Strategic Complementarity in NGO Advocacy: Evidence from the European Commission

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EEA - August 2024

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Motivation

- Environmental NGOs **common goal**: improve average environmental quality

- Different methods (e.g. public or private politics)

- Different topics (e.g. waste or energy)
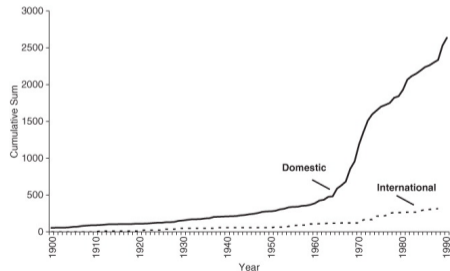
↪ Increasing number of ENGOs

▶ Competition (funding) + Cooperation (same goal)

- What about their advocacy behaviour?

  Do ENGOs share out efforts or crowd in?

Figure 1: Domestic Environmental Organizations and International NGO Memberships in Industrialized Countries (Longhofer and Schofer, 2010)

- This paper: models the strategic interactions of ENGOs in advocacy and measures it

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This Paper

RQ **How do ENGOs strategically interact in their advocacy activities?**

▶ Theoretical model of NGOs lobbying activities: 2 NGOs, 2 topics and counter-lobbying

▶ **Novel dataset** on lobbying efforts from direct meetings with policy-makers
   - 39k meetings from 2014 to 2023
   - Textual data on the subject of meetings to categorize meetings into topics
   ↪ Measure of lobbying efforts at the entity-topic-day level

▶ ENGOs tend to follow the same agenda & lobby together
   - Independently of businesses agenda
   - ENGOs seem to influence the agenda of business actors
   ↪ Businesses only mention environmental topics when pushed by ENGOs?

Related Literature & Contribution

- **Lobbying literature**
    - Lobbying measured by expenditure (annual): Anger et al. (2015); Anger et al. (2016); Burghaus et al. (2019). Detailed review in Bombardini and Trebbi (2020)

    - Lobbying measured by written positions: Bertrand et al. (2021); Logeart (2024)

    $\hookrightarrow$ I measure lobbying effort based on the number of meetings, by entity, topic and month

- **NGO literature**
    - NGOs differentiate for funding: Aldashev and Verdier (2009, 2010)

    - NGOs compete to sell labels: Poret (2019)

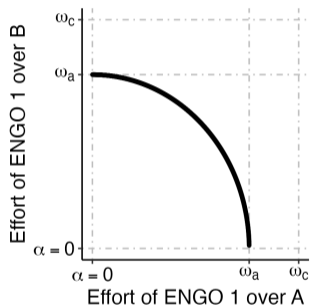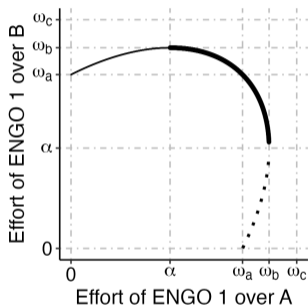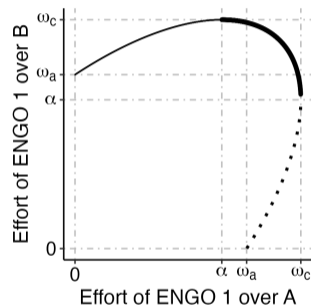   - NGOs tend to "compete with collaborators": Curley et al. (2021)

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Theoretical Analysis - Set-up

- 2 NGOs ($i \in 1, 2$). 2 environmental topics ($j \in A, B$). Counter-lobbying (E_j)

- NGOs engage in lobbying to maximize pro-environmental policy changes over 2 topics
  - $\Delta P_j(e_{1j}, e_{2j}, E_j)$ for topic j: non-negative, continuous, twice differentiable
  - Efforts not perfectly substitutable: $\frac{\partial \Delta P_j}{\partial e_{1j}} \neq \frac{\partial \Delta P_j}{\partial e_{2j}}, \ \forall j$
  - No advocacy spillovers: $\frac{\partial \Delta P_j}{\partial e_{i,-j}} = 0, \ \forall i, j$

- **Lobbying costs:** $C_i(e_{iA}, e_{iB}) = e_{iA}^2 + e_{iB}^2 - c_i \cdot e_{iA} \cdot e_{iB}$, with c the effort transferability

