

UNIT III

**PRICE-OUTPUT UNDER PERFECT
COMPETITION AND MONOPOLY**

(9 Hours)

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Contents

- Perfect Competition: Short-run and Long-run Equilibrium; Supply curves of the Firm and Industry; Dynamic Changes and Industry Equilibrium.
- Monopoly: Short-run and Long-run Equilibrium; Predictions in Dynamic Changes, Regulated Monopoly (Taxation, and Price Regulation); Govt. regulated Monopoly; Discriminating Monopoly. Comparison of Competitive and Monopoly Firms and Excess Capacity.

Classification of Market Models

- **Perfect/Pure competition**
- **Imperfect Competition:**
 - Pure monopoly
 - Oligopoly/Duopoly
 - Monopolistic competition

Imperfect Competition to Perfect Competition

Pure Monopoly Duopoly Oligopoly Monopolistic Competition Pure Competition

Market Structure Variety

Market structure

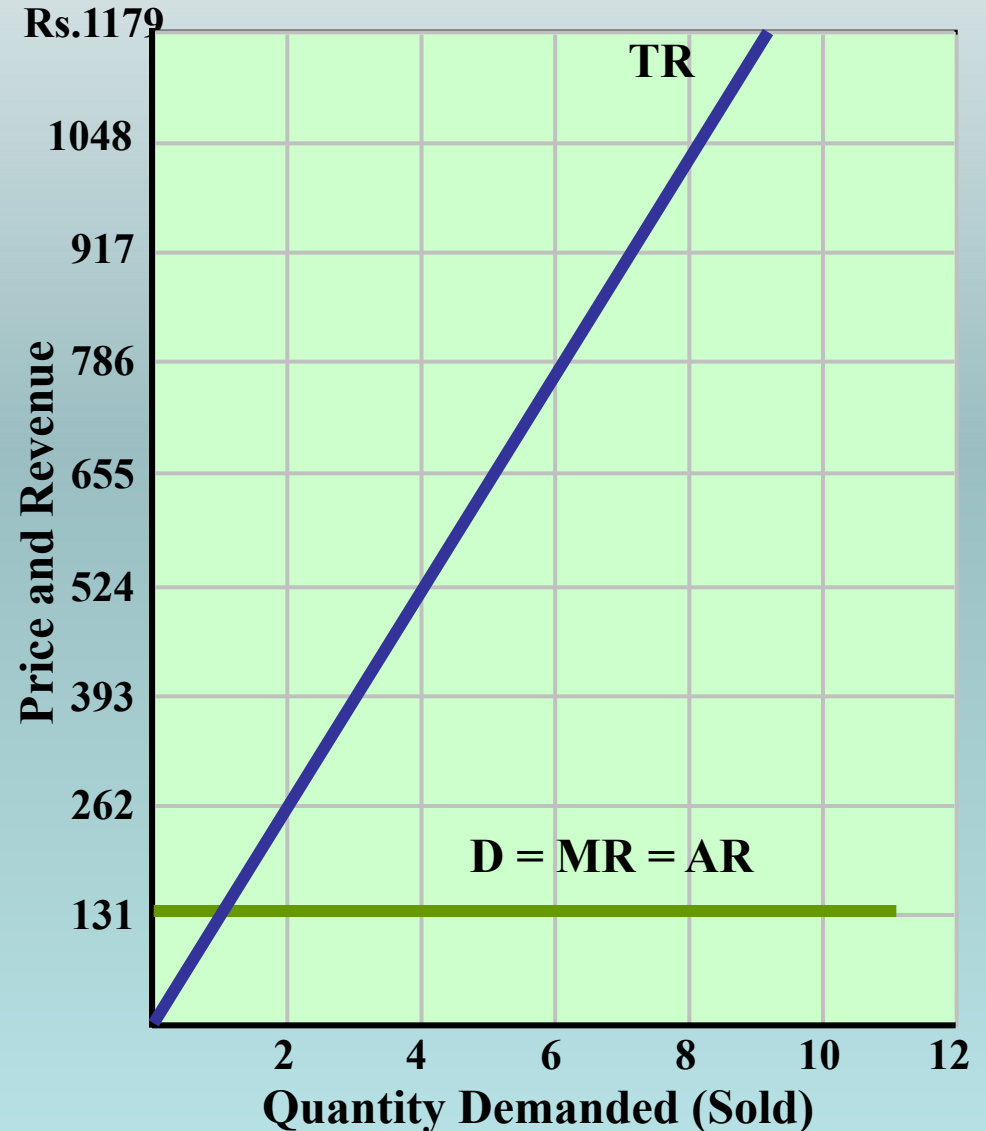
	Numbers of Firms	Type of product	Demand curve	Entry condition	Example
•					
Perfect competition	Many	Homogenous	Perfectly elastic	None	Fruit/ Vegetables at local market
Imperfect competition					
1. Monopolistic competition	Many	Differentiated	Not perfectly elastic	None	Mobile phone/ electronic goods
2. Oligopoly	Few	Differentiated	Less elastic	Some	Cars/mobile service
3. Monopoly	One	Unique	Market demand curve	No entry	Patented drugs

Assumptions of Perfect /Pure Competition

1. Very large numbers: Many buyers and many sellers
2. Standardized product: The goods offered for sale are largely the same.
3. Price takers: takes the price as given
4. Free entry and exit: Firms can freely enter or exit the market, no effect if some sellers and buyers exit and entry from the market
5. Perfectly elastic demand: (i) Average revenue (ii) Marginal revenue
6. Consumer and producer be rational: perfect knowledge about market

Pure Competition

Firm's Demand Schedule (Average Revenue)		Firm's Revenue Data	
P	Q _D	TR	MR
Rs.131	0	Rs.0	Rs.
131	1	131	131
131	2	262	131
131	3	393	131
131	4	524	131
131	5	655	131
131	6	786	131
131	7	917	131
131	8	1048	131
131	9	1179	131
131	10	1310	131



Short Run Profit Maximization

- Market price is given
- Three questions:
 - Should the product be produced?
 - If so, in what amount?
 - What economic profit (loss) will be realized?

