

# Substituting Away? The Effect of Platform Bargaining Regulation on Content Display

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CEPR Online Event on News Bargaining Codes

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→ **Increases the bargaining power of** the news **content providers** enabling redistribution of the surplus.
- ▶ *This study:* Implementing such regulation can have unintended consequences because the **platform** may **respond by altering** its **algorithm**.  
→ Can lead to **changes** in what **media content** is **prioritized**.



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→ This regulation **leverages private information** of the bargaining parties
- ▶ Bargaining parties required to come to an **agreement within a fixed timeframe**
- ▶ Otherwise they have to **submit a final offer** to an arbitrator who chooses one of the two offers  
→ **Incentivizes negotiated deals** and **'reasonable' offers** if the arbitration stage is reached [Çelen and Özgür, 2018]



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- ▶ **News media** companies **struggle financially** due to
  - ▶ Low consumer willingness to pay for online news [Park et al., 2021]
  - ▶ Increased **reliance on** online **advertising**, a highly concentrated industry dominated by Google [Srinivasan, 2020]

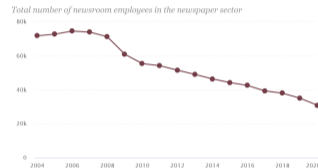
Total number of newsroom employees in the newspaper sector



Source: PEW

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- ▶ **Aggregator platforms** such as Google and Facebook display news content but **do not compensate publishers** for it.
- ▶ **Mandated bargaining** between platforms & news publishers **aims to**
  - **Alleviate** the **financial pressures** on the news media industry
  - **Ensure** the continued **provision of quality journalism**

# Support for mandated platform payments to news publishers is growing with similar regulations considered in Canada, the UK and the US

**Canada introduces legislation to compel Facebook, Google to pay for news**

Reuters · 18 days ago



**Tech giants like Google and Facebook will have to pay UK news publishers under new plans**

iNews · 30 Jan



**Sen. Klobuchar: Local media needs to be able to compete with Big Tech for ad dollars**

CNN · 6 Feb



## Research Question

- ▶ Research Question: **What happens to content on Google News once Google has to pay** for news?

## Research Question and Summary of Findings

- ▶ Research Question: **What happens to content** on Google News **once Google has to pay** for news?
- ▶ Summary of Findings: The regulation significantly **affects what content is displayed** by the Google News algorithm.
  - ▶ Larger **foreign** news websites **gain** content shares
  - ▶ Larger **domestic** news websites **lose** content shares
  - ▶ **More substitution where** more **alternatives available**, such as in global news topics

## What do we know about aggregator platforms and their relationship with content providers?

- ▶ **Bargaining-based** media market **regulation can improve total welfare** and never harms consumers: **Sandrini and Somogyi [2022]**
- ▶ **Proportional monetary transfers affect how/which content is displayed:** Chen and He [2011], **Bourreau and Gaudin [2022]**, De Corniere and Taylor [2014], De Corniere and Taylor [2019], De Corniere and Sarvary [2023]
- ▶ **Content display has an effect on how/which content is consumed:** Jeon and Nasr [2016], **Calzada and Gil [2020]**, Dellarocas et al. [2016], Claussen et al. [2019]

## Australian Mandatory News Media Bargaining Code

- ▶ Competition-law based regulation developed with **Google & Facebook** in mind.
- ▶ **Enacted in March 2021, does not apply** as no platform has been **formally** designated under the regulation.
- ▶ **Threat of regulation sufficient** for both Google and Facebook **to conclude a number of licensing deals** with publishers.
- ▶ Applies to news websites
  - ▶ Targeting the **Australian market** Hypothesis 1
  - ▶ Having a minimum **turnover** of **150 000 AUD** Hypothesis 2
  - ▶ Publishing news on **issues significant to Australians**



## Licensing deals between Google and news websites

- ▶ Deals yielding **over AUD200 million per annum** to Australian news businesses [Sims, 2022].
- ▶ **Lump-sum** take-it-or-leave-it **offers to smaller news websites**
  - ▶ Based on audience size, volume of content, subscription prices & journalist employment costs [Turvill, 2021].
- ▶ **Customized offers to larger news websites**, including ad revenue sharing

### Hypothesis 2

The News Corp. agreement includes the development of a subscription platform, the sharing of ad revenue via Google's ad technology services, the cultivation of audio journalism, and meaningful investments in innovative video journalism by YouTube.

