10

Market Power

Dave Anderson

Anderson, Survey of Economics 1e

LEARNING OBJECTIVES

1. Identify the sources of market power
2. Explain how a monopoly chooses its price and quantity to maximize its profit
3. Use payoff matrices to show how interdependence affects decision making within oligopolies
4. Characterize a monopolistically competitive market

SOURCES OF MARKET POWER

- A firm has **market power** if it has influence over the price it charges.
- Firms in perfect competition are price-takers because they do not have market power.
- Sources of market power include:
  - legal barriers to entry
  - control of resources
  - strategic barriers
  - economies of scale

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LEGAL BARRIERS TO ENTRY PART I

- Market power allows firms to make a profit. If society wants more of something that requires innovation, such as medicine, producers can be encouraged by legal protection for their inventions.

- The government provides firms with market power by granting patents, copyrights, and trademarks.

- A **patent** is a grant of the right to be the only seller of an invention for a designated period of time.
  - In the United States, a patent prohibits competing firms from selling the same good or service for 20 years.

LEGAL BARRIERS TO ENTRY PART II

- A **copyright** gives the creator of an original work the exclusive right to sell that work.
  - Examples of copyrighted works include songs, software, and architecture.
  - Copyrights generally last for the creator's lifetime plus 70 years.

- A **trademark** is a word, phrase, symbol, or design that distinguishes the products of one firm from those of its competitors.

Richard B. Levine/Avalon.red/Photoshot

  - An example is the Under Armour logo.
  - Trademarks last for an unlimited period of time.

CONTROL OF RESOURCES

- Exclusive control of a productive resource conveys market power.

- The Organization of Petroleum Exporting Countries (OPEC) controls most of the world's most abundant oil reserves.

- This enables OPEC to influence prices in the oil market.

- Justin Bieber has market power because he has exclusive control of the human resource that is himself.

STRATEGIC BARRIERS

- Firms can use various strategies to limit competition. These include:
  - *predatory pricing* (pricing at a loss with the intent of driving competitors out of business)
  - corporate espionage

- Many such strategies have been made illegal.

ECONOMIES OF SCALE

- When economies of scale exist, a small number of large firms can produce at a lower cost per unit than a large number of small firms can.
  - An example is the oil industry. Each oil refinery costs roughly $500 million, so a small firm would not be effective.
- In some markets, such as water treatment, the ideal number of firms is one.
- High startup costs result in a **natural monopoly**, a market in which the long-run average total cost for a single firm decreases for every increase in output the market could reasonably desire.

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MONOPOLIES

- A **monopoly** is a market with only one firm. The firm in a monopoly is called a *monopolist*.

- Many small towns have *local monopolies* because they are not big enough for multiple gas stations or grocery stores.

Andrew Palochko

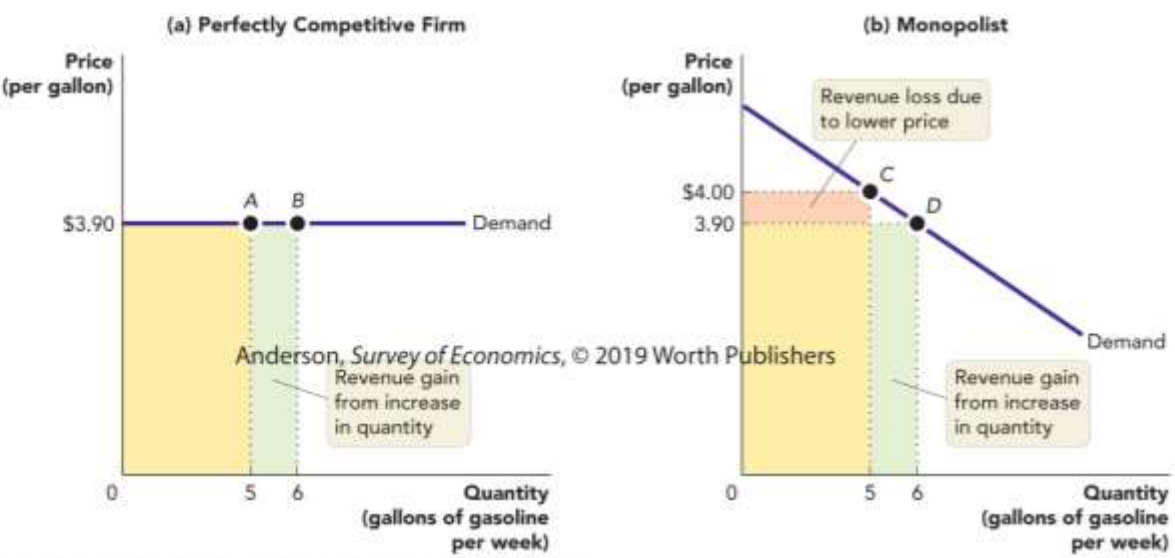
- Monopolists have the most market power, but they are not exempt from the law of demand.

