

Strategic Behavior.

- Behavior or actions that are taken with the objective of increasing its profits.
- These actions aim at manipulating the market environment:
 - Other existing firms or by possible entrants
 - Beliefs of consumers and of existing and potential rivals
 - Technology and costs of firms and entry costs
- Non-cooperative strategic behavior
- Cooperative strategic behavior

Strategic Behavior.

- Non-cooperative strategic behavior:

Encompasses actions of one firm that wants to increase its profits by improving its “position” relative to its rivals.

- To harm its rivals
- To benefit itself

- Cooperative strategic behavior:

Actions that increase the profits of all firms by reducing competition and by reducing uncertainty about each other.

- Explicit agreements as well as non explicit
- Practices that facilitate collusion (we saw some already when we studied cartels and cooperative behavior in chapters 5 and 6)

Cooperative Strategic Behavior/ Facilitating collusion.

- Meeting-competition clauses and Most favored nations clauses
- Dividing the market and Trigger prices
- Applying a discount to past consumers (penalty to lower price)
- Information exchange (about identity of new customers, and the terms of the contract, so that other firms don't think when a customer changes supplier that it was due to a lower price.
- Delivered pricing = price in a certain basing point plus freight from that point (If Pittsburgh (P) is the basing point for selling steel, if a Ohio seller wants to sell steel to a buyer in Chicago (C) the price that the buyer pays is equal to the price of steel in Pittsburgh plus the freight from P to C. This can facilitate collusion -firms can no longer offer secret discounts on freight. This can also reduce transaction costs -more efficiency- and is used in markets where collusion is not possible)

Cooperative Strategic Behavior/ Facilitating collusion.

- Advance notice of Price increases and of Sales (price decrease)

- *FTC versus Ethyl, du Pont, Nalco and PPG*

A lawsuit against four producers of an additive to leaded gasoline that engaged in public press announcements of price changes, most favored nation clauses and advanced notice of price increases to buyers directly. Apparently most clauses were adopted when only one firm was in the market, so most likely not to facilitate collusion...

- Swaps and Exchanges

- In industries where good is homogeneous and transportation costs are high (chemicals, gasoline and paper), firms may want to swap among each other customers far away with closer customers

- Antitrust cases: swaps were a way to divide the market, to deter entry (because a new entrant could not swap so easily from having fewer locations)

Strategic Behavior – the Role of Courts.

- Cooperative strategic behavior, where firms act together, may seem easier to identify and punish than non cooperative strategic behavior.
- However, sometimes such practices may be engaged not to decrease competition but for efficiency reasons.
 - Sometimes such practices are done in the context of a large number of firms where collusion can be difficult.
 - Example 1: Information exchange, where an Open Competition Plan was voluntarily joined by 465 lumber mills. There, price and quantity data were collected and disseminated. Such exchange has been found not to have anticompetitive impact on output and price.
 - Example 2: Advance notice of price changes that are reached by insistence of the buyers (to plan better) but not the firms themselves (to facilitate collusion)

Non-cooperative Strategic Behavior.

- Encompasses actions of one firm that wants to increase its profits by improving its “position” relative to its rivals.
 - Benefit themselves, harm the others
- Must meet two conditions to be successful:
 - 1. Advantage: The firm must have an advantage over the rivals (like acting before them, or some other asymmetry between firms)
 - 2. Commitment: It must be credible that the firm will follow its strategy regardless of the actions of its rivals => Credible Threat

Non-cooperative Strategic Behavior.

- Lets look at four such strategies and discuss along the way the antitrust policy towards them.
- Lets assume there are barriers to quick entry and exit so that other identical firms cannot use such strategies (this assumption provides the Asymmetry needed for “Condition 1. Advantage” to be met and the courts need to show that the threat was credible)
 - Predatory Pricing
 - Limit Pricing
 - Investments to lower own costs
 - Raising rivals’ costs

Non-cooperative Strategic Behavior – Predatory Pricing.

The incumbent firm lowers its price first, such that rivals are driven out of business or to scare off potential entrants and then raises the price when rivals exit the market.

In particular, the incumbent lowers price below some measure of costs, engaging in short run losses. The benefit are the long-run gains of being alone in the market.

- It is essential that the incumbent can survive lower prices (short-run losses) longer than its rivals, so that predation is a credible threat

Non-cooperative Strategic Behavior – Predatory Pricing.

