Your Data, My Data: Information Disclosure and Competition in Marketplace Platforms

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Main Idea

- Marketplace platforms often compete with independent sellers
- An informational spillover may deter the seller from revealing information:

Independent seller
(Exquisite Watch Store)

Platform’s product
(Amazon Essentials)

Amazon’s “**Sponsored Display**” tool

This paper

- Competition between a platform and an independent seller
- The two firms have limited budget to advertise only to potential buyers
- The independent seller has private information concerning the characteristics of potential buyers
- Research questions:

1. When does the seller conceal its private information (as to avoid competition with the platform)?
2. How potential remedies can solve the market inefficiency?
    - Vertical separation
    - Informational firewall

Main results

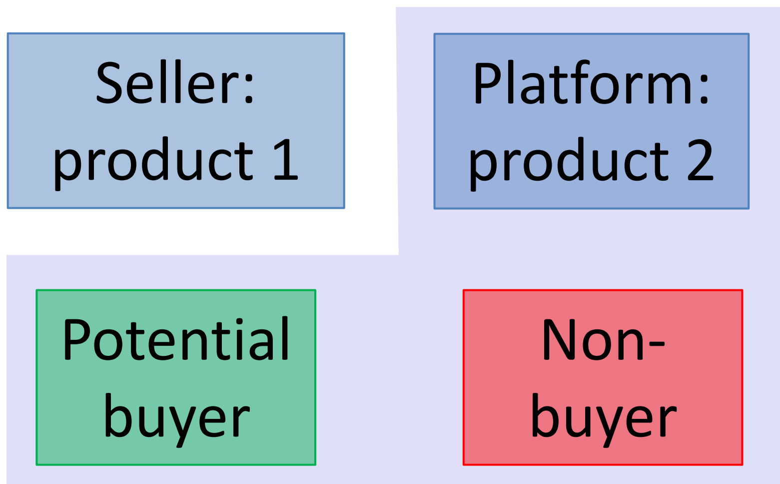
- The seller conceals its private information when:
  - The degree of substitution between the seller's and the platform's product is intermediate
  - The ad-valorem commission rate is low
- Vertical separation motivates the seller to reveal information, but also motivates the platform to avoid competition
  - May increase/decrease welfare
- Informational firewall motivates the seller to reveal information, but may result in an inefficient allocation of the two products
  - May increase/decrease welfare

(Brief) Literature review

- Extends the literature on competition between marketplace platforms and independent sellers
  - The seller can reveal private information to the platform
- A retailer opens a marketplace to learn about new products
  - Hervas-Drane and Shelegia (2022)
- Platforms as pure resellers or pure marketplaces
  - Hagiu and Wright (2015a; 2015b)
- Platforms that imitate sellers
  - Madsen and Vellodi (2021), Hagiu, Teh and Wright (2022)
- The effects of platforms as sellers on welfare and product variety
  - Anderson and Bedre-Defolie (2021, 2022), Etro (2023)
- Self-preferencing
  - Lam and Liu (2020), Zennyo (2020), Etro (2021), Kang and Muir (2022), Bar-Isaac and Shelegia (2023)

The model

- Two competing firms: an independent seller and a platform
- The platform serves two buyers: a "potential" and a "non-buyer"
  - **Potential:** would like to buy from both the platform and the seller
  - **Non-buyer:** is not interested in the product



- Demand:

$$q_1(p_1, p_2; \sigma)$$
$$q_2(p_2, p_1; \sigma)$$

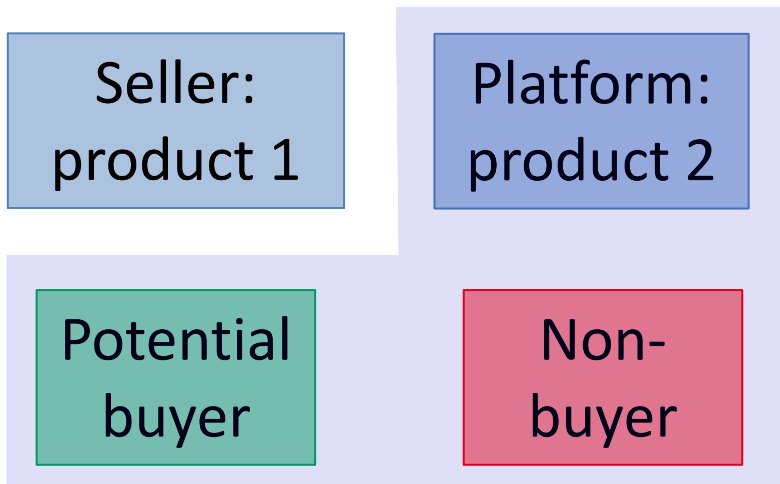
***-D* < 0**

when the platform offers a product

- $\sigma \in [0, 1]$: degree of substitution between the two products

Information

- The seller can only sell through the platform
- Buyers learn about the the products only if advertised
- Both firms have a limited budget to advertise to one buyer
  - Firms have enough budget to target their potential buyer



- Information:
- The seller has private information about the characteristics of the potential buyer (say, potential buyers are in their 50’s)
- The platform knows which buyer has these characteristics
  - Which buyers are above 50

Timing

1. The seller chooses whether to reveal the characteristics of the potential buyer
   - The platform must advertise the seller's product to the buyer with the requested characteristics
   - Amazon's "Sponsored Display" tool, for example
2. The platform chooses to which buyer to advertise its own product (or stay out)
3. The seller observes the platform's decision, and then the two firms set prices simultaneously

Profits

- The platform charges the seller ad valorem commission rate, r
- If both firms compete on the potential buyer, profits are:

Seller's profit

Platform's profit

Revenues from the seller

Revenues from selling product 2 directly

- Under competition, prices are increasing with r

- If the seller is a monopoly on the potential buyer:

