Amazon self-preferencing in the face of heightened antitrust scrutiny

Joel Waldfogel
University of Minnesota, NBER, ZEW
DMA and Beyond Conference
February 6, 2025

DMA is here: self-preferencing is now illegal

What the ***heck*** is self-preferencing?

- We now have an urgent need for ways to detect self-preferencing, and to measure its possible welfare consequences?

"Europe triumphant"
Made with Designer. Powered by DALL·E 3.

Aside: good ways to evaluate self-preferencing

- Reimers and Waldfogel (2023): self-preferencing ranks deviate from a welfare frontier that balances maximum CS and maximum seller revenue
- All that's needed for implementation of tests and welfare measurement
  - Data on product search ranks, characteristics, whether platform product, and quantities
  - Plus: way to measure causal impact of ranks on quantities sold

Expedient (feasible) alternative

- Regress search ranks (r_j) on "stuff" (X_j) and platform dummy (δ_j)
  - "conditioning on observables" approach

$$r_j = X_j\beta + \alpha\delta_j^{Amazon} + \epsilon_j$$

- Is α a good measure of self-preferencing? Not if **unobserved product attributes** are correlated with δ_j^{Amazon}
  - Maybe people like Amazon Basics batteries, given X_j

But: how does α vary over time…

- …with heightened antitrust scrutiny
- The unobservable desirability of Amazon Basics does not change abruptly
- Changes in α would be informative about changes in self-preferencing

- **Idea: look at how α varies across brands, over time,…**

Data

- 8.7 million product search rankings
  - 100 common search terms (s)
  - 22 Amazon domains (c)
  - 150 listings per search
  - Weekly: June 2023-March 2024 (t)
- Rudimentary characteristics (X_{jcst}):
  - Price, rating, # ratings, Prime-eligible
- Whether Amazon product (δ_j^{Amazon})
  - Amazon Brand, Amazon Basics, Amazon Essentials, Pinzon, Solimo, Amazon Aware, Vedaka, Presto!, Umi, INKAST, Nora Nico, Amfit Nutrition, and others

Data complications

- Which products are available to be ranked?
- Rolling window approach
  - Include a product *j* if it has appeared in rankings in past 30 days and will appear again within another 30
  - Note: don't observe its time-varying characteristics when it's not in search results
- Outcomes of interest
  - **ranks** among ranked,
  - **inclusion** (tendency to appear in search results)

Sample characteristics

- Direct sample
  - 8.7 million in directly observed sample
- Rolling window sample
  - 12.1 million (product j × country c × week t) observations
  - Missing X_{jct} for unranked weeks

- **1.47% of products are Amazon-brand**

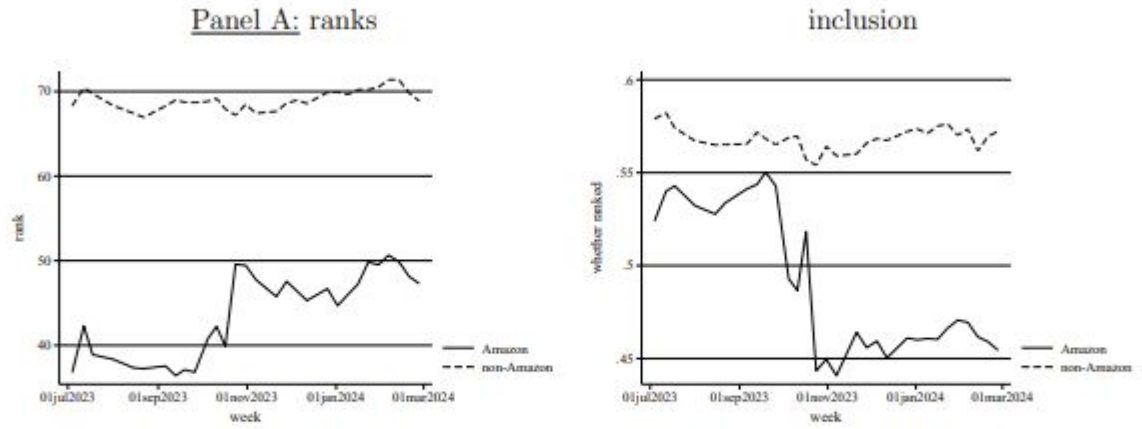
Table 1: Summary statistics

	ranked		30-day-window	
	N	mean	N	mean
% ranked			12,136,683	56.73%
rank	8,716,505	74.06	6,884,613	68.68
price	8,716,505	612.22		
stars	8,716,505	4.37		
# ratings	8,716,505	3404.13		
% Prime-eligible	8,716,505	36.95%		
sponsored	8,716,505	4.36%		
Amazon-brand product	8,716,505	1.47%	12,136,683	1.59%

