Lecture 10:
Supply in a Competitive Market

October 31, 2023

Course Administration

1. Use Numbers 3
   - due next week
   - bring to class for discussion

Course Administration

1. Use Numbers 3
   - due next week
   - bring to class for discussion
2. Four lectures to go after today!
3. Final exam, your choice December 13 or 14
4. Any questions?

Next Week: Ripped from the Headlines

Send article by Wednesday midnight.

Finder	Presenter
Vanea	Tara

This Week: Ripped from the Headlines

Finder	Presenter
Emily	Vanea

Big Questions for Today

- How does a firm choose how much to produce?
- How does long run behavior differ from short run behavior?
- Where does the market supply curve come from?
- Which firms get producer surplus?
- Why is competition so valuable?

Why Do These Matter for Policy?

- Competitive markets yield most goods at lowest price **to consumers**
- Part of the government is dedicated to preserving competition: antitrust enforcement

Why Do These Matter for Policy?

- Competitive markets yield most goods at lowest price **to consumers**
- Part of the government is dedicated to preserving competition: antitrust enforcement
- Government policy can enhance or inhibit competition
  - Enhance: enforce contracts, assign and ensure property rights
  - Inhibit: limit prices or promote or limit firm behavior

Why Do These Matter for Policy?

- Competitive markets yield most goods at lowest price **to consumers**
- Part of the government is dedicated to preserving competition: antitrust enforcement
- Government policy can enhance or inhibit competition
  - Enhance: enforce contracts, assign and ensure property rights
  - Inhibit: limit prices or promote or limit firm behavior
- Weigh benefits of policy against harms to competition

Where We're Going

1. Perfect competition
2. Profit maximization
3. Short run perfect competition
4. Long run perfect competition

Market Structure
and Perfect Competition

Market Characteristics and Types

Key Characteristics of Markets

- Number of firms
- Substitutability of products
- Barriers to entry

Market Characteristics and Types

Key Characteristics of Markets

- Number of firms
- Substitutability of products
- Barriers to entry

Types of Markets

- Perfectly competitive
- Monopolistic competition
- Oligopoly
- Monopoly

Market Characteristics by Type

	Number of firms	Substitutability of Products	Barriers to Entry
Perfectly Comp.	many	entirely	none
Monopolistic Comp.	many	not entirely	yes
Oligopoly	few	either	some
Monopoly	one	n/a	yes

Market Characteristics by Type

	Number of firms	Substitutability of Products	Barriers to Entry
Perfectly Comp.	**many**	**entirely**	**none**
Monopolistic Comp.	many	not entirely	yes
Oligopoly	few	either	some
Monopoly	one	n/a	yes

Elements of a Perfectly Competitive Market

- Many firms in the market
- Products sold are perfect substitutes
- No barriers to entry

Elements of a Perfectly Competitive Market

- Many firms in the market
- Products sold are perfect substitutes
- No barriers to entry

- Very rare
- The closer we get to this, the better off consumers are
- Serves as a baseline "best case scenario"

Demand Curve as Seen By a Price-Taker

- Call a perfectly competitive firm a price-taker
- This firm can't impact price
- To this firm, demand is infinite at market price
- In other words, the firm perceives demand as perfectly elastic at the equilibrium market price

Market Demand vs Demand Perceived by Firm
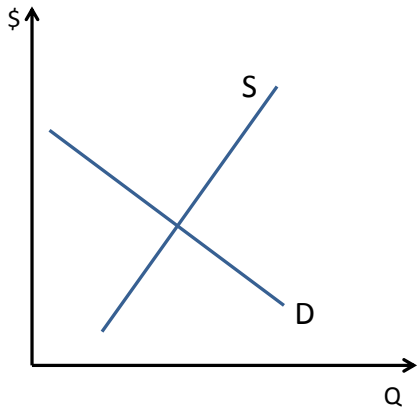
Market Equilibrium
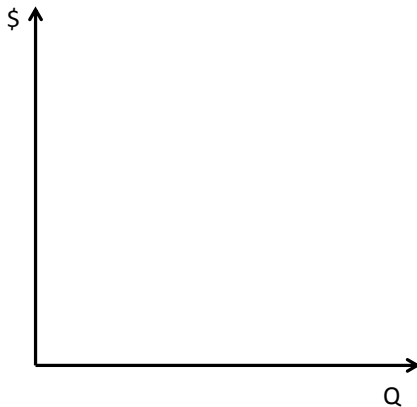
Market Demand vs Demand Perceived by Firm

Firm's View of Market Equilibrium
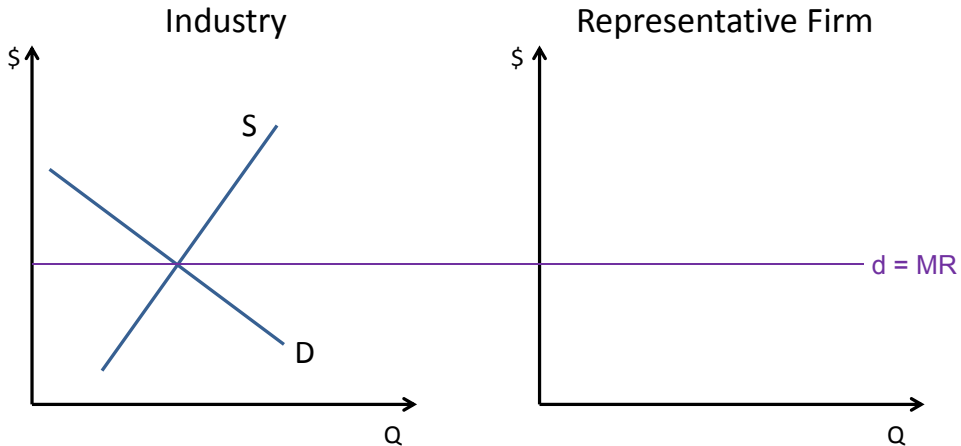
Profit Maximization
in a Perfectly Competitive Environment

Reminder: Accounting vs. Economic Profits

- Economic profit $\neq$ accounting profit

Reminder: Accounting vs. Economic Profits

- Economic profit $\neq$ accounting profit
    - accounting profit $\equiv$ total revenue ($P * Q$) - total cost ($ATC * Q$)
    - economic profit $\equiv$ total revenue - total cost, including opportunity costs

Reminder: Accounting vs. Economic Profits

- Economic profit $\neq$ accounting profit
    - accounting profit $\equiv$ total revenue ($P * Q$) - total cost ($ATC * Q$)
    - economic profit $\equiv$ total revenue - total cost, including opportunity costs
- Lee's Flowers on U St. NW
    - Lee family bought structure in 1970
    - accounting profit

Reminder: Accounting vs. Economic Profits

- Economic profit $\neq$ accounting profit
  - accounting profit $\equiv$ total revenue ($P * Q$) - total cost ($ATC * Q$)
  - economic profit $\equiv$ total revenue - total cost, including opportunity costs
- Lee's Flowers on U St. NW
  - Lee family bought structure in 1970
  - accounting profit
    - revenues: flower sales
    - costs: salaries, flowers, building upkeep

Reminder: Accounting vs. Economic Profits

- Economic profit $\neq$ accounting profit
  - accounting profit $\equiv$ total revenue ($P * Q$) - total cost ($ATC * Q$)
  - economic profit $\equiv$ total revenue - total cost, including opportunity costs
- Lee's Flowers on U St. NW
  - Lee family bought structure in 1970
  - accounting profit
    - revenues: flower sales
    - costs: salaries, flowers, building upkeep
  - economic profit

Reminder: Accounting vs. Economic Profits

- Economic profit $\neq$ accounting profit
    - accounting profit $\equiv$ total revenue ($P * Q$) - total cost ($ATC * Q$)
    - economic profit $\equiv$ total revenue - total cost, including opportunity costs
- Lee's Flowers on U St. NW
    - Lee family bought structure in 1970
    - accounting profit
        - revenues: flower sales
        - costs: salaries, flowers, building upkeep
    - economic profit
        - add opportunity cost of structure to total costs
        - one-story building in a booming area

Marginal Revenue for a Perfectly Competitive Firm

- Marginal revenue $\equiv$ additional revenue from an additional unit of output

Marginal Revenue for a Perfectly Competitive Firm

- Marginal revenue $\equiv$ additional revenue from an additional unit of output
- If the firm perceives the demand curve as constant, then $MR = P$
- Firm cannot affect P

Profit Maximization for All Types of Firms

- Additional cost from an additional unit is MC
- If $MC > MR$...

Profit Maximization for All Types of Firms

- Additional cost from an additional unit is MC
- If $MC > MR$... it's a bad idea for the firm to produce
- If $MC < MR$...

