ESSENTIAL FOUNDATIONS OF ECONOMICS

8TH EDITION

Bade ▪ Parkin

Pearson

Where have all the record stores gone?

Perfect Competition

11

CHAPTER CHECKLIST

When you have completed your study of this chapter, you will be able to

1. Explain a perfectly competitive firm's profit-maximizing choices and derive its supply curve.
2. Explain how output, price, and profit are determined in the short run.
3. Explain how output, price, and profit are determined in the long run and explain why perfect competition is efficient.

MARKET TYPES

Goods and services are bought and sold in four different types of market. They are

- Perfect competition
- Monopoly
- Monopolistic competition
- Oligopoly

MARKET TYPES

Perfect Competition

Perfect competition exists when

- Many firms sell an identical product to many buyers.
- There are no restrictions on entry into (or exit from) the market.
- Established firms have no advantage over new firms.
- Sellers and buyers are well informed about prices.

MARKET TYPES

Other Market Types

Monopoly is a market for a good or service that has no close substitutes and in which there is one supplier that is protected from competition by a barrier preventing the entry of new firms.

Monopolistic competition is a market in which a large number of firms compete by making similar but slightly different products.

Oligopoly is a market in which a small number of firms compete.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

Price Taker

A **price taker** is a firm that cannot influence the price of the good or service that it produces.

The firm in perfect competition is a price taker.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

Revenue Concepts

In perfect competition, market demand and market supply determine price.

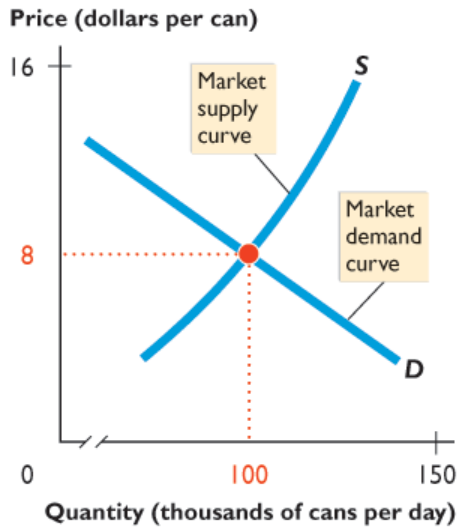
A firm's total revenue equals the market price multiplied by the quantity sold.

A firm's **marginal revenue** is the change in total revenue that results from a one-unit increase in the quantity sold.

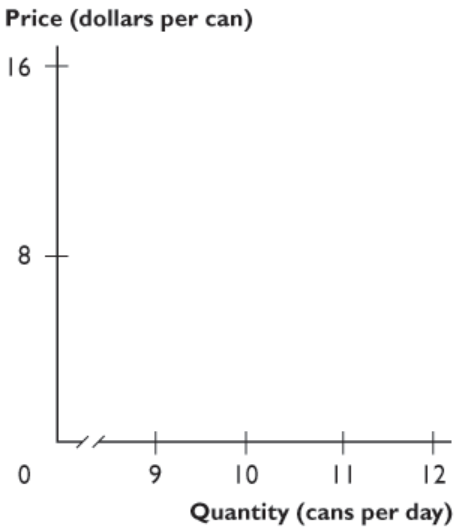
Figure 11.1 on the next slide illustrates the revenue concepts.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

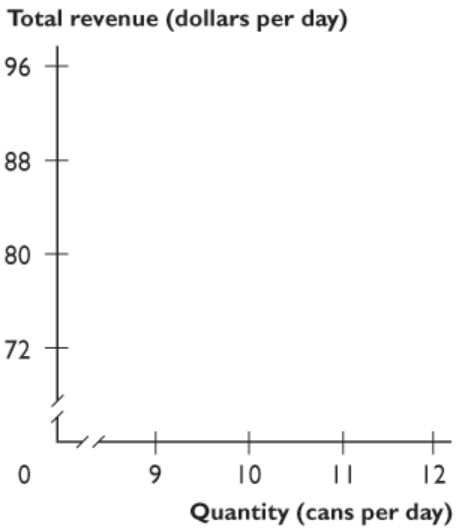
Part (a) shows the market for syrup. The market price is $8 a can.



(a) Maple syrup market



(b) Dave's marginal revenue

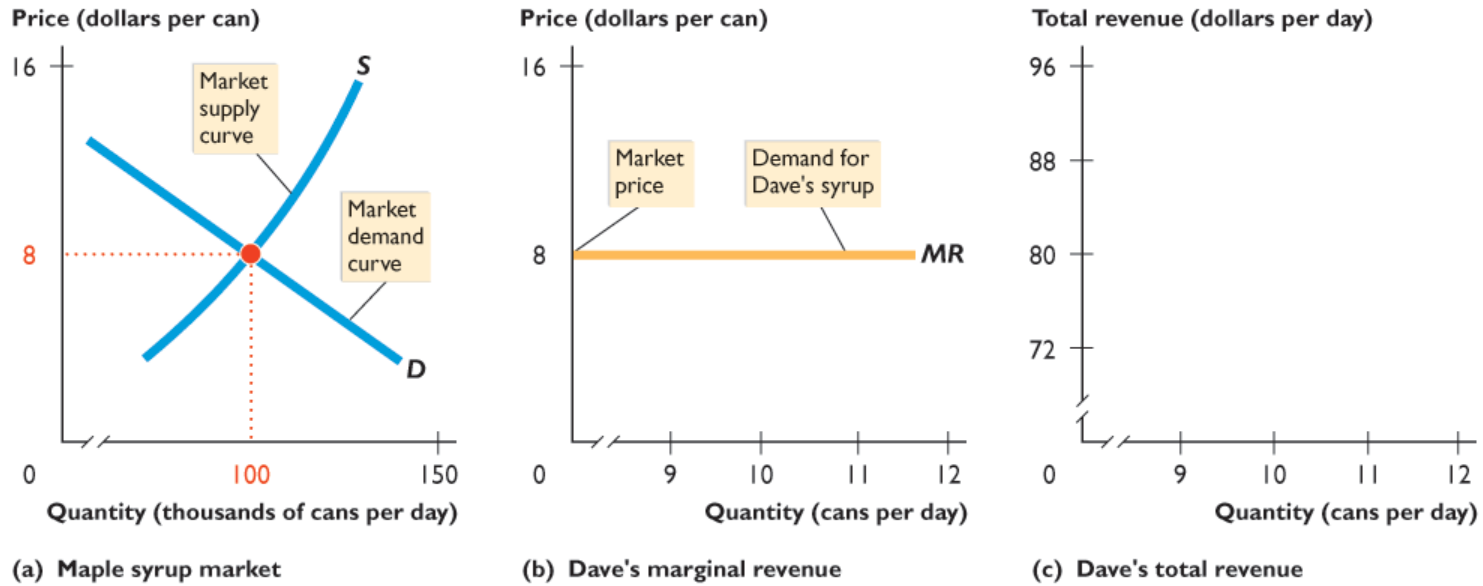


(c) Dave's total revenue

Quantity sold (cans per day)	9	10	11
Price (dollars per can)	8	8	8
Total revenue (dollars per day)	72	80	88
Marginal revenue (dollars per can)		8	8

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

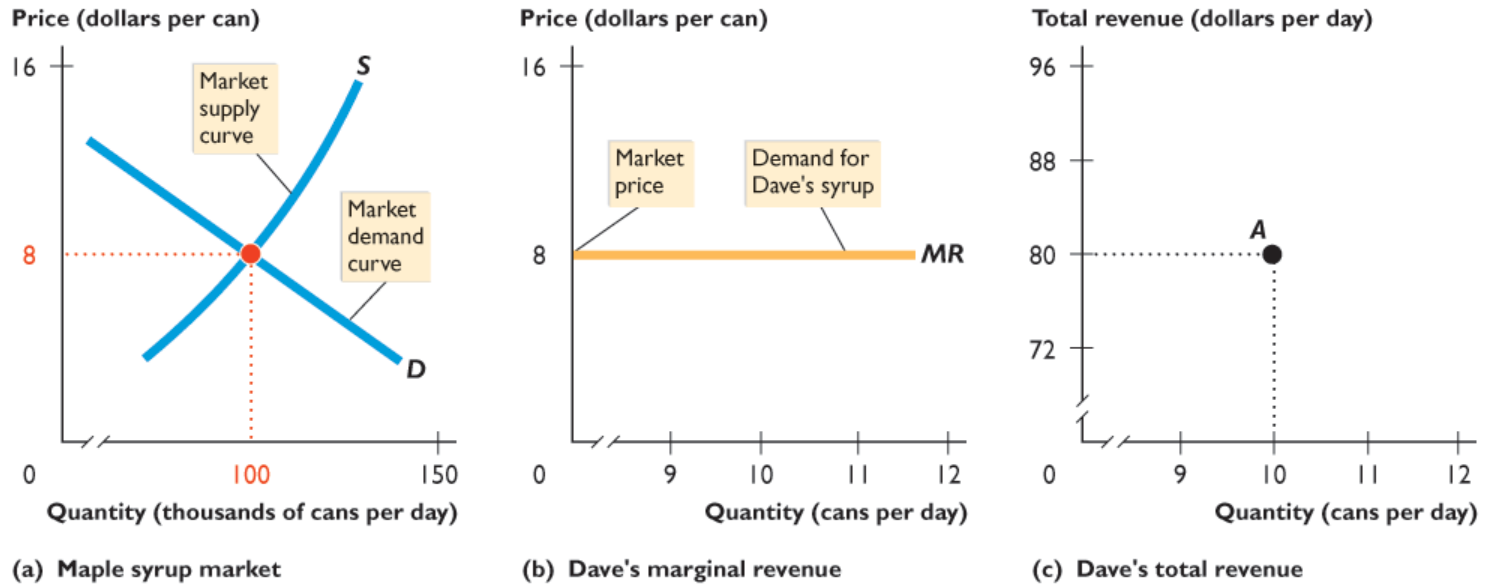
In part (b), the market price determines the demand curve for Dave's syrup, which is also his marginal revenue curve.



Quantity sold (cans per day)	9	10	11
Price (dollars per can)	8	8	8
Total revenue (dollars per day)	72	80	88
Marginal revenue (dollars per can)		8	8

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

In part (c), if Dave sells 10 cans of syrup a day, his total revenue is $80 a day at point *A*.

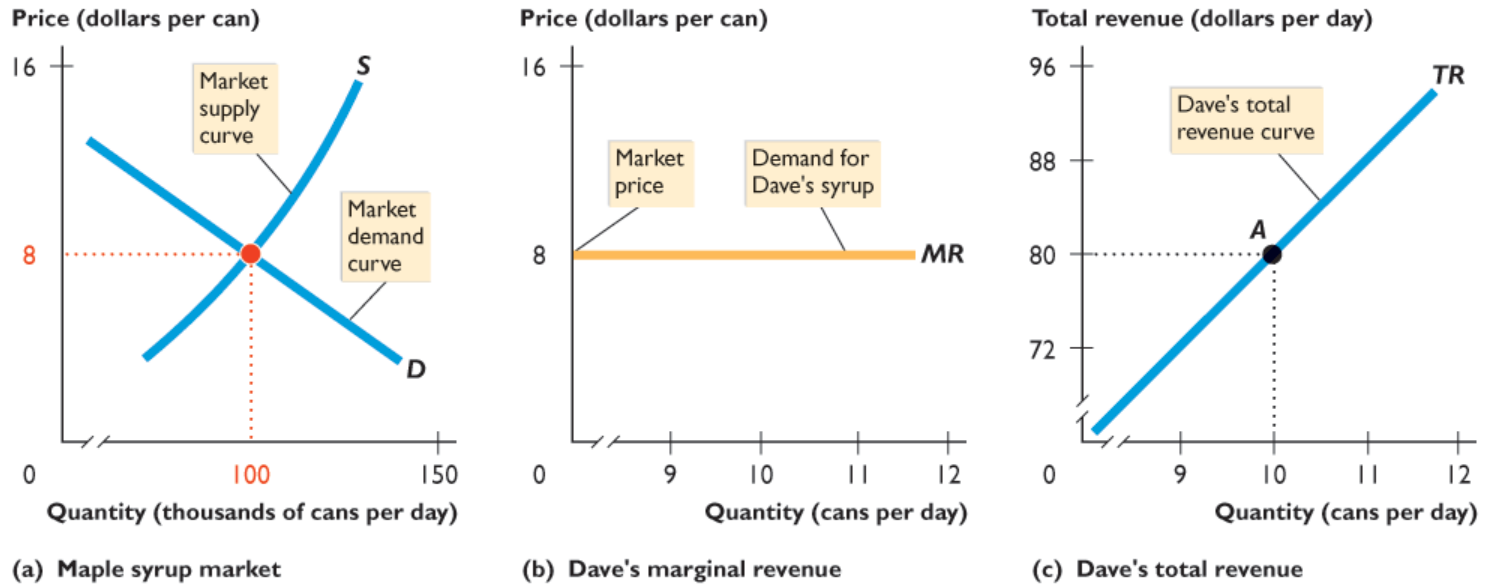


Quantity sold (cans per day)	9	10	11
Price (dollars per can)	8	8	8
Total revenue (dollars per day)	72	80	88
Marginal revenue (dollars per can)		8	8

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

Dave's total revenue curve is *TR*.

The table shows the calculations of *TR* and *MR*.



Quantity sold (cans per day)	9	10	11
Price (dollars per can)	8	8	8
Total revenue (dollars per day)	72	80	88
Marginal revenue (dollars per can)		8	8

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

Profit-Maximizing Output

As output increases, total revenue increases.

But total cost also increases.

Because of decreasing marginal returns, total cost eventually increases faster than total revenue.

There is one output level that maximizes economic profit, and a perfectly competitive firm chooses this output level.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

One way to find the profit-maximizing output is to use a firm's total revenue and total cost curves.

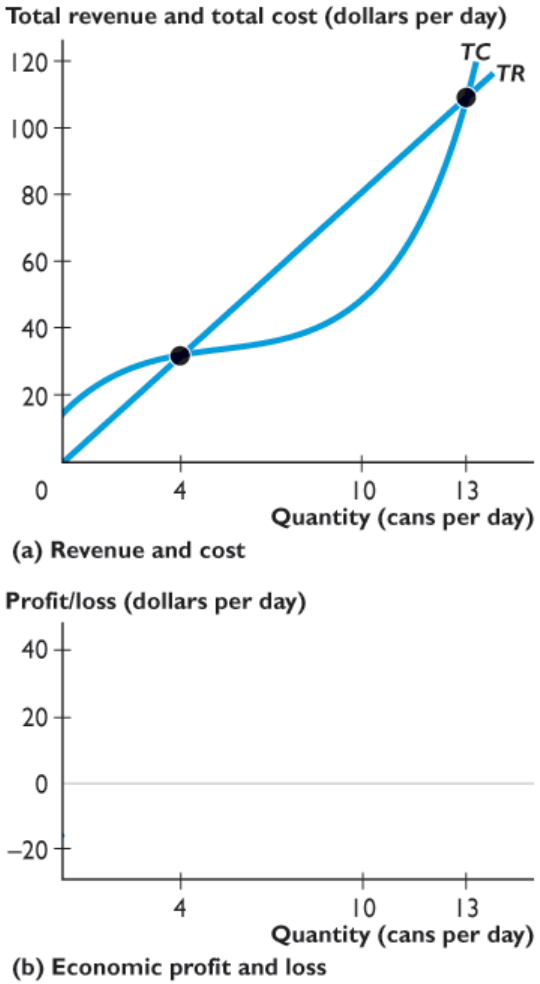
Profit is maximized at the output level at which total revenue exceeds total cost by the largest amount.

Figure 11.2 on the next slide illustrates this approach.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

Total revenue increases as the quantity increases—shown by the *TR* curve.

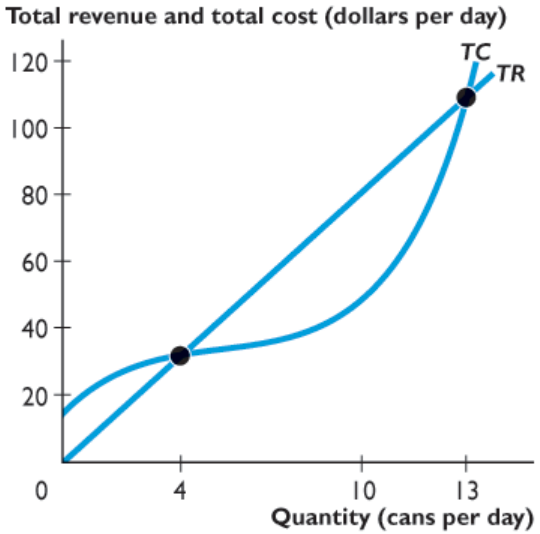
Total cost increases as the quantity increases—shown by the *TC* curve.



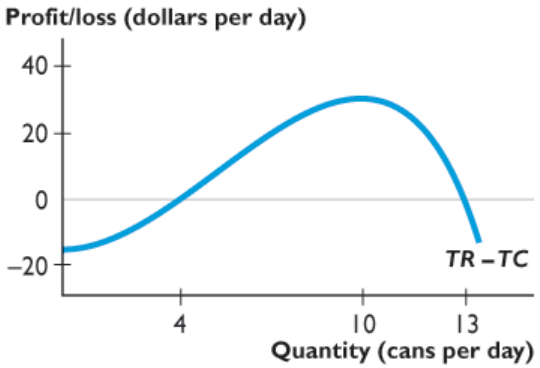
Quantity (*Q*) (cans per day)	Total revenue (*TR*)	Total cost (*TC*)	Economic profit (*TR* – *TC*)
	(dollars per day)		
0	0	15	
1	8	22	
2	16	27	
3	24	30	
4	**32**	**32**	
5	40	33	
6	48	34	
7	56	36	
8	64	40	
9	72	44	
10	**80**	**51**	
11	88	60	
12	96	76	
13	**104**	**104**	
14	112	144	

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

As the quantity increases, economic profit (*TR – TC*) increases, reaches a maximum, and then decreases.



