

# Economics 101 – Section 5

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Lecture #18 – March 25, 2004

Chapter 8

- Perfect Competition
- Competition in the Short-Run

## Lecture Overview

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- Review from last class
  - 3 characteristics of a perfectly competitive market
  - The perfectly competitive firm
- Example with wheat production
- Deriving the short-run supply curve
- Long-run equilibrium

## Perfect Competition

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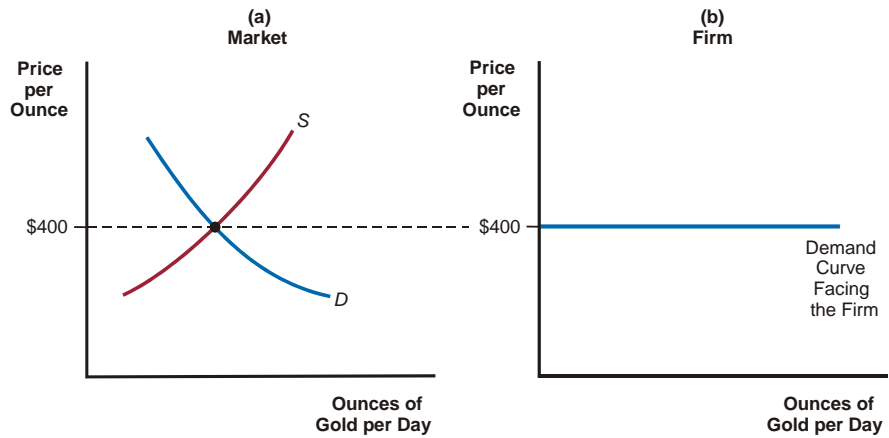
- Perfect competition has 3 important characteristics associated with its market structure
  - 1) There are a large number of buyers and sellers – each buys or sells only a very small portion of the total quantity in the market
  - 2) Sellers offer a standardized product
  - 3) sellers can easily enter or exit the market – no restrictions to entry or exit

## The perfectly competitive firm

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- The goal of a perfectly competitive firm is still to maximize their profit
- The perfectly competitive firm faces a cost constraint like any other firm
  - The cost of producing any given level of output depends on the firms production technology and the prices it must pay for inputs

**Figure 1** The Competitive Industry and Firm



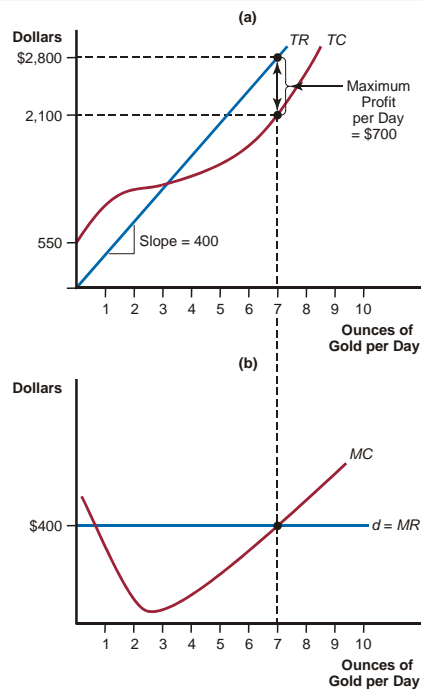
## The perfectly competitive firm

- In perfect competition the firm is a **price taker**
  - It treats the price of its output as given

**Table 1** Cost and Revenue Data for Small Time Gold Mines

(1) Output (Troy Ounces of Gold per Day)	(2) Price (per Troy Ounce)	(3) Total Revenue	(4) Marginal Revenue	(5) Total Cost	(6) Marginal Cost	(7) Profit
0	\$400	\$ 0		\$ 550		-\$550
1	\$400	\$ 400	\$400	\$1,000	\$450	-\$600
2	\$400	\$ 800	\$400	\$1,200	\$ 50	-\$400
3	\$400	\$1,200	\$400	\$1,250	\$100	-\$ 50
4	\$400	\$1,600	\$400	\$1,350	\$150	\$250
5	\$400	\$2,000	\$400	\$1,500	\$250	\$500
6	\$400	\$2,400	\$400	\$1,750	\$350	\$650
7	\$400	\$2,800	\$400	\$2,100	\$450	\$700
8	\$400	\$3,200	\$400	\$2,550	\$550	\$650
9	\$400	\$3,600	\$400	\$3,100	\$650	\$500
10	\$400	\$4,000	\$400	\$3,750		\$250