Profit Maximization for All Types of Firms

- Additional cost from an additional unit is MC
- If $MC > MR$... it's a bad idea for the firm to produce
- If $MC < MR$... the firm should produce more and make more money

Profit Maximization for All Types of Firms

- Additional cost from an additional unit is MC
- If $MC > MR$... it's a bad idea for the firm to produce
- If $MC < MR$... the firm should produce more and make more money
- $\rightarrow$ profit is maximized where $MR = MC$

Profit Maximization for All Types of Firms

- Additional cost from an additional unit is MC
- If $MC > MR$... it's a bad idea for the firm to produce
- If $MC < MR$... the firm should produce more and make more money
- $\rightarrow$ profit is maximized where $MR = MC$

all types of firms maximize profit where $MR = MC$

Profit Maximization for Firms in a Competitive Market

Because competitive firms are price takers

$$P = MR$$

Profit Maximization for Firms in a Competitive Market

Because competitive firms are price takers

$$P = MR$$

Because competitive firms maximize profits

$$MR = MC$$

Profit Maximization for Firms in a Competitive Market

Because competitive firms are price takers

$$P = MR$$

Because competitive firms maximize profits

$$MR = MC$$

To maximize profits, firms then set

$$MR = MC$$
$$\mathbf{P} = \mathbf{MC}$$

Profit Maximization for Firms in a Competitive Market

Because competitive firms are price takers

$$P = MR$$

Because competitive firms maximize profits

$$MR = MC$$

To maximize profits, firms then set

$$MR = MC$$
$$\textbf{P} = \textbf{MC}$$

Perfectly competitive firms maximize profits where $P = MC$

Admin
○

RFH
○○

Policy
○○○

Perf Comp
○○○○○○○

Profit Maximization
○○○○○●○○○○○○○○

SR Perfect Comp.
○○○○○○○○○○○○○○

LR Perfect Comp.
○○○○○○○○○○○○○○

$MR = MC$ in Pictures

Firm's View of Demand
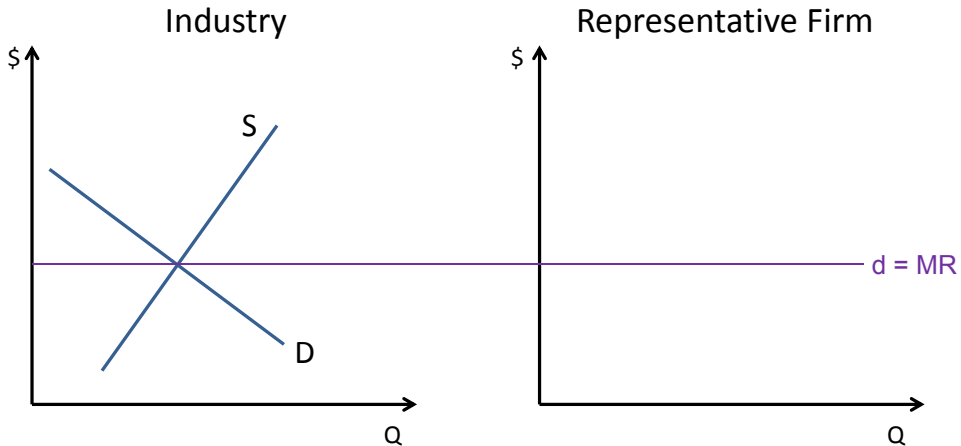
$MR = MC$ in Pictures

Intersecting with Firm's Costs

Industry

Representative Firm
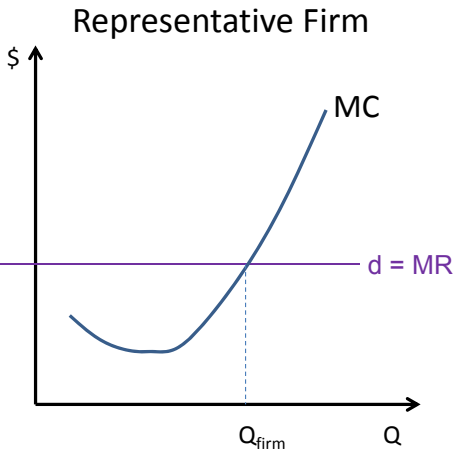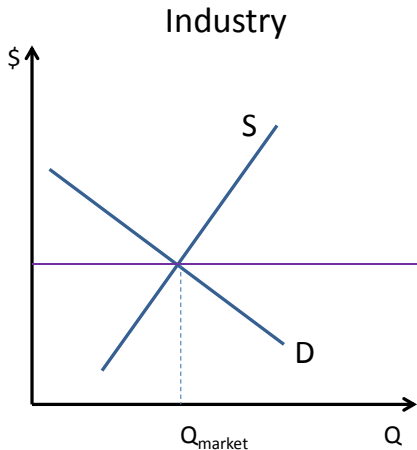
What are Profits When a Firm is Maximizing Profit?

Profits = total revenue - total cost

$$\pi = TR - TC$$

What are Profits When a Firm is Maximizing Profit?

Profits = total revenue - total cost

$$\begin{aligned} \pi &= TR - TC \\ &= (P * Q) - (ATC * Q) \end{aligned}$$

What are Profits When a Firm is Maximizing Profit?

Profits = total revenue - total cost

$$
\begin{aligned}
\pi &= TR - TC \\
&= (P * Q) - (ATC * Q) \\
&= Q(P - ATC)
\end{aligned}
$$

Admin
○

RFH
○○

Policy
○○○

Perf Comp
○○○○○○○

Profit Maximization
○○○○○○○●○○○○○○

SR Perfect Comp.
○○○○○○○○○○○○○○○

LR Perfect Comp.
○○○○○○○○○○○○○○○

Finding Profit

What is the Profit-Maximing Q?

Admin
○

RFH
○○

Policy
○○○

Perf Comp
○○○○○○○

Profit Maximization
○○○○○○○●○○○○○○

SR Perfect Comp.
○○○○○○○○○○○○○○○○

LR Perfect Comp.
○○○○○○○○○○○○○○○○
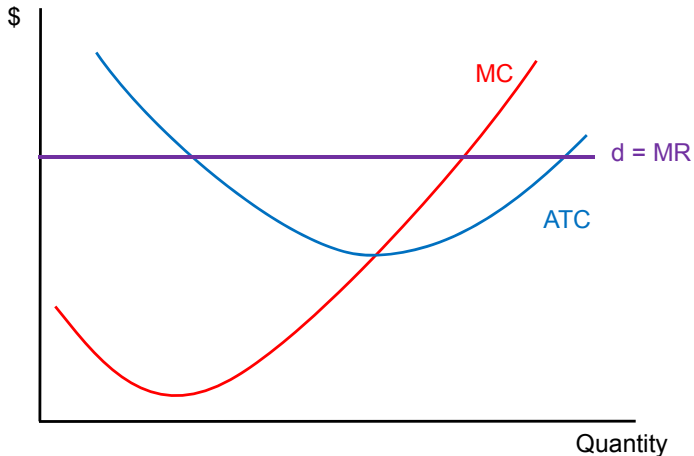
Finding Profit

Where is total revenue?
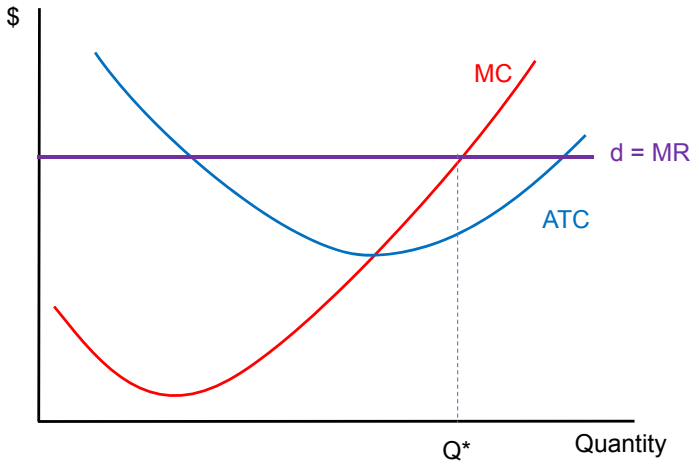
Finding Profit

Where are total costs?
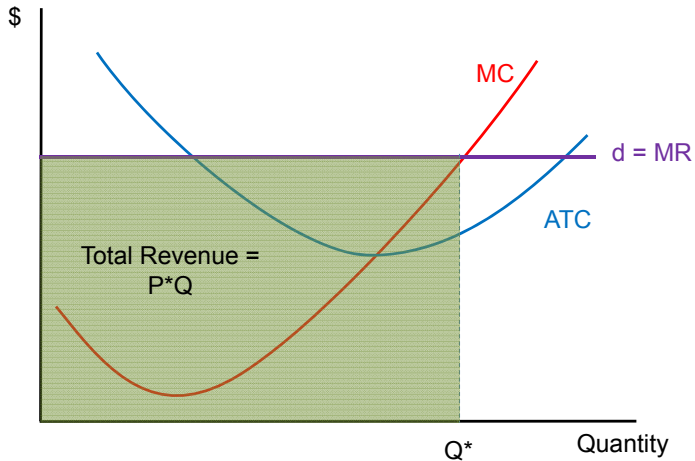
Finding Profit

How do you find profit?