- As a product's price goes up, the quantity demanded by consumers goes down.

A MONOPOLIST'S MARGINAL REVENUE

- As the only firm in the market, the monopolist faces the entire downward-sloping market demand curve.

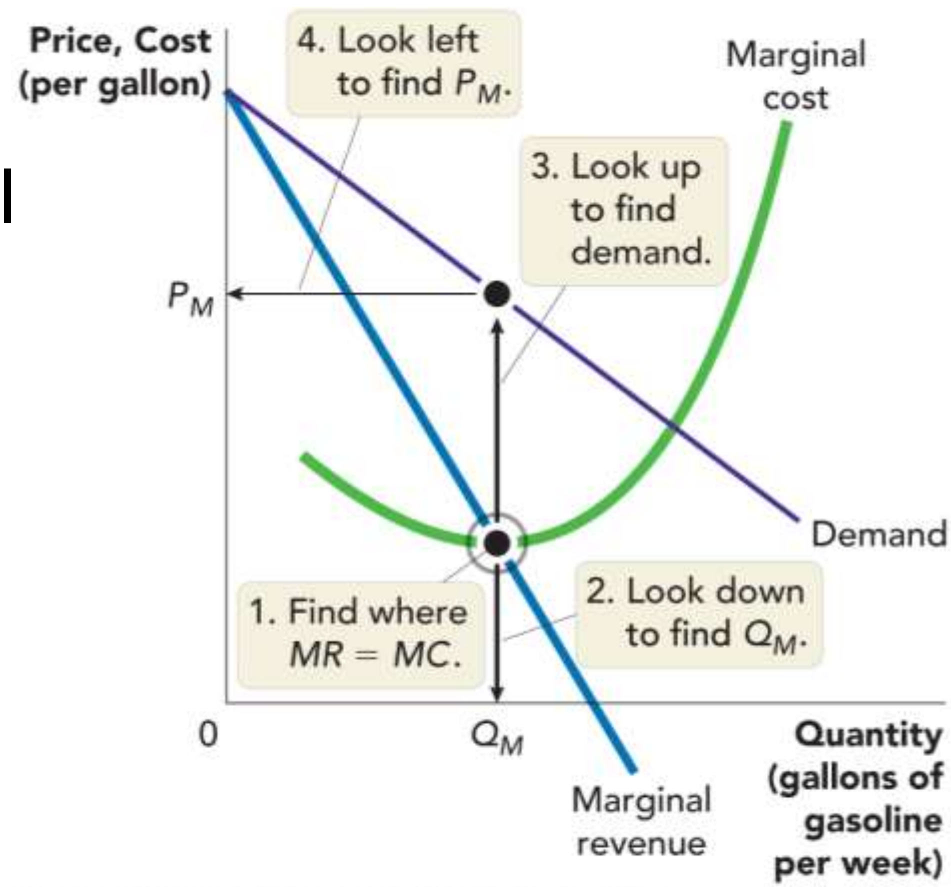
- A monopolist must lower its price to sell more units, so the firm's marginal revenue is the new price minus the losses from lowering the price on the units that could have been sold at a higher price.



- Marginal revenue can also be found by calculating the change in total revenue when one more unit is sold.