**Figure 2**  
Profit Maximization  
in Perfect  
Competition



## The perfectly competitive firm

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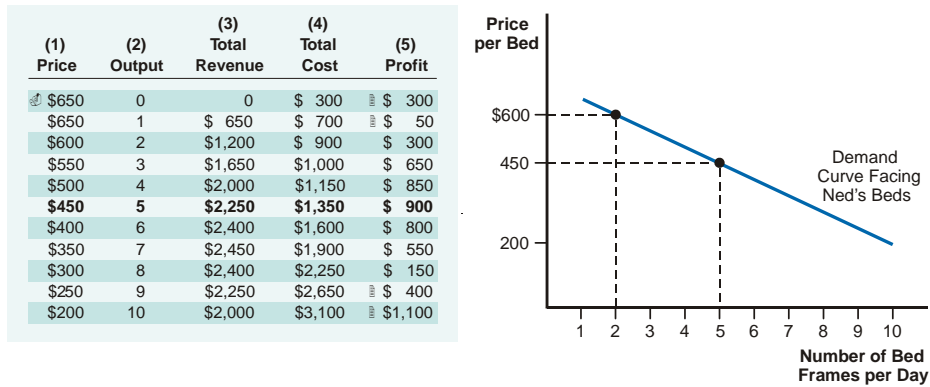
- For a perfectly competitive (PC) firm, the market price is their marginal revenue
  - Remember that in a PC firm no one supplier can affect the market price by supplying either more or less of the given product
  - This is why the marginal revenue curve and the demand curve facing the firm are the same
- For a PC firm the MR curve is a horizontal line at the market price (where price is on the vertical axis and quantity is on the horizontal axis as is the usual case)

## The perfectly competitive firm

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- Note that this is different from the example used in an earlier lecture
- With the example of bed frames the firm could affect the market price by increasing or decreasing their production

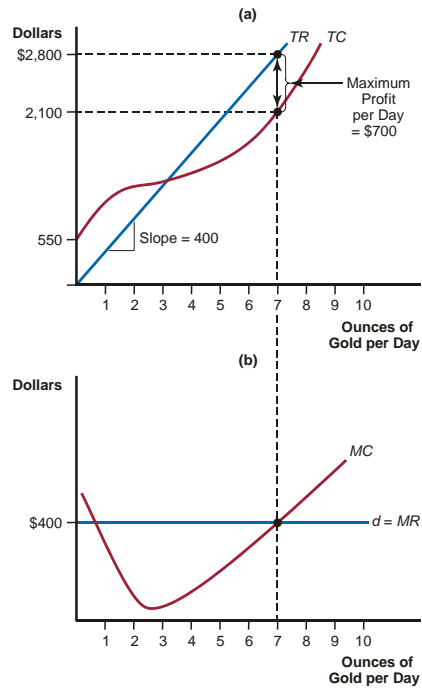
**Figure 1 The Demand Curve Facing the Firm**



## The perfectly competitive firm

- Finding the profit maximizing level of output for a firm in a PC market utilizes the same rule as we discussed in earlier lectures –
  - 1) equating  $MR=MC$  or
  - 2) the total revenue and total cost approach
- How do we measure total profit?
  - Graphically
  - Profit per unit multiplied by the amount sold