Admin
o

RFH
oo

Policy
ooo

Perf Comp
ooooooo

Profit Maximization
ooooooo●oooooo

SR Perfect Comp.
ooooooooooooooo

LR Perfect Comp.
ooooooooooooooo

Finding Profit

Is $\pi > 0$ or < 0?

Admin
○

RFH
○○

Policy
○○○

Perf Comp
○○○○○○○

Profit Maximization
○○○○○○○●○○○○○○

SR Perfect Comp.
○○○○○○○○○○○○○○○○

LR Perfect Comp.
○○○○○○○○○○○○○○○
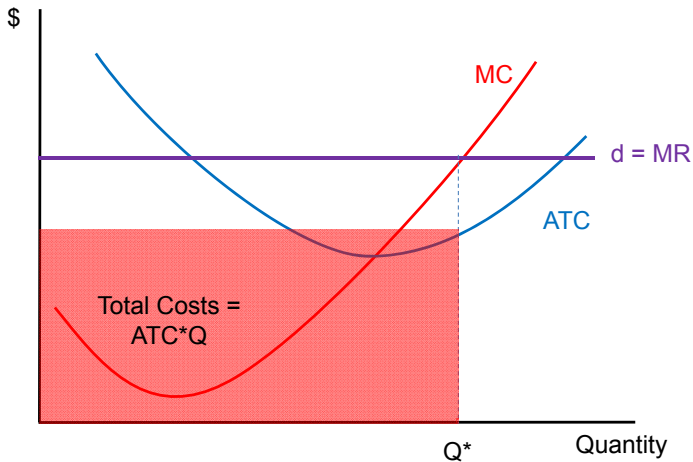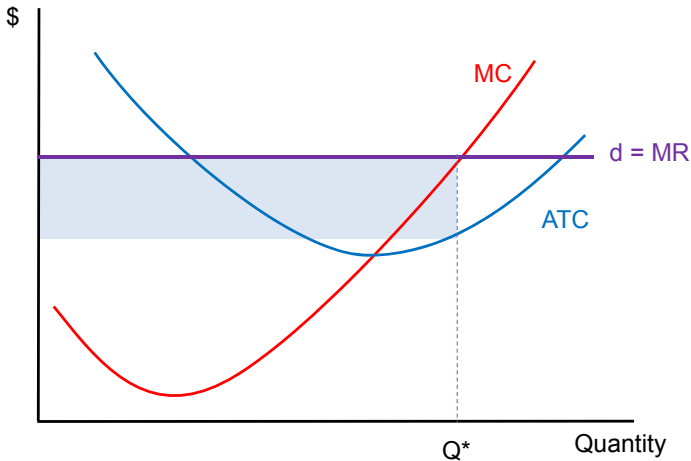
Finding Profit

$\pi > 0$
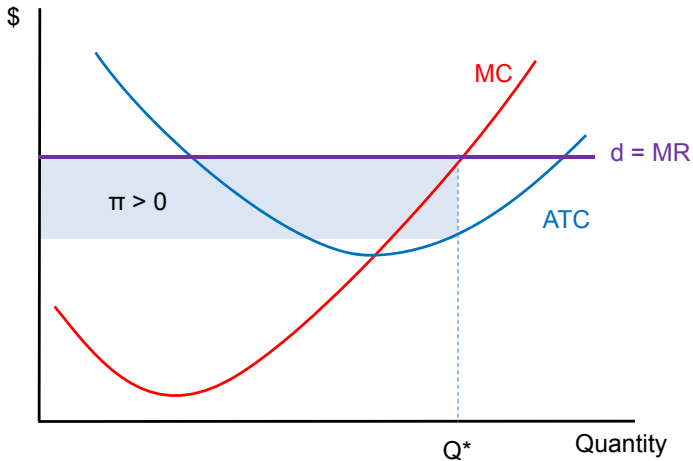
Finding Profit

Profits Now? First find revenues

Admin
○

RFH
○○

Policy
○○○

Perf Comp
○○○○○○○

Profit Maximization
○○○○○○○●○○○○○○

SR Perfect Comp.
○○○○○○○○○○○○○○○○

LR Perfect Comp.
○○○○○○○○○○○○○○○○
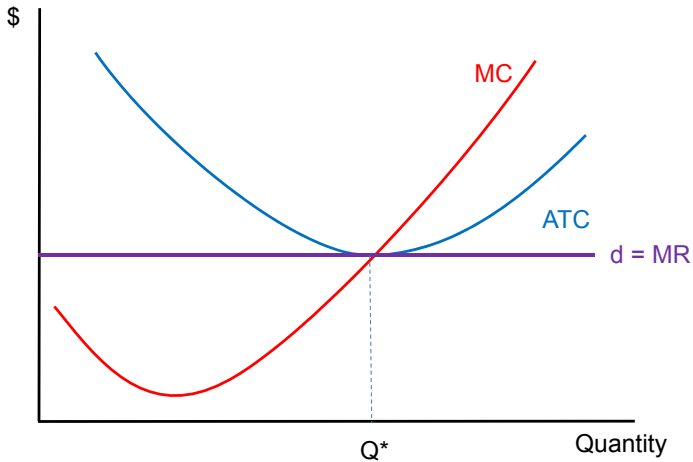
Finding Profit

Profits Now? Now find costs
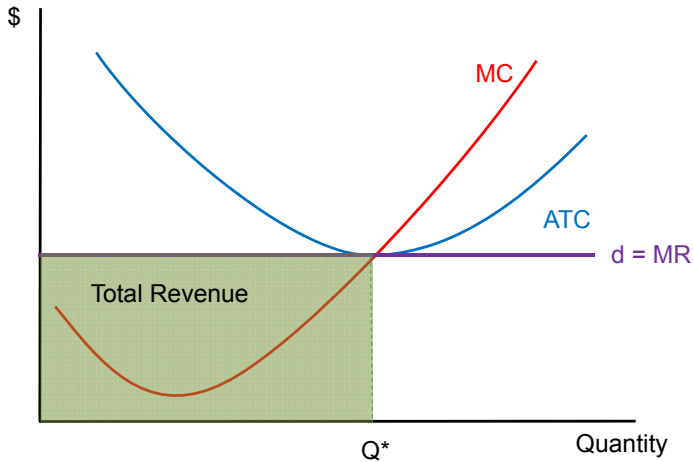
Finding Profit