Excerpt from a News Corp press release [News Corp, 2021]

## Expected effects of changes in relative prices of news by type of news website

(H1) News from **domestic** news websites become relatively more **costly**



**Substitute towards** news from (larger) **foreign** news websites

(H2) Cost of news from **large domestic** news websites **vary** with **content volume**

**Substitute towards** news from **smaller** domestic news websites

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**Substitute towards** news from **smaller** domestic news websites

However, **substitution** might be **limited by** the availability of appropriate **substitutes**.

# Google experimented with its algorithm prior to the enactment of the Bargaining Code

## Regular Google news search

asic cyber attack

Q All News Images Shopping Videos More Settings Tools

About 50,400 results (0.19 seconds)

- The Australian Financial Review**  
**ASIC cyber attack: Regulator says security was breached**  
On Monday evening, the Australian Securities and Investments Commission said it was hit by "cyber security incident affecting a server used by ..."  
14 hours ago
- The Sydney Morning Herald**  
**Corporate watchdog ASIC hit with cyber attack**  
The corporate watchdog says it has been hit with a cyber attack which allowed hackers to potentially access confidential documents filed by ...  
2 hours ago
- The Australian**  
**ASIC cyber attack linked to RBNZ breach**  
The Australian Securities and Investments Commission ASIC has halted credit applications after it was hit by a cyber attack, and says some ...  
2 hours ago
- StreetInsider.com**  
**Australia's securities regulator says server hit by cyber security ...**

## User affected by Google's "experiment": search removes major news websites

asic cyber attack

Q All News Images Shopping Videos More Settings Tools

About 50,300 results (0.22 seconds)

- Finance Magnates**  
**ASIC Confirms Cyber Attack on Its Server**  
The Australian Securities and Investments Commission, popularly known by its acronym ASIC, has confirmed on Monday that the security of ...  
14 hours ago
- TEISS**  
**Australia's securities regulator ASIC suffers security breach**  
...  
The Australian Securities and Investment Commission (ASIC) recently suffered a cyber-attack that involved hackers targeting and infiltrating an Accellion server ...  
6 hours ago
- Regulation Asia**  
**ASIC Data System Illegally Accessed by Malicious Attacker**  
ASIC has also engaged its IT team and external cyber security advisers to undertake a detailed forensic investigation and is working to bring ...  
3 hours ago



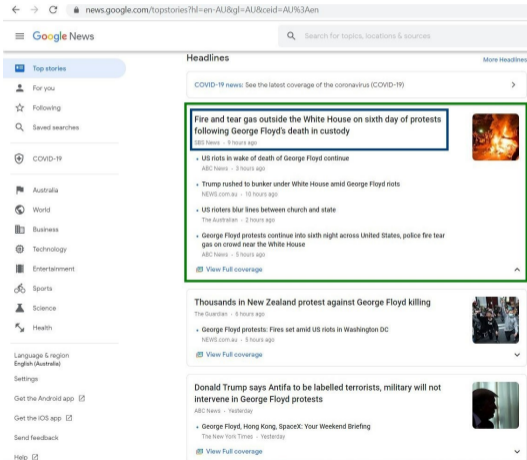
(H2) Smaller publishers



(H1) Foreign publisher

Source: The Guardian

# I scrape data from the front page of the Google News aggregator for 8 months before & after the regulation



news.google.com

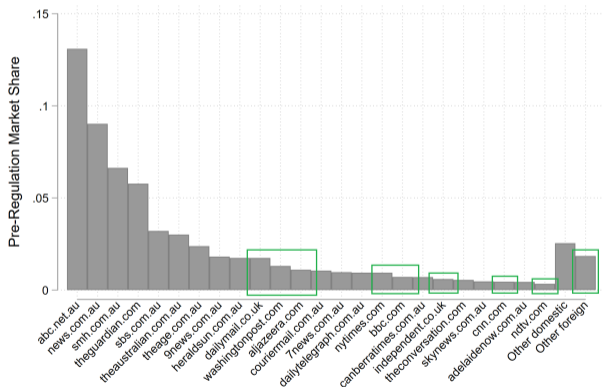
## From Google News

- ▶ **Topic** - “Headlines”, “World” & “Australia”
- ▶ **Rank** of news **stories** & **articles**
- ▶ **News outlet** name & website
- ▶ **Time** when article published & when scraped