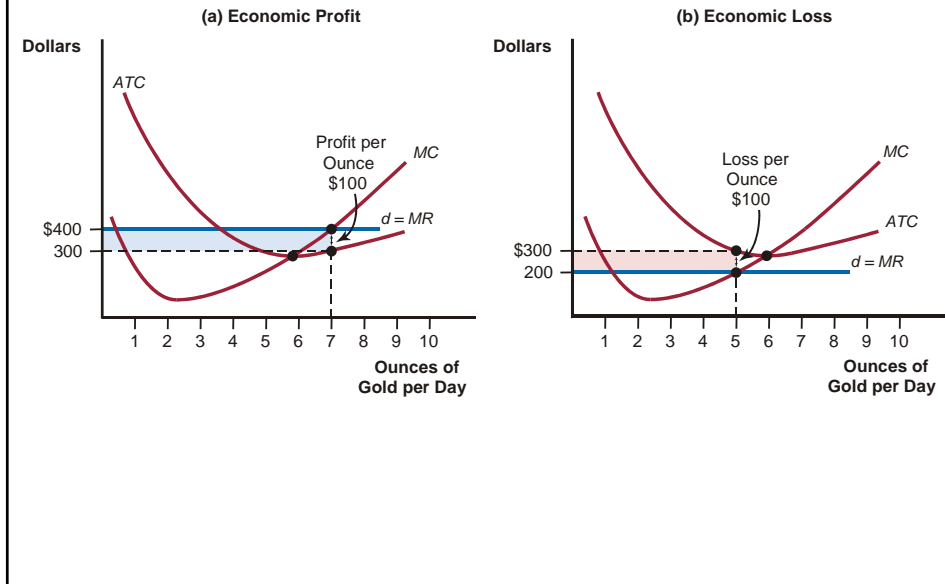
**Figure 2**  
**Profit Maximization**  
**in Perfect**  
**Competition**



## The perfectly competitive firm

- Profit per unit =  $P - ATC$ 
  - Firms will earn a positive profit when  $P > ATC$ 
    - This is the rectangle with height  $P - ATC$  and length of  $Q$
  - The firm will incur a loss when  $P < ATC$ 
    - This is the rectangle with height  $ATC - P$  and length of  $Q$

**Figure 3 Measuring Profit or Loss**



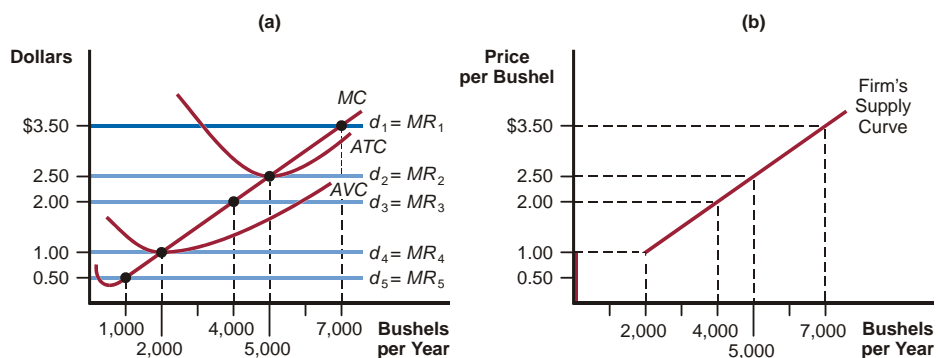
## The perfectly competitive firm

- As the price of output changes, the firm will move along the  $MC$  curve in deciding how much it could produce
  - However if the price is too low and the firm is suffering losses which are large enough then the firm should shut down
    - Recall that a firm should shut down if it cannot cover its average variable costs ( $AVC$ )

## The perfectly competitive firm

- Recall the following properties from last day:
  - In the short-run do not shut down if:
    - $TR > TVC$
  - In the short-run shut down if:
    - $TR < TVC$
  - Note  $Q * P = TR$  and  $AVC * Q = TVC$
  - So we continue to operate if  $P > AVC$
  - Shut down if  $P < AVC$

