Firm Responses to Climate Change: Exit and Voice

Alexander F. Gazmararian Helen V. Milner

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Princeton University

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  - Fades in long-run with adaptation

Literature Focuses on Response to Policy

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- Firms are exposed to climate impacts (Colgan et al. 2021; Baehr et al. 2023)

Firms Are Beginning to Confront Climate Risks

Project Natick

$200k in 2021

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- Asset specificity moderates firm responses

Hypothesized Firm Responses to Climate Experiences

Climate change experience $\rightarrow$

H1: political expenditures if facing more future damages

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H2: adaptation if facing future damages

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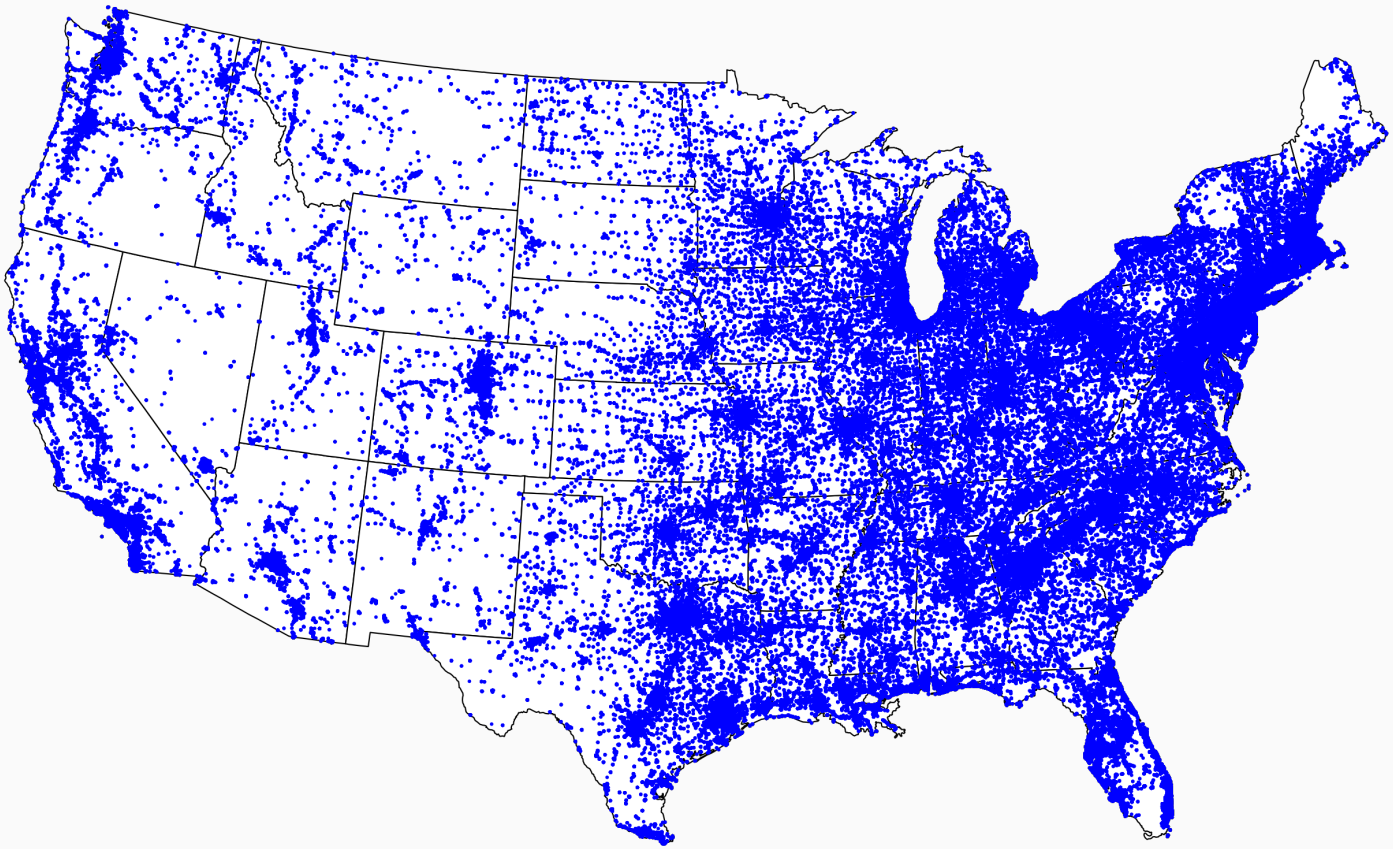
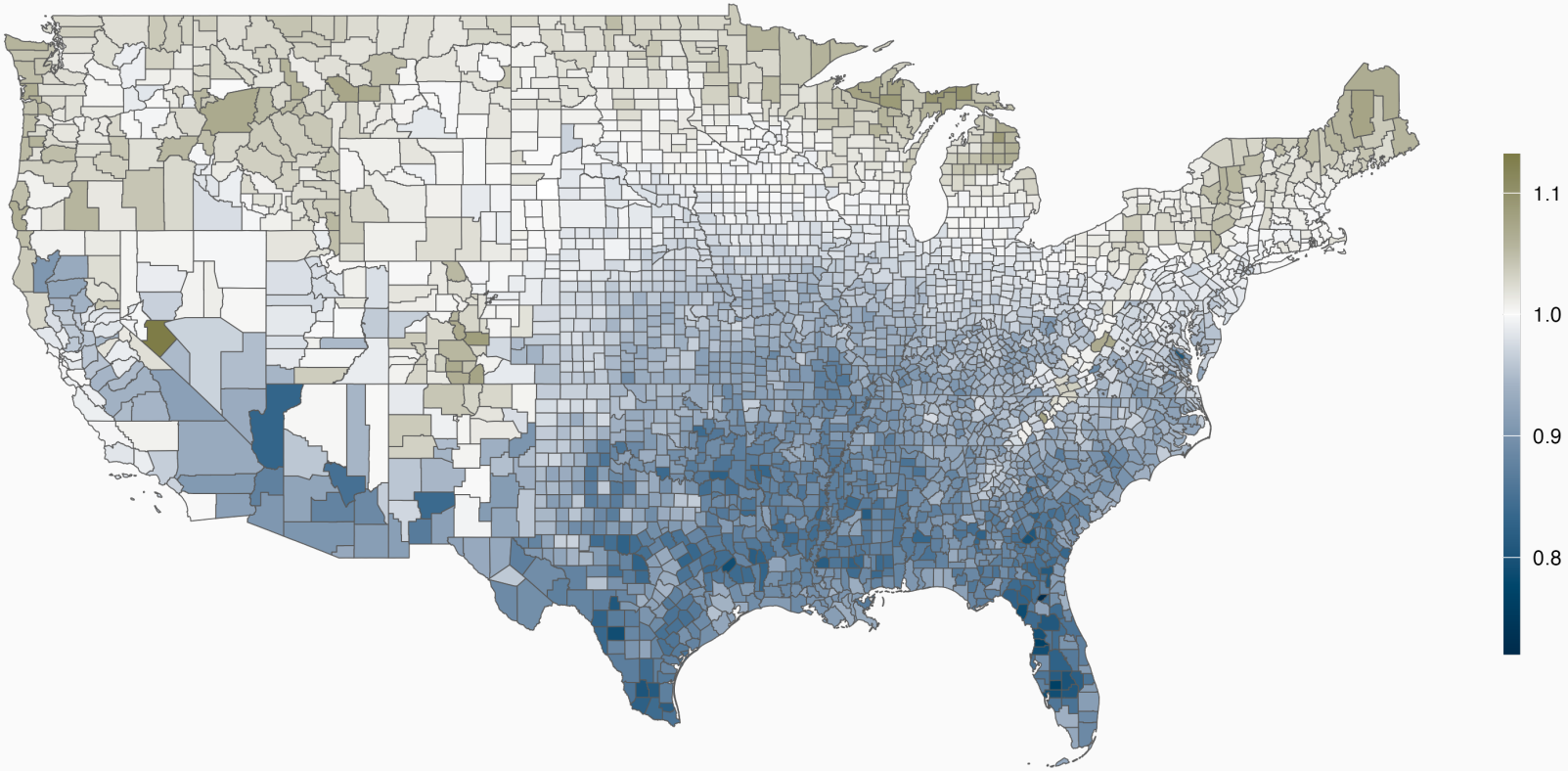
- Our approach: geography
  - Geography matters: labor, energy costs, local trade ...