## Additional

- ▶ **Country** of the news **website**

## Summary Statistics - Article shares by news website - Foreign websites



The **distribution** of articles is highly **skewed**

- ▶ **805 news websites** in the sample at least once
- ▶ On average, **31 (2.67) news websites** have at least 1 article **per day**

## Difference-in-differences analysis: Choosing a control group

I choose news websites in **New Zealand** respectively **South Africa** as the control groups

- ▶ Like in Australia, **news market mostly domestic** but with a **considerable share of news from** the UK, the US and other **English language speaking countries**
- ▶ **No upcoming regulation** nor participation in Google News Showcase licensing program during the period studied

Detailed Summary Statistics

# Multiple Difference-in-Differences approach

Assumptions

$$\begin{aligned} Y_{itc} = & \alpha_1 + \beta_1 \mathbf{After}_t \\ & + \gamma_1 \mathbf{After}_t \times \mathbf{Dom}_{ic} \\ & + \gamma_2 \mathbf{After}_t \times \mathbf{MS}_{ic} \\ & + \delta_1 \mathbf{After}_t \times \mathbf{MS}_{ic} \times \mathbf{Dom}_{ic} + \\ & + \gamma_3 \mathbf{AU}_c \times \mathbf{After}_t \\ & + \delta_2 \mathbf{AU}_c \times \mathbf{After}_t \times \mathbf{Dom}_{ic} \\ & + \delta_3 \mathbf{AU}_c \times \mathbf{After}_t \times \mathbf{MS}_{ic} \\ & + \eta_1 \mathbf{AU}_c \times \mathbf{After}_t \times \mathbf{MS}_{ic} \times \mathbf{Dom}_{ic} \\ & + \psi_{it} + \mu_{ic} + \nu_t + \varepsilon_{itc} \end{aligned}$$



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Outcome: daily article share per country and news website

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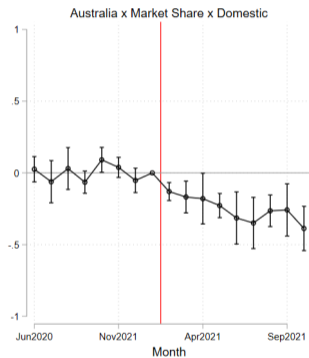
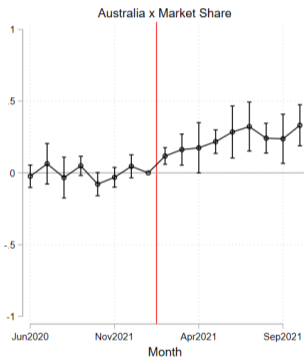


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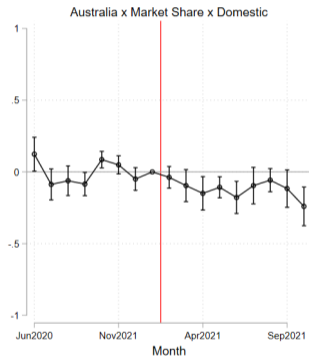
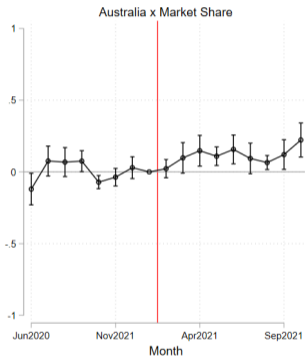
Positive effect on (large) foreign news websites **Hypothesis 1**  
 Negative effect on large domestic news websites **Hypothesis 2**