**Figure 4 Short-Run Supply Under Perfect Competition**



## The perfectly competitive firm

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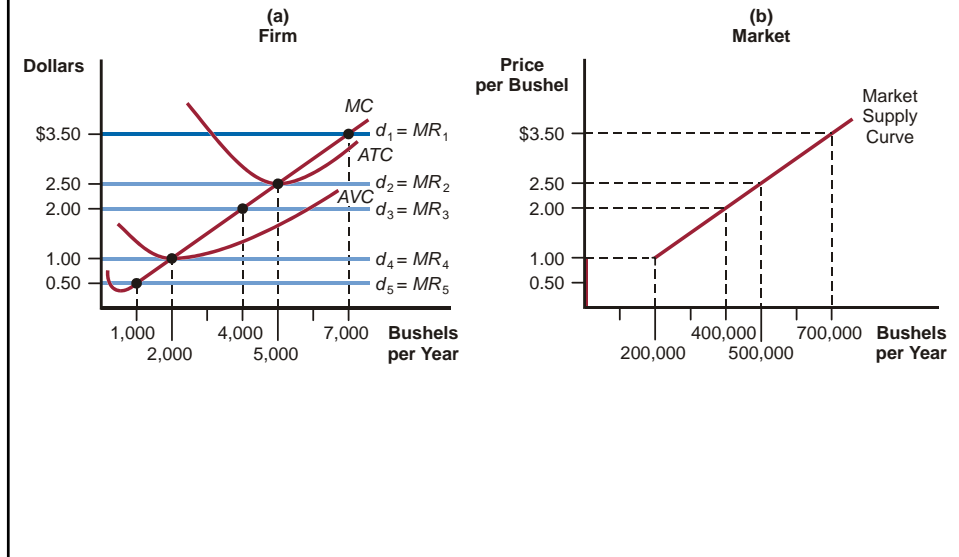
- The firm's supply curve is not going to be continuous
- The firm's supply curve can be constructed according to two rules:
  - 1) If  $P > AVC$  then the supply curve is the MC curve
  - 2) If  $P$  is less than the lowest point on the AVC curve, then the supply curve will be a vertical line from zero to this minimum price

## Competitive Markets in the SR

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- Market supply curve
  - Is the horizontal summation of the individual firm supply curves
  - Simply add up the quantities of output supplied by all firms in the market at each price

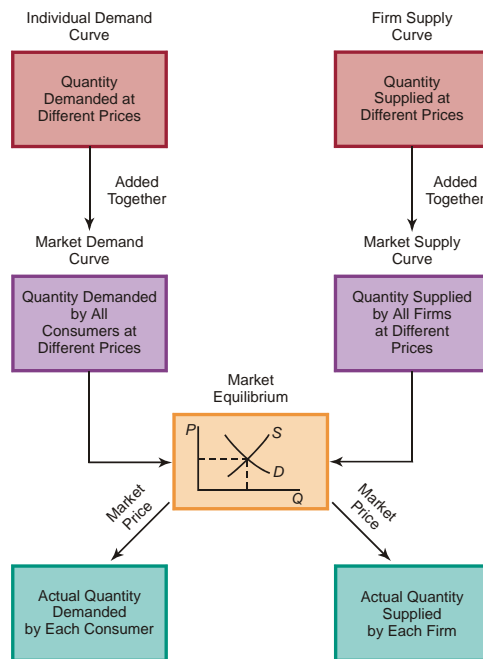
**Figure 5 Deriving the Market Supply Curve**



## Competitive Markets in the SR

- Short-run equilibrium
  - We have talked about equilibrium in earlier chapters and lectures
    - This is going to be where the market supply intersects the market demand
      - Recall market demand was the horizontal summation of individual consumer demand curves (the total amount that would be demanded by a group of consumers at any given price)

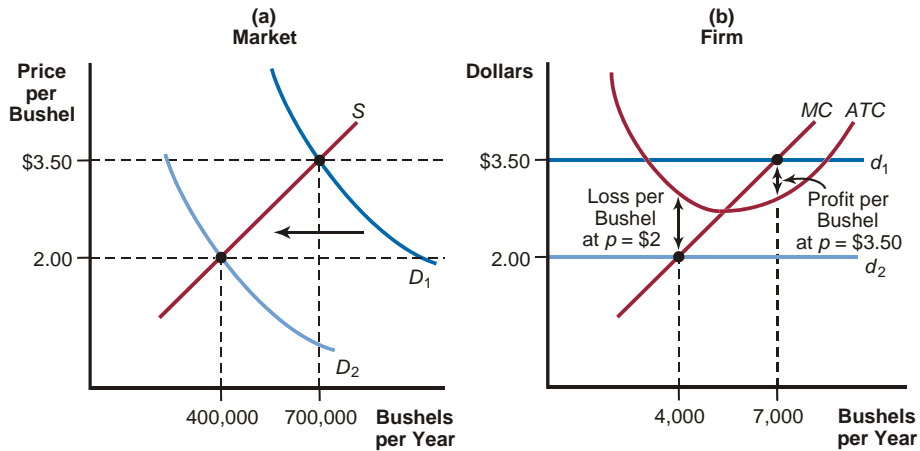
**Figure 6**  
**Perfect**  
**Competition**



## Competitive Markets in the SR

- What is going on for individual firms when there are changes in the market price?
  - Would obviously think that as prices go down then firms are going to be worse off?
    - Why? Because they are getting less \$
    - How does this tie into their cost structure and all these weird graphs we have been using?

