	.	6,088
2018	26	47	71	105	156	210	430	836	4,002	.	6,296
2019	24	45	59	85	128	155	256	407	818	4,070	6,429

Approx. 80% attrition rate after the first year

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2014	75	116	256	654	2,704	.	.	.	.	.	4,442
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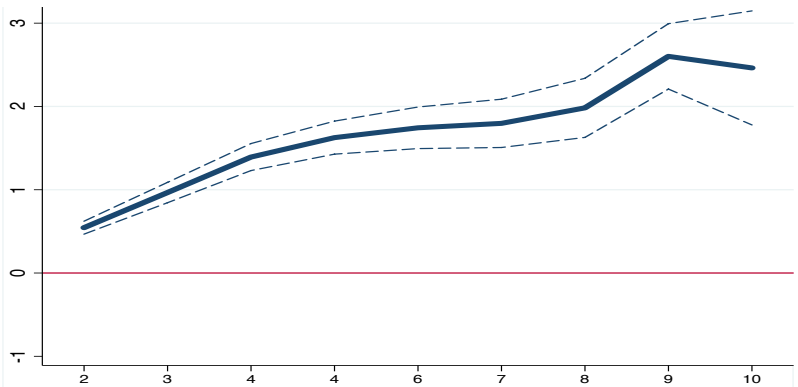
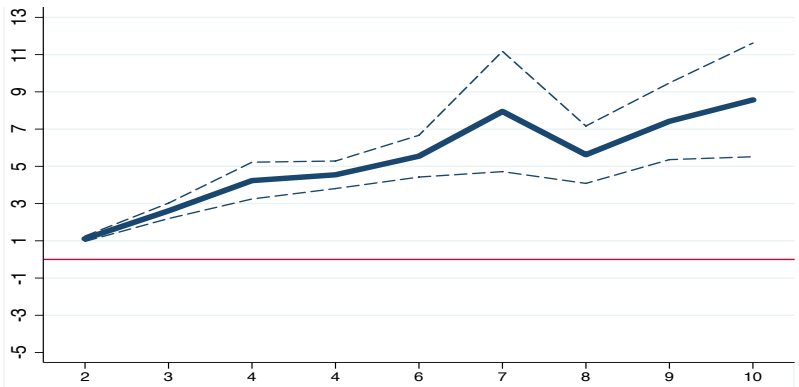
Selection - Regressions on Age Fixed Effects

$$y_{it} = \sum_{a \geq 2} \beta_a \mathbb{1}\{\text{age}_{it} = a\} + \varepsilon_{it}$$

