

Chapter 12

Perfect Competition

- Givens in a perfectly competitive industry
 - There are many buyers and sellers, each with a small **market share** (the fraction of the total industry output accounted for by that producer's output)
 - Both sellers and buyers are **price-takers** (their actions have no effect on price)
 - **Standardized product** (commodity) – consumers regard different sellers' products as equivalent
 - **Free entry and exit** – new producers can easily enter into an industry and existing producers can easily leave that industry
- Production and Profits
 - Since each firm is a price-taker, each firm's **total revenue** will be equal to the market price multiplied by the quantity sold
 - Total revenue = market price x quantity sold
 - $TR = P \times Q$
 - Profit is total revenue minus total cost
 - Profit = $TR - TC$
 - We can do profit maximization, but we can also find this by marginal analysis

Marginal Revenue and the Optimal Output Rule

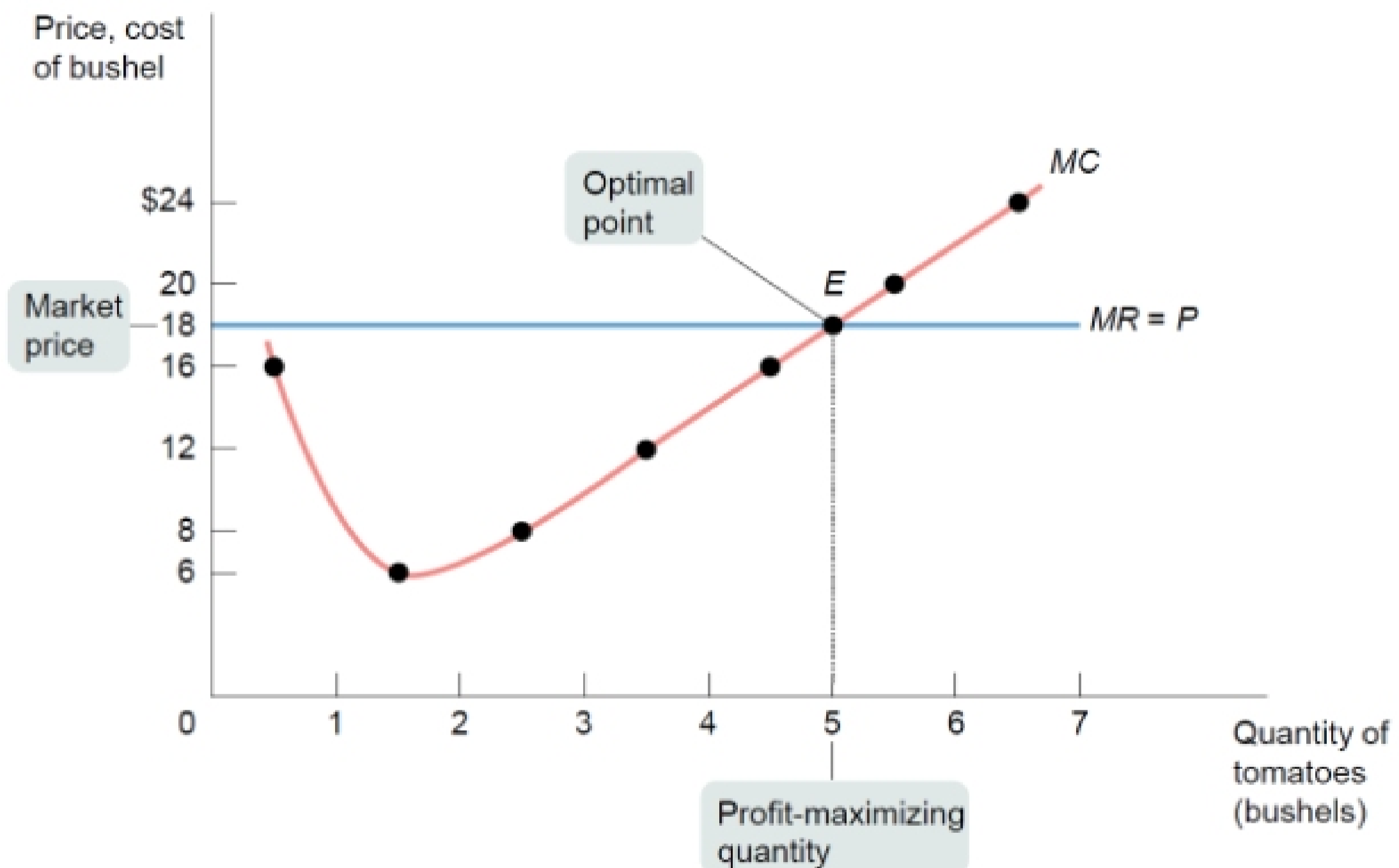
- Marginal revenue is the change in total revenue generated by an additional unit of output
 - **MR = change in TR / change in Q**
- For the price-taking firms, MR is the good's market price
- **Optimal output rule**
 - Profit is maximized by producing the quantity of output at which the marginal revenue of the last unit produced is equal to its marginal cost
 - Optimal production level is when $MR = MC = \text{Price}$
 - Why is profit maximized where $MR = MC$?
 - Each time the firm produces another unit, there are extra costs and extra revenues
 - If producing another unit adds more to revenue than cost, ($MR > MC$) then profit will increase
 - If producing another unit adds less to revenue than cost ($MR < MC$), the profit will decrease
 - Since $MR = P$ for competitive firms, the **profit maximizing rule** is choose the quantity of output such that $P = MC$

