

Business Strategy

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Outline

- Motivation.
- Equilibrium in sequential games.
 - Empty threats and subgame perfection:
 - The bomb game.
 - The chain store paradox.
- Applications:
 - Capacity investment and entry deterrence.
 - Predatory pricing under uncertainty.
 - Signaling and the achievement of collusion.

Motivation (I)

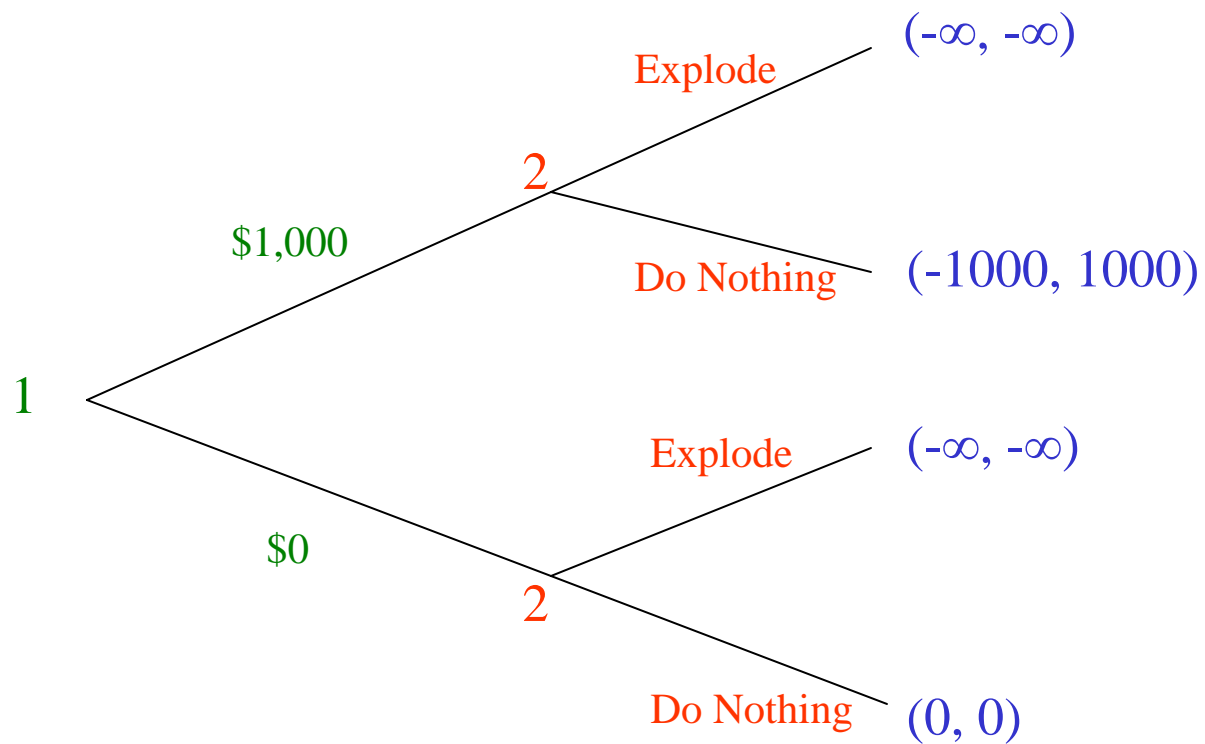
- Industries are rarely made of identical firms.
- Asymmetry is a source of rich interactions among firms where the largest, more efficient, or simply the first one in a market may take actions to influence the strategies.
 - The important factor here is that one the firms "moves" first and the other observes it before deciding on her strategy.

Motivation (II)

- Competition includes those firms that...
 - produce some substitute (although not identical) good.
 - Pricing, advertising, brand introduction, product innovation,...
 - may be thinking of entering the industry (potential entrants).
 - Rich set of strategies to deter entry: capacity investment, limit or predatory pricing, brand proliferation, and many others.