(a) Revenue and cost



(b) Economic profit and loss

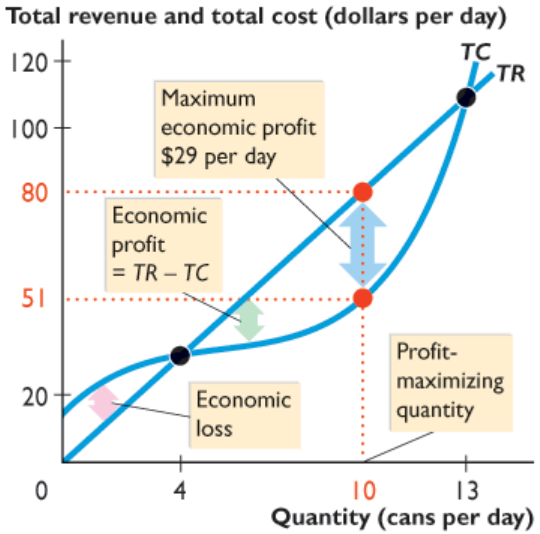
Quantity (*Q*) (cans per day)	Total revenue (*TR*)	Total cost (*TC*)	Economic profit (*TR – TC*)
	(dollars per day)		
0	0	15	–15
1	8	22	–14
2	16	27	–11
3	24	30	–6
4	**32**	**32**	**0**
5	40	33	7
6	48	34	14
7	56	36	20
8	64	40	24
9	72	44	28
10	**80**	**51**	**29**
11	88	60	28
12	96	76	20
13	**104**	**104**	**0**
14	112	144	–32

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

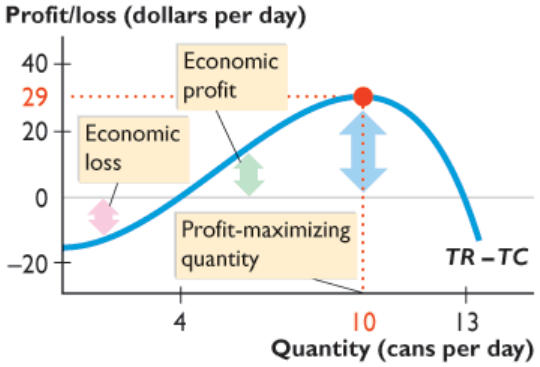
At low output levels, the firm incurs an economic loss.

When total revenue exceeds total cost, the firm earns an economic profit.

Profit is maximized when the gap between total revenue and total cost is the largest, at 10 cans per day.



(a) Revenue and cost



(b) Economic profit and loss

Quantity (Q) (cans per day)	Total revenue (TR)	Total cost (TC)	Economic profit (TR – TC)
	(dollars per day)		
0	0	15	–15
1	8	22	–14
2	16	27	–11
3	24	30	–6
4	**32**	**32**	**0**
5	40	33	7
6	48	34	14
7	56	36	20
8	64	40	24
9	72	44	28
10	**80**	**51**	**29**
11	88	60	28
12	96	76	20
13	**104**	**104**	**0**
14	112	144	–32

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

Marginal Analysis and the Supply Decision

Marginal analysis compares marginal revenue, *MR*, with marginal cost, *MC*.

As output increases, marginal revenue remains constant but marginal cost increases.

If marginal revenue exceeds marginal cost (if *MR* > *MC*), the extra revenue from selling one more unit exceeds the extra cost incurred to produce it.

Economic profit increases if output increases.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

If marginal revenue is less than marginal cost (if *MR* < *MC*), the extra revenue from selling one more unit is less than the extra cost incurred to produce it.

Economic profit increases if output *decreases*.

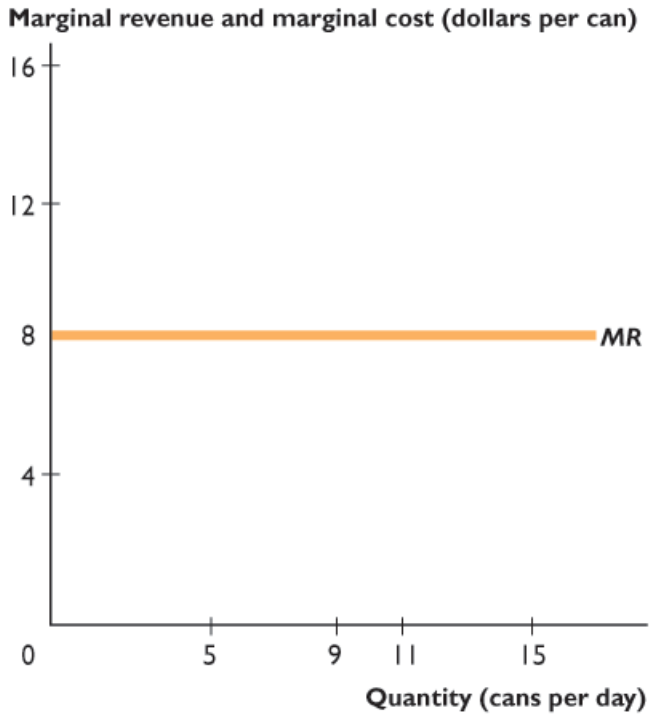
If marginal revenue equals marginal cost (if *MR* = *MC*), the extra revenue from selling one more unit is equal to the extra cost incurred to produce it.

Economic profit *decreases* if output *increases* or *decreases*, so economic profit is maximized.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

Figure 11.3 shows the profit-maximizing output.

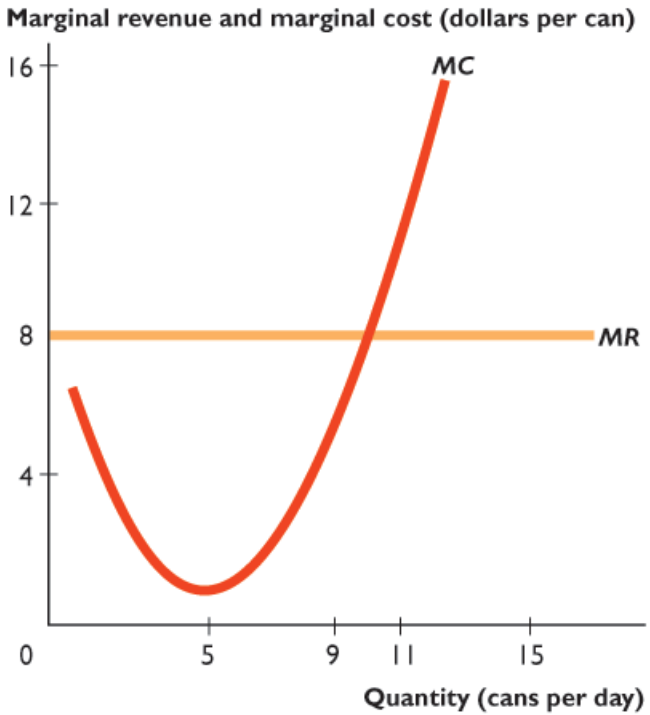
Marginal revenue is a constant $8 per can.



Quantity (*Q*) (cans per day)	Total revenue (*TR*) (dollars per day)	Marginal revenue (*MR*) (dollars per can)	Total cost (*TC*) (dollars per day)	Marginal cost (*MC*) (dollars per can)	Economic profit (*TR* – *TC*) (dollars per day)
8	64		40		24
		8			
9	72		44		28
		8			
10	80		51		29
		8			
11	88		60		28
		8			
12	96		76		20

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

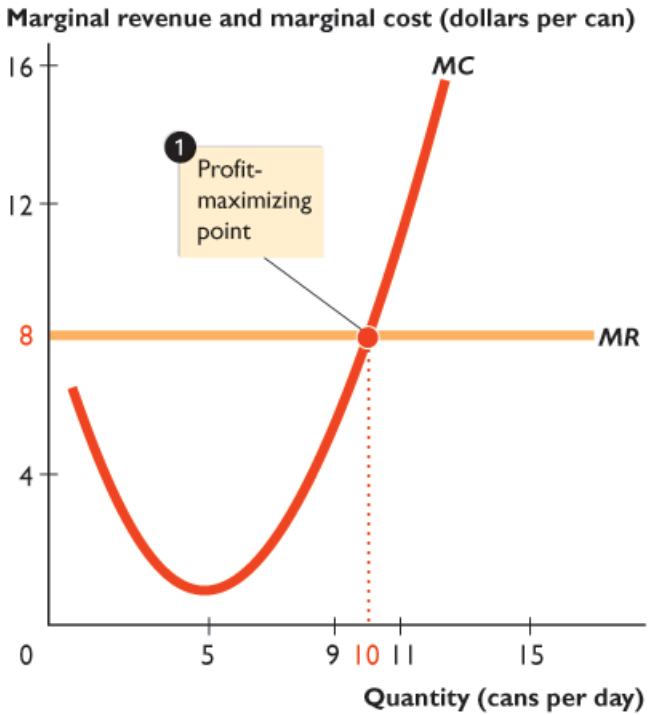
Marginal cost decreases at low outputs but then increases.



Quantity (*Q*) (cans per day)	Total revenue (*TR*) (dollars per day)	Marginal revenue (*MR*) (dollars per can)	Total cost (*TC*) (dollars per day)	Marginal cost (*MC*) (dollars per can)	Economic profit (*TR* – *TC*) (dollars per day)
8	64		40		24
		8		4	
9	72		44		28
		8		7	
10	80		51		29
		8		9	
11	88		60		28
		8		16	
12	96		76		20

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

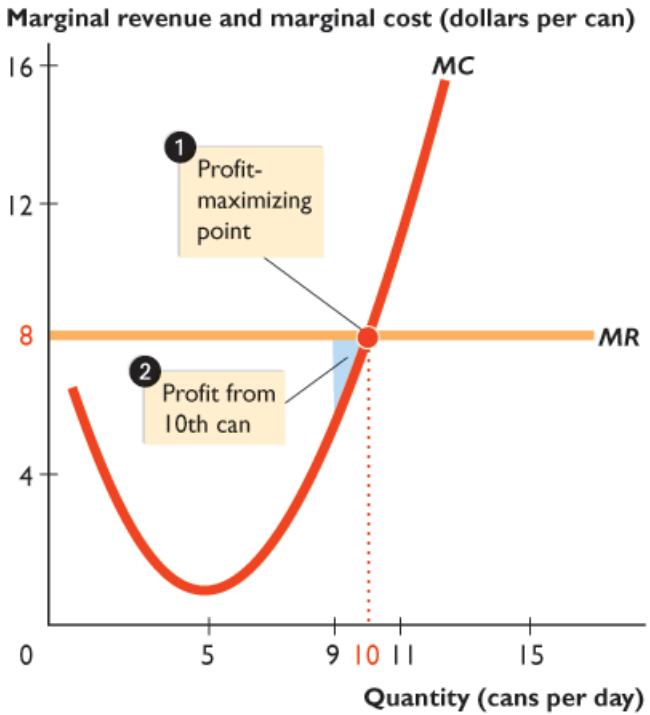
1. Profit is maximized when marginal revenue equals marginal cost at 10 cans a day.



Quantity (*Q*) (cans per day)	Total revenue (*TR*) (dollars per day)	Marginal revenue (*MR*) (dollars per can)	Total cost (*TC*) (dollars per day)	Marginal cost (*MC*) (dollars per can)	Economic profit (*TR* – *TC*) (dollars per day)
8	64		40		24
		8		4	
9	72		44		28
		8		7	
10	80		51		29
		8		9	
11	88		60		28
		8		16	
12	96		76		20

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

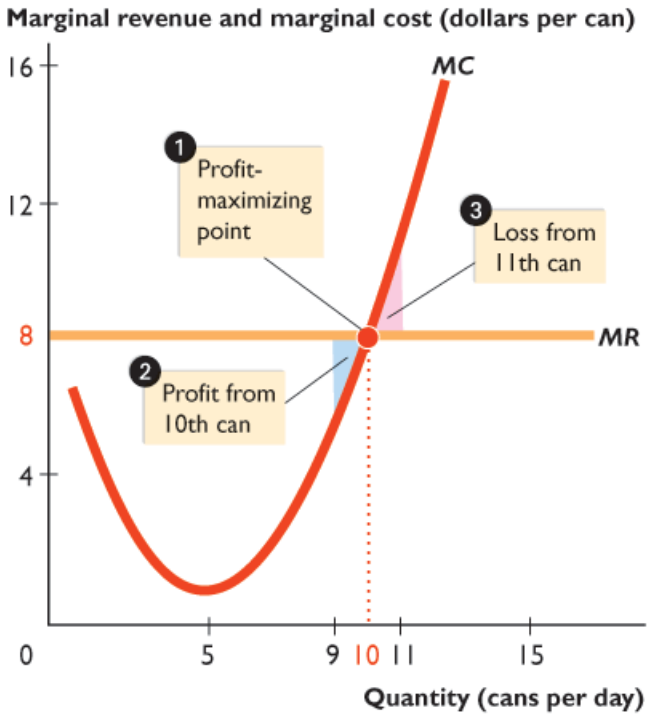
2. If output increases from 9 to 10 cans a day, marginal cost ($7) is below marginal revenue ($8), so profit increases.



Quantity (*Q*) (cans per day)	Total revenue (*TR*) (dollars per day)	Marginal revenue (*MR*) (dollars per can)	Total cost (*TC*) (dollars per day)	Marginal cost (*MC*) (dollars per can)	Economic profit (*TR* – *TC*) (dollars per day)
8	64		40		24
		8		4	
9	72		44		28
		8		7	
10	80		51		29
		8		9	
11	88		60		28
		8		16	
12	96		76		20

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

3. If output increases from 10 to 11 cans a day, marginal cost ($9) exceeds marginal revenue ($8), so profit decreases.



Quantity (*Q*) (cans per day)	Total revenue (*TR*) (dollars per day)	Marginal revenue (*MR*) (dollars per can)	Total cost (*TC*) (dollars per day)	Marginal cost (*MC*) (dollars per can)	Economic profit (*TR* – *TC*) (dollars per day)
8	64		40		24
		8		4	
9	72		44		28
		8		7	
10	80		51		29
		8		9	
11	88		60		28
		8		16	
12	96		76		20

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

Temporary Shutdown Decisions

If a firm is incurring an economic loss that it believes is temporary, it will remain in the market, and it might produce some output or temporarily shut down.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

If the firm shuts down temporarily, it incurs an economic loss equal to total fixed cost.

If the firm produces some output, it incurs an economic loss equal to total fixed cost plus total variable cost minus total revenue.

If total revenue exceeds total variable cost, the firm's economic loss is less than total fixed cost. So it pays the firm to produce and incur an economic loss.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

If total revenue were less than total variable cost, the firm's economic loss would exceed total fixed cost. So the firm would shut down temporarily.

Total fixed cost is the largest economic loss that the firm will incur.

The firm's economic loss equals total fixed cost when price equals average variable cost.

So the firm produces some output if price exceeds average variable cost and shuts down temporarily if average variable cost exceeds price.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

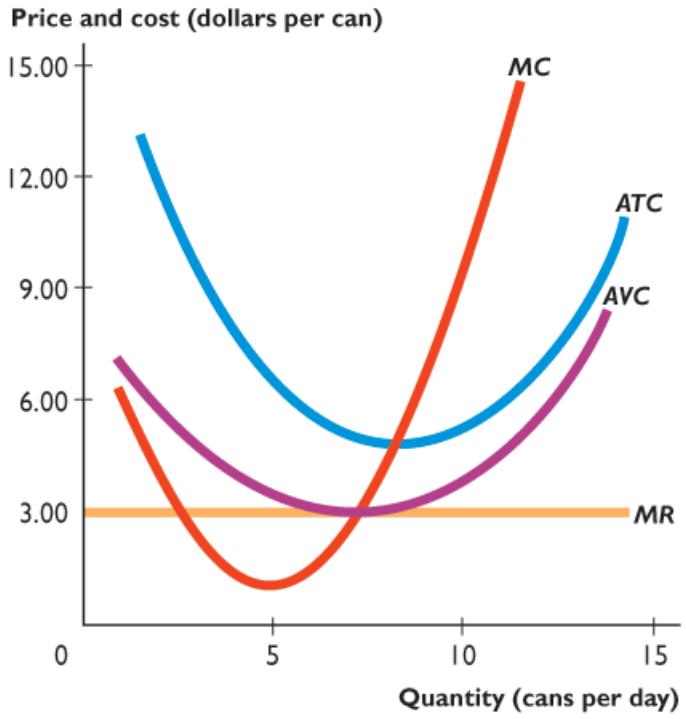
The firm's **shutdown point** is the output and price at which price equals minimum average variable cost.

Figure 11.4 on the next slide illustrates a firm's shutdown point.

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

Marginal revenue curve is *MR*.