Preview of results in raw data

- Amazon products' ranks get worse, less likely to be included

Figure A.1: Ranks, and ranking inclusion, for Amazon and other products



Note: The left figure shows the average search ranks for Amazon and non-Amazon products. The right figure shows the share of available Amazon and non-Amazon products appearing in the search results each week. A product is available in a week if the product will appear in Amazon search results again within the next 30 days. The figures are weekly searches on 100 terms in each of 22 Amazon domains.

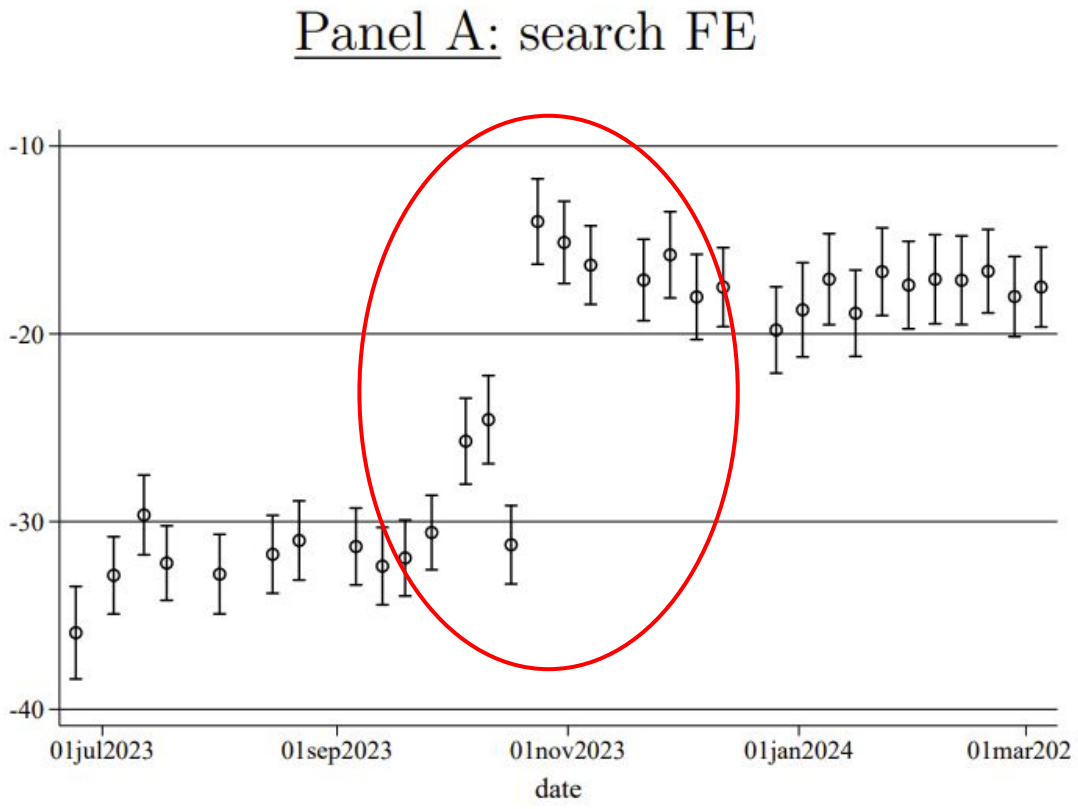
Empirical approach for rank effect $\boldsymbol{\alpha_t}$

- $r_{jcst} = X_{jt}\beta + \alpha_t \delta_j^{Amazon} + \mu_{cst} + \epsilon_{jcst}$
  - j =ASIN, c=domain, s= search term, t = week, μ_{cst} = FE for search in country and week

- α_t depends on two things
  - within-product rank change
  - changed tendency for ASIN to be included in search result

