

A star is born: when institutional heterogeneity gives rise to publication bias and p-hacking in economics

Research Day

Paul Sibille^{1,2}

Stephan Bruns^{2,4,5}

Julien Hambuckers^{1,3}

¹HEC Liège, University of Liège

²CMK, Hasselt University

³Georg-August Universität Göttingen

⁴METRICS, Stanford University

⁵INCHER, Universität Kassel



Outline

1. Publication bias & p-hacking
2. Theoretical model
3. Data & Methodology
4. Descriptive Statistics
5. Results
6. Recommendations

Publication bias & p-hacking

- ▶ **Publication bias:** increasing probability to be published as one presents statistically significant results (Brodeur *et al.*, 2020).
- ▶ **P-hacking:** manipulation of specifications or statistical tests to obtain significant results (Brodeur *et al.*, 2020)
- ▶ The presence of both phenomena is already well established in the literature (Brodeur *et al.*, 2016; Ioannidis, 2005; Ferraro and Shukla, 2020)

Institutional heterogeneity

- ▶ Multiple studies conducted in economics to analyze what can impact publication bias (Brodeur *et al.*, 2020; Brodeur *et al.*, 2023; Askarov *et al.*, 2023). Each analyzes methodological or editorial decisions as determinants. None analyzes the broader role of institutional affiliations.
- ▶ **Nearest neighbor:** Fabo *et al.*, (2021) show central bankers report QE as more effective than academics do. Weale and Wieladek (2024) contest this using an alternative methodology.

“Why might institutional heterogeneity be a relevant factor?”

Heterogeneity in external incentives

- ▶ **Universities:** career advancement depends on publication in prestigious journals
- ▶ **Think tanks:**
 1. Rewards are likely to depend on the institution's funding structure
 2. Economists hold strong prior beliefs (Javdani and Chang, 2023) which may imply ideological sorting
- ▶ **International organizations:**
 1. Performance pressure on researchers due to earmarked fundings (Reinsberg, 2023)
 2. Staff ideology shapes the policy outputs of IOs (Lang *et al.*, 2024)
- ▶ **Private companies:** significance drive regulatory approvals, purchasing decisions and market adoption (Lundh *et al.*, 2018; Lexchin *et al.*, 2003)

Institutional heterogeneity → Incentive heterogeneity → Publication bias

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The agency theory

- ▶ **Agency theory:** a principal delegates a task to an agent whose actions cannot be perfectly observed. Instead, principals evaluate and reward agents based on observable signals. (Ross, 1973; Jensen and Meckling, 1976)
- ▶ Application to scientific research:
 - ▶ Agents = Researchers
 - ▶ Principals = Affiliated institutions
 - ▶ Hidden actions = Multiple specifications, omitting variables
 - ▶ Observable signals = Significance
 - ▶ Rewards = Pecuniary & non-pecuniary bonuses

The agent's problem

- ▶ Ross (1973) developed the agency theory in a single principal-agent framework. Besley and Ghatak (2005) extended it to heterogeneous principals and agents.
- ▶ The researcher i maximizes his utility function:

$$G_{ij}(e_{ij}; b_{ij}, \theta_{ij}, w_{ij}) = (\alpha + b_{ij} + \theta_{ij}) e_{ij} + w_{ij} - \frac{1}{2} e_{ij}^2 \quad (1)$$

which yields the incentive-compatibility constraint:

$$e_j = \mathbb{E}_j[e_{ij}] = \mathbb{E}_j[b_{ij}] + \mathbb{E}_j[\theta_{ij}] + \alpha \quad (2)$$

The principal's problem

- The affiliated institution maximizes its utility function:

$$U_{ij}(\pi_{ij}, e_{ij}, b_{ij}, w_{ij}) = (\pi_j - b_{ij}) e_{ij} - w_{ij} \quad (3)$$

which yields the optimal pecuniary bonus (aggregated at the institution level)

$$\mathbb{E}_j[b_{ij}^*] = \frac{\pi_j - \alpha - \mathbb{E}_j[\theta_{ij}]}{2} \quad (4)$$

Optimal significance-seeking effort

- Substituting Equation (4) into Equation (2) yields the model's central result (optimal **significance-seeking effort**):

$$e_j^* = \mathbb{E}_j[b_{ij}^*] + \mathbb{E}_j[\theta_{ij}] + \alpha = \frac{\pi_j + \alpha + \mathbb{E}_j[\theta_{ij}]}{2} \quad (5)$$

