Regulation of and with Digital Platforms: An Empirical Perspective

Chiara Farronato (Harvard, CEPR, NBER)

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Toronto, September 2023
Regulating Digital Platforms

Definitions:

• **Regulating:**
  • *Consumer protection:* ensure consumers are protected from risky transactions.
  • *Antitrust:* protect consumers from abuses of dominant positions.

• **Digital Platforms (very loose definition):**
  • *Enable interactions between two or more sides of users (multi-sided platforms).*
  • *Facilitate search, matching (incl. payment), trust.*
  • *They are not all MAAMA.*
Digital Platforms as Information Aggregators

- High quality
  - High cost
  - Low search costs
  - High wtp

- Low quality
  - High cost
  - Low search costs
  - Low wtp

Platform

- Low cost
Many Stakeholders Involved

• Policymakers, Journalists, Regulators, Legal Scholars,…

• Why us?
  • Identify (for the theorists in the room) and quantify (empiricists) trade-offs.

• As we go through this talk, we will show a variety of:
  • Research Questions
  • Methodologies
  • Data sources
Part 1:
Consumer Protection

• Most digital platforms enter existing markets, which are already subject to regulation...

• Occupational Licensing.
• Certifications.
• Health and Safety Inspections.
Most digital platforms enter existing markets, which are already subject to regulation... designed to address asymmetric information.
Consumer Protection

• Given it already exists, we could simply extend existing regulation to “online providers.” E.g.:
  • Extend safety/accessibility regulation for hotels to Airbnb hosts.
  • Extend taxi medallion requirements for taxis to Uber/Lyft drivers.

1. Is existing regulation justified in the first place?
2. Does fundamentally different supply warrant different regulation?
3. What other options are available to address asymmetric information?
1. Is Existing Regulation Justified in the First Place?

- Online platforms are becoming the primary way of finding professionals in many industries:
  - Platforms track transactions and reviews.
  - Platforms provide a new way to measure the effects of existing regulation.

_Consumer Protection in an Online World: An Analysis of Occupational Licensing_ (‘23, joint work with Fradkin, Larsen, and Brynjolfsson)
Platform for Home Improvement Services

Interiors by Farronato

⭐⭐⭐⭐⭐ 1 Review
$324

Fradkin Design LLC

⭐⭐⭐⭐☆ 25 Reviews
$303

Larsen Renovations

⭐⭐⭐⭐⭐ 7 Reviews
$212

AI Interior Design by Erik B.

⭐⭐⭐⭐☆ 3 Reviews
$95

Interiors By Farronato

Chiara Farronato  (123) 456-7981
Licensed in CA
View Profile  View Photos  Website

Chiara Farronato

3 Days Ago

Hi Buyer,

My price is $324.

I have availability in the next few days. References can be provided at your request.

Thank you,
Chiara Farronato

Reply  Hire  Decline
Signaling Value of Licenses v. Reviews
Exploit variation in licensing laws across US states and home improvement occupations.

Effect of more stringent licensing regulation on:
- Demand:
  - No change in aggregate demand
  - No change in customer satisfaction
- Supply:
  - Reduction in number of options
  - Increase in price

Equilibrium Effects of Licensing Stringency

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Price</th>
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</table>
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  • Supply:
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• Open Q:
  • How can we better measure quality dimensions we should care about?
  • Which requirements (school, on job training) have largest net benefits?
2. Does Fundamentally Different Supply Warrant Different Regulation?

• Existing regulation is designed for “professional providers.”
• This tends to generate “dedicated supply:”
  • Hotels whose rooms are available ~365 days a year;
  • Taxis who are available in ~8-hour shifts.

The Welfare Effects of Peer Entry: The Case of Airbnb and the Accommodation Industry (‘22, joint with Fradkin)
The Accommodations Market Before Airbnb

Lots of empty rooms
Lots of travelers without accommodations

Dedicated Supply
Demand

Time
Quantity
Airbnb Facilitates Entry of “Flexible Supply”

• Flexible supply is responsive to demand fluctuations, by entering when demand is high and contracting when demand is low.