Profits Now?
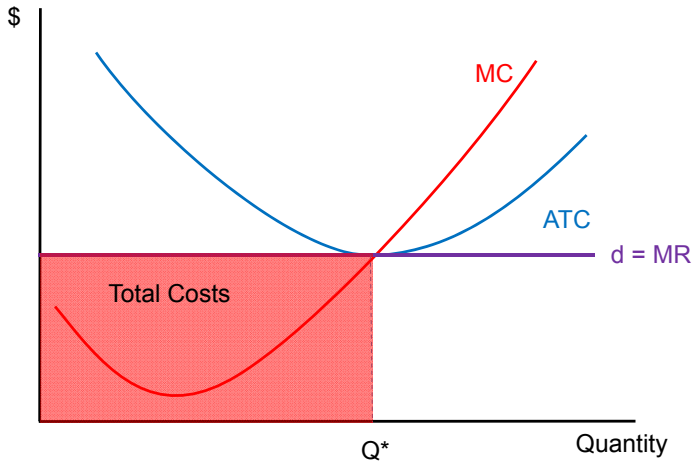
Finding Profit

No Profits to Be Found
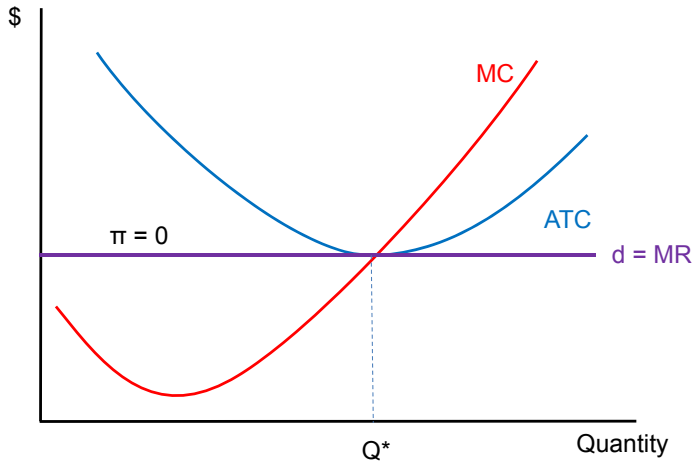
Finding Profit
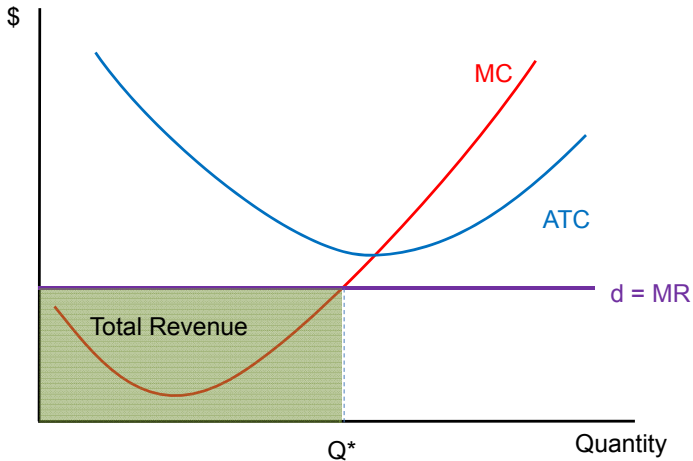
Price Falls. Profits Now? What is profit maximizing Q?

Admin
○

RFH
○○

Policy
○○○

Perf Comp
○○○○○○○

Profit Maximization
○○○○○○○●○○○○○○

SR Perfect Comp.
○○○○○○○○○○○○○○○

LR Perfect Comp.
○○○○○○○○○○○○○○○
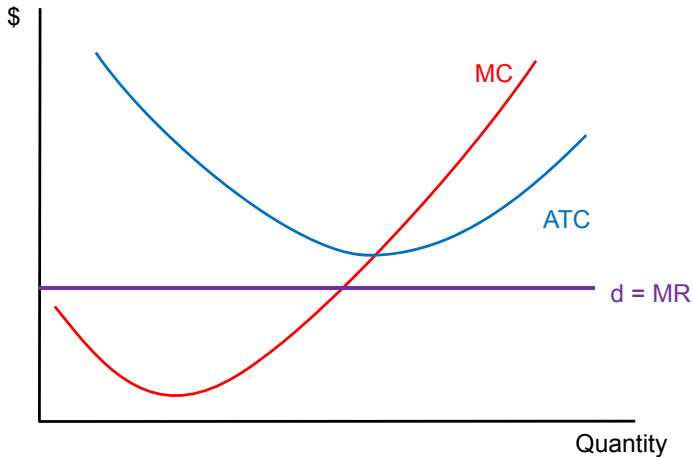
Finding Profit

Profits Now? Find total revenue
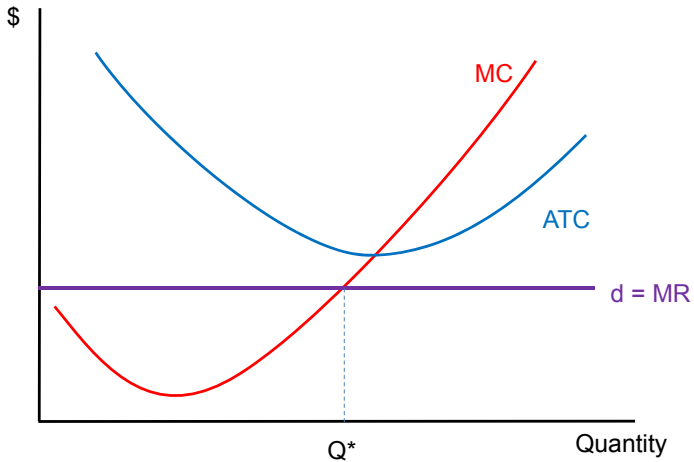
Finding Profit

Profits Now? Find total costs

Finding Profit

$\pi > 0?$ or $\pi < 0?$
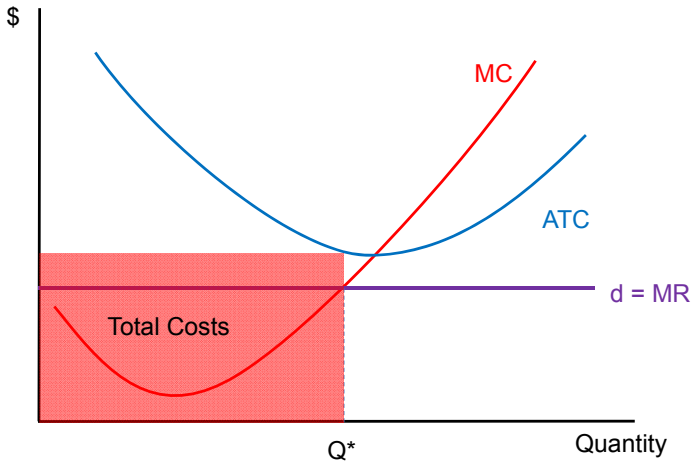
Finding Profit

Profits are negative
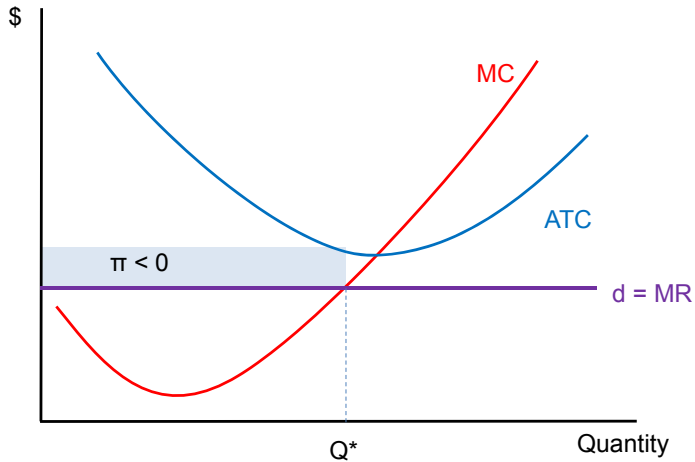
In the Short Run, Should the Firm Shut Down if $\pi < 0$?

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

- In the short run, what does the firm have to pay if it runs or not?

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

- In the short run, what does the firm have to pay if it runs or not? fixed costs

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

- In the short run, what does the firm have to pay if it runs or not? fixed costs
- So profits in the short run, with no output is

$$\pi_{shutdown} = -FC$$

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

- In the short run, what does the firm have to pay if it runs or not? fixed costs
- So profits in the short run, with no output is

$$\pi_{shutdown} = -FC$$

- Profits in the short run, with output is

$$\pi_{operate} = TR - TC$$

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

- In the short run, what does the firm have to pay if it runs or not? fixed costs
- So profits in the short run, with no output is

$$\pi_{shutdown} = -FC$$

- Profits in the short run, with output is

$$\pi_{operate} = TR - TC = TR - FC - VC$$

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

Firm should operate if

$$\pi_{operate} > \pi_{shutdown}$$

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

Firm should operate if

$$\pi_{operate} > \pi_{shutdown}$$
$$TR - FC - VC > -FC$$

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

Firm should operate if

$$
\begin{aligned}
\pi_{operate} &> \pi_{shutdown} \\
TR - FC - VC &> -FC \\
TR - VC &> 0
\end{aligned}
$$

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

Firm should operate if

$$\pi_{operate} > \pi_{shutdown}$$
$$TR - FC - VC > -FC$$
$$TR - VC > 0$$
$$TR > VC$$

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

Firm should operate if

$$
\begin{aligned}
\pi_{operate} &> \pi_{shutdown} \\
TR - FC - VC &> -FC \\
TR - VC &> 0 \\
TR &> VC
\end{aligned}
$$

Examples of firms that sometimes operate?

In the Short Run, Should the Firm Shut Down if $\pi < 0$?

Firm should operate if

$$
\begin{aligned}
\pi_{operate} &> \pi_{shutdown} \\
TR - FC - VC &> -FC \\
TR - VC &> 0 \\
TR &> VC
\end{aligned}
$$

Examples of firms that sometimes operate?