Summary of the theoretical model

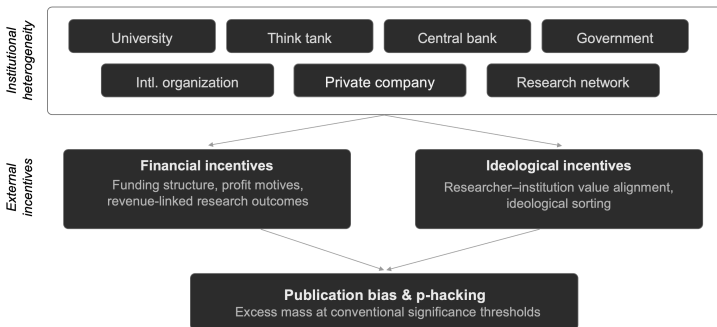


Figure 1: From institutional heterogeneity to publication bias & p-hacking

The theoretical model only helps identify what can impact e_j but its ordering is left as an empirical question

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Data extraction

Publication bias is measured using discontinuities in the distribution of published z-values (Brodeur *et al.*, 2020; Bruns *et al.*, 2019; Gerber and Malhotra, 2008).

Three databases are merged to form our main dataset with estimated z-values :

- ▶ **DORIS**

- ▶ Definition: Automated tool to scrape statistical values from HTML files.

- ▶ **OpenAlex**

- ▶ Definition: Database providing broader information about authors' affiliations.

- ▶ **Web of Science (WOS)**

- ▶ Definition: Database providing broader information about the articles and their authors.

Retrieved z-values are then recoded into binary variables taking one if significant at 1%, 5% and 10%, 0 otherwise.

Empirical model

$$\Pr(\text{Significant}_{iaht} = 1) = \Phi(\alpha + \gamma_h + \omega_t + \beta^\top S_{aht} + X'_{iaht} \delta), \quad (6)$$

- ▶ γ_h : Journal fixed effects
- ▶ ω_t : Time fixed effects
- ▶ S_{aht} : Affiliation share
- ▶ X'_{iaht} : Test and article covariates

*Note: for a test i in article a in journal h at time t. SEs clustered at the article level.
For a window of 0.15 and 0.30 around significance thresholds.*

We test the following hypothesis:

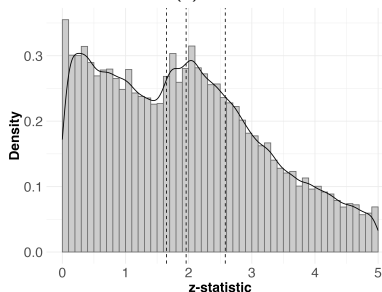
- ▶ $H_0 : \beta_j = 0$ (affiliations to type j are not associated with higher publication bias or p-hacking)
- ▶ $H_1 : \beta_j \neq 0$ (affiliations to type j are associated with higher publication bias or p-hacking)

Outline

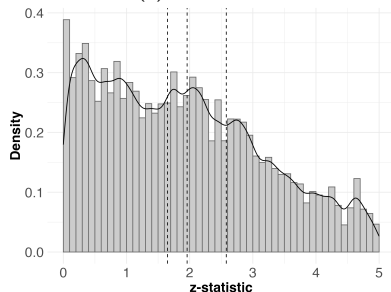
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Weighted z-curve

