PARKIN
MICROECONOMICS
TENTH EDITION

5
EFFICIENCY AND EQUITY

After studying this chapter, you will be able to:

- Describe the alternative methods of allocating scarce resources
- Explain the connection between demand and marginal benefit and define consumer surplus; and explain the connection between supply and marginal cost and define producer surplus
- Explain the conditions under which markets are efficient and inefficient
- Explain the main ideas about fairness and evaluate claims that markets result in unfair outcomes

Every time you order a pizza or buy a Valentine's Day rose, you express your view about how scarce resources should be used.

You make choices in your self-interest.

Markets coordinate your choices along with those of everyone else.

But do markets do a good job?

Do they enable our self-interest choices to be in the social interest?

Do markets produce a fair outcome?

Resource Allocation Methods

Scare resources might be allocated by

- Market price
- Command
- Majority rule
- Contest
- First-come, first-served
- Sharing equally
- Lottery
- Personal characteristics
- Force

How does each method work?

Resource Allocation Methods

Market Price

When a market allocates a scarce resource, the people who get the resource are those who are willing to pay the market price.

Most of the scarce resources that you supply get allocated by market price.

You sell your labor services in a market, and you buy most of what you consume in markets.

For most goods and services, the market turns out to do a good job.

Resource Allocation Methods

Command

Command system allocates resources by the order (command) of someone in authority.

For example, if you have a job, most likely someone tells you what to do. Your labor time is allocated to specific tasks by command.

A command system works well in organizations with clear lines of authority but badly in an entire economy.

Resource Allocation Methods

Majority Rule

Majority rule allocates resources in the way the majority of voters choose.

Societies use majority rule for some of their biggest decisions.

For example, tax rates that allocate resources between private and public use and tax dollars between competing uses such as defense and health care.

Majority rule works well when the decision affects lots of people and self-interest must be suppressed to use resources efficiently.

Resource Allocation Methods

Contest

A contest allocates resources to a winner (or group of winners).

The most obvious contests are sporting events but they occur in other arenas:

For example, The Oscars are a type of contest.

Contest works well when the efforts of the “players” are hard to monitor and reward directly.

Resource Allocation Methods

First-Come, First-Served

A first-come, first-served allocates resources to those who are first in line.

Casual restaurants use first-come, first served to allocate tables. Supermarkets also uses first-come, first-served at checkout.

First-come, first-served works best when scarce resources can serve just one person at a time in a sequence.

Resource Allocation Methods

Lottery

Lotteries allocate resources to those with the winning number, draw the lucky cards, or come up lucky on some other gaming system.

State lotteries and casinos reallocate millions of dollars worth of goods and services each year.

But lotteries are more widespread. For example, they are used to allocate landing slots at some airports.

Lotteries work well when there is no effective way to distinguish among potential users of a scarce resource.

Resource Allocation Methods

Personal Characteristics

Personal characteristics allocate resources to those with the “right” characteristics.

For example, people choose marriage partners on the basis of personal characteristics.

But this method gets used in unacceptable ways: allocating the best jobs to white males and discriminating against minorities and women.

Resource Allocation Methods

Force

Force plays a role in allocating resources.

For example, war has played an enormous role historically in allocating resources.

Theft, taking property of others without their consent, also plays a large role.

But force provides an effective way of allocating resources—for the state to transfer wealth from the rich to the poor and establish the legal framework in which voluntary exchange can take place in markets.

Benefit, Cost, and Surplus

Demand, Willingness to Pay, and Value

Value is what we get, price is what we pay.

The *value* of one more unit of a good or service is its *marginal benefit*.

We measure value as the *maximum price* that a person is willing to pay.

But willingness to pay determines demand.

A demand curve is a marginal benefit curve.

Benefit, Cost, and Surplus

Individual Demand and Market Demand

The relationship between the price of a good and the quantity demanded by one person is called *individual demand*.

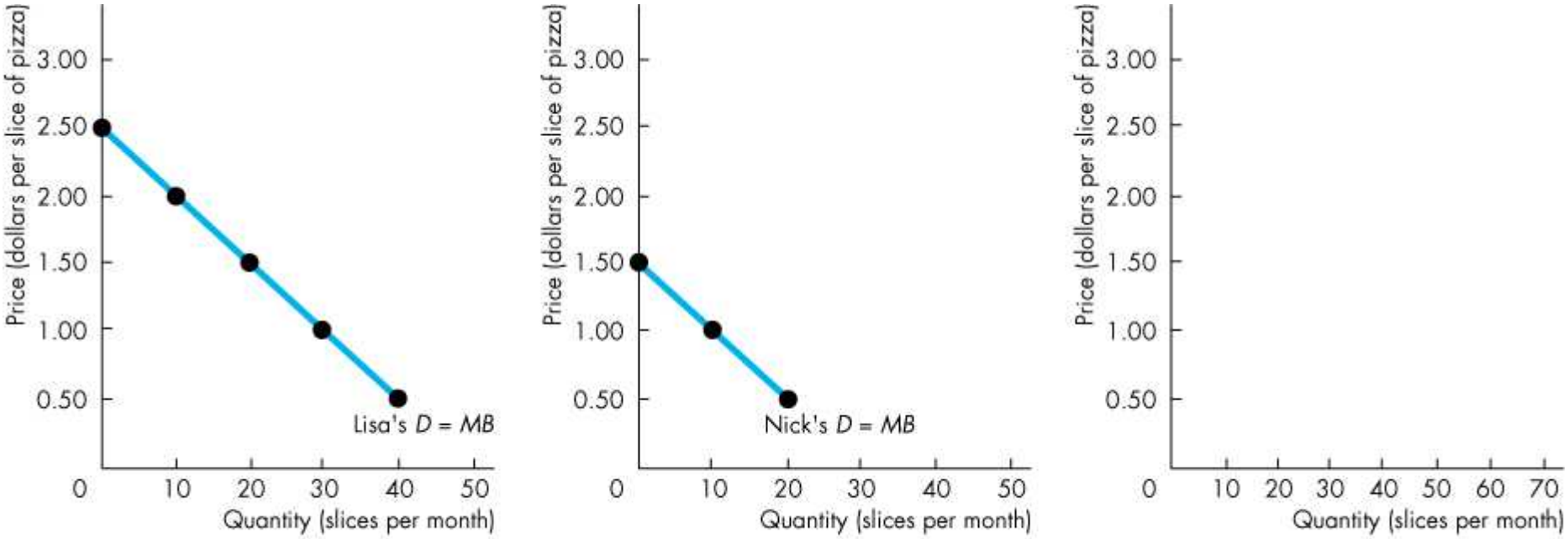
The relationship between the price of a good and the quantity demanded by all buyers in the market is called *market demand*.

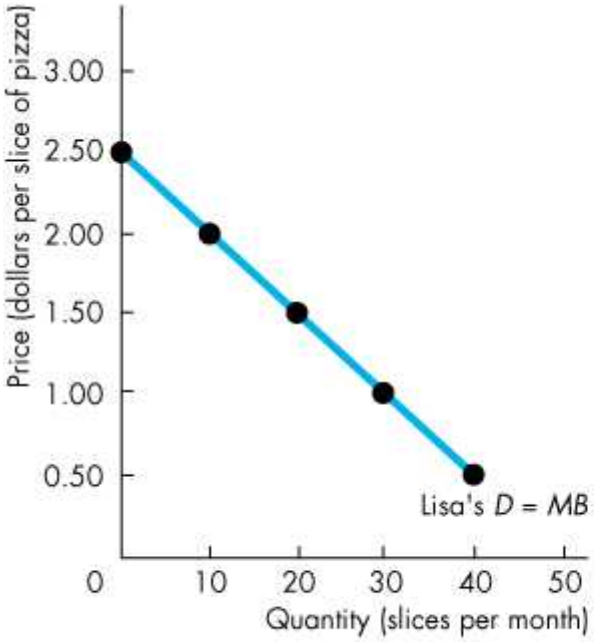
Figure 5.1 on the next slide shows the connection between individual demand and market demand.

Benefit, Cost, and Surplus

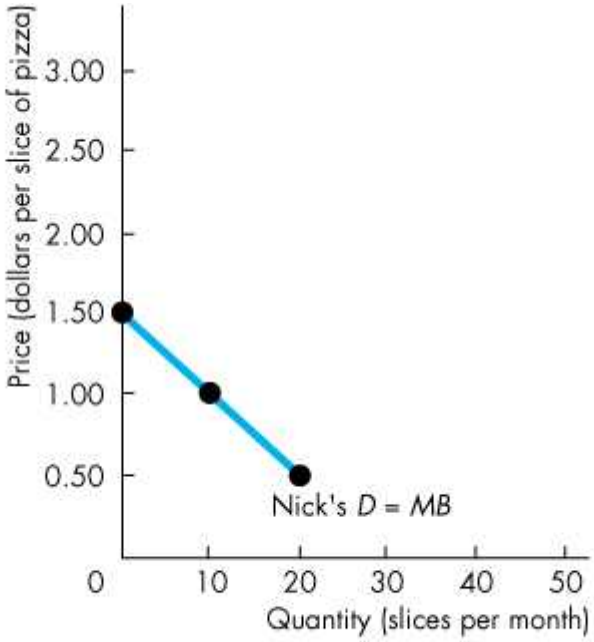
Lisa and Nick are the only buyers in the market for pizza.

At $1 a slice, the quantity demanded by Lisa is 30 slices.

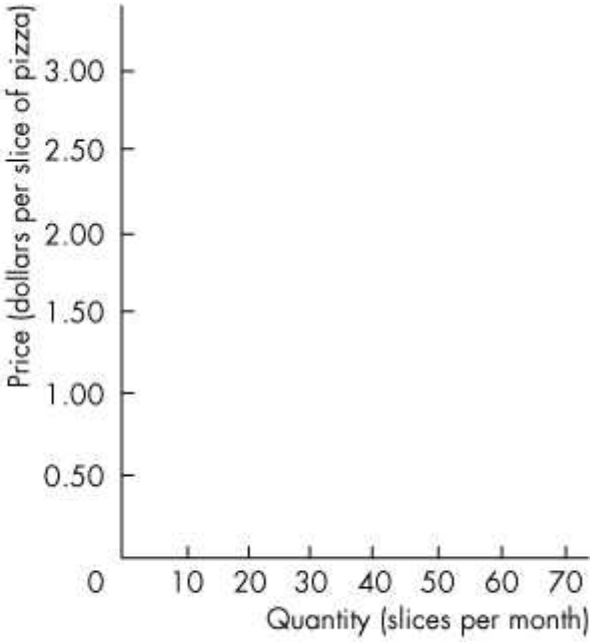




(a) Lisa's demand



(b) Nick's demand

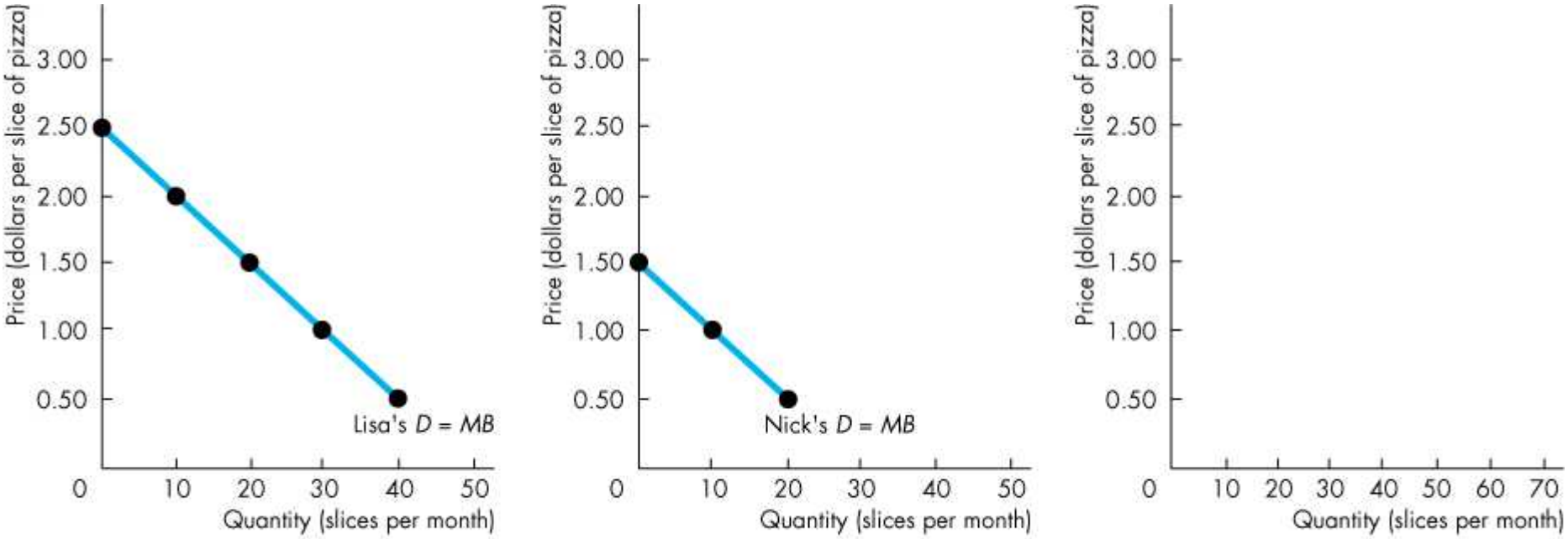


(c) Market demand

Benefit, Cost, and Surplus

Lisa and Nick are the only buyers in the market for pizza.

At $1 a slice, the quantity demanded by Nick is 10 slices.

