The Effects of Firms' Lobbying on Resource Misallocation

Federico Huneeus

In Song Kim

Central Bank of Chile

Political Science, MIT

◆□▶ ◆□▶ ◆三▶ ◆三▶ ◆□▶

U. Andes Economics Seminar

June 10th, 2022

Supported by the National Science Foundation (SES-1264090 and SES-1725235)

Misallocation of resources is important for aggregate productivity

• What are its endogenous sources?

- What are its endogenous sources?
- One candidate that is usually overlooked:

- What are its endogenous sources?
- One candidate that is usually overlooked:
 - Firms' political influence on policy-making

- What are its endogenous sources?
- One candidate that is usually overlooked:
 - ► Firms' political influence on policy-making
 - ★ Do firms' political activities introduce distortions in the economy?

- What are its endogenous sources?
- One candidate that is usually overlooked:
 - Firms' political influence on policy-making
 - ★ Do firms' political activities introduce distortions in the economy?
 - * "...almost two-thirds of Americans believe the economy is rigged in favour of vested interests." (PEW, 2018)

Misallocation of resources is important for aggregate productivity

- What are its endogenous sources?
- One candidate that is usually overlooked:
 - Firms' political influence on policy-making
 - ★ Do firms' political activities introduce distortions in the economy?
 - * "...almost two-thirds of Americans believe the economy is rigged in favour of vested interests." (PEW, 2018)

Goal: Does lobbying distort allocations by making firms too big?

Misallocation of resources is important for aggregate productivity

- What are its endogenous sources?
- One candidate that is usually overlooked:
 - ► Firms' political influence on policy-making
 - ★ Do firms' political activities introduce distortions in the economy?
 - * "...almost two-thirds of Americans believe the economy is rigged in favour of vested interests." (PEW, 2018)

Goal: Does lobbying distort allocations by making firms too big?

Make progress on two challenges:

Misallocation of resources is important for aggregate productivity

- What are its endogenous sources?
- One candidate that is usually overlooked:
 - ► Firms' political influence on policy-making
 - ★ Do firms' political activities introduce distortions in the economy?
 - * "...almost two-thirds of Americans believe the economy is rigged in favour of vested interests." (PEW, 2018)

Goal: Does lobbying distort allocations by making firms too big?

Make progress on two challenges:

• Micro elasticity: Firm-level causal effect of lobbying

Misallocation of resources is important for aggregate productivity

- What are its endogenous sources?
- One candidate that is usually overlooked:
 - ► Firms' political influence on policy-making
 - * Do firms' political activities introduce distortions in the economy?
 - * "...almost two-thirds of Americans believe the economy is rigged in favour of vested interests." (PEW, 2018)

Goal: Does lobbying distort allocations by making firms too big?

Make progress on two challenges:

- Micro elasticity: Firm-level causal effect of lobbying
- Macro implication: Quantify aggregate effect on misallocation

Structural Analysis

Theory: Multi-sector macro model

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - ★ Endogenous firm-level lobbying

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections
 - ★ ↑ Lobbying in 10% \Rightarrow ↑ Value Added in 1.3%

Structural Analysis

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections
 - ★ ↑ Lobbying in 10% \Rightarrow ↑ Value Added in 1.3%

Structural Estimation using Simulated Method of Moments (SMM)

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections
 - ★ ↑ Lobbying in 10% \Rightarrow ↑ Value Added in 1.3%
- Structural Estimation using Simulated Method of Moments (SMM)
 - * Moments from OLS and IV of lobbying on firms' revenues

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections
 - ★ ↑ Lobbying in 10% \Rightarrow ↑ Value Added in 1.3%
- Structural Estimation using Simulated Method of Moments (SMM)
 - * Moments from OLS and IV of lobbying on firms' revenues
- Counterfactuals

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections
 - ★ ↑ Lobbying in 10% \Rightarrow ↑ Value Added in 1.3%
- Structural Estimation using Simulated Method of Moments (SMM)
 - * Moments from OLS and IV of lobbying on firms' revenues
- Counterfactuals
 - * Eliminating lobbying increases aggregate productivity by 6%

Structural Analysis

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections
 - ★ ↑ Lobbying in 10% \Rightarrow ↑ Value Added in 1.3%
- Structural Estimation using Simulated Method of Moments (SMM)
 - * Moments from OLS and IV of lobbying on firms' revenues
- Counterfactuals
 - * Eliminating lobbying increases aggregate productivity by 6%

New Empirical Framework for Lobbying

Structural Analysis

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections
 - ★ ↑ Lobbying in 10% \Rightarrow ↑ Value Added in 1.3%
- Structural Estimation using Simulated Method of Moments (SMM)
 - * Moments from OLS and IV of lobbying on firms' revenues
- Counterfactuals
 - * Eliminating lobbying increases aggregate productivity by 6%

New Empirical Framework for Lobbying

Data: >1M lobbying reports, >100K bills, committees (106–114th)

Structural Analysis

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections
 - ★ ↑ Lobbying in 10% \Rightarrow ↑ Value Added in 1.3%
- Structural Estimation using Simulated Method of Moments (SMM)
 - * Moments from OLS and IV of lobbying on firms' revenues
- Counterfactuals
 - * Eliminating lobbying increases aggregate productivity by 6%

New Empirical Framework for Lobbying

- Data: >1M lobbying reports, >100K bills, committees (106–114th)
- Identification: Applicable to different political connections

Structural Analysis

- Theory: Multi-sector macro model
 - ★ Heterogeneous firms (Melitz, 2003)
 - * Endogenous firm-level lobbying
- Effect of Lobbying on Firm Size
 - ★ Firm-level lobbying data
 - * Instrument: Variation in the value of firms' political connections
 - ★ ↑ Lobbying in 10% \Rightarrow ↑ Value Added in 1.3%
- Structural Estimation using Simulated Method of Moments (SMM)
 - * Moments from OLS and IV of lobbying on firms' revenues
- Counterfactuals
 - * Eliminating lobbying increases aggregate productivity by 6%

New Empirical Framework for Lobbying

- Data: >1M lobbying reports, >100K bills, committees (106–114th)
- Identification: Applicable to different political connections
- Theory: Can be extended to other applications

Related Literature: Two Strands

<ロ > < 回 > < 巨 > < 巨 > < 巨 > 三 の Q () 3/43

Related Literature: Two Strands

Misallocation of Resources Between Firms

Restuccia & Rogerson (2008), Hsieh & Klenow (2009), Midrigan & Xu (2014), Baqaee & Farhi (2017), Boehm & Oberfield (2020), Peters (2020), Arayavechkit et al. (2020)

Related Literature: Two Strands

Misallocation of Resources Between Firms

Restuccia & Rogerson (2008), Hsieh & Klenow (2009), Midrigan & Xu (2014), Baqaee & Farhi (2017), Boehm & Oberfield (2020), Peters (2020), Arayavechkit et al. (2020)

Orporate Lobbying

Goldberg & Maggi (1999), Ansolabehere et al. (2002), Bombardini & Trebbi (2012), De Figueiredo & Richter (2014), Bertrand et al. (2014), Kim (2017), Kang (2018), Bertrand et al. (2019)





- 2 A Theory of Firm-Level Lobbying
- 3 Quantifying the Aggregate Effects of Firms' Lobbying
- 4 Conclusion

<ロ > < 回 > < 目 > < 目 > < 目 > 目 の Q () 3/43

Outline



- 2 A Theory of Firm-Level Lobbying
- 3 Quantifying the Aggregate Effects of Firms' Lobbying
- 4 Conclusion



 1995 Lobbying Disclosure Act definition: "Any oral, written, or electronic communication to a covered official"

- 1995 Lobbying Disclosure Act definition: "Any oral, written, or electronic communication to a covered official"
- Not about bribe: Does not capture direct benefits (\$) for politicians

- 1995 Lobbying Disclosure Act definition: "Any oral, written, or electronic communication to a covered official"
- Not about bribe: Does not capture direct benefits (\$) for politicians
- Interest groups required to report any congressional bills lobbied

- 1995 Lobbying Disclosure Act definition: "Any oral, written, or electronic communication to a covered official"
- Not about bribe: Does not capture direct benefits (\$) for politicians
- Interest groups required to report any congressional bills lobbied

Monitor legislation regarding online privacy including Safe Data Act (H.R. 2577, S. 1207) and Do not track proposals (H.R. 654). Monitor any Congressional or Administration efforts to impose privacy laws on search engines. Monitor Spectrum acts (S. 911, H.R. 2482).

Figure: First Quarter Report by Google, Inc. in 2013

- 1995 Lobbying Disclosure Act definition: "Any oral, written, or electronic communication to a covered official"
- Not about bribe: Does not capture direct benefits (\$) for politicians
- Interest groups required to report any congressional bills lobbied

Monitor legislation regarding online privacy including Safe Data Act (H.R. 2577, S. 1207) and Do not track proposals (H.R. 654). Monitor any Congressional or Administration efforts to impose privacy laws on search engines. Monitor Spectrum acts (S. 911, H.R. 2482).