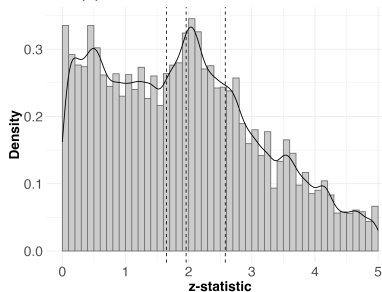
(a) All



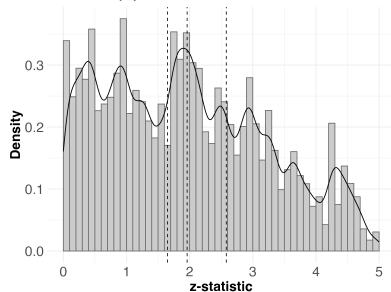
(b) Think Tank



(c) International Organization

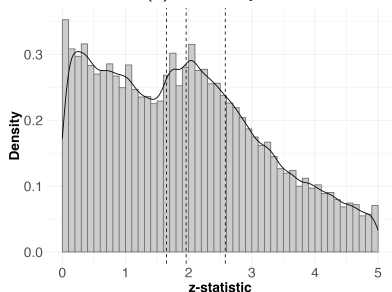


(d) Private Company

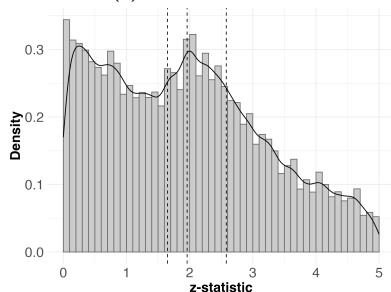


Weighted z-curve

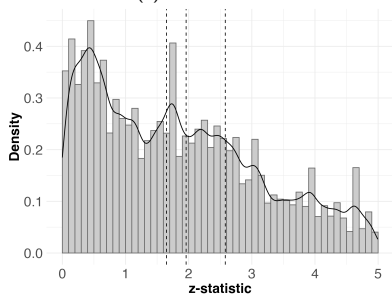
(a) University



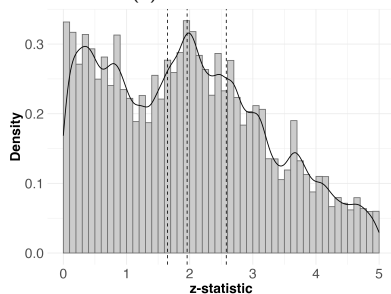
(b) Research Network



(c) Government



(d) Central Bank



Descriptive Statistics by Affiliation

Institution	Window 0.15				Window 0.30			
	Share	Caliper	Tests	Papers	Share	Caliper	Tests	Papers
<i>Panel A: > 0% affiliation share</i>								
University	55.41%	***	10,639	3,161	52.69%	***	20,824	3,331
Think Tank	55.79%	***	1,228	387	52.41%	**	2,419	410
Central Banks	54.62%	***	1,142	333	52.69%	*	2,160	354
Government	56.06%	***	359	128	49.30%	**	762	138
Intl. Organization	59.61%	***	1,267	352	56.86%	***	2,431	359
Private Company	61.14%	***	313	89	55.20%	**	583	97
Research Network	55.02%	***	3,104	903	53.38%	***	5,964	947
<i>Panel B: ≥ 50% affiliation share</i>								
University	55.37%	***	10,324	3,064	52.66%	***	20,191	3,232
Think Tank	56.76%	***	789	254	53.30%	*	1,546	268
Central Banks	54.04%	***	839	247	53.74%	*	1,595	264
Government	55.90%	***	207	68	53.94%	***	446	74
Intl. Organization	59.51%	***	970	267	56.67%	***	1,891	271
Private Company	67.41%	***	172	44	59.91%	***	317	49
Research Network	56.00%	***	2,238	675	52.85%	***	4,349	708

Notes: "Share" = share of significant main tests. "Caliper" = binomial test for excess mass above threshold (Gerber & Malhotra 2008).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Key takeaways

A caliper regression is needed to estimate how changes in affiliation shares affect the probability of marginal statistical significance