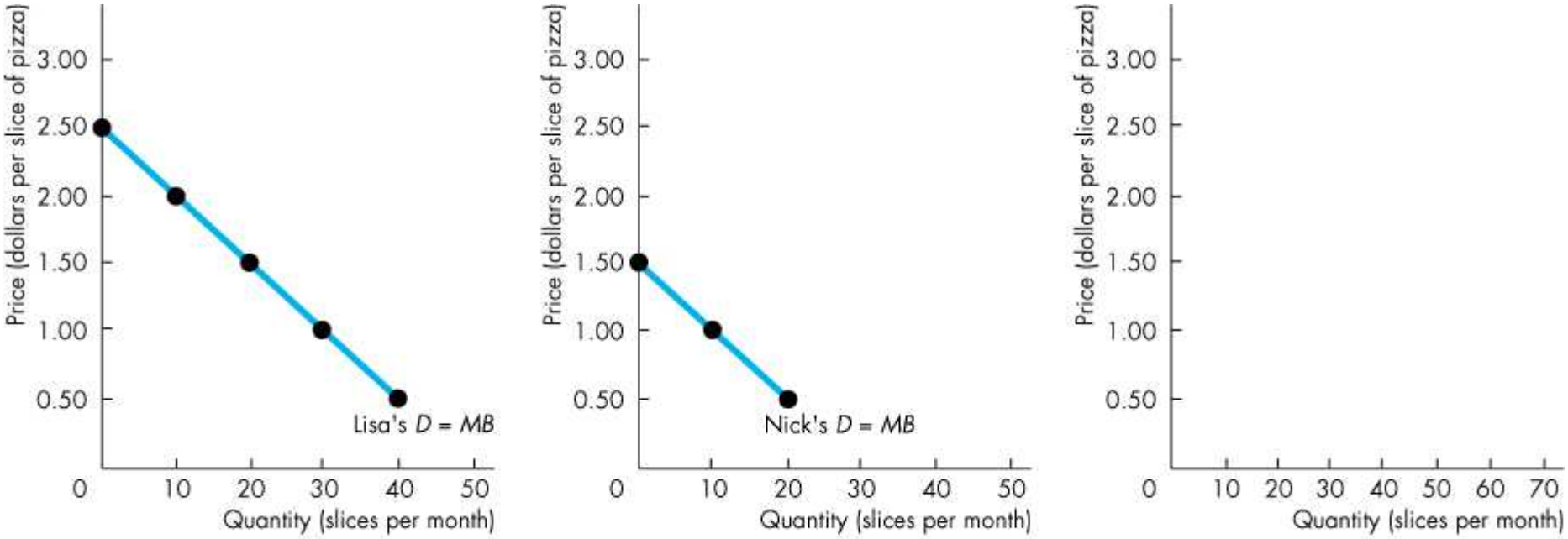


(a) Lisa's demand **(b) Nick's demand** **(c) Market demand**

Benefit, Cost, and Surplus

At $1 a slice, the quantity demanded by Lisa is 30 slices and by Nick is 10 slices.

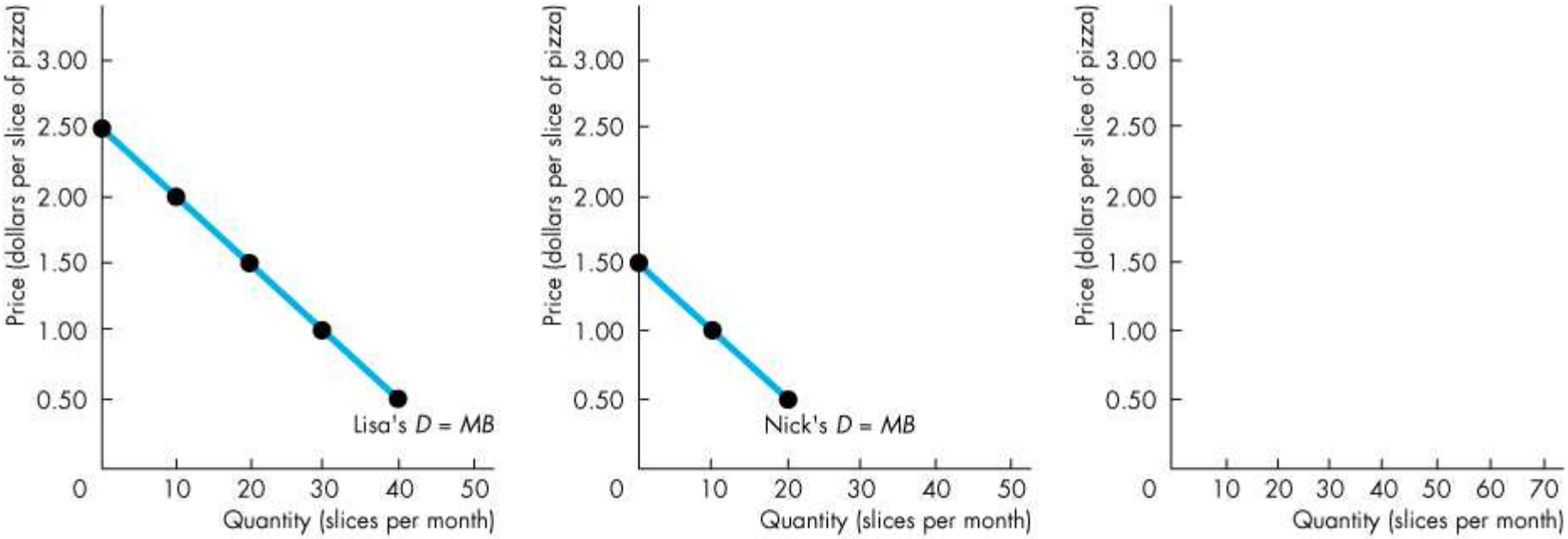
The quantity demanded by all buyers in the market is 40 slices.



(a) Lisa's demand **(b) Nick's demand** **(c) Market demand**

Benefit, Cost, and Surplus

The market demand curve is the horizontal sum of the individual demand curves.



(a) Lisa's demand **(b) Nick's demand** **(c) Market demand**

Benefit, Cost, and Surplus

Consumer Surplus

Consumer surplus is the excess of the benefit received from a good over the amount paid for it.

We can calculate consumer surplus as the marginal benefit (or value) of a good minus its price, summed over the quantity bought.

It is measured by the area under the demand curve and above the price paid, up to the quantity bought.

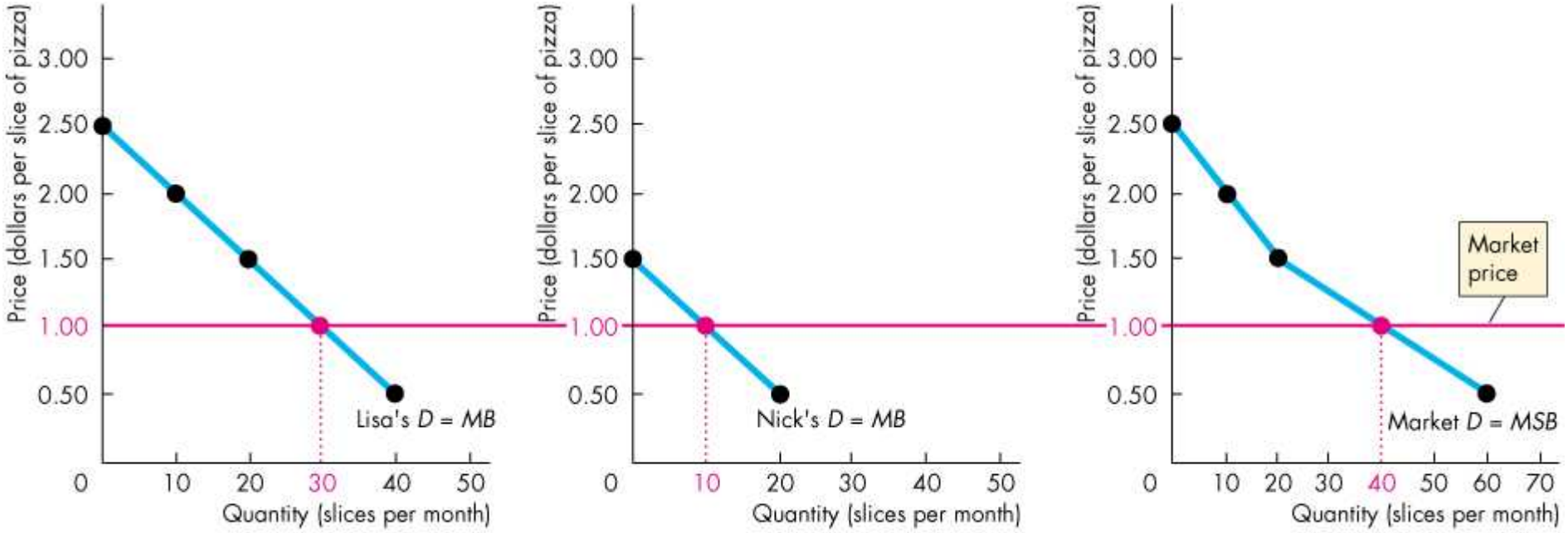
Figure 5.2 on the next slide shows the consumer surplus from pizza when the market price is $1 a slice.

Benefit, Cost, and Surplus

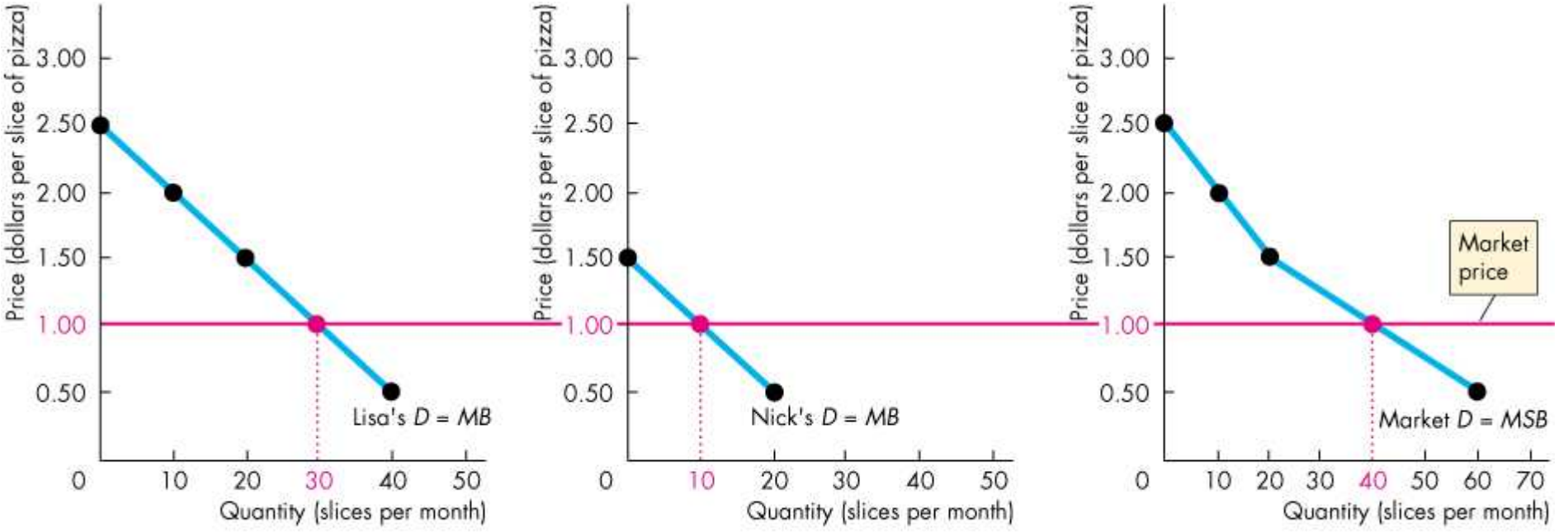
Lisa and Nick pay the market price, which is $1 a slice.

The value Lisa places on the 10th slice is $2.

Lisa's consumer surplus from the 10th slice is the value minus the price, which is $1.



(a) Lisa's consumer surplus (b) Nick's consumer surplus (c) Market consumer surplus

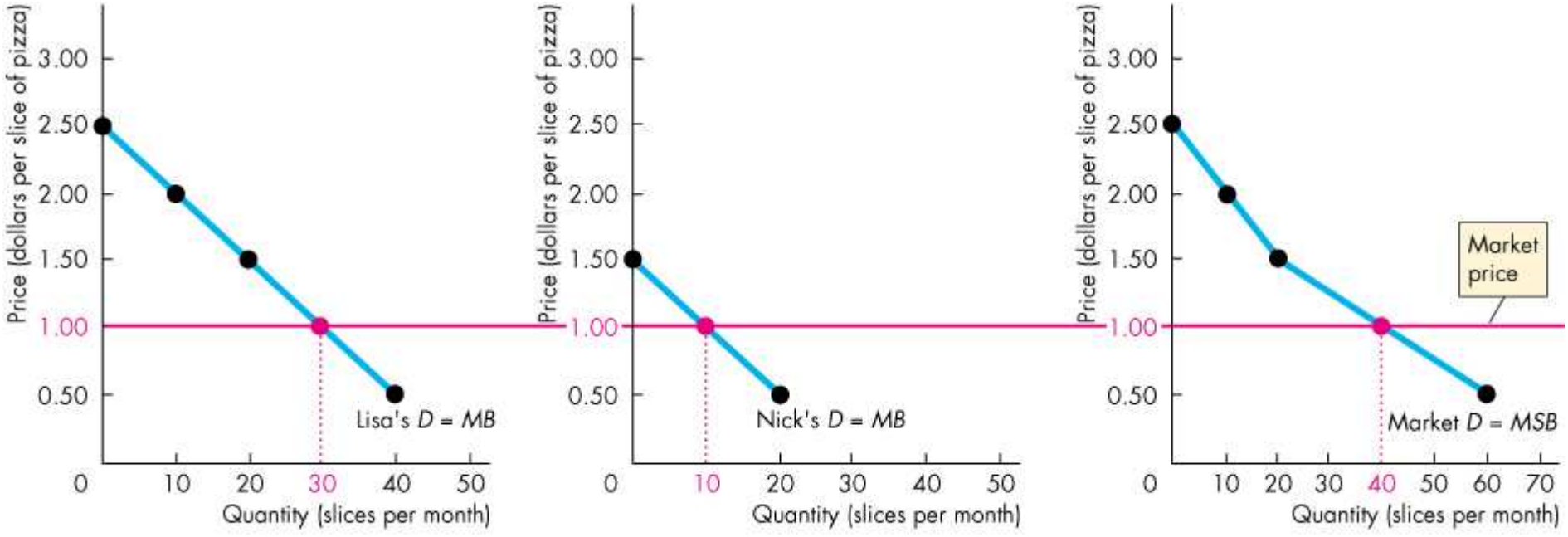


(a) Lisa's consumer surplus **(b) Nick's consumer surplus** **(c) Market consumer surplus**

Benefit, Cost, and Surplus

At $1 a slice, Lisa buys 30 slices.