Figure: First Quarter Report by Google, Inc. in 2013

• Identify lobbying activities based on 1,111,859 lobbying reports
A New Dataset of Lobbying, Bills and Committees

- 1995 Lobbying Disclosure Act definition: "Any oral, written, or electronic communication to a covered official"
- Not about bribe: Does not capture direct benefits (\$) for politicians
- Interest groups required to report any congressional bills lobbied

Monitor legislation regarding online privacy including Safe Data Act (H.R. 2577, S. 1207) and Do not track proposals (H.R. 654). Monitor any Congressional or Administration efforts to impose privacy laws on search engines. Monitor Spectrum acts (S. 911, H.R. 2482).

Figure: First Quarter Report by Google, Inc. in 2013

- Identify lobbying activities based on 1,111,859 lobbying reports
- 108,086 congressional bills introduced (106th 114th)

A New Dataset of Lobbying, Bills and Committees

- 1995 Lobbying Disclosure Act definition: "Any oral, written, or electronic communication to a covered official"
- Not about bribe: Does not capture direct benefits (\$) for politicians
- Interest groups required to report any congressional bills lobbied

Monitor legislation regarding online privacy including Safe Data Act (H.R. 2577, S. 1207) and Do not track proposals (H.R. 654). Monitor any Congressional or Administration efforts to impose privacy laws on search engines. Monitor Spectrum acts (S. 911, H.R. 2482).

Figure: First Quarter Report by Google, Inc. in 2013

- Identify lobbying activities based on 1,111,859 lobbying reports
- 108,086 congressional bills introduced (106th 114th)
- Linked to the committee that each bill is assigned to

A New Dataset of Lobbying, Bills and Committees

- 1995 Lobbying Disclosure Act definition: "Any oral, written, or electronic communication to a covered official"
- Not about bribe: Does not capture direct benefits (\$) for politicians
- Interest groups required to report any congressional bills lobbied

Monitor legislation regarding online privacy including Safe Data Act (H.R. 2577, S. 1207) and Do not track proposals (H.R. 654). Monitor any Congressional or Administration efforts to impose privacy laws on search engines. Monitor Spectrum acts (S. 911, H.R. 2482).

Figure: First Quarter Report by Google, Inc. in 2013

- Identify lobbying activities based on 1,111,859 lobbying reports
- 108,086 congressional bills introduced (106th 114th)
- Linked to the committee that each bill is assigned to
- Measure the relative importance of each committee for individual firms by incorporating the frequency of bill-to-committee links

Basic Descriptives of the Dataset

NAICS	Code	# Firms	% Lobbied	% In-house	Median Expense	Example Firm
Agriculture, Forestry, Fishing/Hunting	11	26	20.4	7.6	\$50,000	MONSANTO CO
Mining, Quarrying, and Oil/Gas Extraction	21	460	9.9	3.8	\$40,000	RIO TINTO GROUP (GBR)
Utilities	22	289	22.7	15.3	\$50,000	ENEL SPA
Construction	23	99	10.8	3.8	\$30,000	FLUOR CORP
Manufacturing	31-33	2,930	15.8	6.5	\$40,000	NESTLE SA/AG
Wholesale Trade	42	220	8.1	3.4	\$40,000	MCKESSON CORP
Retail Trade	44-45	282	11.2	5.1	\$60,000	CVS HEALTH CORP
Transportation and Warehousing	48-49	224	18.6	9.0	\$45,000	ENI SPA
Information	51	964	11.9	4.8	\$50,000	AT&T INC
Finance and Insurance	52	2,336	5.1	2.6	\$50,000	UNITEDHEALTH GROUP INC
Real Estate and Rental and Leasing	53	353	6.5	0.8	\$40,000	BROOKFIELD ASSET MANAGEMENT
Professional, Scientific, and Technical SVC	54	330	12.1	3.4	\$40,000	ACCENTURE PLC
Admin/Waste Management/Remediation SVC	56	156	17.7	4.5	\$40,000	MANPOWERGROUP
Educational SVC	61	35	24.6	8.3	\$40,000	GRAHAM HOLDINGS CO
Health Care and Social Assistance	62	130	21.9	6.8	\$50,000	HUMANA INC
Arts, Entertainment, and Recreation	71	58	13.1	3.2	\$30,000	LIVE NATION ENTERTAINMENT
Accommodation and Food SVC	72	141	12.2	5.5	\$50,000	SODEXO
Other Services (except Public Administration)	81	22	7.8	0.0	\$40,000	SERVICE CORP INTERNATIONAL





A Theory of Firm-Level Lobbying

3 Quantifying the Aggregate Effects of Firms' Lobbying

4 Conclusion



Standard

- Multi-Industry
- Heterogeneous Firms
- Selection into Production
- Endogenous Entry

Standard

- Multi-Industry
- Heterogeneous Firms
- Selection into Production
- Endogenous Entry
- New: Endogenous Firm-Level Lobbying

Standard

- Multi-Industry
- Heterogeneous Firms
- Selection into Production
- Endogenous Entry
- New: Endogenous Firm-Level Lobbying
 - Selection: Few and big firms lobby

Details

イロト イポト イヨト イヨト

6/43

Standard

- Multi-Industry
- Heterogeneous Firms
- Selection into Production
- Endogenous Entry
- New: Endogenous Firm-Level Lobbying
 - Selection: Few and big firms lobby
 - No dynamics: Persistent lobbying

DetailsDetails

Standard

- Multi-Industry
- Heterogeneous Firms
- Selection into Production
- Endogenous Entry
- New: Endogenous Firm-Level Lobbying
 - Selection: Few and big firms lobby
- Details
- In the second second
- No collective action: Firm-level lobbying

Firm-level lobbying > Industry org. lobbying •App

Firm-level lobbying > Industry org. lobbying ••••



Firms lobby individually on specific bills • App

<ロト < 団 > < 巨 > < 巨 > 三 の < で 8/43

Firms lobby individually on specific bills •••••



Firms lobby individually on specific bills • App



Cong.	Bill	Official Title	Firms (Location)	Sponsor (state)	
109	S2325	a bill to reduce temporarily the duty on certain audio headphones achieving full-spectrum noise reduction	Bose (MA)	John Kerry (MA)	
111	S2098	a bill to reduce temporarily the duty on certain isotopic separation machinery and apparatus	Louisiana energy services (NM)	Jeff Bingaman (NM)	
112	S2334	a bill to reduce temporarily the duty on lithium ion electrical storage batteries	General Motors (MI) Hitachi Automotive Product (MI)	Carl Levin (MI)	
112	HR5557	to reduce temporarily the rate of duty on certain girls' shorts	Nike (OR)	Earl Blumenauer (OR)	

8/43

Standard

- Multi-Industry
- Heterogeneous Firms
- Selection into Production
- Endogenous Entry
- New: Endogenous Firm-Level Lobbying
 - Selection: Few and big firms lobby
 - 🕨 No dynamics: Persistent lobbying 💽
 - 8 No collective action: Firm-level lobbying

Standard

- Multi-Industry
- Heterogeneous Firms
- Selection into Production
- Endogenous Entry

• New: Endogenous Firm-Level Lobbying

- Selection: Few and big firms lobby 📭
- No dynamics: Persistent lobbying
 Details
- No collective action: Firm-level lobbying
 - Benefits from lobbying (δ_s): Size distortions lacksquare Micro-Foundation

Standard

- Multi-Industry
- Heterogeneous Firms
- Selection into Production
- Endogenous Entry
- New: Endogenous Firm-Level Lobbying
 - Selection: Few and big firms lobby Detai
 - No dynamics: Persistent lobbying
 Details
 - No collective action: Firm-level lobbying
 - Benefits from lobbying (δ_s): Size distortions \frown Micro-Foundation
 - * No evidence of input ratios distortions due to lobbying

Standard

- Multi-Industry
- Heterogeneous Firms
- Selection into Production
- Endogenous Entry

• New: Endogenous Firm-Level Lobbying

- Selection: Few and big firms lobby Detail
 - No dynamics: Persistent lobbying Details
- No collective action: Firm-level lobbying
- Benefits from lobbying (δ_s): Size distortions \frown Micro-Foundation
 - * No evidence of input ratios distortions due to lobbying



• Demand:
$$Y = \prod_{s=1}^{S} Y_s^{\theta_s}$$
 and $Y_s = \left[\int_{\omega \in \Omega_s} c_s(\omega)^{\frac{\sigma_s - 1}{\sigma_s}} d\omega \right]^{\frac{\sigma_s}{\sigma_s - 1}}$

• Demand:
$$Y = \prod_{s=1}^{S} Y_s^{\theta_s}$$
 and $Y_s = \left[\int_{\omega \in \Omega_s} c_s(\omega)^{\frac{\sigma_s - 1}{\sigma_s}} d\omega \right]^{\frac{\sigma_s}{\sigma_s - 1}}$

- ϕ^{P} : Hicks-neutral productivity
- ▶ φ^L: Lobbying-augmenting productivity
- ϕ^D : Exogenous wedge