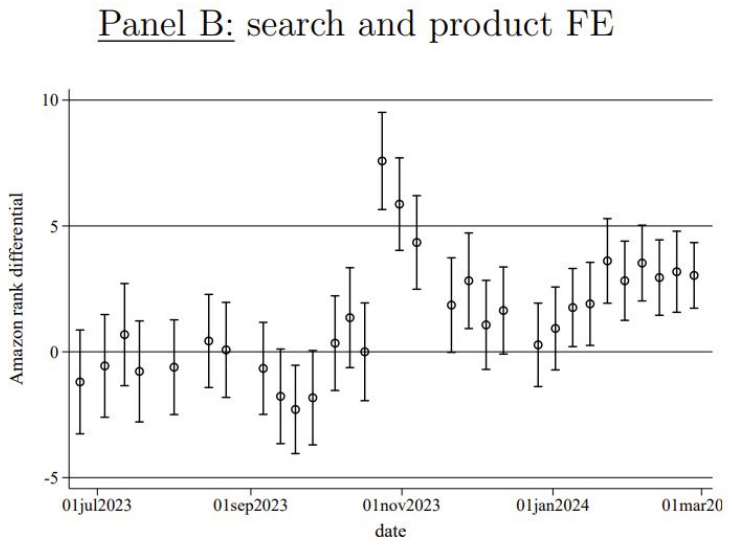
Amazon products' search ranks abruptly improve

- In October 2023
- By about 15 rank positions



Isolate within-product changes in rankings

- Include FE for $j \times c \times s$ and $c \times s \times t$
- $r_{jcst} = X_{jt}\beta' + \alpha_t{}'\delta_j^{Amazon} + \mu'_{jcs} + \mu'_{cst} + \epsilon_{jcst}{}'$
- Now α_t' is "within-product:"
  - How much does the ranking of a particular Amazon ASIN change?
- **Within effect is about 5 rank positions**