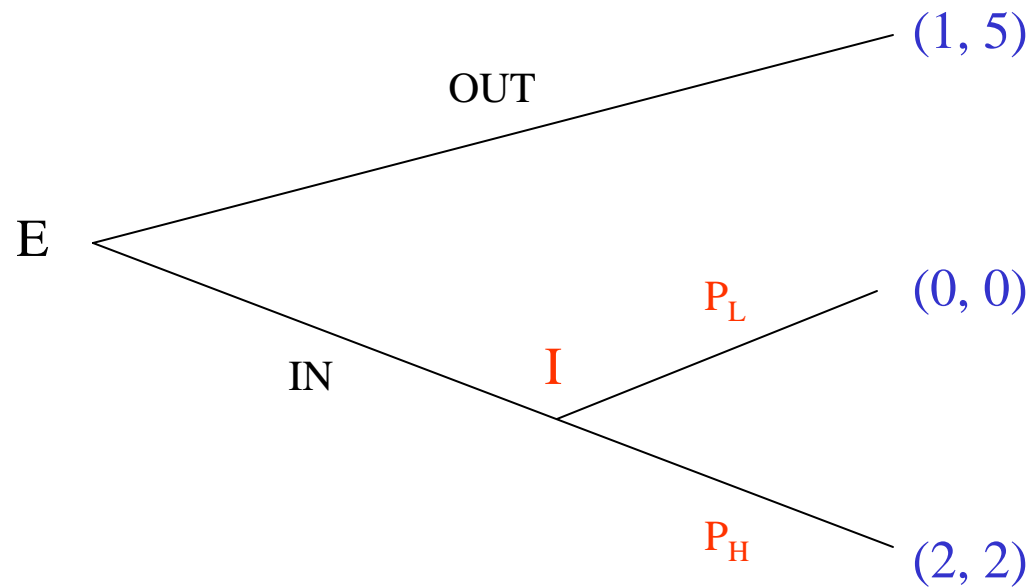
The Bomb Game

- Consider the following game (in extensive form).



The Chain-Store Paradox (extensive form)

- Is predation a credible strategy? Will threats be carried out?
- Dynamic reputation effects may make predation credible.
- An incumbent is present in 20 identical markets.
- There are potential entrants in all these markets.

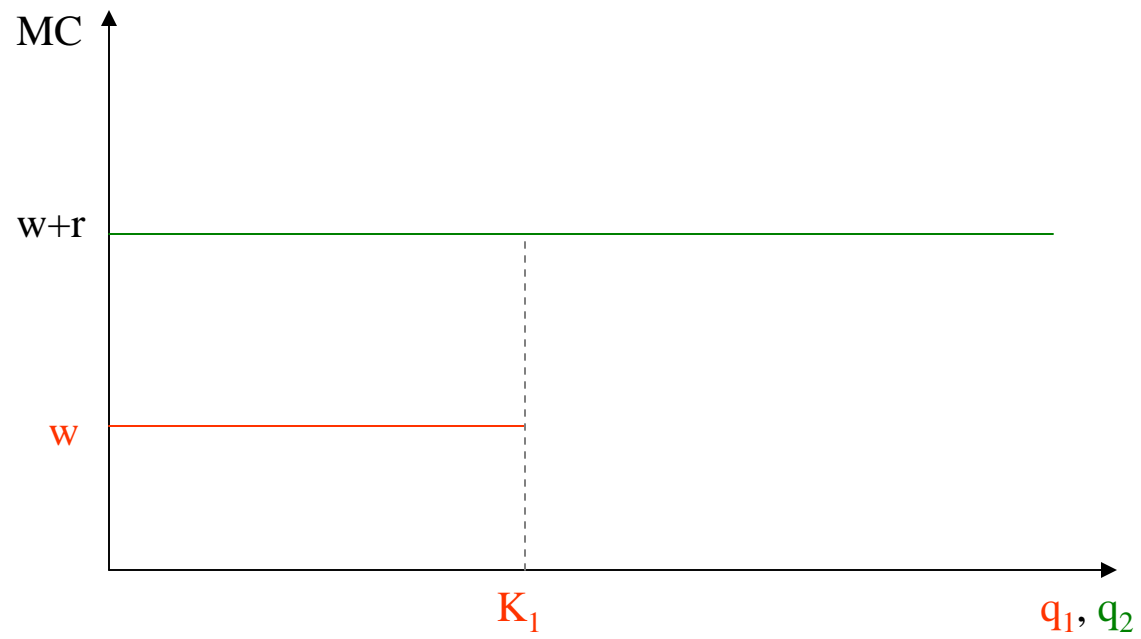


The Chain-Store Paradox (normal form)