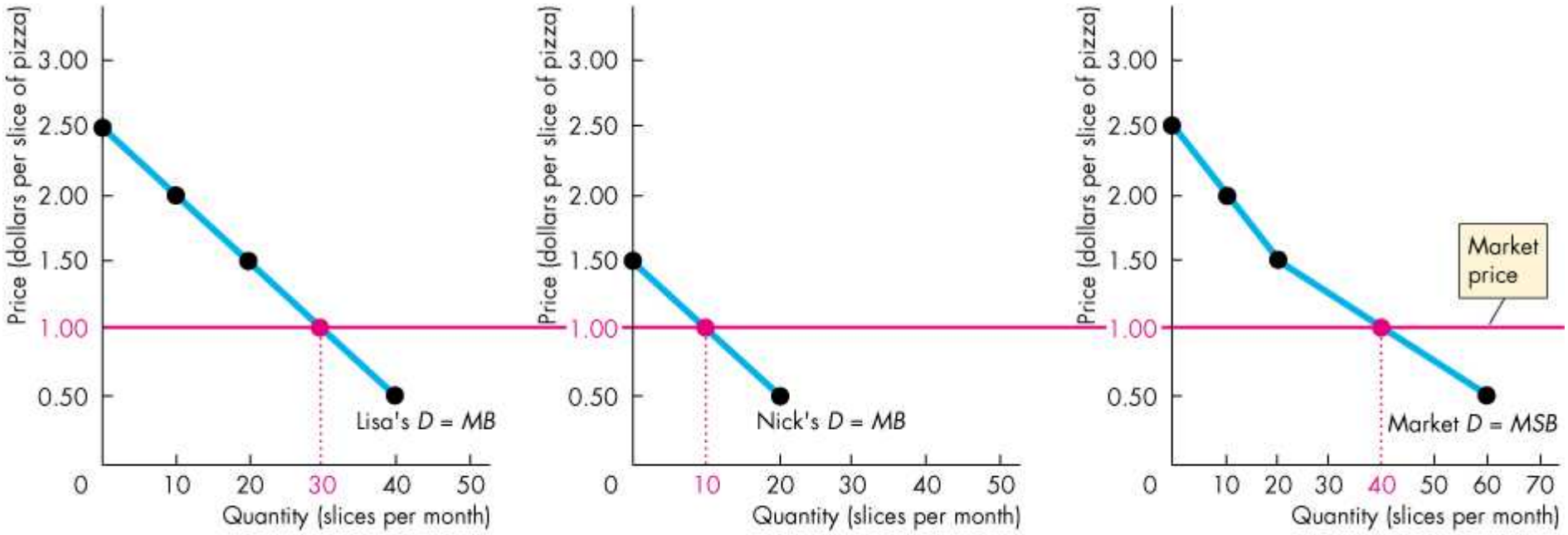
So her consumer surplus is the area of the green triangle.



Benefit, Cost, and Surplus

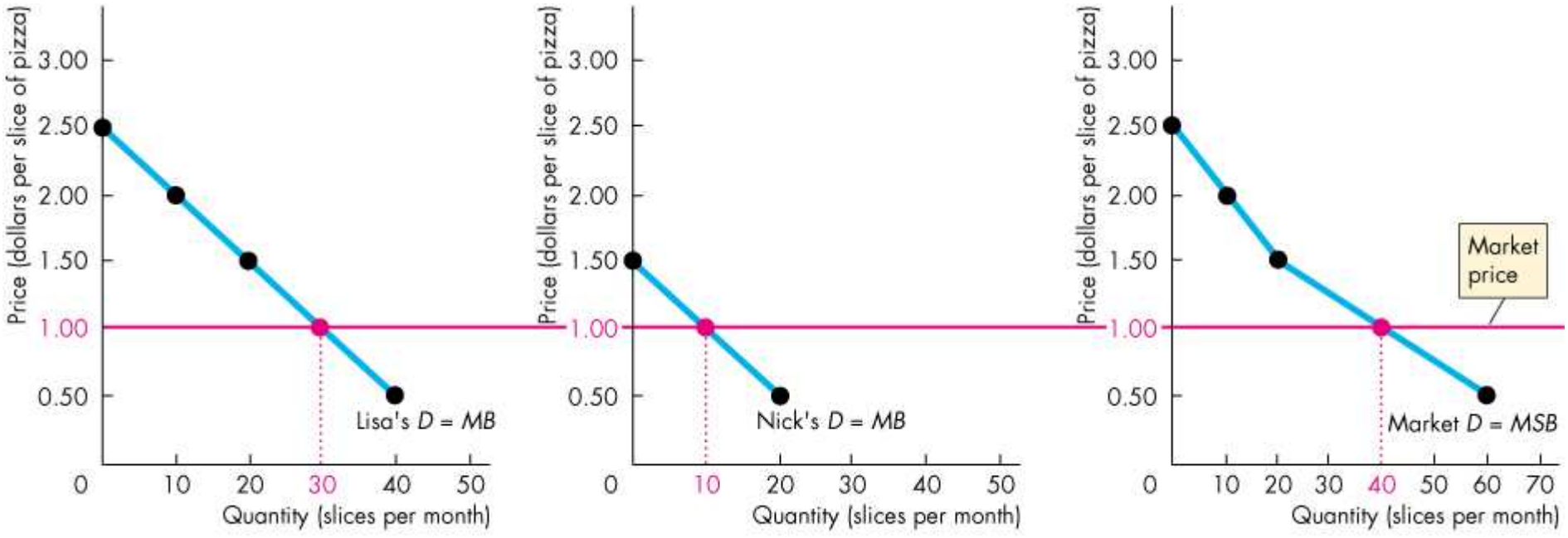
At $1 a slice, Nick buys 10 slices.

So his consumer surplus is the area of the green triangle.



Benefit, Cost, and Surplus

At $1 a slice, the consumer surplus for the economy is the area under the market demand curve above the market price, summed over the 40 slices bought.

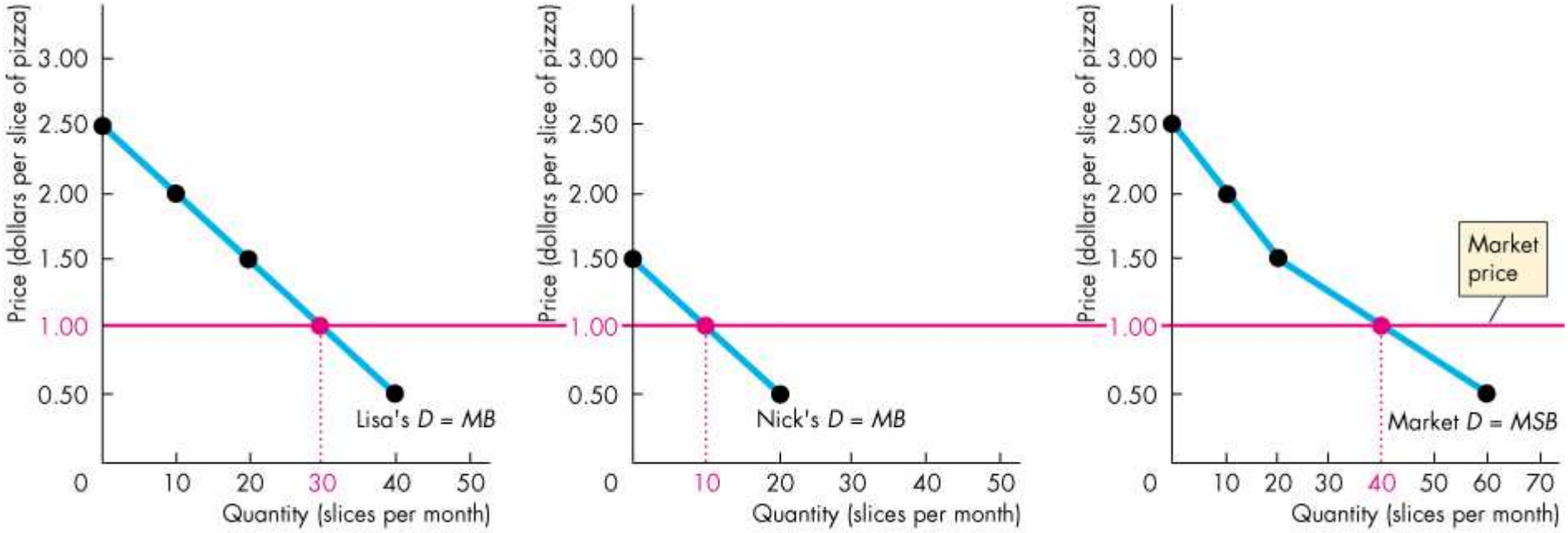


(a) Lisa's consumer surplus (b) Nick's consumer surplus (c) Market consumer surplus

Benefit, Cost, and Surplus

At $1 a slice, Lisa spends $30, Nick spends $10, and together they spend $40 on pizza.

The consumer surplus is the value from pizza in excess of the expenditure on it.



(a) Lisa's consumer surplus **(b) Nick's consumer surplus** **(c) Market consumer surplus**

Benefit, Cost, and Surplus

Supply and Marginal Cost

Firms are in business to make a profit.

To make a profit, firms must sell their output for a price that exceeds the cost of production.

Firms distinguish between *cost* and *price*.

Benefit, Cost, and Surplus

Supply, Cost, and Minimum Supply-Price

Cost is what the producer gives up, price is what the producer receives.

The cost of one more unit of a good or service is its *marginal cost.*

Marginal cost is the *minimum price* that a firm is willing to accept.

But the minimum supply-price determines supply.

A supply curve is a marginal cost curve.

Benefit, Cost, and Surplus

Individual Supply and Market Supply

The relationship between the price of a good and the quantity supplied by one producer is called *individual supply*.

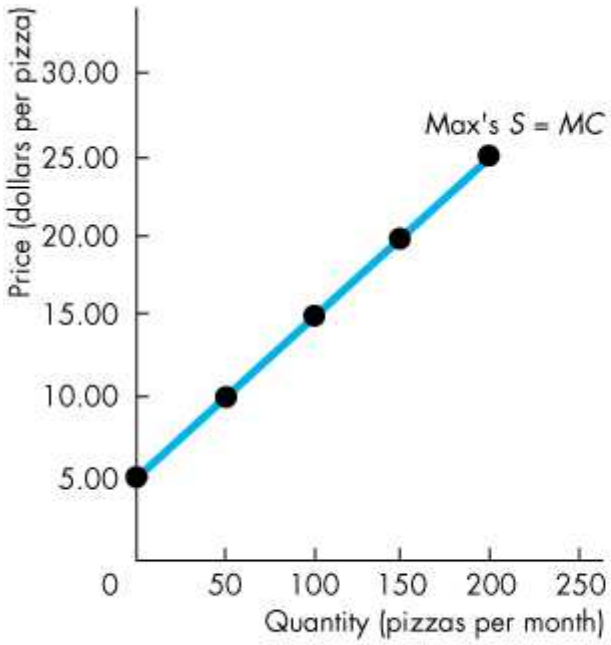
The relationship between the price of a good and the quantity supplied by all producers in the market is called *market supply*.

Figure 5.3 on the next slide shows the connection between individual supply and market supply.

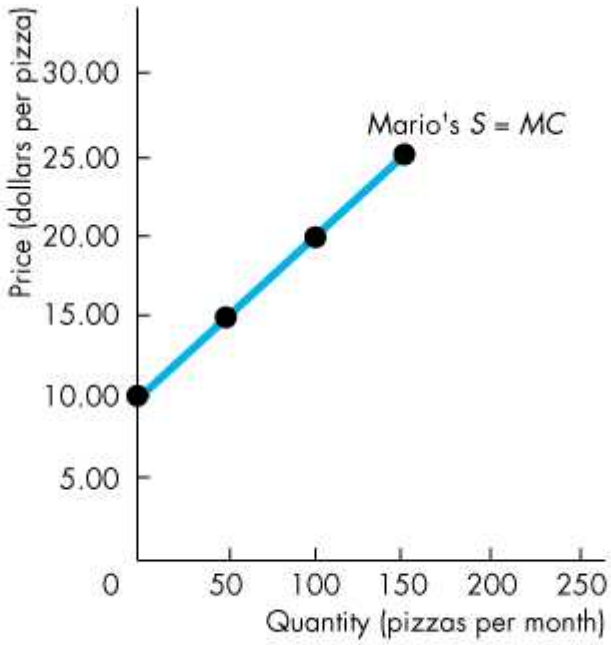
Benefit, Cost, and Surplus

Max and Mario are the only producers of pizza.