A MONOPOLIST'S PROFIT-MAXIMIZING QUANTITY AND PRICE

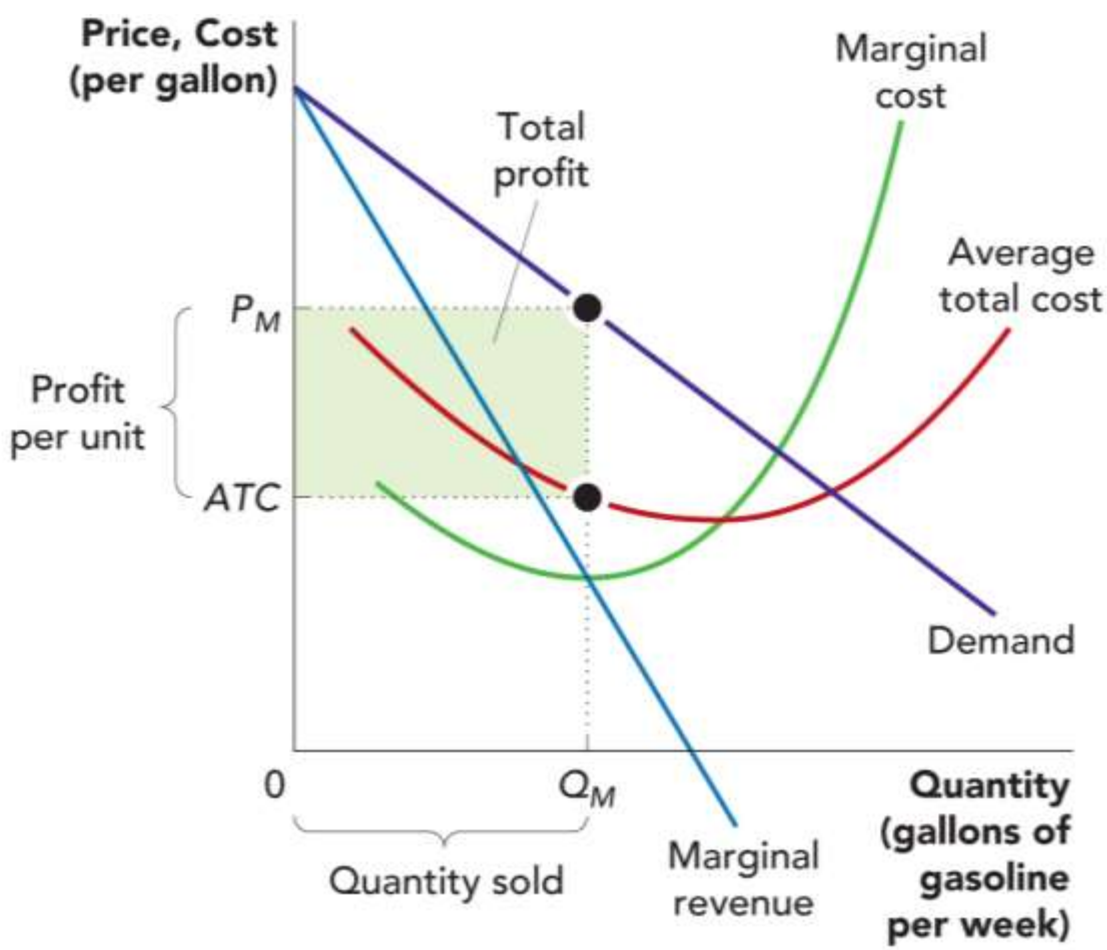
- A monopolist's cost curves typically have the same general shape as those of perfectly competitive firms.
- Like every firm, a monopolist maximizes profit by choosing the quantity for which marginal revenue equals marginal cost.
- Once the right quantity is found, the price is found by looking at the demand curve.