• Large welfare benefits for consumers, by expanding choice set and reducing prices in periods when demand is highest and dedicated capacity is sold out.
Open Q: How to Adapt Regulation to a Mix of Flexible & Dedicated Supply?

• How should we design a two-part regulatory system while maintaining fair competition?

• How do we distinguish between “flexible” and “dedicated” supply?
  • In some cities, home-sharing hosts are subject to fewer restrictions than hotels but cannot rent to travelers for more than a few nights a year.
  • In others, ridesharing drivers are subject to fewer restrictions than taxi drivers, but also cannot perform the same pick-up/drop-offs as taxis (e.g., airports).
3. Other Options to Address Asymmetric Information?

• Existing regulation often relies on experts’ evaluations of providers’ quality.
• Can digital traces/online reputation substitute experts (Shapiro, 1986)?

Consumer Reviews and Regulation: Evidence from NYC Restaurants (‘23, joint with Zervas)
Role of Online Reviews in Informing Consumers about Restaurant Hygiene

Peter C.
Fairfax, VA
1 friend
9 reviews

1/3/2013

halfway finishing my pho, FOUND COCKROACH inside the pho broth and had big fight with server(seems like one of the owner) after he insist on me paying for the pho.. not even apologizing , told me I still have to pay for other pho which I can almost guess that it was made from same dirty pot..
WILL DEFINITELY CALL HEALTH DEPT. and most DEFINITELY they wont see me again!
freakin, disgusting $#&!
Role of Online Reviews in Informing Consumers about Restaurant Hygiene

• On one hand:
  • Online reviews contain informative signals of restaurant hygiene.
  • These signals are effective at driving demand away from dirty restaurants.

• On the other hand:
  • Online reviews can be informative about some hygiene dimensions (pests and food handling practices) but not others (worker hygiene).

• Open Q:
  • How can we leverage useful quality information to improve regulatory monitoring (i.e., achieve same quality with less expert effort or increasing quality with same expert effort)?
Part 2:
Antitrust Regulation Of Digital Platforms.
What Makes Digital Platforms Different?

Confluence of:

• Marginal and distribution costs ~ 0.
• Strong economies of scale and scope.
• Increasing marginal returns to data.
• Strong network effects.
  • Outside of the Big 5, unlikely to be strong enough to justify concentration of activity on a single platform (“Dog Eat Dog: Balancing Network Effects and Differentiation in a Digital Platform Merger,” ‘22, with Fong and Fradkin).
  • Treat the Big 5 as “public utilities” (Tirole, ‘14)

Taken from Scott-Morton et al., 2019, “Committee for the Study of Digital Platforms,” Report, Stigler Center for the Study of of the Economy and the State. (Stigler report)
Antitrust Regulation of Digital Platforms going Forward
Incredibly Exciting Time to Study Platform Antitrust, but How?

• We need more work quantifying the trade-offs of various policy recommendations.

• Platforms are information aggregators, so they have plenty of data to look at.

• Try knocking on Amazon’s door: “I’d like to use your data to study whether you give priority to your products...”
Webmunk: A New Tool for Studying Online Behavior and Digital Platforms

A browser extension that can:

• Manipulate your browsing experience;
• Track your browsing behavior;
• Prompt you to complete additional tasks.
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Webmunk

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• **Prompt you to complete additional tasks.**

![Webmunk Interface](image)

**Identifier**

37490360

**Last Upload**

Never

Please complete these tasks to get paid.

• Complete intake survey
• Upload your Amazon order history

Tasks will be removed after confirmation of completion.
Webmunk

A browser extension that can:
• Manipulate your browsing experience;
• Track your browsing behavior;
• Prompt you to complete additional tasks.

webmunk.org
First Application of Webmunk: Self-Preferencing at Amazon: Evidence from Search Rankings (‘23, with Fradkin and MacKay)

Recruited participants through Facebook:
• Ask them to install Webmunk and keep it installed for a few weeks.
• ~3k Amazon searches by ~180 users (currently expanded to ~1,200).