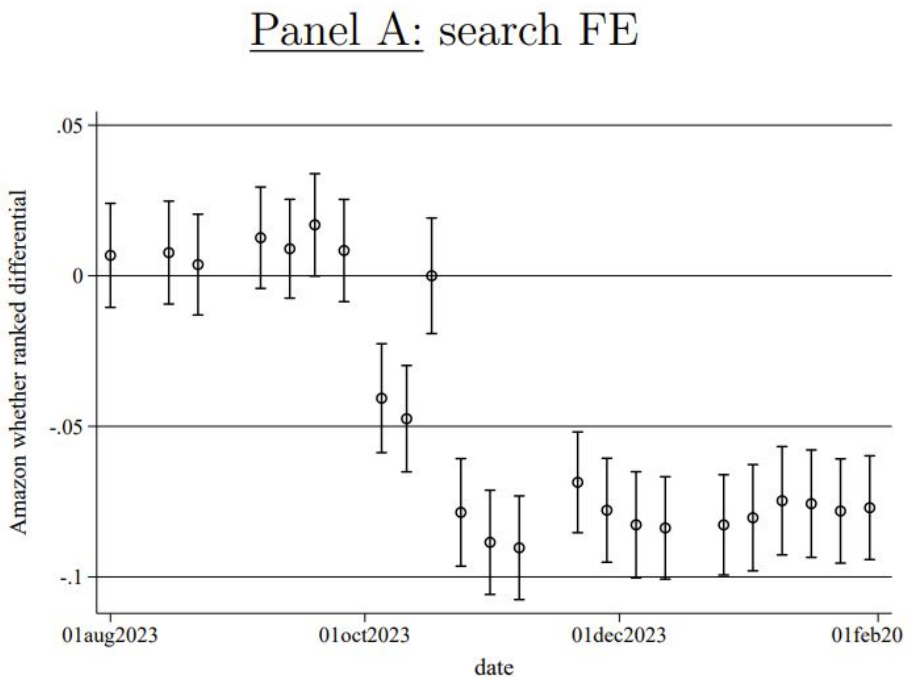
Do the above for ranking inclusion

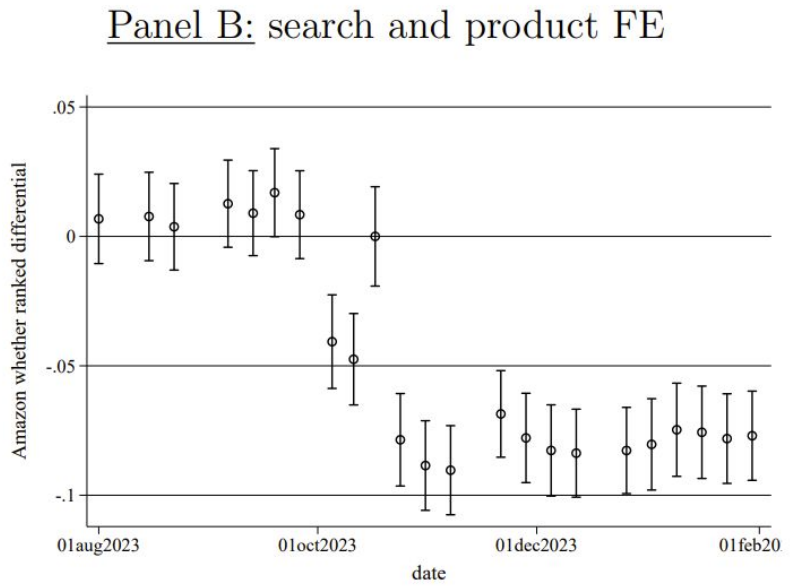
- δ^{r}_{jcst}= 1 if product j is included in ranking in $c \times s \times t$
- Cannot include time-varying characteristics (e.g. price)
- Estimate two ways
  - With search FE ($c \times s \times t$)
  - With product FE ($j \times c \times s$)

Search result inclusion

- Amazon products
  - ≈10 percentage point reduction in search result inclusion probability

- Similar in the two approaches

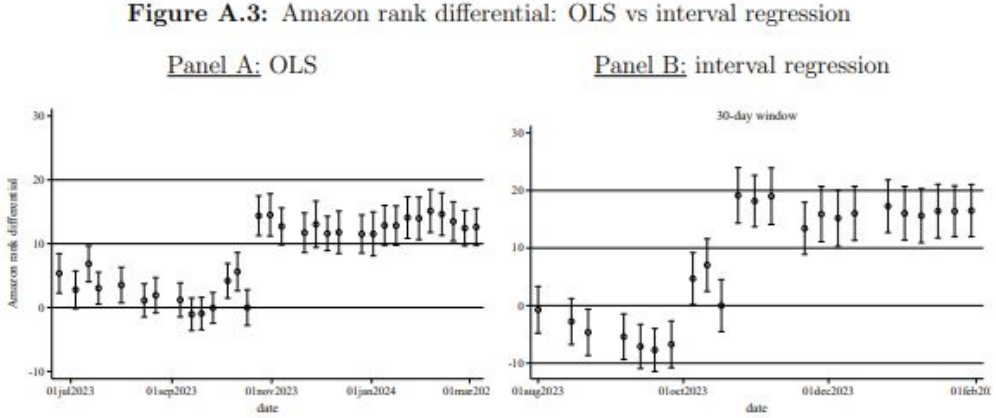




Censored models

- Rank = r_{jcst} if observed, Rank > $\max(r_{jcst})$ if not
- Can't include $X's$
  - Not observed when j not ranked