A MONOPOLIST'S PROFIT

profit per unit = $P_M - ATC$

total profit = profit per unit × quantity sold



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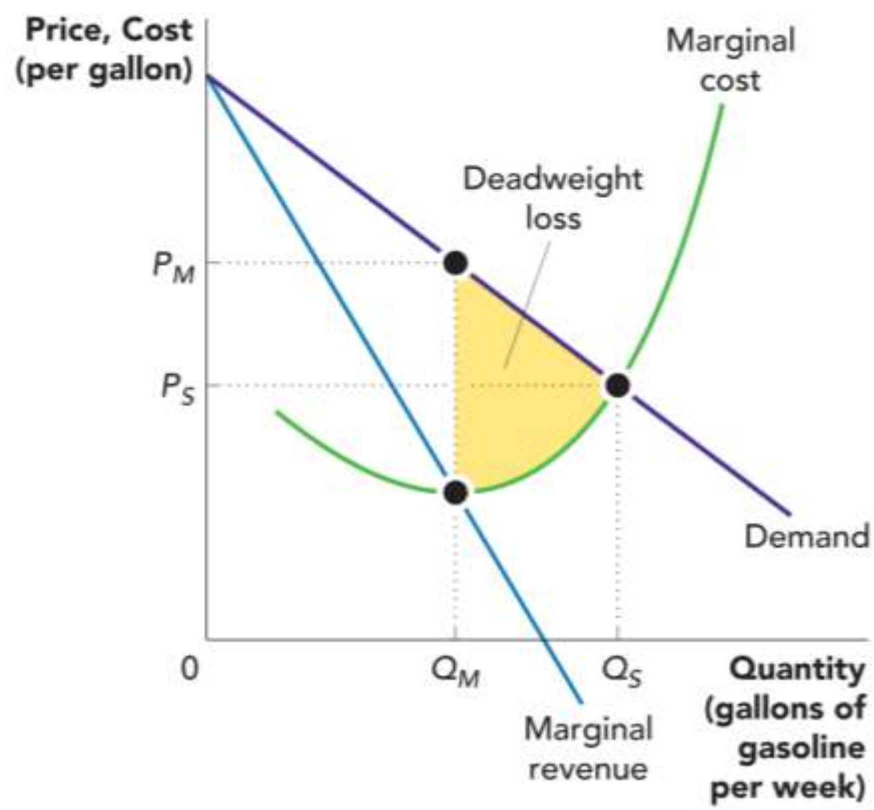
PROFIT MAXIMIZATION

- Maximizing profit is not always the goal of firms.
  - Some firms are nonprofit and have other goals.
  - Others may give up profit in exchange for prestige.

- However, in perfect competition, these are highly unlikely because no firm serves a large share of the market and all goods are identical. We can assume that firms seek to maximize profit.

EFFICIENCY AND MARKET POWER

- At the efficient quantity for society, $P = MC$.
  - At the profit-maximizing quantity, $MR = MC$, and $MR < P$.
- Under some monopolies, less is produced than what would be socially optimal.
- Since resources aren't allocated efficiently, there is *deadweight loss*.
- Some monopolies do not create a deadweight loss.



PRICE DISCRIMINATION PART I

- In general, every customer pays the same price when buying the same good from the same firm.

- When a firm practices **price discrimination**, the same good is sold to different customers at different prices.
  - Examples include airplane tickets and college tuition.

- Firms use price discrimination to pursue higher profits by charging higher prices to customers who are willing to pay the most.

- Price discrimination allows firms to charge customers with inelastic demand a higher price without losing customers with elastic demand who will only pay a lower price.

PRICE DISCRIMINATION PART II

- In order to price-discriminate, a firm must be able to:
  - influence the price rather than being a price-taker; that is, the firm must have some market power
  - identify those customers whose demand is relatively elastic
  - prevent the resale of the good from one group to another
- For example, movie theaters check IDs before giving discounts to students and senior citizens and can color-code their tickets to prevent resale.
- Grocery stores use coupons to get people to self-select themselves into different price groups.

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PERFECT PRICE DISCRIMINATION

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- In the case of **perfect price discrimination**, each customer is charged the highest price he or she is willing to pay.
- Since the firm doesn't have to reduce the price of the first 10 goods in order to sell the eleventh good, marginal revenue equals price.
  - So, a firm that perfectly price discriminates sells up to the point where *P* = *MC*, which is the socially optimal quantity, and deadweight loss is eliminated.
- Since consumers pay the most that they're willing to, consumer surplus is zero.

LEARN BY DOING: PRACTICE QUESTION 1

Which of these statements are true?

I. For price discriminators, marginal revenue equals the price.

II. Patents help to reduce deadweight loss.

III. Monopolies tend to produce at the point where marginal revenue is equal to marginal cost.

a) I and II only

b) II and III only

c) I only

d) III only

LEARN BY DOING: PRACTICE QUESTION 1 (Answer)

Which of these statements are true?

