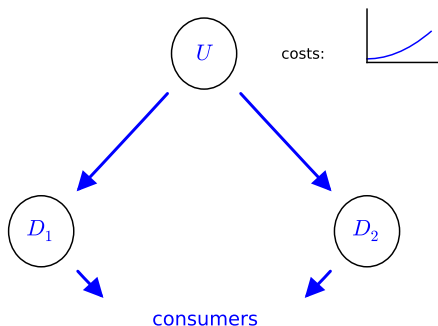


Segal and Whinston
Robust Predictions for Bilateral Contracting
with Externalities

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Motivation



- results depend on belief structure off the equilibrium path
 \Rightarrow What predictions can be made if one allows for arbitrary beliefs?
- more flexible contracts

Game

U has increasing and convex costs in total quantity;
each D_i has zero costs

- ① U proposes a menu M_i to each retailer D_i
- ② each retailer accepts or rejects (only observing his offer!)
- ③ U chooses a point (x_i, t_i) from M_i (if D_i accepted and M_i has more than one point)
- ④ each retailer puts x_i on the market and gets $p(X)x_i$ where $X = \sum_i x_i$

What is a menu?

example (linear menu): $\{(x_i, p * x_i) : x_i \in [\underline{x}_i, \bar{x}_i]\}$

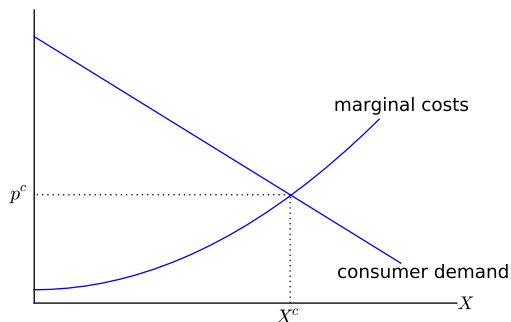
Why menus?

U 's choice depends on $X_{-i} \Rightarrow$ choice reveals private information (screening)

Definition: acceptable menu

Definition: M_i is an **acceptable menu** if D_i makes non-negative profits no matter what X_{-i} is.

Example:



The menu $((x_i, p^c * x_i) : x_i \in [0, X^c])$ is acceptable.

Results

- *Property 1:* each retailer makes non-negative profits
- *Property 2:* The joined profits of U and any group of retailers cannot be increased by offering acceptable menus to these retailers.

Proposition: Property 1 and 2 are necessary and sufficient for a weak perfect Bayesian Nash equilibrium.

Proposition: If the number of retailers goes to ∞ , the total quantity approaches the perfectly competitive quantity X^c .

Idea:

- suppose $X < X^c$
- take a retailer D_i with very small x_i , say $(x_i, t_i) = (0, 0)$ for simplicity
- offer the competitive menu to retailer D_i

Discussion

- menus in practice
- costs and consumer demand are common knowledge but no contracting on market price
- externalities on non-traders

Where to go from here?

- middle way: sharper predictions by robustness to some “reasonable” beliefs
- institutions to “solve” the problem $X > X^m$
- beliefs in the lab

your comments

Institutions to solve the problem

Trade association

- 1 U offers (x_i, t_i) to each retailer D_i
- 2 U informs the trade association about the quantity X it will trade
- 3 trade association informs its members (i.e. retailers) of X
- 4 retailers accept/reject offers and inform trade agency about x_i
- 5 if the total traded quantity deviates from the announced X , U has to pay a huge fine for misreporting

Repeated interaction

Exclusive contracts

◀ back