Discussion of

Online Privacy and Information Disclosure

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How do sellers use buyers’ information?

• Offer the best-matching product
  • Push demand curve up
  • Reduce elasticity of the demand curve

• Price discriminate
  • Higher prices for high value customers
  • Discounts for low value customers

I decide whether Amazon sees which news I read, and presumably this will tell Amazon which phone cases they should offer me, and Halloween costumes, and book to read, presents to buy, video to watch, ...
Who benefits from letting Amazon also tailor the price for me?

This paper: I’d benefit from price discrimination (and Amazon loses)
But...
I already lost by letting Amazon know which product I would prefer; or maybe...
I already lost by letting Amazon become a monopoly?
Model components

Setting
• **Monopolist** has $K$ horizontally differentiated products, equal production cost
• Consumer(s) random values distributed over finite values per product i.i.d.
• Ex-ante, expected value of all products is the same

Actions
• **Consumer** chooses privacy policy
• **Nature** (consumer’s actions) generate a signal about preference
• Signal disclosed to **firm** based on policy
• **Firm** offers single product to consumer
• Consumer discovers his value (only) for the offered product
• **Consumer** makes purchase decision

Without price discrimination: Firm sets price per **product** without responding to the disclosure policy

With price discrimination: Firm sets price per **consumer** after observing signal
What happens without disclosure?

• Firm must offer a single product
• Can’t know which product is good match for the customer
• Demand curve (or WTP) comes from the population aggregate distribution
• i.i.d – may as well offer the same product to everyone
Full disclosure without price discrimination

• Firm uses information to determine:
  • Best match product
  • Updated demand curve for each product conditional on information quality
  • Monopoly price for the product conditional on updated demand

• Firm splits into multiple non-competing monopolies
• Each monopoly faces a “better” demand curve than the aggregate
• i.i.d – max from K draws vs. one draw
Non-discrimination economics

• Two forms of non-discrimination, price independent of
  1. Disclosure policy and
  2. Disclosed information

• Information disclosure only affects customer-product matching
• Price identical for all products
• Buyer’s best response is to get the best match - full disclosure
  • Identically priced products, prefer the most valued product
Non-discrimination observations

• Same result if only the buyer has all the information and can choose any product at equilibrium price
  • “Standard” assumption for well-operating markets (without monopoly)
  • Here “worse case scenario”

• If full disclosure is possible, it achieves optimal matching (“Horizontal efficiency”)
  • But some consumers won’t buy at the offered price

• Depends on:
  • The firm not “best-responding” to the disclosure policy; and
  • Buyer preferences i.i.d.
Price Discrimination

Information disclosure affects customer-product matching and prices
Firm adjusts prices based on the consumer’s
1. Disclosure policy and
2. Actual disclosed information
Discrimination based on policy

• The firm can adjust if the buyer discloses imperfectly ...
• Customer-Product match may be worse
• Worse demand curve ("usually max of K draws")
• Consumer’s benefit from lower price may be higher than loss from worse match
  • “Intentional ignorance” in the product matching stage
• Lower price and worse matches for customers that don’t use “cookies”
Discrimination based on information

- Discount for customers that signal very low valuation
- Buyer could limit disclosure policy to only affect matching
- Disclosing additional information must reduce prices
- Strong result: If full information is possible, buyer’s optimal disclosure policy guarantees trade

Intuition:
- Monopolist offer is deterministic given policy and disclosed information
- If offer would be rejected, improve information to get lower price without increasing price for existing information
Discrimination observations

• Discrimination result holds **only if buyer can control how much information is shared**

• Can even increase total surplus (if K is small)

• Big Brother Monopoly: “Firm offers product only under full disclosure, prices at \( p = E[v|s] - \epsilon \)”
  • Increases efficiency
  • Minimal consumer surplus
  • Dystopian?

• Disclosure qualitatively different from reporting
  • Can add noise but can’t misreport
Policy relevance: Protect Consumer Choice (?)

• Information can hurt consumers when facing a monopoly, should help with oligopoly
  • Corts: *Third-Degree Price Discrimination in Oligopoly: All-Out Competition and Strategic Commitment* (RJE98)

• Efficiency (at least short term) vs. consumer surplus

• Perfect matching vs. competition
  • Hospitals choosing product first and negotiating price with the one supplier

• “Strategic” recommendations to curtail competition
  • What is the market for recommendations?

• “Strategic” disclosure by consumers – feasible at reasonable cost?
  • Maybe requires “Internet Bill of Rights”/ GDPR?
  • Can’t be tailored per product / seller
Summary comments

• Terrific research of a difficult and important question
• Discrimination and equilibrium based on disclosure policy vs. disclosed information
• Discrimination can increase total and consumer surplus
• Total vs. Consumer surplus – policy may be at odds
  • Can we identify conditions?
• Can we relax the monopoly starting point?
• “Big Brother Monopoly” maximizes total surplus (in the model)
  • “From each according to his ability, to each according to his needs”
  • What’s missing in these models?