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Theoretical Analysis - Optimal advocacy efforts of ENGO 1

(a) $c_1 = 0$

(b) $c_1 = 1$

(c) $c_1 = 1.3$

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Theoretical Analysis - Reaction functions I

Optimal effort such that:

$$\underbrace{\text{weighted policy change obtained}}_{\text{depends on the other NGOs' efforts}} = \text{weighted loss on other topic}$$

- From the FOC: $\gamma_{1A} \dfrac{\partial \Delta P_A}{\partial e_{1A}} = -\gamma_{1B} \left(\dfrac{c_1}{2} - \dfrac{(4-c_1^2)e_{1A}}{2\sqrt{4B_1-(4-c_1^2)e_{1A}^2}} \right) \dfrac{\partial \Delta P_B}{\partial e_{1B}}$

- And **not imposing a functional form** on the policy change function, I derive the reaction functions with the implicit function theorem

$$\frac{\partial e_{1A}}{\partial e_{2A}} = - \frac{\gamma_{1A} \cdot \frac{\partial^2 \Delta P_A}{\partial e_{1A} \partial e_{2A}}}{2 \cdot SOC_1 - \gamma_{1A} \cdot \frac{\partial^2 \Delta P_A}{\partial e_{1A}^2}}$$

$$\frac{\partial e_{1A}}{\partial E_A} = - \frac{\gamma_{1A} \cdot \frac{\partial^2 \Delta P_A}{\partial e_{1A} \partial E_A}}{2 \cdot SOC_1 - \gamma_{1A} \cdot \frac{\partial^2 \Delta P_A}{\partial e_{1A}^2}}$$

Theoretical Analysis - Reaction functions II

$$\frac{\partial e_{1A}}{\partial e_{2A}} = - \frac{\gamma_{1A} \cdot \frac{\partial^2 \Delta P_A}{\partial e_{1A} \partial e_{2A}}}{2 \cdot SOC_1 - \gamma_{1A} \cdot \frac{\partial^2 \Delta P_A}{\partial e_{1A}^2}}$$

- $\gamma_{1A} \geq 0$ is the preference parameter of NGO 1 for topic A
- $SOC_1 < 0$ is the second order condition of the program of NGO 1
- ▶ The degree of complementarity of efforts in the policy change function determines the complementarity of ENGOs efforts.
- ↪ No functional form imposed, need data and an empirical analysis

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Data: Measuring lobbying effort

- List of meetings held by European **Commission members or Directorate-Generals**

- **39,098 meetings** from 2014 to 2023

    - Name of organizations attending

    - Day of meeting

    - Subject of the meeting

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Data: Measuring lobbying effort

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  - Name of organizations attending
    - Matched with EU Transparency Register: Type of Entity + Fields of interest
      ↪ Identify environmental NGOs

  - Day of meeting

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Data: Measuring lobbying effort

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      ↪ Identify environmental NGOs

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  - Subject of the meeting
    - Categorization of meetings into 9 environmental topics ▸ Details

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Data: Measuring lobbying effort

- List of meetings held by European **Commission members or Directorate-Generals**

- **39,098 meetings** from 2014 to 2023

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    - Day of meeting

    - Subject of the meeting
        - Categorization of meetings into 9 environmental topics (▸ Details)

