



Production, Costs, and Industry Structure

Antitrust
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Thoughts on POE Ch. 7

- This chapter is more mathy than we need. What we really care about *conceptual understanding*.
- Even then, if you pack away 100% of the material here, you overlearning the econ for purposes of this course.
- BUT this chapter is very helpful because ...
- It shows you how to think like a business manager, which is helpful for antitrust analysis.
- It gives us some reasons to see why horizontal combinations (including mergers, oligopoly, and even monopoly) can be efficient (i.e., “good”).
 - And this is very important, because antitrust law (at least in the prevailing Chicago School mode) doesn’t want to make things *less* efficient!
- It’s foundational for understanding the economics of monopolies and cartels, which comes in Chapter 9.

Important Big Conceptual Ideas

- The “theory of the firm”
- Accounting profits are different from economic profits
- Sunk costs and the sunk cost fallacy
- Thinking of profits as costs
- Economies of scale
- Law of diminishing marginal product
- Things look different in the short run and long run
- Different industries have different efficient orderings of size and number of firms

The Theory of the Firm

- How firms behave
- Why they decide to do what they do
- What price they should charge
- What level of output they should choose to produce at
- Whether they should enter a line of business
- Whether they should exit a line of business
- Etc. ...

(See POE^{2d ed.} p. 156)

Accounting Profits are Different from Economic Profits

- Accounting profits are total revenue minus out-of-pocket costs (“explicit costs”).
- Economic profits are total revenue minus explicit costs and opportunity costs (“implicit costs”).
- If I rent a house to Alice for \$1,000 a month, and my mortgage payment, insurance, and maintenance are \$950, I made an accounting profit of \$50.
- But if I could have rented to Betina for \$2,000 a month, then the decision to rent to Alice instead of Betina was an economic loss!

Sunk Costs and the Sunk Costs Fallacy

- Money you’ve already spent is a “sunk cost.”
- Business managers need to make decisions about what to do next—not based on what would have been good to do back in the past.
- So business managers must ignore sunk costs.
- Fixed costs are, for the most part, sunk costs. (This not necessarily true in the real world, but with this microeconomic theory we are doing, there’s generally an assumed equivalence between sunk costs and fixed costs.) (See POE^{2d ed.} p. 170.)
- The Sunk Costs Fallacy is making an irrational decision based on sunk costs.

Thinking of Profits as Costs

- What goes into a seller's price?
- If a seller is pricing based on cost ("cost-based pricing"), then the seller has to include the cost of supplies, space, utilities, advertising, labor, and some reasonable profit—because there has to be some reason the seller is in this business!
- If the seller (i.e., the entrepreneur, corporation, shareholders, etc.) didn't make a profit, they would invest their money and time elsewhere.
- We say a perfectly competitive market drives the price down to the cost of production. This includes profit as a cost. There's got to be enough of an incentive that proprietors/companies/entrepreneurs are tying up their money/effort/time in this venture instead of something else.

(See POE^{2d} ed. p. 165.)

Economies of Scale

- Economy of scale means that as production output increases, average cost (cost per unit) goes down. (See POE^{2d} ed. 174.)
- This happens sometimes in the real world, and sometimes it doesn't.
- A good example of economy of scale is semiconductor chip manufacturing over the long run.

Law of Diminishing Marginal Product

- As you add more workers, or more machines, or more land – more of any kind of human or physical capital – then marginal production initially increases, but it tends to increase by less and less, and at some point the effect becomes negligible and may even be negative.
(See POE^{2d} ed. 162.)

Short Run Production Function for Trees

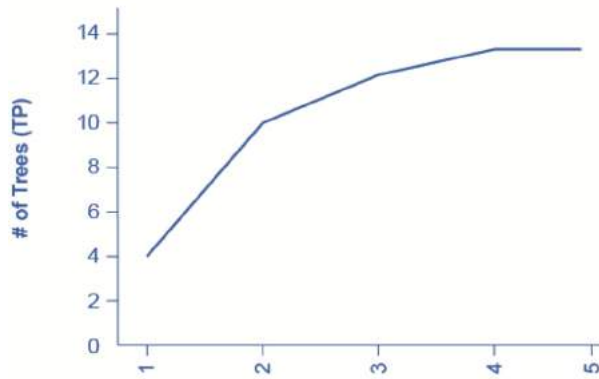


- The top graph shows the short run total product for trees.
- As the number of lumberjacks increase, the output also increases, until 5 lumberjacks are reached.

- The bottom graph shows that as workers are added, the MP increases at first, but sooner or later additional workers will have decreasing marginal product.