Seller's profit

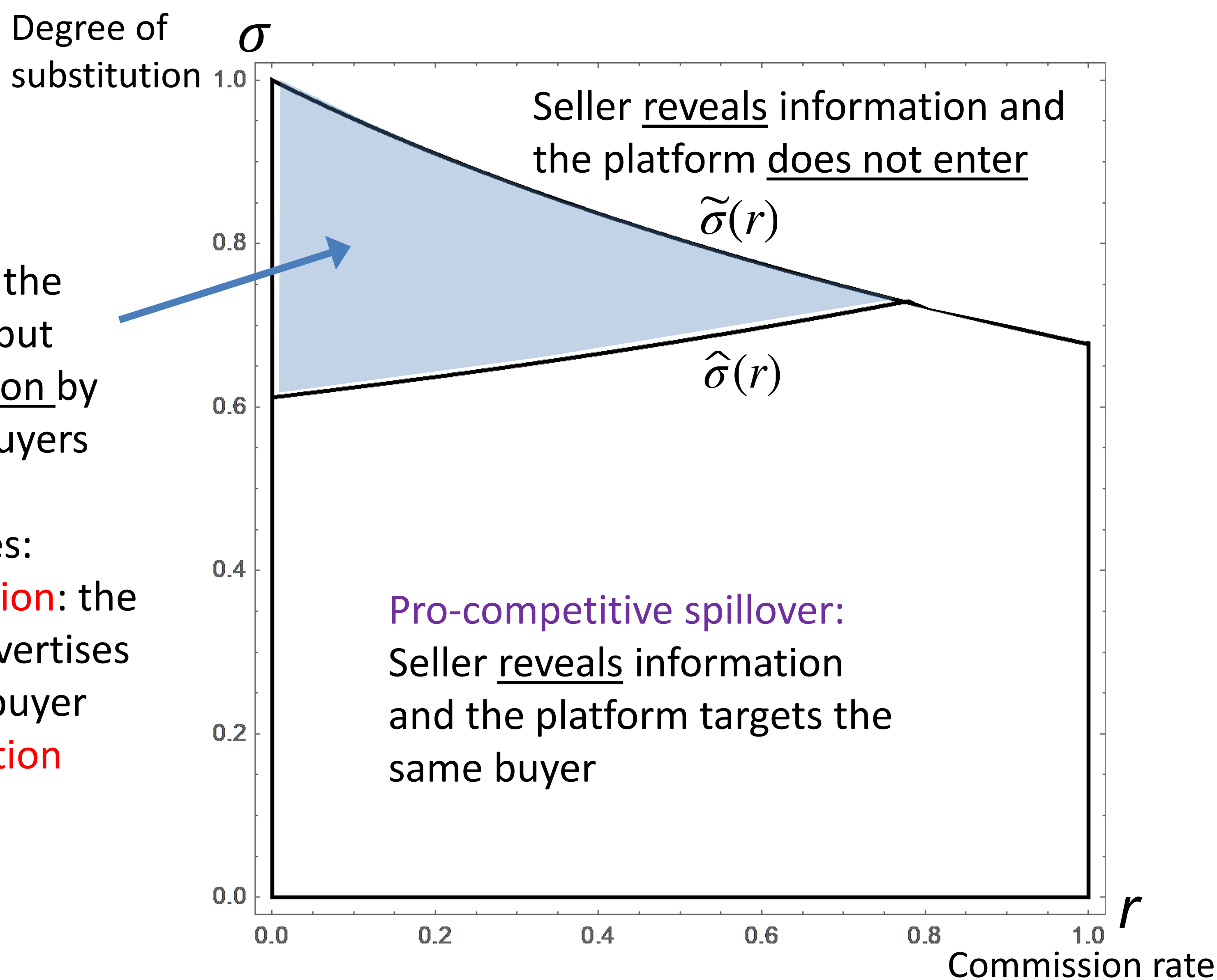
Platform's profit

Result: when does the seller conceal information?

Seller conceals information and the platform enters but avoids competition by targeting both buyers

Two inefficiencies:

1. No information: the platform advertises to the non-buyer
2. No competition



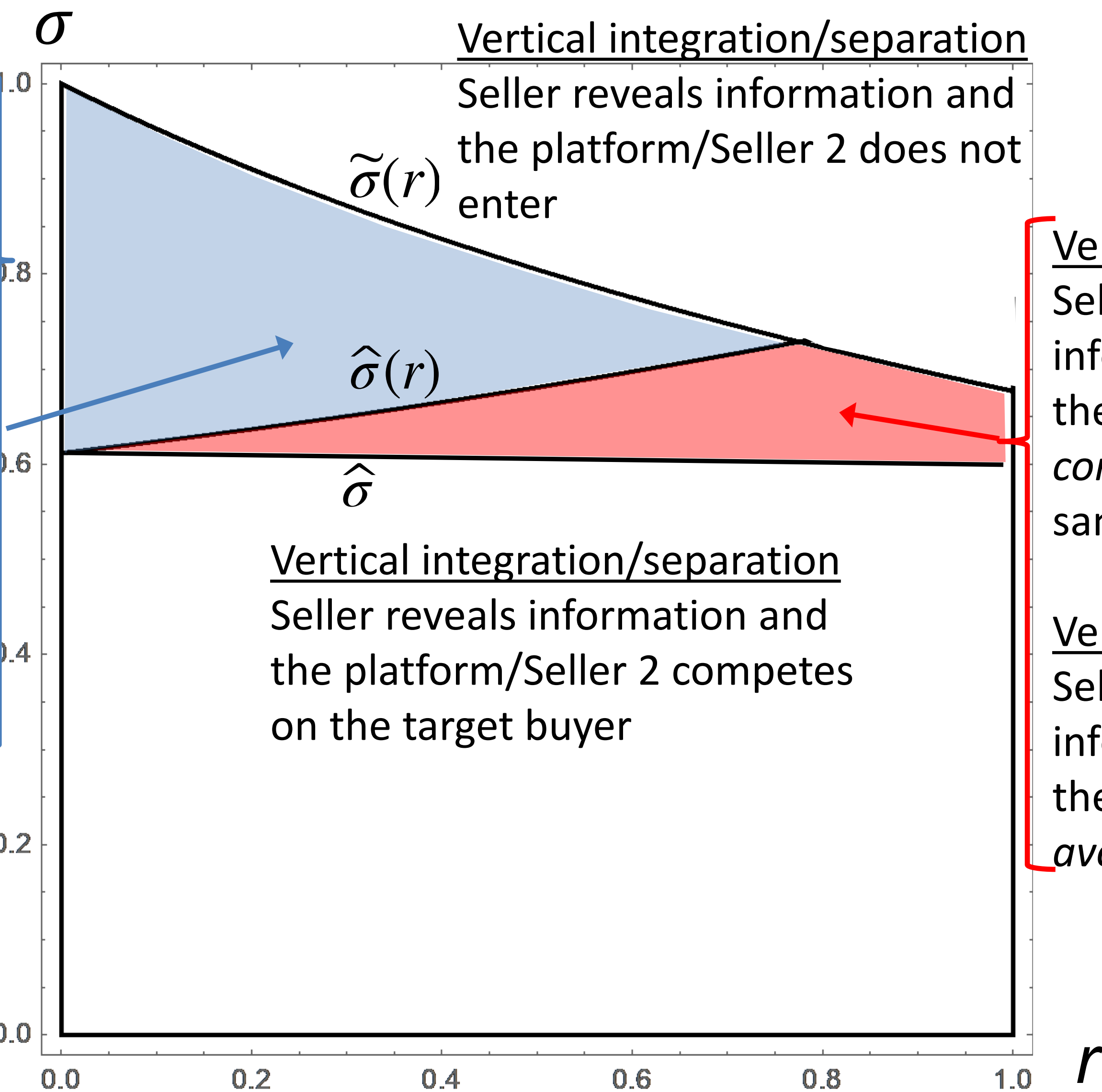
Remedy 1: vertical separation

- Disintegrate the platform
- Two independent sellers: Seller 1 and Seller 2
- Seller 1 has private information about the characteristics of the potential buyer
- The platform can place Seller 2 in competition with Seller 1

The strategic effects of vertical separation:

- The independent seller 2 is a more aggressive competitor than the integrated platform
  - Seller 2 does not internalize some of the revenues of seller 1
- Disadvantage: The platform has a stronger incentive to avoid competition between the two sellers
- Advantage: Seller 1 has a stronger incentive to reveal information

Result: the effects of vertical separation



<u>Vertical integration</u>
Seller *conceals* information and the platform *avoids competition* by targeting a different buyer

<u>Vertical separation</u>
Seller *reveals* information and the platform *avoids competition*

<u>Vertical integration</u>
Seller *reveals* information and the platform *competes* on the same buyer

<u>Vertical separation</u>
Seller *reveals* information and the platform *avoids competition*

Remedy 2: informational firewall

- The DMA requires that "gatekeepers" should not use non-public data obtained from their business users to compete against those users
- The platform has two separate divisions:

1. Allocating ads for the independent seller
2. Allocating ads for the platform's product
    - If the platform enters as a seller, it allocates its product to each buyer with equal probabilities