# Parallel Pre-Trends - Monthly - New Zealand



○— Estimated Coefficient  
— 99% CI

# Parallel Pre-Trends - Monthly - South Africa



○— Estimated Coefficient  
┆— 99% CI

# Share of articles per news website - Across all articles in Headlines, World and Australian news

VARIABLES	(1)	(2)
	DiD ZA Article Share	DiD NZ Article Share
1.Australia × 1.After	-0.000 (0.000)	-0.000 (0.000)
1.Australia × 1.After × 1.Domestic	0.001 (0.001)	0.001 (0.000)
1.Australia × 1.After × c.ArticleShare	0.383*** (0.111)	0.327*** (0.098)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-0.469*** (0.153)	-0.352*** (0.123)
Constant	0.001*** (0.000)	0.002*** (0.000)
Observations	595,023	554,246
R-squared	0.021	0.009
Websites	1,387	1,298
Time Periods	429	427
Website FE	✓	✓
Date FE	✓	✓
Estimator	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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- ▶ 1% pre-treatment article share domestic news website → **net 0.03-0.09% pt decrease**

# Heterogeneity Analysis: World news and Australian news

VARIABLES	(1)	(2)
	World news DiD ZA Article Share	Australian news DiD ZA Article Share
1.Australia × 1.After	-0.000 (0.000)	-0.000 (0.000)
1.Australia × 1.After × 1.Domestic	0.002 (0.001)	0.001 (0.002)
1.Australia × 1.After × c.ArticleShare	0.699** (0.283)	0.108 (0.144)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-0.883*** (0.334)	-0.121 (0.180)
Constant	0.002*** (0.000)	0.007*** (0.002)
Observations	444,015	130,416
R-squared	0.025	0.003
Websites	1,035	304
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**More substitution in World news** where more substitutes available

## The results are robust to

- ▶ Heterogeneity analysis by prominence Prominence
- ▶ Placebo tests with news websites in NZ and IE as 'treated' units Placebo
- ▶ Aggregating by newspaper ownership By Ownership
- ▶ Using article count instead of article share as outcome variable Article Count
- ▶ Including country-specific time-trend Linear Trend
- ▶ Including fixed effects by news website country Website-Country FE
- ▶ Using per-hour (non-aggregated) data

# Share of Articles per news website - Aggregated by Owner

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Constant	0.002*** (0.000)	0.002*** (0.000)
Observations	557,271	515,389
R-squared	0.020	0.009
Websites	1,299	1,207
Time Periods	429	427
Website FE	✓	✓
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▶ 1% pre-treatment article share domestic news website → **net 0.05-0.1% pt decrease**



## Share of Articles per news website - Aggregated by Owner

VARIABLES	(1) DiD ZA Article Share	(2) DiD NZ Article Share
1.Australia × 1.After	-0.000 (0.000)	-0.000 (0.000)
1.Australia × 1.After × 1.Domestic	0.001 (0.001)	0.001 (0.000)
1.Australia × 1.After × c.ArticleShare	0.383*** (0.110)	0.327*** (0.099)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-0.496*** (0.150)	-0.380*** (0.112)
Constant	0.002*** (0.000)	0.002*** (0.000)
Observations	557,271	515,389
R-squared	0.020	0.009
Websites	1,299	1,207
Time Periods	429	427
Website FE	✓	✓
Date FE	✓	✓
Estimator	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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

- ▶ 1% pre-treatment article share foreign news website → **0.33-0.38% pt increase**
- ▶ 1% pre-treatment article share domestic news website → **net 0.05-0.1% pt decrease**
- ▶ The estimated negative effect on domestic news websites is larger and more precise.

# Discussion and Conclusion

## Summary

- ▶ Provide **causal evidence** that bargaining-based platform regulation **affects which content is displayed**.

## Takeaways

- ▶ Google as a gatekeeper platform has **some ability to substitute** towards less expensive content. It is nevertheless **constrained by consumer demand** and **available substitutes**.
- ▶ **Mandate of lump-sum payments** and **coordination across jurisdictions** can further limit the incentives and ability of the platform to alter its ranking.

## Open Questions

Are newspapers and consumers **better or worse off overall**, after taking into account transfers?

- ▶ Does the effect on Google News content translate into a **considerable effect on web traffic** and consequently affect the market structure?
- ▶ Does the effect on Google News content translate into a **considerable effect on quality of news** that reach the consumers?

Thank you!