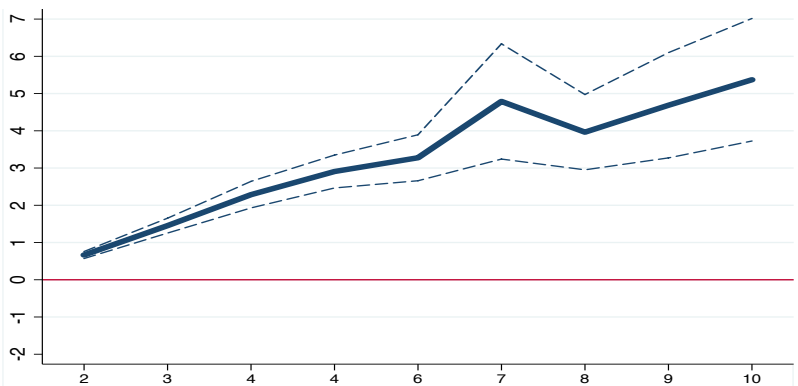
(a) Log Sales



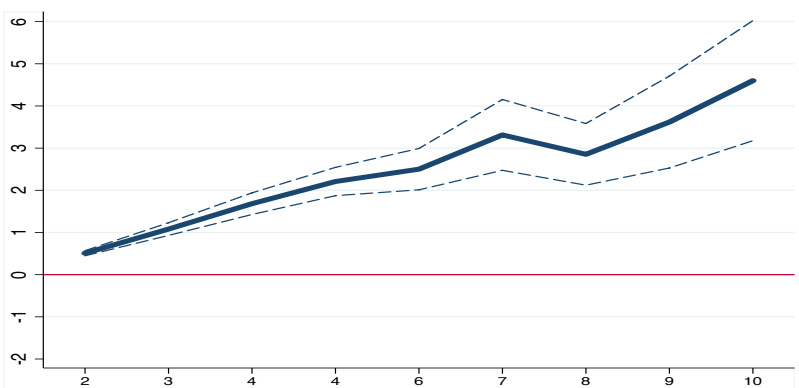
(b) Number of Contracts



(c) Number of Agencies



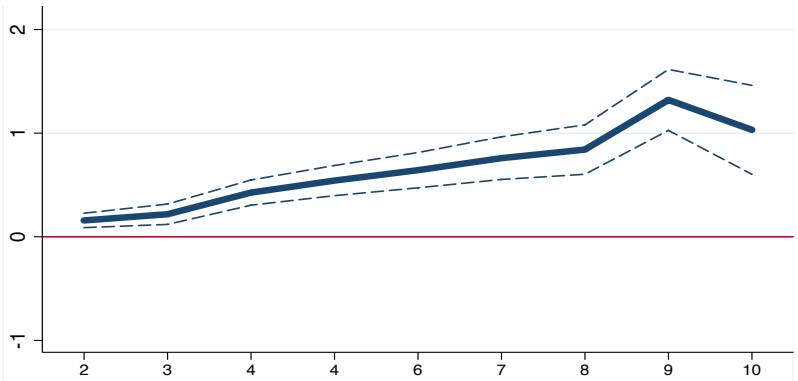
(d) Number of Cities



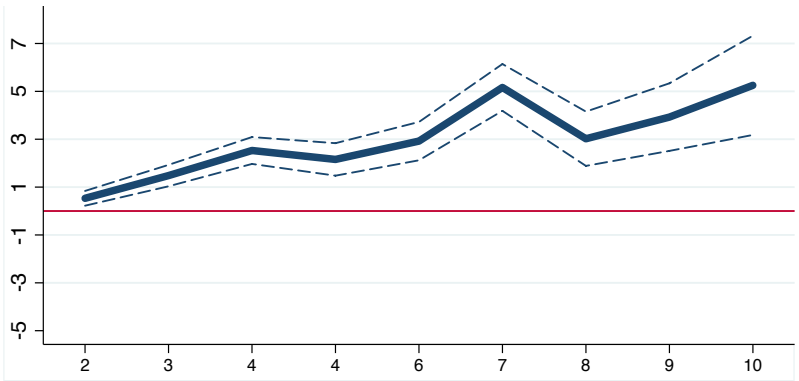
Selection - Regressions Controlling for Firm Fixed Effects

$$y_{it} = \sum_{a \geq 2} \beta_a \mathbb{1}\{\text{age}_{it} = a\} + FE_i + \varepsilon_{it}$$

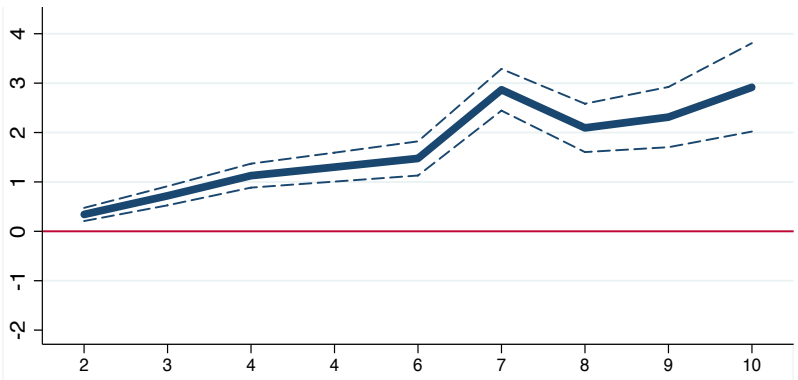
(a) Log Sales



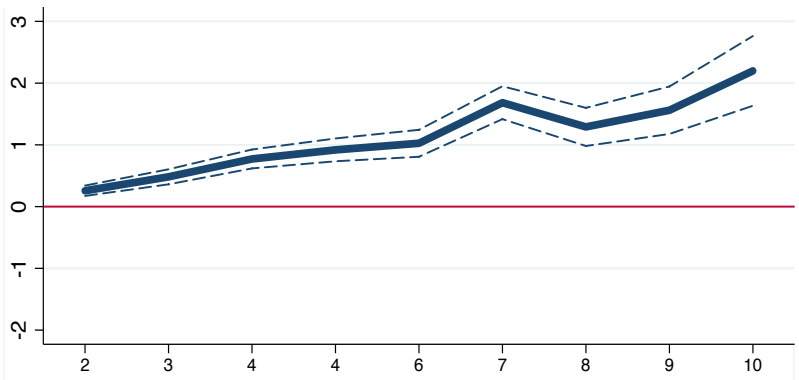
(b) Number of Contracts



(c) Number of Agencies



(d) Number of Cities



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Role of Political Parties - Local Level