Profit Maximization

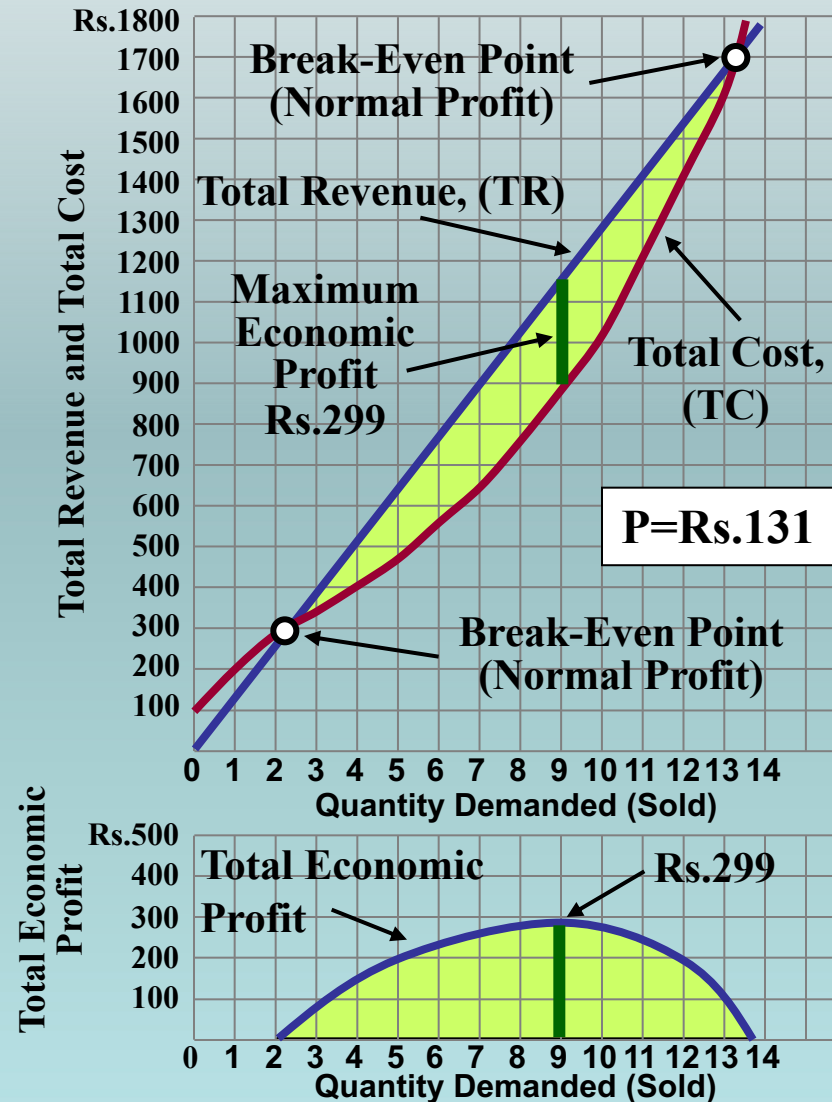
- Two approaches
- Total revenue and total cost approach
 - Produce where $TR-TC$ is greatest
- Marginal revenue and marginal cost approach
 - Produce where $MR=MC$

Total Revenue Total Cost Approach

(1) Total Product (Output) (Q)	(2) Total Fixed Cost (TFC)	(3) Total Variable Cost (TVC)	(4) Total Cost (TC)	Price = Rs.131	
				(5) Total Revenue (TR)	(6) Profit (+) or Loss (-)
0	Rs.100	Rs.0	Rs.100	Rs.0	Rs.-100
1	100	90	190	131	-59
2	100	170	270	262	-8
3	100	240	340	393	+53
4	100	300	400	524	+124
5	100	370	470	655	+185
6	100	450	550	786	+236
7	100	540	640	917	+277
8	100	650	750	1048	+298
9	100	780	880	1179	+299
10	100	930	1030	1310	+280

Which point is the Profit Maximization?

Total Revenue Total Cost Approach



Marginal Revenue Marginal Cost Approach

(1) Total Product (Output)	(2) Average Fixed Cost (AFC)	(3) Average Variable Cost (AVC)	(4) Average Total Cost (ATC)	(5) Marginal Cost (MC)	(6) Marginal Revenue (MR)	(7) Profit (+) or Loss (-) TC-TR (Page 9)
0						Rs.-100
1	Rs.100.00	Rs.90.00	Rs.190.00	Rs.90	Rs.131	-59
2	50.00	85.00	135.00	80	131	-8
3	33.33	80.00	113.33	70	131	+53
4	25.00	75.00	100.00	60	131	+124
5	20.00	74.00	94.00	70	131	+185
6	16.67	75.00	91.67	80	131	+236
7	14.29	77.14	91.43	90	131	+277
8	12.50	81.25	93.75	110	131	+298
9	11.11	86.67	97.78	130	131	+299
10	10.00	93.00	103.00	150	131	+280

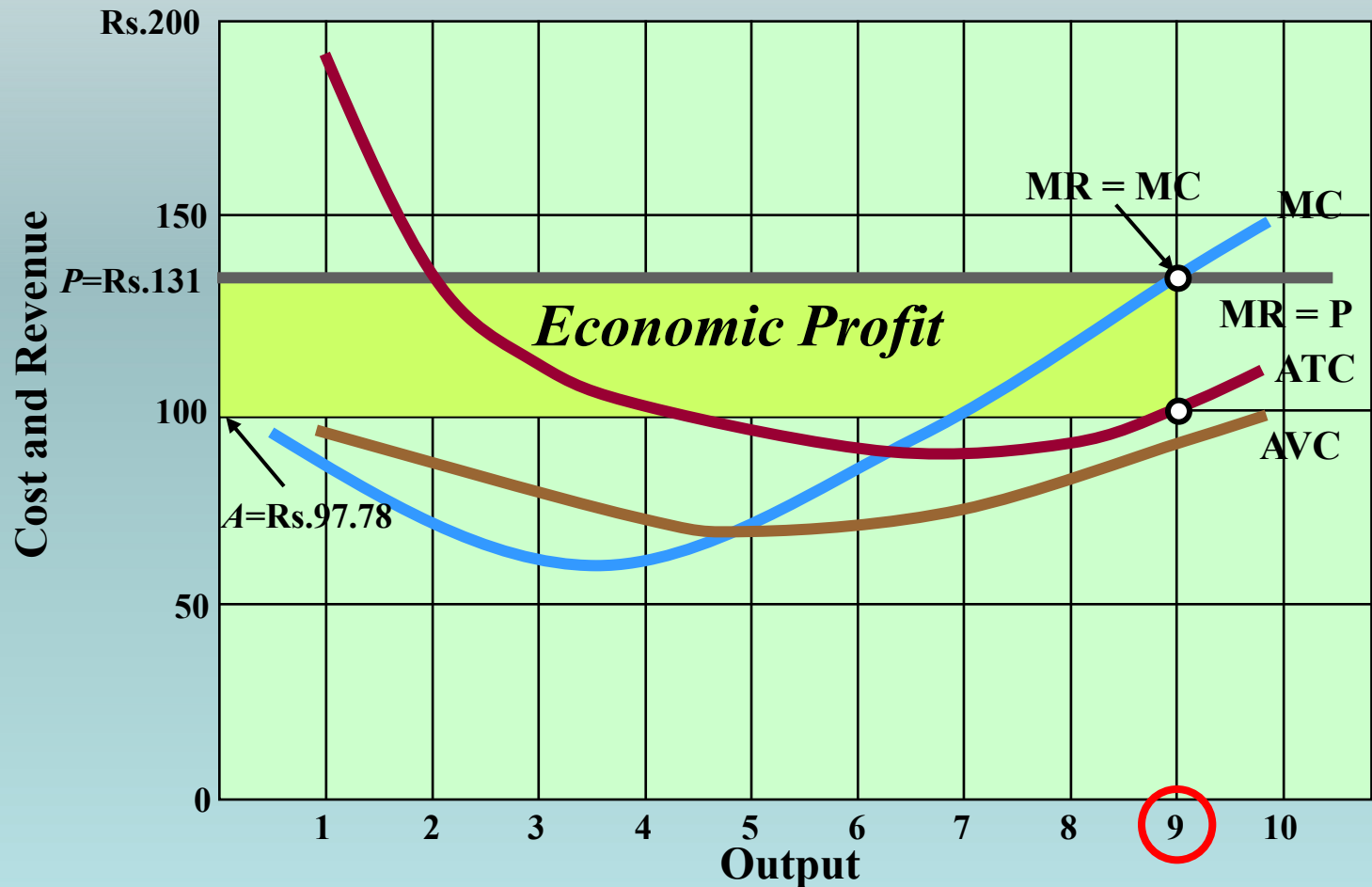
Do You See Profit Maximization Now?