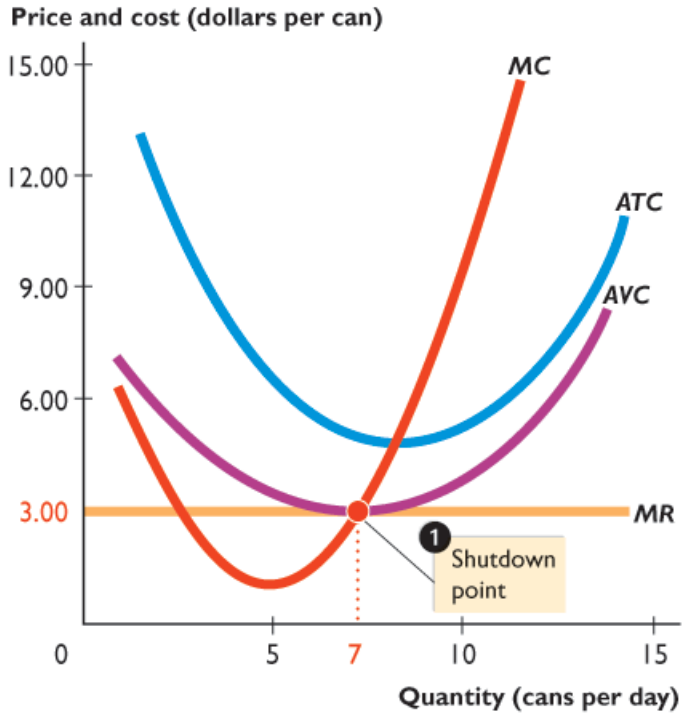
The firm's cost curves are *MC*, *ATC*, and *AVC*.



Quantity (*Q*) (cans per day)	Total revenue (*TR*)	Total variable cost (*TVC*)	Total fixed cost (*TFC*)	Total cost (*TC*)	Economic profit (*TR* – *TC*)
	(dollars per day)				
6	18	19	15	34	–16
7	21	21	15	36	–15
8	24	25	15	40	–16

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

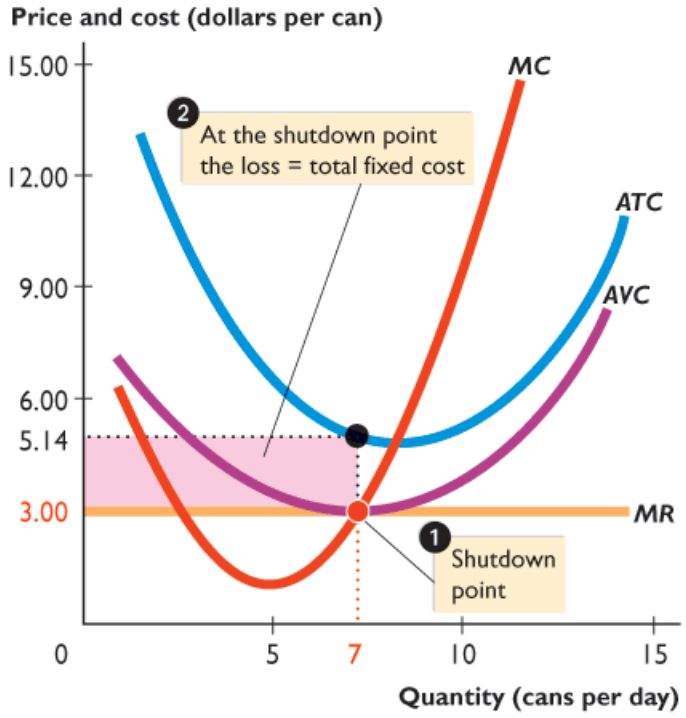
1. With a market price (and *MR*) of $3 a can, the firm minimizes its loss by producing 7 cans a day. The firm is at its shutdown point.



Quantity (*Q*) (cans per day)	Total revenue (*TR*)	Total variable cost (*TVC*)	Total fixed cost (*TFC*)	Total cost (*TC*)	Economic profit (*TR* – *TC*)
	(dollars per day)				
6	18	19	15	34	–16
7	21	21	15	36	–15
8	24	25	15	40	–16

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

2. At the shutdown point, the firms incurs an economic loss equal to total fixed cost.



Quantity (Q) (cans per day)	Total revenue (TR)	Total variable cost (TVC)	Total fixed cost (TFC)	Total cost (TC)	Economic profit (TR – TC)
	(dollars per day)				
6	18	19	15	34	–16
7	21	21	15	36	–15
8	24	25	15	40	–16

11.1 A FIRM'S PROFIT-MAXIMIZING CHOICES

The Firm's Short-Run Supply Curve

A perfectly competitive firm's short-run supply curve shows how the firm's profit-maximizing output varies as the price varies, other things remaining the same.

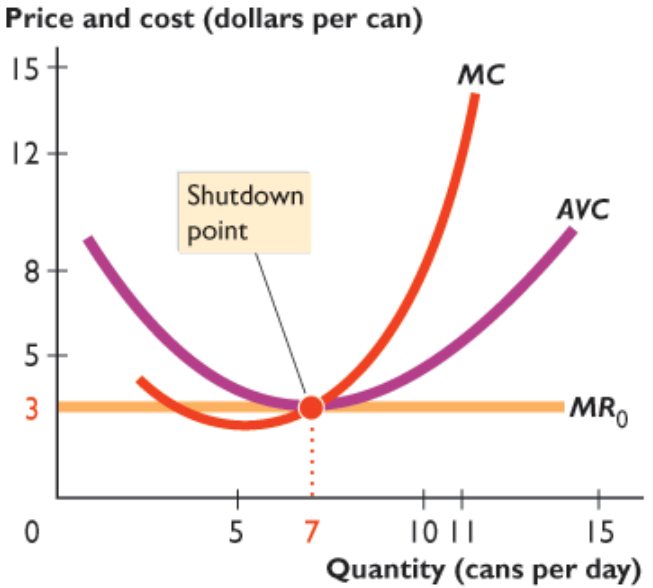
Figure 11.5 on the next slide illustrates a firm's supply curve and its relationship to the firm's cost curves.

11.1 FIRM'S … CHOICES

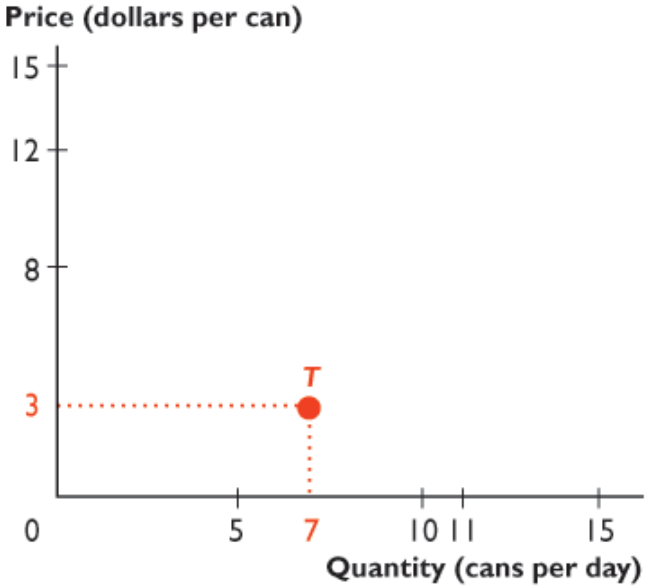
The firm's marginal cost curve is *MC*. Its average variable cost curve is *AVC*, and its marginal revenue curve is MR_0.

With a market price (and MR_0) of $3 a can, the firm maximizes profit by producing 7 cans a day—at its shutdown point.

Point *T* is one point on the firm's supply curve.



(a) Marginal cost and average variable cost



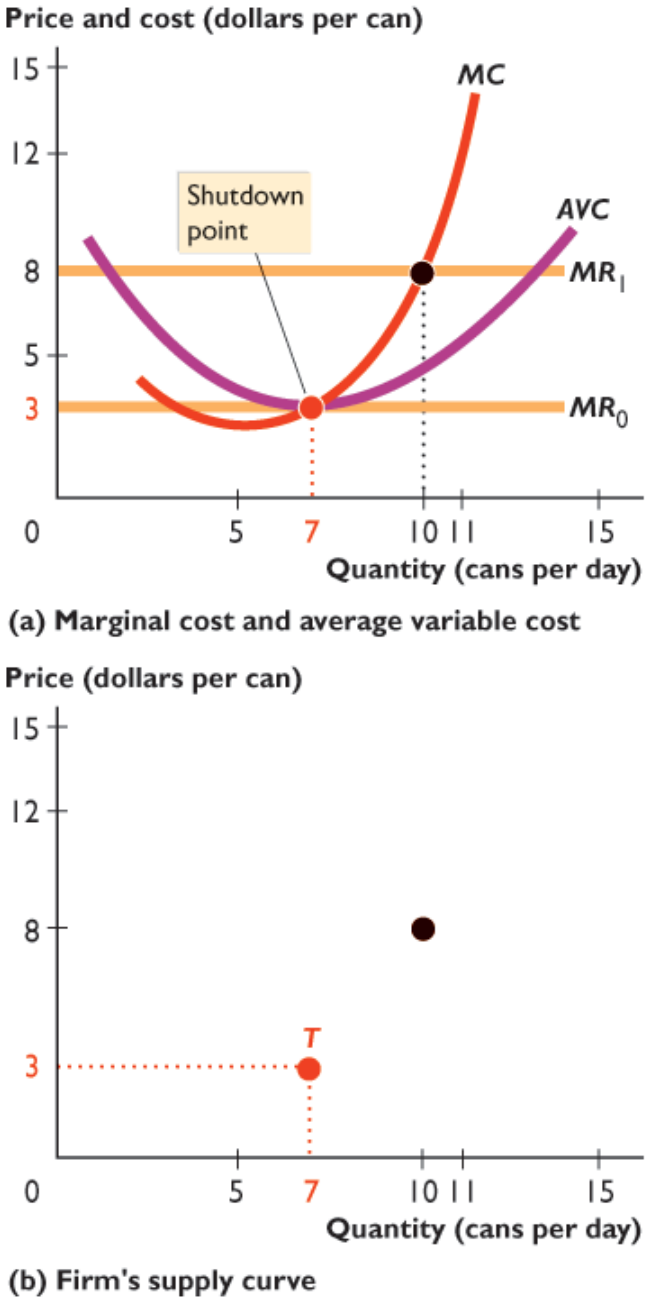
(b) Firm's supply curve

11.1 FIRM'S … CHOICES

If the market price rises to $8 a can, the marginal revenue curve shifts upward to MR_1.

Profit-maximizing output increases to 10 cans per day.

The black dot in part (b) is another point of the firm's supply curve.



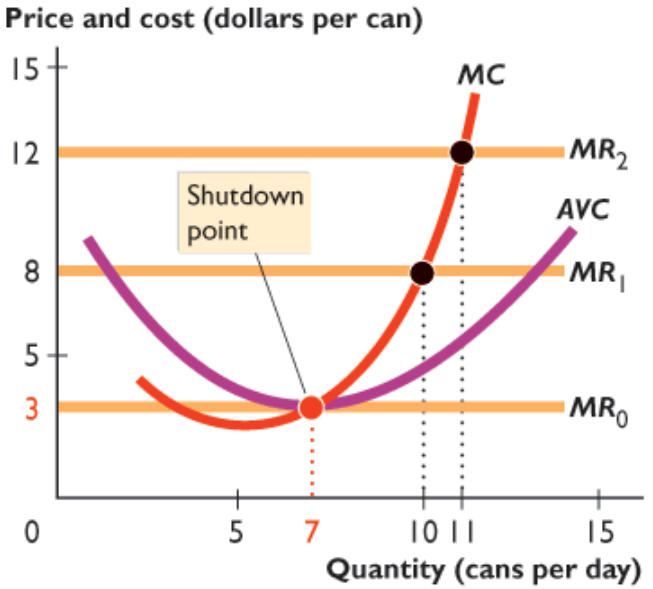
11.1 FIRM'S … CHOICES

If the price rises to $12 a can, the marginal revenue curve shifts upward to MR_2.

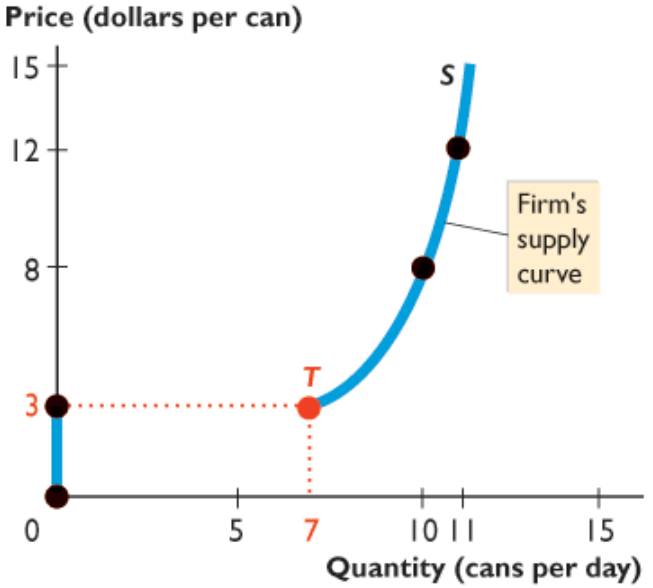
Profit-maximizing output increases to 11 cans per day.

The new black dot in part (b) is another point of the firm's supply curve.

The blue curve in part (b) is the firm's supply curve.



(a) Marginal cost and average variable cost



(b) Firm's supply curve

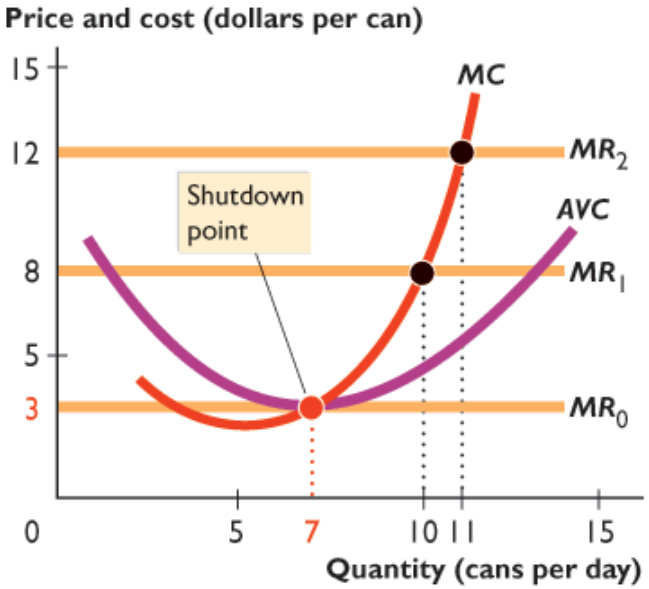
11.1 FIRM'S … CHOICES

The blue curve is the firm's supply curve.

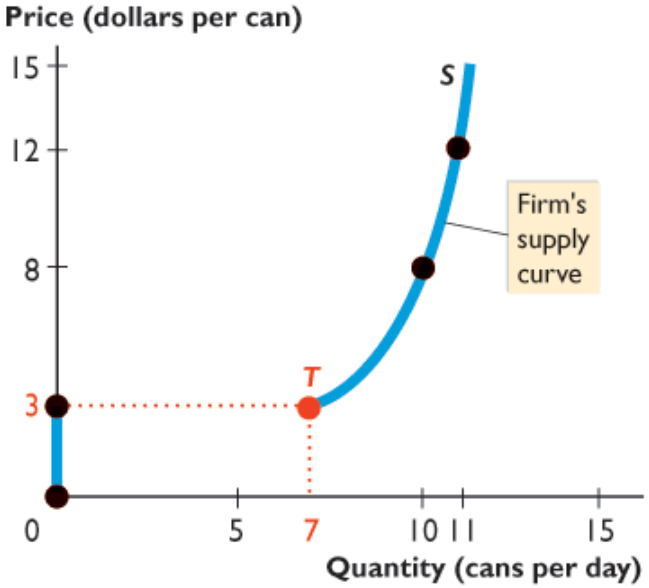
At prices below $3 a can, the firm shuts down and output is zero.

At prices above $3 a can, the firm produces along its *MC* curve.

The supply curve is the same as the *MC* curve at prices above the minimum point of *AVC.*



(a) Marginal cost and average variable cost



(b) Firm's supply curve

11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

Market Supply in the Short Run

The market supply curve in the short run shows the quantity supplied at each price by a fixed number of firms.

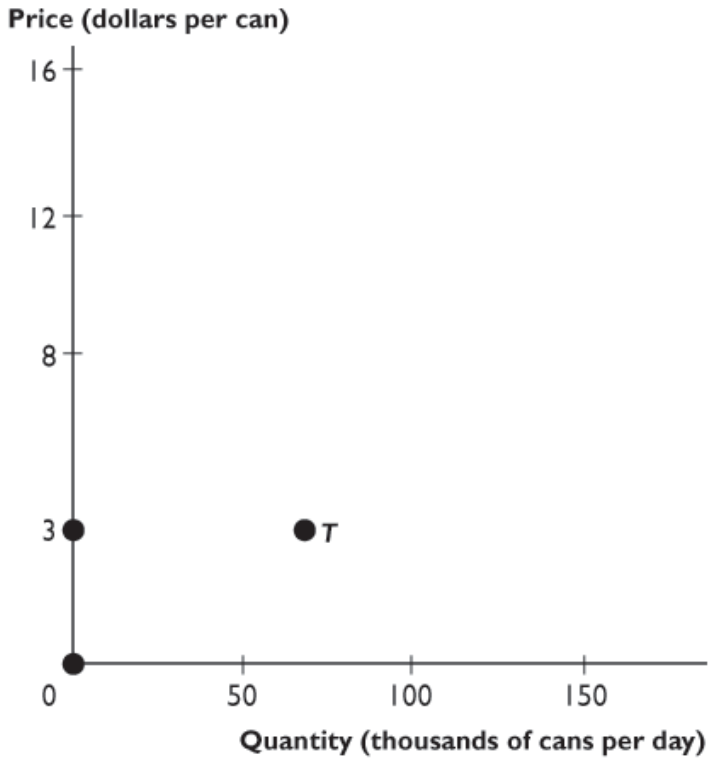
The quantity supplied at a given price is the sum of the quantities supplied by all firms at that price.

