Oligopoly Market Price Elasticity of Demand

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OLIGOPOLISTIC BEHAVIOR EXPLAINED THROUGH GAME THEORY (PRISONER'S DILEMMA)

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- The Prisoner's Dilemma: Plays out how two rational decision-makers, use strategic behavior, may both end up being worse off. The final outcome/position is reversed the 'Nash Equilibrium'.
- Nash Equilibrium: Sometimes a conflict between the pursuit of individual self-interest & collective firm interest. Firms could be better off by cooperation, each firm, trying to make itself better off, ends up making both itself and its rival worse off.

FIRMS ARE INTERDEPENDENT

OLIGOPOLISTIC FIRMS ARE CAUGHT IN A DECISION MAKING PROCESS OF DECIDING TO COMPETE OR COLLUDE

TYPES OF BEHAVIOR

- STRATEGIC BEHAVIOR
  - FIRMS ACTIONS BASED ON EXPECTED ACTIONS & REACTIONS OF RIVAL(S)
- CONFLICTING INCENTIVES
  - INCENTIVE TO COLLUDE
    - COLLUSION IS AN AGREEMENT BETWEEN FIRMS TO LIMIT COMPETITION BETWEEN THEM, USUALLY BY PRICE FIXING & LOWERING QUANTITY PRODUCED.
  - INCENTIVE TO COMPETE
    - COMPETE FOR MARKET SHARE OF ITS RIVALS MARKET SHARES & PROFITS.

HOW A FIRM WITHIN AN OLIGOPOLY BEHAVES

NON-COLLUSIVE OLIGOPOLY:

- A few firms making up the marketplace, that do not cooperate on output & price.
- Firms are players that make moves within the marketplace to achieve payoffs.

COLLUSIVE OLIGOPOLY:

- A few firms working up the marketplace, that cooperate on output & price in order to limit competition (no price fixing, quotas, decrease advertising, decrease R&D).

QUESTIONS:

1. How do the behaviors within the two scenarios relate to the behavior of firms within an Oligopoly market structure?
2. Did either of these scenarios end up with a 'Nash Equilibrium'? Use evidence to your answer.

ASSUMPTION OF AN OLIGOPOLY

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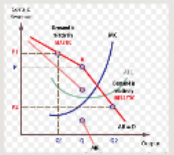
- Firms are too small to be able to control/influence the market
- The product may be homogeneous/undifferentiated (oil or gas) or differentiated (hamburgers or automobiles
  - Strong branding within differentiated products
- Often there are fairly high barriers to entry and exit, but there could be low barriers
- Firms recognise their mutual interdependence and engage in strategic behavior
- Use Concentration Ratios (CRx) to measure the industry
  - Usually a CR4 is used.
    - Percentage of the industry sales accounted for by the 4 largest firms. If firms control 40% or more of the market it is considered oligopolistic.

OLIGOPOLY BEHAVIOR IN THE MARKETPLACE

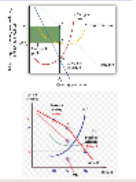
FIRMS BEHAVIOR:

- If Nike decreases its price for running shoes, ASICS will also decrease its price. This would be because Nike does not want to decrease its market share in the event that ASICS decreases its price. The result would be that price decreases will be matched. Demand for Nike will be highly inelastic below to USD.
- If Nike increases its price, ASICS will keep its price at 70 USD. If Nike's price increases, ASICS will most likely gain market share since Nike's price remains low. Demand for Nike will be highly elastic at a price above 70 USD.



COLLUSIVE VS. NON-COLLUSIVE OLIGOPOLY

- **COLLUSION**: Agreement between firms to limit competition, increase monopoly power & increase profits. (Illegal in most countries!)
  - **Price fixing agreements:** holding prices constant, raising prices by fixed amounts, fixing price differences between different products, adopting a formula for calculating prices.
    - **Formal Collusion** in a cartel (e.g. OPEC) – limit competition in order to increase profits. Often done through fixing output, dividing the geographical market, setting up collective barriers to entry.
      - Behave like a Monopolist
    - **Tacit/Informal Collusion:** Co-ordinate prices, avoid competitive price-cutting, limit competition, reduce uncertainties and increase profits.
  - **Price leadership:** Largest firm sets price & smaller firms are price takers, but engage in non-price competition. (e.g. Casual & Cigarette firms)

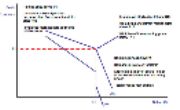


NON-COLLUSIVE OLIGOPOLY

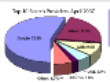
A non-collusive oligopoly: Where firms do not agree, formally nor informally, to fix prices or collaborate in some way.

Kinked-Demand Curve:

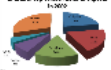
- Explains price rigidities of oligopolistic firms that do not collude.
- Pricing behavior is strategic
  - Firms don't want to raise (competitors ignore) or lower (competitors match) their price
    - Creates price rigidity
- Price is determined by rival firms expected reactions
- Firms want to keep MC=MR (Profit Maximization)



Concentration Ratios (CRx)



CR4: Percentage concentration of the market share of the largest firms within the industry.

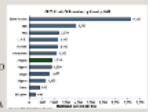


Weaknesses of using the CRx:

- Only reflect national market concentration
- No indication of firms global market power
- Do not account for substitute goods competition
- Do not distinguish between different possible sizes of the largest firms.