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# Summary Statistics - Distribution of Variables - Australia

	<i>Before</i>						<i>After</i>					
	Mean	Sd	p25	p50	p75	Max	Mean	Sd	p25	p50	p75	Max
<i>All Articles</i>												
Per Time Period	233	17	221	235	245	276	234	19	224	236	246	280
Per news website	0.31	2.67	0.00	0.00	0.00	71	0.31	2.76	0.00	0.00	0.00	68
Share per news website	0.001	0.011	0.000	0.000	0.000	0.289	0.001	0.012	0.000	0.000	0.000	0.281
<i>New Articles</i>												
Per Time Period	87	15	76	86	97	122	87	16	77	87	97	130
Per News Website	0.14	1.01	0.00	0.00	0.00	31	0.14	1.03	0.00	0.00	0.00	31
Share per News Website	0.002	0.012	0.000	0.000	0.000	0.316	0.002	0.012	0.000	0.000	0.000	0.313
<i>Share by Country</i>												
Domestic	0.86	0.04	0.83	0.86	0.88	0.95	0.86	0.04	0.83	0.85	0.88	0.95
United States	0.06	0.02	0.05	0.06	0.08	0.13	0.06	0.02	0.04	0.06	0.07	0.10
United Kingdom	0.06	0.02	0.05	0.06	0.08	0.13	0.06	0.02	0.04	0.06	0.07	0.10
Other	0.04	0.01	0.03	0.04	0.05	0.08	0.05	0.02	0.04	0.05	0.06	0.11
<i>Other</i>												
News Website Count	31.07	5.04	28.00	30.00	34.00	43	31.50	4.59	29.00	31.00	34.00	49
Article Duration (Hours)	13.20	11.40	3.00	11.00	21.00	129	13.07	11.12	3.00	11.00	21.00	85



# Summary Statistics - Distribution of Variables - Australia, South Africa and New Zealand

	<i>Before</i>						<i>After</i>					
	Australia		South Africa		New Zealand		Australia		South Africa		New Zealand	
	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd
<i>All Articles</i>												
Per Time Period	233	17.33	220	19.74	204	26.00	234	18.87	213	22.21	212	20.36
Per News Website	0.31	2.67	0.32	2.75	0.34	3.43	0.31	2.76	0.31	2.94	0.35	3.69
Share per News Website	0.001	0.01	0.001	0.01	0.002	0.02	0.001	0.01	0.001	0.01	0.002	0.02
<i>New Articles</i>												
Per Time Period	87	14.93	61	14.84	60	14.07	87	15.90	59	13.69	64	13.93
Per News Website	0.14	1.01	0.11	0.83	0.11	1.04	0.14	1.03	0.11	0.86	0.12	1.13
Share per News Website	0.002	0.01	0.002	0.01	0.002	0.02	0.002	0.01	0.002	0.01	0.002	0.02
<i>Share by Country</i>												
Domestic	0.86	0.04	0.85	0.06	0.86	0.06	0.86	0.04	0.89	0.04	0.88	0.04
US	0.06	0.02	0.05	0.02	0.06	0.02	0.06	0.02	0.05	0.02	0.05	0.02
GB	0.06	0.02	0.09	0.04	0.08	0.03	0.06	0.02	0.06	0.02	0.06	0.03
Other	0.04	0.01	0.05	0.02	0.04	0.01	0.05	0.02	0.05	0.02	0.05	0.02
<i>Other</i>												
News Website Count	31	5.04	24	4.56	19	4.35	32	4.59	24	5.16	20	4.47
Article Duration (Hours)	13	11.40	18	14.35	18	15.28	13	11.12	18	13.76	17	14.97

# Summary Statistics - What does the Google News aggregator look like on an average day in Australia?

I **aggregate** the data **across 4 observations per day**

- ▶ The sample covers **429 days** between June 2020 - October 2021
- ▶ The **distribution** of articles is highly **skewed**
  - ▶ I observe **805 news websites** in the sample at least once
  - ▶ **233** (17.33) **articles** on average **per day**
  - ▶ **31** (2.67) **news websites** have at least 1 article on average **per day**
  - ▶ The **average article share** per news website is **0.1** (1.1) **per cent**