Marginal Revenue Marginal Cost Approach

<i>TC</i>	<i>TR</i>	(1) Total Product (Output)	(2) Average Fixed Cost (AFC)	(3) Average Variable Cost (AVC)	(4) Average Total Cost (ATC)	(5) Marginal Cost (MC)	(6) Marginal Revenue (MR)	(7) Profit (+) or Loss (-) TC-TR (Page 9)
Rs.100	Rs.0	0	Rs.100.00	Rs.90.00	Rs.190.00	Rs.90	Rs.131	Rs.-100
190	131	1	50.00	85.00	135.00	80	131	-59
270	262	2	33.33	80.00	113.33	70	131	-8
340	393	3	25.00	75.00	100.00	60	131	+53
400	524	4	20.00	74.00	94.00	70	131	+124
470	655	5	16.67	75.00	91.67	80	131	+185
550	786	6	14.29	77.14	91.43	90	131	+236
640	917	7	12.50	81.25	93.75	110	131	+277
750	1048	8	11.11	86.67	97.78	130	131	+298
880	1179	9	10.00	93.00	103.00	150	131	+299
1030	1310	10						+280

Do You See Profit Maximization Now?

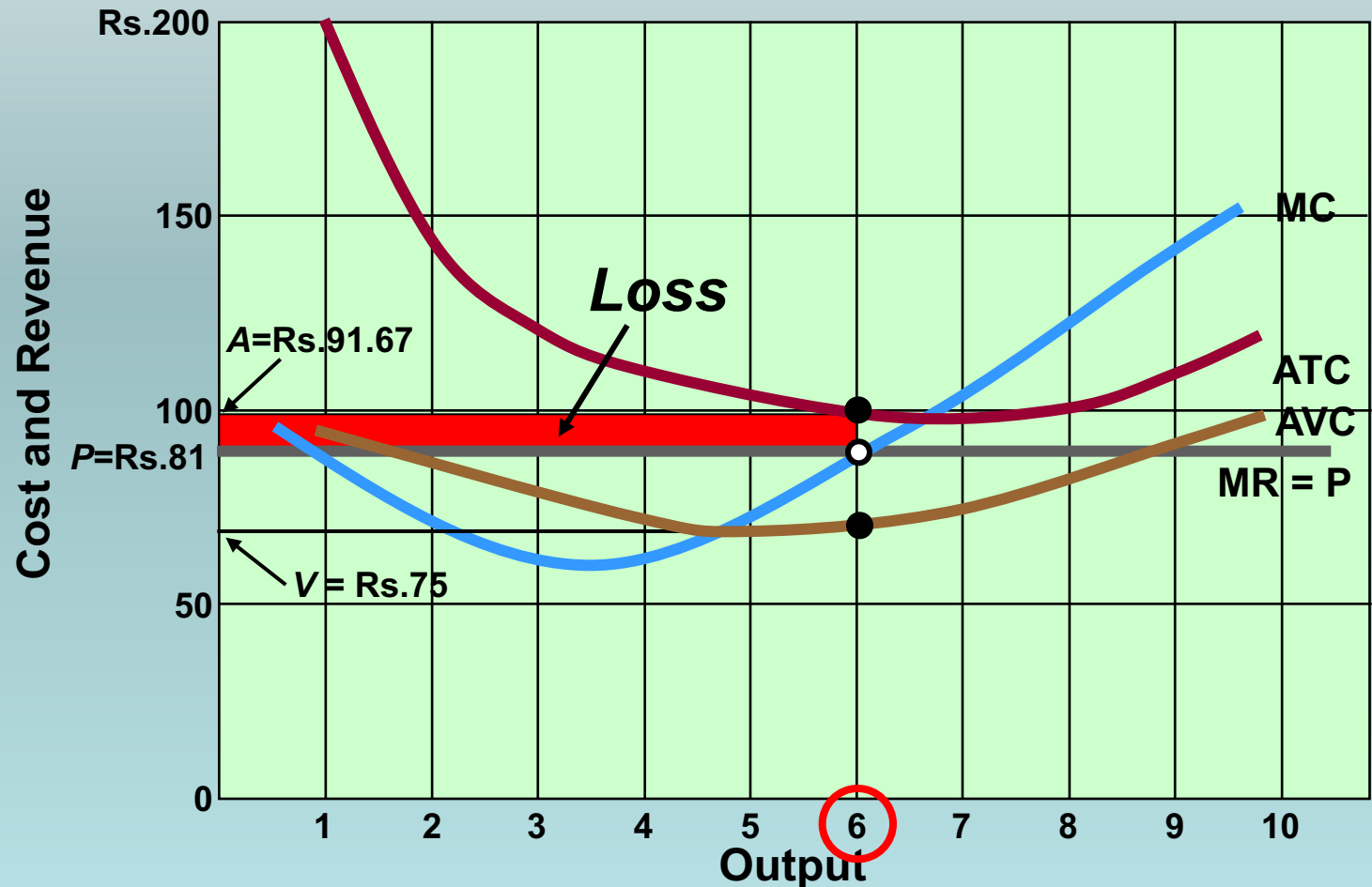
Marginal Revenue Marginal Cost Approach



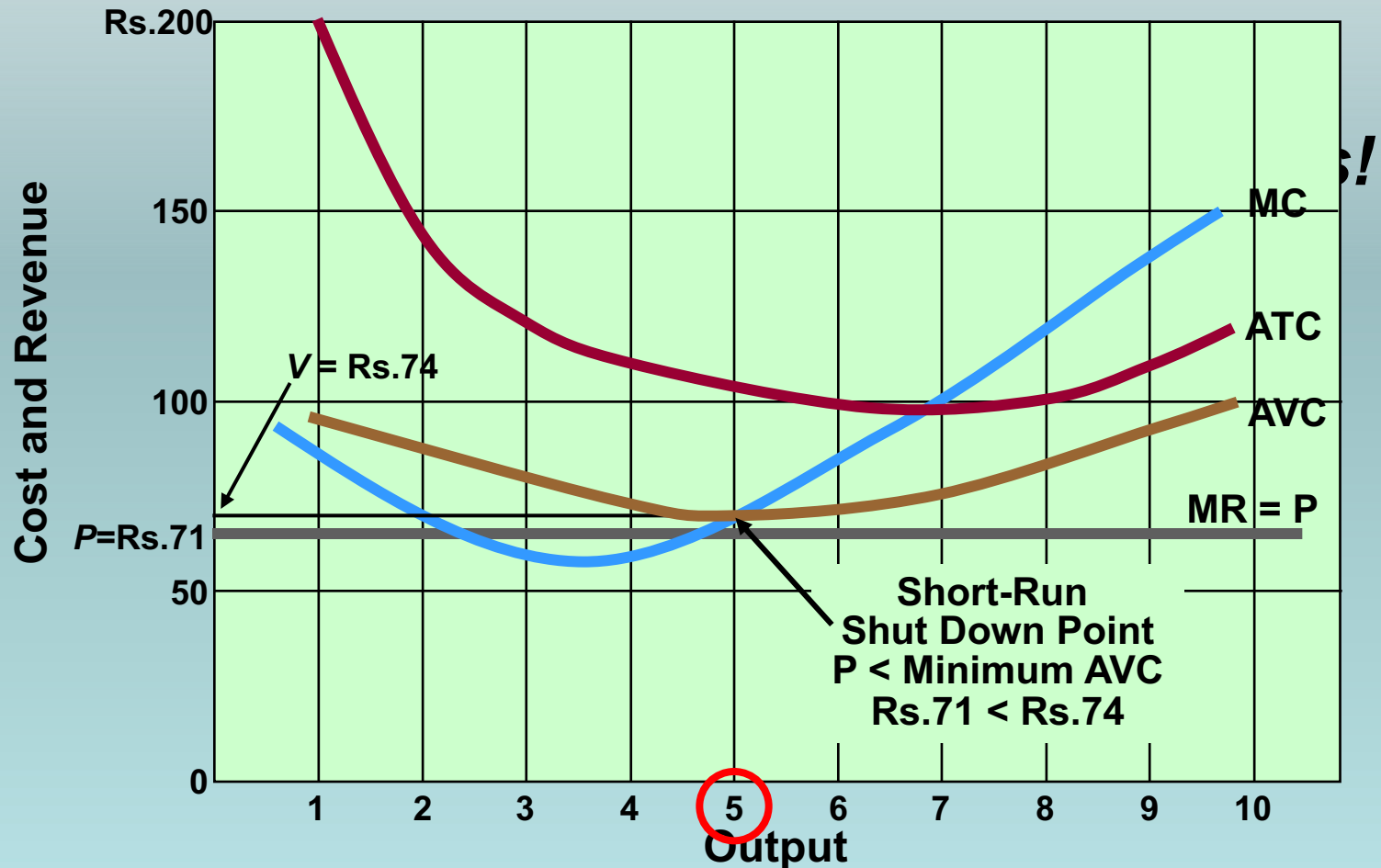
Short Run Profit Maximization

- Produce where $MR (=P) = MC$
- Suffer loss, still produce?
- Yes if loss is less than fixed cost
 - Cover variable cost
- Shut down if loss greater than fixed cost
- Produce if $P > \min AVC$

Short Run Loss Minimizing Case



Short Run Shut Down Case



Short-Run Supply Curve

Continuing the Same Example...

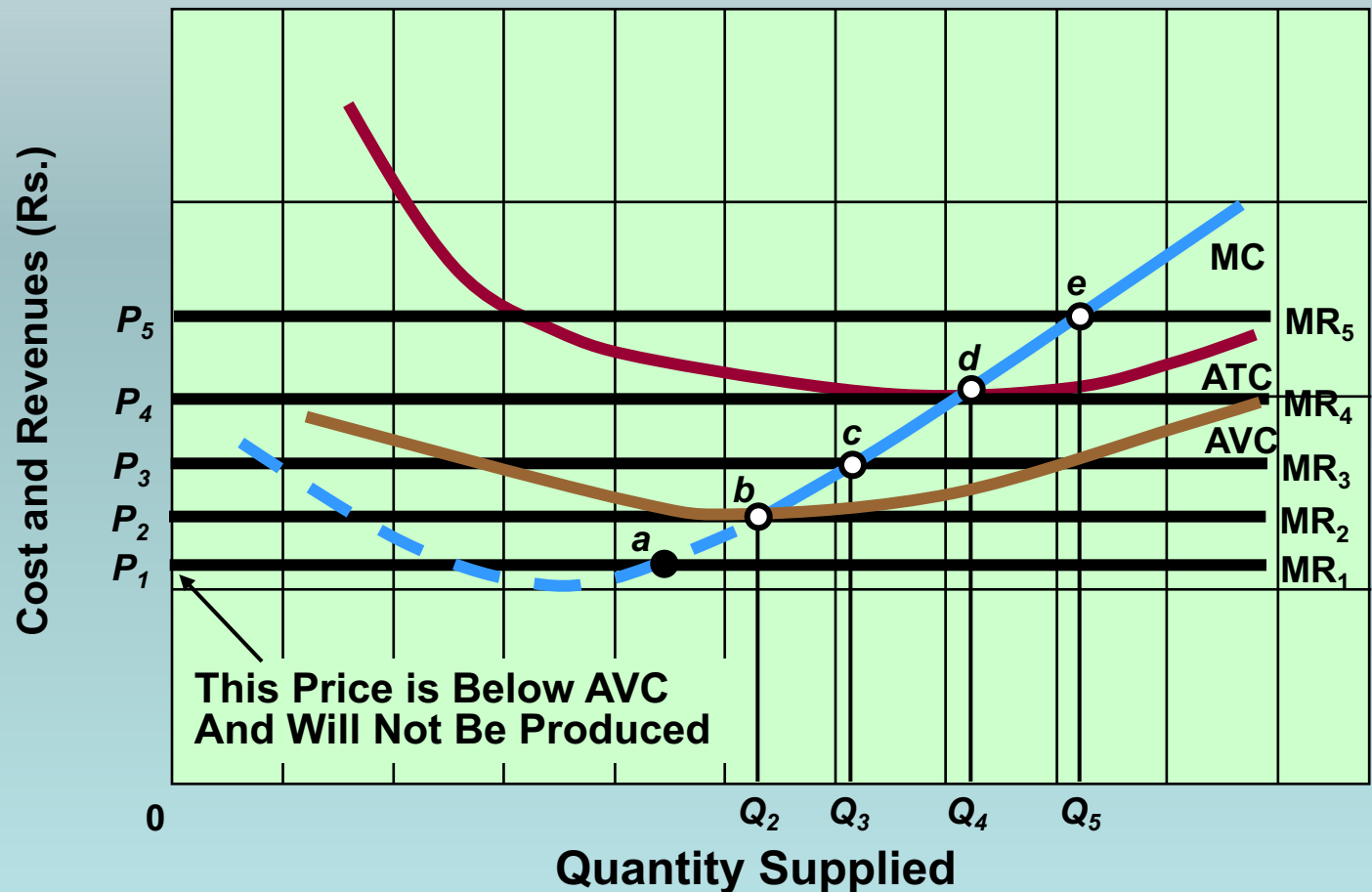
Supply Schedule of a Competitive Firm

Price	Quantity Supplied	Maximum Profit (+) or Minimum Loss (-)
Rs.151	10	Rs.+480
131	9	+299
111	8	+138
91	7	-3
81	6	-64
71	0	-100
61	0	-100