Descriptives highlight how search results and their position are key for product discovery:
• 46% of product pages are reached through a search results page (11% of product pages are reached from outside Amazon);
• In 72% of searches, consumers do not click past the first page;
• (based on scroll position data) half of the products on a full results page are actually seen.
How Does Amazon Rank Products?

• Strongest predictors of higher position:
  • Prime eligibility
  • Number of ratings
  • Best Seller badge
  • Sponsored
  • ... and Amazon Brand

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<tr>
<th></th>
<th>Rank (3)</th>
<th>In Top 10 (6)</th>
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<tbody>
<tr>
<td>Amazon Brand</td>
<td>-3.87***</td>
<td>0.028**</td>
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<tr>
<td></td>
<td>(0.975)</td>
<td>(0.010)</td>
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<tr>
<td>Sponsored</td>
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<td>0.098***</td>
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<tr>
<td></td>
<td>(0.282)</td>
<td>(0.003)</td>
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<td>Major Brand</td>
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<tr>
<td></td>
<td>(0.602)</td>
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<td>Search Spell FE</td>
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<td>Yes</td>
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<tr>
<td>Additional Controls</td>
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<tr>
<td>R²</td>
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<td>Mean of Y</td>
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<td>0.179</td>
</tr>
<tr>
<td>Sample</td>
<td>All</td>
<td>All</td>
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</tbody>
</table>
Why do we care how Amazon Ranks Products?

Digital Markets Act:

• Applies to large “gatekeepers” who operate one or more “core platform services” (e.g. search, social networks, os,...).

• Ex-ante obligations based on 2 principles:
  • Contestability (give market a chance at competition): e.g., interoperability
  • Fairness (competition based on merits): e.g., no self-preferencing, no combining data across services.
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- Is the priority given to Amazon brands evidence of self-preferencing?
  - Not necessarily.
How Do We Test for Self-Preferencing?

- Aguiar et al. (‘21) and Reimers et al. (‘23): A platform is biased in favor of a product if the product attains **smaller success** conditional on **ex-ante assessment**.
  - **Ex-ante assessment**: product rank
  - **Success**: demand
Back to Webmunk (in progress, with Fradkin and MacKay)

Ask participants to perform incentivized shopping tasks:

• Search for products in pre-specified categories;

• Pick one product to add to “Webmunk Wishlist;”

• With high probability:
  • We buy a product on their wishlist;
  • Give them $50-price as additional compensation.

• Amazon branded products are ~4% of the products listed and ~8% of the products chosen.
Testing for Self-Preferencing (prelim results)

<table>
<thead>
<tr>
<th></th>
<th>Is Product Selected?</th>
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<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td></td>
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<tr>
<td>Rank</td>
<td>-0.002***</td>
<td>-0.002***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
</tr>
<tr>
<td>Amazon Brand</td>
<td>0.008</td>
<td>0.031**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.010)</td>
<td></td>
</tr>
<tr>
<td>Rank × Amazon Brand</td>
<td></td>
<td>-0.001***</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(0.000)</td>
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<tr>
<td>$R^2$</td>
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<tr>
<td>URL fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
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Test suggests that platform is neutral or even biased against Amazon brands.
Is that enough?

• Dynamic “self-preferencing” could be difficult to detect in a cross-section (e.g., strategies allowing Amazon brands to accumulate more reviews than comparably similar third-party products).
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Concluding Thoughts

• Incredibly exciting time to study regulation of digital platforms.
• Increasingly difficult to get companies to collaborate on some of these topics.
• Must be creative in data collection methods:
  • Freedom of Information Act (FOIA) requests;
  • Enroll study participants and track their digital behavior (but make it as realistic as possible);
  • Combine actual and hypothetical (surveys) choices;
  • Scraping (when allowed by journals and websites);
  • Access data from third parties/intermediaries (e.g., AirDNA).
• Look out for policy changes (e.g., GDPR in 2018, DMA in 2022, more to come in the US) and don’t just focus on the unintended consequences 😊