• Demand:
$$Y = \prod_{s=1}^{S} Y_s^{\theta_s}$$
 and $Y_s = \left[\int_{\omega \in \Omega_s} c_s(\omega)^{\frac{\sigma_s - 1}{\sigma_s}} d\omega \right]^{\frac{\sigma_s}{\sigma_s - 1}}$

- ϕ^{P} : Hicks-neutral productivity
- ▶ φ^L: Lobbying-augmenting productivity
- ϕ^D : Exogenous wedge
- Production: $y_s(\phi) = \phi^P n_s(\phi)^{\alpha_s^N} k_s(\phi)^{\alpha_s^K}$

• Demand:
$$Y = \prod_{s=1}^{S} Y_s^{\theta_s}$$
 and $Y_s = \left[\int_{\omega \in \Omega_s} c_s(\omega)^{\frac{\sigma_s - 1}{\sigma_s}} d\omega \right]^{\frac{\sigma_s}{\sigma_s - 1}}$

- ϕ^{P} : Hicks-neutral productivity
- ▶ φ^L: Lobbying-augmenting productivity
- ϕ^D : Exogenous wedge
- Production: $y_s(\phi) = \phi^P n_s(\phi)^{\alpha_s^N} k_s(\phi)^{\alpha_s^K}$
- Market Structure: Monopolistic Competition

• Demand:
$$Y = \prod_{s=1}^{S} Y_s^{\theta_s}$$
 and $Y_s = \left[\int_{\omega \in \Omega_s} c_s(\omega)^{\frac{\sigma_s - 1}{\sigma_s}} d\omega \right]^{\frac{\sigma_s}{\sigma_s - 1}}$

- ϕ^{P} : Hicks-neutral productivity
- ▶ φ^D: Exogenous wedge
- Production: $y_s(\phi) = \phi^P n_s(\phi)^{\alpha_s^N} k_s(\phi)^{\alpha_s^K}$
- Market Structure: Monopolistic Competition
- Zero-profit condition: $\pi_s^{NL}(\phi_s^*) = 0$ and $\pi_s^L(\phi_s^{**}) = \pi_s^{NL}(\phi_s^{**})$

• Demand:
$$Y = \prod_{s=1}^{S} Y_s^{\theta_s}$$
 and $Y_s = \left[\int_{\omega \in \Omega_s} c_s(\omega)^{\frac{\sigma_s - 1}{\sigma_s}} d\omega \right]^{\frac{\sigma_s}{\sigma_s - 1}}$

- ϕ^{P} : Hicks-neutral productivity
- ▶ φ^D: Exogenous wedge
- Production: $y_s(\phi) = \phi^P n_s(\phi)^{\alpha_s^N} k_s(\phi)^{\alpha_s^K}$
- Market Structure: Monopolistic Competition
- Zero-profit condition: $\pi_s^{NL}(\phi_s^*) = 0$ and $\pi_s^L(\phi_s^{**}) = \pi_s^{NL}(\phi_s^{**})$
- Free-entry condition: $(1 G(\phi_s^*)) \bar{\pi} = w \eta_s f_s^E$

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\underbrace{\eta_{s} f_{s}^{E}}_{Entry \ Cost} = \underbrace{\int_{\phi_{s}^{P_{*}}}^{\infty} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P_{*}}} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi)}_{Expected \ Profits}$$
(1)

<ロト <回ト < 注ト < 注ト = 注

11/43

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\underbrace{\eta_{s} f_{s}^{E}}_{Entry\ Cost} = \underbrace{\int_{\phi_{s}^{P*}}^{\infty} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P*}} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi)}_{Expected\ Profits}$$
(1)

With endogenous lobbying and residual distortions:

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\underbrace{\eta_{s} f_{s}^{E}}_{Entry \ Cost} = \underbrace{\int_{\phi_{s}^{P^{*}}}^{\infty} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P^{*}}} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi)}_{Expected \ Profits}$$
(1)

With endogenous lobbying and residual distortions:

$$\eta_{s} f_{s}^{E} = \int_{\phi_{s}^{**}}^{\phi_{s}^{**}} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P*}(\phi^{D})} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi) + \int_{\phi_{s}^{**}}^{\infty} \left[\left(\frac{\kappa_{s}(\phi)}{\kappa_{s}(\phi^{**}) - (\phi^{D})^{\sigma_{s}}} \left(\frac{\phi^{P}}{\phi_{s}^{P**}(\phi^{D}, \phi^{L})} \right)^{\sigma_{s}-1} - 1 \right) f_{s}^{L} - f_{s}^{P} \right] dG(\phi)$$

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\underbrace{\eta_{s} f_{s}^{E}}_{Entry \ Cost} = \underbrace{\int_{\phi_{s}^{P^{*}}}^{\infty} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P^{*}}} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi)}_{Expected \ Profits}$$
(1)

With endogenous lobbying and residual distortions:

$$\eta_{s} f_{s}^{E} = \int_{\phi_{s}^{**}}^{\phi_{s}^{**}} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P*}(\phi^{D})} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi) + \int_{\phi_{s}^{**}}^{\infty} \left[\left(\frac{\kappa_{s}(\phi)}{\kappa_{s}(\phi^{**}) - (\phi^{D})^{\sigma_{s}}} \left(\frac{\phi^{P}}{\phi_{s}^{P**}(\phi^{D}, \phi^{L})} \right)^{\sigma_{s}-1} - 1 \right) f_{s}^{L} - f_{s}^{P} \right] dG(\phi)$$

<ロト < 団ト < 巨ト < 巨ト < 巨ト 三 のへの 11/43

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\underbrace{\eta_{s} f_{s}^{E}}_{Entry \ Cost} = \underbrace{\int_{\phi_{s}^{P*}}^{\infty} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P*}} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi)}_{Expected \ Profits}$$
(1)

With endogenous lobbying and residual distortions:

$$\eta_{s} f_{s}^{E} = \int_{\phi_{s}^{*}}^{\phi_{s}^{**}} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P*}(\phi^{D})} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi) + \int_{\phi_{s}^{**}}^{\infty} \left[\left(\frac{\kappa_{s}(\phi)}{\kappa_{s}(\phi^{**}) - (\phi^{D})^{\sigma_{s}}} \left(\frac{\phi^{P}}{\phi_{s}^{P**}(\phi^{D}, \phi^{L})} \right)^{\sigma_{s}-1} - 1 \right) f_{s}^{L} - f_{s}^{P} \right] dG(\phi)$$

where $\frac{\kappa_s(\phi)}{\kappa_s(\phi^{**}) - (\phi^D)^{\sigma_s}}$ is lob. scaling factor of profits

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\underbrace{\underbrace{\eta_{s} f_{s}^{E}}_{Entry \ Cost}}_{Entry \ Cost} = \underbrace{\int_{\phi_{s}^{P_{*}}}^{\infty} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P_{*}}} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi)}_{Expected \ Profits}$$
(1)

With endogenous lobbying and residual distortions:

$$\eta_{s} f_{s}^{E} = \int_{\phi_{s}^{*}}^{\phi_{s}^{**}} \left[\left(\frac{\phi^{P}}{\phi_{s}^{P*}(\phi^{D})} \right)^{\sigma_{s}-1} - 1 \right] f_{s}^{P} dG(\phi) + \int_{\phi_{s}^{**}}^{\infty} \left[\left(\frac{\kappa_{s}(\phi)}{\kappa_{s}(\phi^{**}) - (\phi^{D})^{\sigma_{s}}} \left(\frac{\phi^{P}}{\phi_{s}^{P**}(\phi^{D}, \phi^{L})} \right)^{\sigma_{s}-1} - 1 \right) f_{s}^{L} - f_{s}^{P} \right] dG(\phi)$$

where $\frac{\kappa_s(\phi)}{\kappa_s(\phi^{**}) - (\phi^D)^{\sigma_s}}$ is lob. scaling factor of profits, f_s^L is lob. fixed cost

In the absence of lobbying and residual distortions (Melitz, 2003):

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\phi_s^{P_*} \propto \left(f_s^P\right)^{\frac{1}{\sigma_s-1}}$$
 (2)

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\phi_s^{P*} \propto \left(f_s^P\right)^{\frac{1}{\sigma_s-1}}$$
 (2)



In the absence of lobbying and residual distortions (Melitz, 2003):

$$\phi_s^{P*} \propto \left(f_s^P\right)^{\frac{1}{\sigma_s-1}}$$
 (2)

With residual distortions (Bai et al, 2019):

$$\phi_{s}^{P*}(\phi^{D}) \propto \left(\frac{f_{s}^{P}}{(\phi^{D})^{\sigma_{s}}}\right)^{\frac{1}{\sigma_{s}-1}}$$

(3)

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\phi_s^{P*} \propto \left(f_s^P\right)^{\frac{1}{\sigma_s-1}}$$
 (2)