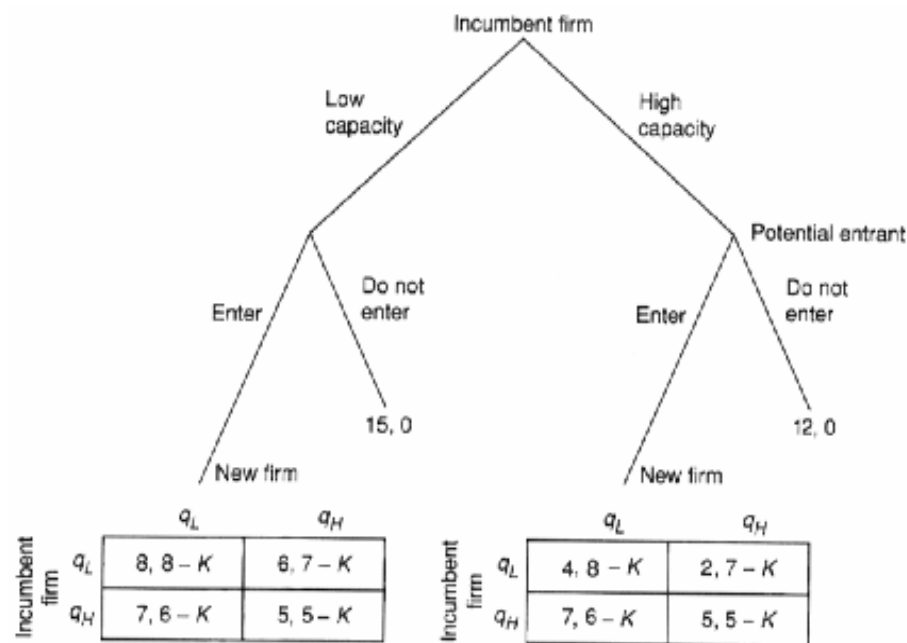
		I	
		P_L	P_H
E	In	0, 0	2, 2
	Out	1, 5	1, 5

Capacity Investment and Entry Deterrence

- Is it possible to deter entry by building capacity?
 - Entry barriers *become the result* of the actions of firms present in a market instead of being just another feature that characterizes a given industry.
- Investment in capacity carries some commitment value.
 - The incumbent becomes a Stackelberg leader.
- The incumbent has installed capacity K_1 . Two regimes:
 - $MC_1 = w$ if $q_1 \leq K_1$.
 - $MC_1 = w+r$ if $q_1 > K_1$.
- The entrant has to build capacity anyway.
 - $MC_2 = w+r$.
 - There is some sunk cost associated to entry so the entrant may not enter unless he is certain to reach some break-even output level.



- Consider the following formalization of the Dixit model for three scenarios:
 - High cost of entry, $K > 8$.
 - Intermediate cost of entry, $6 < K < 8$.
 - Low Cost of entry, $K < 6$.