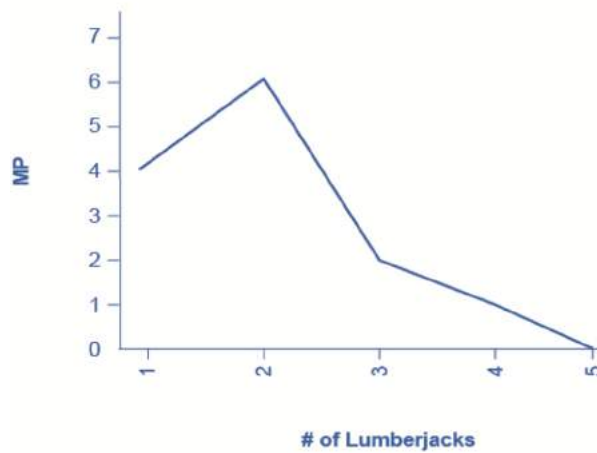
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Short Run Total Product for Trees



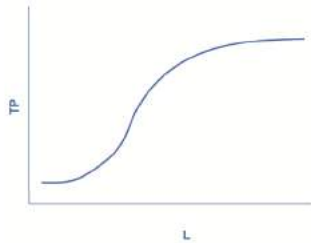
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Marginal Product for Trees

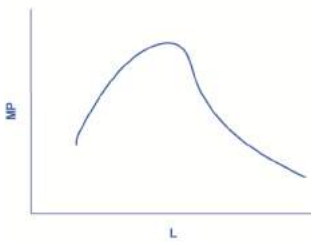


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General Case of Total Product and Marginal Product Curves.

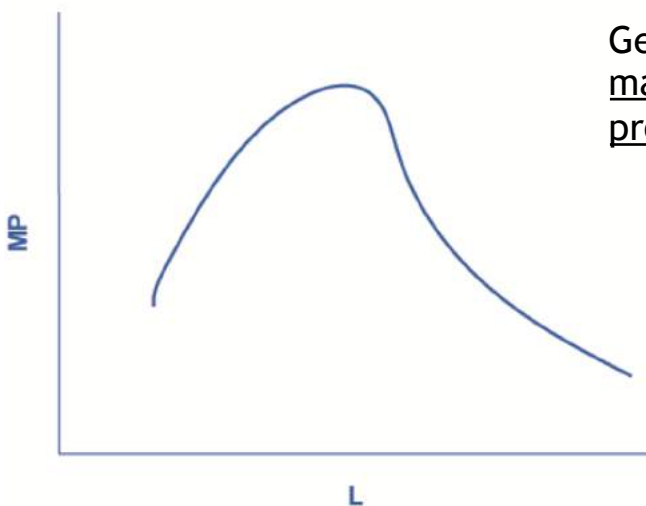


General case of total product curve.



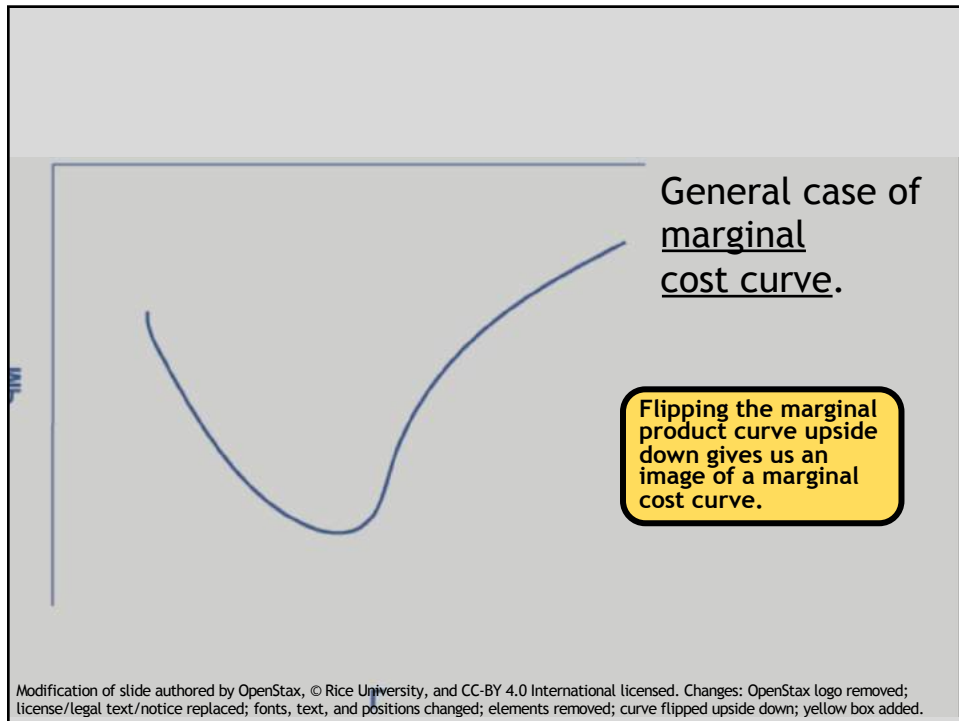
General case of marginal product curve.