With residual distortions (Bai et al, 2019):

$$\phi_{\boldsymbol{s}}^{\boldsymbol{P}*}(\phi^{D}) \propto \left(\frac{f_{\boldsymbol{s}}^{\boldsymbol{P}}}{(\phi^{D})^{\sigma_{\boldsymbol{s}}}}\right)^{\frac{1}{\sigma_{\boldsymbol{s}}-1}}$$

(3)
Selection in Firm-Level Lobbying Model: Three Cases

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\phi_s^{P*} \propto \left(f_s^P\right)^{\frac{1}{\sigma_s-1}}$$
 (2)

With residual distortions (Bai et al, 2019):

$$\phi_{s}^{P*}(\phi^{D}) \propto \left(\frac{f_{s}^{P}}{(\phi^{D})^{\sigma_{s}}}\right)^{\frac{1}{\sigma_{s}-1}}$$
 (3)



Selection in Firm-Level Lobbying Model: Three Cases

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\phi_s^{P*} \propto \left(f_s^P\right)^{\frac{1}{\sigma_s-1}}$$
 (2)

With residual distortions (Bai et al, 2019):

$$\phi_{s}^{P*}(\phi^{D}) \propto \left(\frac{f_{s}^{P}}{(\phi^{D})^{\sigma_{s}}}\right)^{\frac{1}{\sigma_{s}-1}}$$
 (3)

With residual distortions and endogenous lobbying:

$$\phi_{s}^{P**}(\phi^{D},\phi^{L}) \propto \left(\frac{f_{s}^{L}}{\kappa_{s}(\phi^{D},\phi^{L})-(\phi^{D})^{\sigma_{s}}}\right)^{\frac{1}{\sigma_{s}-1}}$$
 (4)

12/43

Selection in Firm-Level Lobbying Model: Three Cases

In the absence of lobbying and residual distortions (Melitz, 2003):

$$\phi_s^{P*} \propto \left(f_s^P\right)^{\frac{1}{\sigma_s-1}}$$
 (2)

With residual distortions (Bai et al, 2019):

$$\phi_{s}^{P*}(\phi^{D}) \propto \left(\frac{f_{s}^{P}}{(\phi^{D})^{\sigma_{s}}}\right)^{\frac{1}{\sigma_{s}-1}}$$
 (3)

12/43

With residual distortions and endogenous lobbying:

$$\phi_{s}^{P**}(\phi^{D},\phi^{L}) \propto \left(\frac{f_{s}^{L}}{\kappa_{s}(\phi^{D},\phi^{L}) - (\phi^{D})^{\sigma_{s}}}\right)^{\frac{1}{\sigma_{s}-1}}$$
(4)

Relationship between Lobbying and Size

$$\log r_{s}(\phi) = \gamma_{0} + \underbrace{(1 - \delta_{s})}_{\beta} \log l_{s}(\phi) - \delta_{s} \log \phi^{L}$$
(5)

Relationship between Lobbying and Size

$$\log r_{s}(\phi) = \gamma_{0} + \underbrace{(1 - \delta_{s})}_{\beta} \log l_{s}(\phi) - \delta_{s} \log \phi^{L}$$
(5)

Aggregate Productivity (Quantity of Interest)

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{C_{s}} \underbrace{\frac{C_{s}^{P}}{C_{s}}}_{C_{s}} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{\overline{TFPR}_{s}(\phi)}\right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi)\right]^{\frac{1}{\sigma_{s}-1}}}_{C_{s}} (6)$$

Relationship between Lobbying and Size

$$\log r_{s}(\phi) = \gamma_{0} + \underbrace{(1 - \delta_{s})}_{\beta} \log l_{s}(\phi) - \delta_{s} \log \phi^{L}$$
(5)

Aggregate Productivity (Quantity of Interest)

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{Entry} \underbrace{C_{s}}_{C_{s}} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{\overline{TFPR}_{s}(\phi)}\right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi)\right]^{\frac{1}{\sigma_{s}-1}} (6)$$

Relationship between Lobbying and Size

$$\log r_{s}(\phi) = \gamma_{0} + \underbrace{(1 - \delta_{s})}_{\beta} \log l_{s}(\phi) - \delta_{s} \log \phi^{L}$$
(5)

Aggregate Productivity (Quantity of Interest)

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{Entry} \underbrace{\frac{C_{s}^{P}}{C_{s}}}_{Fixed Costs} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{\overline{TFPR}_{s}(\phi)} \right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi) \right]^{\frac{1}{\sigma_{s}-1}}}_{(6)}$$

Relationship between Lobbying and Size

$$\log r_{s}(\phi) = \gamma_{0} + \underbrace{(1 - \delta_{s})}_{\beta} \log l_{s}(\phi) - \delta_{s} \log \phi^{L}$$
(5)

Aggregate Productivity (Quantity of Interest)

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{Entry} \underbrace{\frac{C_{s}^{P}}{C_{s}}}_{Fixed Costs} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{TFPR_{s}(\phi)} \right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi) \right]^{\frac{1}{\sigma_{s}-1}}}_{Aggregation of Firms' Productivity}$$
(6)

Relationship between Lobbying and Size

$$\log r_{s}(\phi) = \gamma_{0} + \underbrace{(1 - \delta_{s})}_{\beta} \log l_{s}(\phi) - \delta_{s} \log \phi^{L}$$
(5)

Aggregate Productivity (Quantity of Interest)

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{Entry} \underbrace{\frac{C_{s}^{P}}{C_{s}}}_{Fixed Costs} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{TFPR_{s}(\phi)} \right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi) \right]^{\frac{1}{\sigma_{s}-1}}}_{Aggregation of Firms' Productivity}$$
(6)

- Estimate the parameters
- Simulate aggregate productivity from Equation (6)



- \uparrow Lobbying expenditure of $I(\phi) \Rightarrow \uparrow$ Policy benefit $\tau(\phi)$ for firm ϕ
- **2** $\Rightarrow \uparrow \phi$'s Revenue and \downarrow marginal product of factors (*MRP*(ϕ))

- \uparrow Lobbying expenditure of $I(\phi) \Rightarrow \uparrow$ Policy benefit $\tau(\phi)$ for firm ϕ
- $\textcircled{O} \Rightarrow \uparrow \phi$'s Revenue and \downarrow marginal product of factors (*MRP*(ϕ))
- ⇒ $\downarrow \phi$'s Revenue total factor productivity (*TFPR*(ϕ))

- \uparrow Lobbying expenditure of $I(\phi) \Rightarrow \uparrow$ Policy benefit $\tau(\phi)$ for firm ϕ
- $\textcircled{O} \Rightarrow \uparrow \phi$'s Revenue and \downarrow marginal product of factors (*MRP*(ϕ))
- ⇒ $\downarrow \phi$'s Revenue total factor productivity (*TFPR*(ϕ))
- **(4)** $\Rightarrow \uparrow \phi$'s Relevance in aggregate productivity

- \uparrow Lobbying expenditure of $I(\phi) \Rightarrow \uparrow$ Policy benefit $\tau(\phi)$ for firm ϕ
- $\textcircled{O} \Rightarrow \uparrow \phi$'s Revenue and \downarrow marginal product of factors (*MRP*(ϕ))
- ⇒ $\downarrow \phi$'s Revenue total factor productivity (*TFPR*(ϕ))
- **4** $\Rightarrow \uparrow \phi$'s Relevance in aggregate productivity
- S \Rightarrow Distorts the relative importance of ϕ 's productivity on aggregate productivity, i.e., ϕ becomes too big \Rightarrow Misallocation

- \uparrow Lobbying expenditure of $I(\phi) \Rightarrow \uparrow$ Policy benefit $\tau(\phi)$ for firm ϕ
- $\bigcirc \Rightarrow \uparrow \phi$'s Revenue and \downarrow marginal product of factors (*MRP*(ϕ))
- ⇒ $\downarrow \phi$'s Revenue total factor productivity (*TFPR*(ϕ))
- **(4)** $\Rightarrow \uparrow \phi$'s Relevance in aggregate productivity
- S \Rightarrow Distorts the relative importance of ϕ 's productivity on aggregate productivity, i.e., ϕ becomes too big \Rightarrow Misallocation







Quantifying the Aggregate Effects of Firms' Lobbying

Conclusion



$\text{Lobbying} \Leftrightarrow \text{Size}$

< □ > < 団 > < 亘 > < 亘 > < 亘 > < 亘 > < 亘 > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □

Lobbying \Leftrightarrow Size



$\text{Lobbying} \Leftrightarrow \text{Size}$



Key elasticity to evaluate misallocation effects of lobbying

Lobbying \Leftrightarrow Size



Key elasticity to evaluate misallocation effects of lobbying

● Endogeneity challenge ⇒ New instrument

15/43











・ロト・白 ・ ・ ヨ ・ ・ ヨ ・ うへぐ

16/43







イロト イポト イヨト イヨト 16/43



イロト イポト イヨト イヨト 16/43



 $z_{it} = \sum_{j \in \Omega_i} \sum_{c} \underbrace{w_{ict-k}}_{jct} \underbrace{d_{jct}}_{jct}$ Share Shift

$$z_{it} = \sum_{j \in \Omega_i} \sum_{c} \underbrace{w_{ict-k}}_{Share} \underbrace{d_{jct}}_{Shift}$$