I. For price discriminators, marginal revenue equals the price.

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a) I and II only

b) II and III only

c) I only

d) III only (correct answer)

OLIGOPOLIES

- An **oligopoly** is a market dominated by a small number of firms. Each firm in an oligopoly is an *oligopolist*.
  - Examples include markets for automobiles and textbooks.
  - A **duopoly** is an oligopoly dominated by two firms.
    - Examples include computer operating systems and airplanes.

rvlsoft/Alamy

- Unlike in a monopoly, there is competition in an oligopoly, but oligopolists still have market power.
  - For example, some cell phone companies are able to charge more for cell phones than others because they are not selling the exact same product.

GAMES OLIGOPOLISTS PLAY

- A key feature of oligopolies is that the firms are highly interdependent. There are so few firms that the business strategies of each firm can affect the other firms.
  - Successful advertising or price cuts can hurt the sales of other firms.

- Economists analyze the strategies of oligopolists using the tools of **game theory**, which is the study of behavior among players whose decisions are interdependent.

THE PRISONER’S DILEMMA PART I

- The classic game of interdependence is the *prisoner’s dilemma*, which involves two recently arrested criminals, whom we’ll call Jesse and Scout.

- The two are separated and interrogated in separate rooms. Jesse has two choices: cooperating with Scout by denying everything or confessing to the crime.

- A *payoff matrix* shows all the possible outcomes for each player in a game and how the outcome depends on each player’s strategy.

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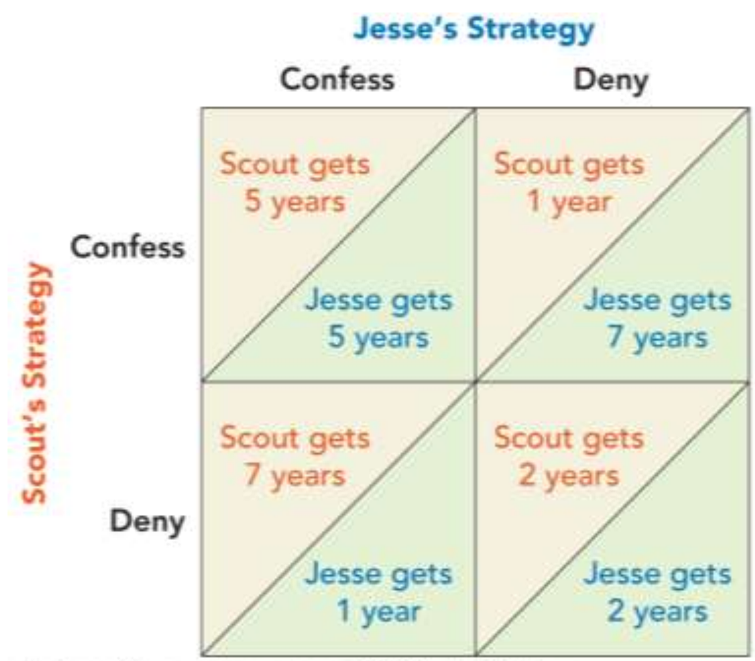
THE PRISONER'S DILEMMA PART II

- Looking at the payoff matrix from Jesse's perspective, we see that if Scout confesses, Jesse can choose to also confess and get 5 years of prison or deny and get 7 years.
- If Scout denies, Jesse can confess and get 1 year or deny and get 2 years.
- In either case, Jesse will get less time in prison by confessing than he will by denying.
- This is a **dominant strategy** because it is Jesse's best strategy regardless of what Scout does.



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THE PRISONER'S DILEMMA PART III

- Scout also has a dominant strategy of confessing. If both players follow their dominant strategy, they will both serve 5 years in prison.

- However, if they both chose to deny, they would only serve 2 years. It is difficult for them to agree to do this because they each individually stand to gain by confessing.

- Some decisions that oligopolists make can be modeled in a similar way.