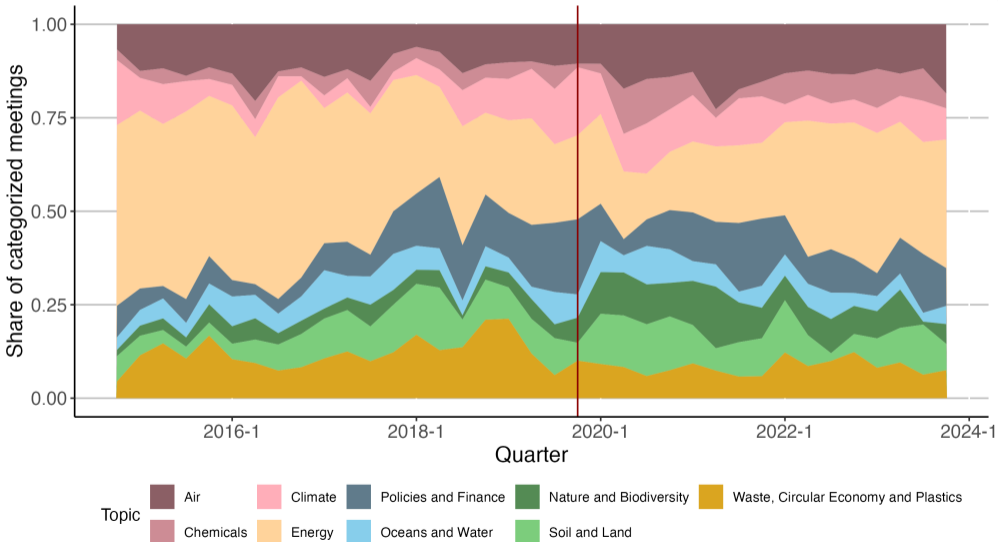- Measure of effort at the entity-topic-month level
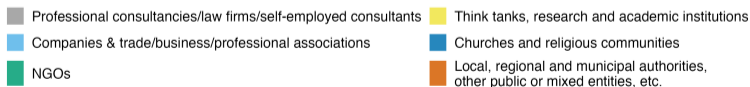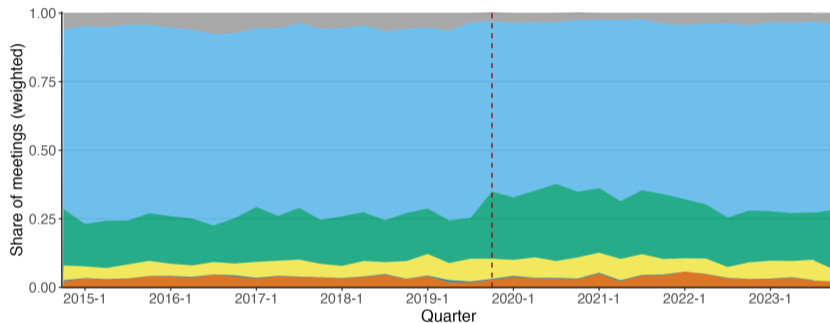
Data: Distribution of meetings
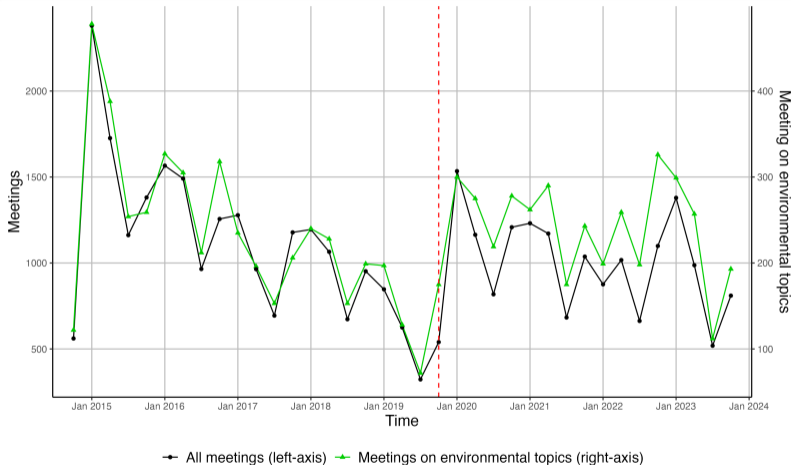
Notes. The black line and dots represent the quarterly number of meeting (left-axis). The green line and dots represent the quarterly number of meeting on environmental issues (right-axis).

$\sim 20\%$ of meetings classified as being on environmental topics

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Data: Topic distribution

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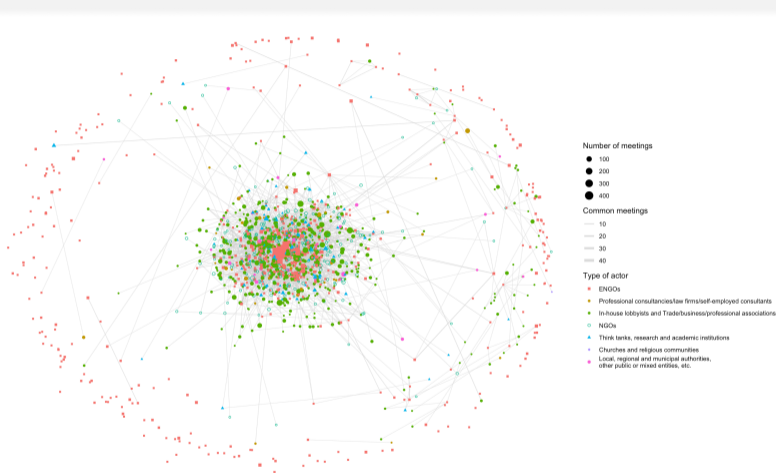○○○○