Short Run Operations: Two Equivalent Statements

Operate if

$$TR > VC$$

Short Run Operations: Two Equivalent Statements

Operate if

$$TR > VC$$

We can re-write this as

$$TR > VC$$

Short Run Operations: Two Equivalent Statements

Operate if

$$TR > VC$$

We can re-write this as

$$TR > VC$$
$$PQ > VC$$

Short Run Operations: Two Equivalent Statements

Operate if

$$TR > VC$$

We can re-write this as

$$TR > VC$$
$$PQ > VC$$
$$\frac{PQ}{Q} > \frac{VC}{Q}$$

Short Run Operations: Two Equivalent Statements

Operate if

$$TR > VC$$

We can re-write this as

$$
\begin{aligned}
TR &> VC \\
PQ &> VC \\
\frac{PQ}{Q} &> \frac{VC}{Q} \\
P &> AVC
\end{aligned}
$$

Short Run Operations: Two Equivalent Statements

Operate if

$$TR > VC$$

We can re-write this as

$$
\begin{aligned}
TR &> VC \\
PQ &> VC \\
\frac{PQ}{Q} &> \frac{VC}{Q} \\
P &> AVC
\end{aligned}
$$

Firm should operate when $P > AVC$, same as $TR > VC$.

Review: Keeping the Short-Run Curves Straight

- Maximize profit where $MR = MC$
- Profit is $Q * (P - ATC)$
- Operate if $P > AVC$, same as $TR > VC$

In Class Problem 1: Choosing Q

Cardboard boxes are produced in a perfectly competitive market. Suppose that for all firms in the market, $MC = 5Q$.

1. If the market price is 10, how many boxes does the firm produce if it is maximizing profit?

2. Suppose that there is a quantity Q at which $AVC = 6$. Should the firm produce at this Q?

In Class Problem 1 Answer: Cardboard Boxes and Shutdown

1. If the market price is 10, how many boxes does the firm produce?
   To maximize profit, $MR = MC$. If the firm is competitive, then $MR = P$.
   Therefore,

$$
\begin{aligned}
P &= MC \\
10 &= 5Q \\
Q &= 2
\end{aligned}
$$

In Class Problem 1 Answer: Cardboard Boxes and Shutdown

1. If the market price is 10, how many boxes does the firm produce?
   To maximize profit, $MR = MC$. If the firm is competitive, then $MR = P$.
   Therefore,

$$
\begin{aligned}
P &= MC \\
10 &= 5Q \\
Q &= 2
\end{aligned}
$$

2. Suppose that there is a quantity Q at which $AVC = 6$. Should the firm produce?
The firm should produce if

$$
\begin{aligned}
P &> AVC \\
10 &> 6
\end{aligned}
$$

Yes, the firm should produce.

Short Run
Perfect Competition

Describing Supply from First Principles

In the short run

- Firm's supply curve
- Industry's supply curve
- Producer surplus for a firm
- Producer surplus for the industry

Finding a Firm's Short Run Supply Curve

- We now know that the firm supplies only when $TR > VC$
- What does this imply about MC?

$$TR \quad > VC$$

Finding a Firm's Short Run Supply Curve

- We now know that the firm supplies only when $TR > VC$
- What does this imply about MC?

$$TR > VC$$
$$P * Q > VC$$

Finding a Firm's Short Run Supply Curve

- We now know that the firm supplies only when $TR > VC$
- What does this imply about MC?

$$TR > VC$$
$$P * Q > VC$$
$$MC * Q > VC$$

Finding a Firm's Short Run Supply Curve

- We now know that the firm supplies only when $TR > VC$
- What does this imply about MC?

$$
\begin{aligned}
TR &> VC \\
P * Q &> VC \\
MC * Q &> VC \\
MC &> VC/Q
\end{aligned}
$$

Finding a Firm's Short Run Supply Curve

- We now know that the firm supplies only when $TR > VC$
- What does this imply about MC?

$$TR > VC$$
$$P * Q > VC$$
$$MC * Q > VC$$
$$MC > VC/Q$$
$$MC > AVC$$

Finding a Firm's Short Run Supply Curve

- We now know that the firm supplies only when $TR > VC$
- What does this imply about MC?

$$TR > VC$$
$$P * Q > VC$$
$$MC * Q > VC$$
$$MC > VC/Q$$
$$MC > AVC$$

$\rightarrow$ Firm supplies only when $MC > VC/Q$

Admin
○

RFH
○○

Policy
○○○

Perf Comp
○○○○○○○

Profit Maximization
○○○○○○○○○○○○○○

SR Perfect Comp.
○○○●○○○○○○○○○○○○

LR Perfect Comp.
○○○○○○○○○○○○○○○

Finding a Firm's Short Run Supply Curve

What Quantities Would the Firm Produce?
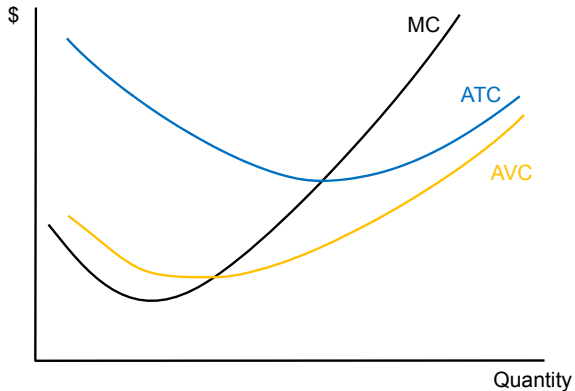
Finding a Firm's Short Run Supply Curve

An Individual Firm's Supply Curve
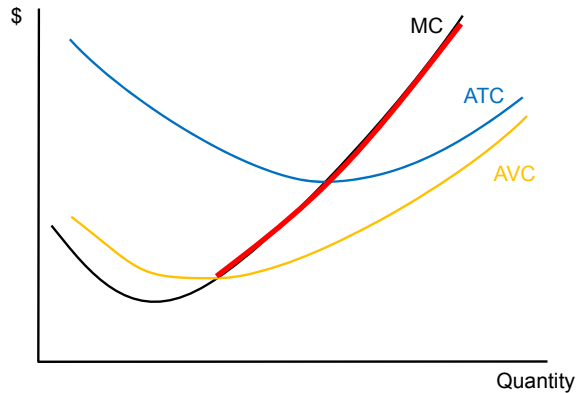
Finding Industry Supply

- Recall that we found market demand by summing individual demands
- Now we find market supply by adding firm supply, given prices
- Find market supply
  - Firm A: $Q_A = f(P)$
  - Firm B: $Q_B = g(P)$
  - Market supply: $Q_M = f(P) + g(P)$

Finding Industry Supply in Pictures

When Firms Have the Same Supply Curve: What Would 100 Firms' Supply Be?
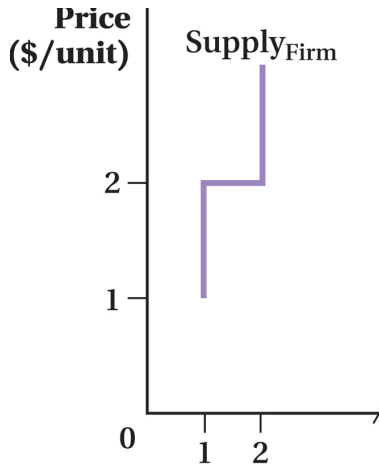
Finding Industry Supply in Pictures

When Firms Have the Same Supply Curve: Here 100 Firms
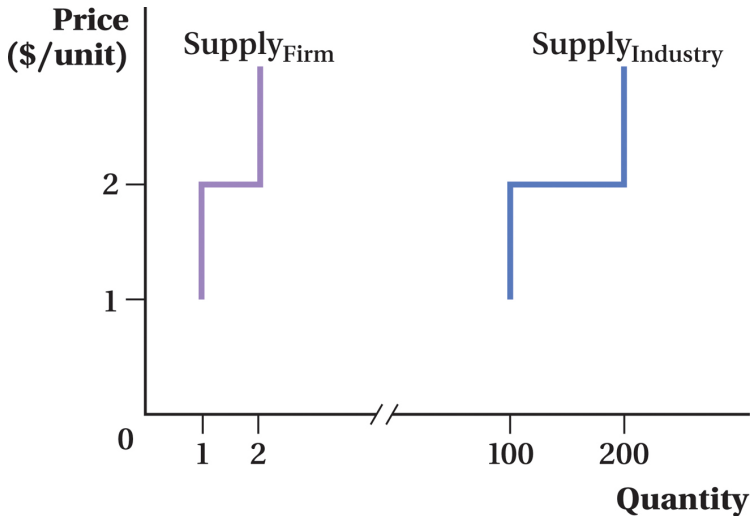
Finding Industry Supply in Pictures