The schedule shows the quantity a firm will produce at a variety of prices

Short-Run Supply Curve

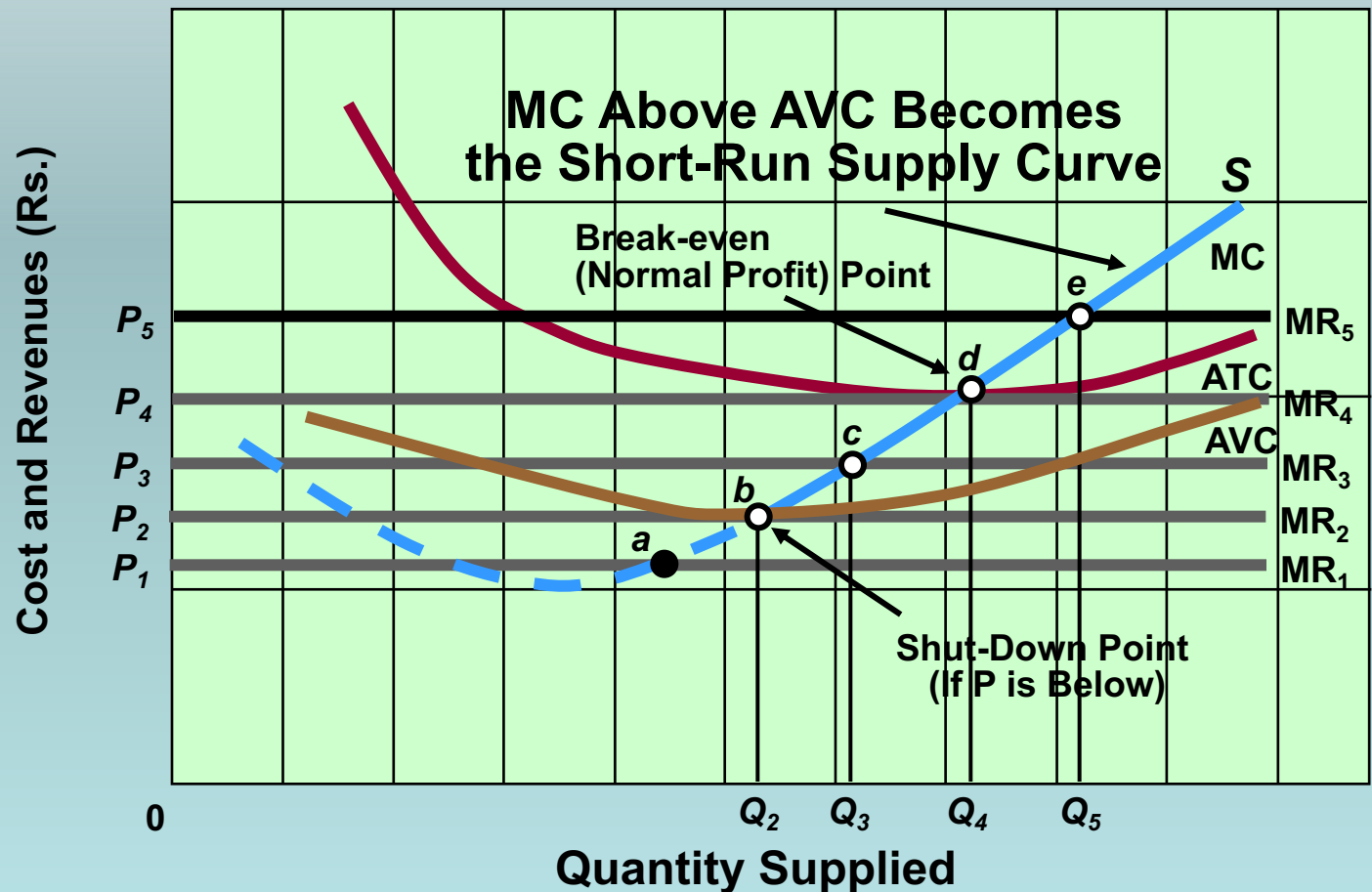
Firms produce where $MR=MC$



Short-Run Supply Curve

Firms produce where $MR=MC$

Examine the MC for the Competitive Firm

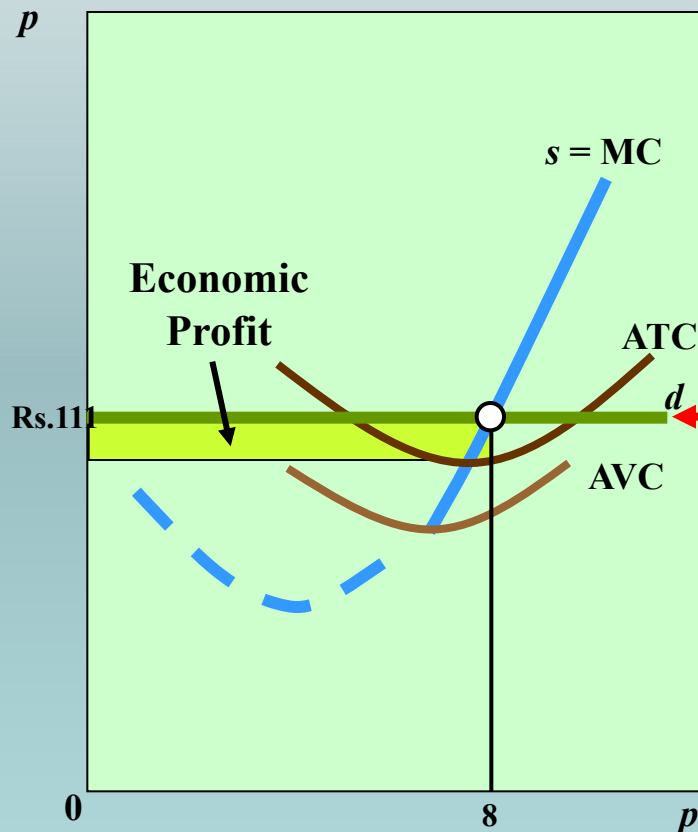


Firm and Industry Supply

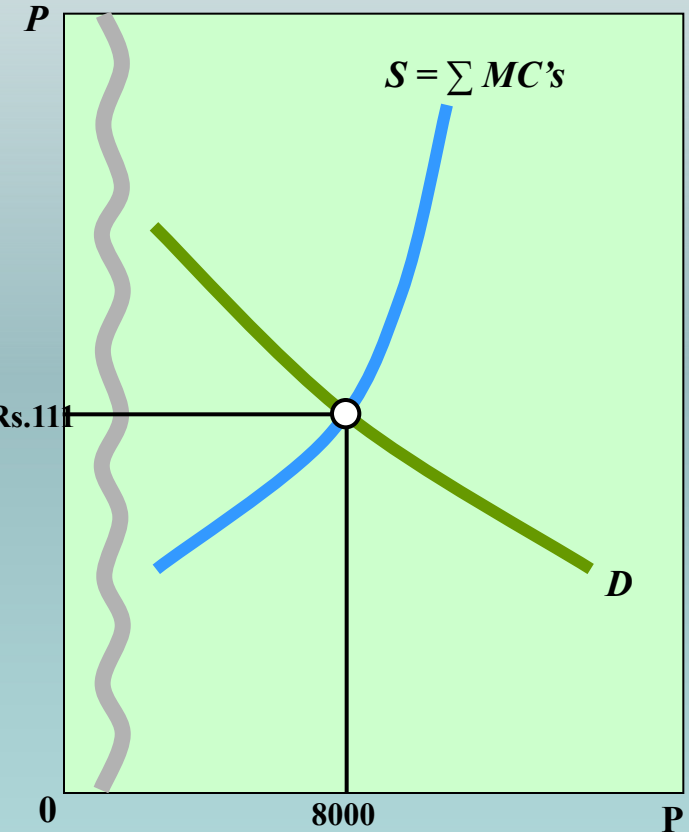
- Changes in firm supply
 - Shifts in marginal cost
 - Input price or technology
- The industry (total) supply curve
 - Sum of individual supply
