**Dec 8, One-pager**

**Outline**

Equilibrium in an Oligopolistic Market

* When a market is in equilibrium, firms are doing the best they can and have no reason to change their price or output.

Equilibrium in oligopoly markets:

**Nash equilibrium (NE)** Set of strategies or actions in which each firm does the best it can given its competitors’ actions.

Oligopoly Models

* Cournot Model

Oligopoly model in which firms produce a homogeneous good, each firm treats the output of its competitors as fixed, and all firms decide simultaneously how much to produce.

* **reaction curve**

*Relationship between a firm’s profit-maximizing output and the amount it thinks its competitor will produce.*

**Cournot equilibrium:** Each firm correctly assumes how much its competitor will produce and sets its own production level accordingly.

* The Stackelberg Model - First Mover Advantage

Oligopoly model in which one firm sets its output before other firms do.

* + *Going first gives a firm an advantage.*

Gaming and Strategic Decisions

* **game** Situation in which players (participants) make strategic decisions that take into account each other’s actions and responses.
* **payoff** Value associated with a possible outcome.
* **strategy** Rule or plan of action for playing a game.
* **optimal strategy** Strategy that maximizes a player’s expected payoff.

Cooperative vs. Non-cooperative Games

* **Cooperative Game**

Game in which participants can negotiate binding contracts that allow them to plan joint strategies.

* **Non-cooperative Game**

Game in which negotiation and enforcement of binding contracts are not possible.

Cooperative Equilibrium

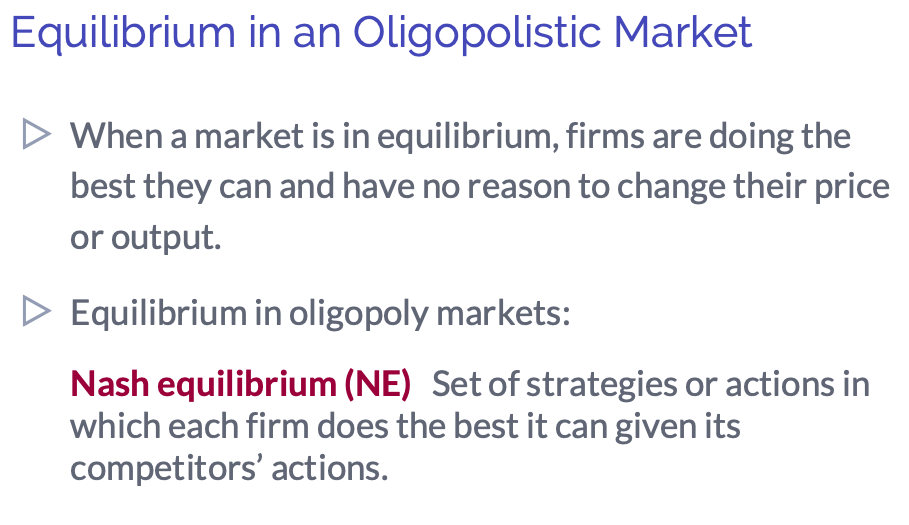
* In most business situations games are played repeatedly.
  + *Firms can collude implicitly to reach the cooperative equilibrium.*
  + Enforcement mechanisms like price matching
  + Price leadership

Cartel

* A group of firms that collude by agreeing to restrict output to increase prices and profits.
  + *illegal in the U.S.*
  + *Examples:*
* Are Cartels stable?

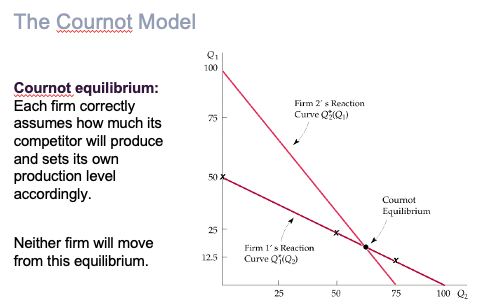
Repeated Games

* If a game is repeated an infinite number of times, a tit-for-tat strategy might lead to successful cooperation.
* If the game is played a known and finite number of times, it could unravel even if players try to signal cooperation.
* If the game is played an unknown but finite number of times, it still might be successful to play a tit-for-tat strategy.



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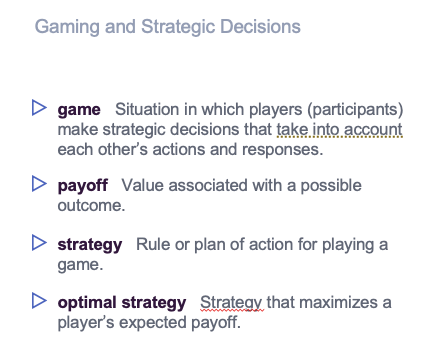


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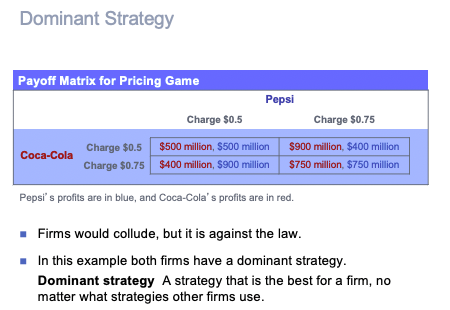


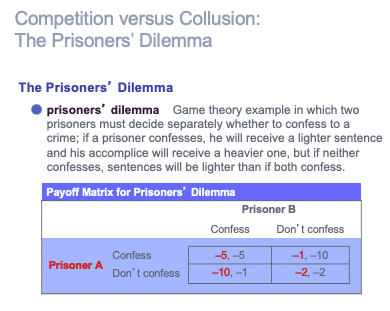
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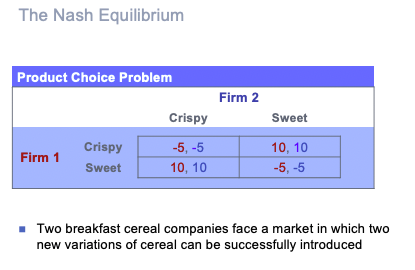
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