

Loss Leading as an Exploitative Practice

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Retailing markets

- Growing power of large retailers causes antitrust concerns
 - large literature on buyer power and its impact on suppliers (and rivals)
 - less attention to impact of seller power on consumers / smaller rivals
- Loss leading: pricing selected products below cost
 - widely used marketing practice
 - see e.g. UK Competition Commission (2008)
 - adopted by 90% of large retailers
 - about 6% of total sales
 - leader products
 - staples such as milk, bread, wine, ...
 - focus on Known-Value-Items
 - rarely adopted by small retailers

Below-cost pricing (cont'd)

More generally

- Asymmetric product ranges
 - platform / applications
 - equipment / accessories, spare parts, maintenance services
- Heterogenous "shopping costs" (adoption, learning, ...)
- Below-cost pricing / bundling of selected applications / accessories
 - browser / player integrated in the OS
 - maintenance / insurance included in the equipment package

- Existing theory
 - advertising strategy (Lal and Matutes 1994, Ellison 2005)
 - cross-subsidizing by a multi-product monopolist (Bliss 1988)
- Ignores often-voiced antitrust concerns
 - smaller rivals' profits are squeezed
 - retailing: Competition Commission 2008
 - platform/applications: Microsoft
 - consumers face higher prices on other items (Dobson 2000)

- *American Drugs vs. Wal-Mart in Arkansas (1993)*
 - Wal-Mart lost the initial trial in state court
 - but won on appeal in Supreme Court of Arkansas:
"loss leading is readily justifiable as a tool to foster competition rather than to eliminate rivals"
- *German cartel office against Wal-Mart, Aldi and Lidl (2000)*
 - order to stop selling below cost staples such as milk and butter
 - concern that this may drive smaller retailers out of the market
- Rules on below-cost resale
 - US: banned in 22 states, allowed in other states
 - EU: banned in 6 countries, restricted in 7, OK in Netherlands and UK
- Microsoft: US vs EU

What type of abuse?

- Competition authorities tend to treat loss leading as predatory pricing ... but loss leading involves persistent below-cost pricing
 - unlikely to establish recoupment and other conditions for predation
 - driving the rival out is generally implausible
 - UK Competition Commission (2008): "below-cost selling by large grocery retailers does not represent predatory behavior"
- Microsoft saga
 - bundling / giving "for free" browser, player, ...
 - structural pricing policy rather than short-term price war
- Here: no predation (*exclusionary* motive) but an *exploitative* device
 - allows large firms to extract additional surplus from consumers
 - discriminates multi-stop shoppers from one-stop shoppers
 - hurts smaller rivals as a by-product
 - banning below-cost benefits consumers, smaller rivals and society

- Two firms, L and S
- L offers a broader range than S
- Two segments (products, varieties of a product, ...): A and B
 - A is monopolized by L
 - B is competitive: offered by both L and S
- Marginal costs: c_A for A , c_L for B_L , and $c_S < c_L$ for B_S

- Each consumer willing to buy one unit of A and B
- Homogenous valuations: u_A for A , u_B for B
→ eliminates cross-subsidization motive based on different elasticities
- Complete information
→ no role for (informative) advertising
- Heterogeneous shopping cost t : c.d.f. $F(\cdot)$, density $f(\cdot)$

Comparative advantage

- Total surplus from bundle $A - B_L$: $w_{AL} \equiv u_A + u_B - c_A - c_L$
- Total surplus from B_S : $w_S \equiv u_B - c_S$
- L enjoys a comparative advantage if $w_{AL} \geq w_S$
 - value of L 's broader assortment exceeds S 's cost advantage
 - amounts to $w_A \equiv u_A - c_A \geq \Delta_B \equiv c_L - c_S$

- 1 L and S simultaneously set prices: (p_A, p_L) and p_S

[[mixed) bundling cannot do better]

- 2 Consumers observe prices and choose on the basis of
 - assortment
 - prices
 - shopping cost

Benchmark: monopoly

- Consumers buy A and B from L if

$$t \leq v_{AL} \equiv u_A + u_B - p_A - p_L = w_{AL} - r_{AL},$$

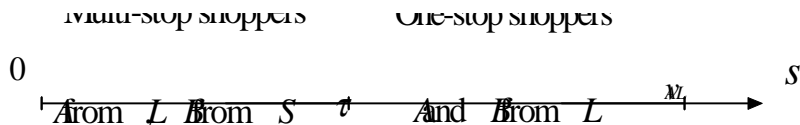
where r_{AL} is the total margin for the bundle $A - B_L$