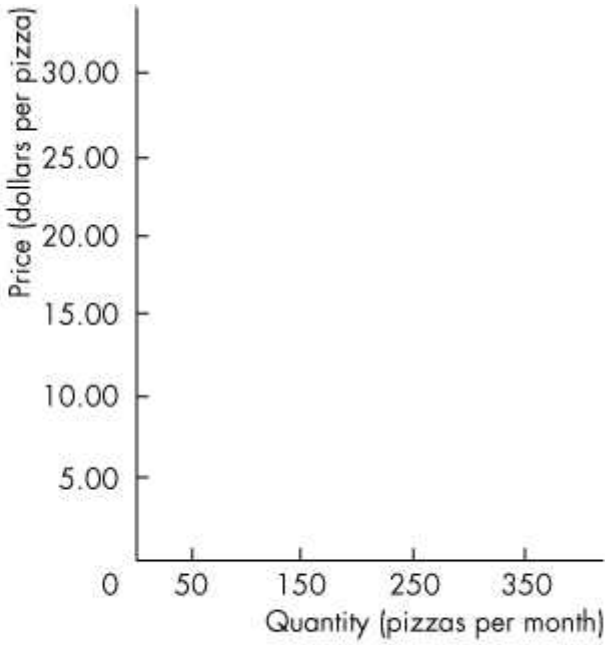
At $15 a pizza, the quantity supplied by Max is 100 pizzas.



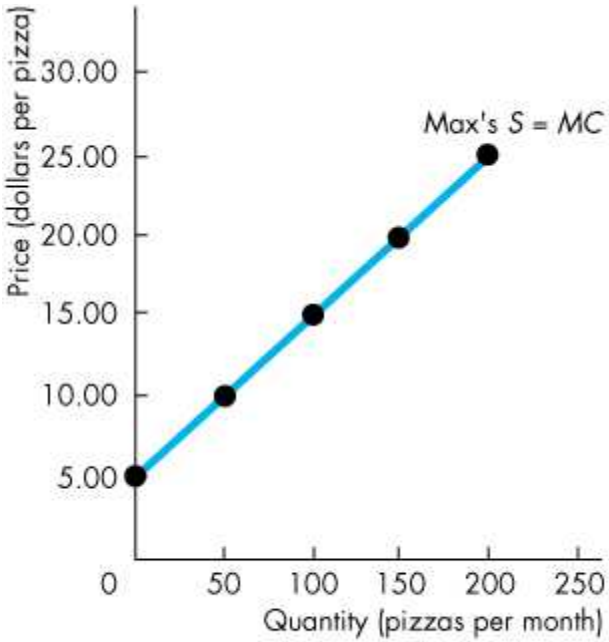
(a) Max's supply



(b) Mario's supply



(b) Market supply



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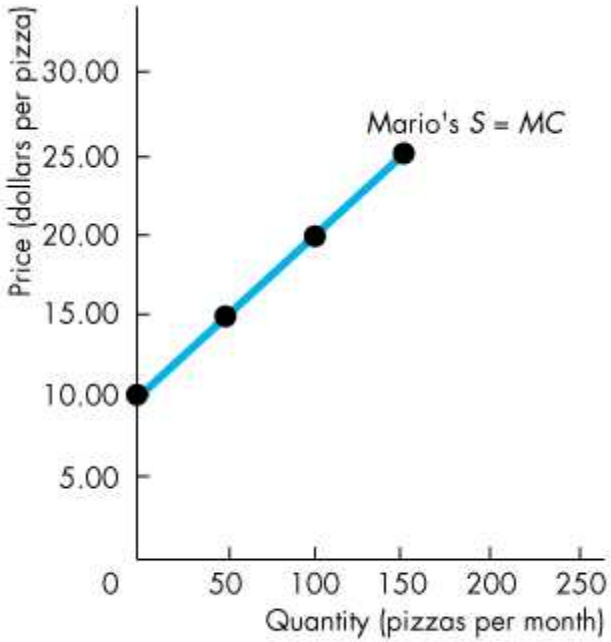
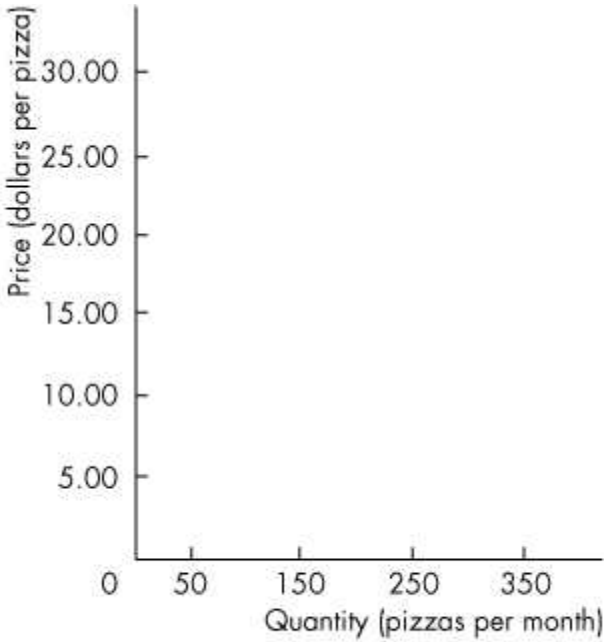


(b) Mario's supply

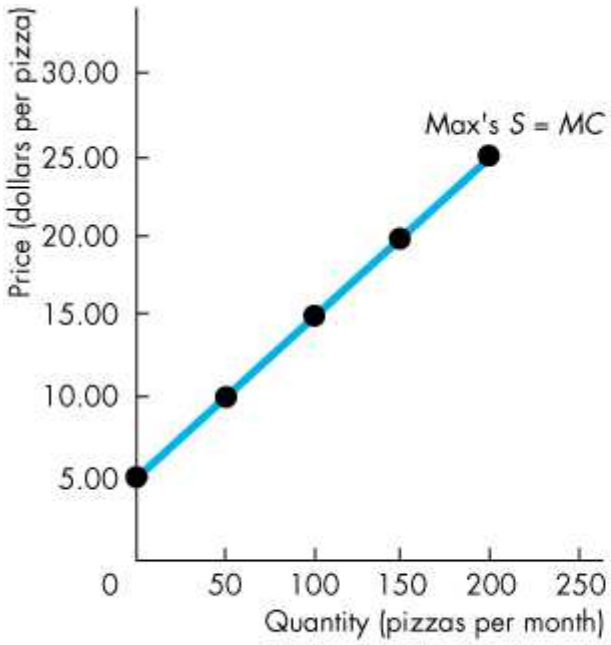


(b) Market supply

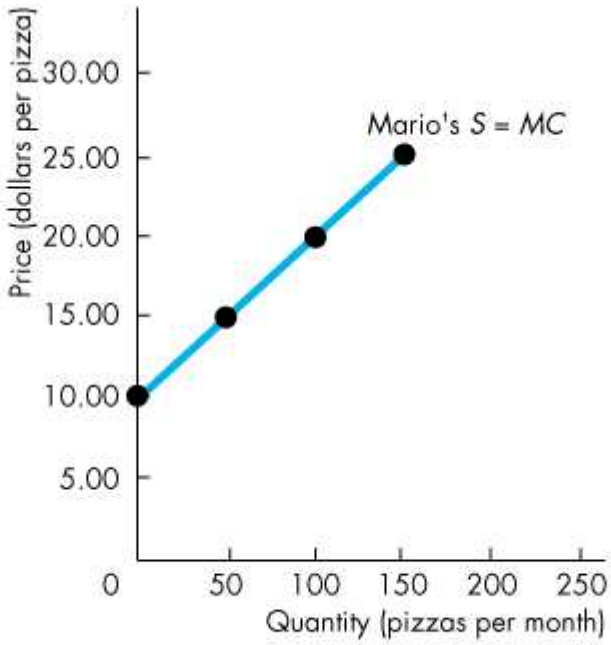
Benefit, Cost, and Surplus

Max and Mario are the only producers of pizza.

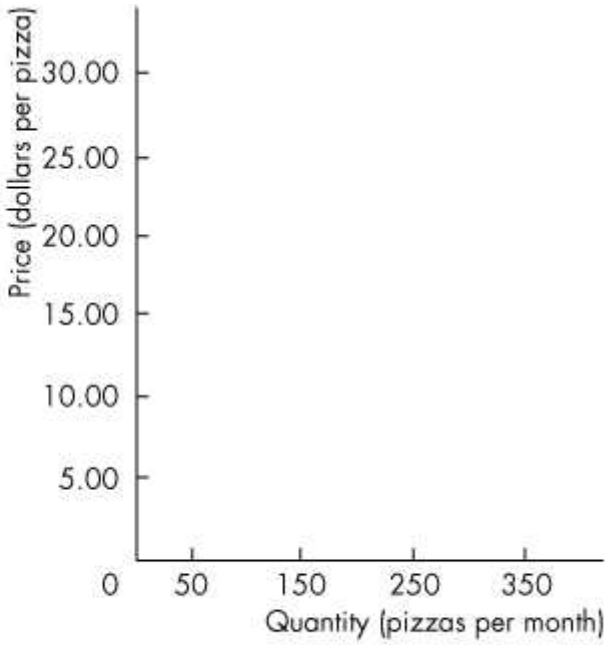
At $15 a pizza, the quantity supplied by Mario is 50 pizzas.



(a) Max's supply



(b) Mario's supply

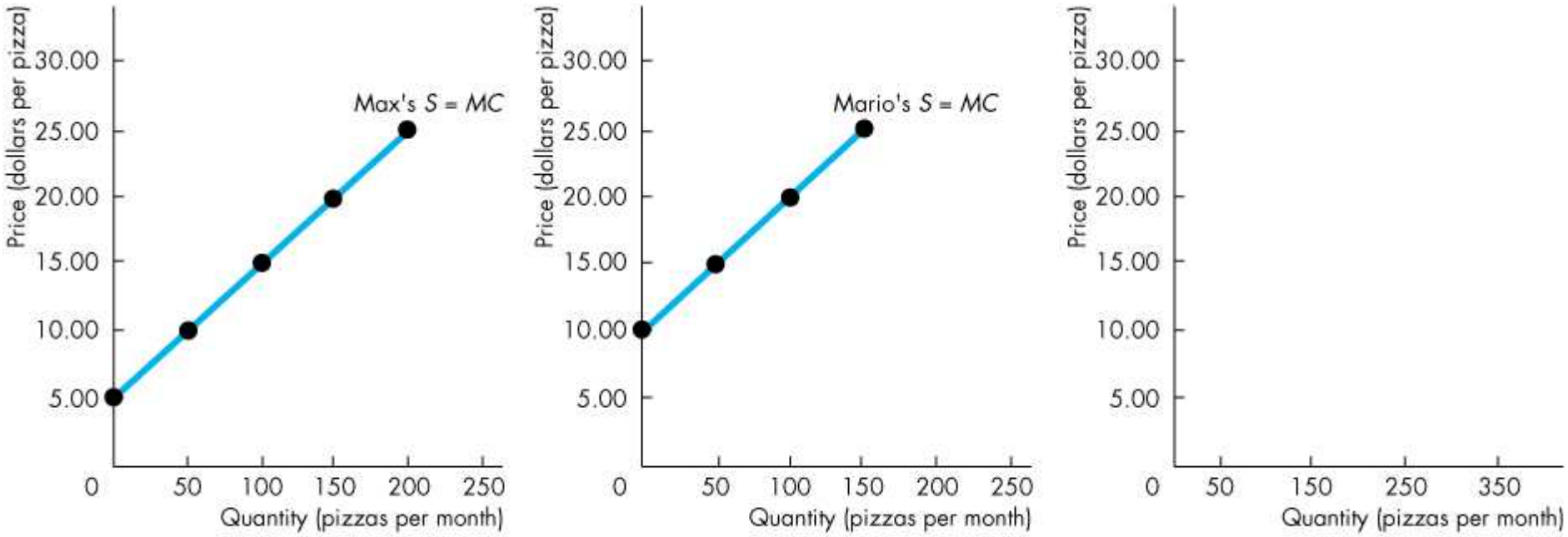


(b) Market supply

Benefit, Cost, and Surplus

At $15 a pizza, the quantity supplied by Max is 100 pizzas and by Mario is 50 pizzas.

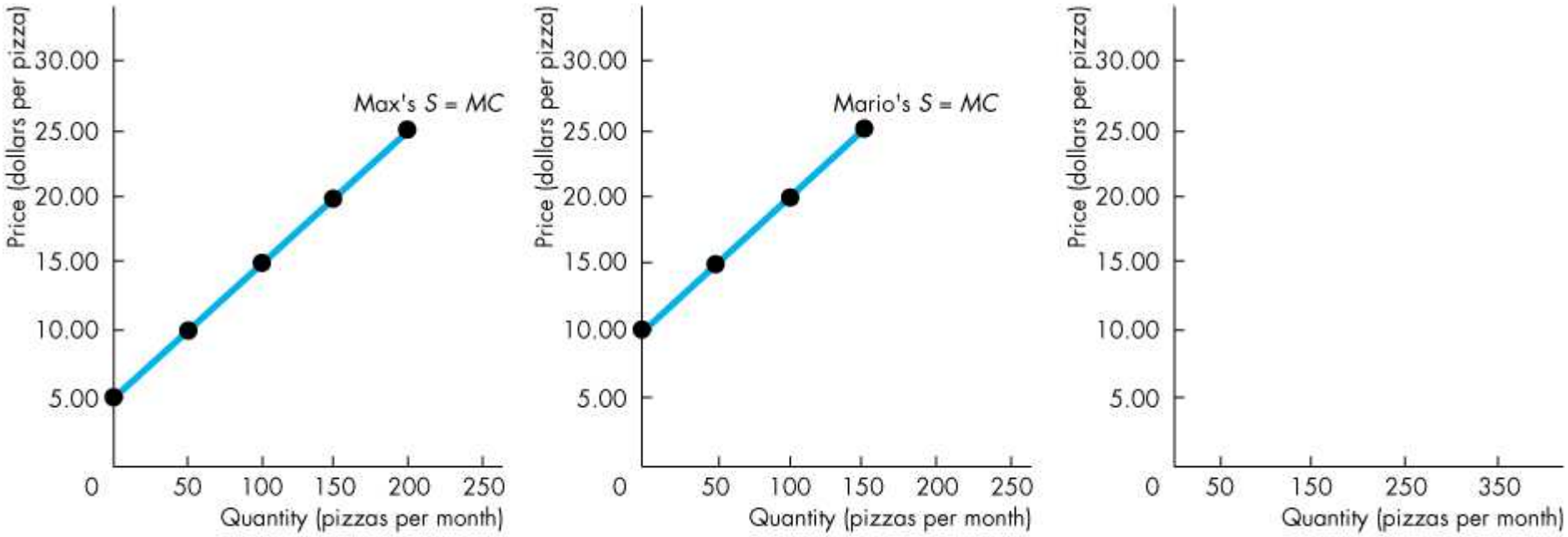
The quantity supplied by all producers is 150 pizzas.



