Monopoly

Monopoly

Overview

Definition: A firm is a monopoly if it is the **only** supplier of a product in a market. A monopolist's demand curve slopes down because firm demand equals industry demand.

Five cases:

1. Base Case (One price, perishable good, non-IRS Costs).
2. Natural Monopoly
3. Price Discrimination
4. **Bundling**
5. Durable Goods

Price Discrimination

Bundling

Good A and B are sold in fixed proportions, in a "package"

Examples

- Movie distributors force theaters to acquire "bad" movies if they want to show good ones
- Photocopier manufacturers offer several goods: the copier, maintenance, and a package of both together

Why is this a profitable strategy?

Price Discrimination

Bundling

Example 1:

- Two types of consumers, unit demand, no complementarity between products:
- $WTP_{AB} = WTP_A + WTP_B$
- Assume MC =0

	Type 1 WTP	Type 2 WTP
A	9000	10000
B	3000	2000
AB	12000	12000

Price Discrimination

Bundling

- If sell separately, $p_A = 9000, p_B = 2000$.
  $\pi_A + \pi_B = 2(9000) + 2(2000) = 22000$
- If sell AB, $p_{AB} = 12000, \pi_{AB} = 24000$

	Type 1 WTP	Type 2 WTP
A	9000	10000
B	3000	2000
AB	12000	12000

Price Discrimination

Bundling

Example 2:

	Type 1 WTP	Type 2 WTP
A	9000	10000
B	500	2000
AB	9500	12000

- If sell separately, $p_A = 9000, p_B = 2000$.
  $\pi_A + \pi_B = 2(9000) + 2000 = 20000$
- If sell AB, $p_{AB} = 9500$. $\pi_{AB} = 19000$.

Price Discrimination

Bundling

What's different?

- In the first example, type 1 has higher demand for B, type 2 has higher demand for A.
- In the second example, type 2 has higher demand for both goods
- Intuition: bundling works when there is heterogeneity in preferences *across* goods.

Price Discrimination

Bundling

Example 3:

	Type 1 WTP	Type 2 WTP	Type 3 WTP
A	4000	3000	0
B	0	3000	4000
AB	4000	6000	4000

- If sell separately, $p_A = 3000$, $p_B = 3000$. $\pi_A + \pi_B = 3000$ x $4 = 12000$.
- If sell AB, $p_{AB} = 4000$. $\pi_{AB} = 12000$.
- If sell A and B and AB, $p_A = 4000$, $p_B = 4000$, $p_{AB} = 6000$, $\pi_{mixed} = 14000$.

Price Discrimination

Bundling

What's different?

- In this example, consumer type 2 has a fairly low valuation for the 2 products separately but a much higher valuation for the 2 together.
- In contrast, consumers 1 and 3 only value one of the two products.
- Firm can extract all surplus from all consumers through mixed bundling (offering both the bundle and its components).

Price Discrimination

Bundling: A rough description of the research literature

When does bundling increase profits? (Schmalensee (1984))

- Reservation prices for goods A and B, distributed according to $F(v_A; v_B)$ across population (continuum of consumers), $v_A, v_B \geq 0$.
- Constant marginal costs, c_A, c_B
- Allow *mixed* bundling, ie. provide menu with $\{P_A, P_B, P_{AB}\}$ instead of just offering P_{AB} (pure bundling). Since one can set P_A and P_B to infinity, pure bundling is a special case of "mixed bundling" strategy.
- With Bivariate normal demand specification, $f(v_A; v_B) \sim Normal([\mu_A, \mu_B], \Sigma)$

Price Discrimination

Bundling: A rough description of the research literature

1. Pure bundling vs. unbundled sales: with symmetric distribution, pure bundling is more profitable the lower the correlation of reservation values.
2. However, for any correlation pattern, pure bundling is still profitable if average willingness to pay is large enough compared to marginal cost.
3. For both conditions, can generally do better through mixed bundling.
4. In fact mixed bundling is always the most profitable alternative if reservation values are negatively correlated ($\rho \leq 0$).