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Data: Actors distribution of actors - environmental meetings

▸ Actor Distrib - all

▸ ENGO share - all

→ Business: consistently the majority of actors meeting with the Commission on env. issues

→ NGOs: **second major actor**

Data: ENGOs network

- 44.4% of ENGOS only meet solo
- From ENGOS attending meeting together: 63.24% of ENGOS partners are ENGOS

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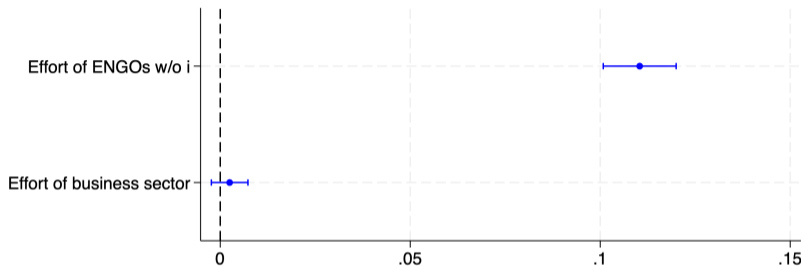
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ENGOs strategic interactions - Model

PPML model:

$$\text{effort}_{ijt} = \exp\left(\alpha + \beta_1\, \text{effort}_{-i,jt} + \beta_2\, \text{effort}_{jt}^{\text{business}} + \beta_3\, \text{effort}_{it} + \gamma_i + \delta_j + \mu_t\right) + u_{ijt}$$

with

- $\text{effort}_{i,j,t}$: lobbying effort of ENGO i on topic j in month t = *number of meetings*
- $\text{effort}_{-i,j,t}$: total lobbying effort of ENGOs (except i) on topic j in month t
- $\text{effort}_{j,t}^{\text{business}}$: effort of business actors on topic j in month t — *same for other actors*
- $\text{effort}_{i,t}$: total lobbying effort of ENGO i in month t
- γ_i: ENGO fixed-effects
- δ_j: topic fixed-effects
- μ_t: year-month fixed effects

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ENGOs strategic interactions - Results

Notes. Obs: 388,800. FE: ENGO, topic and month. Robust standard errors.

▶ **Strong complementarity of ENGOs efforts**: semi-elasticity of 10.85% ▸ Table

● ENGOs appear independent to business sector effort, and to other actors ▸ All actors (graph)

● Robust to the inclusion of lagged efforts (and negative semi-elasticity for lags) ▸ Table

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Business strategic interactions - Model

Lobbying efforts from ENGOs are

- **strategic complements**
- **independent from business efforts**

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Business strategic interactions - Model

Lobbying efforts from ENGOs are
- **strategic complements**
- **independent from business efforts**

Are business efforts also independent from ENGOs effort?

Business strategic interactions - Model

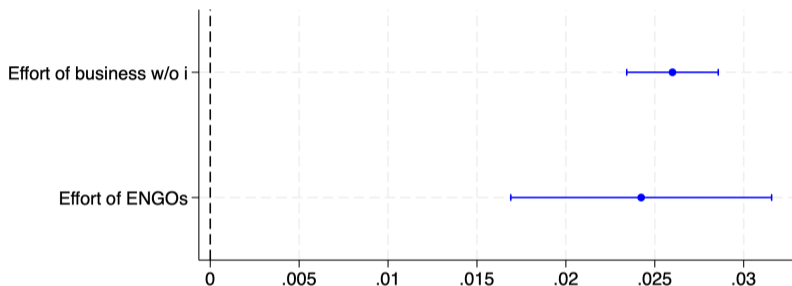**Lobbying efforts from ENGOs are**
- **strategic complements**
- **independent from business efforts**

Are business efforts also independent from ENGOs effort?