- Industry supply and demand
 - Determine market price

Firm and Industry Supply

Single Firm



Industry



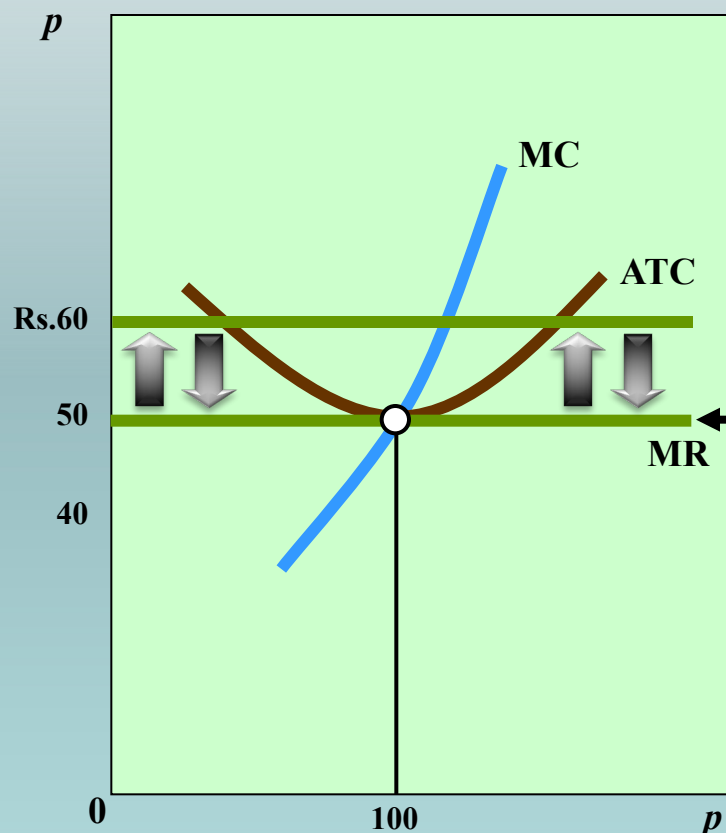
Competitive firm must take the price that is Established by industry supply and demand

Long Run Profit Maximization

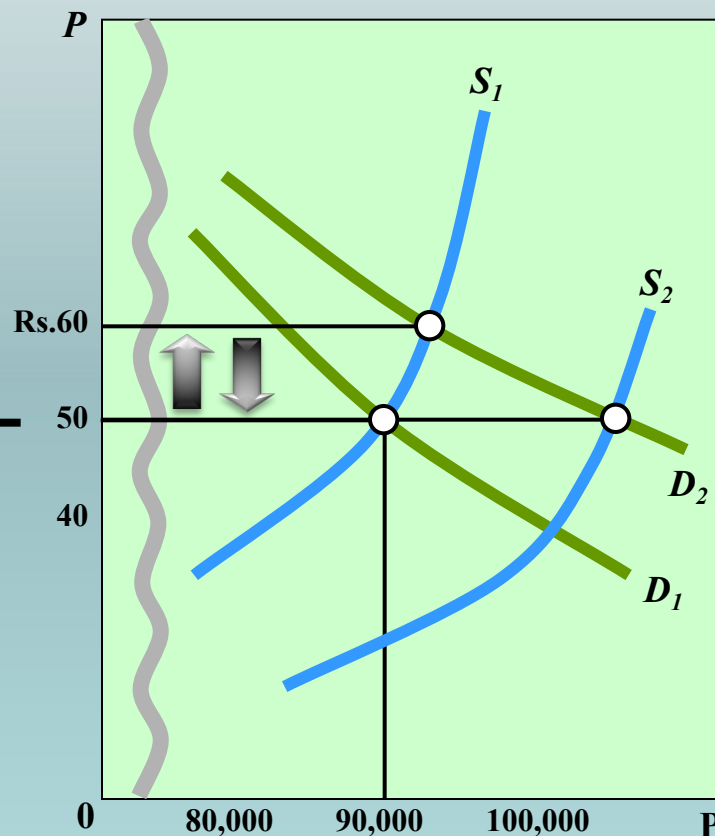
- Assumptions
 - Entry and exit only
 - Identical costs
 - Constant-cost industry
- Goal of the analysis
 - In the long run, $P = \min ATC$
 - Entry eliminates profits
 - Exit eliminates losses