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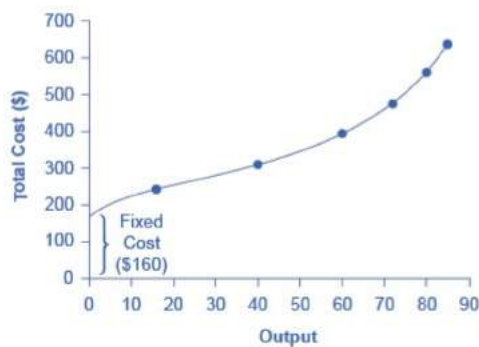


General case of
marginal
product curve.

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How Output Affects Total Costs

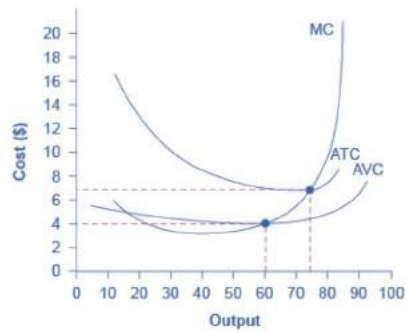


- At zero production, the fixed costs of \$160 are still present.
- As production increases, variable costs are added to fixed costs, and the total cost is the sum of the two.

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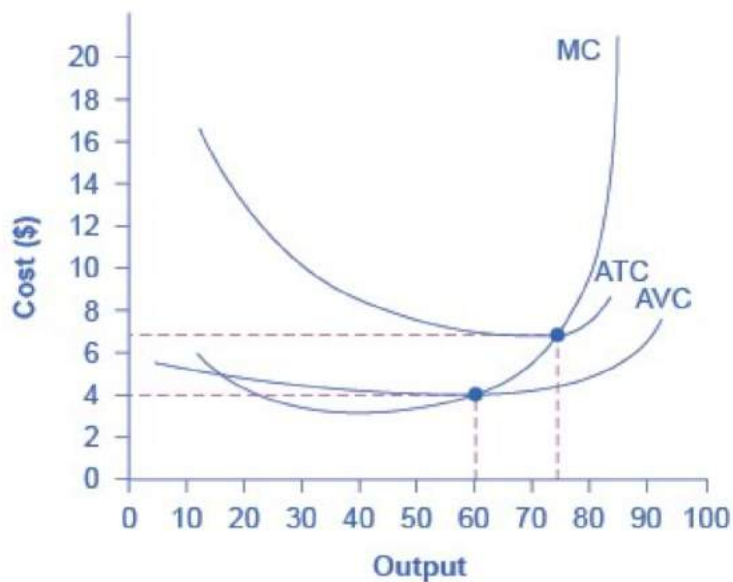
Cost curves

- Average total cost (ATC)
 - Typically U-shaped
- Average variable cost (AVC)
 - Lies below the average total cost curve and
 - Typically U-shaped or upward-sloping.
- Marginal cost (MC)