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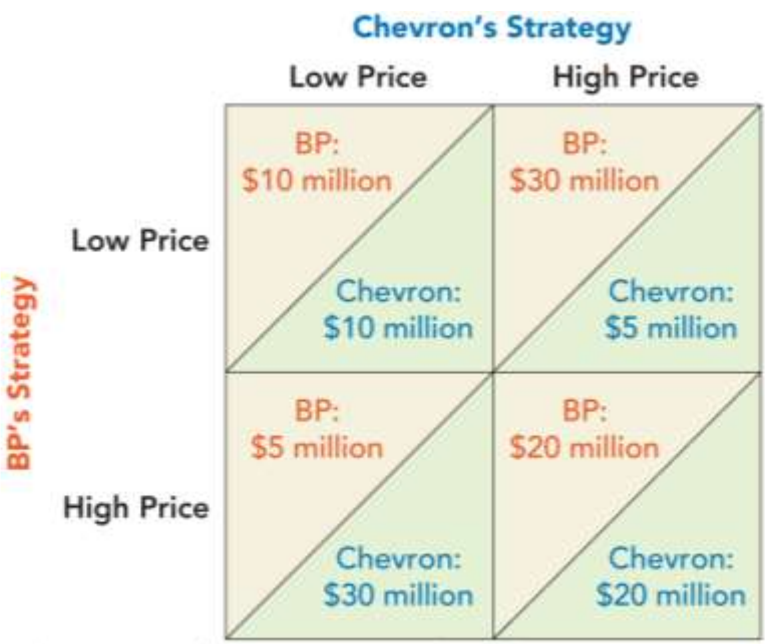
GAME THEORY FOR OLIGOPOLISTS

- One decision that can be modeled with a payoff matrix is the decision of what price to charge. In the example below, BP must choose whether to charge a high price or a low price for gas, without knowledge of what Chevron is going to do.



- By the same analysis as before, we see that BP's (and Chevron's) dominant strategy is to price low.
- However, both firms could earn more by cooperating and charging the higher price.

REPEATED GAMES

- In a repeated game, players can respond to how the other player played in the previous round.
- The *tit-for-tat strategy* begins with cooperation and then adopts the strategy that the other player used in the last round.
- With the *grim trigger strategy*, the first player begins with cooperating and continues to cooperate until the other player does not cooperate, at which point the first player refuses to cooperate for the rest of the game.

COLLUSION

- To avoid price wars, oligopolists will sometimes compete in other areas, such as service or location.
- Firms can also seek to work together to obtain better outcomes, but many forms of collusion are illegal.
- To avoid trouble with the law, some firms engage in **tacit collusion**, meaning that they follow the same strategy without discussing it.
- One example is *price leadership*, in which one firm, usually the largest, sets a price and the other firms follow.

CARTELS

- Oligopolists can earn higher profits by colluding.
- A **cartel** is a group of producers that conspires to restrict the quantity of output and increase their profits.
  - This is illegal in the United States.

ITAR-TASS Photo Agency/Alamy stockphoto

- OPEC is a cartel made up of oil producers from 13 countries. If the members abide by their agreement, they can restrict the quantity and maximize their combined profit.
  - However, there is an incentive for members to cheat and try to maximize their own profit. This can cause the cartel to collapse.

MONOPOLISTIC COMPETITION PART I

- **Monopolistic competition** exists in a market when:
  - firms can easily enter or exit the market.
  - there are many firms competing in the market.
  - the firms and their products are *not* identical.

- Examples include fast food and clothing.

- Because there are many firms, firms are not as interdependent as firms in an oligopoly.