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Main Results: 5% Threshold

	w = 0.15					w = 0.30					w = 0.50	No window
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(5)	(5)
University share	0.01 (0.06)	0.01 (0.04)	0.01 (0.04)	0.04 (0.04)	0.04 (0.04)	0.03 (0.06)	0.03 (0.03)	0.03 (0.03)	0.04 (0.03)	0.04 (0.04)	0.02 (0.03)	-0.01 (0.03)
Think tank share	0.04 (0.06)	0.04 (0.04)	0.04 (0.04)	0.06 (0.04)	0.06* (0.04)	0.02 (0.05)	0.02 (0.03)	0.02 (0.03)	0.04 (0.03)	0.04 (0.03)	0.02 (0.03)	-0.02 (0.02)
Central Bank share	0.00 (0.07)	0.00 (0.05)	0.00 (0.05)	0.03 (0.05)	0.02 (0.05)	0.03 (0.06)	0.03 (0.04)	0.03 (0.04)	0.05 (0.04)	0.04 (0.04)	0.02 (0.04)	0.02 (0.03)
Government share	0.03 (0.09)	0.03 (0.06)	0.02 (0.06)	0.05 (0.07)	0.05 (0.07)	-0.02 (0.08)	-0.02 (0.05)	-0.02 (0.05)	0.00 (0.05)	0.00 (0.05)	0.00 (0.05)	0.03 (0.04)
Intl. share	0.07 (0.07)	0.07 (0.05)	0.07 (0.05)	0.09* (0.05)	0.10* (0.05)	0.09 (0.07)	0.09** (0.04)	0.09** (0.04)	0.10** (0.04)	0.10** (0.04)	0.07* (0.03)	-0.01 (0.03)
Private share	0.19 (0.13)	0.19** (0.08)	0.19** (0.08)	0.23*** (0.09)	0.24*** (0.09)	0.14 (0.12)	0.14** (0.06)	0.13** (0.06)	0.16** (0.06)	0.16** (0.06)	0.07 (0.06)	-0.08 (0.06)
Network share	0.01 (0.03)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.02 (0.03)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.03* (0.02)	0.00 (0.01)
Observations	11,514	11,514	11,514	11,514	11,514	22,468	22,468	22,468	22,468	22,468	35,711	168,678
Funding control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Clusters		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Year FE			✓	✓	✓			✓	✓	✓	✓	✓
Journal FE				✓	✓				✓	✓	✓	✓
N. authors					✓					✓	✓	✓

Notes: Marginal effects at means. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. SE clustered at article level in cols. (2)–(5). Positive values $\Rightarrow$ higher probability of landing just above the 5% cutoff.

Main Results: 1% Threshold

	w = 0.15					w = 0.30					w = 0.50	No window
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(5)	(5)
University share	0.03 (0.06)	0.03 (0.04)	0.03 (0.05)	0.02 (0.05)	0.02 (0.05)	0.07 (0.06)	0.07** (0.04)	0.08** (0.04)	0.06* (0.04)	0.06 (0.04)	0.04 (0.03)	-0.02 (0.03)
Think tank share	0.05 (0.06)	0.05 (0.04)	0.05 (0.04)	0.04 (0.04)	0.05 (0.04)	0.08 (0.05)	0.08** (0.03)	0.08** (0.03)	0.08** (0.03)	0.08** (0.03)	0.03 (0.03)	-0.01 (0.03)
Central Bank share	0.00 (0.07)	0.00 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.07 (0.06)	0.07* (0.04)	0.07* (0.04)	0.06 (0.04)	0.06 (0.04)	0.04 (0.04)	0.01 (0.03)
Government share	0.02 (0.09)	0.02 (0.06)	0.03 (0.06)	0.02 (0.06)	0.02 (0.06)	0.11 (0.08)	0.11** (0.05)	0.11** (0.05)	0.10* (0.05)	0.10* (0.05)	0.04 (0.05)	0.04 (0.04)
International share	0.00 (0.07)	0.00 (0.05)	0.01 (0.05)	0.02 (0.05)	0.02 (0.05)	0.05 (0.07)	0.05 (0.04)	0.05 (0.04)	0.05 (0.04)	0.05 (0.04)	0.02 (0.04)	-0.04 (0.03)
Private share	-0.21 (0.14)	-0.21** (0.10)	-0.22** (0.10)	-0.23** (0.10)	-0.22** (0.10)	-0.06 (0.13)	-0.06 (0.09)	-0.06 (0.09)	-0.07 (0.08)	-0.07 (0.08)	-0.06 (0.07)	-0.11* (0.06)
Network share	0.02 (0.03)	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)	0.02 (0.02)	0.01 (0.03)	0.01 (0.02)	0.01 (0.02)	0.00 (0.02)	0.00 (0.02)	-0.01 (0.02)	0.00 (0.01)
Observations	9,270	9,270	9,270	9,270	9,270	18,313	18,313	18,313	18,313	18,313	30,648	168,678
Funding control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Clusters		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Year FE			✓	✓	✓			✓	✓	✓	✓	✓
Journal FE				✓	✓				✓	✓	✓	✓
N. authors					✓					✓	✓	✓

Notes: Marginal effects at means. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. SE clustered at article level in cols. (2)–(5). Private share reverses sign at the 1% cutoff: firms target the *minimum* publishable threshold.

