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SI 646

Week 2: Pricing Information

Today – Pricing “theory” and then Atlantic
Computer case

But First:

Encyclopedias: from print to digital to
Wikipedia, and beyond...

$$MR = MC$$

(marginal revenue = marginal costs)

From where does this equation come?

$$\max \pi = \text{Revenue} - \text{Costs} = P(Q) * Q - C(Q)$$

$$\text{so } \frac{d\pi}{dQ} = \frac{dP(Q)}{dQ} Q + P(Q) - \frac{dC(Q)}{dQ}$$

$$= \text{MR} - \text{MC} = 0$$

$$\text{or } \text{MR} = \text{MC}$$

This pricing rule can be applied in all situations

Two Simple Single Price market cases

(assume homogeneous products and no asymmetric info)

A. One firm (monopoly), and $MR=MC$ implies

$$P > C$$

B. perfect competition, and $MR = MC$ implies

$$P = MC \left(\text{since } \frac{dP(Q)}{dQ} = 0 \right),$$

Lots of Extensions!!!

For example: Price Discrimination (PD) by a monopolist

Economists identify 3 types: 1st, 2nd and 3rd degree PD (SV refer to these as personalized pricing, versioning, group pricing).

In each case, 3 necessary conditions for PD to be successful:

- A. Heterogeneous Willingness to Pay (WTP)
- B. (Limited) Information about how this WTP is distributed across customers
- C. Consumer arbitrage not possible

The key factor distinguishing these 3 types of PD is the type of information known about customer WTP

1st degree PD (aka perfect price discrimination):
complete information at the individual
customer level.

(approximate) examples include college
financial aid packages, journal pricing

2nd degree PD: WTP distributions are known for groups of customers, but *ex ante*, firms can't match customers to specific groups

(firms must design pricing mechanisms based on self-selection)

examples include airline pricing, cell phone contracts, cable TV bundles, etc.

3rd degree PD: WTP distributions are known for groups of customers, and *ex ante*, firms can match customers to specific groups (based on observable characteristics)

examples include movie tickets, some software licenses, etc.

numerical example....

Another Extension: Oligopoly Pricing

An Oligopoly exists when the # of firms in a market is sufficiently small (but more than 1!)

Often each oligopolist has some market power, i.e. the ability to set a price that exceeds MC (like a monopolist).

Since the # of firms is finite, game theory is normally used to analyze firm interactions, including price setting.

Perhaps the most well-known example is the single-period Prisoner's Dilemma

Single Period Prisoner's Dilemma with complete information

	High Price _B	Low Price _B
High Price _A	3, 3	1, 5
Low Price _A	5, 1	2, 2

Suppose this game is repeated a finite number of times?

An infinite # of times?

Another Extension: Asymmetric Information regarding product quality

Nagle discusses two cases:

A. Lemons Markets (Akerlof)

Equilibrium prices “too low” and so only low quality products are sold.

B. Repeat-Purchases as a mechanism to insure sales of high quality products (Klein/Leffler).

Related issue discussed by Nagle: Products differ with respect to the importance of asymmetric information (Nelson)

Search Goods

Experience Goods

Credence Goods

How does competition and pricing differ across these product categories?

Lots of other interesting Pricing Topics that we could (and in some cases will later) consider:

- Auctions (see Sahay.)
- Product Differentiation (horizontal/spatial or vertical)
- Entry Deterrence via limit or predatory pricing
- Network Effects
- Bundling (of information goods)
- Durable Goods pricing (is software a durable good?)
- Etc...

Pricing Information Goods in an Internet-based digital environment

SV (Chapter 2) make two basic points:

A. High Fixed/Sunk Costs and (near) zero production and distribution costs pushes prices to zero. Why?

B. This first point implies two possible market structures:

1. A dominant firm or

2. multiple firms offering differentiated products.

Why? How is dominance or differentiation achieved?

Achieving Dominance (when product differentiation is difficult to achieve):

volume → cost leadership

first mover advantages

Example: CD phonebooks

If Product Differentiation Can be achieved (by adding value, e.g. West Publishing)....

...Different forms of PD can be used to max profits.

West Publishing uses all 3 forms of PD in setting prices for its legal information goods (personalized pricing, versioning, and group pricing).

It faces one main competitor, Lexis-Nexis, but in this duopoly prices are well above marginal costs...