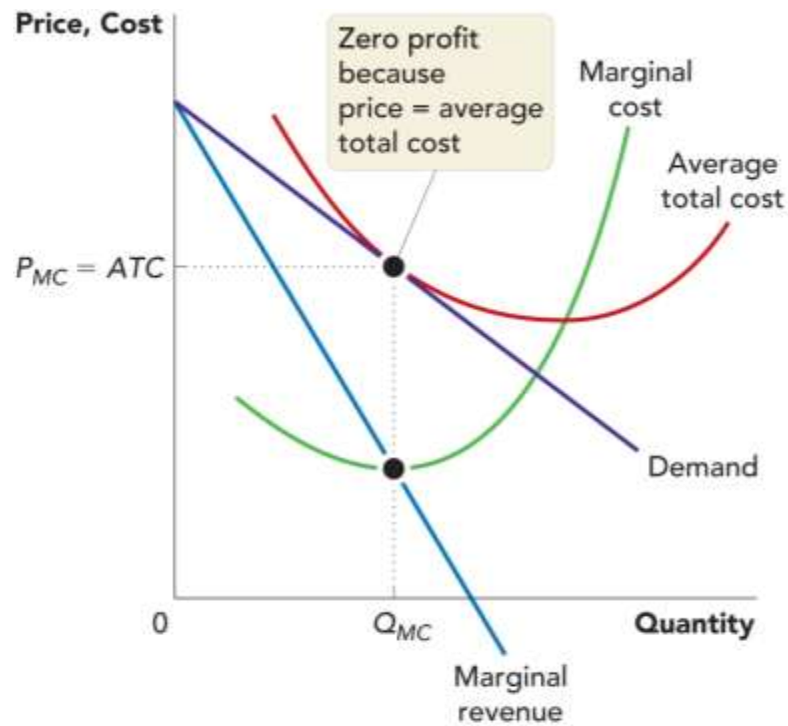
- Because their products are differentiated, each firm faces a downward-sloping demand curve.

MONOPOLISTIC COMPETITION PART II

- Because firms can easily enter the market, a monopolistically competitive firm cannot earn profit in the long run, much like a perfectly competitive firm.

- To increase market power, firms in monopolistic competition try to offer superior products and advertise their differences.
  - This is called *product differentiation.*

Source: Burger King



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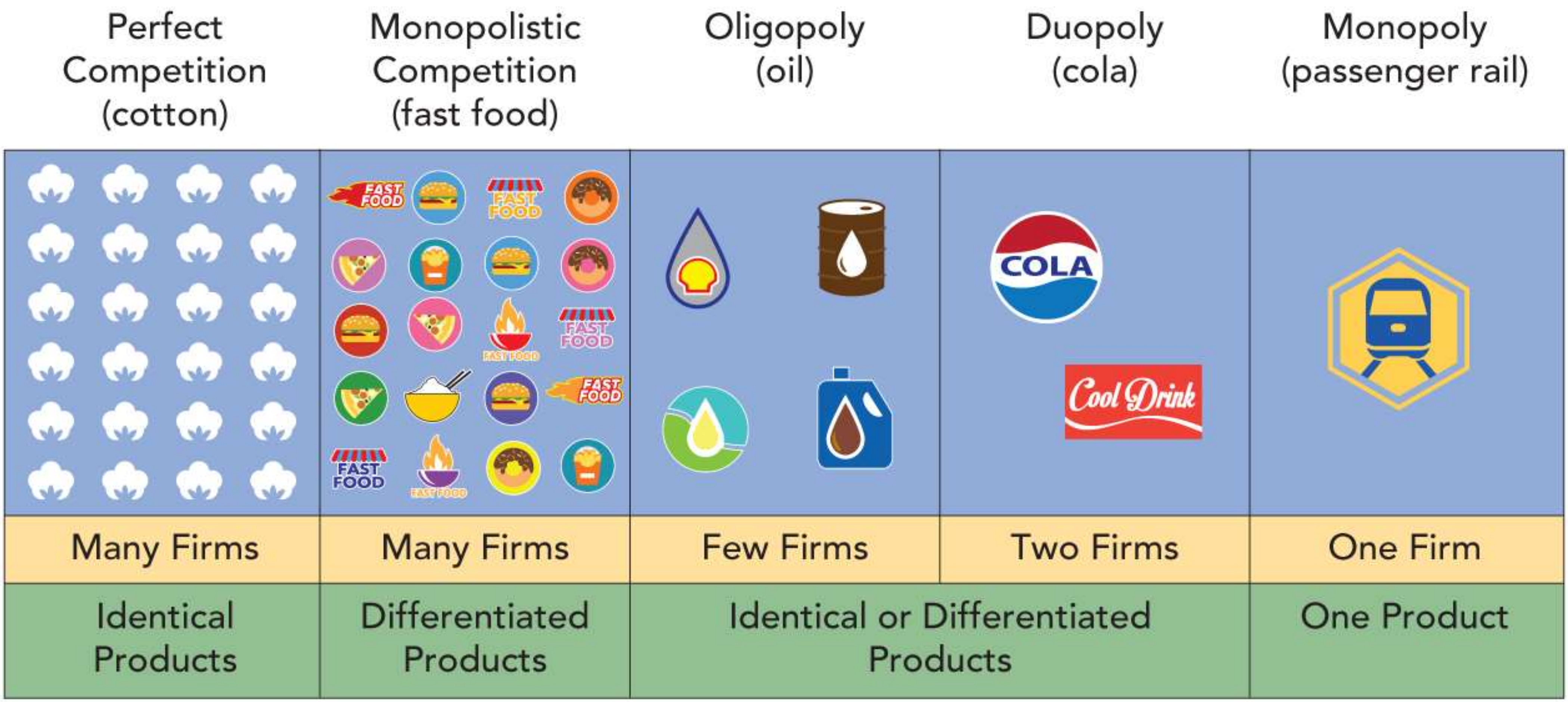
SUMMARY: MARKET STRUCTURES