- Profit $r_{AL}F(v_{AL}) = r_{AL}F(w_{AL} - r_{AL})$
 - monopoly margin and value: $r_{AL}^m = h(v_{AL}^m) = h(w_{AL} - r_{AL}^m)$,

where $h(\cdot) \equiv F(\cdot)/f(\cdot)$ denotes the inverse hazard rate

Asymmetric competition

- Consumers choose between one-stop and multi-stop shopping
 - suppose one-stop shoppers favor L
 - they are willing to patronize L if $t \leq v_{AL}$
 - but prefer multi-stop shopping if $t \leq \tau \equiv p_L - p_S$
 - therefore, $F(v_{AL})$ buy A , and $F(v_{AL}) - F(\tau)$ buy also B from L



Below-cost pricing as an exploitative device

- Suppose a competitive fringe of small rivals: $p_S = c_S$

$$\begin{aligned}\Pi_L &= r_{AL} (F(v_{AL}) - F(\tau)) + r_A F(\tau) \\ &= r_{AL} F(v_{AL}) - r_L F(\tau) \\ &= r_{AL} F(w_{AL} - r_{AL}) - r_L F(c_L - c_S + r_L)\end{aligned}$$

- This profit is separable in r_{AL} and r_L
 - L still wants to charge monopoly margin r_{AL}^m for bundle $A - B_L$
 - but prices B_L *below cost*

$$r_L^* = -h(\tau^*) < 0$$

Below-cost pricing as an exploitative device

- Below-cost pricing arises whenever $w_{AL} > w_S$

one-stop shoppers favor L whenever it has a comparative advantage

- if $v_{AL}^m > w_S$, $r_{AL}^* = r_{AL}^m$ for one-stop shoppers
 - price above monopoly level for multi-stop shoppers: $r_A^* > r_{AL}^m$
 - L obtains more than monopoly profit: $\Pi_L^* \equiv \Pi^m + F(\tau^*)h(\tau^*)$
 - extra profit comes from multi-stop shoppers

$$-r_L^* F(\tau) = (r_A^* - r_{AL}^m) F(\tau)$$

- if $w_{AL} > w_S > v_{AL}^m$, cap on r_A , r_{AL} but still $r_L^* = -h(\tau^*) < 0$
- Otherwise, L monopolizes A and leaves B to its rivals

- Suppose S is a strategic rival

$$\Pi_S = r_S F(\tau) = r_S F(\Delta_B + r_L - r_S)$$

- optimal margin is such that $r_S^* = -r_L^* = h(\tau^*)$
- threshold τ^* (one-stop / multi-stop) determined by

$$\tau^* = \Delta_B + r_L^* - r_S^* = \Delta_B - 2h(\tau^*)$$

- Below-cost pricing arises when L has large enough comp. advantage
 - $w_{AL} > \hat{w}_{AL}(w_S, w_L)$, where $\hat{w}_{AL}(w_S, w_L) > w_S$, increases with w_S
 - in that case, $r_{AL}^* = r_{AL}^m$ and again $\Pi_L^* = \Pi^m + F(\tau^*)h(\tau^*) > \Pi^m$

Banning below-cost pricing

- Banning below-cost pricing hurts L
 - constrains L to set $r_L = 0$: it thus earns $r_{AL}F(w_{AL} - r_{AL})$
 - L then charges monopoly margin r_{AL}^m and obtains Π_{AL}^m
- The ban increases consumer surplus and total welfare
 - no impact on one-stop shoppers
 - multi-stop shoppers benefit from decrease in r_A (increase in r_S)
 - improved efficiency in distribution: S serves more consumers
- If S responds (strategic rival)
 - price and profit of S both increase
 - impact on consumers and efficiency remains positive

- Pricing below cost the product that is also offered by smaller rivals
 - allows the large firm to charge more on the other goods
 - keeping unchanged the overall price for one-stop shoppers
 - one-stop shoppers are not affected
 - but the large firm extracts more surplus from multi-stop shoppers
- Below-cost pricing arises in equilibrium whenever
 - the additional value from the large firm's broader product range
 - more than compensates the efficiency advantage of the smaller rivals
- This strategy increases the profit of the large firm
(who can earn even more than in the absence of the smaller rivals)
... at the cost of
 - lower consumer surplus,
 - lower market share and profit for the smaller (more efficient) rivals
 - and thus lower social welfare.
- A ban on below-cost pricing would be welfare improving

