

CHAPTER 14

Firms in Competitive Markets

PRINCIPLES OF
Microeconomics
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Premium PowerPoint Slides
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**In this chapter,
look for the answers to these questions:**

- § What is a perfectly competitive market?
- § What is marginal revenue? How is it related to total and average revenue?
- § How does a competitive firm determine the quantity that maximizes profits?
- § When might a competitive firm shut down in the short run? Exit the market in the long run?
- § What does the market supply curve look like in the short run? In the long run?

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Introduction: A Scenario

- § Three years after graduating, you run your own business.
- § You must decide how much to produce, what price to charge, how many workers to hire, *etc.*
- § What factors should affect these decisions?
 - § Your costs (studied in preceding chapter)
 - §
- § We begin by studying the behavior of firms in perfectly competitive markets.

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Characteristics of Perfect Competition

- 1.
- 2.
- 3.

§ Because of 1 & 2, each buyer and seller is a

The Revenue of a Competitive Firm

§ Total revenue (*TR*)

§ Average revenue (*AR*)

§ Marginal revenue (*MR*):

ACTIVE LEARNING 1 Calculating *TR*, *AR*, *MR*

Fill in the empty spaces of the table.

Q	P	TR	AR	MR
0	\$10		n/a	
1	\$10		\$10	
2	\$10			
3	\$10			
4	\$10	\$40		\$10
5	\$10	\$50		

MR = P for a Competitive Firm

§ A competitive firm can keep increasing its output without affecting the market price.

§ So, each one-unit increase in Q causes revenue to rise by

Profit Maximization

§ What Q maximizes the firm's profit?

§ To find the answer, "**think at the margin.**"

If increase Q by one unit,

§ If $MR > MC$, then

§ If $MR < MC$, then

Profit Maximization

(continued from earlier exercise)

At any Q with $MR > MC$, increasing Q raises profit.

At any Q with $MR < MC$, reducing Q raises profit.

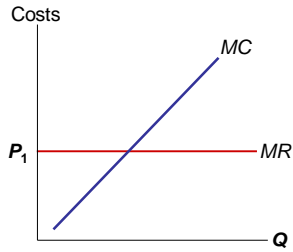
Q	TR	TC	Profit	MR	MC	DProfit = MR - MC
0	\$0	\$5	-\$5			
1	10	9	1	\$10	\$4	\$6
2	20	15	5	10	6	4
3	30	23	7	10	8	2
4	40	33	7	10	10	0
5	50	45	5	10	12	-2

MC and the Firm's Supply Decision

At Q_a ,

At Q_b ,

At Q_1 ,



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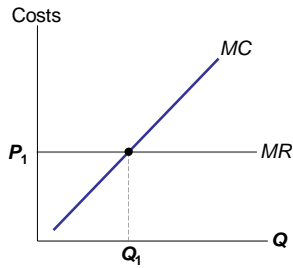
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MC and the Firm's Supply Decision

If price rises to P_2 , then the profit-maximizing quantity rises to Q_2 .

The MC curve determines the firm's Q at any price.

Hence,



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Shutdown vs. Exit

§ Shutdown:

§ Exit:

§ A key difference:

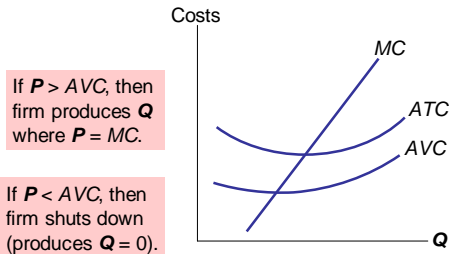
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A Firm's Short-run Decision to Shut Down

- § Cost of shutting down:
- § Benefit of shutting down:
- § So, shut down if
- § Divide both sides by Q :
- § So, firm's decision rule is:

A Competitive Firm's SR Supply Curve



The Irrelevance of Sunk Costs

- § **Sunk cost:**
- § Sunk costs should be irrelevant to decisions; you must pay them regardless of your choice.
- § FC is a sunk cost: The firm must pay its fixed costs whether it produces or shuts down.
- § So,

A Firm's Long-Run Decision to Exit

§ Cost of exiting the market:

§ Benefit of exiting the market:

§ So, firm exits if

§ Divide both sides by Q to write the firm's decision rule as:

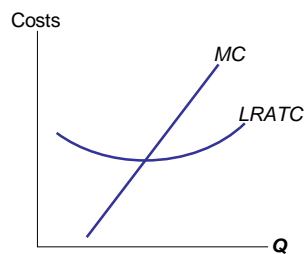
A New Firm's Decision to Enter Market

§ In the long run, a new firm will enter the market if it is profitable to do so:

§ Divide both sides by Q to express the firm's entry decision as:

The Competitive Firm's Supply Curve

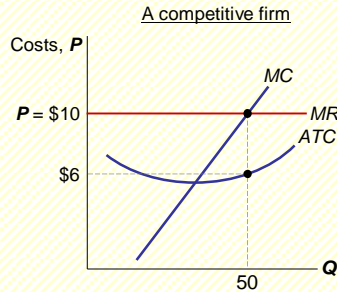
The firm's LR supply curve is



ACTIVE LEARNING 2

Identifying a firm's profit

Determine this firm's total profit.
Identify the area on the graph that represents the firm's profit.