Symmetric model estimated, for business:

$$\text{effort}_{ijt} = \exp\left(\alpha + \beta_1 \text{ effort}_{-i,jt} + \beta_2 \text{ effort}_{jt}^{\text{ENGOs}} + \beta_3 \text{ effort}_{it} + \gamma_i + \delta_j + \mu_t\right) + u_{ijt}$$

Business strategic interactions - Results

Notes. Coefficients and their 95%, 99% and 99.9% confidence intervals. Obs: 388,800. Dep. var.: $\text{effort}_{i,j,t}$. Control: $\text{effort}_{i,t}$. FE: ENGO, topic and month. Robust standard errors.

▶ **Complementarity of businesses**: semi-elasticity of 2.38%   ▸ Table   ▸ All actors   ▸ Lags

● ENGOs appear to determine businesses effort: semi-elasticity of 1.76%

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Conclusion

- This paper models NGOs lobbying activities
  - 2 NGOs, 2 topics, presence of counter-lobbying & cost transferability
  - Reaction functions: complementarity follows the perceived compl. in policy change function
  - Empirics on new dataset to estimate complementarity

- This paper provides insights on lobbying behaviour from the second major political actor
  - New measurement of lobbying effort by topic, entity and time
  - ENGOs cooperate and tend to bring up the same topics at the same time
  - Business adapts to this agenda on environmental topics, while they have more meetings
  - ↪ **ENGOs lobbying is key for environmental topics to be discussed**

Thank you for your attention!

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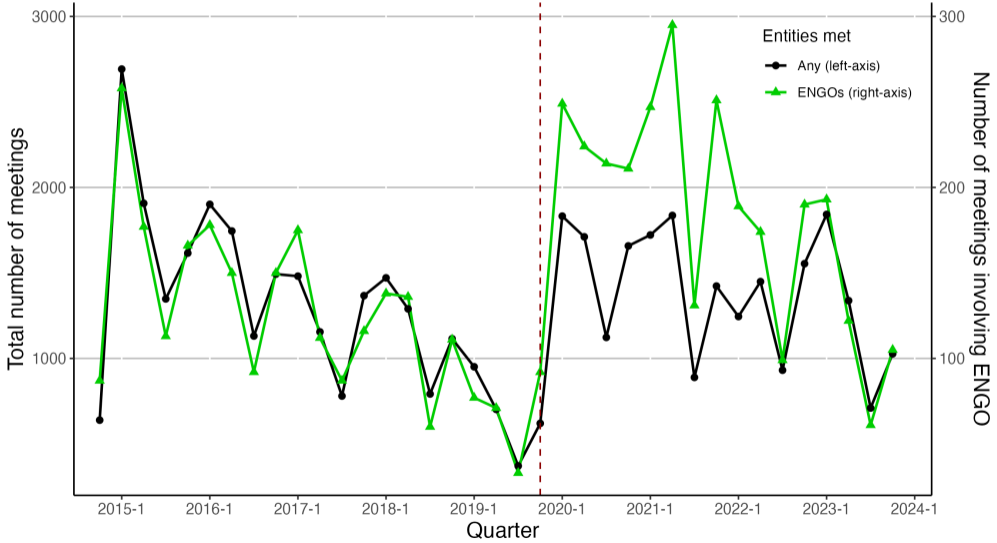
Topic Category	Patterns
Air	"air pollution", "air quality", "biofuels", "carbon", "co2", "coal", "effort sharing decision", "emission"
Chemicals	"chemical", "endocrine", "food contact material", "glyphosate", "neonicotinoid", "pharmaceutical"
Climate	"climat"
Energy	"'biofuels", "electricity", "energy", "nerg", "euratom", "gas", "renewable"
Policies and finance	"climate change policies", "climate policies", "conferences of the parties", "energy tax", "environmental pol", "environmental council", "environmental tax", "environment pol", "fiscalit", "green finance", "lima ", "sustainable development", "sustainability finance", "sustainable finance"
Oceans and Water	"aquaculture", "fish", "illegal, unreported and unregulated", "marine", "maritime", " sea", "ocean", "water", "waterways"
Nature and Biodiversity	"biodiversity", "biomass", "bird", "ecosystem", "forest", "glyphosate", "hunting", "natura 2000", "neonicotinoid", "palm oil", "Wild Fauna and Flora", "wildlife", "xyllela"
Soil and Land	"agricultur", "farm", "organic", "pesticid"
Waste, Circular Economy and Plastics	"circular", "plastic", "recycl", "sharing economy", "waste"