Strategic margin squeeze

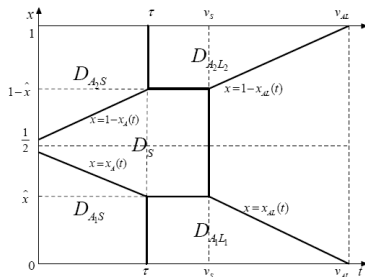
- L acting as Stackelberg leader
 - prices are strategic complements
 - usually induces leader to increase its price
 - here, leads instead L to offer a larger discount
- Uncertain entry of S
 - below-cost pricing generates inefficient deterrence
 - hurts L , who relies on S to exploit consumers
 - leads L to reduce the discount offered on B

- Readily extends to
 - differentiation on B segment: $u_L \neq u_S$ ($u_S - c_S > u_L - c_L$)
 - partial substitution between A and B : $u_{AB} < u_A + u_B$
 - complementarity between A and B : $u_{AB} > u_A + u_B$ - e.g., $u_B = 0$
 - asymmetric shopping costs: t for S , αt for L
 - elastic demand for B (pricing below cost expands demand)
- Next
 - elastic demand for A (L faces a trade-off when raising r_A)
 - imperfect competition on A (idem)
 - "symmetric asymmetry": L_1 better on A , L_2 better on B

- Two large firms L_1 and L_2 , hotelling differentiation on A
 - consumer x obtains
 - $u_A - \frac{x}{\sigma} - p_{A_1} = w_A - r_{A_1} - \frac{x}{\sigma}$ from buying A_1
 - $w_A - r_{A_2} - \frac{1-x}{\sigma}$ from buying A_2
 - x distributed over $[0, 1]$ according to c.d.f. $G(\cdot)$, density $g(\cdot)$
 - symmetry: $g(x) = g(1-x)$
 - inverse hazard rate $k(x) \equiv G(x)/g(x)$ increases with x

Elastic demand for monopolized segment

- Local monopolies if σ low enough (elastic demand for A)
 - L competes with S for multi-stop shoppers
 - L also competes with S for one-stop shoppers



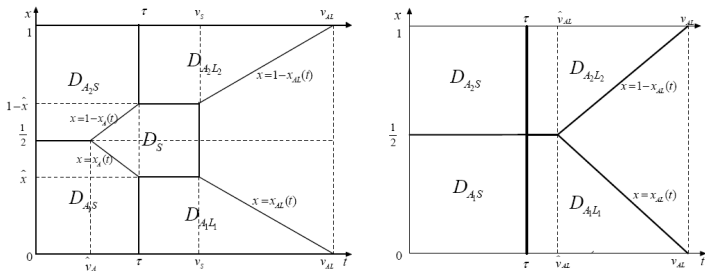
→ in any equilibrium in which it attracts some one-stop shoppers, the large firm prices B below cost

- intuition: consumers with low shopping costs have less elastic demand

Imperfect competition among large firms

- Hotelling duopolies

- L_1 competes with L_2 (and S) for multi-stop shoppers
- L_1 competes with either L_2 or S for one-stop shoppers



→ large firms price B below cost

- Same applies if distribution of shopping costs is bounded

Symmetric asymmetry

- Two multiproduct firms L_1 and L_2
 - compete on both A and B
 - L_1 better on A , L_2 better on B
- In equilibrium
 - one-stop shoppers distribute themselves between L_1 and L_2
 - multi-stop shoppers buy A from L_1 and B from L_2
 - both firms sell their weak product below cost

Competition versus acquisition

- No benefit from opening a new outlet when facing a competitive fringe
- But can be profitable for markets in which
 - L initially enjoys monopoly
 - L then charges $r_{AL} = r_{AL}^m$ and $r_L - r_S = -h(\tau^*)$
 - in this way obtains $\Pi_L^* = \Pi_{AL}^m + h(\tau^*) F(\tau^*)$
 - L faces strategic smaller rivals: opening another outlet
 - fosters competition in B
 - which may help discriminate further multi-stop shoppers

Concluding Remarks

- Insights
 - below-cost pricing can arise absent any efficiency justification
 - harms consumers, smaller rivals and society
 - pretty robust when switching costs are heterogeneous
 - below-cost pricing as an exploitative device rather than an exclusionary tool
 - sheds a light on cases
 - Article 102 (abuse of dominance) versus Section 2 (monopolization)
 - below-cost pricing in other contexts of asymmetric competition
 - platform / applications
 - equipment / accessories, spare parts, maintenance services
- Limitations / further research
 - variable individual demands
 - interdependence consumers' willingness to pay / shopping costs
 - hard-discounters vs convenience stores