Robustness Checks

	$w = 0.30$			$w = 0.15$		
	Placebo ($z = 3$)	JEL FE	Deround	Placebo ($z = 3$)	JEL FE	Deround
University share	-0.009	0.094**	-0.004	0.014	0.076	0.021
Think tank share	-0.027	0.010	0.035	-0.024	0.047	0.035
Central Bank share	0.035	0.087*	-0.008	0.105*	0.068	-0.028
Government share	-0.009	0.042	-0.038	0.136*	0.145	0.073
Intl. share	-0.011	0.133***	0.054	0.001	0.130**	0.057
Private share	0.099	0.162*	0.154**	0.082	0.265**	0.221**
Network share	0.028	0.036	0.030	0.033	0.020	0.010
Observations	14,519	13,191	15,530	7,382	6,795	7,855
Funding control	✓	✓	✓	✓	✓	✓
Clusters	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Journal FE	✓	✓	✓	✓	✓	✓
N. authors	✓	✓	✓	✓	✓	✓
JEL code		✓			✓	

Notes: Placebo: regression estimated at $z = 3.00$ (no conventional cutoff). JEL FE: field fixed effects added. Deround: Kranz & Pütz

(2022) procedure applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Key takeaways

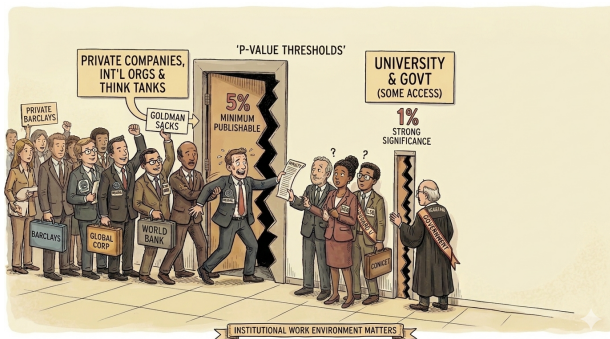
- ▶ The strongest effect is for **private companies**. We suppose financial incentives $>$ ideological match (Lundh *et al.*, 2018; Bero *et al.*, 2016)
- ▶ The second strongest effect is for **international organizations**: financial incentives (Reinsberg, 2023) and ideological preferences (Lang *et al.*, 2024)
- ▶ The third strongest effect is for **think tanks**: financial incentives (donors) and ideological preferences
- ▶ The results are robust across three robustness checks

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Recommendations

- ▶ The institutional composition of a paper's authorship is a variable worth tracking alongside method and field
- ▶ Implement a database similar to the Open Payment database used in medicine to better capture financial incentives in economics research.



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Appendix

Appendix A.1: Agent's participation constraint

The agent's participation constraint is:

$$G_j(e_j; b_j, w_j) = (\alpha + b_j + \theta_j)e_j + w_j - \frac{1}{2}e_j^2 \geq \bar{u}_j. \quad (7)$$

- ▶ b_j : pecuniary reward.
- ▶ θ_j : non-pecuniary reward.
- ▶ w_j : fixed wage.
- ▶ e_j : significance-seeking effort.
- ▶ $\alpha > 0$: intrinsic return to publication effort.

The agent's first-order condition is:

$$\frac{\partial G_j}{\partial e_j} = \alpha + b_j + \theta_j - e_j = 0 \quad \implies \quad e_j = \alpha + b_j + \theta_j. \quad (8)$$

Appendix A.1: Low outside option

When the outside option is low, the participation constraint does not bind. The principal chooses b_j to maximize:

$$U_j = (\pi_j - b_j)e_j - w_j. \quad (9)$$

Using $e_j = \alpha + b_j + \theta_j$:

$$U_j = (\pi_j - b_j)(b_j + \alpha + \theta_j) - w_j. \quad (10)$$

The first-order condition is:

$$\frac{\partial U_j}{\partial b_j} = \pi_j - 2b_j - \alpha - \theta_j = 0. \quad (11)$$

Therefore:

$$b_j^* = \frac{\pi_j - \alpha - \theta_j}{2}, \quad (12)$$

$$e_j^* = \alpha + b_j^* + \theta_j = \frac{\pi_j + \alpha + \theta_j}{2}. \quad (13)$$