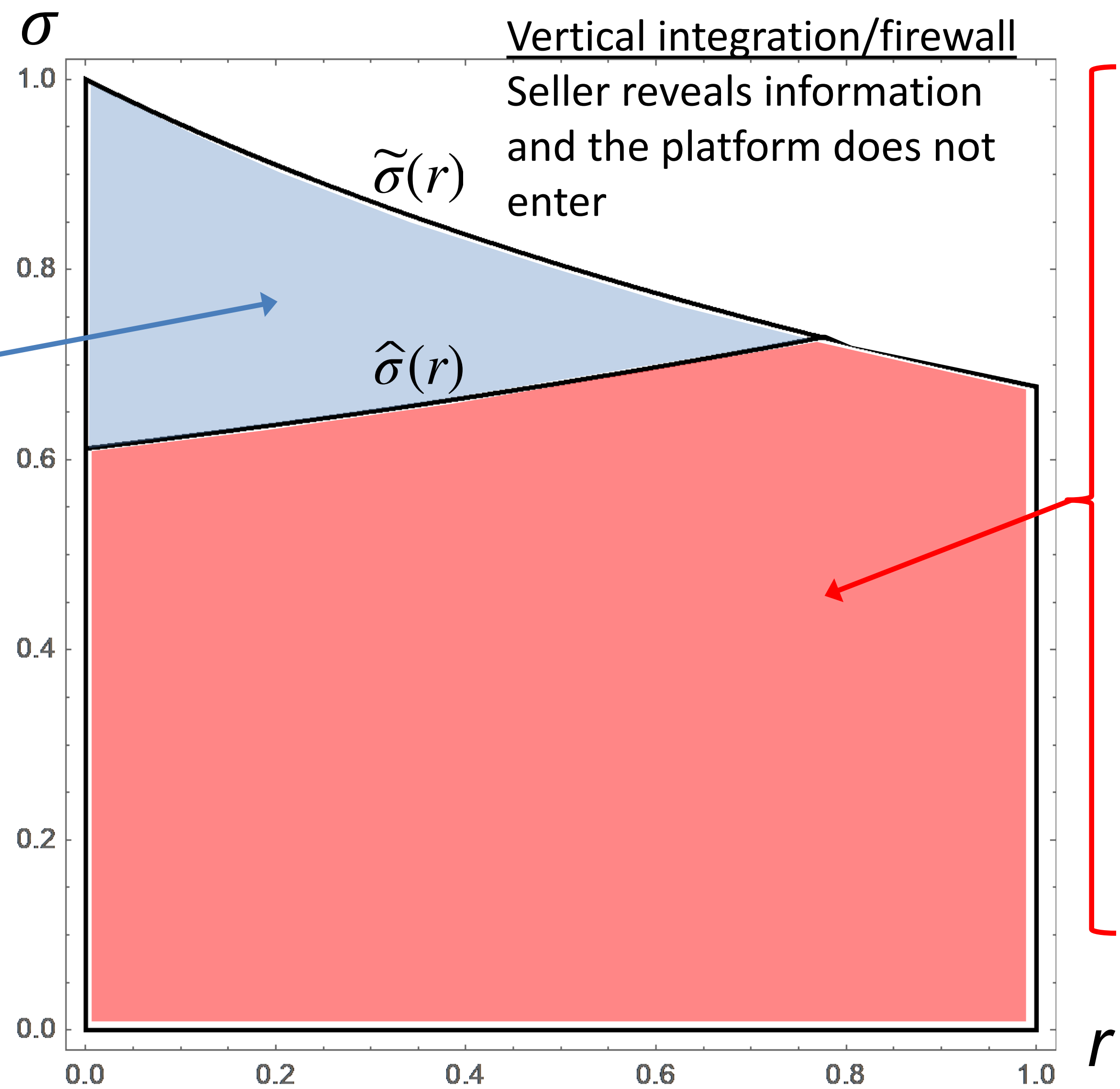
Informational firewall has two effects on welfare:

- Advantage: the seller always reveals information and targets the potential buyer
- Disadvantage: the platform competes with the seller only with probability ½

Result: the effects of informational firewall

<u>Vertical integration</u>
Seller *conceals* information and the platform avoids competition by targeting a different buyer

<u>Firewall</u>
Seller *reveals* information and the platform enters and randomly advertises to each buyer



<u>Vertical integration</u>
Seller reveals information and the platform *competes* on the same buyer

<u>Firewall</u>
Seller reveals information and the platform enters and *randomly advertises to each buyer*

Conclusion

- Competition between a platform and an independent seller
  - The seller has private information concerning the characteristics of the potential buyer

1. The seller conceals information when substitution is intermediate and when the ad-valorem commission rate is small
   - The market is inefficient due to lack of information and competition
2. Vertical separation motivates the seller to reveal information but motivates the platform to avoid competition
3. A firewall motivates the seller to reveal information but results in inefficient allocations of products between buyers

Future research

- Change the proportion of potential buyers
- Compare the vertical separation with firewall

Thank you