CHAPTER 14

Firms in Competitive Markets

PRINCIPLES OF
Economics
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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.

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.

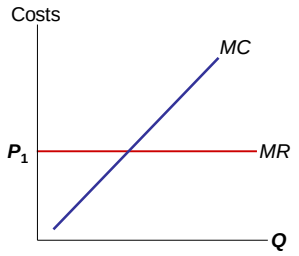
Q	*TR*	*TC*	Profit	*MR*	*MC*	DProfit = *MR* – *MC*
0	$0	$5	–$5			
				$10	$4	$6
1	10	9	1			
				10	6	4
2	20	15	5			
				10	8	2
3	30	23	7			
				10	10	0
4	40	33	7			
				10	12	–2
5	50	45	5			

MC and the Firm's Supply Decision

At Q_a,

At Q_b,

At Q_1,

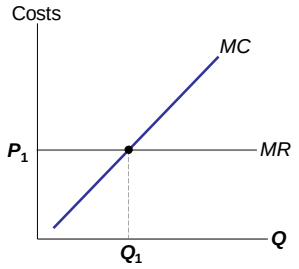


MC and the Firm's Supply Decision

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,



Shutdown vs. Exit

- **Shutdown**:
- **Exit**:
- A key difference:

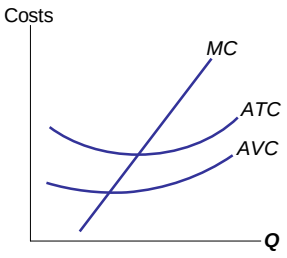
A Firm's Short-run Decision to Shut Down

- 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

If ***P*** > *AVC*, then firm produces ***Q*** where ***P*** = *MC*.

If ***P*** < *AVC*, then firm shuts down (produces ***Q*** = 0).



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

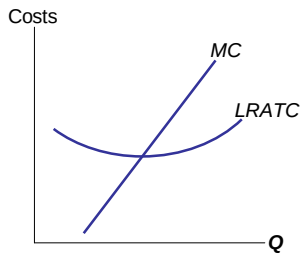
- Cost of exiting the market:
- Benefit of exiting the market:
- So, firm exits if
- Divide both sides by ***Q*** to write the firm's decision rule as:

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

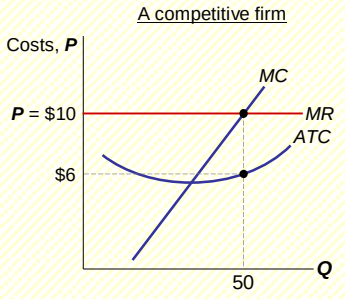


ACTIVE LEARNING **2**

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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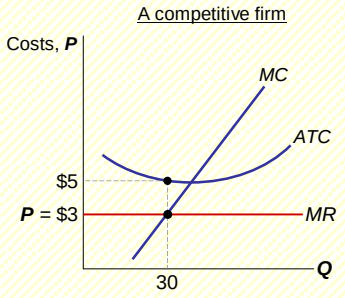
ACTIVE LEARNING **3**

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

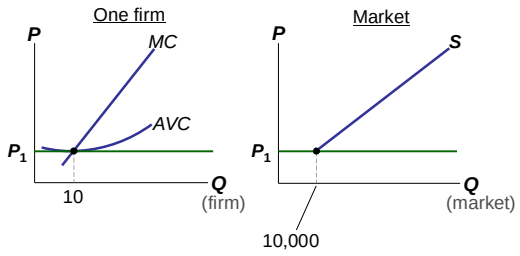
The SR Market Supply Curve

- 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 x (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

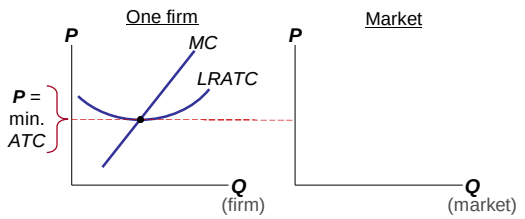
- **Long-run equilibrium**: The process of
- Zero economic profit occurs when
- Since firms produce where the zero-profit condition is
- Recall that *MC* intersects *ATC* at minimum *ATC*.
- Hence, in the long run,

Why Do Firms Stay in Business if Profit = 0?

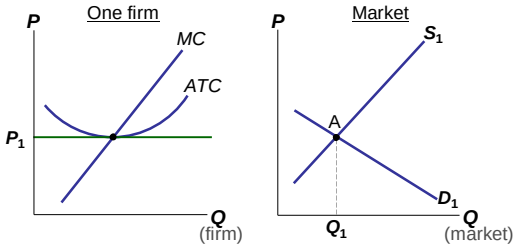
- Recall, economic profit is revenue minus all costs – including
- In the zero-profit equilibrium,

The LR Market Supply Curve

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



SR & LR Effects of an Increase in Demand



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.

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,

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.

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.