Appendix A.1: High outside option

When the outside option is high, the participation constraint binds:

$$G_j = \bar{u}_j. \quad (14)$$

Substituting $e_j = \alpha + b_j + \theta_j$ into the agent's utility gives:

$$\frac{1}{2}(\alpha + b_j + \theta_j)^2 + \underline{w}_j = \bar{u}_j. \quad (15)$$

Hence:

$$(\alpha + b_j + \theta_j)^2 = 2(\bar{u}_j - \underline{w}_j). \quad (16)$$

Solving for the optimal bonus and effort:

$$b_j^* = \sqrt{2(\bar{u}_j - \underline{w}_j)} - \alpha - \theta_j, \quad (17)$$

$$e_j^* = \sqrt{2(\bar{u}_j - \underline{w}_j)}. \quad (18)$$

Appendix A.1: Interpretation

Low outside option

$$e_j^* = \frac{\pi_j + \alpha + \theta_j}{2}$$

Effort increases with:

- ▶ the institution's financial value of a significant result, π_j ;
- ▶ the researcher's non-pecuniary reward, θ_j ;
- ▶ the intrinsic value of publication, α .

High outside option

$$e_j^* = \sqrt{2(\bar{u}_j - \underline{w}_j)}$$

Effort is pinned down by the agent's reservation payoff.

Appendix A.2: Non-EDIRC listings

- ▶ EDIRC is used as a benchmark to classify institutions.
- ▶ Some relevant institutions are absent from EDIRC.
- ▶ These institutions are manually classified using:
 - ▶ official websites;
 - ▶ governance structure;
 - ▶ funding structure;
 - ▶ institutional mission.

Purpose

The goal is to avoid mechanically treating EDIRC coverage as exhaustive. Yes, databases are incomplete. Humanity built spreadsheets and still somehow forgot organizations exist.

Appendix A.2: Supplementary think tanks beyond EDIRC

Registered on EDIRC	Non-registered on EDIRC
International Institute for Management Studienzentrum Gerzensee Mathematica Policy Research Research Triangle Institute (RTI)	RAND Corporation IMPAQ Ind Canada Centre for Research in Rural and Industrial Development Alaska Fisheries Science Center CFSifo National Mediation Office Beijing Transport Institute Science Foundation Ireland Center for Naval Analyses CEDHA CCPR China Academy for Financial Research HAS Center – Hungarian Academy of Sciences Arts Economics GfK Verein Centre for Trade and Economic Integration Secretaria de medio ambiente y recursos Aquaya Institute Gruter Institute for Law and Behavioral Research DanChurchAid CMCC
INED MDRC NCAER ACET IVIE FEEM IRVAPP FEDEA IFMR World Bank DIAL IRD IFPRI ABF ZEW KDI EDI Global	

Appendix A.2: Government institutions

Registered on EDIRC	Non-registered on EDIRC
Institutet för Arbetsmarknads- och Utbildningspolitik	Secretaría de Medio Ambiente y Recursos Naturales
Office of the Comptroller of the Currency	National Mediation Office
Hong Kong Monetary Authority	National Institute of Preventive and Social Medicine
Fundação Getúlio Vargas (FGV)	
Institut National de Recherche en Sciences et Techniques	
Statistics Canada	
Census Bureau	
Institut National de la Statistique et des Études Économiques	
Uganda Bureau of Statistics	
Instituto de Pesquisa Econômica Aplicada (IPEA)	
Environmental Protection Agency (EPA)	
National Institute of Economic Research (NIER)	
Institute of Macroeconomic Analysis and Development	

Appendix A.3: Classification prompt

Task

Classify each author's affiliations into exactly one of seven categories:

University	Think Tank	Central Bank
Government	International Organization	Private Company
Research Network		

- ▶ One affiliation receives one category.
- ▶ Departments and centers are mapped to parent institutions.
- ▶ Non-author entities, funding notes, emails, and locations are ignored.
- ▶ Ambiguous affiliations are assigned to the primary institution.
- ▶ Output must follow a strict structured format.

Appendix A.3: Output format

The model is instructed to return no prose and to use strict separators:

```
###START###  
[Author1 --> {Affiliation1-->Category1};  
{Affiliation2-->Category2}]  
###SEP###  
[Author2 --> {Affiliation1-->Category1}]  
###SEP###  
[Author3 --> {Affiliation1-->Category1};  
{Affiliation2-->Category2};  
{Affiliation3-->Category3}]  
###END###
```

Reason

The strict delimiter structure makes the output machine-readable and reduces the cleaning burden.