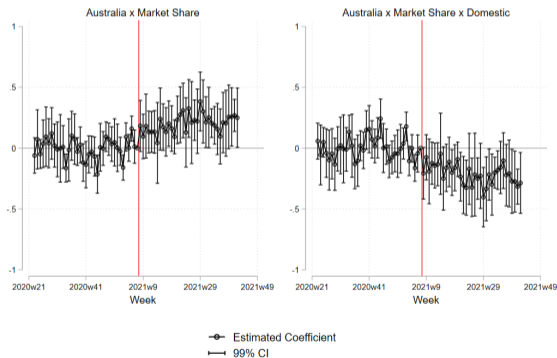
# Assumptions

Regression

- ▶ **Parallel trends** should hold across all differences [Olden and Møen, 2022] → plot event study estimates
- ▶ **Continuous treatment** → parallel trends should hold at different levels of treatment intensity [Callaway et al., 2021] → plot event study estimates
- ▶ **Highly volatile data** but parallel trends hold on average → aggregate the data
- ▶ **Different secular trends** → include a linear country-specific trend [Rambachan and Roth, Forthcoming]

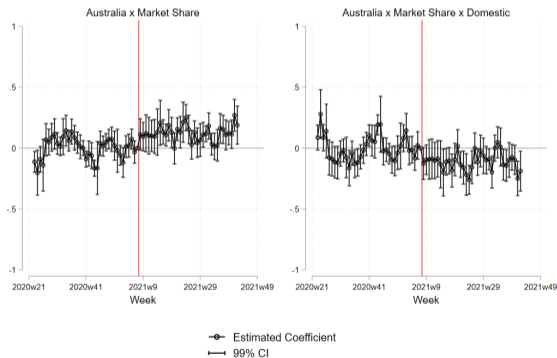
# Parallel Pre-Trends - Weekly

Figure 1: Article Share: Weekly Event Study Coefficients with New Zealand as Control Group



# Parallel Pre-Trends - Weekly

Figure 2: Article Share: Weekly Event Study Coefficients with South Africa as Control Group




# Story - visible vs. non-visible articles

Figure 3: Story - visible articles

**US warns Solomon Islands against China military base as Australian MPs trade blame**

The Guardian · 1 hour ago



- 'That makes Australia less safe': Opposition continues criticism of Government over China-Solomon Islands deal


9News · 1 hour ago

[View Full coverage](#)

Figure 4: Story - visible & non-visible articles

**US warns Solomon Islands against China military base as Australian MPs trade blame**

The Guardian · 1 hour ago



- 'That makes Australia less safe': Opposition continues criticism of Government over China-Solomon Islands deal

9News · 1 hour ago

- US warns against allowing Chinese military base in Solomon Islands, promises to fast-track reopening an embassy

ABC News · 14 hours ago

- 'Richard Marles has been caught red-handed'

The Australian · Yesterday · Opinion

- Solomon Islands pact is a sea change in our security

The Australian · 2 days ago · Opinion

[View Full coverage](#)

# Heterogeneity Analysis - by Ranking Prominence - Visible vs. Non-Visible articles

VARIABLES	(1)	(2)
	Visible DiD ZA Article Share	Non-Visible DiD ZA Article Share
1.Australia × 1.After	-0.000 (0.000)	-0.000 (0.000)
1.Australia × 1.After × 1.Domestic	0.001 (0.001)	0.000 (0.001)
1.Australia × 1.After × c.ArticleShare	0.306*** (0.108)	0.485*** (0.167)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-0.415*** (0.150)	-0.542*** (0.185)
Constant	0.003*** (0.001)	0.002*** (0.000)
Observations	317,460	509,223
R-squared	0.013	0.015
Websites	740	1,187
Time Periods	429	429
Website FE	✓	✓
Estimator	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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

# Heterogeneity Analysis - by Ranking Prominence - Visible vs. Non-Visible articles

VARIABLES	(1)	(2)
	Visible DiD ZA Article Share	Non-Visible DiD ZA Article Share
1.Australia × 1.After	-0.000 (0.000)	-0.000 (0.000)
1.Australia × 1.After × 1.Domestic	0.001 (0.001)	0.000 (0.001)
1.Australia × 1.After × c.ArticleShare	0.306*** (0.108)	0.485*** (0.167)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-0.415*** (0.150)	-0.542*** (0.185)
Constant	0.003*** (0.001)	0.002*** (0.000)
Observations	317,460	509,223
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Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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