When Firms Have Different Supply Curves
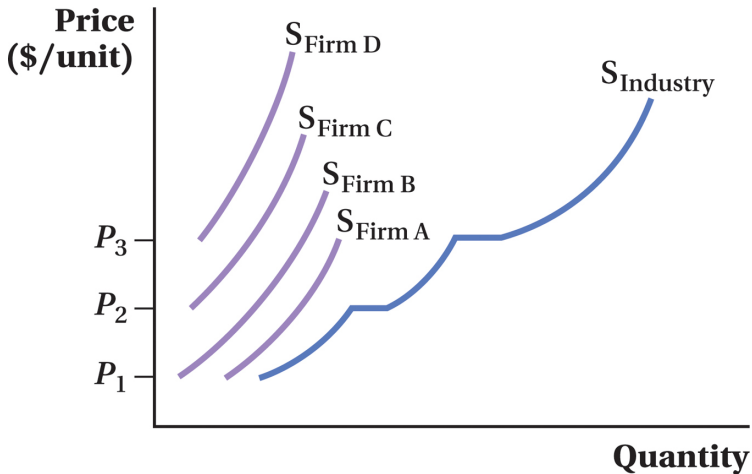
Adding Up Market Supply

- Supply starts at lowest price is that offered by any firm
- Total quantity at any price is Q offered by all firms

In-Class Problem 2: Tortillas

Assume the industry for flour tortillas in Denver is perfectly competitive. There are 200 firms. Seventy-five of the firms are "high-cost," with short-run supply curves $Q_{hc} = 5P$. The others are "low-cost," with short- run supply curves $Q_{lc} = 8P$.

1. What is the short-run industry supply curve for tortillas Q_S?

2. Assume the market demand curve for tortillas is given by $Q_D = 10,000 - 625P$. Find the market equilibrium price and quantity.

3. At this price, how many dozens of tortillas are produced by the high- and low-cost firms, respectively?

4. Determine total industry surplus at the equilibrium.

In-Class Problem 2: Tortillas

Assume the industry for flour tortillas in Denver is perfectly competitive. There are 200 firms. Seventy-five of the firms are "high-cost," with short-run supply curves $Q_{hc} = 5P$. The others are "low-cost," with short-run supply curves $Q_{lc} = 8P$.

1. What is the short-run industry supply curve for tortillas Q_S?

$$
\begin{aligned}
S_{sr} &= 125 * Q_{lc} + 75 * Q_{hc} \\
&= 125(8P) + 75(5P) \\
&= 1000P + 375P \\
&= 1375P
\end{aligned}
$$

In-Class Problem 2: Answer, Cont'd

2. Assume the market demand curve for tortillas is given by $Q_D = 10,000 - 625P$. Find the market equilibrium price and quantity.

$$
\begin{aligned}
Q_S &= Q_D \\
1375P &= 10,000 - 625P \\
2000P &= 10000 \\
P &= 5
\end{aligned}
$$

Find quantity using either curve

$$
\begin{aligned}
Q_D &= 10,000 - 625P \\
&= 10000 - 625(5) \\
&= 10000 - 3125 \\
&= 6875
\end{aligned}
$$

In-Class Problem 2: Answer, Cont'd

3. At this price, how many dozens of tortillas are produced by the high- and low-cost firms, respectively? Use their supply curves

$$
\begin{aligned}
Q_{hc} &= 5P = 5(5) = 25 \\
Q_{lc} &= 8P = 8(5) = 40
\end{aligned}
$$

4. Determine total industry surplus at the equilibrium. Area above the supply curve and below market price. Q intercept is at zero, so

$$
\begin{aligned}
PS &= \frac{1}{2}bh \\
&= \frac{1}{2}6875(5) \\
&= 17,187.50
\end{aligned}
$$

Producer Surplus from a Competitive Firm

- Like before, the sum of the benefit from each unit
- Two equivalent ways to think about this
  - The difference between market price and supply
  - The difference between $Q * AVC$ and PQ

Producer Surplus for a Firm: Pictures

(a) Producer Surplus: Adding All of the Price-Marginal Cost Markups
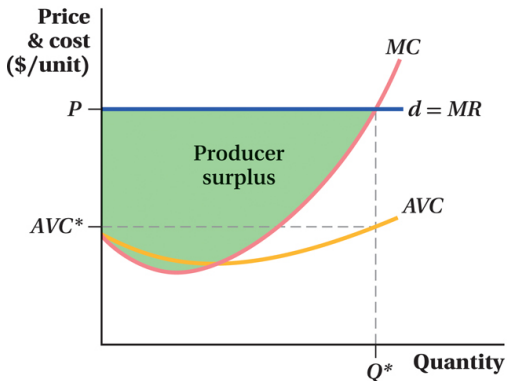
(b) Producer Surplus: Total Revenue Minus Variable Costs
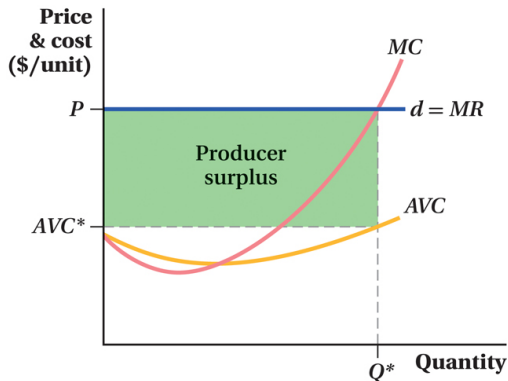
Producer Surplus vs. Profit

- Profit

$$\pi =$$

Producer Surplus vs. Profit

- Profit

$$\pi = TR - TC = TR - (FC + VC)$$

Producer Surplus vs. Profit

- Profit

$$\pi = TR - TC = TR - (FC + VC)$$

- Surplus

$$PS = TR - VC$$

Producer Surplus vs. Profit

- Profit

$$\pi = TR - TC = TR - (FC + VC)$$

- Surplus

$$PS = TR - VC$$

Remember, $\pi \neq PS$

Admin   RFH   Policy   Perf Comp   Profit Maximization   SR Perfect Comp.   LR Perfect Comp.

○   ○○   ○○○   ○○○○○○○   ○○○○○○○○○○○○   ○○○○○○○○○○○○○●   ○○○○○○○○○○○○○○

Producer Surplus for a Competitive Industry
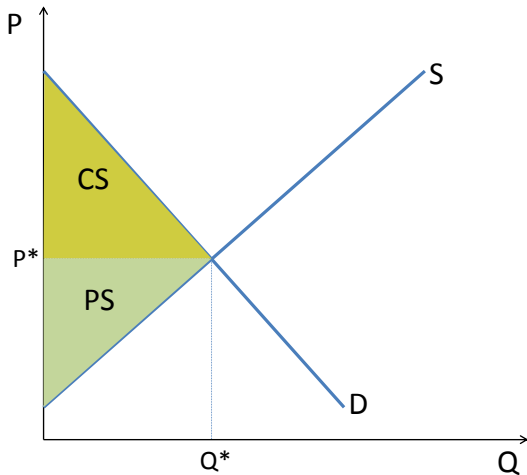
Perfect Competition
in the Long Run

What Makes the Long Run Different?

- All costs are variable
- Firms enter
- Firms exit

Entry in the Long Run

- Free entry $\equiv$ when firms can easily enter the market
  - No legal barriers
  - No technical barriers

Entry in the Long Run

- Free entry $\equiv$ when firms can easily enter the market
  - No legal barriers
  - No technical barriers
- Long run profits
  - Difference between price and long-run total cost
  - $\pi = P * Q - LATC * Q = Q * (P - LATC)$

Entry in the Long Run

- Free entry $\equiv$ when firms can easily enter the market
  - No legal barriers
  - No technical barriers
- Long run profits
  - Difference between price and long-run total cost
  - $\pi = P * Q - LATC * Q = Q * (P - LATC)$
- When $\pi > 0$, we anticipate entry by new firms, until $\pi = 0$

Entry in the Long Run

- Free entry $\equiv$ when firms can easily enter the market
    - No legal barriers
    - No technical barriers
- Long run profits
    - Difference between price and long-run total cost
    - $\pi = P * Q - LATC * Q = Q * (P - LATC)$
- When $\pi > 0$, we anticipate entry by new firms, until $\pi = 0$
- Long-run competitive equilibrium $\equiv$ point at which $P = LATC$, and there are no gains to entry for additional firms