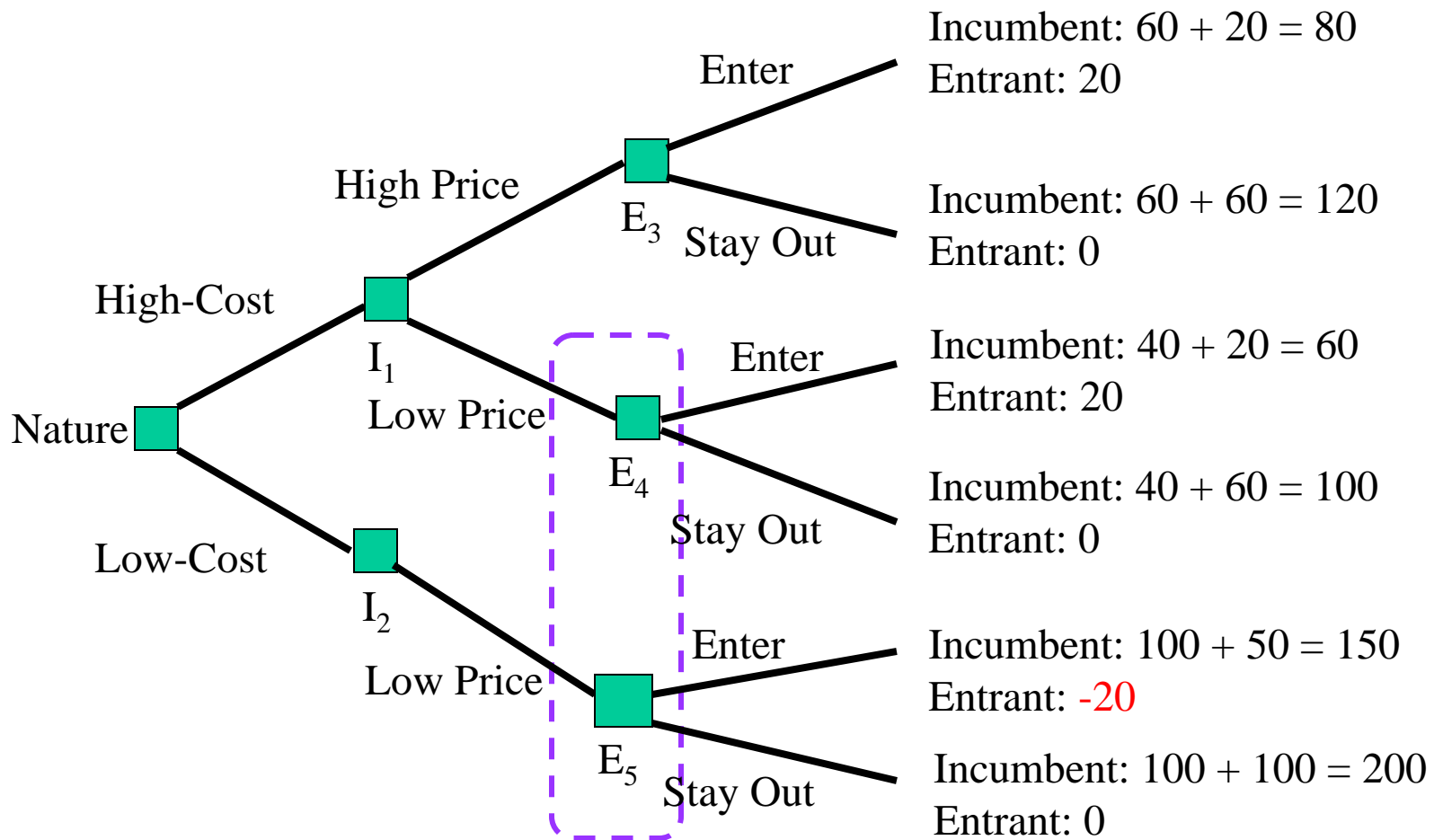


Predatory Pricing

- Charges of predatory conduct are not new:
 - *Microsoft* is only one of the latest.
 - Goes back to the days of *Standard Oil*.
- But they face problems of credibility:
 - Price low to eliminate rivals.
 - Then raise price.
 - So why don't rivals reappear?
- Furthermore predation is dominated by *merger*.
 - Period 1: Incumbent prices at MC and makes zero profits. Entrant leaves.
 - Period 2: Incumbent charges monopoly price and makes monopoly profits.
 - Merger: Share monopoly profits in both periods.

Predation and Imperfect Information

- Predatory strategies need of some source of uncertainty if they are going to be credible.
- An alternative approach: information structure:
 - Suppose that an entrant does not have perfect information about the incumbent's costs
 - If the incumbent is low cost do not enter.
 - If the incumbent is high-cost enter.
 - Does a high-cost incumbent have an incentive to pretend to be low-cost - to prevent entry?
 - For example by pricing as a low-cost firm.
- Example:
 - Incumbent has a monopoly in period 1
 - Threat of entry in period 2.
 - Market closes at the end of period 2.
 - Entrant observes incumbent's actions in period 1.



- Consider a high-cost incumbent:
 - High price in period 1 - entry happens, profits are 80.
 - Low price in period 1 - if no entry profits are 100.
 - Low price in period 1 - if entry profits are 60.
- **A high-cost incumbent has an incentive to pretend to be low-cost.**
- The entrant knows this.
 - So a low-price by itself will not deter entry.
 - Price is not a true signal of the incumbent's type.
- Only the **probability** that low-price means low-cost deters entry.

- Consider the profits of the entrant given that the incumbent sets a low-price in period 1:
 - If the incumbent is high-cost - profit is 20 with probability $1 - p$.
 - If the incumbent is low-cost - profit is -20 with probability p .
 - So expected profit is $20(1 - p) - 20p = 20 - 40p$
- Will the entrant not enter when it sees a low price?
 - Only if $p > 1/2$
 - Only if there is a "sufficiently high" probability that the incumbent is low cost.
- **Provided that pretence is expected to work a high-cost incumbent has an incentive to set a limit price.**

Limit Pricing and Uncertainty (summary)

- Monopoly power can persist even if the incumbent is high-cost.
- Entry only takes place if entrants believe that the incumbent is high-cost:
 - So entry is more likely when incumbents are expected to be weak.
 - Entry then consistent with exit: efficient entrants drive out inefficient incumbents.
- The model shows how a high-cost firm can deter entry.
 - However, to do this it must set a low price.
 - This is how it "fools" the would-be entrant.
- The threat of entry forces the incumbent to price below the monopoly price it would otherwise set.
 - This lower limit price therefore mitigates the resource misallocation effects of monopoly.

M.Q. 6: General Electric and Westinghouse

This page has been left blank on purpose. Read the motivating question above and address it before coming to class. We will discuss them and I will post the solutions after the lecture.