- One way to prevent entry is to sign long-term contracts with buyers to limit entry of lower cost firms (Aghion and Bolton, 1987). However, entrants could also sign long-term contracts when incumbent threatens predation. The buyers would accept to sign such contracts if price is lower than the incumbent's monopoly price. When the incumbent engages in predation the cut in price would not hurt the entrant.
- As mentioned before, with identical firms, predation may not be successful, because the incumbent cannot make a credible threat of predation.
- A credible threat can happen if the incumbent firm has some advantage (large, low cost firm) or has acquired a certain reputation (rivals believe given past pricing strategies of firm it is going to set low prices and fight if faced with entry of rivals)
- After the rivals are driven out of business the predator has to be able to prevent the rivals' assets from being bought by another firm that enters when the price rises again

Predation and antitrust laws.

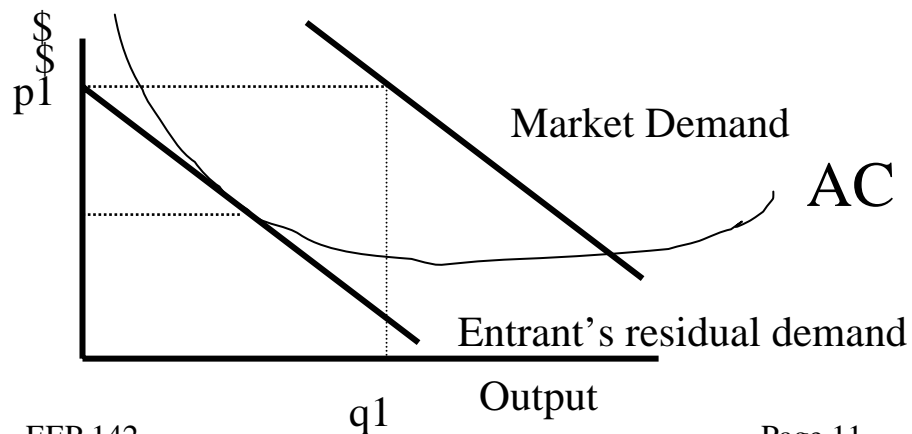
- It is illegal to charge $P < MC$ to drive out competition
- In practice, it is hard to evaluate and hard to prove
- Antitrust authorities don't want to mistake predation for intense competition (Easterbrook, 1981 – only consider a suit if a firm had been driven out of business and predator has again raised market price. Otherwise law is protecting less efficient firms from lower prices)
- Predation in Tobacco markets:
 - Tobacco Trust (1881-1906) engaged in predatory pricing (price below production costs) to acquire cheaply the rivals who were driven out of business
 - From violation of antitrust laws, in 1911 the Tobacco Trust was dissolved and broken into 3 companies. Later these three firms were also charged with collusion and predation to drive rivals out of business (in 1946)

Limit pricing

- A firm sets its price and output such that there is not enough demand left over for another firm to enter the market profitably
- To be credible this entry-detering strategy must satisfy two criteria:
 1. Leave the incumbent with higher profits as a monopolist (net of the cost of the entry deterring strategy) than he would earn competing with the entrant.
 2. Change the entrants' expectations about post-entry profits. The potential entrant believes that the incumbent will not change its output after the new firm enters.

Limit pricing

- Bain(1956), Modigliani(1958), Sylos-Labini (1962)
- Can a low price deter entry?
 - With identical firms...
 - graphically



Limit pricing – example with identical firms

- Consider a market that will last for two years.
- Demand in each year is given by: $P = 100 - Q$.
- Production technology yields yearly total costs:

$$TC(q) = 800 + 10q.$$

- In the first year, there is only one firm (the incumbent, I) with access to this technology.
- In the second year, a potential entrant (E) can come into the market using the same technology.