Admin
○

RFH
○○

Policy
○○○

Perf Comp
○○○○○○○

Profit Maximization
○○○○○○○○○○○○○○

SR Perfect Comp.
○○○○○○○○○○○○○○○○

LR Perfect Comp.
○○○●○○○○○○○○○○○○

Profits and Entry

What is the long-run profit-maximizing Q?
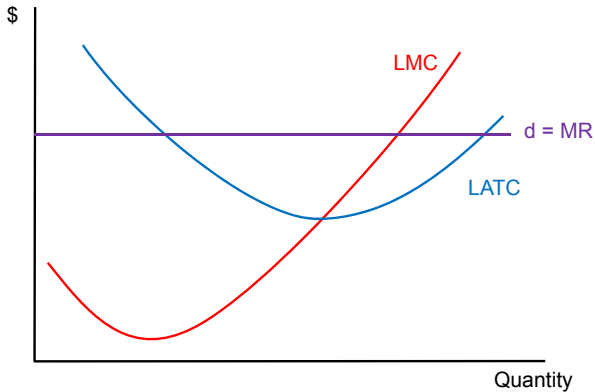
Profits and Entry

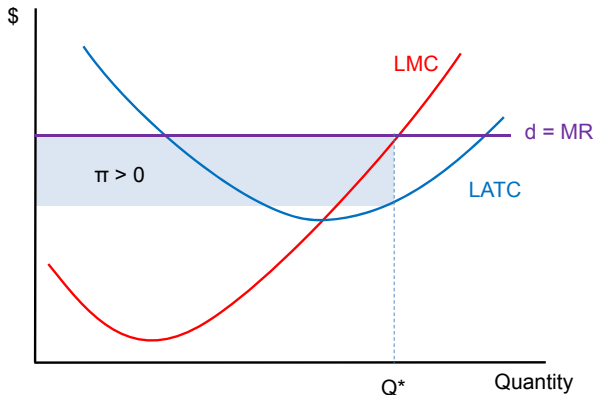## And where are total revenues?
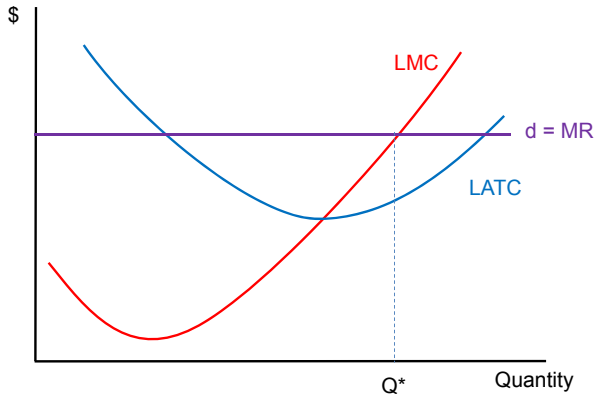
Profits and Entry

Total costs?
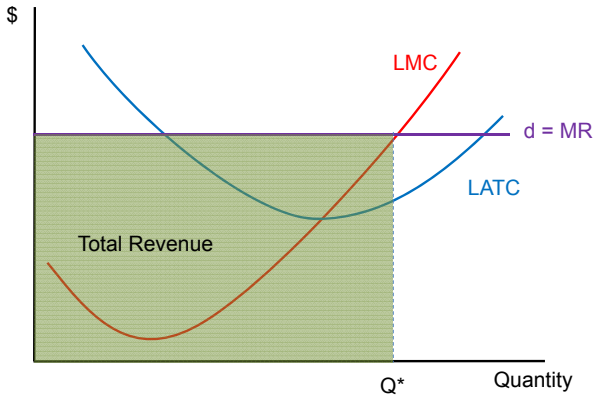
Profits and Entry

Where is profit?
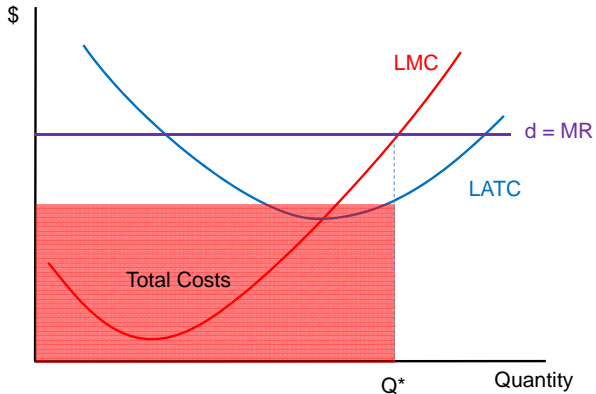
Profits and Entry

Positive profits: Stay in business
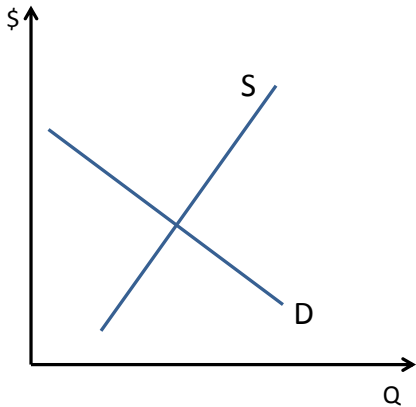

If economic profit exists, what should other firms do?

Long-Run Exit

- Free exit ≡ ability of firm to exit an industry without legal or technical barriers
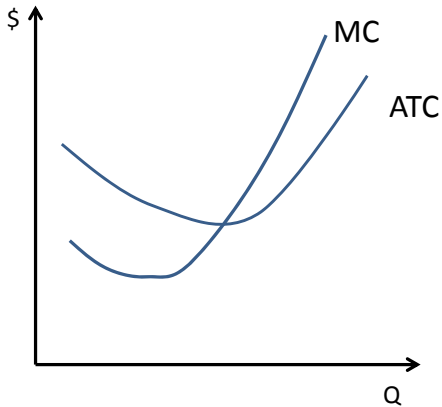- When should a firm exit the market? When $P < LATC$

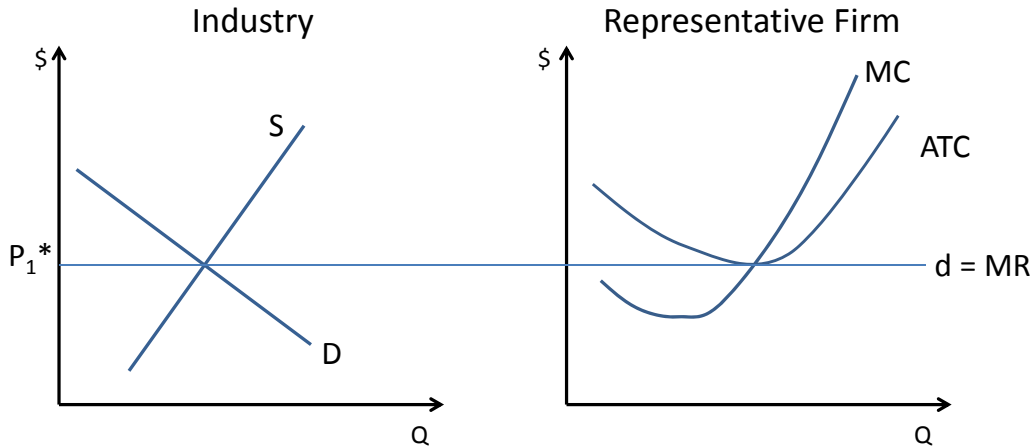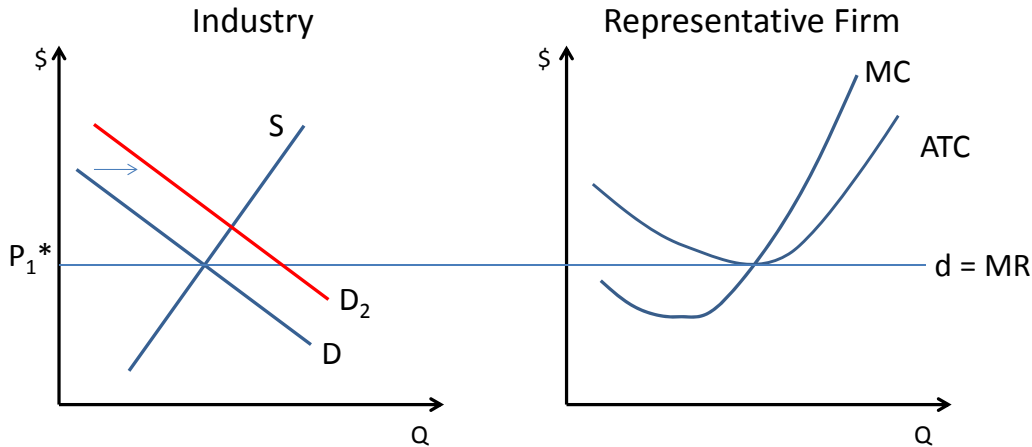# What Happens When Demand Increases?
Original Equilibrium

What Happens When Demand Increases?
Note Zero Profits

What Happens When Demand Increases?