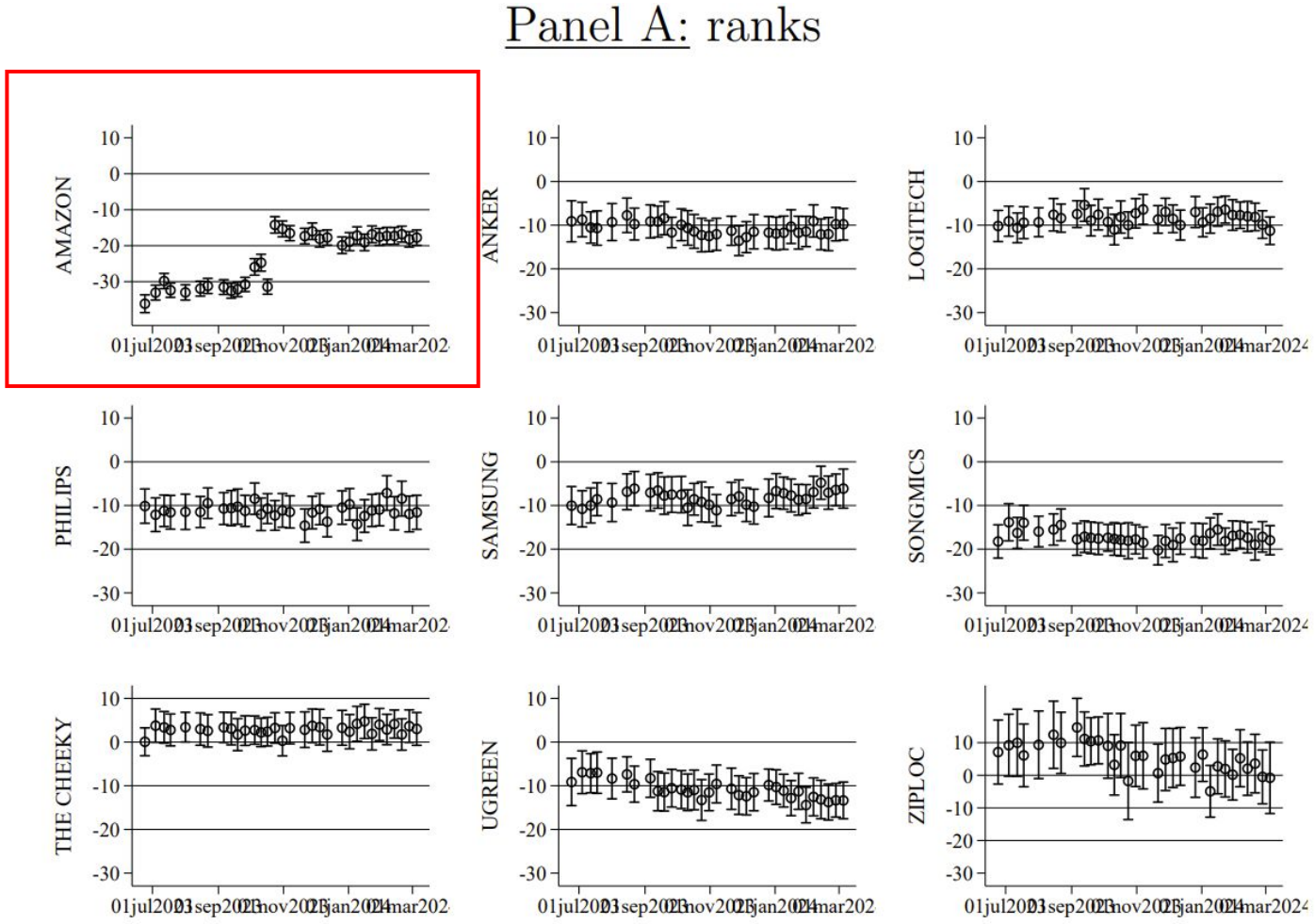
Figure A.3: Amazon rank differential: OLS vs interval regression



Note: Figures show the Amazon rank differential from OLS and interval regression models without fixed effects nor time-varying observables. The left panel includes only observations with ranks; the right panel uses the 30-day-window sample.

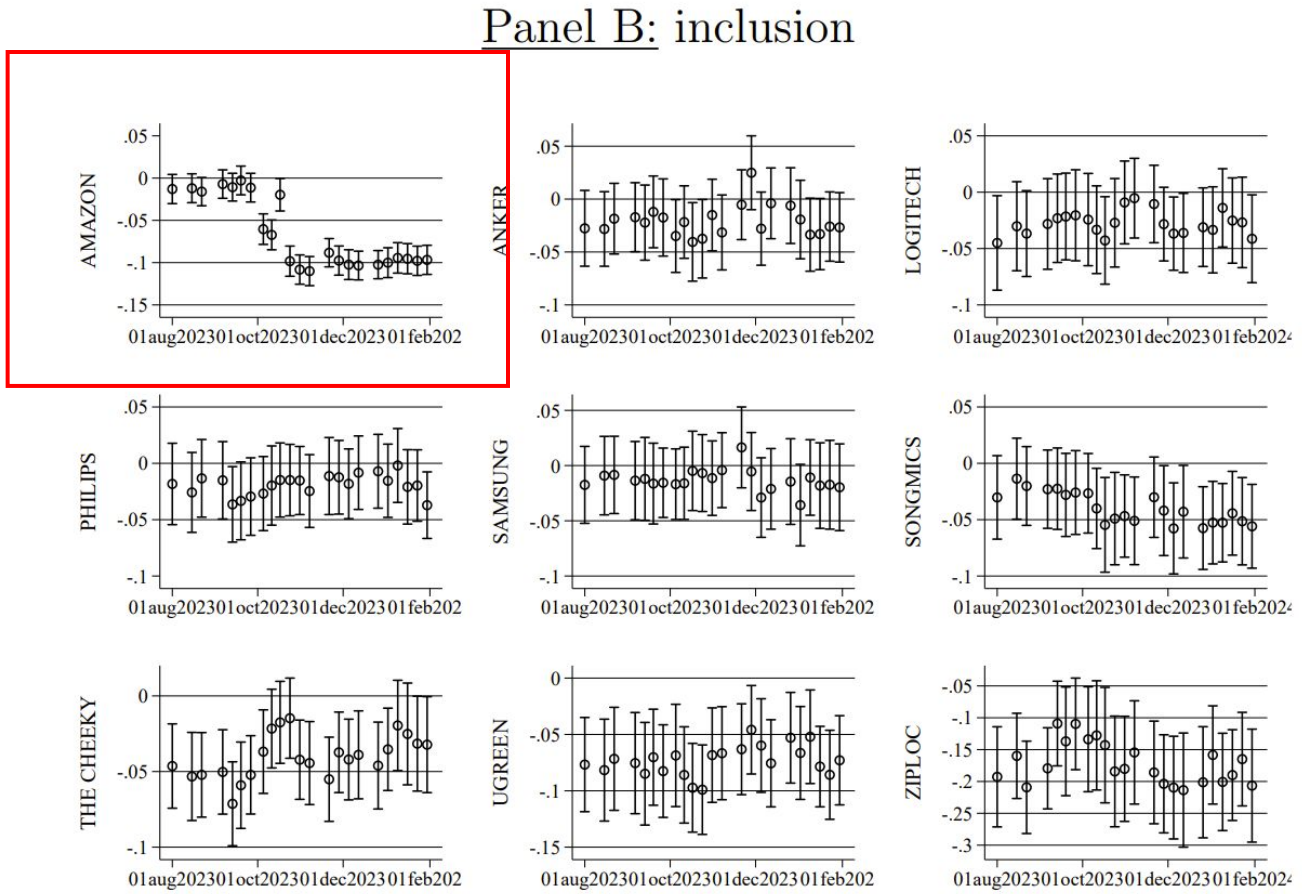
Is it just Amazon products?