• W_{ict-k} : Importance of committee c for firm i in t-k

$$z_{it} = \sum_{j \in \Omega_i} \sum_{c} \underbrace{w_{ict-k}}_{Share} \underbrace{d_{jct}}_{Share}$$

- W_{ict-k} : Importance of committee *c* for firm *i* in t-k
 - Share of bills that i lobbied assigned to each committee c

$$z_{it} = \sum_{j \in \Omega_i} \sum_{c} \underbrace{w_{ict-k}}_{Share} \underbrace{d_{jct}}_{Shift}$$

- W_{ict-k} : Importance of committee *c* for firm *i* in t-k
 - Share of bills that i lobbied assigned to each committee c
- $d_{jct} \in \{0, 1\}$: Whether politician *j* is member of committee *c* in *t*
$$z_{it} = \sum_{j \in \Omega_i} \sum_{c} \underbrace{w_{ict-k}}_{Share} \underbrace{d_{jct}}_{Shift}$$

- W_{ict-k} : Importance of committee *c* for firm *i* in t-k
 - Share of bills that i lobbied assigned to each committee c
- $d_{jct} \in \{0, 1\}$: Whether politician *j* is member of committee *c* in *t*
- Ω_i: Set of politicians that are connected to firm i

$$z_{it} = \sum_{j \in \Omega_i} \sum_{c} \underbrace{w_{ict-k}}_{Share} \underbrace{d_{jct}}_{Shift}$$

- W_{ict-k} : Importance of committee *c* for firm *i* in t-k
 - Share of bills that i lobbied assigned to each committee c
- $d_{jct} \in \{0, 1\}$: Whether politician *j* is member of committee *c* in *t*
- Ω_i : Set of politicians that are connected to firm *i*
 - Using co-location of firms' headquarters and politicians' districts

$$z_{it} = \sum_{j \in \Omega_i} \sum_{c} \underbrace{w_{ict-k}}_{Share} \underbrace{d_{jct}}_{Shift}$$

- W_{ict-k} : Importance of committee *c* for firm *i* in t-k
 - Share of bills that i lobbied assigned to each committee c
- $d_{jct} \in \{0, 1\}$: Whether politician *j* is member of committee *c* in *t*
- Ω_i : Set of politicians that are connected to firm *i*
 - Using co-location of firms' headquarters and politicians' districts
- Identification: Shift is exogenous to firms' lobbying productivity

$$z_{it} = \sum_{j \in \Omega_i} \sum_{c} \underbrace{w_{ict-k}}_{Share} \underbrace{d_{jct}}_{Shift}$$

- W_{ict-k} : Importance of committee *c* for firm *i* in t-k
 - Share of bills that i lobbied assigned to each committee c
- $d_{jct} \in \{0, 1\}$: Whether politician *j* is member of committee *c* in *t*
- Ω_i: Set of politicians that are connected to firm i
 - Using co-location of firms' headquarters and politicians' districts
- Identification: Shift is exogenous to firms' lobbying productivity
 - Interpret the shock as variation in the returns to lobbying

- Can firms influence politicians' allocation to committees?
 - Not directly
 - ★ electoral outcomes
 - ★ inter-party negotiations
 - party's independent committee

 (e.g., Democrats' Steering and Outreach Committee)
 - * seniority

- Can firms influence politicians' allocation to committees?
 - Not directly
 - ★ electoral outcomes
 - ★ inter-party negotiations
 - party's independent committee

 (e.g., Democrats' Steering and Outreach Committee)
 - * seniority
 - Indirectly as politicians may self select

- Can firms influence politicians' allocation to committees?
 - Not directly
 - * electoral outcomes
 - ★ inter-party negotiations
 - party's independent committee (e.g., Democrats' Steering and Outreach Committee)
 - ★ seniority
 - Indirectly as politicians may self select
 - e.g., Kamala Harris (D-CA) appointed to the Committee on Commerce, Science, and Transportation in the 115th Congress, which might be endogenous to the importance of technology industry in California

- Can firms influence politicians' allocation to committees?
 - Not directly
 - ★ electoral outcomes
 - ★ inter-party negotiations
 - party's independent committee

 (e.g., Democrats' Steering and Outreach Committee)
 - ★ seniority
 - Indirectly as politicians may self select
 - e.g., Kamala Harris (D-CA) appointed to the Committee on Commerce, Science, and Transportation in the 115th Congress, which might be endogenous to the importance of technology industry in California
 - ★ We exploit the change in committee membership

- Can firms influence politicians' allocation to committees?
 - Not directly
 - ★ electoral outcomes
 - ★ inter-party negotiations
 - party's independent committee (e.g., Democrats' Steering and Outreach Committee)
 - * seniority
 - Indirectly as politicians may self select
 - e.g., Kamala Harris (D-CA) appointed to the Committee on Commerce, Science, and Transportation in the 115th Congress, which might be endogenous to the importance of technology industry in California
 - ★ We exploit the change in committee membership
 - ★ Firms cannot affect the timing of the committee membership

- Can firms influence politicians' allocation to committees?
 - Not directly
 - ★ electoral outcomes
 - ★ inter-party negotiations
 - party's independent committee (e.g., Democrats' Steering and Outreach Committee)
 - * seniority
 - Indirectly as politicians may self select
 - e.g., Kamala Harris (D-CA) appointed to the Committee on Commerce, Science, and Transportation in the 115th Congress, which might be endogenous to the importance of technology industry in California
 - ★ We exploit the change in committee membership
 - ★ Firms cannot affect the timing of the committee membership
 - Formal test: Firms' committee weights not significantly correlated with future committee membership changes

- Can firms influence politicians' allocation to committees?
 - Not directly
 - ★ electoral outcomes
 - ★ inter-party negotiations
 - party's independent committee (e.g., Democrats' Steering and Outreach Committee)
 - ★ seniority
 - Indirectly as politicians may self select
 - e.g., Kamala Harris (D-CA) appointed to the Committee on Commerce, Science, and Transportation in the 115th Congress, which might be endogenous to the importance of technology industry in California
 - ★ We exploit the change in committee membership
 - ★ Firms cannot affect the timing of the committee membership
 - Formal test: Firms' committee weights not significantly correlated with future committee membership changes
- Strategic co-location of firms' headquarters and politicians' districts: Almost zero changes of both over 2000-2017



	Log Sales		Log VA		Log Profits		Log Capital-Payroll Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Lobby	0.0484 (0.0128)	0.216 (0.0459)	0.0197 (0.0079)	0.127 (0.0457)	0.0401 (0.0127)	0.201 (0.0607)	0.0116 (0.0079)	0.0434 (0.0362)
N	9180	9180	5851	5851	6284	6284	7572	7572
Firm and Year FE	\checkmark	√	~	\checkmark	√	~	~	~
State-Year FE	~	√	√	~	√	~	\checkmark	\checkmark
Sector-Year FE	\checkmark	√	~	\checkmark	√	~	~	~
Model	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Sample	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007
Weight Lag		nBills, t-1		nBills, t-1		nBills, t-1		nBills, t-1
Mean DV	7.74	7.74	6.99	6.99	6.15	6.15	0.19	0.19
SD DV	2.27	2.27	1.87	1.87	1.91	1.91	1.65	1.65
SD IV	2.03	2.03	2.04	2.04	2.02	2.02	2.04	2.04

 \uparrow Lobbying in 10% \Rightarrow \uparrow Value-added in 1.3%

	Log Sales		Log VA		Log Profits		Log Capital-Payroll Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Lobby	0.0484 (0.0128)	0.216 (0.0459)	0.0197 (0.0079)	0.127 (0.0457)	0.0401 (0.0127)	0.201 (0.0607)	0.0116 (0.0079)	0.0434 (0.0362)
N	9180	9180	5851	5851	6284	6284	7572	7572
Firm and Year FE	\checkmark	~	~	\checkmark	~	~	~	~
State-Year FE	\checkmark	\checkmark	✓	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Sector-Year FE	\checkmark	√	√	\checkmark	√	~	\checkmark	\checkmark
Model	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Sample	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007
Weight Lag		nBills, t-1		nBills, t-1		nBills, t-1		nBills, t-1
Mean DV	7.74	7.74	6.99	6.99	6.15	6.15	0.19	0.19
SD DV	2.27	2.27	1.87	1.87	1.91	1.91	1.65	1.65
SD IV	2.03	2.03	2.04	2.04	2.02	2.02	2.04	2.04