Demand Increases. Profits?
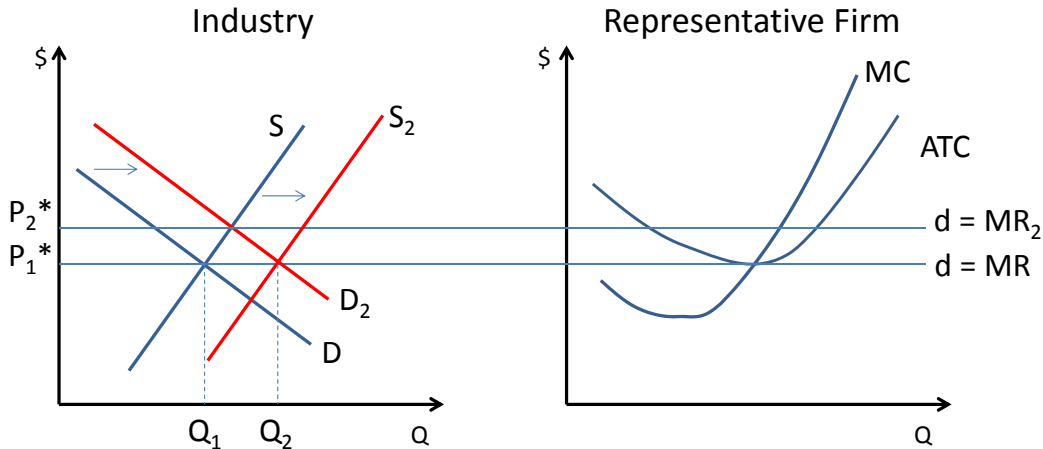

Industry

Representative Firm

What Happens When Demand Increases?

Firms Enter, Prices and Profits Fall
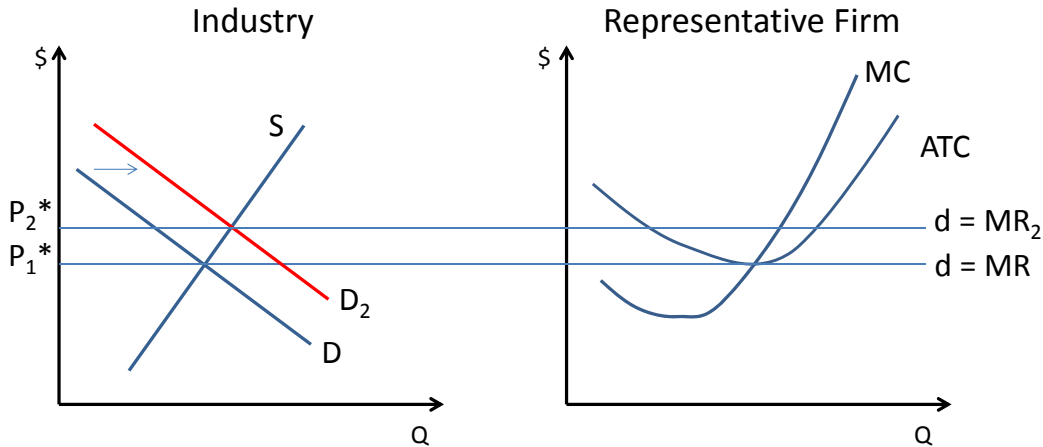
What Happens When Demand Increases?

Supply Increases to Offset Change in Demand

Finding the Long-Run Supply Curve

Recap: Suppose demand increases. What happens

- in the short run to prices?

Finding the Long-Run Supply Curve

Recap: Suppose demand increases. What happens

- in the short run to prices? increase
- in the long run to firm entry?

Finding the Long-Run Supply Curve

Recap: Suppose demand increases. What happens

- in the short run to prices? increase
- in the long run to firm entry? increases
- and in the long run to prices?

Finding the Long-Run Supply Curve

Recap: Suppose demand increases. What happens

- in the short run to prices? increase
- in the long run to firm entry? increases
- and in the long run to prices? return to market equilibrium

Finding the Long-Run Supply Curve

Recap: Suppose demand increases. What happens

- in the short run to prices? increase
- in the long run to firm entry? increases
- and in the long run to prices? return to market equilibrium

$\rightarrow$ the long-run supply curve is perfectly elastic

Finding the Long-Run Supply Curve

Suppose costs fall. What happens

- in the short run to prices?

Finding the Long-Run Supply Curve

Suppose costs fall. What happens

- in the short run to prices? decrease
- in the short run to firm profits?

Finding the Long-Run Supply Curve

Suppose costs fall. What happens

- in the short run to prices? decrease
- in the short run to firm profits? possibly increase, if lower costs not passed to consumers
- in the long run to firm entry?

Finding the Long-Run Supply Curve

Suppose costs fall. What happens

- in the short run to prices? decrease
- in the short run to firm profits? possibly increase, if lower costs not passed to consumers
- in the long run to firm entry? increases, if lower costs not passed to consumers
- and in the long run to prices?

Finding the Long-Run Supply Curve

Suppose costs fall. What happens

- in the short run to prices? decrease
- in the short run to firm profits? possibly increase, if lower costs not passed to consumers
- in the long run to firm entry? increases, if lower costs not passed to consumers
- and in the long run to prices? be a function of the new, lower costs

Finding the Long-Run Supply Curve

Suppose costs fall. What happens

- in the short run to prices? decrease
- in the short run to firm profits? possibly increase, if lower costs not passed to consumers
- in the long run to firm entry? increases, if lower costs not passed to consumers
- and in the long run to prices? be a function of the new, lower costs

$\rightarrow$ the long-run supply curve is perfectly elastic

When Costs Fall

(a) Industry

(b) Representative firm
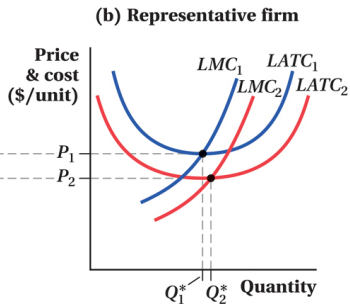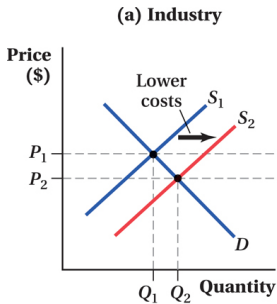
(c) Industry adjustments over time
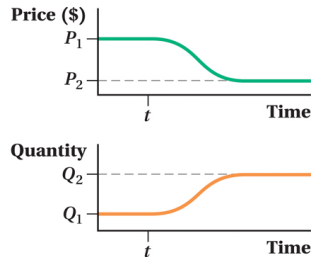
In Sum, In the Long Run

- Firms can enter
- Firms can exit
- Profits are zero
- $P = LATC$
- Supply is perfectly elastic

Big Idea: What Does Perfect Competition Get You?

- products sold at marginal cost
- everyone who wants the product at market price can buy it
- consumer surplus high
- consumer demand drives firm decisions
- social welfare – producer plus consumer surplus – maximized

Why Is Competition Important?

Martin Shkreli, CEO, Turing Pharmaceuticals

- business plan is to buy out-of-patent medications
- increase prices
- Dataprim is an AIDS drug
- "But what Shkreli recognized was that, even with a generic drug, regulatory barriers and a lack of competition can make big price hikes possible. " *New Yorker*, October 5, 2015
- lots of media chat about antitrust response

Drug Goes From $13.50 a Tablet to $750, Overnight

By Andrew Pollack

Sept. 20, 2015

From *New York Times*

While the Antitrust Wheels of Government are Grinding Along

HEALTHCARE FINANCE

FOR PAYERS | R

REIMBURSEMENT | REVENUE CYCLE MANAGEMENT | STRATEGIC PLANNING | CAPITAL FINANCE | SUPPLY CHAIN

Top Stories

Study finds racial bias in Optum algorithm

UPDATED: List of 2020 Medicare Advantage sta ratings

OCT 23, 2015 | MORE ON PHARMACY

Daraprim competitor to market $1 pill after Turing chief Martin Shkreli hikes price

Shkreli has said the price hike was not the result of corporate greed.

Recap of Today

- Market structure and perfect competition in the short run
- Profit maximization in a competitive market
- Perfect competition in the short run
- Perfect competition in the long run

Next Class

- Turn in Problem Set 9
- Market Power and Monopoly: Chapter 9