- Or the search algo generally?
- Compare α_t for Amazon vs other commonly-appearing brands
- Just Amazon



It only happens at Amazon

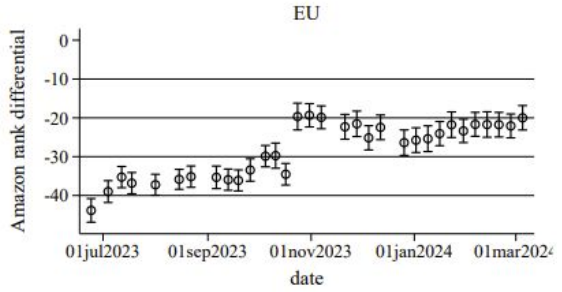
- …for inclusion too



Is this an EU/DMA effect?

- No: it happens in US and other, as well as EU
- (Heighted scrutiny in US, too
  - FTC sued Amazon in 2023)

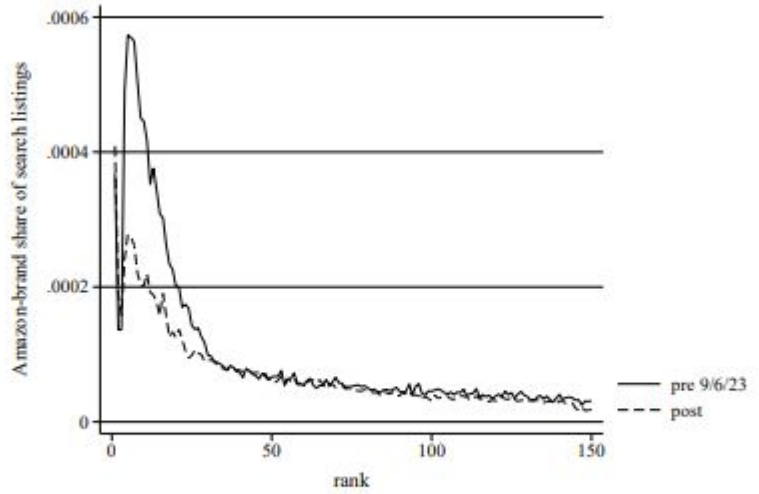
Figure 4: Amazon rank differentials (α) for EU and non-EU countries



Mechanism

- Reduction in Amazon products in top 25

Figure A.2: Amazon rank distribution before and after gatekeeper designation



Notes: Rank distributions for Amazon-brand products before and after Septemeber 6, 2023.

Conclusion: **something happened…**

- **…**to Amazon self-preferencing as antitrust scrutiny grew
- Reduction in # of Amazon products appearing in search rankings
- Perhaps response to DMA and other pressures, perhaps something else

Also

- We need definitions and methods for evaluating self-preferencing
- …and data