

DISCUSSION QUESTION

Name:

Instructor:

Course:

Suppose you run a major company's marketing department and are responsible for deciding whether or not to advertise in the Super Bowl. It costs \$4.5 million to run a 30-second Super Bowl advertisement. Your team of analysts estimates that for each advertisement, it would generate exactly \$3.5 million in additional revenue for the company. Therefore, for each 30-second advertisement purchased, your company would lose \$1 million in profit.

- a) How could it still be a good business decision to purchase an advertisement, even if you know in advance that your company would lose \$1 million in profit? What is the name for this situation?

- b) In the vast majority of Super Bowls, multiple competitors in the same industry will purchase advertisements. For example, multiple car manufacturers, soft drink companies, insurance companies, etc., purchased advertisements to run in the 2015 Super Bowl. Explain why this is the case, in light of the characteristics of oligopolies.

PEER GROUP PROBLEM SOLVING

Name:

Instructor:

Course:

Firm 1 and Firm 2 are airplane producers. Each has the option of producing either 10 or 20 planes. The payoffs to each of the four possible combinations of choices are given in the following payoff matrix.

		Firm 2	
		Q = 10	Q = 20
Firm 1	Q = 10	F1 = 45 F2 = 30	F1 = 50 F2 = 35
	Q = 20	F1 = 40 F2 = 60	F1 = 55 F2 = 20

- What are the dominant strategies of each firm? What (if any) is the Nash equilibrium for this game?
- Suppose Firm 1 moves before Firm 2. Construct this game with a sequential game tree.
- What (if any) is the Nash equilibrium for this sequential game?
- Does this game represent a prisoner's dilemma? Briefly explain.

IN-CLASS EXPERIMENT / ACTIVE EXERCISE

A story in *The New York Times* titled “Ratings Now Cut Both Ways, So Don’t Sass Your Uber Driver” from January 30, 2015, discusses how customers have incentives to give positive reviews regardless of the quality of service, because they don’t wish to get a negative review in response.

Have students break into groups of 3 or 4 students to construct a sequential game which illustrates the following situation.

Suppose a customer received bad service and would like to give a negative review to the provider. However, the customer knows that if s/he gives the provider a negative review, the provider will respond by giving a negative review. Construct a sequential game in which a customer and a provider have the option of giving either a positive or a negative review to one another. The customer is the first mover and the provider the second mover.

Create payoffs (which could represent profit or utility) for both the customer and the provider such that the Nash equilibrium is that both are given positive reviews, even though the customer would prefer to give a negative review.

SOLUTIONS AND INSTRUCTOR NOTES

Discussion Question

Suppose you run a major company's marketing department and are responsible for deciding whether or not to advertise in the Super Bowl. It costs \$4.5 million to run a 30-second Super Bowl advertisement. Your team of analysts estimates that for each advertisement, it would generate exactly \$3.5 million in additional revenue for the company. Therefore, for each 30-second advertisement purchased, your company would lose \$1 million in profit.

- a) How could it still be a good business decision to purchase an advertisement, even if you know in advance that your company would lose \$1 million in profit? What is the name for this situation?

This could still be a good business decision if you expected your company to lose even more than \$1 million if they did not run an advertisement. For example, if a major competitor runs an advertisement and your company does not, your company could lose \$2 million. In this situation, many companies would choose to run advertisements knowing in advance that they will likely lose profit as a result. This situation is known as a prisoner's dilemma.

- b) In the vast majority of Super Bowls, multiple competitors in the same industry will purchase advertisements. For example, multiple car manufacturers, soft drink companies, insurance companies, etc., purchased ads to run in the 2015 Super Bowl. Explain why this is the case, in light of the characteristics of oligopolies.

This is due to the strategic interdependence (or interconnected pricing) characteristic of oligopolies. In making the decision of whether to run an advertisement, each company will consider what they expect their competitors to do. If a company expects their competitors to run an advertisement, they will be more inclined to run an advertisement as well.

Peer Group Problem Solving

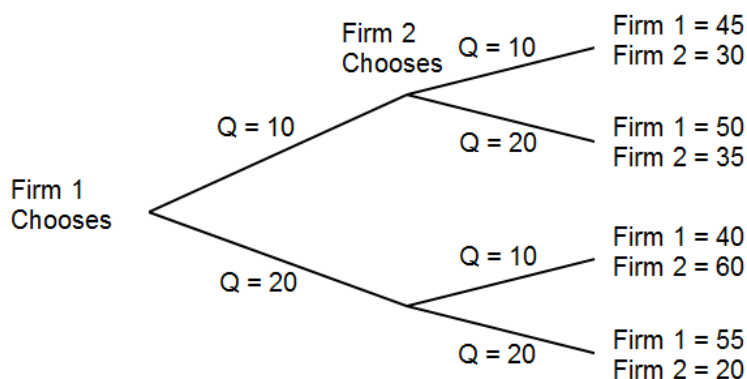
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- a) What are the dominant strategies of each firm? What (if any) is the Nash equilibrium for this game?

Neither Firm 1 nor Firm 2 has a dominant strategy. There is no Nash equilibrium for this game.

- b) Suppose Firm 1 moves before Firm 2. Represent this game with a sequential game tree.



- c) The Nash equilibrium is that Firm 1 produces 10 and Firm 2 produces 20.

The payouts are: Firm 1 = 50; Firm 2 = 35.

- d) Does this game represent a prisoner's dilemma? Briefly explain.

This does not represent a prisoner's dilemma. There is no alternative outcome that would make both Firm 1 and Firm 2 better off.

In-Class Experiment / Active Exercise

A story in *The New York Times* titled "Ratings Now Cut Both Ways, So Don't Sass Your Uber Driver" from January 30, 2015, discusses how customers have incentives to give positive reviews regardless of the quality of service, because they don't wish to get a negative review in response.

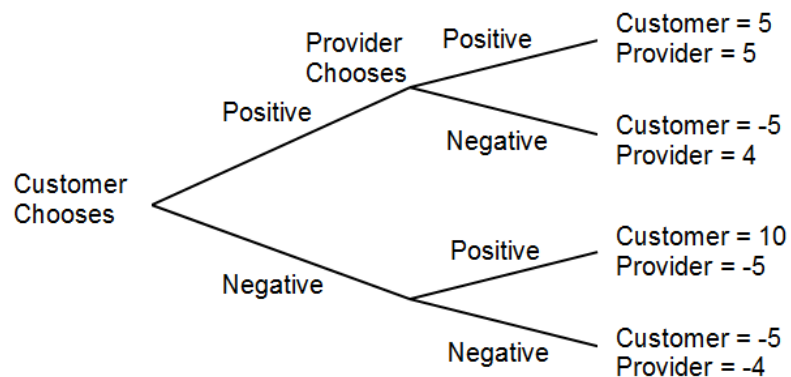
Have students break into groups of 3 or 4 students to construct a sequential game which illustrates the following situation.

Suppose a customer received bad service and would like to give a negative review to the provider. However, the customer knows that if s/he gives the provider a negative review, the provider will respond by giving a negative review. Construct a sequential game in which a customer and a provider have the option of giving either a positive or a negative review to one another. The customer is the first mover and the provider the second mover.

Create payoffs (which could represent profit or utility) for both the customer and the provider such that the Nash equilibrium is that both are given positive reviews, even though the customer would prefer to give a negative review.

There are many payoffs that can result in this outcome. The key difficulty to students will be to come up with payouts that show the customer would prefer to give a bad review, but end up giving a positive review because they know the second mover's response will result in a worse outcome.

A sample game would look as follows:



For more in-class experiment and active learning ideas, visit www.econedactive.com.