 \uparrow Lobbying in 10% \Rightarrow \uparrow Value-added in 1.3%

Robust to

	Log Sales		Log VA		Log Profits		Log Capital-Payroll Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Lobby	0.0484 (0.0128)	0.216 (0.0459)	0.0197 (0.0079)	0.127 (0.0457)	0.0401 (0.0127)	0.201 (0.0607)	0.0116 (0.0079)	0.0434 (0.0362)
N	9180	9180	5851	5851	6284	6284	7572	7572
Firm and Year FE	\checkmark	√	~	\checkmark	√	~	~	~
State-Year FE	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Sector-Year FE	~	√	√	~	√	~	\checkmark	√
Model	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Sample	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007
Weight Lag		nBills, t-1		nBills, t-1		nBills, t-1		nBills, t-1
Mean DV	7.74	7.74	6.99	6.99	6.15	6.15	0.19	0.19
SD DV	2.27	2.27	1.87	1.87	1.91	1.91	1.65	1.65
SD IV	2.03	2.03	2.04	2.04	2.02	2.02	2.04	2.04

 \uparrow Lobbying in 10% \Rightarrow \uparrow Value-added in 1.3%

Robust to

• weights in t - 2, t - 3

	Log Sales		Log VA		Log Profits		Log Capital-Payroll Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Lobby	0.0484 (0.0128)	0.216 (0.0459)	0.0197 (0.0079)	0.127 (0.0457)	0.0401 (0.0127)	0.201 (0.0607)	0.0116 (0.0079)	0.0434 (0.0362)
N	9180	9180	5851	5851	6284	6284	7572	7572
Firm and Year FE	\checkmark	~	~	\checkmark	√	√	~	~
State-Year FE	\checkmark	√	√	~	√	√	\checkmark	√
Sector-Year FE	\checkmark	~	~	\checkmark	√	√	~	√
Model	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Sample	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007
Weight Lag		nBills, t-1		nBills, t-1		nBills, t-1		nBills, t-1
Mean DV	7.74	7.74	6.99	6.99	6.15	6.15	0.19	0.19
SD DV	2.27	2.27	1.87	1.87	1.91	1.91	1.65	1.65
SD IV	2.03	2.03	2.04	2.04	2.02	2.02	2.04	2.04

 \uparrow Lobbying in 10% \Rightarrow \uparrow Value-added in 1.3%

Robust to

- weights in t 2, t 3
- using campaign contribution as a measure of connection

<ロト<型ト<主ト<主ト 20/43

- Exogenous: $\delta_s = \delta$, $\sigma_s = 4$
- Calibrated: Industry value added, labor and capital shares
- Primitives: Recover them by inverting the model

- Exogenous: $\delta_s = \delta$, $\sigma_s = 4$
- Calibrated: Industry value added, labor and capital shares
- Primitives: Recover them by inverting the model
- Simulated Method of Moments (SMM): Match sectoral distribution of firms and share of firms that lobby with {f^P_s, f^L_s}

- Exogenous: $\delta_s = \delta$, $\sigma_s = 4$
- Calibrated: Industry value added, labor and capital shares
- Primitives: Recover them by inverting the model
- Simulated Method of Moments (SMM): Match sectoral distribution of firms and share of firms that lobby with {f^P_s, f^L_s}
- Two key aspects:

- Exogenous: $\delta_s = \delta$, $\sigma_s = 4$
- Calibrated: Industry value added, labor and capital shares
- Primitives: Recover them by inverting the model
- Simulated Method of Moments (SMM): Match sectoral distribution of firms and share of firms that lobby with {f^P_s, f^L_s}
- Two key aspects:

$$\underbrace{(1 - \delta_{OLS})}_{=\beta_{OLS}} = \underbrace{(1 - \delta_{IV})}_{=\beta_{IV}} - \underbrace{corr(I(\phi), \phi^L)}_{>0}$$

- Exogenous: $\delta_s = \delta$, $\sigma_s = 4$
- Calibrated: Industry value added, labor and capital shares
- Primitives: Recover them by inverting the model
- Simulated Method of Moments (SMM): Match sectoral distribution of firms and share of firms that lobby with {f^P_s, f^L_s}
- Two key aspects:

$$\underbrace{(1 - \delta_{OLS})}_{=\beta_{OLS}} = \underbrace{(1 - \delta_{IV})}_{=\beta_{IV}} - \underbrace{corr(I(\phi), \phi^L)}_{>0}$$

$$\underbrace{\text{orr}(\phi^P, \phi^D)}_{<0 \text{ and } corr(\phi^D, \phi^L) > 0$$

<ロ><回><回><目><目><目><目><目><<同><<同><<同><<同><<0<()>21/43

• Significant efficiency gains from eliminating lobbying activity

• Significant efficiency gains from eliminating lobbying activity

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{Entry} \underbrace{\left(\frac{N_{s}^{P}}{N_{s}}\right)^{\alpha_{s}^{N}}}_{Fixed \ Costs} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{TFPR_{s}(\phi)}\right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi)\right]^{\frac{1}{\sigma_{s}-1}}}_{Aggregation \ of \ Firms' \ Productivity} (7)$$

4

• Significant efficiency gains from eliminating lobbying activity

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{Entry} \underbrace{\left(\frac{N_{s}^{P}}{N_{s}}\right)^{\alpha_{s}^{N}}}_{Fixed \ Costs} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{TFPR_{s}(\phi)}\right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi)\right]^{\frac{1}{\sigma_{s}-1}}}_{Aggregation \ of \ Firms' \ Productivity} (7)$$

• Around 31% (8%) losses are due to distortion of entry (fixed costs)

• Significant efficiency gains from eliminating lobbying activity

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{Entry} \underbrace{\left(\frac{N_{s}^{P}}{N_{s}}\right)^{\alpha_{s}^{N}}}_{Fixed \ Costs} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{TFPR_{s}(\phi)}\right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi)\right]^{\frac{1}{\sigma_{s}-1}}}_{Aggregation \ of \ Firms' \ Productivity} (7)$$

- Around 31% (8%) losses are due to distortion of entry (fixed costs)
- Sensitive to demand's elasticity of substitution

Significant efficiency gains from eliminating lobbying activity

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{Entry} \underbrace{\left(\frac{N_{s}^{P}}{N_{s}}\right)^{\alpha_{s}^{N}}}_{Fixed \ Costs} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{TFPR_{s}(\phi)}\right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi)\right]^{\frac{1}{\sigma_{s}-1}}}_{Aggregation \ of \ Firms' \ Productivity} (7)$$

- Around 31% (8%) losses are due to distortion of entry (fixed costs)
- Sensitive to demand's elasticity of substitution
 - $\uparrow \sigma \Rightarrow$ Substitute away lobbying effects $\Rightarrow \downarrow$ Misallocation effect

Significant efficiency gains from eliminating lobbying activity

$$\Phi_{s}^{P} = \underbrace{M_{s}^{\frac{1}{\sigma_{s}-1}}}_{Entry} \underbrace{\left(\frac{N_{s}^{P}}{N_{s}}\right)^{\alpha_{s}^{N}}}_{Fixed \ Costs} \underbrace{\left[\int \left(\phi^{P} \frac{\overline{TFPR}_{s}}{TFPR_{s}(\phi)}\right)^{\sigma_{s}-1} d\hat{G}_{s}(\phi)\right]^{\frac{1}{\sigma_{s}-1}}}_{Aggregation \ of \ Firms' \ Productivity} (7)$$

- Around 31% (8%) losses are due to distortion of entry (fixed costs)
- Sensitive to demand's elasticity of substitution
 - $\uparrow \sigma \Rightarrow$ Substitute away lobbying effects $\Rightarrow \downarrow$ Misallocation effect
 - \Rightarrow (Market structure \Leftrightarrow Political influence)

Outline



- 2 A Theory of Firm-Level Lobbying
- 3 Quantifying the Aggregate Effects of Firms' Lobbying





- Empirical Contribution
 - Significant causal effect of firms' political activities on the economy

- Empirical Contribution
 - Significant causal effect of firms' political activities on the economy
 - * Obama (2007): "...(I am) in this race to tell the corporate lobbyists that their days of setting the agenda in Washington are over"

- Empirical Contribution
 - Significant causal effect of firms' political activities on the economy
 - ★ Obama (2007): "...(I am) in this race to tell the corporate lobbyists that their days of setting the agenda in Washington are over"
 - * Trump (2016): "... powerful special interests have rigged our political and economic system for their exclusive benefit"

- Empirical Contribution
 - Significant causal effect of firms' political activities on the economy
 - ★ Obama (2007): "...(I am) in this race to tell the corporate lobbyists that their days of setting the agenda in Washington are over"
 - Trump (2016): "... powerful special interests have rigged our political and economic system for their exclusive benefit"
- Theory & Structural Estimation
 - ► From micro to macro: IV + macro + endogenous lobbying
 - Simulated Method of Moments
 - ▶ Counterfactual analysis: Eliminating lobbying \Rightarrow ↑ TFP by 6%

- Empirical Contribution
 - Significant causal effect of firms' political activities on the economy
 - ★ Obama (2007): "...(I am) in this race to tell the corporate lobbyists that their days of setting the agenda in Washington are over"
 - Trump (2016): "... powerful special interests have rigged our political and economic system for their exclusive benefit"
- Theory & Structural Estimation
 - ► From micro to macro: IV + macro + endogenous lobbying
 - Simulated Method of Moments
 - ▶ Counterfactual analysis: Eliminating lobbying \Rightarrow ↑ TFP by 6%

General Framework for Understanding Interest Group Politics

- Methods and data useful for other applications
- All data available at www.LobbyView.org
Conclusion

- Empirical Contribution
 - Significant causal effect of firms' political activities on the economy
 - ★ Obama (2007): "...(I am) in this race to tell the corporate lobbyists that their days of setting the agenda in Washington are over"
 - Trump (2016): "... powerful special interests have rigged our political and economic system for their exclusive benefit"
- Theory & Structural Estimation
 - From micro to macro: IV + macro + endogenous lobbying
 - Simulated Method of Moments
 - ▶ Counterfactual analysis: Eliminating lobbying \Rightarrow ↑ TFP by 6%

General Framework for Understanding Interest Group Politics

- Methods and data useful for other applications
- All data available at www.LobbyView.org

$\textbf{Lobbying} \Rightarrow \textbf{Firm size} \Rightarrow \textbf{Misallocation}$

If you have any questions:

fhuneeus@bcentral.cl insong@mit.edu

More information about this and other research:

https://www.fedehuneeus.com/ http://web.mit.edu/insong/www/

> <ロ > < 回 > < 目 > < 目 > < 目 > 目 の Q (~ 23/43

Extra Slides

- Effect size
- Lobby vs.Cont
- Lobbying alone
- SMM Fit
- Lobbying Def.

