

What are Economies of Scale?

Worksheet

Economies of scale describe how average costs fall as production volume rises. Fixed costs (factories, machinery, administration) spread across more units, and firms gain negotiating power with suppliers, improving profitability.

Questions

1. Which is NOT a source of economies of scale?
 - A) Fixed cost spreading
 - B) Bulk discounts from suppliers
 - C) Worker specialization
 - D) Increased management complexity
2. A firm's AC at $Q=100$ is 50; at $Q=1000$ it's 30. This indicates...
 - A) Diseconomies of scale
 - B) Economies of scale
 - C) Constant returns to scale
 - D) No relationship
3. Minimum Efficient Scale (MES) is reached when...
 - A) AC is minimized
 - B) Marginal cost equals average cost
 - C) Output is maximized
 - D) Revenue is maximized
4. For airlines, a major source of economies of scale is...
 - A) Pilot salaries rise
 - B) Larger planes reduce per-seat cost
 - C) Fuel prices increase
 - D) Maintenance becomes harder
5. A startup produces 100 units with $AC = 50/\text{unit}$ (includes 1000 fixed cost). If it scales to 1000 units and fixed cost stays \$1000, what is new AC?
6. Netflix: early production costs for streaming platform are high (servers, licensing). As subscribers grow 10 $\times$, explain why AC falls.
7. A car manufacturer's AC at 10,000 units/year is 25,000. At 100,000 units, AC is 15,000. What percentage decrease?
8. Define: What are economies of scale?
9. Define: Why do large firms have lower per-unit costs?
10. Define: What is the difference between economies and diseconomies of scale?

Answer Key

1. D) Increased management complexity — Increased management complexity is a DISECONOMY (negative effect on very large firms).
2. B) Economies of scale — AC fell as output rose — textbook economies of scale.
3. A) AC is minimized — MES is where AC reaches its lowest point — further scale doesn't help (diseconomies start).
4. B) Larger planes reduce per-seat cost — Large aircraft spread fixed costs (depreciation, crew) over many seats → lower per-seat cost.
5. Old: $TC = 100 \times 50 = 5000$. Fixed = 1000, so Variable = 4000 → 40 per unit. New: Fixed = 1000, Variable = $40 \times 1000 = 40,000$, so $TC = 41,000$ $AC = 41,000 / 1000 = \$41/\text{unit}$ (AC drops due to fixed cost spread).
6. Fixed costs (servers, CDN, licensing treaties) don't scale linearly. New subscribers add marginal cost (bandwidth) but share the same infrastructure. More subscribers → same \$1B server cost spread over 10× users → AC halves.
7. $AC \text{ decrease} = 25,000 - 15,000 = \$10,000$ Percent = $(10,000 / 25,000) \times 100 = 40\%$ reduction
8. Situations where average cost falls as production volume increases.
9. Fixed costs (factories, admin) spread across more units; bulk buying power; specialized machinery and labor.
10. Economies: AC falls (0→X). Diseconomies: AC rises (→very large); coordination and management overhead grow.

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