Entry Eliminates Profits

Single Firm

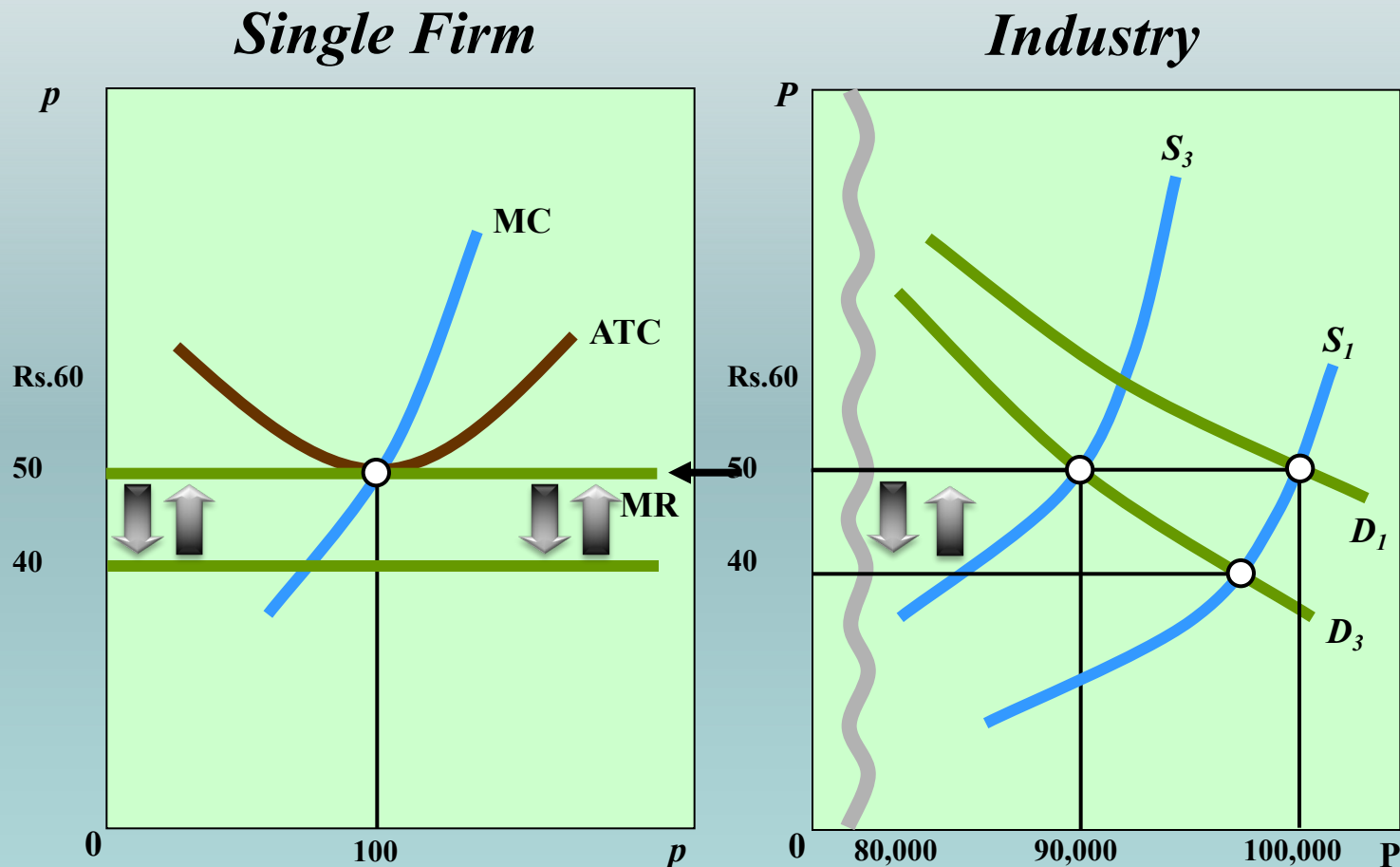


Industry



An increase in demand temporarily raises price. Higher prices draw in new competitors. Increased supply returns price to equilibrium

Exit Eliminates Losses



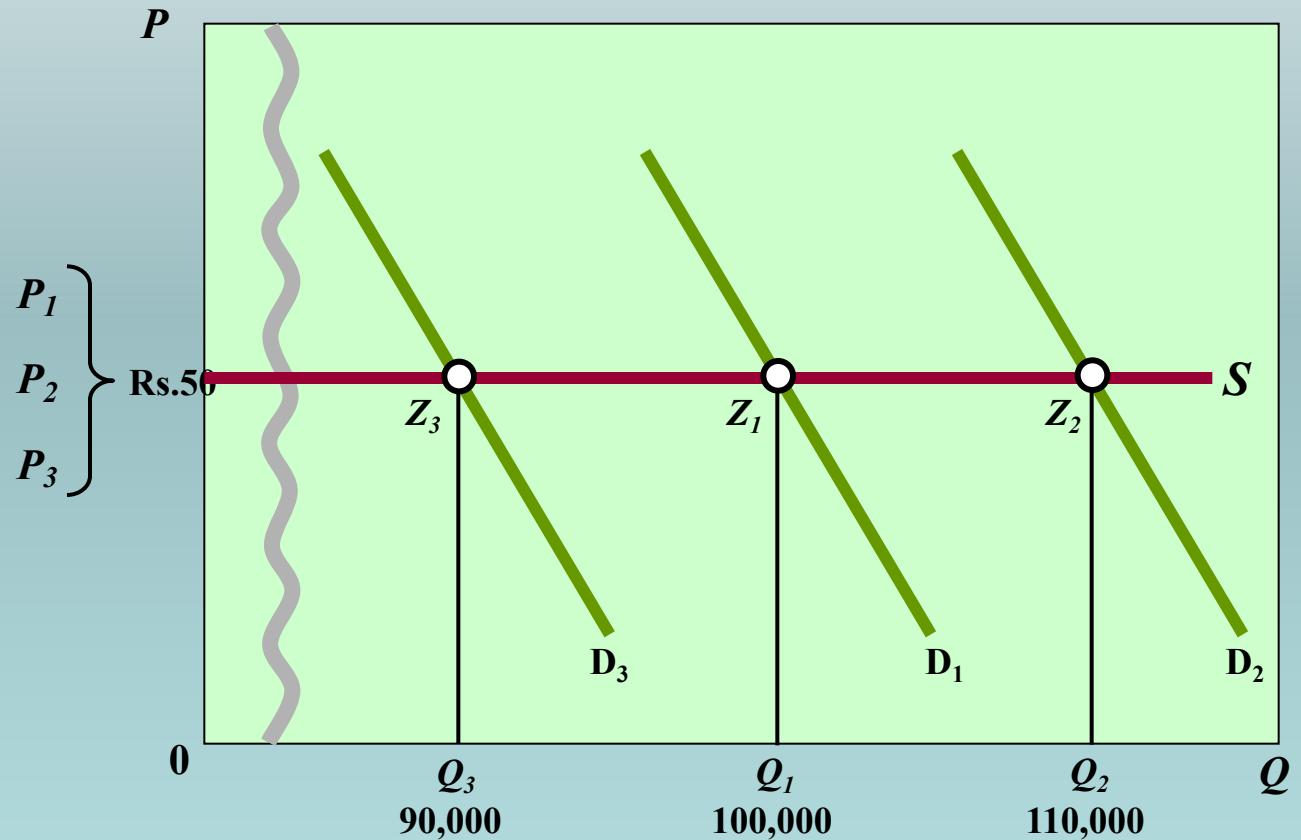
A decrease in demand temporarily lowers price. Lower prices drive away some competitors. Decreased supply returns price to equilibrium

Long Run Supply

- Constant cost industry
 - Entry/exit does not affect LR ATC
 - Constant resource price
 - Special case
- Increasing cost industry
 - Most industries
 - LR ATC increases with expansion
 - Specialized resources
- Decreasing cost industry