Appendix A.3: Manual classification rules

- ▶ Stern School of Business, NYU → University.
- ▶ IMF → International Organization.
- ▶ Federal Reserve Board → Central Bank.
- ▶ Ministry of Finance → Government.
- ▶ CEPR, NBER, IZA, CESifo → Research Network.
- ▶ Brookings, AEI, Bruegel, Ifo → Think Tank.
- ▶ Google, BlackRock, la Caixa Research → Private Company.

Special cases

Some institutions are manually overridden when their legal status, funding structure, or mission differs from the automated classification.

Appendix A.4: Descriptive statistics by affiliation

Institution	No window				Window 0.50			
	Share	Cal.	Tests	Papers	Share	Cal.	Tests	Papers
<i>Panel A: > 0% affiliation share</i>								
University	59.69%	***	155,940	3,518	52.25%	***	33,096	3,404
Think Tank	58.39%	***	18,520	430	51.64%	*	3,776	417
Central Bank	61.28%	***	16,424	381	52.11%		3,416	366
Government	59.48%	***	6,268	149	47.73%		1,225	140
Intl. Organization	58.95%	***	18,603	372	54.52%	***	3,873	366
Private Company	55.27%	***	4,069	102	53.80%		906	98
Research Network	60.00%	***	46,262	995	53.63%	***	9,580	971
All	59.70%		179,689	4,024	52.30%	***	38,159	3,898

Notes: "Share" is the share of significant main tests. "Cal." reports the caliper-test significance.

Appendix A.4: Descriptive statistics by affiliation

Institution	No window				Window 0.50			
	Share	Cal.	Tests	Papers	Share	Cal.	Tests	Papers
<i>Panel B: $\geq 50\%$ affiliation share</i>								
University	59.67%	***	150,249	3,415	52.27%	***	32,054	3,305
Think Tank	58.36%	***	11,734	280	52.51%		2,412	272
Central Bank	62.43%	***	12,341	285	52.76%	*	2,518	274
Government	63.34%	***	3,429	81	52.65%	***	692	76
Intl. Organization	58.28%	***	13,757	280	55.19%	***	2,977	276
Private Company	52.84%		2,083	51	54.71%		474	49
Research Network	59.70%	***	33,743	743	53.25%	***	7,004	726
All	59.70%		179,689	4,024	52.30%	***	38,159	3,898

Notes: "Share" is the share of significant main tests. "Cal." reports the caliper-test significance.

Appendix A.5: Ideological match and θ_j

The main text treats θ_j as a reduced-form non-pecuniary reward. This appendix makes it explicit by introducing:

- ▶ $x \in \{1, \dots, X\}$: individual institutions within type j ;
- ▶ $m \in \{1, \dots, M\}$: researchers;
- ▶ $\iota(m)$: ideological preference of researcher m ;
- ▶ $\iota(x)$: ideological orientation of institution x .

The non-pecuniary reward is:

$$\theta_{mxj} = \begin{cases} \underline{\theta} & \text{if } \iota(m) \neq \iota(x), \\ \bar{\theta} & \text{if } \iota(m) = \iota(x), \end{cases} \quad (19)$$

with $\bar{\theta} > \underline{\theta} \geq 0$.

Appendix A.5: Aggregated effort

Aggregating first across researchers within institutions, and then across institutions within type j , gives:

$$e_j^* = \bar{\lambda}_j e_{\text{match},j}^* + (1 - \bar{\lambda}_j) e_{\text{mis},j}^*. \quad (20)$$

In the low outside-option case:

$$e_j^* = \frac{\bar{\pi}_j + \alpha}{2} + \frac{\bar{\lambda}_j \bar{\theta} + (1 - \bar{\lambda}_j) \underline{\theta}}{2}. \quad (21)$$

In the high outside-option case:

$$e_j^* = \sqrt{2(\bar{u}_j - \underline{w})}. \quad (22)$$

Appendix A.5: Interpretation

Low outside-option case

Effort separates into:

$$\underbrace{\frac{\bar{\pi}_j + \alpha}{2}}_{\text{financial component}} + \underbrace{\frac{\bar{\lambda}_j \bar{\theta} + (1 - \bar{\lambda}_j) \underline{\theta}}{2}}_{\text{ideological component}}.$$

- ▶ $\bar{\pi}_j$: average financial value of significance within type j .
- ▶ $\bar{\lambda}_j$: share of ideologically matched researchers.
- ▶ A higher $\bar{\lambda}_j$ increases the non-pecuniary component of effort.