Establishment-Level Measurement Approach



6.6M firm establishments, 1997–2020

Geographic Heterogeneity in Climate Change's Effects



Hsiang et al. (2017)

Establishment-Level Measurement Approach

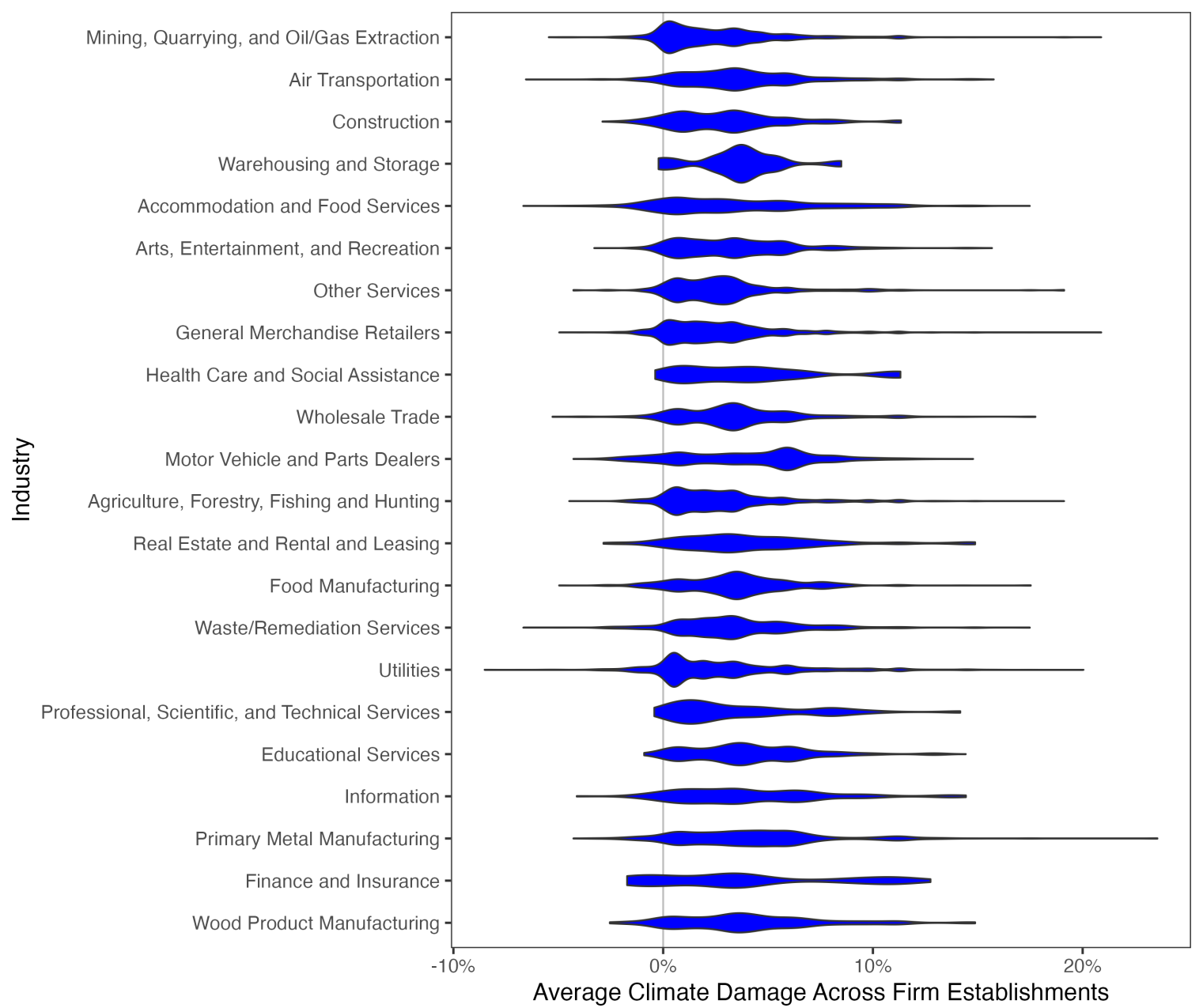
Average establishment's exposure to climate change:

$$FirmVulnerability_i = \sum_{j=1}^{N} \frac{Estab_{j(i)}}{\sum_{i=1}^{N} Estab_i} Damage_j$$