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LEARN BY DOING: PRACTICE QUESTION 2

Given the payoff matrix below, which of these statements are true?

I. Citgo’s dominant strategy is to advertise.

II. Shell’s dominant strategy is to advertise.

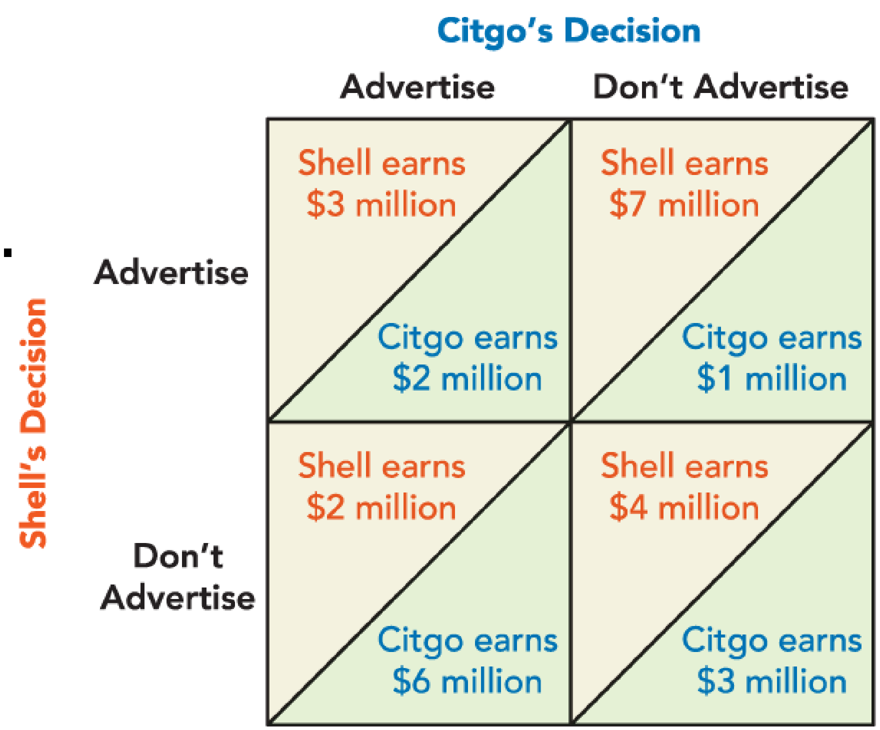
III. The firms earn a greater profit when both advertise than when neither advertise.

a) I and II only

b) II and III only

c) I only

d) III only



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LEARN BY DOING: PRACTICE QUESTION 2 (Answer)

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II. Shell’s dominant strategy is to advertise.

III. The firms earn a greater profit when both advertise than when neither advertise.

a) **I and II only (correct answer)**

b) II and III only

c) I only

d) III only

Shell’s Decision \ Citgo’s Decision	Advertise	Don’t Advertise
Advertise	Shell earns $3 million; Citgo earns $2 million	Shell earns $7 million; Citgo earns $1 million
Don’t Advertise	Shell earns $2 million; Citgo earns $6 million	Shell earns $4 million; Citgo earns $3 million