Informational intermediation and competing auctions

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Main contribution

Foundations for demand for certification services on both sides of a market with sellers of heterogenous quality:

Platform can observe quality on sellers' side and certify (some of) the high-quality sellers for a price p_A

Platform can sell certification information (list of certified sellers) to (some of) the buyers for a price p_G

Platform is a 2-sided monopolist

Pricing? i.e. how many sellers certified? and how widely is information sold to buyers?

Market with partial certification

Certification of $\sigma\%$ of HQ sellers to $\beta\%$ of the buyers induces:

- 2 submarkets: HQMkt with quality q_h and tightness $(\frac{\#\text{buyers}}{\#\text{sellers}})\,\phi_h$, and LQMkt with $q_l(\sigma)$ and ϕ_l. NB: $\frac{\sigma}{2}\phi_h + (1-\frac{\sigma}{2})\phi_l = \Phi$.
- For IB, $B(\phi_i, q_i) \nearrow$ in q_i, + in ϕ_i $[B = q_i e^{-\phi_i}]$
- Small β: $\phi_h \approx \phi_l \approx \Phi$ (little differences): $B(\Phi, q_h) > B(\Phi, q_l)$
  Separation: all IB shop on HQMkt, $\phi_l^* = (1-\beta)\Phi$
- When β increases, ϕ_h increases: congestion cancels quality advantage:

$$B(\phi_h^*, q_h) = B(\phi_l^*, q_l).$$

IB randomize for $\beta > \beta^*(\sigma)$. IB shop on HQMkt when β higher.

Buyers' demand for information

- For a buyer, willingness to pay for information is given by:

$$p_G = B(\phi_h^*, q_h) - \left[\frac{\sigma}{2} B(\phi_h^*, q_h) + (1 - \frac{\sigma}{2}) B(\phi_l^*, q_l) \right]$$
$$= (1 - \frac{\sigma}{2})[B(\phi_h^*, q_h) - B(\phi_l^*, q_l)].$$

- More IB (β larger), less and less value of information: demand $\nearrow$

- When $p_G > 0$ (and $\beta < \beta^*$), more HQsellers certified (σ higher) means lower q_l on LQMkt and smaller tightness on HQMkt (more HQsellers), hence larger value of information (p_G increases in σ)

Sellers' demand for certification

- Seller's benefit: $p(\phi_i)$ increasing in ϕ_i; willingness to pay for certification:

$$p_A = p(\phi_h^*) - p(\phi_l^*) \sim (\phi_h^* - \phi_l^*)$$

- If few IB (small β), higher σ means more HQsellers certified, hence less IB / certified seller: $\phi_h^* \searrow$ ($\phi_l^* = (1-\beta)\Phi$); hence $p_A \searrow$
- If many IB ($\beta > \beta^*$); higher σ means:
  1. again, more HQsellers certified
  2. but $q_l(\sigma) \searrow \Rightarrow \phi_l^* \searrow$ (and $\phi_h^* \nearrow$) to maintain buyers' indifference: $p_A \nearrow$!
  3. Demand may be upward sloping!
- When $\beta \nearrow$, difference in tightness $\nearrow$ hence $p_A \nearrow$.

Monopolist platform

Optimum is to certify all HQsellers and sell the information to all buyers because:

- p_A increasing in σ on relevant range
- p_G also ! More certified sellers helps increase the price for buyers
- p_G decreasing in β... undecisive
- but p_A increases in β! More informed buyers makes certification more valuable

More specific results

- Welfare increases (weakly) in β
- but ambiguous in σ! $\sigma = 1$ not necessarily socially optimal (even in specific model)
- Distributional effects...
- Excess private incentives: Δwelfare < Δprofits from general certification.
  Intuition ?
- Comparison of constrained pricing on one side; meaning ?

Discussion

Sellers' role is relatively passive: no other way to signal, or to establish a reputation

Type of information sold by platform ?

- soft: incentives to collect that information ?
- hard: incentives of a buyer to resell information
- in e-commerce, rating on sellers' quality often provided by buyers

Endogenous entry / exit:

- e.g. if participation costs, UB may leave, hence with changes in tightness

Cost of certification per seller !