Actor distribution - all meetings ◄
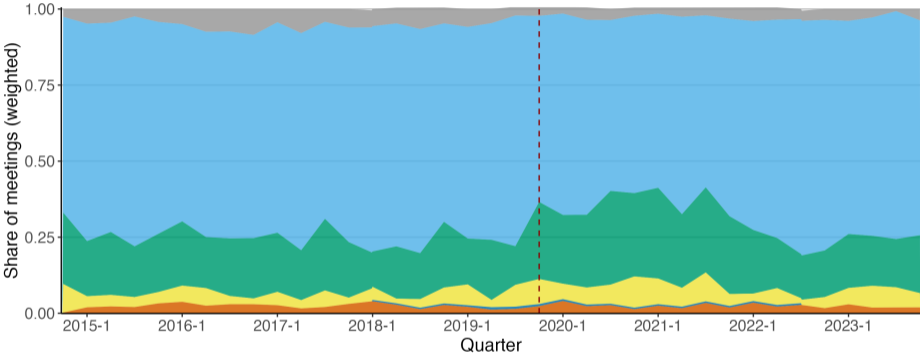
Legend:
- Professional consultancies/law firms/self-employed consultants
- Companies & trade/business/professional associations
- NGOs
- Think tanks, research and academic institutions
- Churches and religious communities
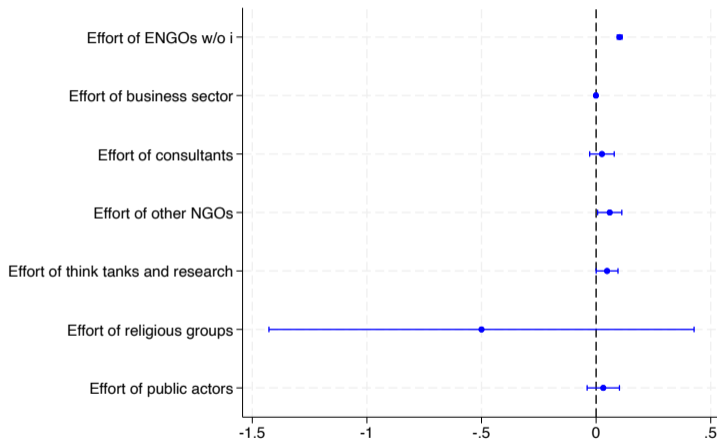- Local, regional and municipal authorities, other public or mixed entities, etc.

x-axis: Quarter (2015-1, 2016-1, 2017-1, 2018-1, 2019-1, 2020-1, 2021-1, 2022-1, 2023-1)

y-axis: Share of meetings (weighted) (0.00, 0.25, 0.50, 0.75, 1.00)

Distribution of meetings - share ENGOs ◂

ENGOs strategic interactions - Table ◄

Dependent variable:	Effort of ENGO i on c in t	
	PPML	
Effort of ENGOs w/o i	.110***	.103***
	(.00489)	(.00535)
Effort of business sector	.00248	-.000850
	(.00246)	(.00276)
Effort of consultants		.0255
		(.0273)
Effort of other NGOs		.0594*
		(.0269)
Effort of think tanks & research		.0478*
		(.0243)
Effort of religious groups		-.500
		(.473)
Effort of public actors		.0312
		(.0360)
Effort of i in t	.649***	.647***
	(.0212)	(.0213)
ENGO FE	Yes	Yes
Category FE	Yes	Yes
Month FE	Yes	Yes
Observations	388,800	388,800
Pseudo R^2	.347	.347
Dep. Var. Mean (SD)	.00745 (.104)	

Notes. Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Results with all types of actor •

Notes. Coefficients and their 95% confidence intervals. Obs.: 388,800. Dep. var.: $\mathrm{effort}_{i,j,t}$. Control: $\mathrm{effort}_{i,t}$. FE: ENGO, topic and month. Robust standard errors.

