

# Climate Exposure Drives Firm Political Behavior: Evidence from Earnings Calls and Lobbying Data

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October 28, 2023

*IPES 2023 Conference*

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**When do firms engage in climate politics? In particular, what is the importance of different kinds of climate-related pressures for explaining firm-level lobbying?**

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ALYSSA WOOD

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BY THOMAS BLAKE, DANIELSON +1111 HANNE CHRISTENSEN  
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Droughts in China and Germany are giving the industry a glimpse of the threats posed by global warming.

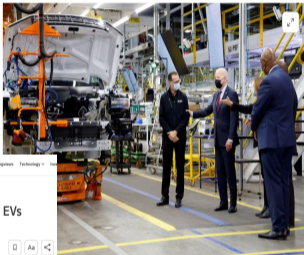
Score of companies are already still trying to accelerate existing production plans for how to use hydrogen to capture and store power opportunities from the legislative changes.  
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# ...with variation across firms in exposure and political activity

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Published 7:02 AM, July 27, 2022 8:00 AM EDT - Updated 7:45 AM, July 27, 2022 1:04 PM EDT



By Hiroko Tabuchi

Published July 25, 2021 - Updated Oct. 10, 20



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- Find that **firms with greater climate exposure are more likely to lobby** on climate policies, with **important differences by opportunity, regulatory, and physical exposure**
- Explore **mechanisms** through a brief case study on automotive manufacturing

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## Theory of Climate Exposure → Lobbying

- “Exposure” to climate change can have positive and negative aspects, and can evolve over time
  - *Opportunity, regulatory, and physical exposure*
- Increases in both risks and opportunities may be associated with more lobbying, but to varying degrees
- The profile of firm exposure *relative to industry peers* will also affect propensity to lobby

# Theory of Climate Exposure → Lobbying

		Exposure Type		
		<i>Opportunity</i>	<i>Regulatory</i>	<i>Physical</i>
Mechanism	<i>Type of Good</i>	Private	Mixed	Public
	<i>Motive</i>	Secure gains	Mixed	Avert loss
	<i>Time Horizon</i>	Short/med-term	Short/med-term	Long-term
Lobbying	<i>Activity</i>	High	High/Med	Low
	<i>Target</i>	Executive (DOE)	Executive (EPA)	?

- **H1 (Activity):** Greater exposure to climate change drives climate lobbying, but the relationship varies by type of exposure

# Hypotheses

- **H1 (Activity):** Greater exposure to climate change drives climate lobbying, but the relationship varies by type of exposure
- **H2 (Target):** Firms with high opportunity and regulatory exposure are more likely to lobby targets in the executive branch (e.g, the Department of Energy (DOE) and Environmental Protection Agency (EPA), respectively)

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- **H2 (Target):** Firms with high opportunity and regulatory exposure are more likely to lobby targets in the executive branch (e.g, the Department of Energy (DOE) and Environmental Protection Agency (EPA), respectively)
- **H3 (Competition):** Firms with greater opportunity, regulatory, and/or physical exposure relative to others in their industry are more likely to lobby on climate policy

To test these hypotheses, we use a panel dataset of  $\sim 2,200$  public firms from 2002-20 including:



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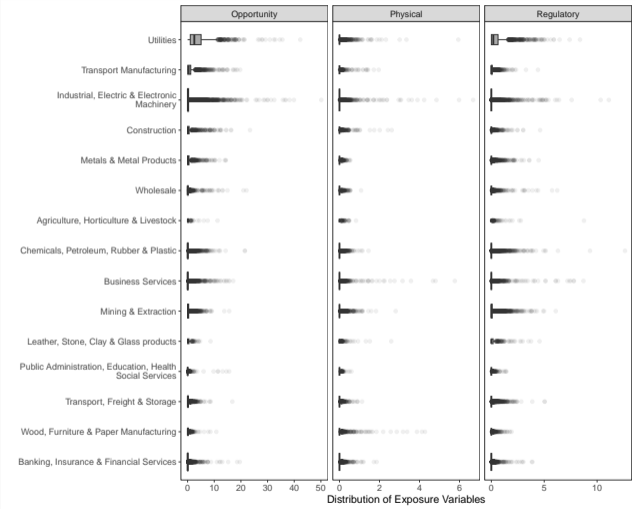
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- Firm-level covariates from ORBIS Global Company Dataset