Costs and production in the short run

- As long as increasing production by one more unit creates more MR than MC, it makes sense to do it

Quantity of tomatoes Q (bushels)	Variable cost VC	Total cost TC	Marginal cost of bushel $MC = \Delta TC / \Delta Q$	Marginal revenue of bushel MR	Net gain of bushel = $MR - MC$
0	\$0	\$14			
1	16	30	\$16	\$18	\$2
2	22	36	6	18	12
3	30	44	8	18	10
4	42	56	12	18	6
5	58	72	16	18	2
6	78	92	20	18	-2
7	102	116	24	18	-6

Profit Maximizing Quantity of Output



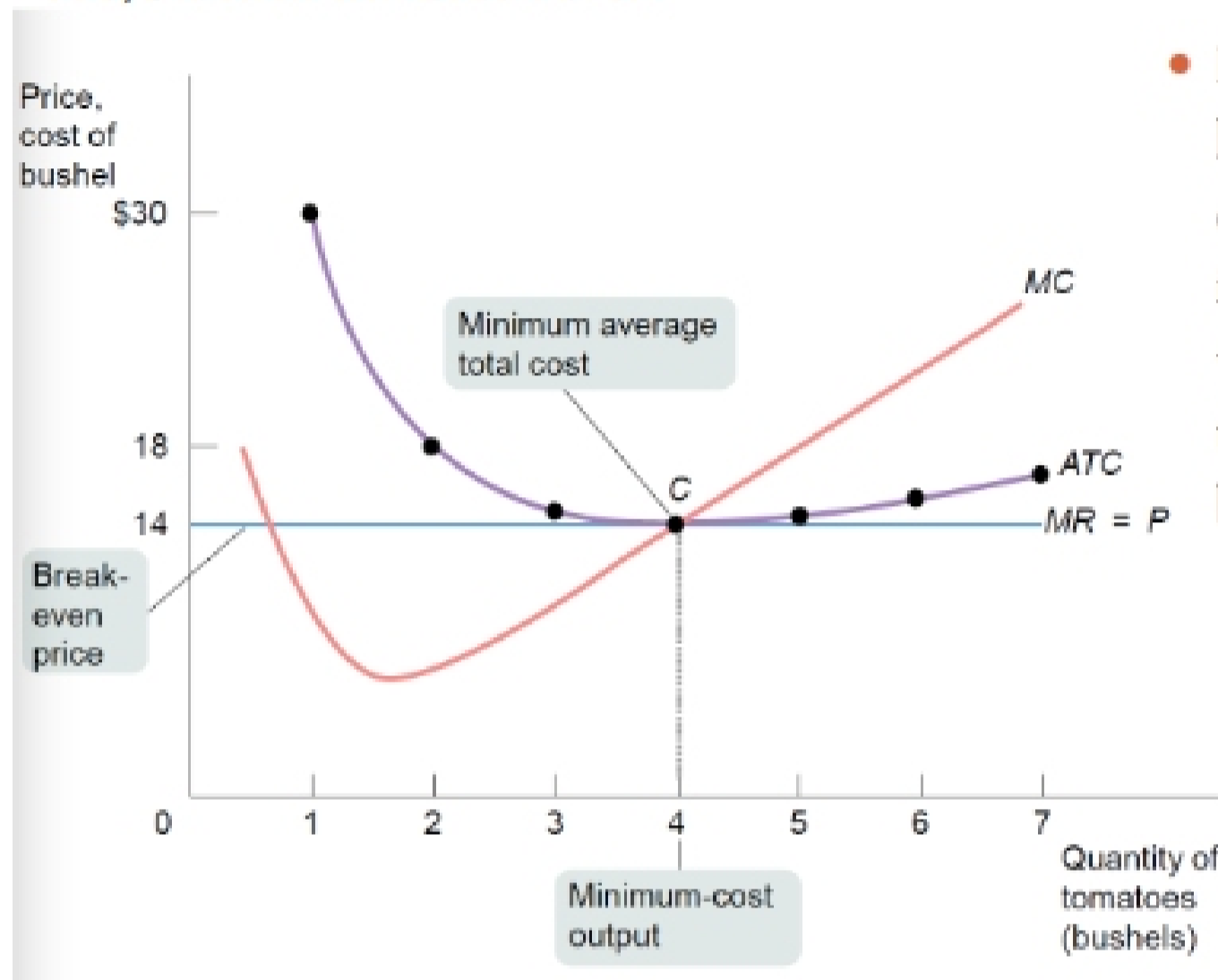
When is Production Profitable?

- We are considering economic profit, which includes implicit costs
- A firm's economic profit could be negative or positive

- If $TR > TC$, the firm is profitable
- If $TR = TC$, the firm breaks even
- If $TR < TC$, the firm incurs a loss

Profitability and the Market Price

- When $TR = TC$, that is the breakeven price
- If the price is just high enough to cover ATC and if it chooses the quantity where $MR = MC$, the firm will break even



- If the price is just high enough to cover ATC and if it chooses the Q where $MR = MC$, the firm will break even

- On the next graph, the market price is increased to \$18.
 - **The firm is profitable because $P > \text{the minimum ATC}$**
 - Profit is the difference between market price and average total cost