Dependent variable:	Effort of ENGO i on c in t	
	PPML	
Effort of ENGOs w/o i	.113***	.105***
	(.00520)	(.00563)
Effort of ENGOs w/o i (lag)	-.0170**	-.0205**
	(.00645)	(.00694)
Effort of ENGOs w/o i (lag2)	.00168	-.00498
	(.00733)	(.00766)
Effort of business sector	.00276	-.000986
	(.00278)	(.00296)
Effort of business sector (lag)	.00164	-.000324
	(.00281)	(.00318)
Effort of business sector (lag2)	.00291	.00249
	(.00258)	(.00303)
Effort of consultants		.0393
		(.0277)
Effort of consultants (lag)		.00842
		(.0284)
Effort of consultants (lag2)		-.0269
		(.0313)
Effort of other NGOs		.0491
		(.0270)
Effort of other NGOs (lag)		.0842**
		(.0290)
Effort of other NGOs (lag2)		.0579*
		(.0274)
Effort of think tanks and research		.0543*
		(.0245)
Effort of think tanks and research (lag)		-.0154
		(.0262)

Dependent variable:	Effort of business i on c in t	
	PPML	
Effort of business w/o i	.0260***	.0235***
	(.00131)	(.00145)
Effort of ENGOS	.0242***	.0174***
	(.00374)	(.00421)
Effort of consultants		.0336*
		(.0135)
Effort of other NGOs		.0674***
		(.0173)
Effort of think tanks & research		.00459
		(.0136)
Effort of religious groups		.588***
		(.170)
Effort of public actors		.0379*
		(.0192)
Effort of i in t	.920***	.920***
	(.0141)	(.0141)
Entity FE	Yes	Yes
Category FE	Yes	Yes
Month FE	Yes	Yes
Observations	1,727,550	1,727,550
Pseudo R^2	.321	.321
Dep. Var. Mean (SD)	.00518 (.0843)	

Notes. Robust standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Business results with all types of actor ◀
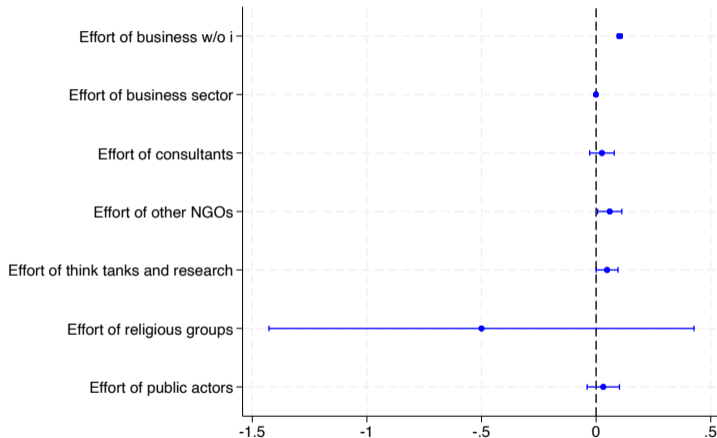
Notes. Coefficients and their 95% confidence intervals. Obs.: 1,727,550. Dep. var.: $\text{effort}_{i,j,t}$. Control: $\text{effort}_{i,t}$. FE: Entity, topic and month. Robust standard errors.

	Dependent variable:	Effort of business i on c in t	
		PPML	
Effort of business w/o i		.0233***	.0213***
		(.00137)	(.00153)
Effort of business w/o i (lag)		.00351*	.00337*
		(.00142)	(.00159)
Effort of business w/o i (lag2)		.00329*	.00189
		(.00130)	(.00150)
Effort of ENGOs		.0204***	.0143**
		(.00403)	(.00441)
Effort of ENGOs (lag)		.0125**	.0109*
		(.00390)	(.00435)
Effort of ENGOs (lag2)		.00290	.0000558
		(.00431)	(.00469)
Effort of consultants			.0256
			(.0140)
Effort of consultants (lag)			.00838
			(.0146)
Effort of consultants (lag2)			.0196
			(.0153)
Effort of other NGOs			.0564**
			(.0175)
Effort of other NGOs (lag)			.0125
			(.0177)
Effort of other NGOs (lag2)			.0400*
			(.0168)
Effort of think tanks and research			.00219
			(.0137)
Effort of think tanks and research (lag)			-.00634
			(.0138)