Figure 11.6 on the next slide shows the market supply curve in a market with 10,000 identical firms.

11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

At prices below the shutdown price, firms produce nothing.

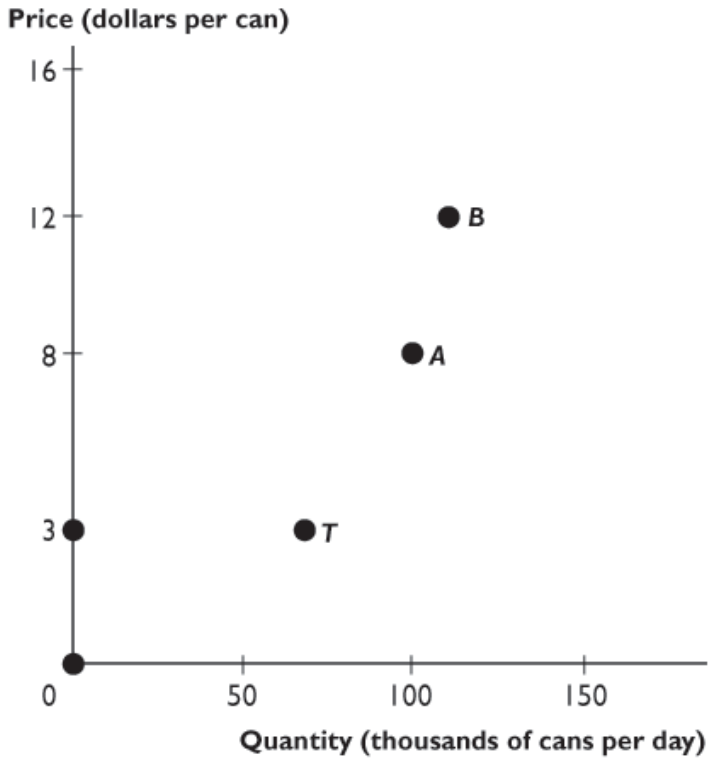
At the shutdown price of $3, each firm produces either 0 or 7 cans a day.



	Price (dollars per can)	Dave's quantity supplied (cans per day)	Market quantity supplied (cans per day)
T	3	0 or 7	0 to 70,000

11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

At prices above the shutdown price, firms produce along their *MC* curve.

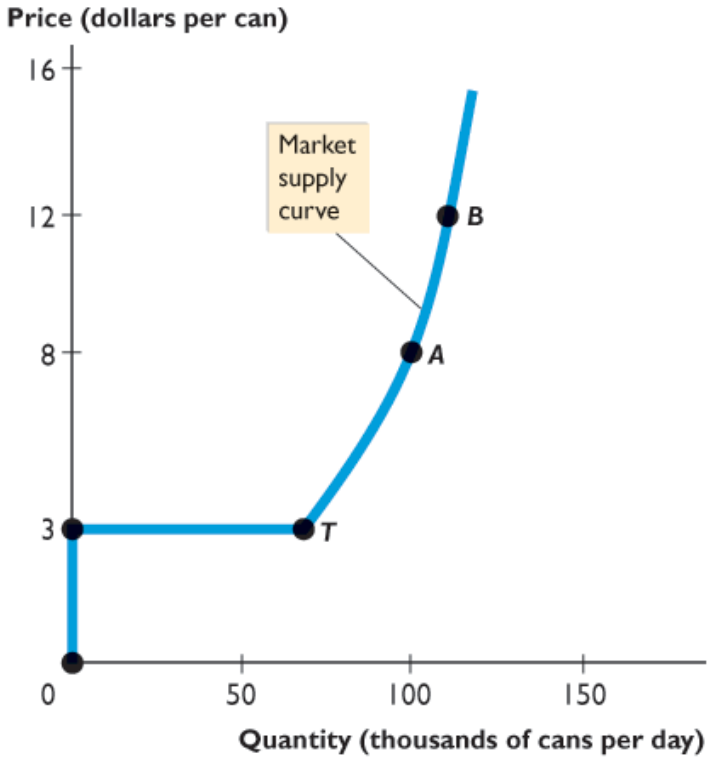


	Price (dollars per can)	Dave's quantity supplied (cans per day)	Market quantity supplied (cans per day)
B	12	11	110,000
A	8	10	100,000
T	3	0 or 7	0 to 70,000

11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

The market supply curve:

Below the shutdown price, it runs along the y-axis.

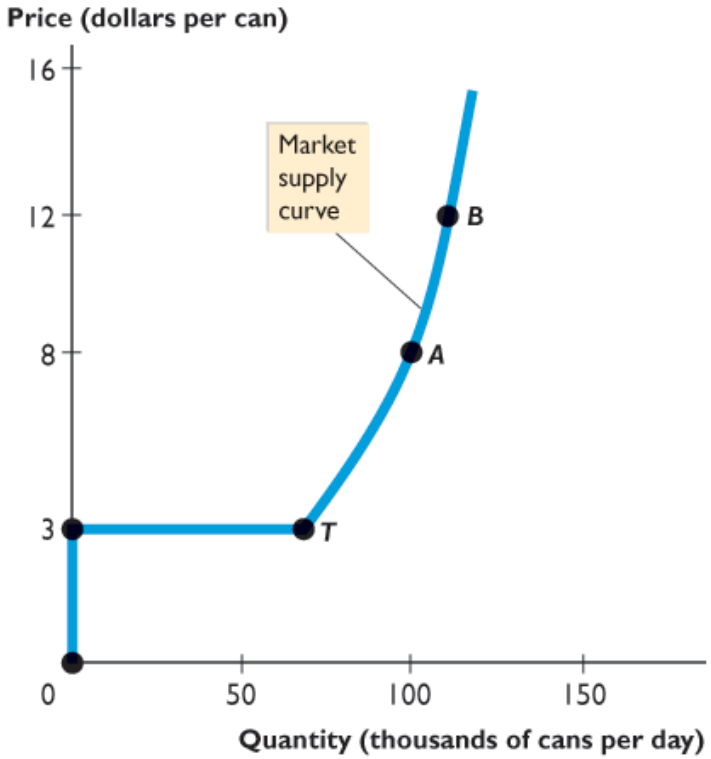


	Price (dollars per can)	Dave's quantity supplied (cans per day)	Market quantity supplied (cans per day)
B	12	11	110,000
A	8	10	100,000
T	3	0 or 7	0 to 70,000

11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

At the shutdown price, it is perfectly elastic.

Above the shutdown price, it slopes upward.



	Price (dollars per can)	Dave's quantity supplied (cans per day)	Market quantity supplied (cans per day)
B	12	11	110,000
A	8	10	100,000
T	3	0 or 7	0 to 70,000

11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

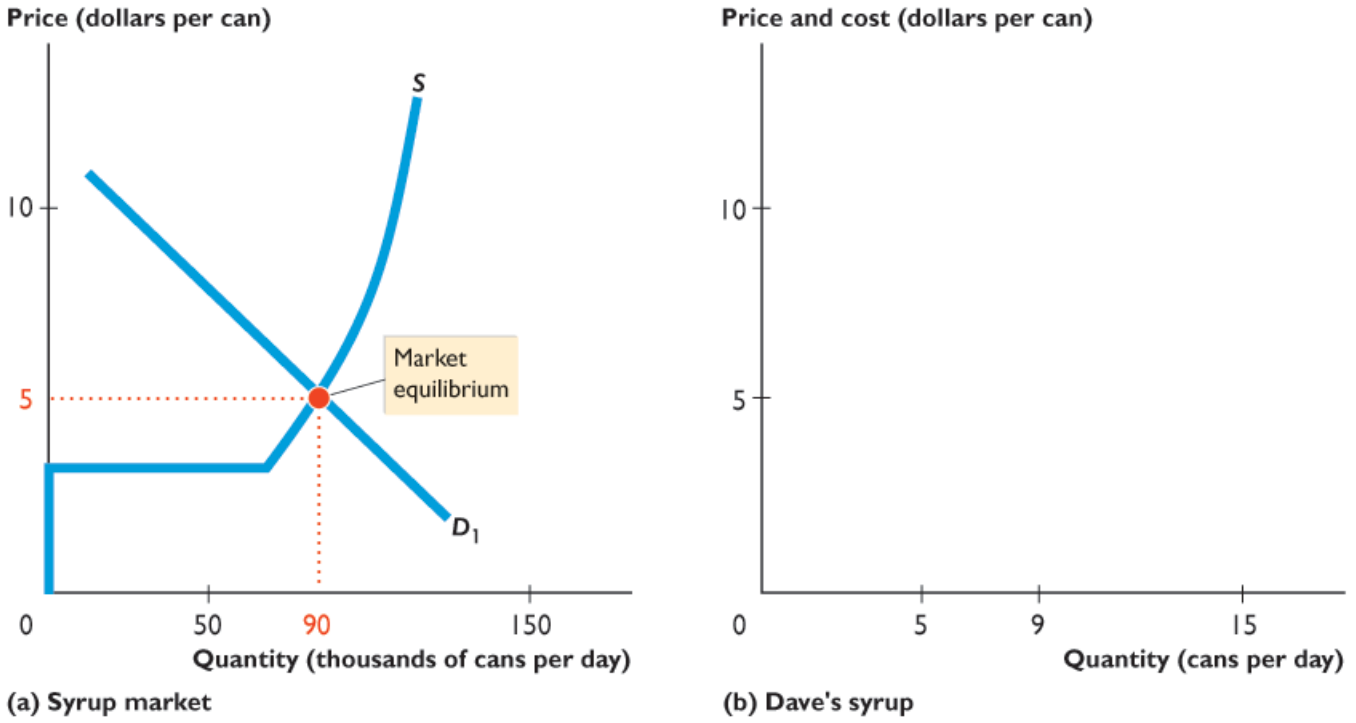
Short-Run Equilibrium in Normal Times

Market demand and market supply determine the market price and quantity bought and sold.

Figure 11.7 on the next slide illustrates short-run equilibrium when the firm makes zero economic profit.

11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

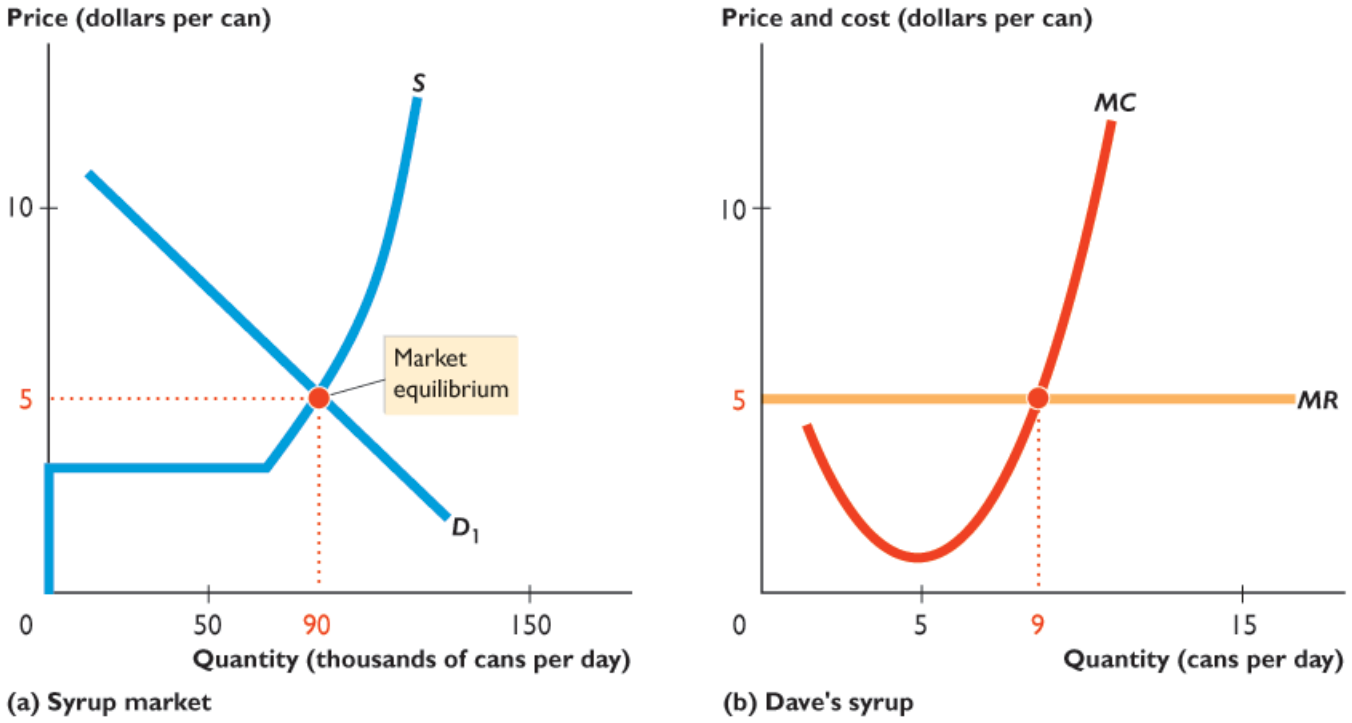
In part (a), with market supply curve, *S*, and market demand curve, D_1, the market price is $5 a can.



11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

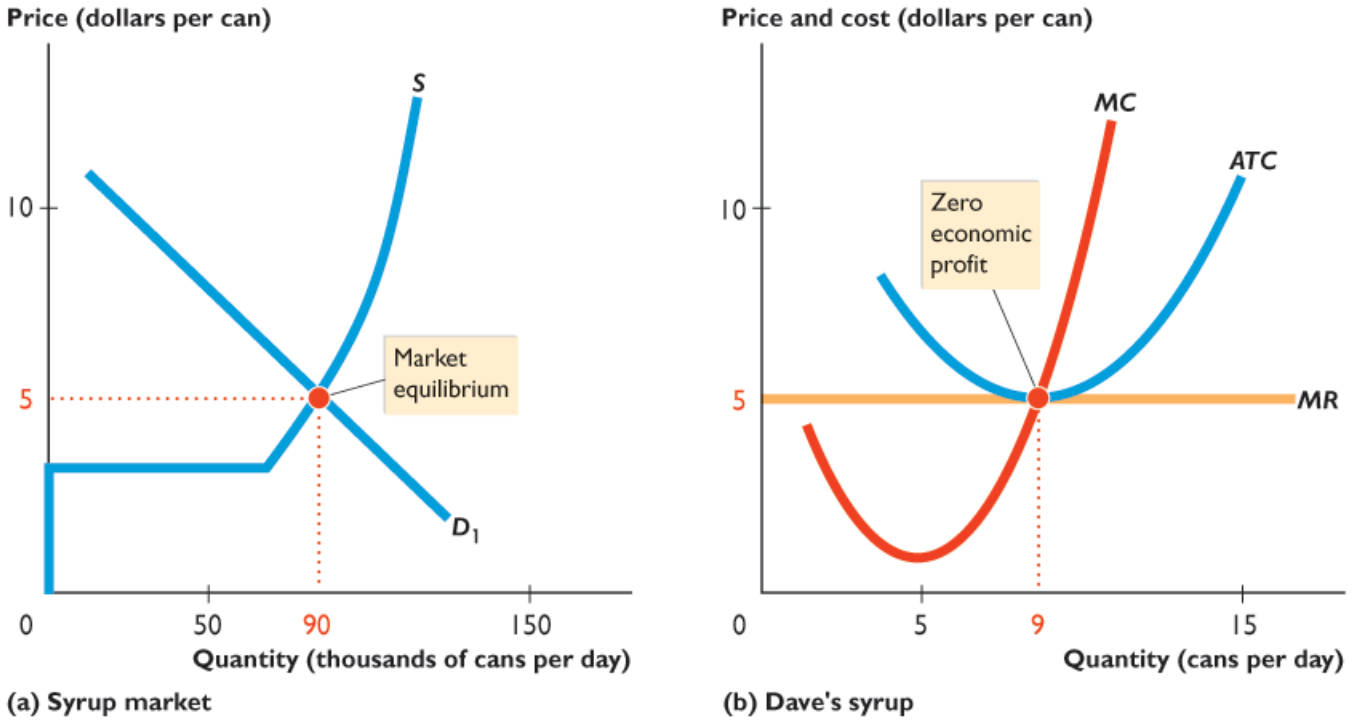
In part (b), marginal revenue is $5 a can.

Dave produces 9 cans a day, where marginal cost equals marginal revenue.



11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

At this quantity, price equals average total cost, so Dave makes zero economic profit.