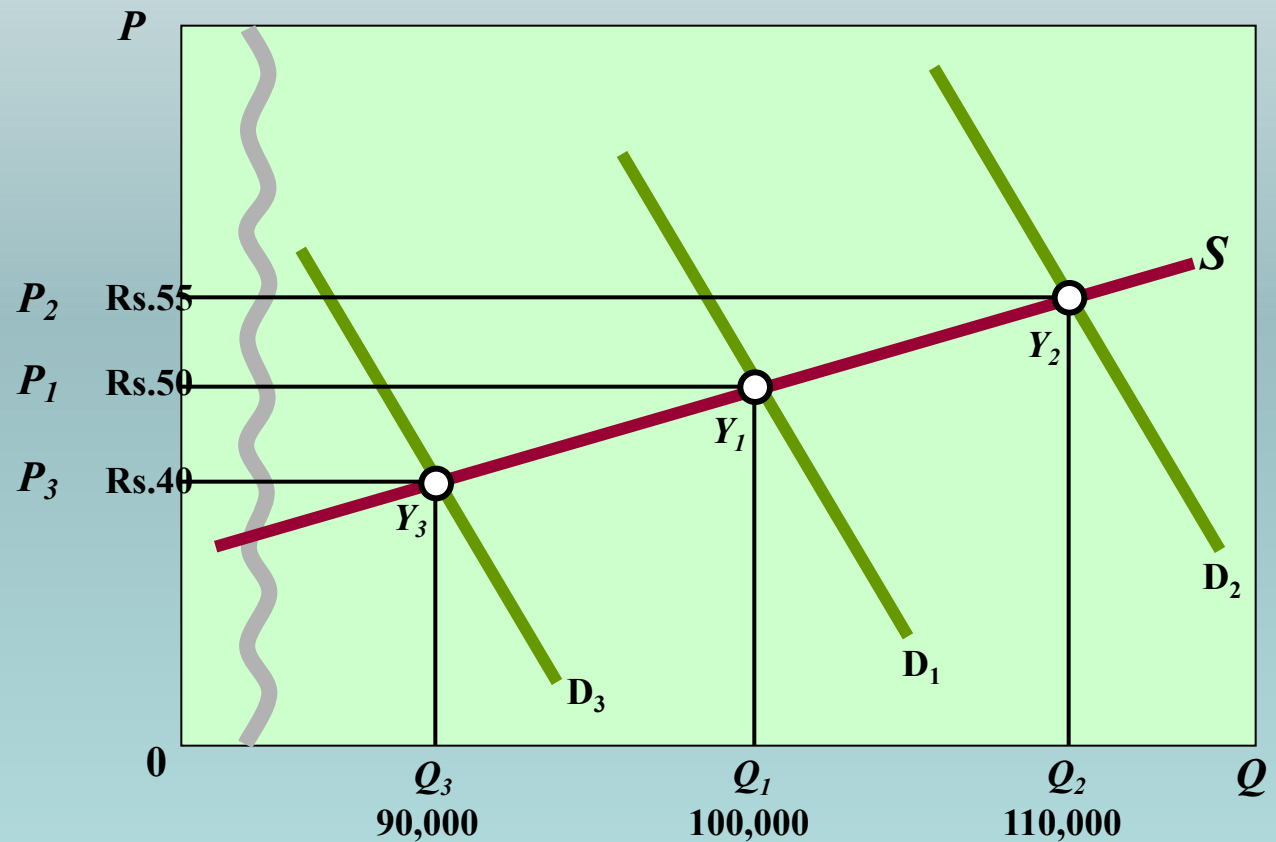
Long-Run Supply Curve

Constant-Cost Industry



Long-Run Supply Curve

Increasing-Cost Industry



How would a decreasing-cost industry look?

Pure Competition and Efficiency

- Productive efficiency

$$P = \text{minimum ATC}$$

- Allocative efficiency

$$P = MC$$

- Maximum consumer and producer surplus
- Dynamic adjustments
- “Invisible Hand” revisited

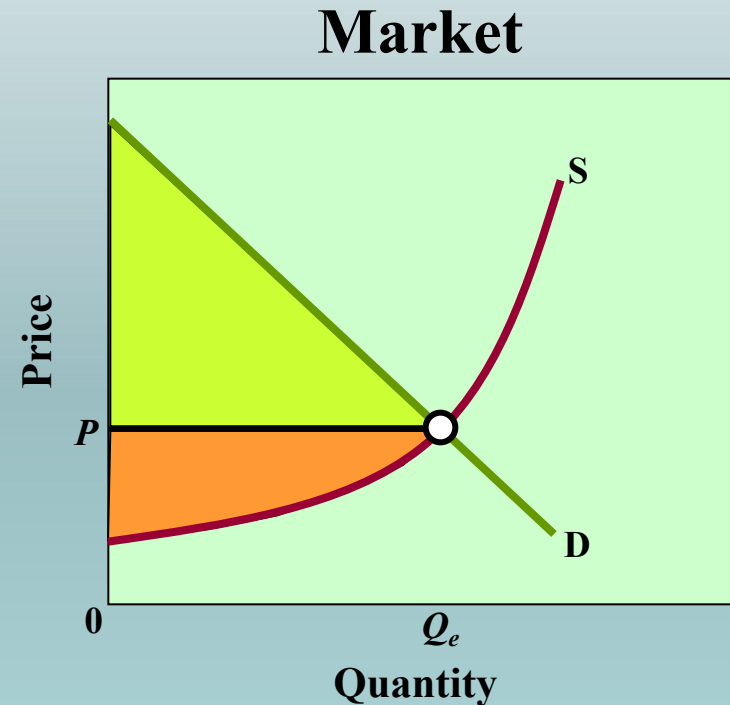
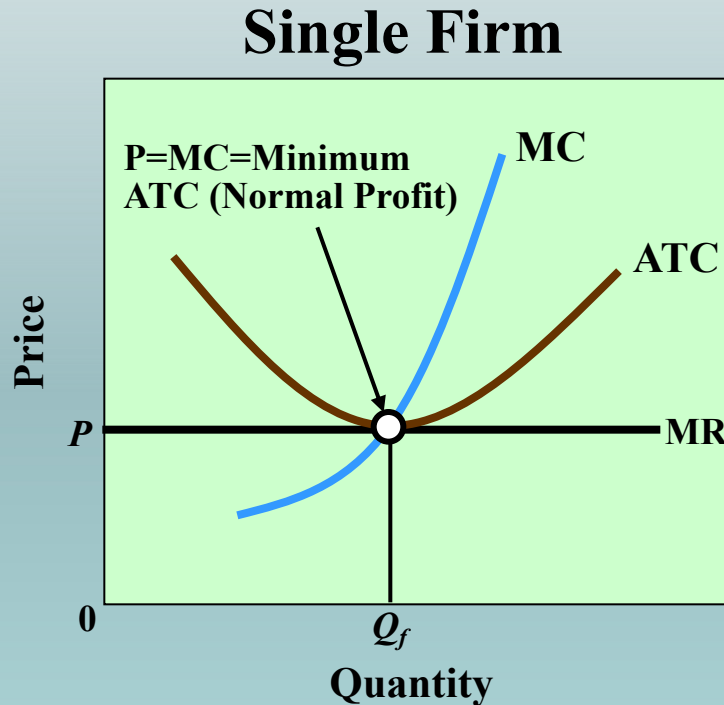
Invisible Hand

- The invisible hand is a symbol for the unseen forces that move the **free market economy**.
- Through individual self-interest and freedom of production as well as consumption, the best interest of society, as a whole, are fulfilled.
- The constant relationship of individual pressures on market supply and demand causes the natural movement of prices and the flow of trade.

Invisible Hand

- The invisible hand is part of *laissez-faire*, approach to the market.
- In other words, the approach holds that the market will find its equilibrium without government or other interventions forcing it into unnatural patterns.

Long-Run Equilibrium



Productive Efficiency: Price = minimum ATC

Allocate Efficiency: Price = MC Pure competition has both in its long-run equilibrium