12.65- Game Theory

12.65- Demonstrate an understanding of the principles of game theory
By: Carter Greene

Kickoff:

❖ Go to Google Classroom and complete **"KO-2/18"**
  ➢ Game theory inventory
  ➢ When will you be gone?
❖ If you need an AP class signature, put the sheet on your desk
❖ **Roll Call:** DC or Marvel?

Announcements:

- ❖ Knight Time this week and next
  - ➢ Class sign ups tomorrow
  - ➢ Questions?
    - ■ AP fair tonight
- ❖ One more quiz this unit?
- ❖ **After today we have 2 more modules/lessons left in this unit**
  - ➢ Modules 67 (monopolistic competition)and 68 (product differentiation & advertising)
  - ➢ Test day is partially dependent on your answer to he Kickoff

Quiz:

❖ 13 Questions
❖ 20 Minutes
❖ **ABSOLUTELY NO TALKING EVEN WHEN YOU'RE DONE**
❖ Short sweet and to the point
❖ When you are finished START CATCHING UP ON TEXTBOOK READINGS
  ➢ Talking about module 65 today

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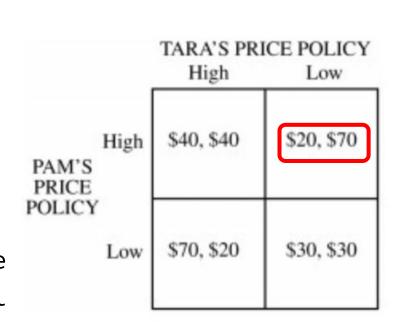
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Reminders/Tendencies of Oligopolies

❖ <u>Few firms</u> make up majority of market
❖ Firms are <u>interdependent</u>
  ➢ Incentive to form <u>cartels</u>
    ■ <u>Collusion-</u> set price and quantity produced to maximize industry profits
      ● Difficult to maintain because of <u>temptation to cheat</u>
❖ Often times price leadership and price wars
  ➢ Firms may match price decrease but not increase
❖ Firms must consider the decisions of others
  ➢ <u>GAME THEORY!!!</u>

GAME THEORY

❖ <u>The study of strategic behavior in situations of interdependence</u>

❖ Payoff- reward to any one player
  ➢ Profit

❖ Payoff Matrix- visual of potential payoffs given the decision of each individual

❖ Payoffs if Pam prices high and Tara prices low?
  ➢ Pam = $20; Tara = $70

	TARA'S PRICE POLICY	
	High	Low
PAM'S PRICE POLICY High	$40, $40	$20, $70
Low	$70, $20	$30, $30

Dominant Strategy

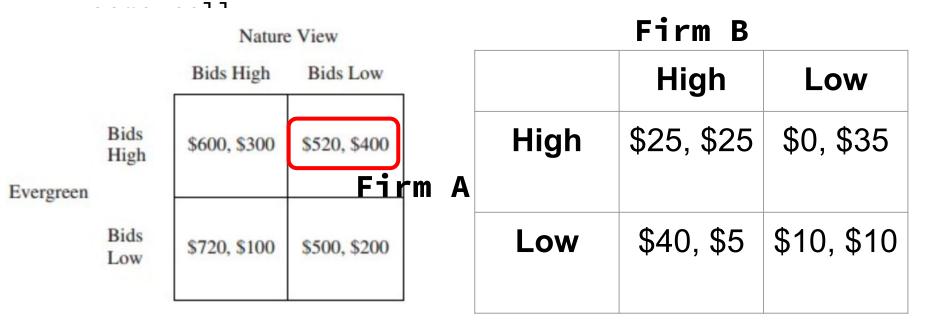❖ When an action of a player (firm) is the best choice regardless of the decision of the other
❖ Firm A
➢ Price Low
❖ Firm B
➢ Price Low

Firm A

		Firm B	
		High	**Low**
	High	$25, $25	$0, $35
	Low	$40, $5	$10, $10

Nash Equilibrium

- ❖ When players choose the option that is best for them given the actions of the other player
- ❖ <u>Game ends with both sides voluntarily choosing the</u>

Nature View

	Bids High	Bids Low
Bids High	$600, $300	$520, $400
Bids Low	$720, $100	$500, $200

Evergreen

Firm A

Firm B

	High	Low
High	$25, $25	$0, $35
Low	$40, $5	$10, $10

Prisoner's Dilemma

❖ (1)Each firm acts in its own interest considering others outcome, (2) and a less than idea outcome results

❖ 2 prongs:
  ➢ Each firm has an incentive to act in its own best interest
  ➢ Both are consequently worse off than if they worked together

	Firm B	
	High	**Low**
High	$25, $25	$0, $35
Low	$40, $5	$10, $10

Firm A

Oligopolies and Game Theory– The Dark Knight

Game Theory Practice

❖ With your partner work on the Game Theory Practice sheets
  ➢ These are all examples of matrix you could see again
❖ When you are finished, check it with me
❖ After:
  ➢ If you think you have this under control read your textbook
  ➢ If you need additional help, consult the videos

Closure