- Define two periods on either side of 2011 local elections:

$$t = 1\text{: } \{2009, 2010\} \qquad \text{and} \qquad t = 2\text{: } \{2012, 2013\}.$$

- Restrict sample to municipalities with procurement contracts in either period whose mayor before and after 2011 elections belongs to either PP or PSOE.
- Use information on $t = 2$ and an OLS estimator to estimate

$$y_{ijt} = \beta y_{ijt-1} + \gamma y_{ijt-1} \mathbb{1}\{\text{party}_{jt} = \text{party}_{jt-1}\} + FE_{it} + FE_{jt} + \varepsilon_{ijt},$$

and

$$\begin{aligned} y_{ijt} = \beta y_{ijt-1} &+ \gamma_1 y_{ijt-1} \mathbb{1}\{PP_{jt-1}, PP_{jt}\} \\ &+ \gamma_2 y_{ijt-1} \mathbb{1}\{PP_{jt-1}, PSOE_{jt}\} \\ &+ \gamma_3 y_{ijt-1} \mathbb{1}\{PSOE_{jt-1}, PP_{jt}\} + FE_{it} + FE_{jt} + \varepsilon_{ijt}. \end{aligned}$$

Role of Political Parties - Local Level

- Define two periods on either side of 2011 local elections:

$$t = 1\text{: } \{2009, 2010\} \qquad \text{and} \qquad t = 2\text{: } \{2012, 2013\}.$$

- Restrict sample to municipalities with procurement contracts in either period whose mayor before and after 2011 elections belongs to either PP or PSOE.
- Use information on $t = 2$ and an OLS estimator to estimate

$$y_{ijt} = \underbrace{0.07}_{(0.009)} y_{ijt-1} + \underbrace{0.03}_{(0.012)} y_{ijt-1} \mathbb{1}\{\text{party}_{jt} = \text{party}_{jt-1}\} + FE_{it} + FE_{jt} + \varepsilon_{ijt},$$

$$\begin{aligned} y_{ijt} = \underbrace{0.07}_{(0.011)} y_{ijt-1} + \underbrace{0.05}_{(0.015)} y_{ijt-1} \mathbb{1}\{PP_{jt-1}, PP_{jt}\} \\ - \underbrace{0.07}_{(0.011)} y_{ijt-1} \mathbb{1}\{PP_{jt-1}, PSOE_{jt}\} \\ + \underbrace{0.01}_{(0.015)} y_{ijt-1} \mathbb{1}\{PSOE_{jt-1}, PP_{jt}\} + FE_{it} + FE_{jt} + \varepsilon_{ijt}. \end{aligned}$$

Role of Political Parties - Regional Level

- Split sample period into two periods:

$$[2009, 2014] \qquad \text{and} \qquad [2015, 2019].$$

- Using information on all regional contracts between 2009 and 2014, classify firms as PP affiliated if they have more than n contracts and, at least, 75% of their contracts are with governments of PP.

Role of Political Parties - Regional Level

- Split sample period into two periods:

$$[2009, 2014] \qquad \text{and} \qquad [2015, 2019].$$

- Using information on all regional contracts between 2009 and 2014, classify firms as PSOE affiliated if they have more than n contracts and, at least, 75% of their contracts are with governments of PSOE.

Role of Political Parties - Regional Level

- Split sample period into two periods:

$$[2009, 2014] \qquad \text{and} \qquad [2015, 2019].$$

- Using information on all regional contracts between 2009 and 2014, classify firms as independent if they are neither PP affiliated nor PSOE affiliated.

Role of Political Parties - Regional Level

- Split sample period into two periods:

$$[2009, 2014] \qquad \text{and} \qquad [2015, 2019].$$

- Using information on all regional contracts between 2009 and 2014, classify firms as independent if they are neither PP affiliated nor PSOE affiliated.
- Using information on all years in the period 2015-2019 and all regions with a government belonging to either PP or PSOE, use OLS to estimate

$$\begin{aligned} y_{ijt} = \beta y_{ij0914} &+ \gamma_1 \mathbb{1}\{PP_{jt}, PP_{it}\} \\ &+ \gamma_2 \mathbb{1}\{PP_{jt}, PSOE_{it}\} \\ &+ \gamma_3 \mathbb{1}\{PSOE_{jt}, PP_{it}\} \\ &+ \gamma_4 \mathbb{1}\{PSOE_{jt}, PSOE_{it}\} + FE_{it} + FE_{jt} + \varepsilon_{ijt}. \end{aligned}$$