11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

Short-Run Equilibrium in Good Times

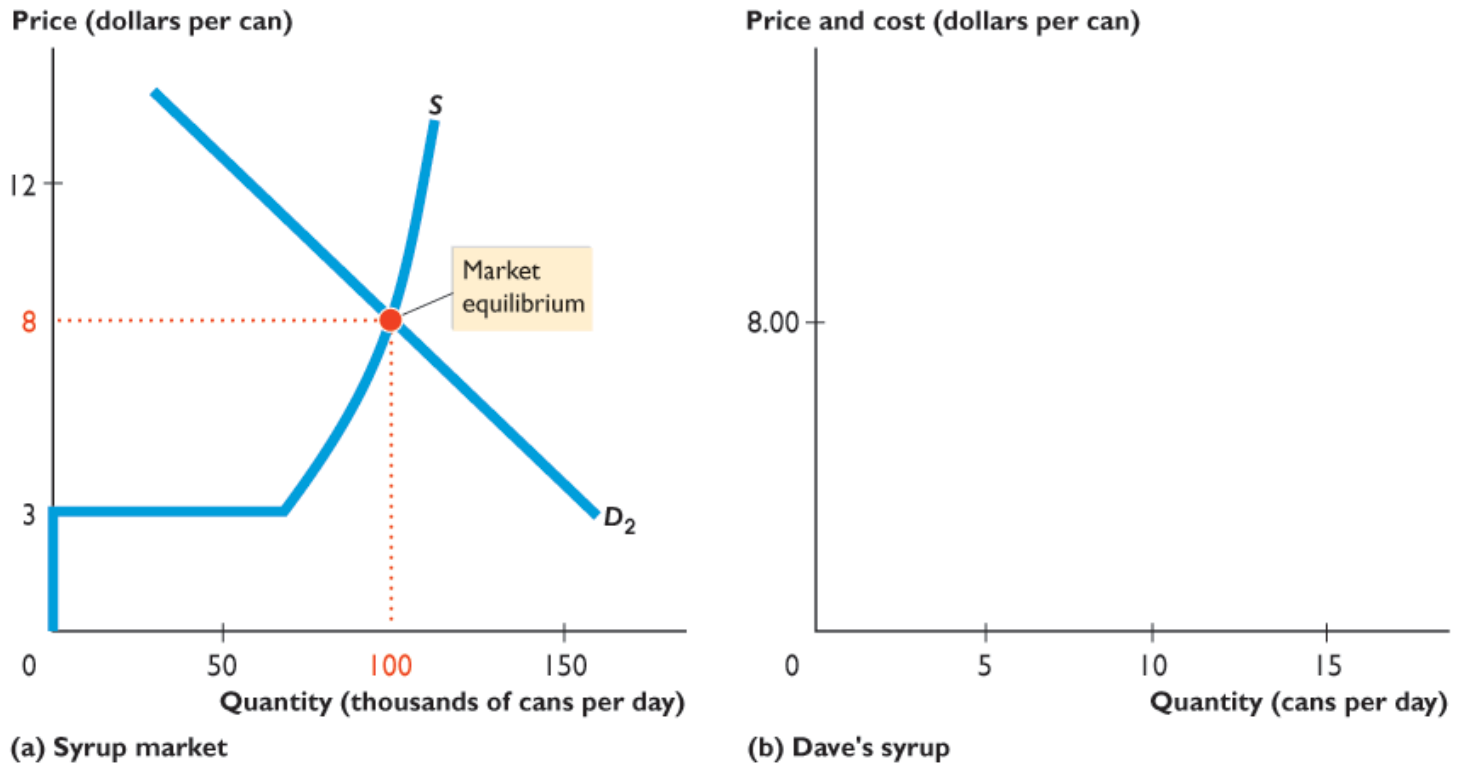
In the short-run equilibrium that we've just examined, Dave made zero economic profit.

Although such an outcome is normal, economic profit can be positive or negative in the short run.

Figure 11.8 on the next slide illustrates short-run equilibrium when the firm makes a positive economic profit.

11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

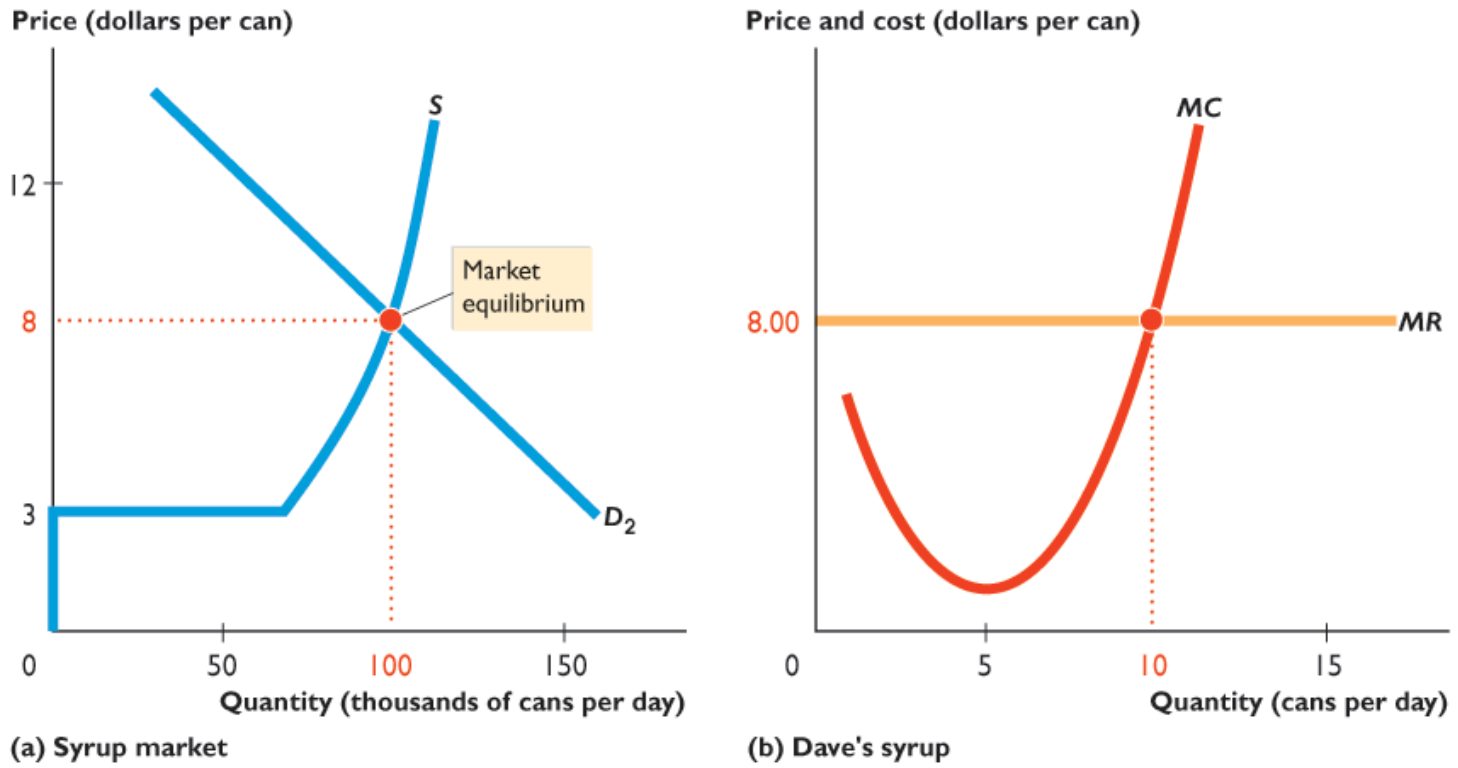
In part (a), with market demand curve D_2 and market supply curve S, the market price is $8 a can.



11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

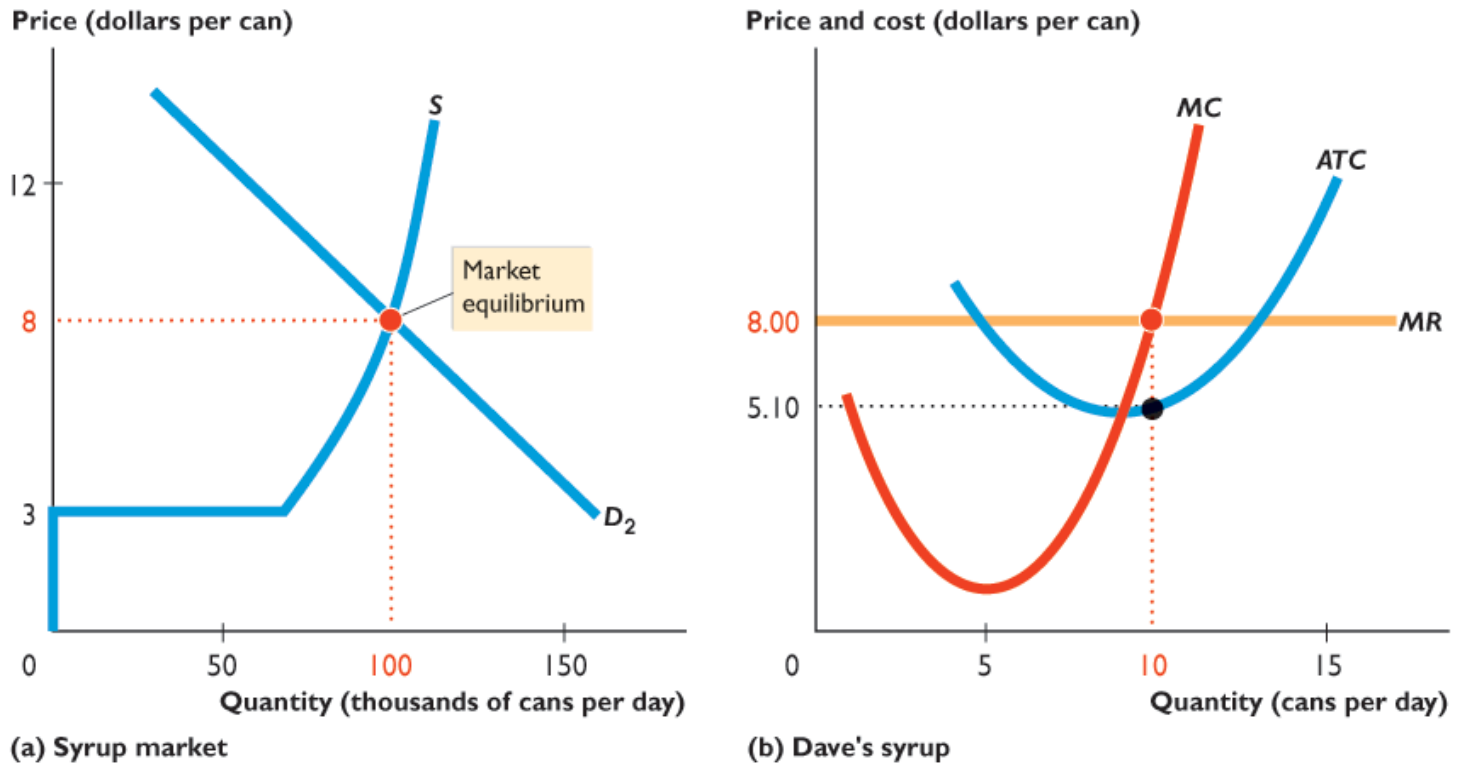
In part (b), Dave's marginal revenue is $8 a can.

Dave produces 10 cans a day, where marginal cost equals marginal revenue.



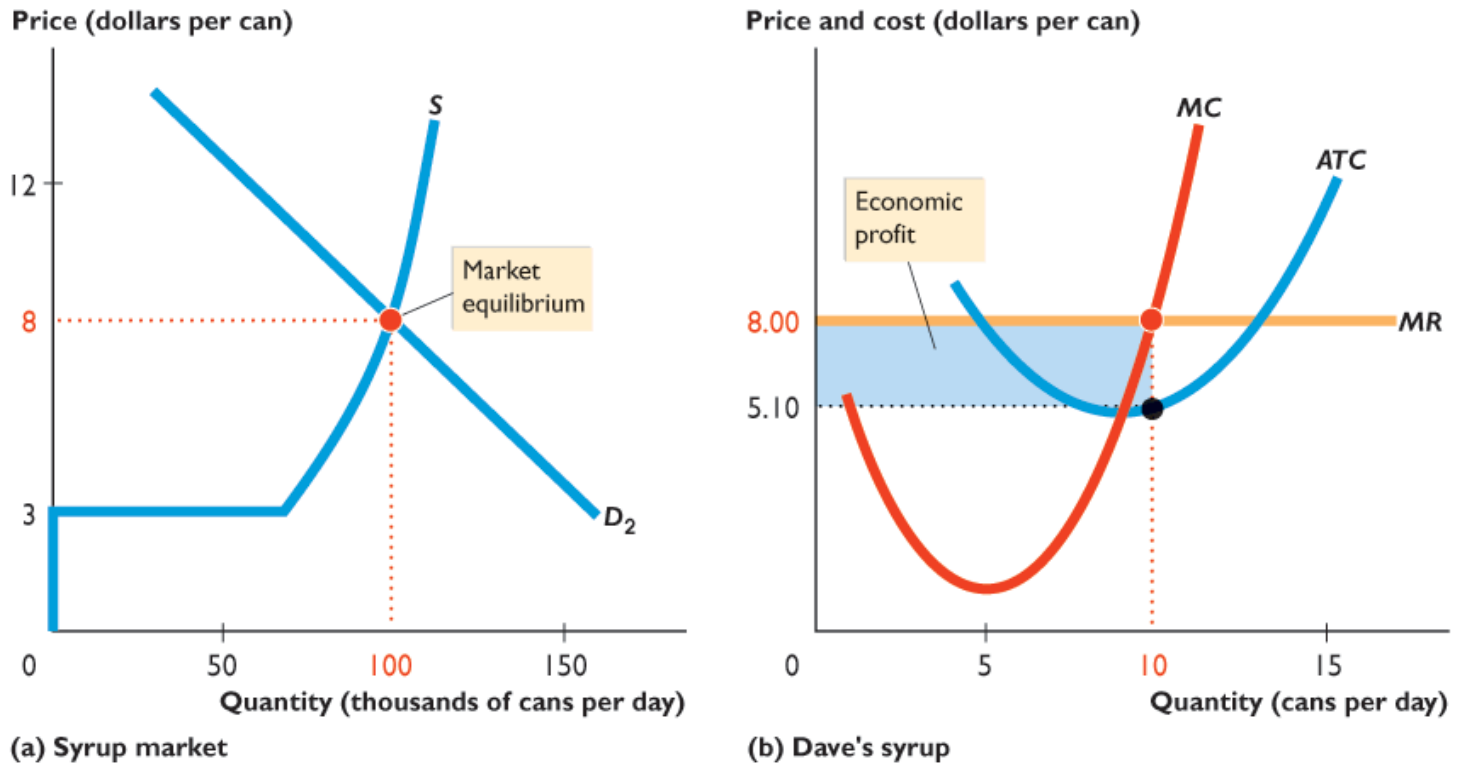
11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

At this quantity, price ($8 a can) exceeds average total cost ($5.10 a can).



11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

Dave makes an economic profit shown by the blue rectangle.



11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

Short-Run Equilibrium in Bad Times

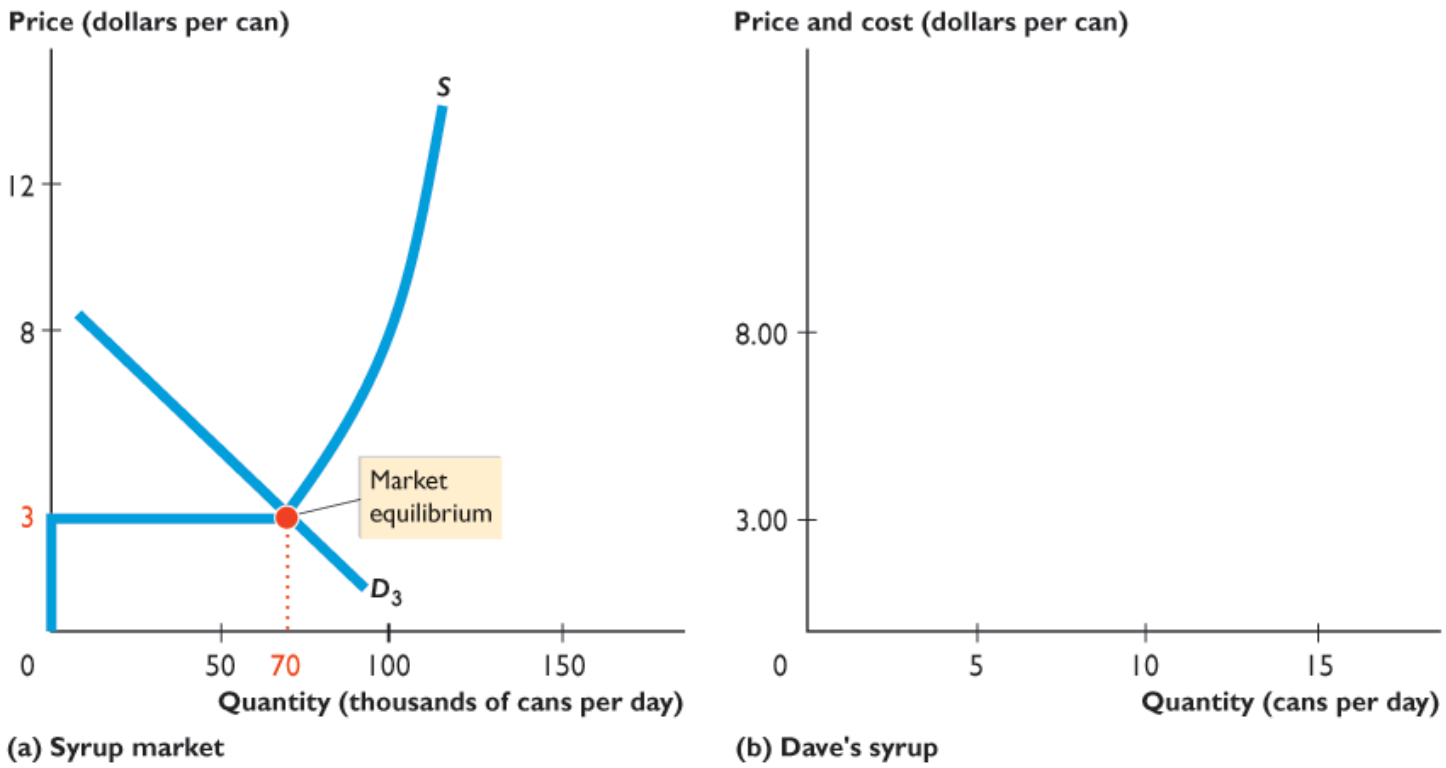
In the short-run equilibrium that we've just examined, Dave is enjoying an economic profit.