# Data: Within Industry Variation in Climate Exposure



$$\mathbb{E}[Y_{ict}] = f(\alpha + \beta_1 * Opportunity_{it} + \beta_2 * Regulatory_{it} + \beta_3 * Physical_{it} + \gamma \mathbf{X}_{ict} + \delta_t + \delta_c + \delta_{tc} + \epsilon_{ict})$$

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*Robustness checks include placebo test, sensitivity analysis, alt model specifications*

# Results: Extensive Margin

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Opportunity Exposure	0.827** (0.348)	0.828** (0.344)	0.801** (0.328)	0.809** (0.329)	0.469*** (0.143)	0.479*** (0.151)	
Regulatory Exposure	0.807*** (0.063)	0.830*** (0.060)	0.869*** (0.063)	0.889*** (0.055)	0.469*** (0.109)	0.471*** (0.113)	
Physical Exposure	0.186 (0.129)	0.185 (0.126)	0.269** (0.104)	0.285** (0.106)	0.161** (0.072)	0.181** (0.079)	
Overall Exposure							0.896*** (0.235)
EBIT			0.066 (0.052)	-0.073* (0.038)	0.013 (0.037)	-0.005 (0.043)	-0.004 (0.044)
EBIT/Assets			-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
US HQ				-0.140 (0.207)	-0.032 (0.262)	-0.040 (0.266)	-0.034 (0.247)
Total Lobbying (\$)				2.073*** (0.400)	2.298*** (0.392)	2.380*** (0.422)	2.426*** (0.429)
Num.Obs.	59 531	59 531	47 433	47 433	47 156	43 976	43 976
R2	0.113	0.116	0.118	0.165	0.301	0.288	0.291
R2 Adj.	0.113	0.116	0.117	0.164	0.299	0.271	0.273
R2 Within		0.114	0.116	0.163	0.100	0.102	0.105
R2 Within Adj.		0.114	0.116	0.163	0.100	0.102	0.105
FE: year		X	X	X	X	X	X
FE: industry					X	X	X
FE: industry*year						X	X

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Standard errors are clustered by year and firm.

# Results: Intensive Margin

	(1)	(2)	(3)	(4)	(5)
Opportunity Exposure	0.125*** (0.0261)	0.110*** (0.0265)	0.111*** (0.0271)	0.0350* (0.0174)	0.0401*** (0.00374)
Regulatory Exposure	0.110*** (0.0172)	0.0984*** (0.0163)	0.0982*** (0.0171)	0.0445*** (0.0114)	0.0475*** (0.00309)
Physical Exposure	0.0477** (0.0224)	0.0644*** (0.0146)	0.0649*** (0.0152)	0.0433*** (0.0118)	0.0472*** (0.00113)
EBIT		0.0219 (0.0174)	0.0195 (0.0208)	0.0550*** (0.0180)	0.0549*** (0.00620)
EBIT/Assets		-0.000190*** (4.87e-05)	-0.000133** (5.11e-05)	-0.000108*** (3.44e-05)	-7.67e-05*** (1.50e-05)
US HQ		0.0237 (0.0713)	0.0225 (0.0712)	0.103 (0.0708)	0.104*** (0.0156)
Total Lobbying (\$)		0.230*** (0.0752)	0.229*** (0.0794)	0.227*** (0.0724)	0.227*** (0.00250)
Num. Obs.	59531	47433	47433	47433	47433
Year FE			X	X	X
Industry FE				X	X
Year*Industry FE					X

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Standard errors clustered by year and firm. Dependent variable is  $\log(1 + \text{expenditure } (\$)_{it})$ .

# Results: Target

	(EPA)	(DOE)
Opportunity Exposure	0.010 (0.049)	0.152** (0.062)
Regulatory Exposure	0.157*** (0.043)	0.121** (0.044)
Physical Exposure	0.113** (0.049)	0.078 (0.048)
EBIT	-0.033 (0.128)	0.124 (0.108)
EBIT/Assets	0.004* (0.002)	0.000 (0.001)
US HQ	0.234 (0.215)	-0.204 (0.234)
Total Lobbying (\$)	1.585*** (0.435)	0.281 (0.637)
Num.Obs.	40 074	37 128
R2	0.184	0.115
R2 Adj.	0.159	0.091
R2 Within	0.086	0.031
R2 Within Adj.	0.085	0.031
FE: year	X	X
FE: industry	X	X
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  - Emphasize different aspects of lobbying behavior
  - Build on recent work using earnings calls for firm-level information