- Geo vs. Net
- Churning
- Persistency
- Mic-foundation
- Second Best
- Aggregation
- Instrument Effect on Politics

- IV vs. OLS
- Com. Weights
- Lobbying Rare
- Firm vs. Ind.
- Other Weights
- Pew 2018
- LobbyView

Residual Distortions: $\phi^D \bullet$

- \bullet Residual distortions \Rightarrow Source of distortion other than from lobbying
- → Second-best world: Adding the lobbying distortion has ambiguous effect on welfare
- Residual distortions can interact with lobbying distortions
 - Example: Source of residual distortions is variable markups
 - Feedback effect: ↑ Lobbying ⇒ ↑ Size ⇒ ↑ Market share ⇒ ↑ Markup ⇒ ↑ Profits ⇒ ↑ Lobbying
- This potential interaction can rationalize the large effect of reducing lobbying activity

• Production Productivity:

$$\phi^{P} \propto rac{r_{s}(\phi)^{rac{\sigma}{\sigma-1}}}{n_{s}(\phi)^{lpha_{s}^{N}}k_{s}(\phi)^{lpha_{s}^{K}}}$$

• Production Productivity:

$$\phi^{P} \propto rac{r_{s}(\phi)^{rac{\sigma}{\sigma-1}}}{n_{s}(\phi)^{\alpha_{s}^{N}}k_{s}(\phi)^{\alpha_{s}^{K}}}$$

• Residual Distortion:

$$au_{m{s}}(\phi) \propto rac{m{wn}_{m{s}}(\phi)}{lpha_{m{s}}^{m{N}}m{r}_{m{s}}(\phi)}$$

• Production Productivity:

$$\phi^{P} \propto rac{r_{s}(\phi)^{rac{\sigma}{\sigma-1}}}{n_{s}(\phi)^{\alpha_{s}^{N}}k_{s}(\phi)^{\alpha_{s}^{K}}}$$

Residual Distortion:

$$au_{s}(\phi) \propto rac{\mathsf{wn}_{s}(\phi)}{lpha_{s}^{\mathsf{N}} \mathsf{r}_{s}(\phi)}$$

• Lobbying Productivity:

$$\phi^{L} \propto \left(\frac{r_{s}(\phi)}{I_{s}(\phi)^{1-\delta}}\right)^{\frac{1}{\delta}}$$

• Production Productivity:

$$\phi^{P} \propto rac{r_{s}(\phi)^{rac{\sigma}{\sigma-1}}}{n_{s}(\phi)^{\alpha_{s}^{N}}k_{s}(\phi)^{\alpha_{s}^{K}}}$$

Residual Distortion:

$$au_{m{s}}(\phi) \propto rac{{\it wn}_{m{s}}(\phi)}{lpha_{m{s}}^{\it N}{\it r}_{m{s}}(\phi)}$$

• Lobbying Productivity:

$$\phi^{L} \propto \left(\frac{r_{s}(\phi)}{I_{s}(\phi)^{1-\delta}}\right)^{\frac{1}{\delta}}$$

$$\hat{\Omega}^{G} = \begin{pmatrix} var(\phi^{P}) = 2.0 \\ cov(\phi^{P}, \phi^{D}) = -0.9 \\ cov(\phi^{P}, \phi^{L}) = -2.6 \\ cov(\phi^{D}, \phi^{L}) = 1.0 \\ var(\phi^{L}) = 5.8 \end{pmatrix}$$

IV vs OLS Back App

• First-order condition (FOC) from lobbying expenditure \Rightarrow

$$\underbrace{(1 - \delta_{OLS})}_{=\beta_{OLS}} = \underbrace{(1 - \delta_{IV})}_{=\beta_{IV}} - \underbrace{corr(I(\phi), \phi^L)}_{sign?}$$

Our model describes allows two possibilities

- Substitution Effect: $corr(I(\phi), \phi^L) < 0$: spend less when you become more efficient
- Size Effect: *corr*(*l*(φ), φ^L) > 0: spend more when you become more efficient
 - Pending: Role of measurement error in lobbying expenditure
 - Hard to identify separately from lobbying productivity (ϕ^L)

What is Lobbying in the Law and in the Data?

• According to the law?

 LDA definition: "Any oral, written, or electronic communication to a covered official"

What is Lobbying in the Law and in the Data? •••••

• According to the law?

- LDA definition: "Any oral, written, or electronic communication to a covered official"
- ► Not about bribe: Does not capture direct benefits (\$) for politicians

What is Lobbying in the Law and in the Data? •••••

According to the law?

- LDA definition: "Any oral, written, or electronic communication to a covered official"
- ► Not about bribe: Does not capture direct benefits (\$) for politicians

What does it represents?

- Information provision
- e.g., preparation of reports for congress members

What is Lobbying in the Law and in the Data? •••••

According to the law?

- LDA definition: "Any oral, written, or electronic communication to a covered official"
- ► Not about bribe: Does not capture direct benefits (\$) for politicians

• What does it represents?

- Information provision
- e.g., preparation of reports for congress members

• How do we measure it in the data?

- Political activities satisfying the above definition
- Expenditures reported in lobbying reports

Estimated Effect Sizes: Is 6% too BIG? • And

<ロト < 団 > < 三 > < 三 > < 三 > の へ () 29/43

Estimated Effect Sizes: Is 6% too BIG? • App

• Big counterfactual: no lobbying at all

Estimated Effect Sizes: Is 6% too BIG? • App

- Big counterfactual: no lobbying at all
- Alternative explanations
 - Residual distortions

Estimated Effect Sizes: Is 6% too BIG? • ADP

- Big counterfactual: no lobbying at all
- Alternative explanations
 - Residual distortions
 - 2 Market structure, e.g., elasticity of substitution

Estimated Effect Sizes: Is 6% too BIG? •App

- Big counterfactual: no lobbying at all
- Alternative explanations
 - 🐌 Residual distortions 💽
 - 2 Market structure, e.g., elasticity of substitution
 - Measurement of lobbying expenditure: under the table \$

Committee Membership Churning : 30% • App



More money is spent on lobbying than campaign contributions



Americans believe the economy favors powerful interests

Pew Research Center's American Trends Panel Poll, Feb, 2018

Which statement comes closer to your own views--even if neither is exactly right?...The economic system in this country unfairly favors powerful interests, the economic system in this country is generally fair to most Americans [Q.41]



Survey by Pew Research Center for the People & the Press. Methodology: Interviewing conducted by GfK Knowledge Networks, February 26 - March 11, 2018 and based on 6,251 online (internet) interviews. Sample: .