OBSTACLES TO FORMING & MAINTAINING CARTELS

- INCENTIVE TO CHEAT
- COSTS DIFFERENCES BETWEEN FIRMS
- FIRMS FACE DIFFERENT DEMAND CURVES
- NUMBER OF FIRMS IN THE INDUSTRY
- PRICE WAR POSSIBILITY
- RECESSIONS
- POTENTIAL ENTRY OF NEW FIRMS INTO THE INDUSTRY
- LACK OF A DOMINANT FIRM
  - OPEC: SAUDIA ARABIA... WITHOUT A DOMINANT FIRM IT WOULD BE DIFFICULT TO REACH CONSENSUS.



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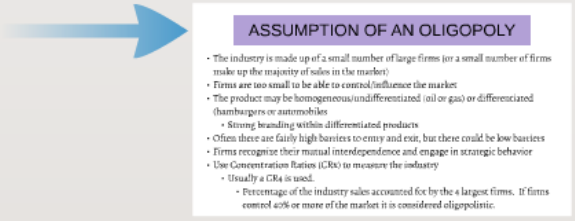

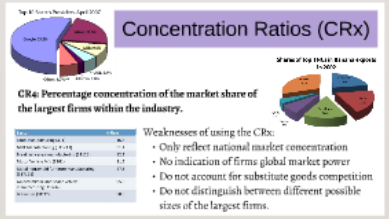

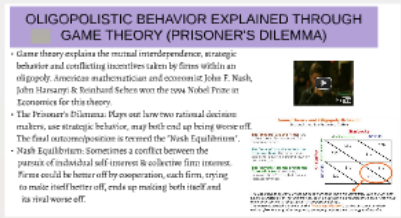

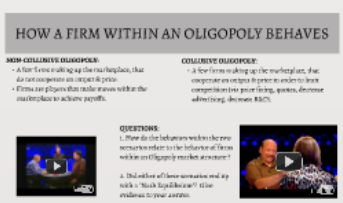

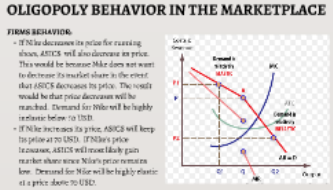

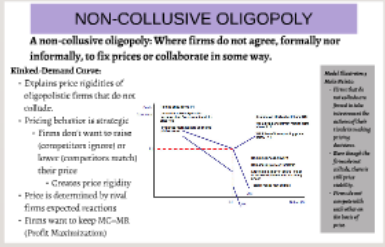

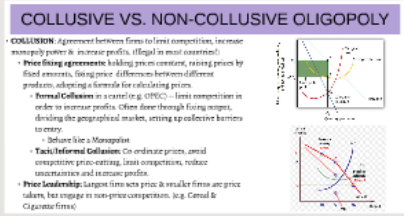

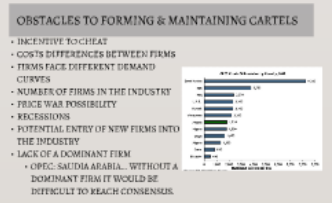

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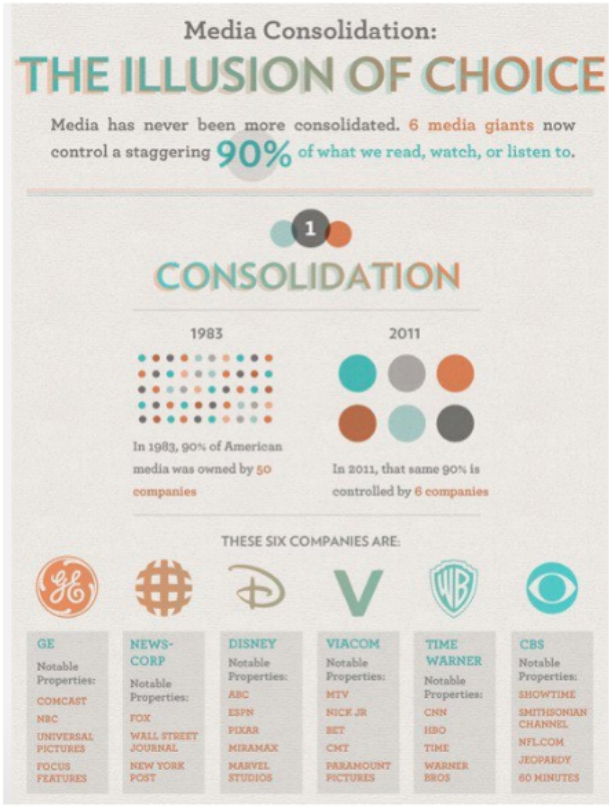

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Game Theory and Oligopoly Behavior

Starbucks vs. San Francisco Coffee

The "players" are the firms: Two coffee shops, Starbucks and San Francisco Coffee.

The "moves" are the actions the firms can take: The coffee shops can either advertise around town or not advertise.

The "payoffs" are the profits the firms will earn: Advertising increases firms' costs, but can also increase revenues.

SF Coffee \ Starbucks	don't advertise	advertise
don't advertise	$15, $15	$20, $10
advertise	$10, $20	$12, $12

The equilibrium outcome of the game is that both firms will advertise. Even though both would be better off by not advertising, such an outcome is unstable since each firm would have an incentive to advertise if its competitor did not.
The outcome circled is known as the "Nash Equilibrium", or the outcome at which neither firm has anything to gain by changing only its own strategy unilaterally.