# Thank you!

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# Appendix

- Descriptives: [▶ Summary statistics](#) [▶ Climate spending](#)
- Additional Results: [▶ Issue](#) [▶ Issue+Component](#) [▶ Within Firm](#) [▶ Expenditure \(OLS\)](#) [▶ Imputation](#)
- Robustness: [▶ Sensitivity](#) [▶ Placebo test](#)

## Summary statistics

	Mean	SD	Min	P25	P75	Max	N
Overall Exposure	0.131	0.307	0.000	0.015	0.095	4.868	59531
Opportunity Exposure	0.051	0.155	0.000	0.000	0.028	3.236	59531
Regulatory Exposure	0.008	0.030	0.000	0.000	0.000	0.876	59531
Physical Exposure	0.001	0.009	0.000	0.000	0.000	0.424	59531
Earnings Before Interest and Taxes (EBIT) (\$M)	20 827.504	143 228.770	-19 858.000	196.000	6675.000	3 418 318.000	48809
EBIT/Total Assets (Productivity)	0.867	16.814	-1638.500	0.736	1.034	849.600	47433
Total Lobbying Per Year(\$M)	13.798	107.827	0.000	0.120	5.360	5188.885	59531



## Effect of Exposure on Lobbying, Decomposed by Issue Area

	Clean Air and Water	Energy	Environment	Fuel, Gas, and Oil
DV=*Issue* Lobby Dummy	(1)	(2)	(3)	(4)
Overall Exposure	0.148*** (0.026)	0.735*** (0.193)	0.288*** (0.077)	0.056 (0.246)
EBIT	0.134 (0.100)	0.000 (0.049)	0.038 (0.053)	0.171 (0.198)
EBIT/Assets	0.008*** (0.001)	-0.001*** (0.000)	-0.001*** (0.000)	0.011* (0.006)
US HQ	0.590 (0.368)	-0.150 (0.241)	0.042 (0.254)	0.369 (0.269)
Total Lobbying (\$)	1.508*** (0.314)	2.078*** (0.313)	2.371*** (0.432)	0.226* (0.134)
Observations	32 239	42 353	41 730	30 447
R2-Pseudo	0.274	0.275	0.234	0.134
Year FE	X	X	X	X
Industry FE	X	X	X	X
Year*Industry FE	X	X	X	X

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Standard errors clustered by year and industry.

# Effect of Exposure on Lobbying, by Exposure Type and Decomposed by Issue Area

DV=*Issue* Lobby Dummy	Climate (1)	Clean Air and Water (2)	Energy (3)	Environment (4)	Fuel, Gas, and Oil (5)
Opportunity Exposure	0.479*** (0.151)	0.056 (0.037)	0.535*** (0.133)	0.097** (0.047)	-0.073 (0.170)
Regulatory Exposure	0.471*** (0.114)	0.110** (0.045)	0.231*** (0.072)	0.203*** (0.049)	0.115* (0.067)
Physical Exposure	0.182** (0.080)	0.107** (0.043)	0.062 (0.050)	0.110*** (0.029)	0.091 (0.092)
EBIT	0.005 (0.041)	0.133 (0.100)	-0.002 (0.049)	0.040 (0.053)	0.172 (0.197)
EBIT/Assets	-0.001*** (0.000)	0.008*** (0.001)	-0.001*** (0.000)	-0.001*** (0.000)	0.011** (0.006)
US HQ	-0.047 (0.267)	0.588 (0.372)	-0.145 (0.252)	0.045 (0.264)	0.372 (0.284)
Total Lobbying (\$)	2.389*** (0.429)	1.499*** (0.313)	2.053*** (0.313)	2.344*** (0.430)	0.224* (0.131)
Observations	43 976	32 239	42 353	41 730	30 447
R2-Pseudo	0.288	0.277	0.272	0.236	0.138
Year FE	X	X	X	X	X
Industry FE	X	X	X	X	X
Year*Industry FE	X	X	X	X	X

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# Effect of within-firm change in exposure on lobbying occurrence (Logit)

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EBIT			0.066 (0.040)	-0.065 (0.047)	0.110*** (0.023)
EBIT/Assets			-0.001*** (0.000)	-0.001*** (0.000)	0.010 (0.007)
US HQ				-0.145 (0.166)	
Total Lobbying (\$)				2.080*** (0.420)	1.448*** (0.323)
Num.Obs.	59 531	59 531	47 433	47 433	19 535
R2	0.113	0.116	0.118	0.165	0.379
R2 Adj.	0.113	0.116	0.117	0.164	0.345
R2 Within		0.114	0.116	0.163	0.015
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FE: year		X	X	X	X
FE: gvkey					X