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1.Australia × 1.After × c.ArticleShare	0.306*** (0.108)	0.485*** (0.167)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-0.415*** (0.150)	-0.542*** (0.185)
Constant	0.003*** (0.001)	0.002*** (0.000)
Observations	317,460	509,223
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Time Periods	429	429
Website FE	✓	✓
Estimator	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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

► **Bigger reduction**  
in more  
**prominently**  
**displayed articles**  
by domestic  
**news websites**

# Placebo Tests: New Zealand, Ireland (Control: South Africa)

VARIABLES	(1) NZ Article Share	(2) IE Article Share
1.New Zealand/Ireland × 1.After	-0.000 (0.000)	-0.000** (0.000)
1.New Zealand/Ireland × 1.After × 1.Domestic	-0.000 (0.001)	0.001 (0.001)
1.New Zealand/Ireland × 1.After × c.ArticleShare	0.082 (0.079)	0.132 (0.118)
1.New Zealand/Ireland × 1.After × c.ArticleShare × 1.Domestic	-0.140 (0.126)	-0.228 (0.149)
Constant	0.002*** (0.000)	0.002*** (0.000)
Observations	494,893	387,241
R-squared	0.026	0.022
Websites	1,159	1,097
Time Periods	427	353
Estimator	OLS	OLS
Website FE	✓	✓
Date FE	✓	✓
Model	FE	FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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

# Placebo Tests: New Zealand, Ireland (Control: South Africa)

VARIABLES	(1) NZ Article Share	(2) IE Article Share
1.New Zealand/Ireland × 1.After	-0.000 (0.000)	-0.000** (0.000)
1.New Zealand/Ireland × 1.After × 1.Domestic	-0.000 (0.001)	0.001 (0.001)
1.New Zealand/Ireland × 1.After × c.ArticleShare	0.082 (0.079)	0.132 (0.118)
1.New Zealand/Ireland × 1.After × c.ArticleShare × 1.Domestic	-0.140 (0.126)	-0.228 (0.149)
Constant	0.002*** (0.000)	0.002*** (0.000)
Observations	494,893	387,241
R-squared	0.026	0.022
Websites	1,159	1,097
Time Periods	427	353
Estimator	OLS	OLS
Website FE	✓	✓
Date FE	✓	✓
Model	FE	FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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



Reassuringly, the **coefficients are not significant!**

# Articles Count per news website - Across All Articles in Headlines, World and Australian News

VARIABLES	(1)	(2)
	DiD ZA Article Count	DiD NZ Article Count
1.Australia × 1.After	-0.006 (0.004)	-0.003 (0.004)
1.Australia × 1.After × 1.Domestic	0.147 (0.119)	0.145 (0.101)
1.Australia × 1.After × c.ArticleShare	89.623*** (25.093)	65.221*** (21.973)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-100.035*** (33.901)	-77.959*** (27.395)
Constant	0.348*** (0.074)	0.346*** (0.090)
Observations	595,023	554,246
R-squared	0.013	0.017
Websites	1,387	1,298
Time Periods	429	427
Website FE	✓	✓
Date FE	✓	✓
Estimator	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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

## Share of Articles per news website - Including Linear Trend

VARIABLES	(1) DiD ZA Article Share	(2) DiD NZ Article Share
1.Australia × 1.After	-0.000 (0.000)	-0.000 (0.000)
1.Australia × 1.After × 1.Domestic	0.001 (0.001)	0.001 (0.000)
1.Australia × 1.After × c.ArticleShare	0.383*** (0.111)	0.327*** (0.098)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-0.469*** (0.153)	-0.352*** (0.123)
Constant	-0.505 (0.418)	-0.373 (0.313)
Observations	595,023	554,246
R-squared	0.021	0.009
Websites	1,387	1,298
Time Periods	429	427
Website FE	✓	✓
Date FE	✓	✓
Linear trend	✓	✓
Estimator	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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