< ロ > < 同 > < 回 > < 回 >

Committee Weights Distribution • App



33/43

イロト イポト イヨト イヨト

Firm Lobbying is Relatively Rare \Rightarrow Selection •Back • App

NAICS	Code	# Firms	% Lobbied	% In-house	Median Expense	Example Firm
Agriculture, Forestry, Fishing/Hunting	11	26	20.4	7.6	\$50,000	MONSANTO CO
Mining, Quarrying, and Oil/Gas Extraction	21	460	9.9	3.8	\$40,000	RIO TINTO GROUP (GBR)
Utilities	22	289	22.7	15.3	\$50,000	ENEL SPA
Construction	23	99	10.8	3.8	\$30,000	FLUOR CORP
Manufacturing	31-33	2,930	15.8	6.5	\$40,000	NESTLE SA/AG
Wholesale Trade	42	220	8.1	3.4	\$40,000	MCKESSON CORP
Retail Trade	44-45	282	11.2	5.1	\$60,000	CVS HEALTH CORP
Transportation and Warehousing	48-49	224	18.6	9.0	\$45,000	ENI SPA
Information	51	964	11.9	4.8	\$50,000	AT&T INC
Finance and Insurance	52	2,336	5.1	2.6	\$50,000	UNITEDHEALTH GROUP INC
Real Estate and Rental and Leasing	53	353	6.5	0.8	\$40,000	BROOKFIELD ASSET MANAGEMENT
Professional, Scientific, and Technical SVC	54	330	12.1	3.4	\$40,000	ACCENTURE PLC
Admin/Waste Management/Remediation SVC	56	156	17.7	4.5	\$40,000	MANPOWERGROUP
Educational SVC	61	35	24.6	8.3	\$40,000	GRAHAM HOLDINGS CO
Health Care and Social Assistance	62	130	21.9	6.8	\$50,000	HUMANA INC
Arts, Entertainment, and Recreation	71	58	13.1	3.2	\$30,000	LIVE NATION ENTERTAINMENT
Accommodation and Food SVC	72	141	12.2	5.5	\$50,000	SODEXO
Other Services (except Public Administration)	81	22	7.8	0.0	\$40,000	SERVICE CORP INTERNATIONAL

Lobbying behavior is highly persistent • Back • App



• Three-Stage game between government and firms

- Three-Stage game between government and firms
 - Entry to production + entry to lobbying + how much lobbying

- Three-Stage game between government and firms
 - Entry to production + entry to lobbying + how much lobbying
 - Overnment chooses policies given firms' lobbying

- Three-Stage game between government and firms
 - Entry to production + entry to lobbying + how much lobbying
 - Ø Government chooses policies given firms' lobbying
 - Production + consumption

- Three-Stage game between government and firms
 - Entry to production + entry to lobbying + how much lobbying
 - Government chooses policies given firms' lobbying
 - Production + consumption
- Government's Objective Function

$$W = \max_{\tau_{s}(\cdot)} \qquad V^{C}\left(\{p^{y}(\phi)\}, \{\tau(\phi)\}\right) + a\underbrace{\left[\int \left(\phi^{L}I(\phi)\right)^{\frac{\sigma^{L}-1}{\sigma^{L}}} d\hat{G}(\phi)\right]^{\frac{\sigma^{L}}{\sigma^{L}-1}}}_{L}$$

- Three-Stage game between government and firms
 - Entry to production + entry to lobbying + how much lobbying
 - Government chooses policies given firms' lobbying
 - Production + consumption
- Government's Objective Function

Pro

$$W = \max_{\tau_{s}(\cdot)} \qquad V^{C}\left(\{p^{y}(\phi)\}, \{\tau(\phi)\}\right) + a \underbrace{\left[\int \left(\phi^{L} l(\phi)\right)^{\frac{\sigma^{L}-1}{\sigma^{L}}} d\hat{G}(\phi)\right]^{\frac{\sigma^{L}}{\sigma^{L}-1}}}_{L}$$
position 1
$$\frac{\tau(\phi)}{1+\tau(\phi)} = 1 + \sigma + a \frac{\phi^{L}}{\sigma-1} \left(\phi^{L} \frac{l(\phi)}{L}\right)^{\frac{1}{\sigma^{L}}} \left(\frac{1-G(\phi^{**})}{1-G(\phi^{*})}\right) \qquad (8)$$

SMM: Moment Fit

Parameter Name	Targeted Moment	Data	Model
Production fixed cost	Distribution of Number of Firms	Table 1	Figure D.1.
Lobbying fixed cost	Share of lobbying Firms	Table 1	Figure D.2.
Var. of Production Productivity	Firms' Sales Dispersion	2.8	3.1
Var. of Lobbying Productivity	Firms' Lobbying Expenditure Dispersion	2.1	2.2
Var. of Residual Distortions	Firms' Output Wedge Dispersion	1.1	1.7
Cov. of Production and Lobbying Productivity	Firms' Corr. of Sales and Lobbying	0.5	0.7
Cov. of Production Prod. and Res. Distortions	Firms' Corr. of Sales and Output Wedges	-0.5	-0.2
Cov. of Lobbying Prod. and Res. Distortions	Firms' Corr. of Lobbying and Output Wedges	0.2	0.5
Returns to Lobbying	Biased OLS of Returns to Lobbying $(1 - \delta)$	0.015	0.015
Returns to Lobbying	IV Returns to Lobbying $(1 - \delta)$	0.13	0.10

Table: Parameter and Moments from the SMM

Results Robust to Alternative Comm. Weights Back App

	Log Sales		Log VA		Log Profits		Log Capital-Payroll Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Lobby	0.0484 (0.0128)	0.198 (0.0702)	0.0197 (0.00793)	0.130 (0.0467)	0.0401 (0.0127)	0.215 (0.0782)	0.0116 (0.00790)	0.0397 (0.0591)
N	9180	9180	5851	5851	6284	6284	7572	7572
Firm and Year FE	\checkmark	√	~	~	√	√	~	√
State-Year FE	\checkmark	√	~	~	√	√	~	√
Sector-Year FE	\checkmark	√	~	~	√	√	~	√
Model	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Sample	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007
Weight Lag		lobby, t-2		lobby, t-2		lobby, t-2		lobby, t-2
Mean DV	7.74	7.74	6.99	6.99	6.15	6.15	.19	.19
SD DV	2.27	2.27	1.87	1.87	1.91	1.91	1.65	1.65
SD IV	2.03	2.03	2.04	2.04	2.02	2.02	2.04	2.04

- Robust to weights defined in t 1, t 3
- Robust to weights using lobbying expenditure shares on each bill

Effect of Instrument on Other Political Behavior • App

	Lobbying Expense	Number of Reports	Number of Issues	Number of Bills	Number of Committees	Inhouse
	(1)	(2)	(3)	(4)	(5)	(6)
Z	6.923***	4.175***	3.604***	27.38***	19.30***	0.972***
	(1.149)	(0.569)	(0.485)	(3.691)	(2.415)	(0.198)
N	15800	15800	15800	15800	15800	15800
Firm and Year FE	√	✓	✓	\checkmark	√	~
State-Year FE	√	√	\checkmark	√	\checkmark	✓
Sector-Year FE	√	√	\checkmark	√	\checkmark	1
Sample	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007	Post 2007
Weight Lag	nBills, t-1	nBills, t-1	nBills, t-1	nBills, t-1	nBills, t-1	nBills, t-1
Mean DV	-1.57	1.62	1.1	1.42	.96	.33
SD DV	2.35	.95	.91	1.79	1.17	.39
SD IV	.02	.02	.02	.02	.02	.02

- Robust to weights defined in t 2, t 3
- Robust to weights using lobbying expenditure shares on each bill

Aggregation of the Model • App

• As in Melitz (2003), the model can be aggregate as a representative firm with productivity $\tilde{\phi}_s^P$:

$$P_{s} = M_{s}^{\frac{1}{1-\sigma_{s}}} \underbrace{\frac{\mu_{s}^{C}}{\tilde{\phi}_{s}^{P}} q_{s}}_{p_{s}(\tilde{\phi}_{s})}, \qquad (9)$$

$$\tilde{\phi}_{s}^{P} = \left[\frac{M_{s}^{NL}}{M_{s}} \left(\tilde{\phi}_{s}^{P,NL}\right)^{\sigma_{s}-1} + \frac{M_{s}^{L}}{M_{s}} \left(\tilde{\phi}_{s}^{P,L}\right)^{\sigma_{s}-1}\right]^{\frac{1}{\sigma_{s}-1}}, \qquad (10)$$

$$\tilde{\phi}_{s}^{P,NL} = \left[\int_{\phi_{s}^{*}}^{\phi_{s}^{**}} \left(\tau_{s}(\phi)\phi^{P}\right)^{\sigma_{s}-1} \frac{dG(\phi)}{G(\phi_{s}^{**}) - G(\phi_{s}^{*})}\right]^{\frac{1}{\sigma_{s}-1}}, \qquad (11)$$

$$\tilde{\phi}_{s}^{P,L} = \left[\int_{\phi_{s}^{**}}^{\infty} \left(\tau_{s}(\phi)\phi^{P}\right)^{\sigma_{s}-1} \frac{dG(\phi)}{1 - G(\phi_{s}^{**})}\right]^{\frac{1}{\sigma_{s}-1}}. \qquad (12)$$

www.LobbyView.org



• Lobbying: Lobbying activities (>1.3 million reports) reports
www.LobbyView.org



- Lobbying: Lobbying activities (>1.3 million reports) reports
- Campaign: Individual and PAC contributions (>74 million filings)

www.LobbyView.org



- Lobbying: Lobbying activities (>1.3 million reports) reports
- Campaign: Individual and PAC contributions (>74 million filings)
- Congress: bills, committee assignments (>108K bills)

www.LobbyView.org



- Lobbying: Lobbying activities (>1.3 million reports) reports
- Campaign: Individual and PAC contributions (>74 million filings)
- Congress: bills, committee assignments (>108K bills)
- 700 other datasets linked and indexed via PostgreSQL

"Big" Money-in-Politics Database



42/43

Political Networks Instead of Geo Location • App

< □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □ > < □

