Price discrimination

Types of price discrimination

The (ambiguous) welfare effects of price discrimination

Parallel imports: not justified the EU *per se* prohibition of clauses which prevent parallel imports.

Price discrimination as monopolisation device

Anti-dumping

Price discrimination

It is a pervasive phenomenon: examples

Three types of price discrimination (PD):
1st degree (perfect) PD
2nd degree PD: self-selection of consumers
3rd degree PD: when different observable characteristics

Two main ingredients of price discrimination

- ability to "sort out" different consumers and charge them different prices

- no arbitrage opportunities

Welfare effects of PD

- PD is not always bad: the extreme case of 1st degree PD, under which the first-best is attained (but: unrealistic example)
- Quantity discounts (2^{nd} degree PD). If consumers are charged according to T+pq, the unit price (p+T/q) decreases with the number of units bought.
- Welfare increases because the fixed fee is used to extract surplus, allowing for a lower variable component than under linear pricing

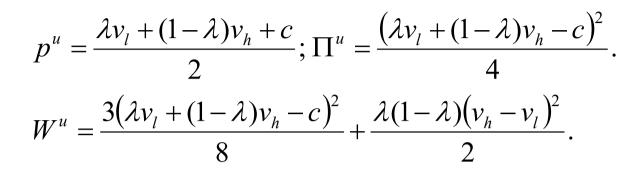
Quantity discounts: welfare effects

A monopolist serves two types of consumers, l ('low') and h ('high'), with weight λ and 1- λ in the market. Type i's (i=l,h) demand is: q=v_i-p, with v_h>v_l. The monopolist's marginal cost is c<v_l.

<u>No discounts, or uniform pricing</u> (both markets served). The firm's programme is: $Max_p \Pi = (p-c) [\lambda (v_1-p)+(1-\lambda) (v_h-p)]$

From $d\Pi/dp=0$, the solution is:

Quantity discounts, II



Quantity discounts: Two-part tariffs as PD

The monopolist uses the tariff T+pq. Assume also that $v_l > (v_h + c)/2$, which ensures all buy under both uniform (linear) pricing and two-part tariffs.

For low types to buy, the firm will set T=CS1+ $(v_1-p)^2/2$. Therefore, its programme becomes:

Quantity discounts, III

 $Max_{p} \Pi = (p-c)(\lambda(v_{1}-p)+(1-\lambda)(v_{h}-p)+(v_{1}-p)^{2}/2,$

whose solution is given by $p^{qd}=c+(1-\lambda)(v_h-v_l)$.

One can check that $p^{qd} < p^u$, $\Pi^{qd} < \Pi^u$, and $W^{qd} < W^u$.

Intuitions: the firm makes more money because it has two instruments (T,p) rather than one (p). Variable part is lower than p^u because the fixed part is used to extract surplus (and this explains why W is higher).

3rd degree PD and parallel imports

- Re-interpret the model above: h and l are two EU countries with different demands (transport costs set to zero for simplicity).
- If price discrimination across countries is allowed:
- In each country i, the firm solves $\max_{p_i} \prod_i = (p_i c)(v_i p)$, with solution:

$$p_i^d = \frac{v_i + c}{2}; \Pi^d = \lambda \frac{(v_i - c)^2}{4} + (1 - \lambda) \frac{(v_i - c)^2}{4};$$
$$W^d = \frac{3}{8} \left(\lambda \frac{(v_i - c)^2}{4} + (1 - \lambda) \frac{(v_i - c)^2}{4} \right).$$

Parallel imports, II

- If PD was prohibited (i.e., the firm cannot prevent parallel imports), then two cases may arise:
- 1) Under uniform pricing, sales in both markets. In that case, same result as previous example, and: W^d<W^u.
- Under uniform pricing, one market is not served: the firm may prefer to set p^h=(v^h+c)/2, even if this implies no sales in country l.

Example: if $v^{h+c}>2v^{l}$, $q_{l}=0$, and $\Pi^{h}=(1-\lambda)(v^{h-c})^{2/4}$. If λ small enough, then $\Pi^{h}>\Pi^{u}$ and $W^{h}>W^{u}$.

General result: PD welfare detrimental if q^{PD} decreases.

Further remarks

- PD and investments. Since PD increases the firms' profits, the uniform pricing policy may have long-run negative effects (on investments, innovations etc.)
- PD and market power. Both small and large firms will have incentives to discriminate prices across countries. But in the former case welfare effects are less relevant.
- To the extent that PD will induce firms to invest more, allowing 'small' firms to engage in PD may foster competition.
- Sensible, to use a safe harbour: PD allowed for firms below a certain market share (not the current policy!).

PD as monopolisation device

- PD may also affect market structure, i.e. be used by an incumbent to exclude rivals.
 - For instance, we have seen that discriminatory offers help exclude entrants
- Rebates and selective discounts are other possible forms of PD which may lead to exclusion (but not much theory on this).
- But an obligation to dominant firms not to discriminate (transparent pricing) may have adverse effects (helps a dominant firm to solve the commitment problem)

Anti-dumping actions

- Anti-dumping actions are allowed by WTO rules, provided two conditions are fulfilled:
 - 1) export prices are below their normal value
 - 2) exports cause a material injury to the importing country's industry
- Both conditions are ambiguous (subject to political influence): anti-dumping provisions often used.
- But differing export and home prices is not an 'unfair practice': predatory price test should be used instead.
- Likely adverse consequences on consumers, importing sectors (and collusion may be facilitated).