# Share of Articles per news website - Including Website-Country Fixed Effects

VARIABLES	(1) DiD ZA Article Share	(2) DiD NZ Article Share
1.Australia × 1.After	-0.000*** (0.000)	-0.000* (0.000)
1.Australia × 1.After × 1.Domestic	0.000** (0.000)	0.000 (0.000)
1.Australia × 1.After × c.ArticleShare	0.360*** (0.040)	0.261*** (0.028)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-0.468*** (0.098)	-0.282*** (0.038)
Constant	0.009*** (0.002)	0.009*** (0.002)
Observations	595,023	554,246
R-squared	0.160	0.164
Websites	1,387	1,298
Time Periods	429	427
Website FE	✓	✓
Website country - Date FE	✓	✓
Estimator	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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

# Heterogeneity Analysis - by Topic - Headlines, World and Australian News

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	DiD ZA Article Count	DiD NZ Article Count	DiD ZA Article Count	DiD NZ Article Count	DiD ZA Article Count	DiD NZ Article Count
	World News	Headlines	Australian News	World News	Headlines	Australian News
1.Australia × 1.After	-0.000 (0.004)	0.004 (0.005)	-0.010 (0.006)	-0.011** (0.005)	-0.013 (0.010)	-0.018* (0.009)
1.Australia × 1.After × 1.Domestic	0.102 (0.075)	-0.024 (0.099)	0.083 (0.066)	0.091 (0.060)	0.077 (0.093)	0.152* (0.084)
1.Australia × 1.After × c.ArticleShare	53.100*** (19.046)	31.611 (22.631)	29.534*** (10.107)	19.935** (8.262)	7.503 (8.971)	15.128** (7.495)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-57.603*** (21.918)	-35.887 (22.595)	-36.296*** (13.391)	-26.709** (10.773)	-7.521 (11.140)	-17.102* (9.963)
Constant	0.129*** (0.028)	0.131*** (0.030)	0.301*** (0.077)	0.374*** (0.116)	0.405*** (0.105)	0.348*** (0.092)
Observations	444,015	446,215	322,608	227,164	130,416	138,775
R-squared	0.018	0.012	0.009	0.013	0.008	0.016
Websites	1,035	1,045	752	532	304	325
Time Periods	429	427	429	427	429	427
Website FE	✓	✓	✓	✓	✓	✓
Date FE	✓	✓	✓	✓	✓	✓
Estimator	OLS FE	OLS FE	OLS FE	OLS FE	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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

# Heterogeneity Analysis - by Ranking Prominence - Visible vs. Non-Visible articles

VARIABLES	Visible		Non-Visible	
	(1) DiD ZA Article Count	(2) DiD NZ Article Count	(3) DiD ZA Article Count	(4) DiD NZ Article Count
1.Australia × 1.After	-0.005 (0.005)	-0.004 (0.005)	-0.003 (0.003)	-0.002 (0.003)
1.Australia × 1.After × 1.Domestic	0.174 (0.139)	0.104 (0.081)	0.041 (0.049)	0.076 (0.055)
1.Australia × 1.After × c.ArticleShare	40.674*** (14.364)	39.920*** (11.673)	49.097*** (15.495)	23.656* (14.125)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-50.419*** (19.186)	-49.608*** (14.350)	-50.340*** (17.285)	-26.256* (15.871)
Constant	0.366*** (0.092)	0.393*** (0.115)	0.179*** (0.032)	0.168*** (0.035)
Observations	317,460	282,674	509,223	480,802
R-squared	0.008	0.014	0.011	0.010
Websites	740	662	1,187	1,126
Time Periods	429	427	429	427
Website FE	✓	✓	✓	✓
Estimator	OLS FE	OLS FE	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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



## Newly Introduced Articles

VARIABLES	(1) DiD ZA Article Count	(2) DiD NZ Article Count
1.Australia × 1.After	-0.000** (0.000)	-0.000 (0.000)
1.Australia × 1.After × 1.Domestic	0.001 (0.001)	0.001 (0.001)
1.Australia × 1.After × c.ArticleShare	0.424** (0.168)	0.475** (0.192)
1.Australia × 1.After × c.ArticleShare × 1.Domestic	-0.499*** (0.189)	-0.521*** (0.196)
Constant	0.002*** (0.000)	0.002*** (0.000)
Observations	363,140	326,340
R-squared	0.011	0.008
Websites	1,084	980
Time Periods	335	333
Website FE	✓	✓
Date FE	✓	✓
Estimator	OLS FE	OLS FE

Bootstrapped standard errors in parentheses (200 replications), clustered at news website level

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