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# Effect of exposure on lobbying dollar expenditures (OLS)

	(1)	(4)	(5)	(6)	(6)
Opportunity Exposure	0.024** (0.011)	0.026** (0.012)	0.027** (0.013)	0.000 (0.009)	0.003 (0.010)
Regulatory Exposure	0.042*** (0.009)	0.043*** (0.009)	0.043*** (0.009)	0.024*** (0.007)	0.026*** (0.007)
Physical Exposure	0.016 (0.011)	0.029*** (0.010)	0.029** (0.010)	0.024** (0.009)	0.024** (0.009)
EBIT		0.011 (0.009)	0.010 (0.009)	0.017* (0.009)	0.018* (0.009)
EBIT/Assets		0.000* (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000 (0.000)
US HQ		0.026 (0.025)	0.025 (0.025)	0.051* (0.027)	0.051* (0.028)
Total Lobbying (\$)		0.183*** (0.052)	0.183*** (0.052)	0.181*** (0.048)	0.181*** (0.048)
Num.Obs.	59 531	47 433	47 433	47 433	47 433
R2	0.026	0.285	0.287	0.347	0.357
R2 Adj.	0.026	0.285	0.287	0.347	0.348
R2 Within			0.285	0.281	0.284
R2 Within Adj.			0.285	0.281	0.284
Year FE			X	X	X
Industry FE				X	X
Year*Industry FE					X

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

# Effect of exposure on lobbying occurrence (Logit w/ multiple imputed covariates)

	(1)	(2)	(3)	(4)	(5)
Opportunity Exposure	0.827*** (4.80)	0.840*** (4.93)	0.838*** (4.96)	0.484*** (3.92)	0.489*** (3.81)
Regulatory Exposure	0.807*** (6.13)	0.831*** (6.29)	0.851*** (6.33)	0.447*** (4.28)	0.452*** (4.26)
Physical Exposure	0.186 (1.54)	0.195 (1.49)	0.196 (1.50)	0.0899 (0.79)	0.0985 (0.85)
EBIT		-0.0471 (-1.28)	-0.0520 (-1.37)	0.0140 (0.34)	-0.00383 (-0.08)
EBIT/Assets		-0.000991** (-2.95)	-0.000955** (-2.82)	-0.00101** (-2.95)	-0.000988** (-2.89)
US HQ		-0.155 (-1.07)	-0.165 (-1.13)	-0.147 (-0.88)	-0.153 (-0.90)
Total Lobbying (\$)		2.110*** (6.32)	2.109*** (6.30)	2.348*** (6.18)	2.428*** (5.97)
Observations	59531	59531	59531	59176	55569

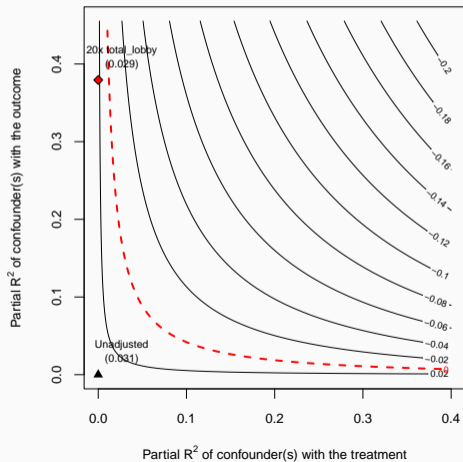
t statistics in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

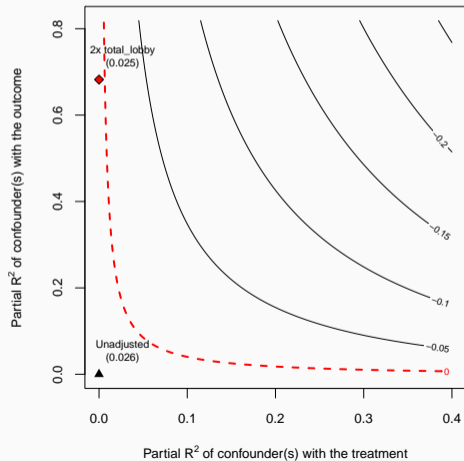


# Sensitivity analysis: regulatory risk

## Occurrence



## Expenditure



# Placebo tests ▶