But such an outcome is not inevitable.

Figure 11.9 on the next slide illustrates short-run equilibrium when the firm incurs an economic loss.

11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

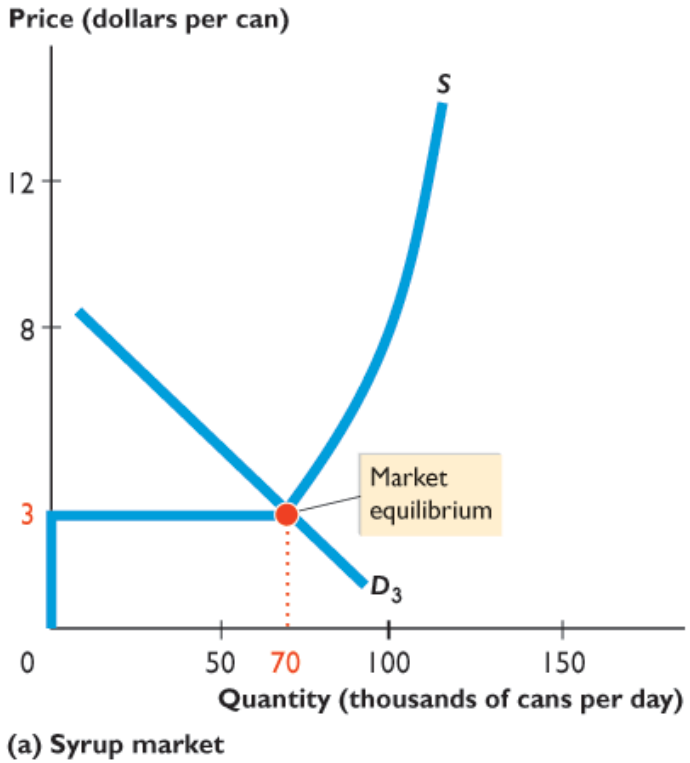
In part (a), with the market supply curve, *S,* and the market demand curve, D_3, the market price is $3 a can.

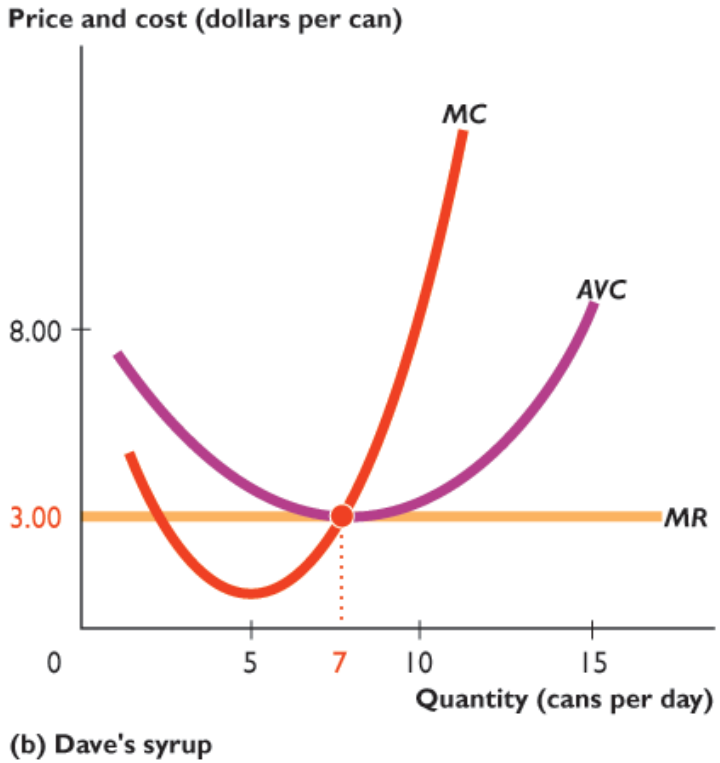


11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

In part (b), Dave's marginal revenue is $3 a can.

Dave produces 7 cans a day, where marginal cost equals marginal revenue and not less than average variable cost.

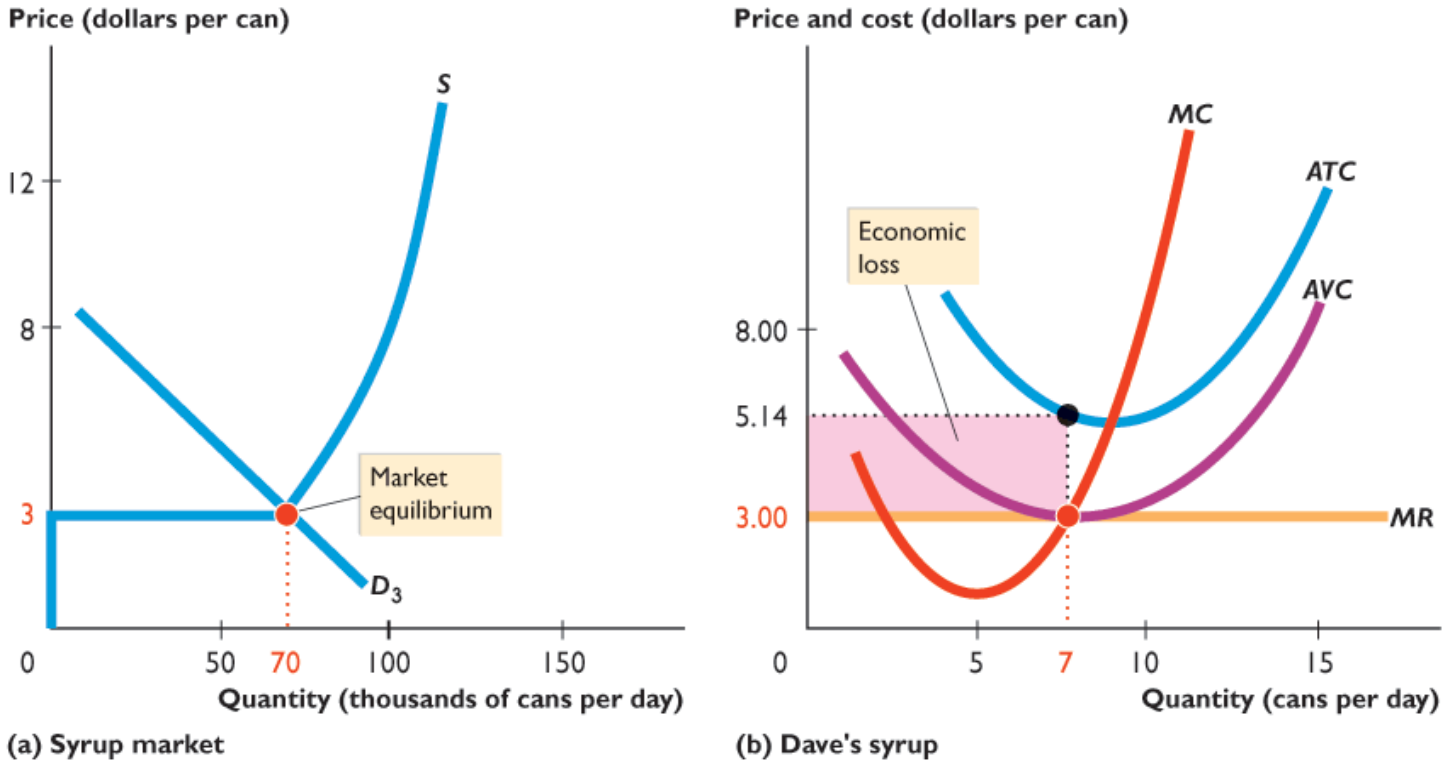




11.2 OUTPUT, PRICE, PROFIT IN THE SHORT RUN

At this quantity, price ($3 a can) is less than average total cost ($5.14 a can).

Dave incurs an economic loss shown by the red rectangle.



11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Neither good times nor bad times last forever in perfect competition.

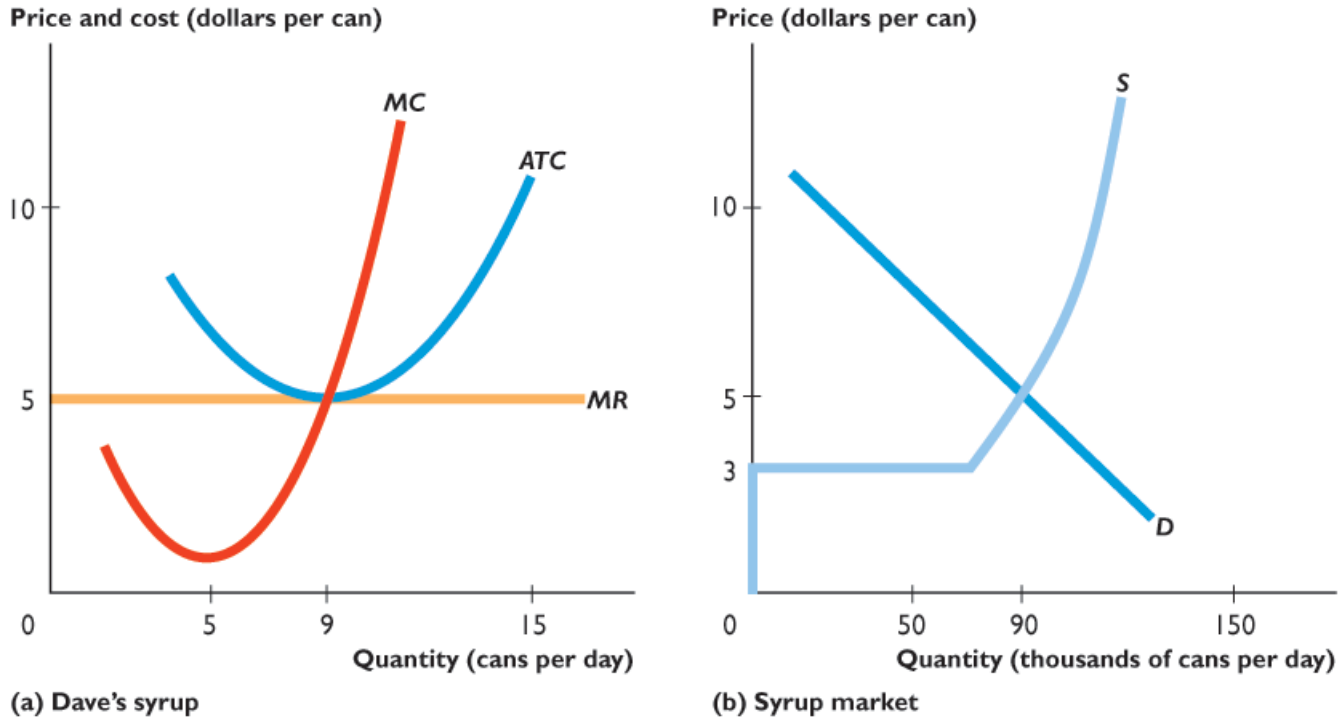
In the long run, a firm in perfect competition makes zero profit.

Figure 11.10 on the next slide illustrates equilibrium in the long run.

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Part (a) illustrates the firm in long-run equilibrium.

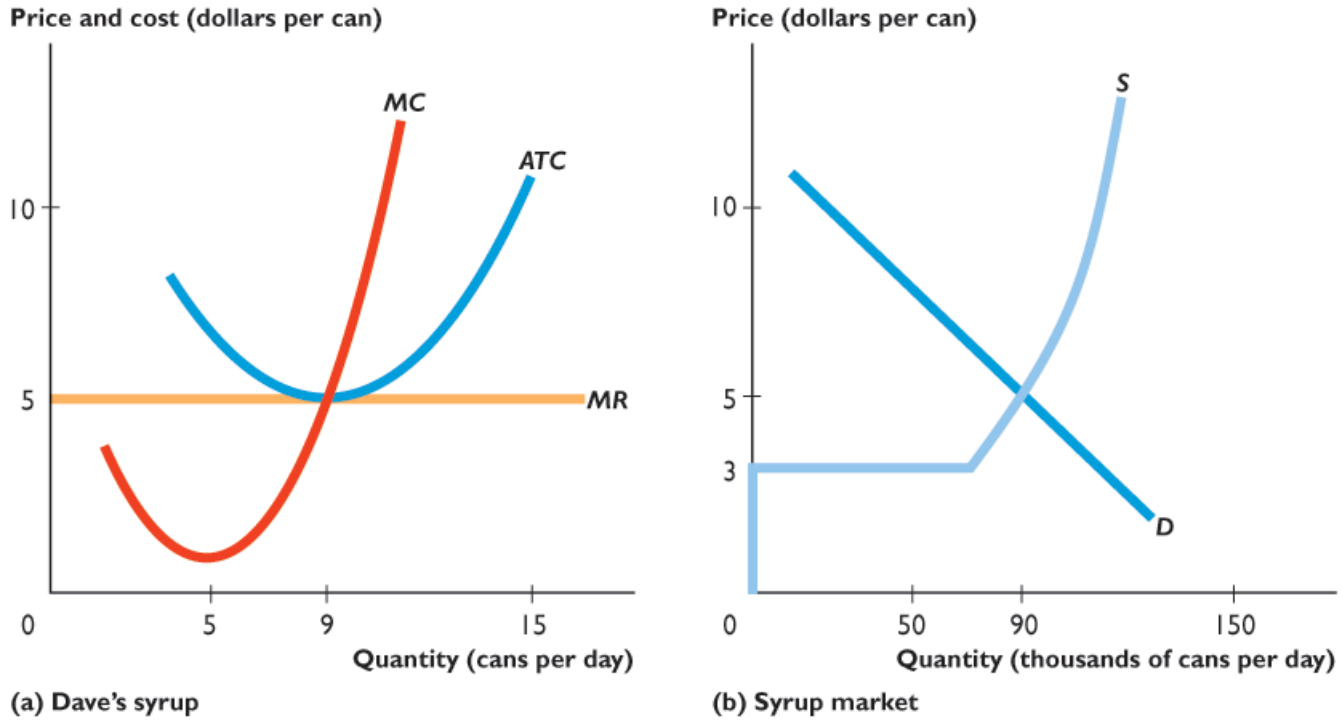
The market price is $5 a can and Dave produces 9 cans a day.



11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

In part (a), minimum *ATC* is $5 a can.

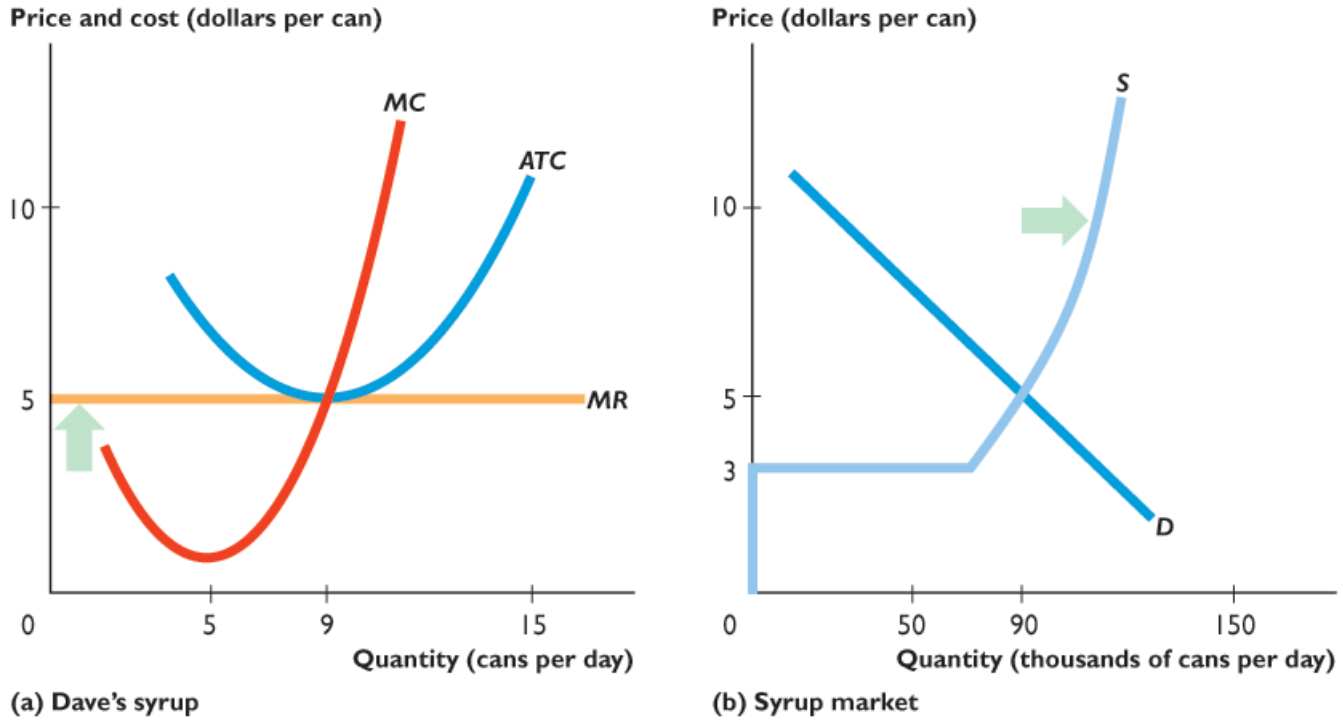
In the long run, Dave produces at minimum *ATC*.



11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

If supply decreases, the price rises above $5 a can and Dave will make a positive economic profit.