(a) Max's supply (b) Mario's supply (b) Market supply

Benefit, Cost, and Surplus

The market supply curve is the horizontal sum of the individual supply curves.



(a) Max's supply (b) Mario's supply (b) Market supply

Benefit, Cost, and Surplus

Producer Surplus

Producer surplus is the excess of the amount received from the sale of a good over the cost of producing it.

We calculate it as the price received for a good minus the minimum-supply price (marginal cost), summed over the quantity sold.

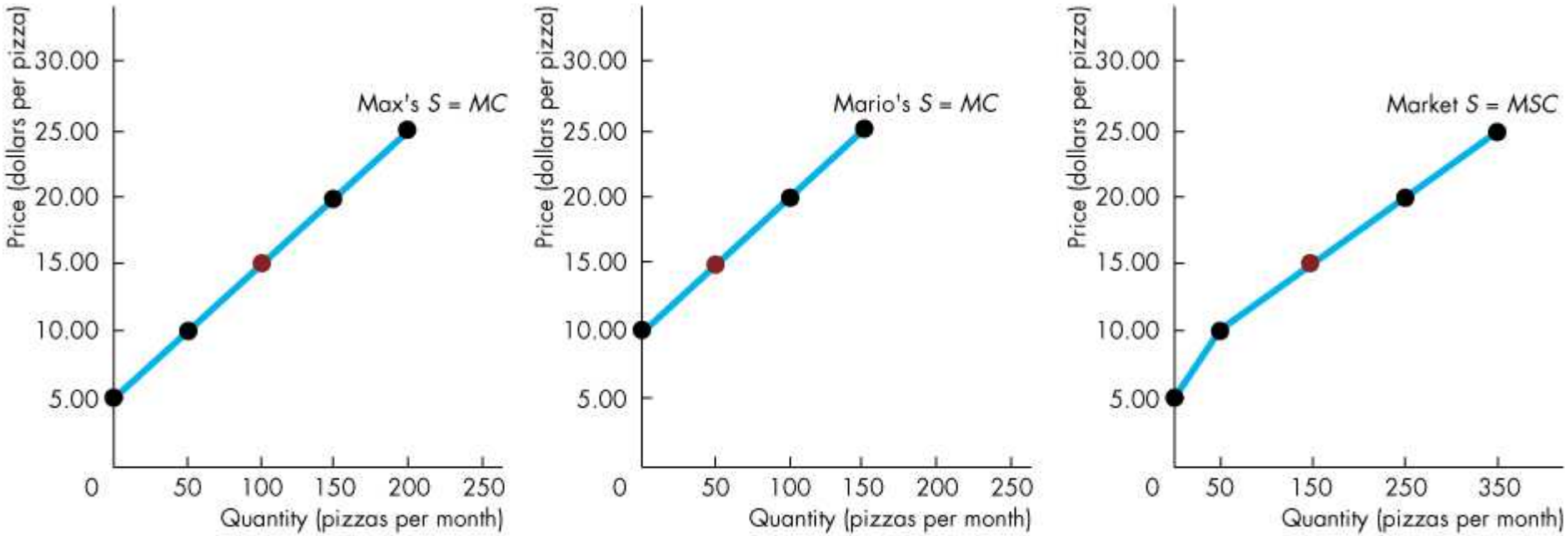
On a graph, producer surplus is shown by the area below the market price and above the supply curve, summed over the quantity sold.

Figure 5.4 on the next slide shows the producer surplus from pizza when the market price is $15 a pizza.

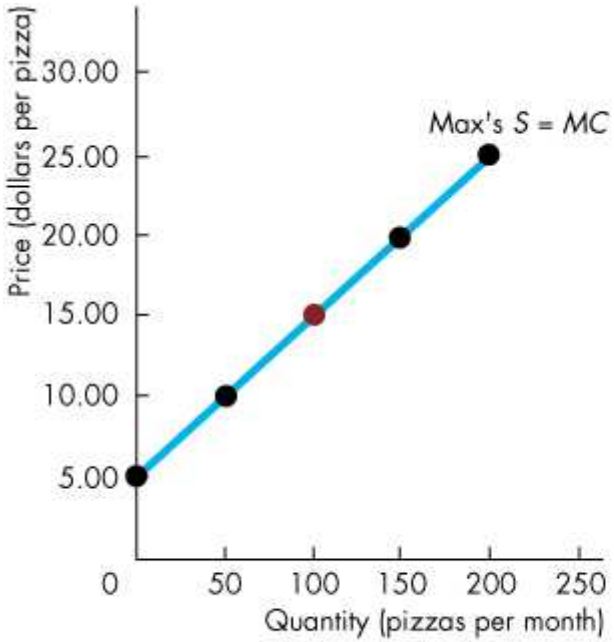
Benefit, Cost, and Surplus

Max is willing to produce the 50th pizza for $10.

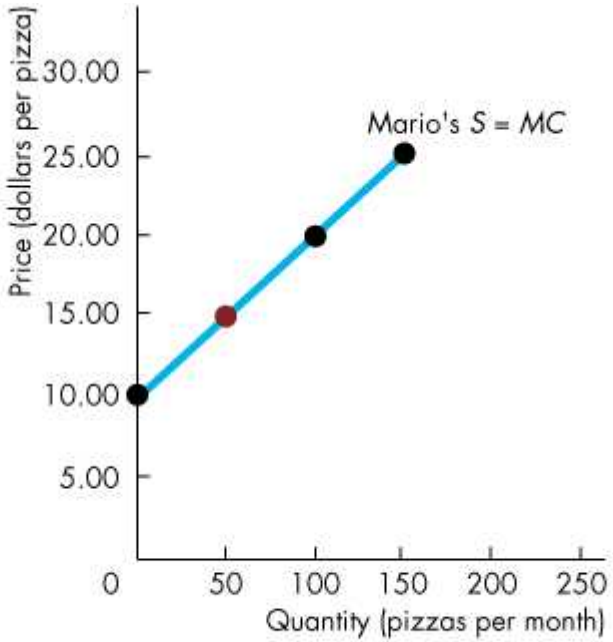
Max's producer surplus from the 50th pizza is the price minus the marginal cost, which is $5.



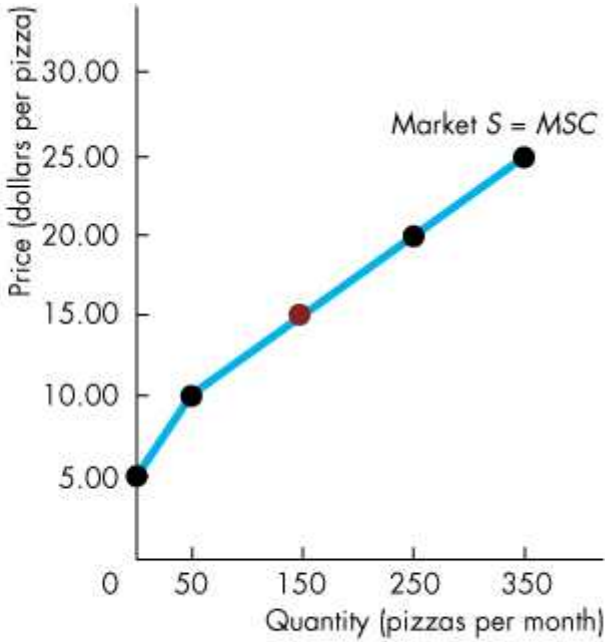
(a) Max's producer surplus (b) Mario's producer surplus (c) Economy producer surplus



(a) Max's producer surplus



(b) Mario's producer surplus

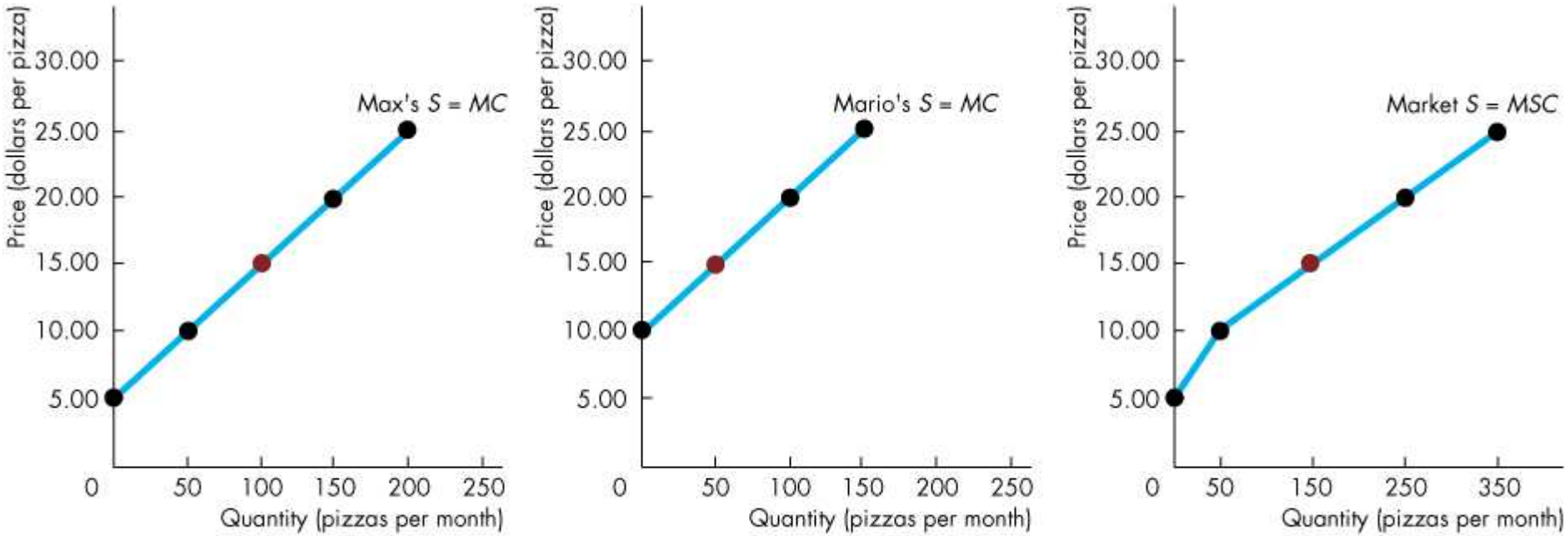


(c) Economy producer surplus

Benefit, Cost, and Surplus

At $15 a pizza, Max sells 100 pizzas.

So his producer surplus is the area of the blue triangle.

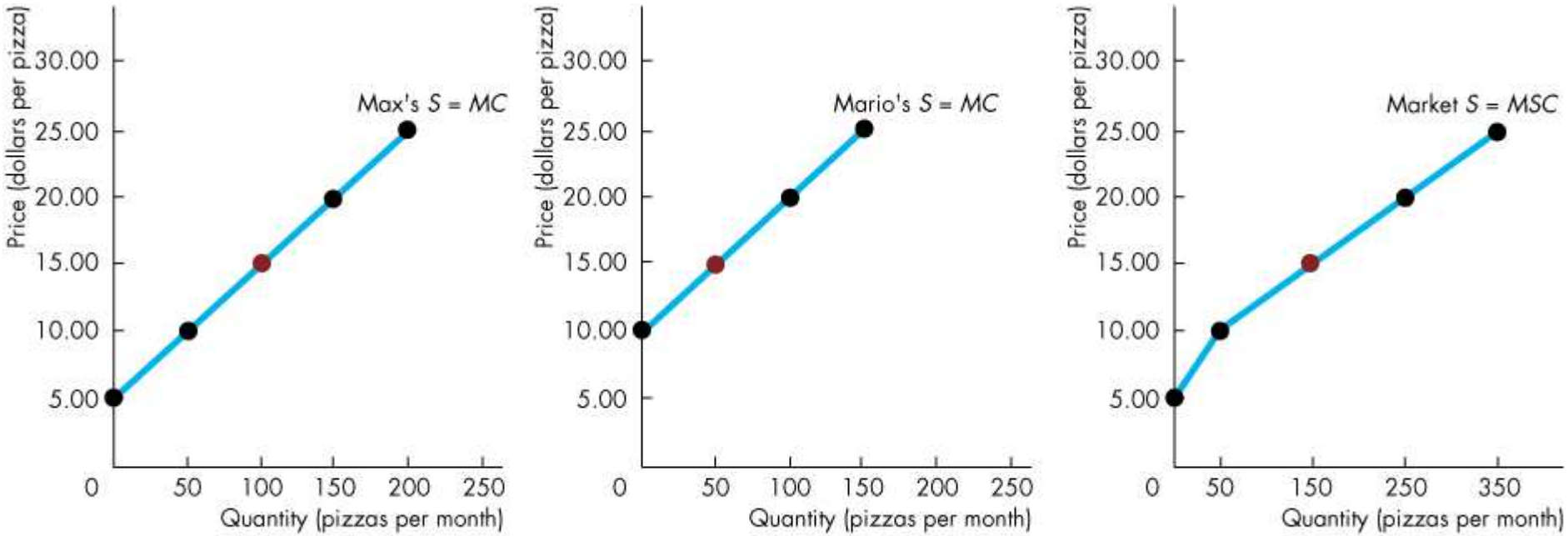


(a) Max's producer surplus (b) Mario's producer surplus (c) Economy producer surplus

Benefit, Cost, and Surplus

At $15 a pizza, Mario sells 50 pizzas.