Appendix A.5: Institutional implication

- ▶ International organizations, think tanks, and government bodies may have stronger ideological identities.
- ▶ Researchers may sort into institutions whose missions align with their own preferences.
- ▶ This raises $\bar{\lambda}_j$, and therefore increases the ideological component of θ_j .
- ▶ Private companies are more naturally interpreted through profit motives, while universities and research networks are closer to the baseline publication incentive.

Conclusion

The extension does not change the empirical predictions. It only makes the non-pecuniary reward θ_j more explicit.

Appendix A.6: 10% threshold, $w = 0.30$

Variables	(1)	(2)	(3)	(4)	(5)
University share	-0.000 (0.059)	-0.000 (0.036)	-0.004 (0.035)	-0.009 (0.037)	-0.007 (0.035)
Think tank share	-0.003 (0.052)	-0.003 (0.033)	-0.007 (0.033)	-0.009 (0.032)	-0.007 (0.034)
Central Bank share	0.015 (0.065)	0.015 (0.040)	0.011 (0.040)	0.004 (0.042)	0.002 (0.042)
Government share	0.011 (0.083)	0.011 (0.050)	0.011 (0.050)	0.003 (0.052)	0.003 (0.052)
International share	-0.024 (0.064)	-0.024 (0.039)	-0.024 (0.039)	-0.016 (0.041)	-0.014 (0.041)
Private share	-0.045 (0.119)	-0.045 (0.068)	-0.041 (0.069)	-0.057 (0.068)	-0.057 (0.068)
Network share	-0.012 (0.030)	-0.012 (0.019)	-0.011 (0.019)	-0.013 (0.019)	-0.013 (0.019)
Observations	19,935	19,935	19,935	19,935	19,935
Funding control	✓	✓	✓	✓	✓
Clusters		✓	✓	✓	✓
Year FE			✓	✓	✓
Journal FE				✓	✓
N. authors					✓

Notes: Entries are marginal effects. Standard errors are clustered at the article level in columns (2)–(5).

Appendix A.6: 10% threshold, $w = 0.15$

Variables	(1)	(2)	(3)	(4)	(5)
University share	0.019 (0.060)	0.019 (0.043)	0.014 (0.044)	0.013 (0.045)	0.015 (0.045)
Think tank share	-0.001 (0.057)	-0.001 (0.039)	-0.005 (0.039)	-0.002 (0.038)	0.001 (0.038)
Central Bank share	-0.001 (0.072)	-0.001 (0.051)	-0.003 (0.049)	-0.009 (0.050)	-0.009 (0.050)
Government share	0.054 (0.090)	0.054 (0.061)	0.053 (0.062)	0.065 (0.064)	0.067 (0.063)
International share	0.013 (0.069)	0.013 (0.049)	0.013 (0.049)	0.021 (0.050)	0.023 (0.051)
Private share	-0.039 (0.125)	-0.039 (0.090)	-0.047 (0.089)	-0.063 (0.090)	-0.066 (0.090)
Network share	0.010 (0.032)	0.010 (0.023)	0.013 (0.023)	0.012 (0.024)	0.015 (0.024)
Observations	10,356	10,356	10,356	10,356	10,356
Funding control	✓	✓	✓	✓	✓
Clusters		✓	✓	✓	✓
Year FE			✓	✓	✓
Journal FE				✓	✓
N. authors					✓

Notes: Entries are marginal effects. Standard errors are clustered at the article level in columns (2)–(5).

Appendix A.6: 10% threshold summary

- ▶ The 10% threshold does not reproduce the strong private-company pattern observed at the 5% threshold.
- ▶ Coefficients are generally small and statistically insignificant.
- ▶ This supports the interpretation that private-company incentives are concentrated around the 5% threshold, the minimum conventional publishable threshold.

Interpretation

The main results are not driven by excess significance at all thresholds. The strongest evidence appears around the 5% cutoff.