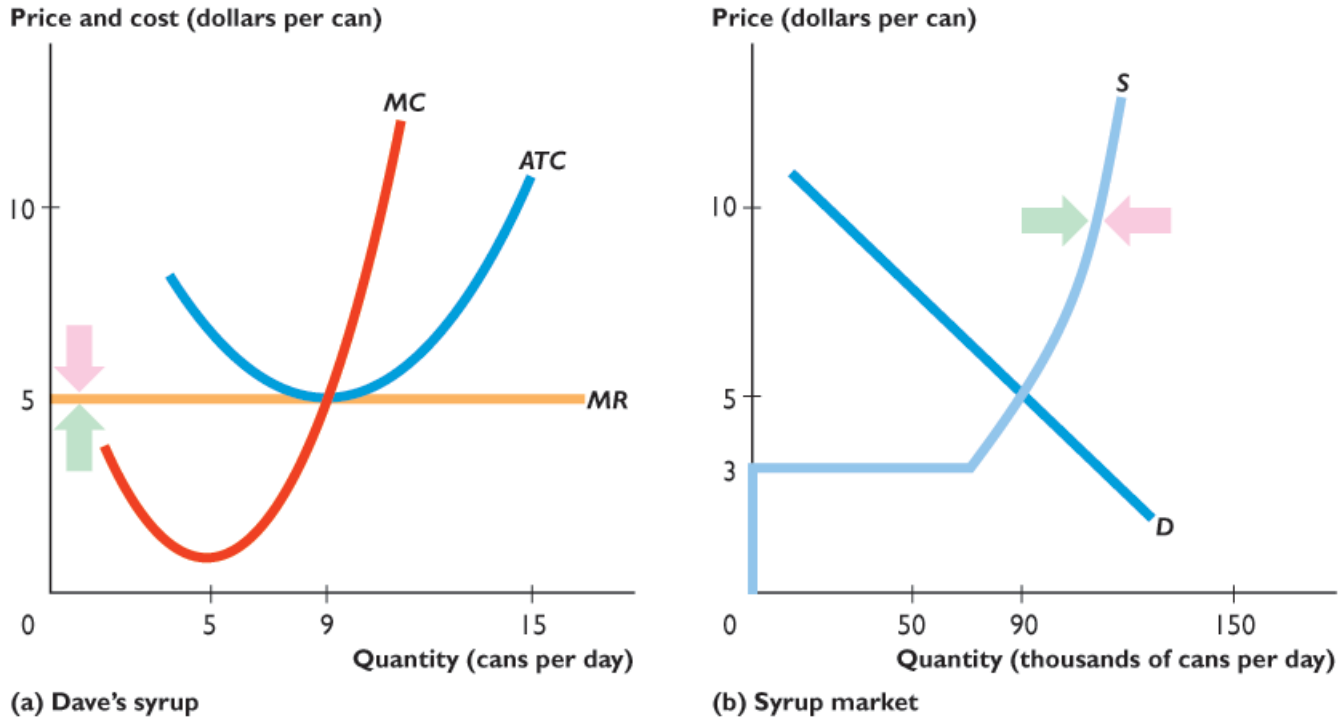
Entry increases supply to *S* and the price falls to $5 a can.



11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

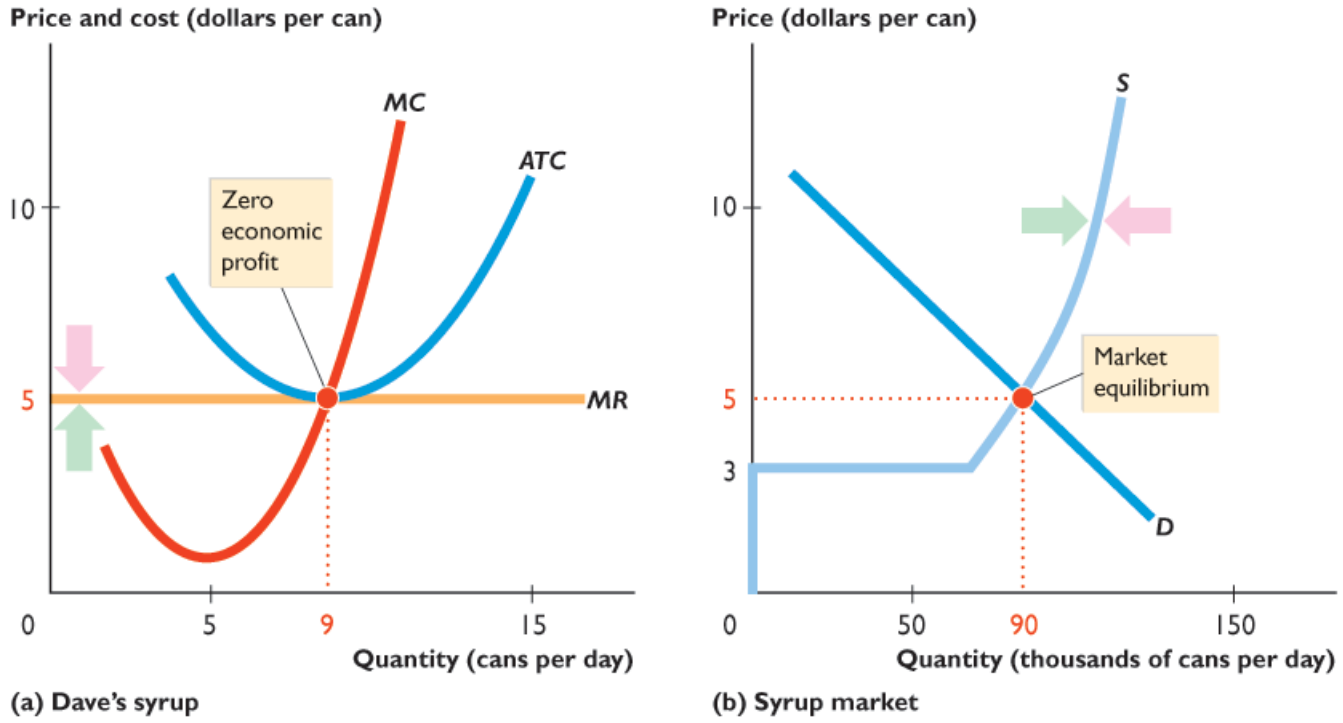
If supply increases, the price falls below $5 a can and Dave incurs an economic loss.

Exit decreases supply to *S* and the price rises to $5 a can.



11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

In the long-run, the price is pulled to $5 a can and Dave makes zero economic profit.



11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Entry and Exit

In the long run, firms respond to economic profit and economic loss by either entering or exiting a market.

New firms enter a market in which the existing firms are making positive economic profits.

Existing firms exit the market in which firms are incurring economic losses.

Entry and exit influence price, the quantity produced, and economic profit.

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

The immediate effect of the decision to enter or exit is to shift the market supply curve.

If more firms enter a market, supply increases and the market supply curve shifts rightward.

If firms exit a market, supply decreases and the market supply curve shifts leftward.

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

The Effects of Entry

Economic profit is an incentive for new firms to enter a market, but as they do so, the price falls and the economic profit of each existing firm decreases.

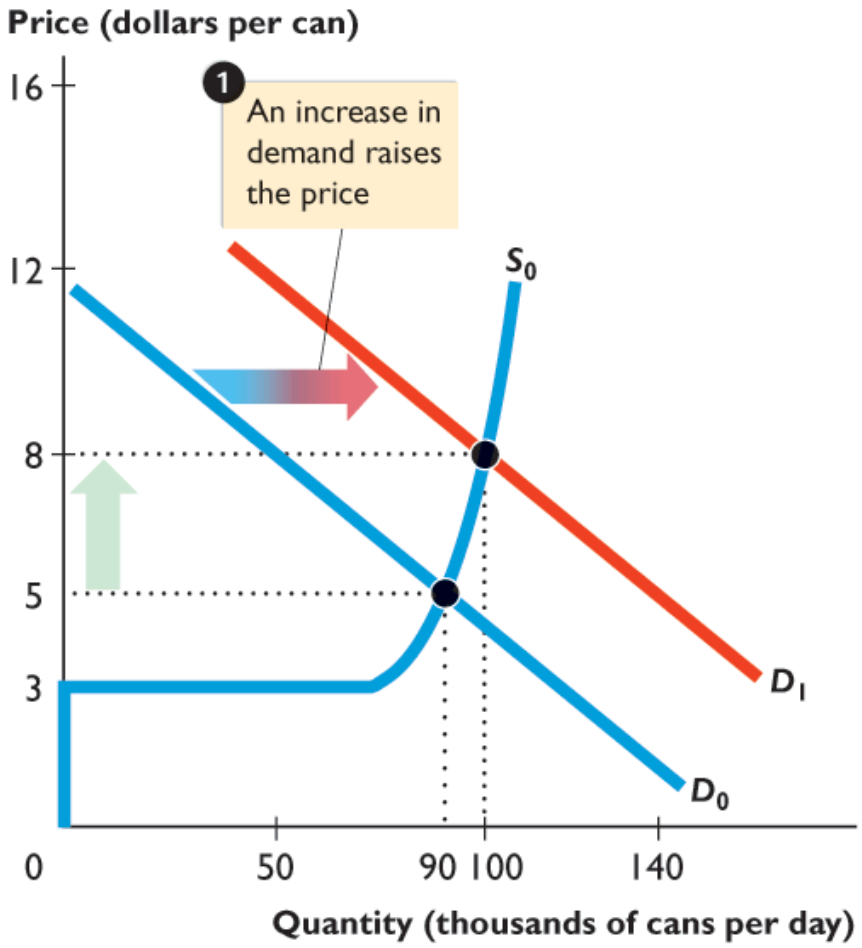
11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Figure 11.11 shows the effects of entry.

Starting in long-run equilibrium,

1. If demand increases from D_0 to D_1, the price rises from \$5 to \$8 a can.

Firms now make economic profits.

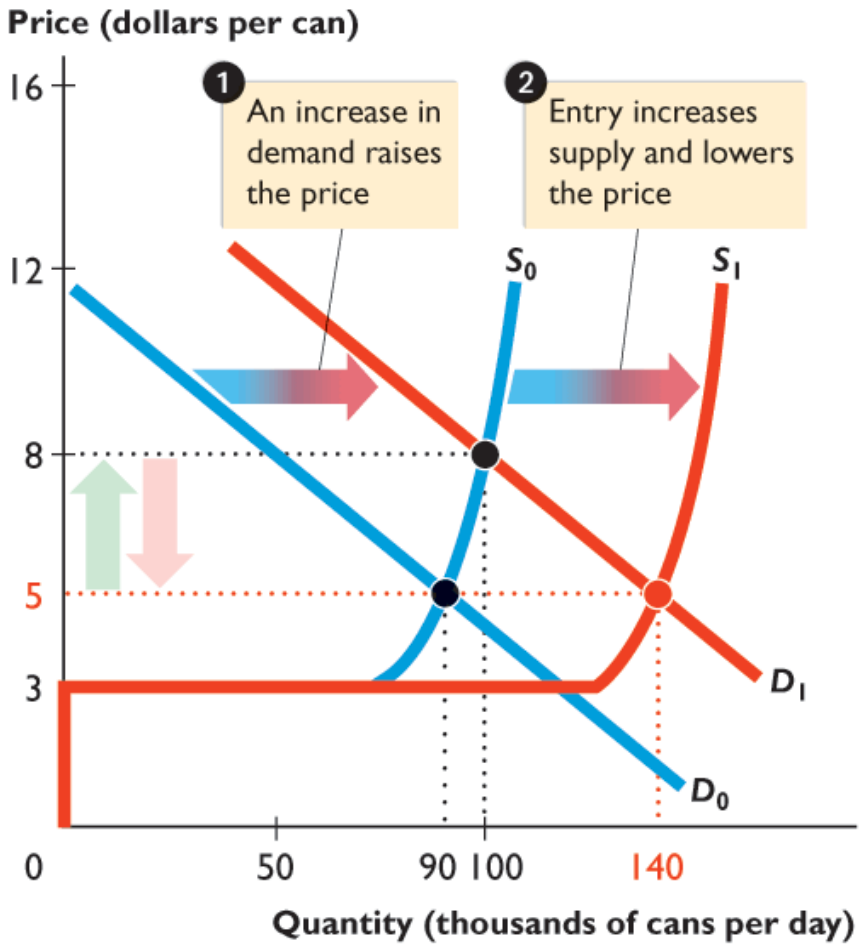


11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Economic profit brings entry.

2. As firms enter the market, the supply curve shifts rightward, from S_0 to S_1.

The equilibrium price falls from $8 to $5 a can, and the quantity produced increases from 90,000 to 140,000 cans a day.



11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

The Effects of Exit

Economic loss is an incentive for firms to exit a market, but as they do so, the price rises and the economic loss of each remaining firm decreases.

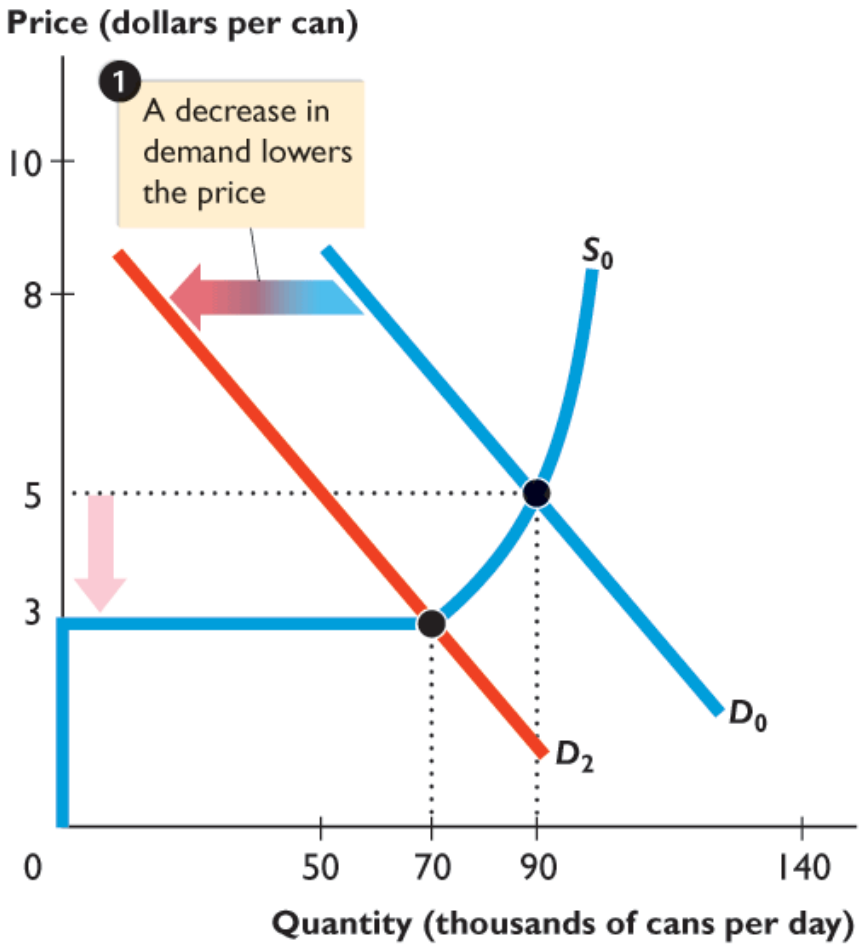
11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Figure 11.12 shows the effects of exit.

Starting in long-run equilibrium,

1. If demand decreases from D_0 to D_2, the price falls from \$5 to \$3 a can.

Firms now incur economic losses.

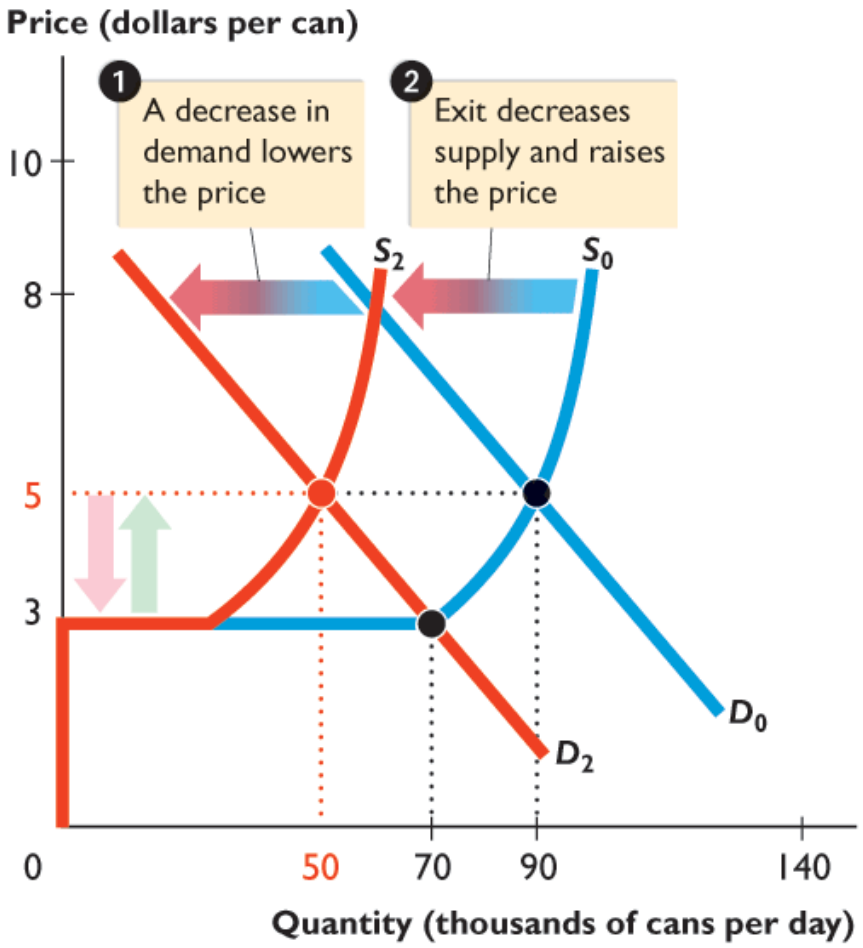


11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Economic loss brings exit.

