Multiproduct intermediaries

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Outline

Motivation

- Definition: Multiproduct Intermediaries -multiproduct buyers with search costs: strict definition (maybe add a graph)
- Examples: e.g Amazon, Shopping Mall etc... (their framework allows for generality) tv platforms etc
- Why study intermediaries: rise of DTC (how should retailers respond), exclusivity etc (setting).
- Main questions:
  1. How can it exhist? optimal strategy in composition? focus in composition...
  2. Fundamental idea of the paper: 1. multiproduct intermediaries (contrary to single product) can exhist just based on search frictions... (even abstracting from prices)-¿2. mechanism is clear! expand the model.

Related Literature

- Literature on intermediaries focuses:
  - search/matching efficiency between buyer/sellers (cite)
  - expert certifier (asymmetric information)
  - **This paper: search frictions exhist, but show that int. can exhist even without improving search efficiency.**
- Mechanism explored is close to Bundling (cite):
  - $\rightarrow$ focus on which product should be bundled directly.
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- Multiproduct search of consumers (...) -products are exogeneously given.
- This paper: endogeneous product range selection of firms.+ introduce manufacturers (vertical structure is considered)
- Literature on product assortment, but focused on single demand consumers
- **Contrary: focus on multiproduct demand, search frictions**

Setting

1. **M**$\in R[0,1]$
    - $C_i \leq 0$
    - $\pi_i = (P_i^m - C_i)Q_i(P_i^m)$
2. **C**$\in R[0,1]$ interested in buying every product (this must be summarized)
    - demands $Q_i(P_i)$ (prod independent:)
    - surpluss $v_i = \int_{p_i^m}^{\infty} Q_i(P)dP$ each consumer knows where the product is available, but does not know the price:
    - search cost s , cdf: $F(s)$ –¿ key heterogeneity, consumers differ in this, same demand, different cost. (think of this as distance.)
3. **I**
    - capacity constrained $\hat{m} \leq 1$
    - w/ bargaining power: TIOLI (τ_i, T_i)
    - may have search efficiencies $h(m) \lesseqgtr 1$
    - $h(m) \times s < s \times n$

improve notation, clarity and space

Setup 2: Timing

Use this to explain assumptions on who knows what, and don't mention that in the previous one.

1. I offers (τ_i, T_i) to M + (exclusivity/nonexcl). M accept/reject
2. M sets p_i
3. C observed who sells what and forms expectations over prices. Then sequential search.

Lemma 1

This is crucial to simplify a lot the problem at hand. Reduce all the dimensionality of the problem to only a two dimensional space.

1. $p_i = p_i^m$ (hold-up)
2. $(\tau_i, T_i) = (c_i, \pi_i F(v_i))$

$\implies$ what matters is $(\pi, v)_i \in \mathbf{R}_+^2$ We will done G the joint cdf and g joint pdf. Regular assumptions (differentiabiliy, smoothness). Define Ω, F

Simple Case

1. Simplifying assumptions:
   - only exclusivity
   - $h(m) = m$ no efficiency gains
   - $\hat{m} = 1$ no capacity constraints
2. Consumer Problem: suppose $I : A \in F$ exclusively:
3. Visits if: $\int_A vdG - s \int_A dG \geq 0$, underline what each thing is.
4. $\implies s_i \leq \hat{v} = \frac{\int_A vdG}{\int_A dG}$
5. Intermediary: π, v, max $\int_A \pi(F(\hat{v}) - F(v))dG$, underine consumers attracted vs lump sum given to manufacturers.

Solution

- $q(\pi, v) \iff (\pi, v) \in A$
- $\max_q \int_\Omega q(\pi, v)\pi(F(\hat{v}) - F(v))dG$ s.t $\int_\Omega q(\pi, v)(v - \hat{v})dG$
- $L = \int_\Omega q(\pi, v)(\pi(F(\hat{v}) - F(v)) + \lambda(v - \hat{v}))dG$; underline the direct and indirect effect.
- Two regions of interest:
  1. $v < \hat{v} \implies ?\ \pi \geq \frac{\hat{v}-v}{F(\hat{v})-F(v)}$
  2. $v > \hat{v} \implies ?\ \pi \leq \frac{\hat{v}-v}{F(\hat{v})-F(v)}$

Solution 2

Here add the graph.

General case

Worth summarizing a bit what is new, how the problem becomes more complex, but try at the same time to explain it using the main intuitions of the model. So it should be one slide max.