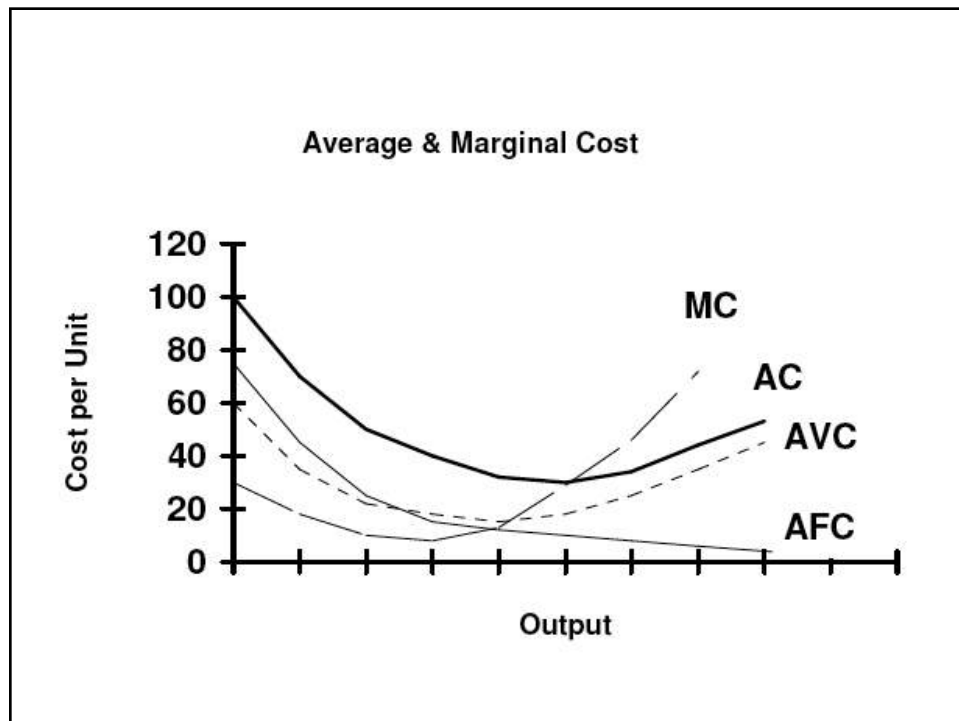


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Cost curves



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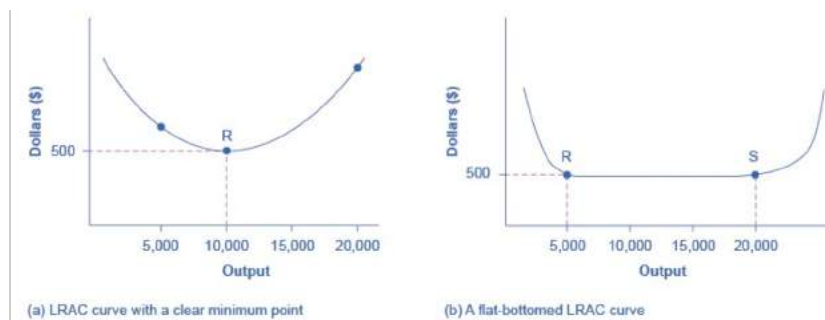
Things Look Different in the Short Run and Long Run

- Over the long run, all costs are variable.
- This is really what defines the “long run”—it’s that time in the future when anything can be changed (long-term contracts, land, new factories, etc.).
- The U-shape of the marginal cost curve and the average total cost curve is a short-run thing. In part, it’s about the decreasing marginal gain from more labor when capital assets are fixed.
- In the long term, capital assets can be increased with labor, so in the long run, average costs can continue to decrease.

Different industries have different efficient orderings of size and number of firms

- If the bottom of the LRAC curve for firms is between 5,000 and 20,000 units, that means firms that produce in that range are the most efficient.
- If the total market is very large in comparison (>1M units), then many firms is efficient.
- If the total market is ~50K units, then a few firms is efficient.
- If the total market is between 5K and 20K, then one firm can produce more efficiently.
- (See POE^{2d} ed. p. 179.)

The LRAC Curve and the Size and Number of Firms (1/2)

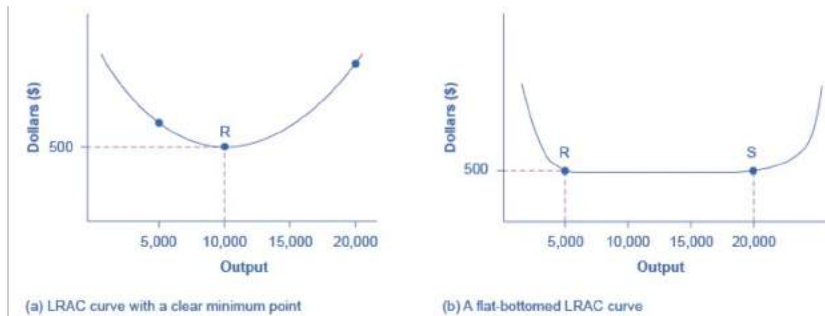


For graph (a):

- Low-cost firms will produce at output level R.
- When the LRAC curve has a clear minimum point, then any firm producing a different quantity will have higher costs.
- In this case, a firm producing at a quantity of 10,000 will produce at a lower average cost than a firm producing 5,000 or 20,000 units.

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The LRAC Curve and the Size and Number of Firms (2/2)



For graph (b):

- Low-cost firms will produce between output levels R and S.
- When the LRAC curve has a flat bottom, then firms producing at any quantity along this flat bottom can compete.
- In this case, any firm producing a quantity between 5,000 and 20,000 can compete effectively,
- Firms producing less than 5,000 or more than 20,000 would face higher average costs and be unable to compete.

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