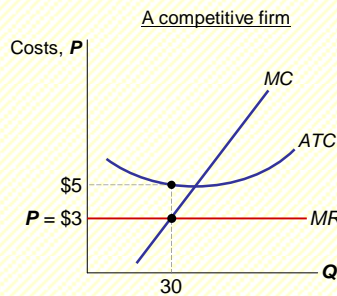


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ACTIVE LEARNING 3

Identifying a firm's loss

Determine this firm's total loss, assuming $AVC < \$3$.
Identify the area on the graph that represents the firm's loss.



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Market Supply: Assumptions

- 1) All existing firms and potential entrants
- 2) Each firm's costs
- 3) The number of firms in the market is
 - \$ _____ in the short run
due to
 - \$ _____ in the long run
due to

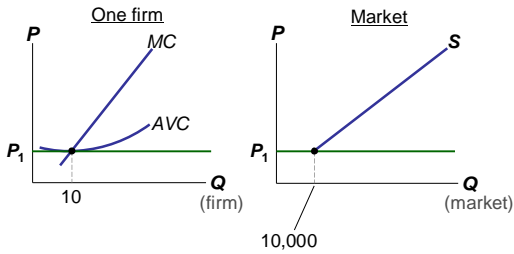
The SR Market Supply Curve

§ As long as $P \geq AVC$, each firm will produce its profit-maximizing quantity

§ Recall from Chapter 4:
At each price, the market quantity supplied is the sum of quantities supplied by all firms.

The SR Market Supply Curve

Example: 1000 identical firms
At each P , market $Q^s = 1000 \times$ (one firm's Q^s)



Entry & Exit in the Long Run

§ In the LR, the number of firms can change due to entry & exit.

§ If existing firms earn positive economic profit,

§ If existing firms incur losses,

The Zero-Profit Condition

§ Long-run equilibrium:

The process of

§ Zero economic profit occurs when

§ Since firms produce where the zero-profit condition is

§ Recall that MC intersects ATC at minimum ATC .

§ Hence, in the long run,

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Why Do Firms Stay in Business if Profit = 0?

§ Recall, economic profit is revenue minus all costs – including

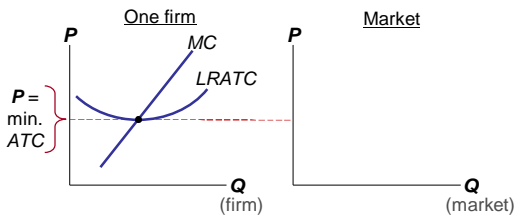
§ In the zero-profit equilibrium,

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The LR Market Supply Curve

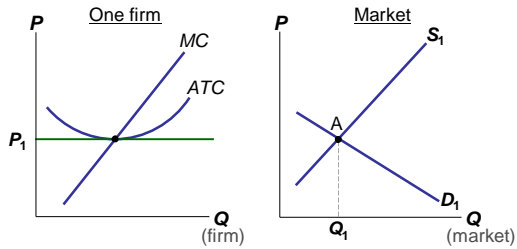
In the long run, the typical firm earns zero profit.



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SR & LR Effects of an Increase in Demand



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Why the LR Supply Curve Might Slope Upward

§ The LR market supply curve is horizontal if

- 1) all firms have identical costs, and
- 2) costs do not change as other firms enter or exit the market.

§ If either of these assumptions is not true, then LR supply curve slopes upward.

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1) Firms Have Different Costs

§ As P rises, firms with lower costs enter the market before those with higher costs.

§ Further increases in

§ Hence, LR market supply curve slopes upward.

§ At any P ,

§ For the marginal firm,

§ For lower-cost firms,

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2) Costs Rise as Firms Enter the Market

§ In some industries,

§ The entry of new firms

§

§ Hence, an increase in P is required to increase the market quantity supplied, so the supply curve is upward-sloping.

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CONCLUSION: The Efficiency of a Competitive Market

§ Profit-maximization:

§ Perfect competition:

§ So, in the competitive eq'm:

§ Recall, MC is cost of producing the marginal unit.
 P is value to buyers of the marginal unit.

§ So,

§ In the next chapter, monopoly: pricing & production decisions, deadweight loss, regulation.

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