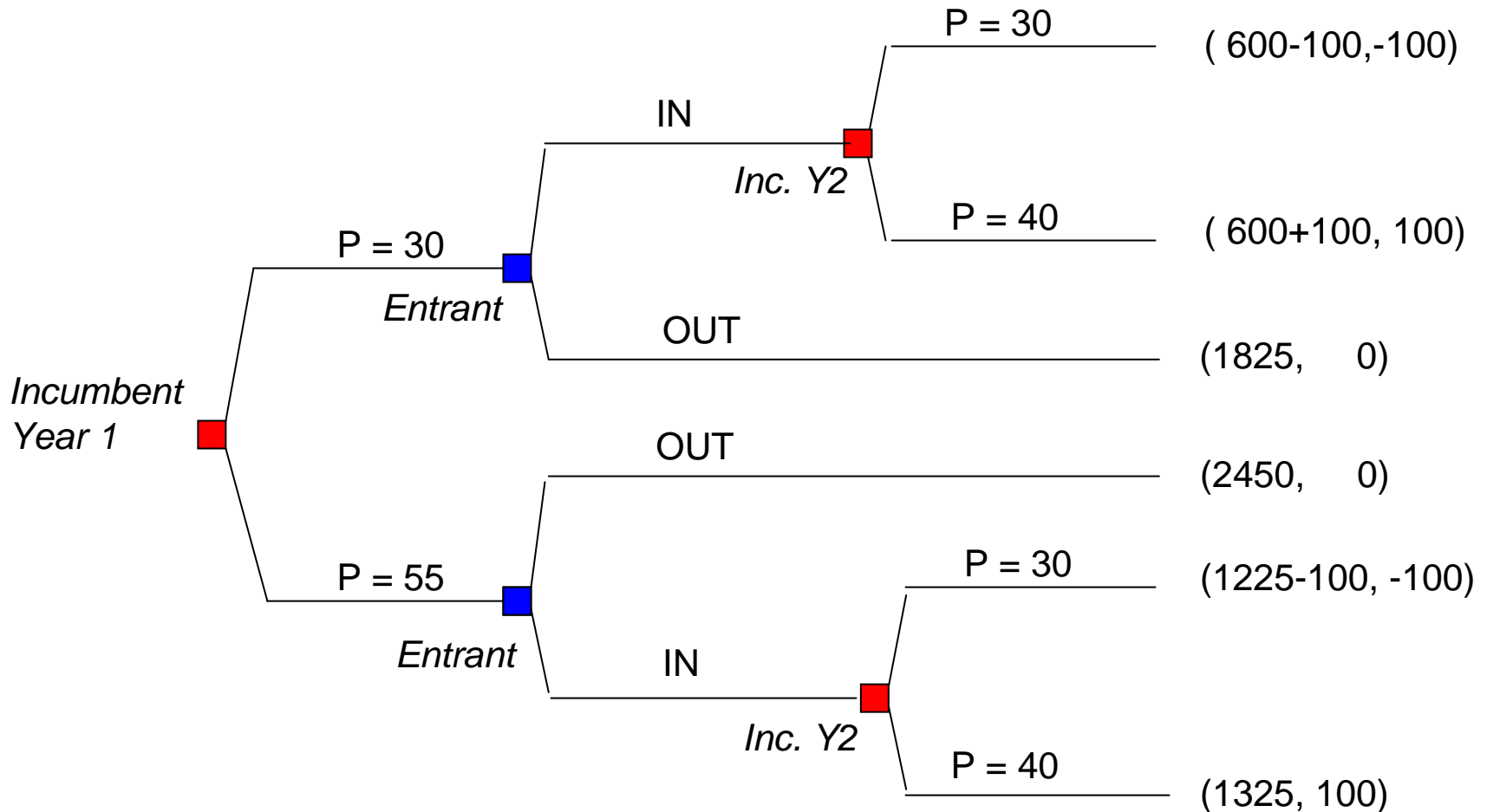
Limit pricing example (cont').

- If firm I is a monopolist, it produces $q_I = 45$, sells it at $P = 55$ for total annual profits of $55 \cdot 45 - 800 - 10 \cdot 45 = 1225$.
- Assume that if firm E enters, firm I and firm E will compete as Cournot competitors. Then the equilibrium yields:
 - $q_I = q_E = 30, P = 40$.
 - $\pi_I = \pi_E = 40 \cdot 30 - 800 - 10 \cdot 30 = 100$.

Limit pricing example (cont').

- According **to criteria 1**, firm I would like to prevent entry:
 - $\pi_{I \text{ without entrant}} = 2 \cdot 1225 - \text{cost}(\text{preventing entry}) > \pi_{I \text{ with entrant}} = 1225 + 100$
- As we know, it will cost something to keep the entrant out.
- Perhaps it could set a low price in year 1 (e.g. $P = 30$) and say it would set that price if entry occurred, to convince the entrant to stay out in year 2:
 - At $P = 30$, $q_I = q_E = 35$, $\pi_E = 30 \cdot 35 - 800 - 10 \cdot 35 = -100$
- If entrant stayed out, incumbent would earn monopoly profits in year 1+2:
 - $\pi_I = 30 \cdot 70 - 800 - 10 \cdot 70 = 600 + 1225 = 1885$

What about criteria 2?



Limit pricing – asymmetric firms

- Low prices can be a *signal* of:
 - Incumbent with low costs.
 - Low market demand.
- If the entrant has imperfect information about these things, limit pricing can be an effective entry deterring strategy.

