I Monopoly pricing

- $\frac{p - c'(q)}{p} = \frac{1}{|\varepsilon_i|}$
- Durable goods
  - Coase conjecture
    - commitment problem
    - leasing
      - moral hazard

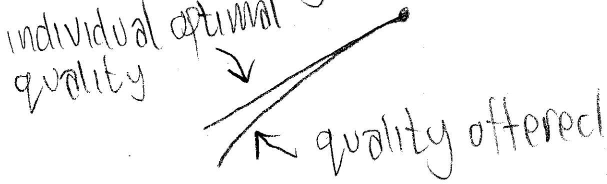
Price discrimination

<u>1st Degree:</u>
- Perfect
  - $P = MC$ and lump sum equal to CS
  - $\Delta W \uparrow$

<u>3rd Degree:</u>
- Discrimination on observables
- Student discounts
- $\Delta W \downarrow$ unless $\Sigma q_i \uparrow$ sufficiently
- $\frac{p_i - c'}{p_i} = \frac{1}{|\varepsilon_i|}$, $\frac{p_j - c'}{p_j} = \frac{1}{|\varepsilon_j|}$

<u>2nd Degree:</u>
- self-selection (selection based on unobservables)
- call plans
- need to satisfy IC

- efficiency and rents at the top
- inefficiency and no rents at the bottom



- single crossing property: $\frac{\partial^2 u}{\partial q \partial \theta} > 0$.

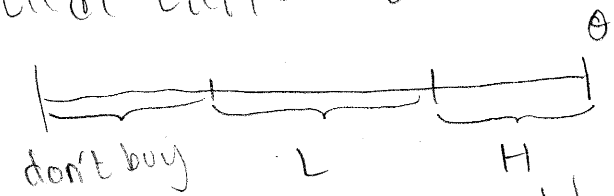
- Recall: $u(\theta) = u(0) + \int_0^\theta u_\theta(t)dt$
  - need to give θ-type an informational rent.

2 Static Competition

- Bertrand / Cournot
- Bertrand paradox can be avoided by:
  - capacity constraints
  - repeated games
  - differentiated products
- Horizontal differentiation
  - Hotelling Line
  - Salop circle
    - local competition

- Logit: $u_{ij} = \beta x_i - \alpha p_j + \varepsilon_{ij}$
  - global competition
  - market shares given by $s_j = \frac{e^{\delta_j}}{\sum_{k=1}^{N} e^{\delta_k}}$
  - random preference ordering, so all firms compete with one another.

- vertical differentiation.

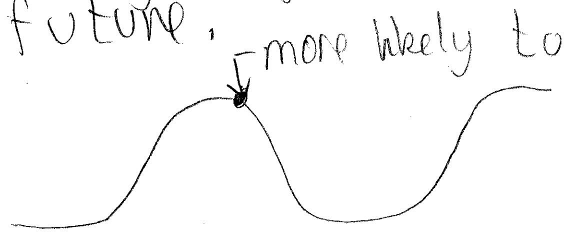


- supply function equilibrium
  - p ∈ [Bertrand, Cournot] with uncertainty
  - with no uncertainty, can sustain collusion
- loss leaders and add-ons
  - simple model- no $\Delta\pi$
  - cheapskate externality
    - cov(low value, price sensitivity) > 0
- search
  - Diamond
    - "ε- overcutting" - $p = p^m$
  - Stahl
    - tension between exploiting non-shoppers and competing for shoppers.

3] Dynamic competition
- standard super games
  - Folk theorem
- Green-Porter
  - actions unobservable
  - use public info. to infer behavior

- finite price wars in equilibrium triggered by bad demand shocks
- collusion is harder under imperfect information

- Rotemberg-Saloner
  - cyclical demand
    - collusion is hard if π today relatively higher than $E[\pi]$ in the future.



- Maskin-Tirole
  - Markov equilibrium
    - sticky pricing; Edgeworth cycles

Testing for the degree of collusion:

$$\frac{p-c'}{p} = \frac{\theta}{|\varepsilon|}$$

$\theta = 1 \Rightarrow$ collusion
$\theta = 0 \Rightarrow$ competition

4 Entry
- until $E[\pi(N+1)] < K$
- too much or too little?
  - business stealing $\Rightarrow$ too much
  - homogeneous product $\Rightarrow$ only business stealing effects $\Rightarrow$ too much entry

- heterogeneous goods → can't say anything without parametrizing.

5 Networks

- multiple equilibria
  - inefficient upgrades
  - sponsored technology bias
- two-sided markets
- competing networks
  - one-sided markets
    - better off with more people
  - two-sided markets
    - more consumers - better for producers
    - more producers - better for consumers
- two-sided markets - still just the inverse elasticity rule.

6 Strategic Investment

- deterrence
  - $\frac{d\Pi_E}{dK_I} > 0 \Rightarrow$ "soft"

    $\frac{d\Pi_E}{dK_I} < 0 \Rightarrow$ "tough"
- accommodation:
  - $\frac{d\Pi_I}{dx_E} \frac{dx_E}{dK_I}$. Want this to be >0.

- Predation and Limit Pricing
  - signalling - usually always exists a pooling eq.
    - separating is more interesting
  - signal jamming
    - Δ action
    - want to influence opponent's ability to make deductions based on public signal.
  - predation - semi-separating: if reveal type, will be worse off (reputation model)
  - Financial model - due to bankruptcy cost, cost of borrowing is increasing. Thus, firm with greater cash reserves can potentially force others out of the market.