i firms

j establishments in a county

Considerable Within Industry Variation in Vulnerability



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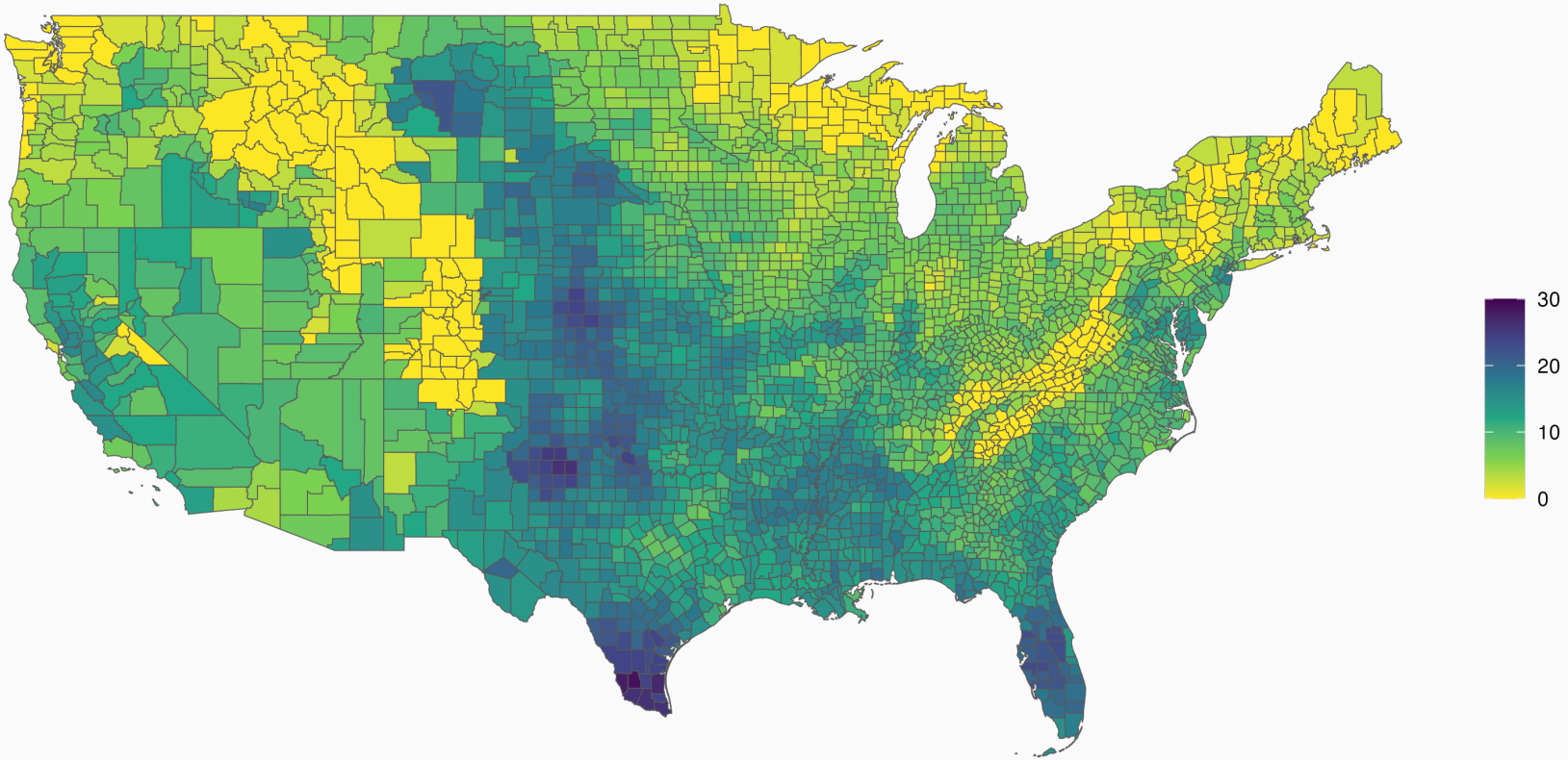
  - Future vulnerability