Role of Political Parties - Regional Level

- Split sample period into two periods:

$$[2009, 2014] \qquad \text{and} \qquad [2015, 2019].$$

- For firms with a number of contracts between 2009 and 2014 above

$$n = 3$$

we obtain the following estimates

$$\begin{aligned} y_{ijt} = & \underbrace{0.067}_{(0.001)} y_{ij0914} + \underbrace{0.006}_{(0.004)} \mathbb{1}\{PP_{jt}, PP_{it}\} \\ & + \underbrace{0.001}_{(0.003)} \mathbb{1}\{PP_{jt}, PSOE_{it}\} \\ & + \underbrace{0.001}_{(0.004)} \mathbb{1}\{PSOE_{jt}, PP_{it}\} \\ & + \underbrace{0.017}_{(0.004)} \mathbb{1}\{PSOE_{jt}, PSOE_{it}\} + FE_{it} + FE_{jt} + \varepsilon_{ijt}. \end{aligned}$$

Role of Political Parties - Regional Level

- Split sample period into two periods:

$$[2009, 2014] \qquad \text{and} \qquad [2015, 2019].$$

- For firms with a number of contracts between 2009 and 2014 above

$$n = 5$$

we obtain the following estimates

$$\begin{aligned} y_{ijt} = & \underbrace{0.067}_{(0.001)} y_{ij0914} + \underbrace{0.017}_{(0.007)} \mathbb{1}\{PP_{jt}, PP_{it}\} \\ & + \underbrace{0.003}_{(0.006)} \mathbb{1}\{PP_{jt}, PSOE_{it}\} \\ & + \underbrace{0.008}_{(0.007)} \mathbb{1}\{PSOE_{jt}, PP_{it}\} \\ & + \underbrace{0.019}_{(0.006)} \mathbb{1}\{PSOE_{jt}, PSOE_{it}\} + FE_{it} + FE_{jt} + \varepsilon_{ijt}. \end{aligned}$$

Role of Political Parties - Regional Level

- Split sample period into two periods:

$$[2009, 2014] \qquad \text{and} \qquad [2015, 2019].$$

- For firms with a number of contracts between 2009 and 2014 above

$$n = 7$$

we obtain the following estimates

$$\begin{aligned} y_{ijt} = & \underbrace{0.067}_{(0.001)} y_{ij0914} + \underbrace{0.020}_{(0.008)} \mathbb{1}\{PP_{jt}, PP_{it}\} \\ & + \underbrace{0.012}_{(0.008)} \mathbb{1}\{PP_{jt}, PSOE_{it}\} \\ & + \underbrace{0.013}_{(0.009)} \mathbb{1}\{PSOE_{jt}, PP_{it}\} \\ & + \underbrace{0.028}_{(0.009)} \mathbb{1}\{PSOE_{jt}, PSOE_{it}\} + FE_{it} + FE_{jt} + \varepsilon_{ijt}. \end{aligned}$$

Role of Political Parties - Regional Level

- Split sample period into two periods:

$$[2009, 2014] \qquad \text{and} \qquad [2015, 2019].$$

- For firms with a number of contracts between 2009 and 2014 above

$$n = 9$$

we obtain the following estimates

$$\begin{aligned} y_{ijt} = & \underbrace{0.067}_{(0.001)} y_{ij0914} + \underbrace{0.024}_{(0.010)} \mathbb{1}\{PP_{jt}, PP_{it}\} \\ & + \underbrace{0.021}_{(0.010)} \mathbb{1}\{PP_{jt}, PSOE_{it}\} \\ & + \underbrace{0.015}_{(0.011)} \mathbb{1}\{PSOE_{jt}, PP_{it}\} \\ & + \underbrace{0.032}_{(0.011)} \mathbb{1}\{PSOE_{jt}, PSOE_{it}\} + FE_{it} + FE_{jt} + \varepsilon_{ijt}. \end{aligned}$$

Taking Stock

Facts:

1. Obtaining contracts in a municipality is correlated with obtaining contracts in the same municipality in the future, more so if the same party stays in power.
2. Firms that obtain regional contracts mostly from one political party are more likely to subsequently obtain contracts from regions governed by that party.

Possible Explanations:

1. Heterogeneity across parties in the goods or services they buy.
2. Information on firm performance is shared more often within parties.
3. Political parties arbitrarily grant contracts to certain firms.

Note: The evidence presented is consistent with any of these three explanations.

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