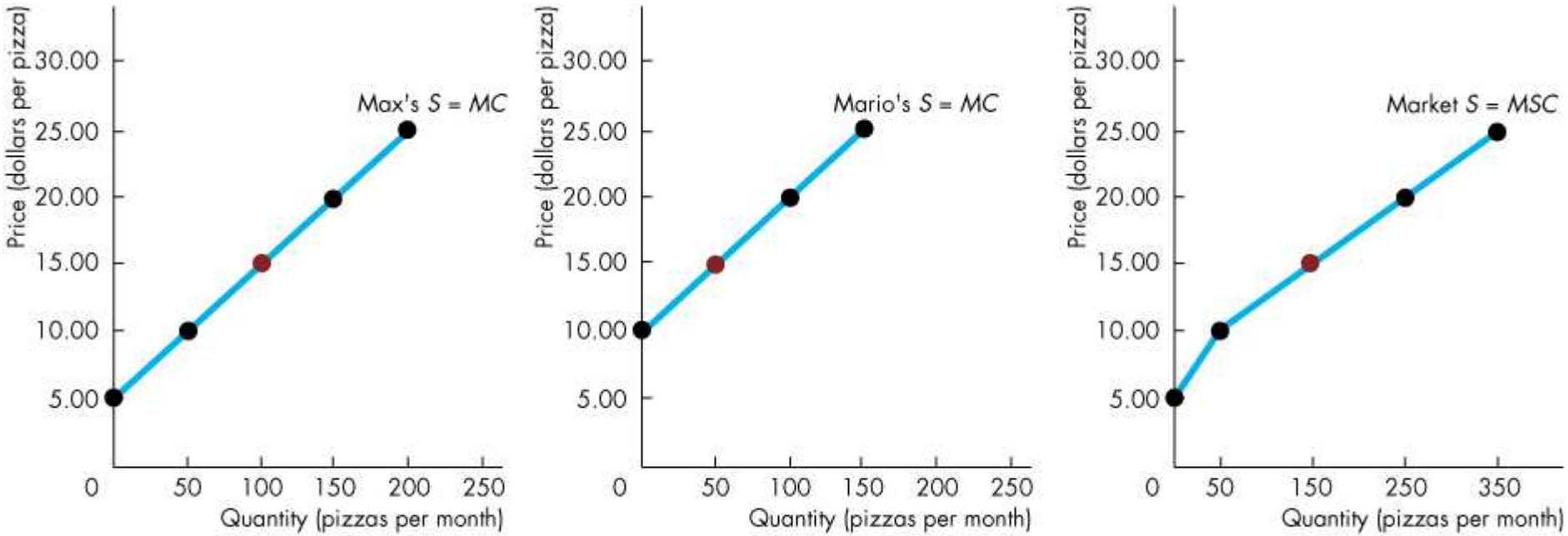
So his producer surplus is the area of the blue triangle.



(a) Max's producer surplus (b) Mario's producer surplus (c) Economy producer surplus

Benefit, Cost, and Surplus

At $15 a pizza, the producer surplus for the economy is the area under the market price above the market supply curve, summed over the 150 pizzas sold.

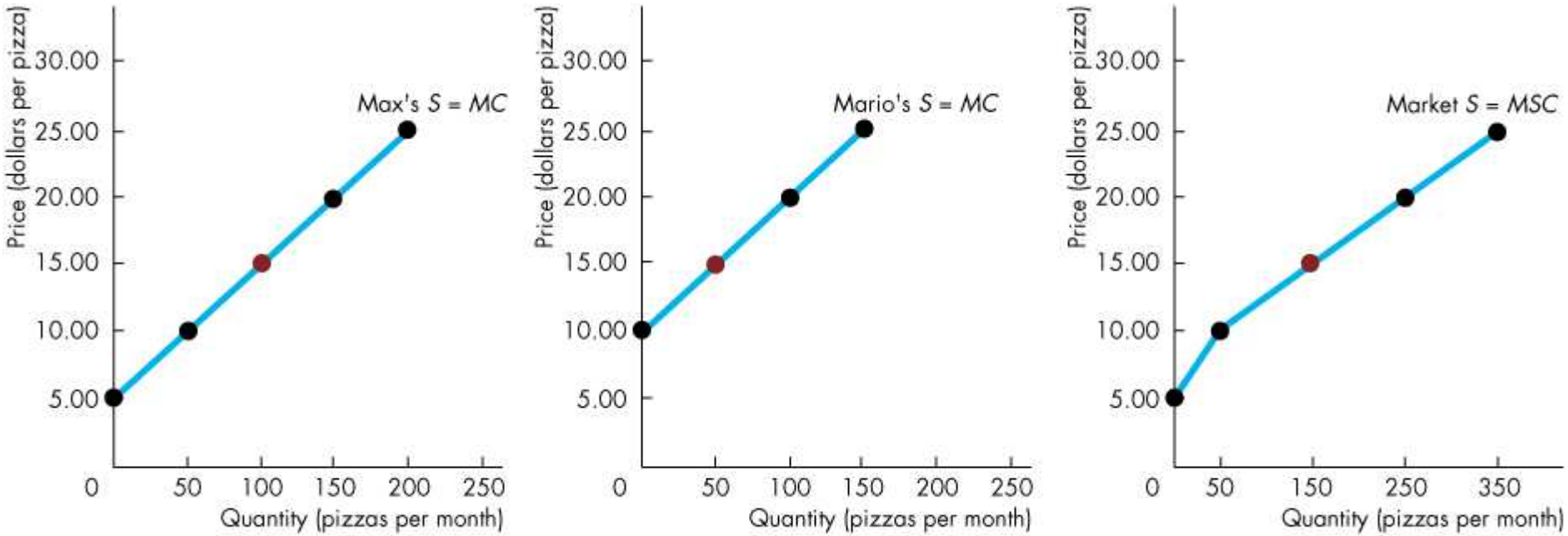


(a) Max's producer surplus (b) Mario's producer surplus (c) Economy producer surplus

Benefit, Cost, and Surplus

The red areas show the cost of producing the pizzas sold.

The producer surplus is the value of the pizza sold in excess of the cost of producing it.



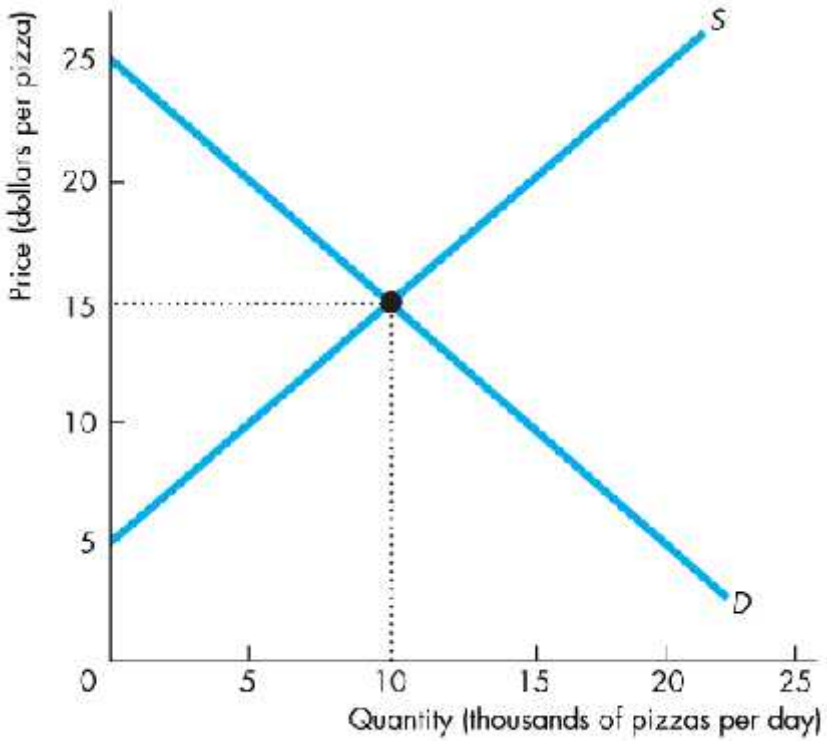
(a) Max's producer surplus (b) Mario's producer surplus (c) Economy producer surplus

Is the Competitive Market Efficient?

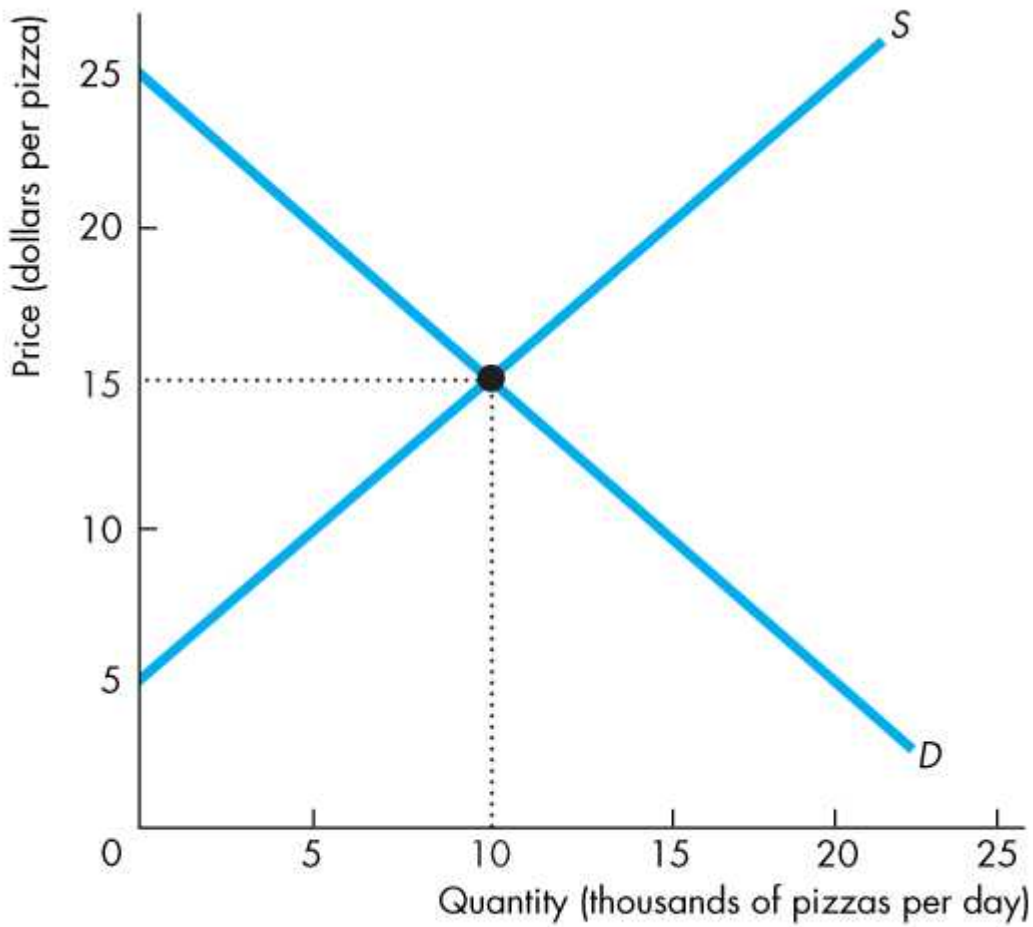
Efficiency of Competitive Equilibrium

Figure 5.5 shows that a competitive market creates an efficient allocation of resources at equilibrium.

In equilibrium, the quantity demanded equals the quantity supplied.



(a) Equilibrium and surpluses

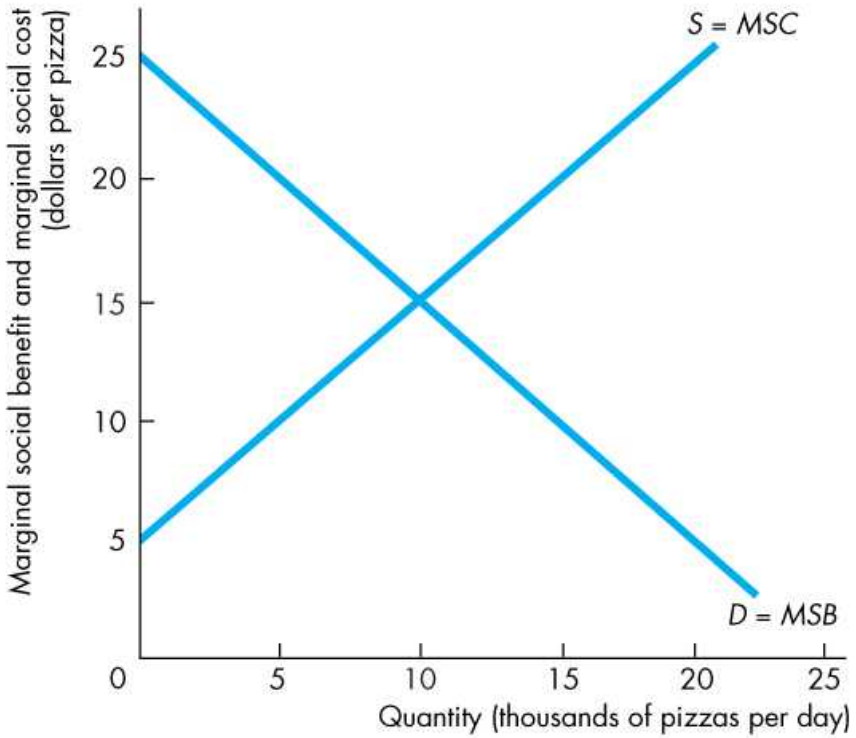


(a) Equilibrium and surpluses

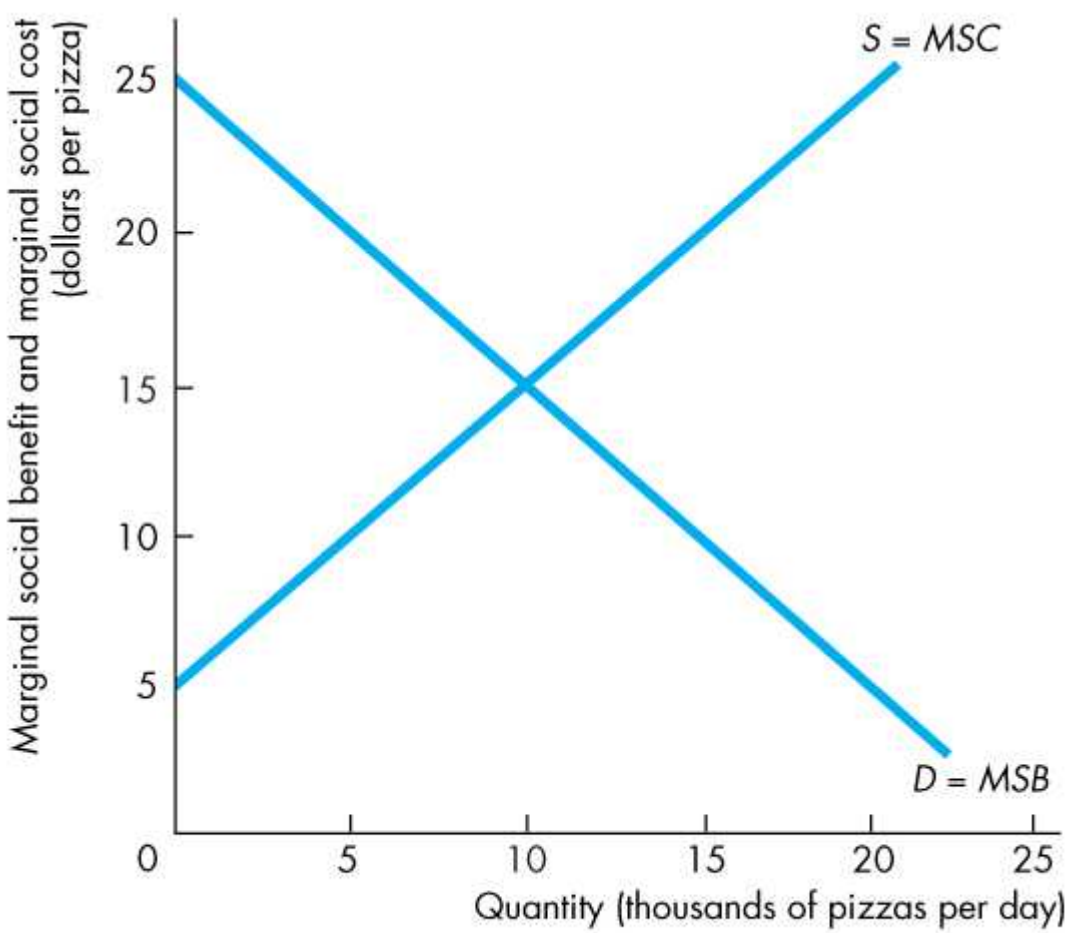
Is the Competitive Market Efficient?

When production is:

- less than the equilibrium quantity, *MSB* > *MSC*.
- greater than the equilibrium quantity, *MSC* > *MSB*.
- equal to the equilibrium quantity, *MSC* = *MSB*.



(b) Efficiency

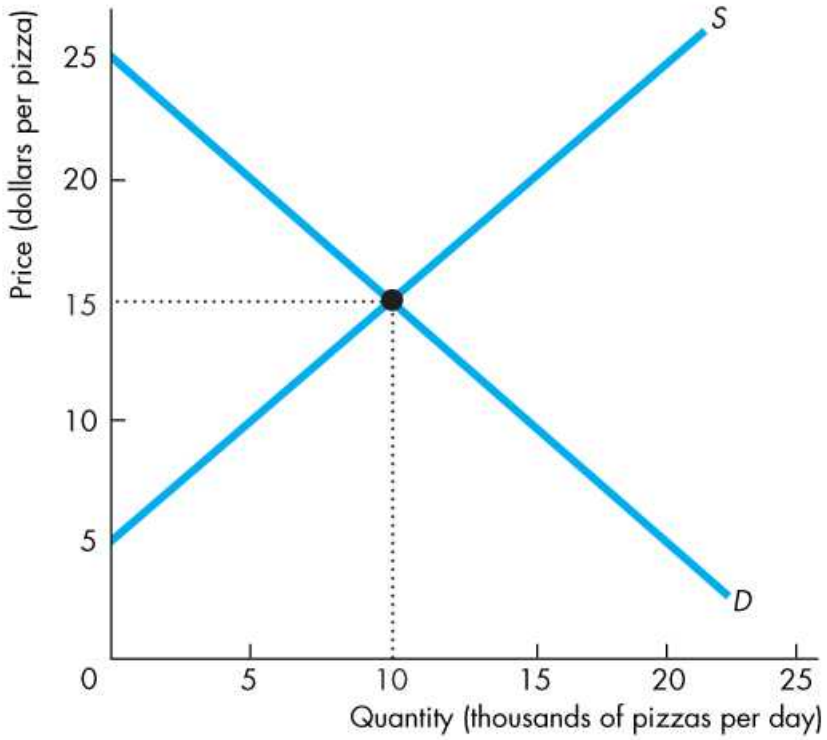


(b) Efficiency

Is the Competitive Market Efficient?

Resources are used efficiently when marginal social benefit equals marginal social cost.

When the efficient quantity is produced, total surplus (the sum of consumer surplus and producer surplus) is maximized.



(a) Equilibrium and surpluses

Is the Competitive Market Efficient?

The Invisible Hand

Adam Smith's "invisible hand" idea in the *Wealth of Nations* implied that competitive markets send resources to their highest valued use in society.

Consumers and producers pursue their own self-interest and interact in markets.

Market transactions generate an efficient—highest valued—use of resources.

Is the Competitive Market Efficient?

Market Failure

Markets don't always achieve an efficient outcome.

Market failure arises when a market delivers in inefficient outcome.

Market failure can occur because

- Too little of an item is produced (underproduction) or
- Too much of an item is produced (overproduction).

Is the Competitive Market Efficient?

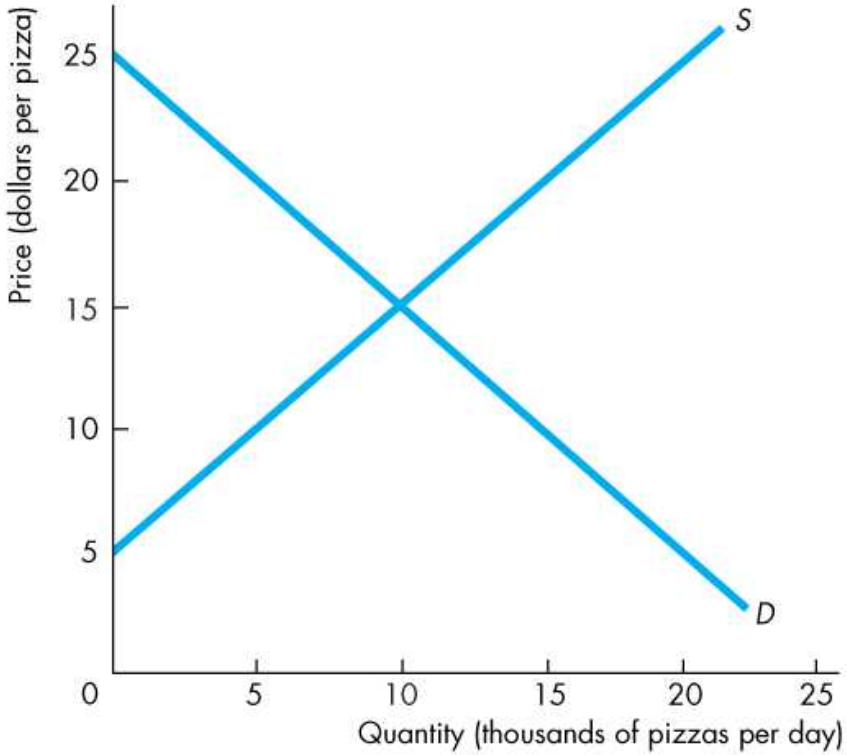
Underproduction

The efficient quantity is 10,000 pizzas a day.

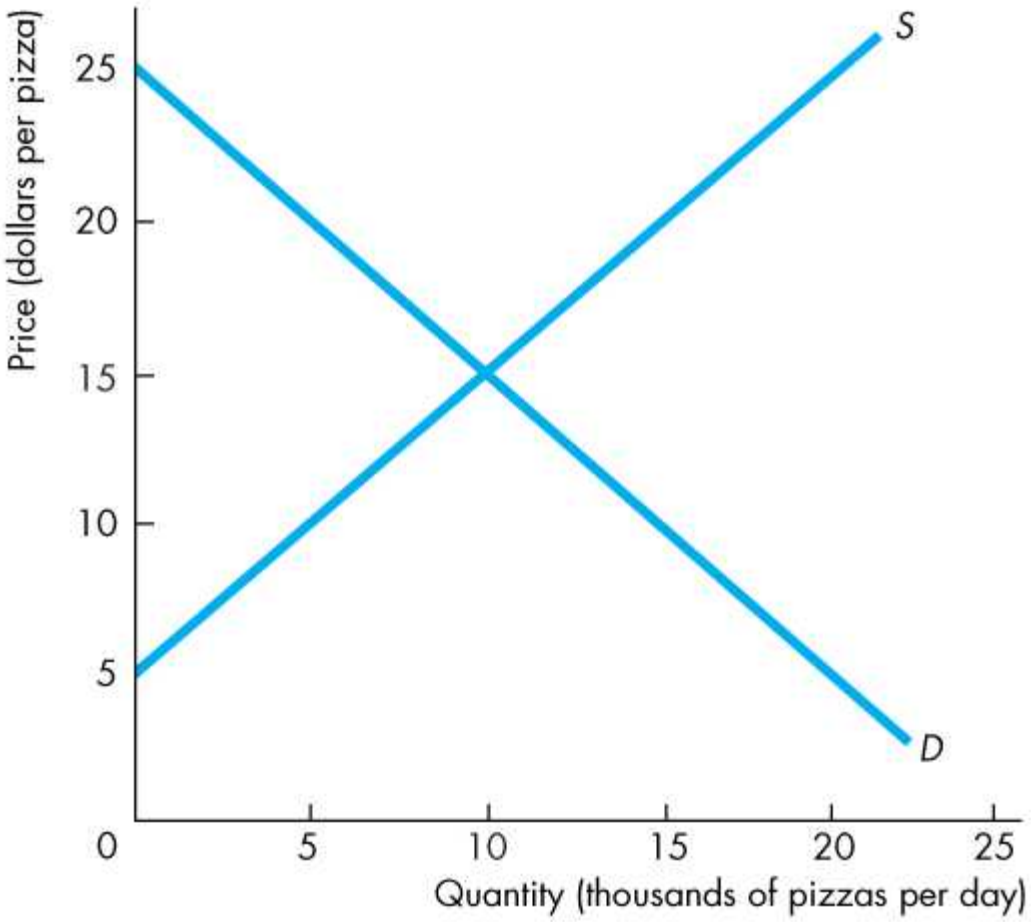
If production is restricted to 5,000 pizzas a day, there is underproduction and the quantity is inefficient.

A **deadweight loss** equals the decrease in total surplus—the gray triangle.

This loss is a *social* loss.



(a) Underproduction



(a) Underproduction

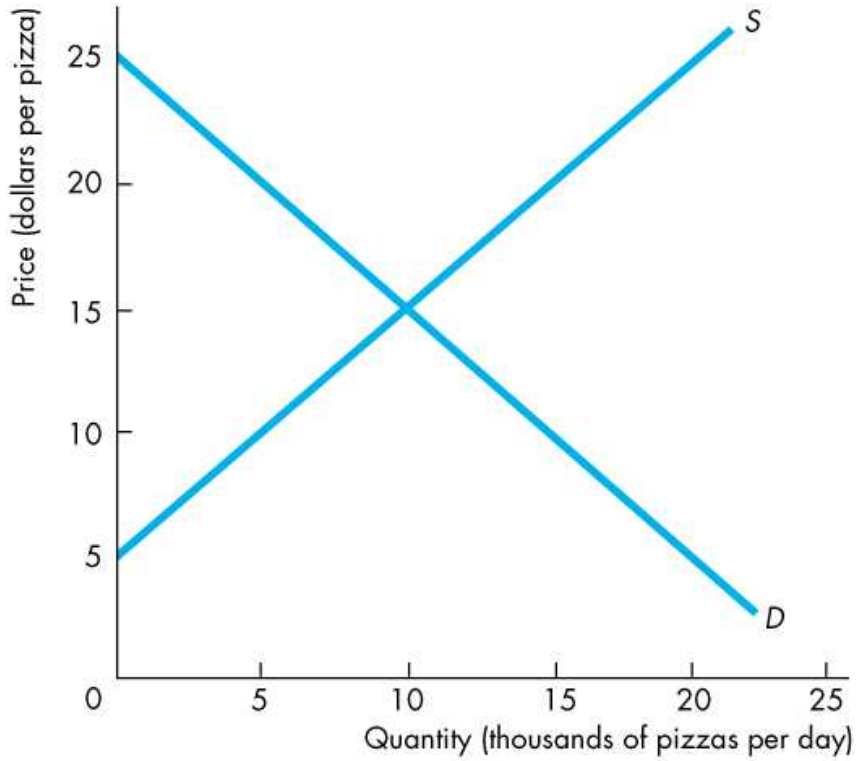
Is the Competitive Market Efficient?

Overproduction

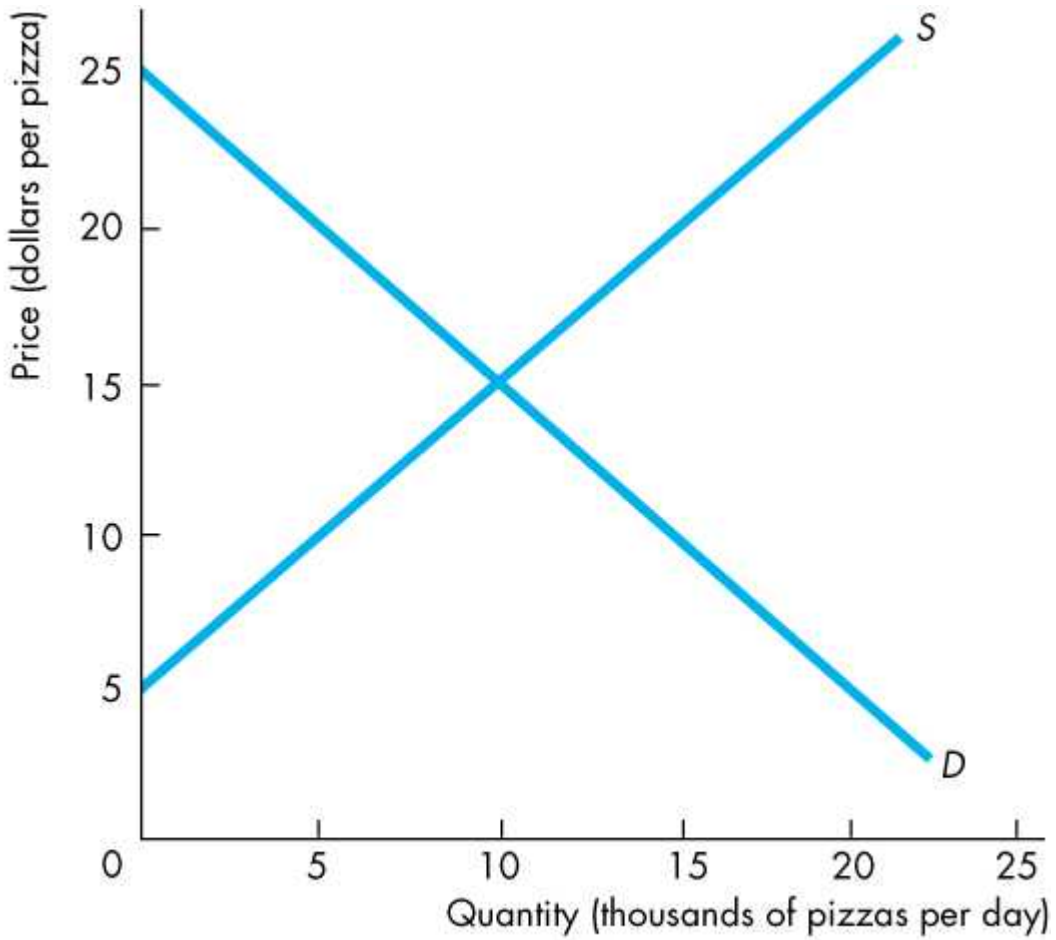
Again, the efficient quantity is 10,000 pizzas a day.

If production is expanded to 15,000 pizzas a day, a deadweight loss arises from overproduction.

This loss is a *social* loss.



(b) Overproduction



(b) Overproduction

Is the Competitive Market Efficient?

Sources of Market Failure

In competitive markets, underproduction or overproduction arise when there are

- Price and quantity regulations
- Taxes and subsidies
- Externalities
- Public goods and common resources
- Monopoly
- High transactions costs

Is the Competitive Market Efficient?

Price and Quantity Regulations

Price regulations sometimes put a block of the price adjustments and lead to underproduction.

Quantity regulations that limit the amount that a farm is permitted to produce also leads to underproduction.

Is the Competitive Market Efficient?

Taxes and Subsidies

Taxes increase the prices paid by buyers and lower the prices received by sellers.

So taxes decrease the quantity produced and lead to underproduction.

Subsidies lower the prices paid by buyers and increase the prices received by sellers.

So subsidies increase the quantity produced and lead to overproduction.

Is the Competitive Market Efficient?

Externalities

An *externality* is a cost or benefit that affects someone other than the seller or the buyer of a good.

An electric utility creates an *external cost* by burning coal that creates acid rain.

The utility doesn't consider this cost when it chooses the quantity of power to produce. Overproduction results.

Is the Competitive Market Efficient?

An apartment owner would provide an *external benefit* if she installed an smoke detector. But she doesn't consider her neighbor's marginal benefit and decides not to install the smoke detector.

The result is underproduction.

Is the Competitive Market Efficient?

Public Goods and Common Resources

A *public good* benefits everyone and no one can be excluded from its benefits.

It is in everyone's self-interest to avoid paying for a public good (called the free-rider problem), which leads to underproduction.

Is the Competitive Market Efficient?

A *common resource* is owned by no one but can be used by everyone.

It is in everyone's self interest to ignore the costs of their own use of a common resource that fall on others (called *tragedy of the commons*).

The *tragedy of the commons* leads to overproduction.

Is the Competitive Market Efficient?

Monopoly

A *monopoly* is a firm that has sole provider of a good or service.

The self-interest of a monopoly is to maximize its profit. To do so, a monopoly sets a price to achieve its self-interested goal.

As a result, a monopoly produces too little and underproduction results.

Is the Competitive Market Efficient?

High Transactions Costs

Transactions costs are the opportunity cost of making trades in a market.

To use the market price as the allocator of scarce resources, it must be worth bearing the opportunity cost of establishing a market.

Some markets are just too costly to operate.

When transactions costs are high, the market might underproduce.

Is the Competitive Market Efficient?

Alternatives to the Market

When a market is inefficient, can one of the non-market methods of allocation do a better job?

Often, majority rule might be used.

But majority rule has its own shortcomings. A group that pursues the self-interest of its members can become the majority.

Also, with majority rule, votes must be translated into actions by bureaucrats who have their own agendas.

Is the Competitive Market Efficient?

There is no one efficient mechanism for allocating resources efficiently.

But supplemented majority rule, bypassed inside firms by command systems, and occasionally using first-come, first-served, markets do an amazingly good job.

Is the Competitive Market Fair?

Ideas about fairness can be divided into two groups:

- It's not fair if the *result* isn't fair.
- It's not fair if the *rules* aren't fair.

Is the Competitive Market Fair?

It's Not Fair if the *Result* Isn't Fair

The idea that only equality brings efficiency is called utilitarianism.

Utilitarianism is the principle that states that we should strive to achieve "the greatest happiness for the greatest number."

Is the Competitive Market Fair?

If everyone gets the same marginal utility from a given amount of income, and

if the marginal benefit of income decreases as income increases,

then taking a dollar from a richer person and giving it to a poorer person increases the total benefit.

Only when income is equally distributed has the greatest happiness been achieved.

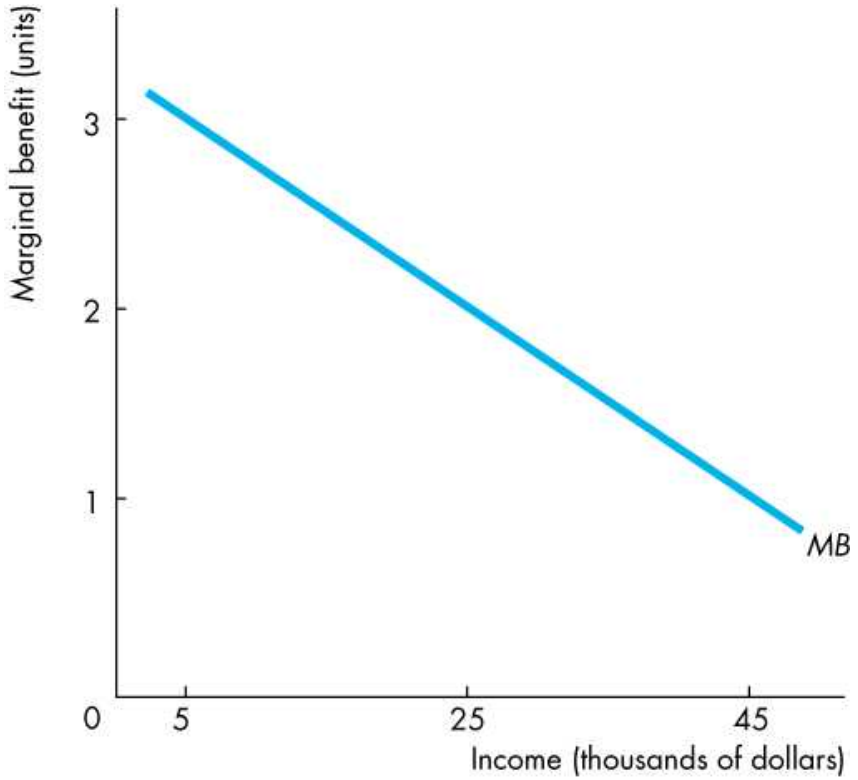
Is the Competitive Market Fair?

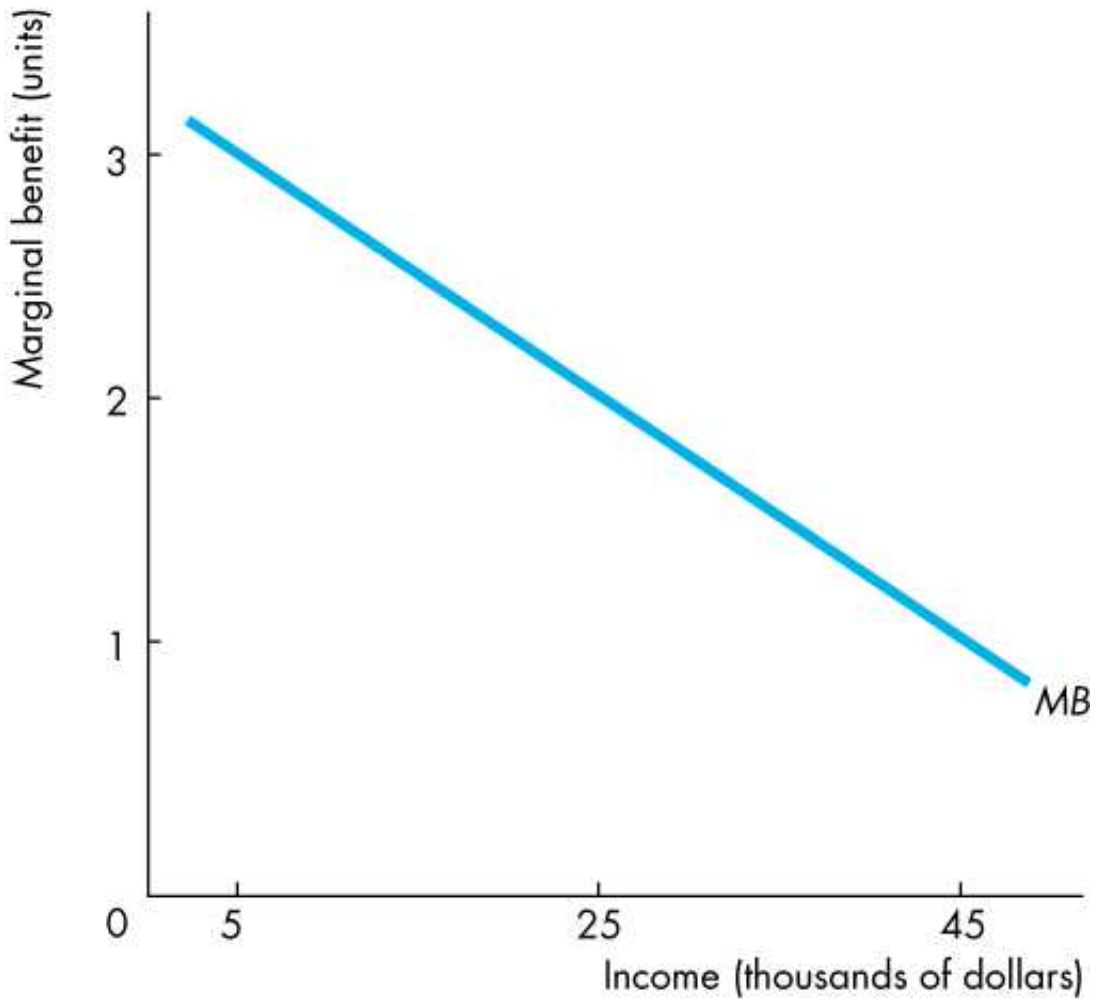
Figure 5.7 shows how redistribution increases efficiency.

Tom is poor and has a high marginal benefit of income.

Jerry is rich and has a low marginal benefit of income.

Taking dollars from Jerry and giving them to Tom until they have equal incomes increases total benefit.





Is the Competitive Market Fair?

The Big Tradeoff

Utilitarianism ignores the cost of making income transfers.

Recognizing these costs leads to the **big tradeoff** between efficiency and fairness.

Because of the big tradeoff, John Rawls proposed that income should be redistributed to point at which the poorest person is as well off as possible.

Is the Competitive Market Fair?

It's Not Fair If the *Rules* Aren't Fair

The idea that "it's not fair if the *rules* aren't fair" is based on the symmetry principle.

Symmetry principle is the requirement that people in similar situations be treated similarly.

Is the Competitive Market Fair?

In economics, this principle means *equality of opportunity*, not equality of income.

Robert Nozick suggested that fairness is based on two rules:

1. The state must create and enforce laws that establish and protect private property.
2. Private property may be transferred from one person to another only by voluntary exchange.

This means that if resources are allocated efficiently, they may also be allocated fairly.