**Figure 7 Short-Run Equilibrium in Perfect Competition**



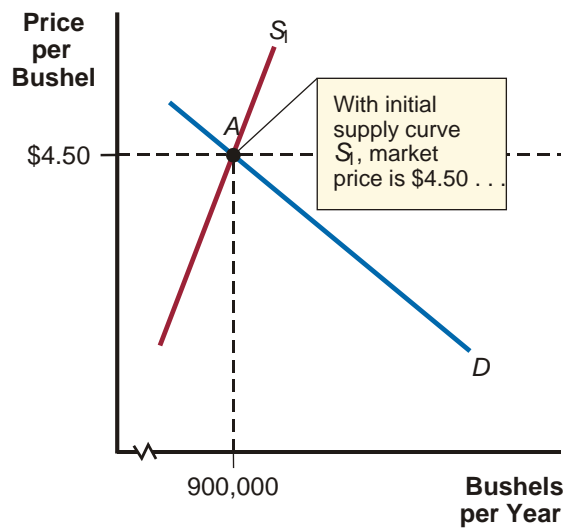
## Competitive markets in the Long-run (LR)

- What happens to firms that are making profits in the short-run? Those making losses?
  - In short,
    - if there is profit more firms will enter
    - If there is loss, firms will exit the industry
- In a competitive market, economic profit and loss are the forces driving long-run change
  - The expectation of continued economic profit causes outsiders to enter the market, the expectation of continued economic losses causes firms in the market to exit

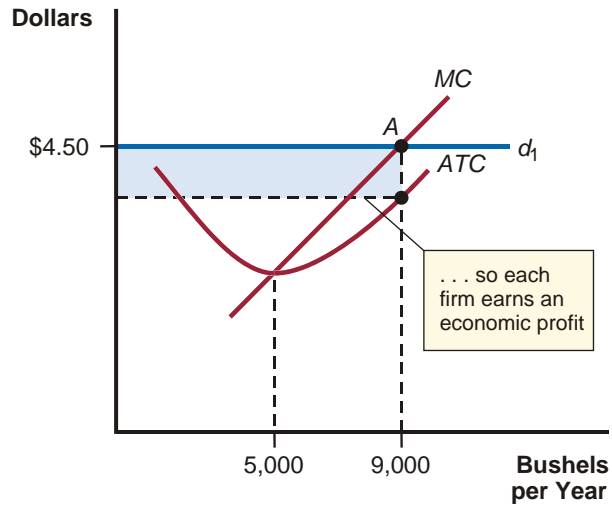
## Competitive markets in the Long-run (LR)

- Long-run equilibrium
  - If there were profits in the short-run (SR) then entry will shift the market supply to the right until profits are eroded
  - If there were losses in the SR then exit will cause the market supply to shift left until there are no longer any losses.

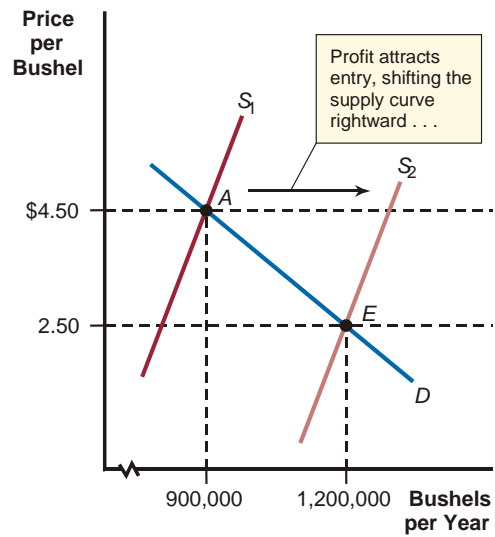
**FIGURE 8a** From Short-Run Profit to Long-Run Equilibrium



**FIGURE 8b** From Short-Run Profit to Long-Run Equilibrium



**FIGURE 8c** From Short-Run Profit to Long-Run Equilibrium



**FIGURE 8d** From Short-Run Profit to Long-Run Equilibrium