Experience: Extreme Heat Events



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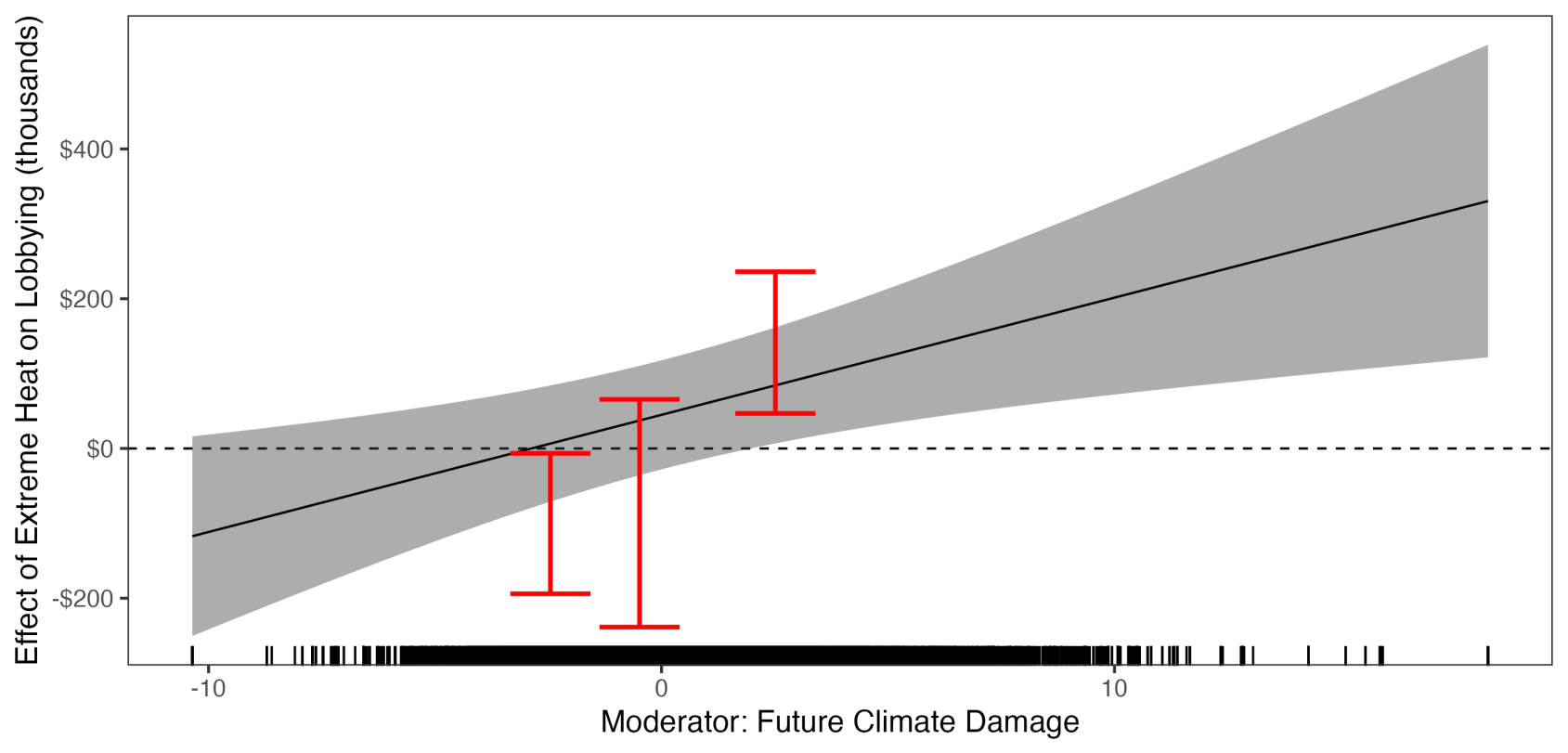
- Sensitivity analysis (Cinelli and Hazlett 2020)

Effect of Experience on Voice



Placebo Tests with Non-Climate Issues

	Non-Climate Placebo Lobbying			
	ALC	MMM	VET	CON
	(1)	(2)	(3)	(4)
Future Damage$_{it}$ × Extreme Heat	1.1	2.8	0.1	2.4
	(1.5)	(2.0)	(1.8)	(2.1)
N	127 605	127 605	127 605	127 605
Adjusted R^2	0.028	0.221	0.076	0.090
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

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

Effect of Experience on Economic Adaptation

	Short-Term Investment				Exit		
	$t = 0$	$t = -1$	$t = -5$	$t = -10$	$t = -1$	$t = -5$	$t = -10$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Future Damage$_{it}$ × Extreme Heat	55.11**	69.64***	−0.62	19.37	0.00	0.00	−0.01***
	(22.40)	(22.38)	(47.94)	(98.66)	(0.00)	(0.00)	(0.00)
Future Damage$_{it}$	386.26	280.28	111.06	252.59	0.64***	0.05***	−0.07***
	(354.96)	(265.61)	(113.01)	(613.37)	(0.01)	(0.01)	(0.01)
Extreme Heat	−307.61	−348.18	112.34	−396.28	0.00	−0.01	−0.02
N	104 536	104 536	76 505	43 316	77 428	60 587	36 748
Adjusted R^2	0.674	0.674	0.773	0.841	0.890	0.839	0.859
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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- Political economy: incorporate uncertainty
- Climate politics: firm learning, multiple strategies, novel measure
- Business influence: role of establishments
- Predict medium-term political cleavage; long-run adaptation