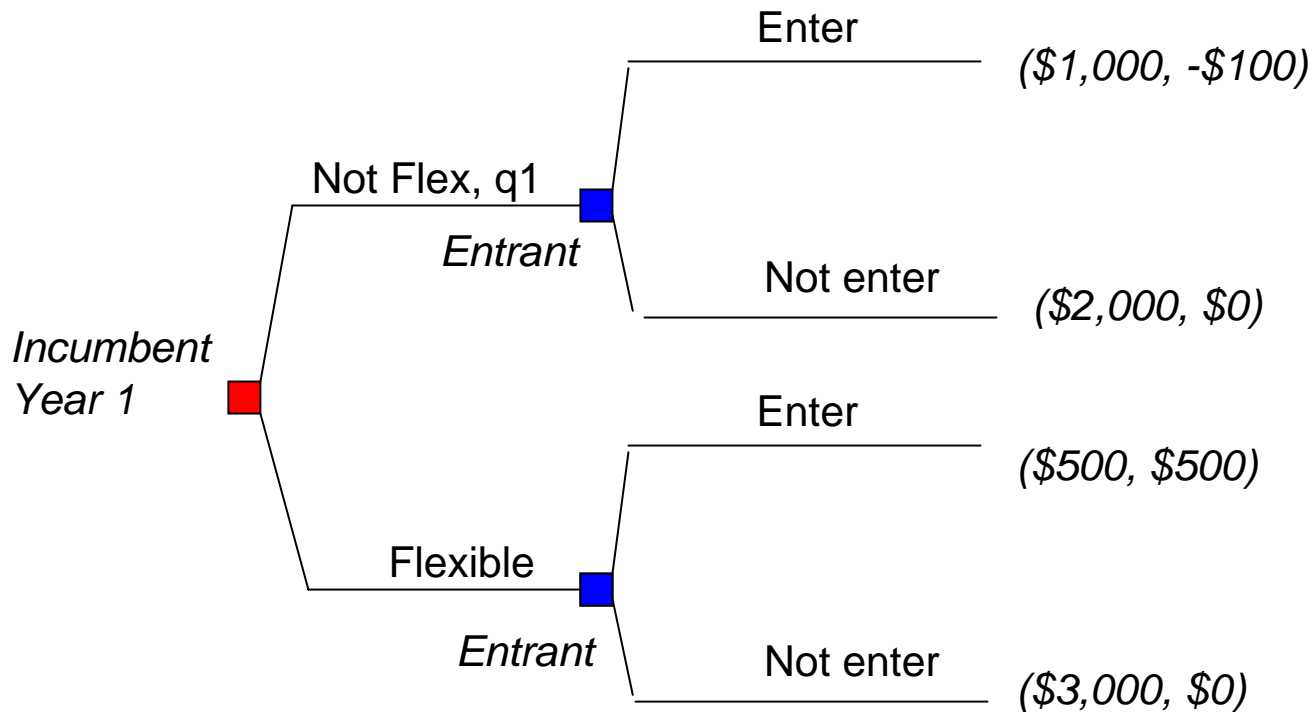
Limit pricing to work...

- The incumbent has to pursue a strategy in which the limit price p_1 and a quantity of q_1 is the optimal pricing strategy after entry.
- As we saw with identical firms that is not credible. The incumbent would switch to Cournot price after entry.
- The key is for the incumbent I to manipulate the market environment when entry occurs so that incumbent has the incentive to price at p_1 and produce q_1 when entry occurs.

Limit pricing – asymmetric firms

- Game 1, sequential investments:
 - First stage: I builds plant with maximum capacity of q_1 .
 - Second stage: Entrant can decide whether to enter. In this period E will not enter because the incumbent I has credibly committed to produce q_1 at p_1 .
 - The incumbent is limiting its production options in first stage. But that helps him in second stage...
- Game 2: sequential game where the Incumbent can choose between a flexible or a restrictive technology in the first stage. In the second stage the entrant decides to enter

Limit pricing – asymmetric firms



Limit pricing – asymmetric firms

- Choosing the not flexible technology is more profitable.
- Choosing the inflexible technology is subgame perfect (no player wants to change strategies in a later period) because the threat to produce q_1 is credible.
- If the incumbent chooses the flexible technology and threatens to produce q_1 if there is entry, that is not a credible threat! To produce q_1 is only a credible threat with the commitment (choosing the not flexible technology of maximum capacity of q_1)