2. As firms exit the market, the supply curve shifts leftward, from S_0 to S_2.

The equilibrium price rises from $3 to $5 a can, and the quantity produced decreases from 70,000 to 50,000 cans a day.



11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Change in Demand

The difference between the initial long-run equilibrium and the final long-run equilibrium is the number of firms in the market.

An increase in demand increases the number of firms. Each firm produces the same output in the new long-run equilibrium as initially and makes zero economic profit.

In the process of moving from the initial equilibrium to the new one, firms make positive economic profits.

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

A decrease in demand triggers a similar response, except in the opposite direction.

The decrease in demand brings a lower price, economic loss, and some firms exit.

Exit decreases market supply and eventually raises the price to its original level.

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Technological Change

New technology allows firms to produce at a lower cost. As a result, as firms adopt a new technology, their cost curves shift downward.

Market supply increases, and the market supply curve shifts rightward.

With a given demand, the quantity produced increases and the price falls.

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Two forces are at work in a market undergoing technological change.

1.Firms that adopt the new technology make an economic profit.

So new-technology firms have an incentive to enter.

2.Firms that stick with the old technology incur economic losses.

These firms either exit the market or switch to the new technology.

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Is Perfect Competition Efficient?

Resources are used efficiently when it is not possible to get more of one good without giving up something that is valued more highly.

To achieve this outcome, marginal benefit must equal marginal cost. That is what perfect competition achieves.

The market supply curve is the marginal cost curve. It is the sum of the firms' marginal cost curves at all points above the minimum of average variable cost (the shutdown price).

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

The market supply curve is the marginal cost curve.

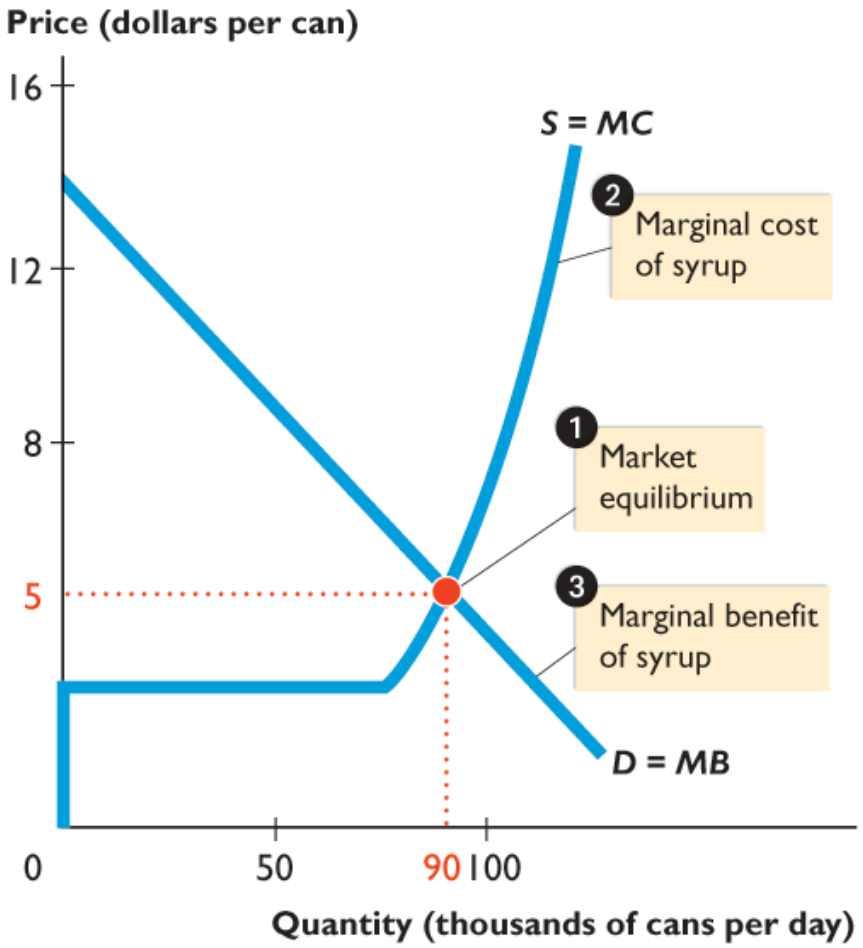
The market demand curve is the marginal benefit curve.

Because the market supply and market demand curves intersect at the equilibrium price, that price equals both marginal cost and marginal benefit.

Figure 11.13 on the next slide shows the efficiency of perfect competition.

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

1. Market equilibrium occurs at a price of $5 a can and a quantity of 90,000 cans a day.
2. Supply curve is also the marginal cost curve.
3. Demand curve is also the marginal benefit curve.

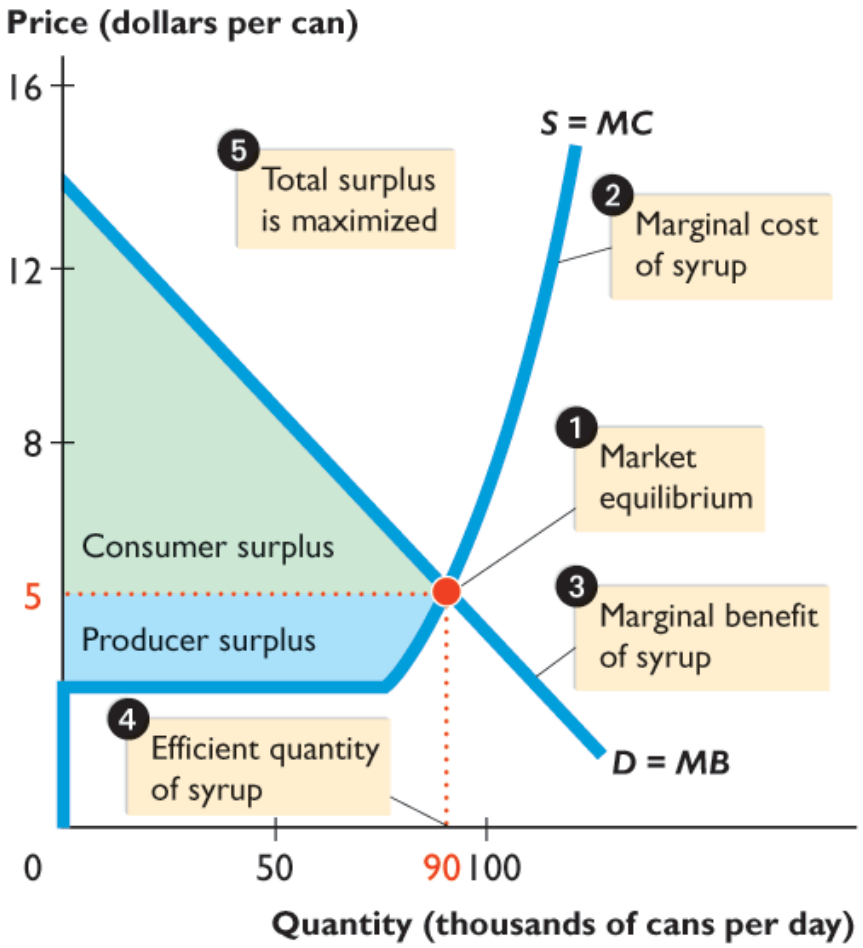


11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Because marginal benefit equals marginal cost

4.Efficient quantity is produced.

5.Total surplus (sum of consumer surplus and producer surplus) is maximized.



11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

Is Perfect Competition Fair?

Perfect competition places no restrictions on anyone's actions—everyone is free to try to make an economic profit.

The process of competition eliminates economic profit and brings maximum attainable benefit to consumers.

Fairness as equality of opportunity and fairness as equality of outcomes are achieved in long-run equilibrium.

11.3 OUTPUT, PRICE, PROFIT IN THE LONG RUN

But in the short run, economic profit and economic loss can arise.

These unequal outcomes might seem unfair.

EYE on RECORD STORES

Where Have All the Record Stores Gone?

In 1995, the market for music was a very competitive market in which more than 8,000 record stores sold music.

Figure 1 illustrates the average total cost curve, *ATC*, marginal cost curve, *MC*, and marginal revenue curve, MR_0, for one of these stores.

Record stores charged $20 a CD and made zero economic profit. The market was in long-run equilibrium.

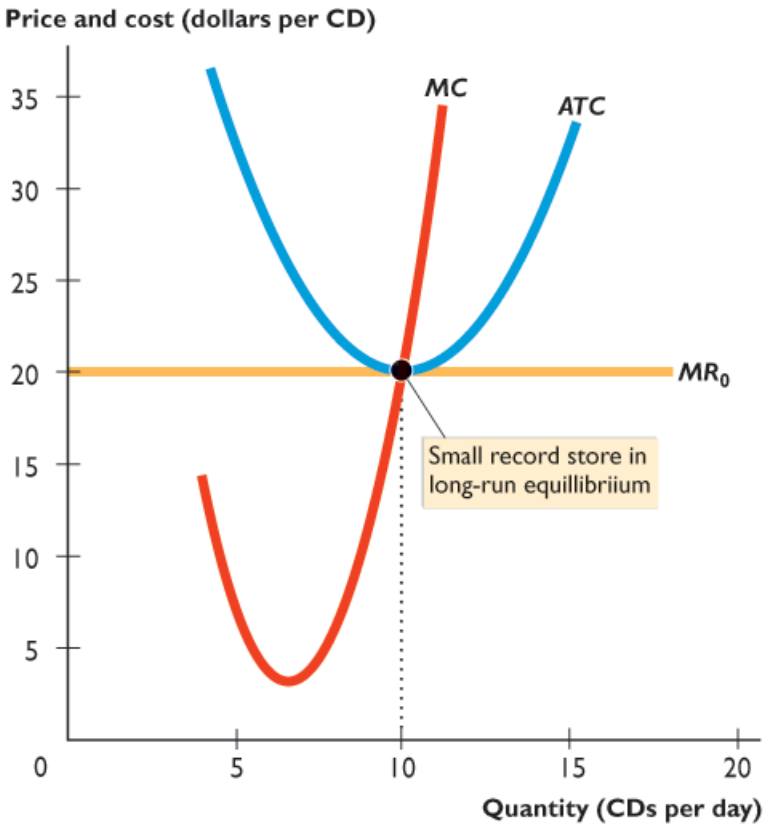


Figure 1 Small Independent Record Store Before Internet

EYE on RECORD STORES

Where Have All the Record Stores Gone?

Amazon took advantage of the technological advance made possible by the Internet.

Amazon.com started retailing books in 1995.

Soon Amazon.com started selling CDs.

An Amazon server farm replaces hundreds of traditional record stores.

EYE on RECORD STORES

Where Have All the Record Stores Gone?

Figure 2 shows the economic profit available to Amazon at the price charged by traditional record stores ($20 a CD).

Positive economic profit attracts new entry.

Technology also kept advancing, with MP3 files replacing physical CDs.

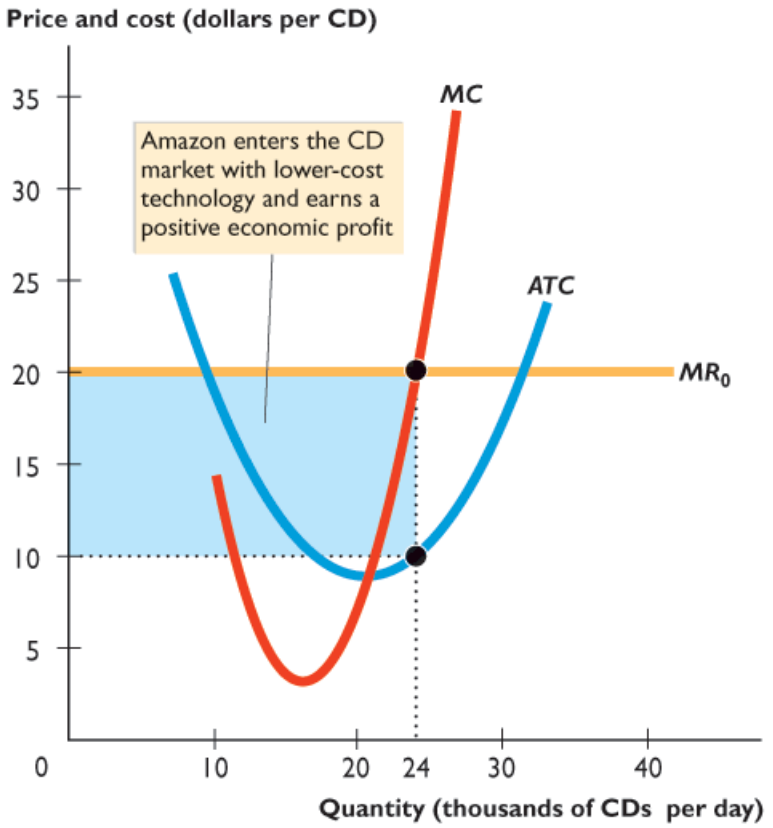


Figure 2 Amazon Enters CD Retail Market

EYE on RECORD STORES

Where Have All the Record Stores Gone?

Figure 3 shows where competition among online music download stores drove the price ($10 a CD).

Economic profit vanished in a new long-run equilibrium.

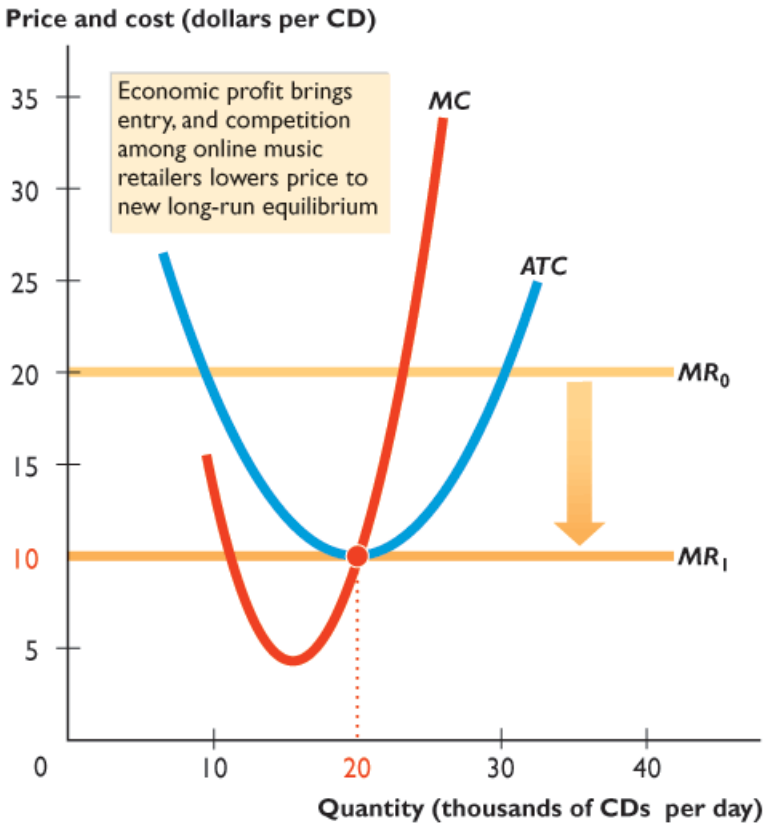


Figure 3 More Large Online Music Stores Enter and Compete

EYE on RECORD STORES

Where Have All the Record Stores Gone?

Figure 4 illustrates the economic loss incurred by a traditional record store facing competition from online retailers.

With a loss exceeding *TFC*, the traditional record store exits.

That's where the record stores have gone.

They've exited to avoid the losses created by online competition.

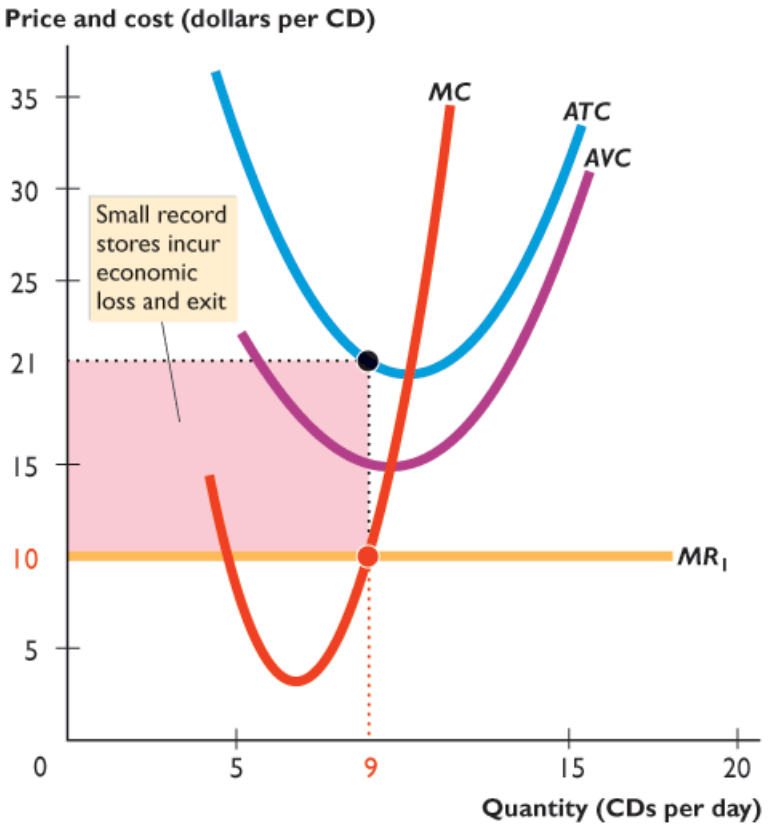


Figure 4 Small Independent Record Store Exits