The UNIVERSITY of VERMONT

Benjamin Fenster
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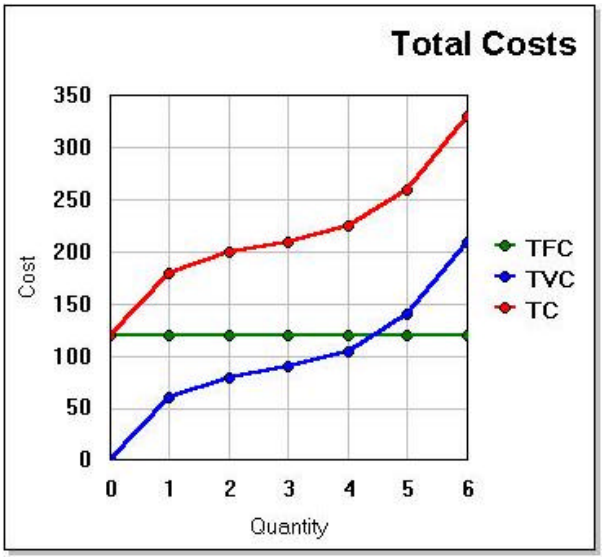
Notes – Module 5

Costs and Production

I. Profit
   a. Normal Profit
      i. The "profit" a firm makes to cover its costs exactly, including the cost of retaining the entrepreneurial services needed to keep it in operation. This is the minimum profit.
      ii. Covers implicit costs. The opportunity costs of running the business – how much more money could be made by doing something else?
   b. Economic Profit
      i. Profit greater than a normal profit.
      ii. Not only covers all economic costs (including implicit costs), but also leaves extra revenue for the entrepreneur.

II. Law of Diminishing Returns
   a. After a certain point, each additional unit of variable resource added to fixed resource yields less output than the previous unit.
   b. Fixed resources are those that can't be bought or sold in the short run – plant capital, medical doctors, et cetera.
   c. Adding more variable resources in the short run will increase returns, but in decreasing amounts.

III. Production Costs
   a. Fixed Costs
      i. These costs cannot be changed in the short-run.
      ii. Interest payments to investors, building and equipment maintenance, etc.
      iii. Same amount, regardless of the amount produced (even if *nothing* is produced).
   b. Variable Costs
      i. Costs associated with actual production. The cost will increase (but by a different amount) as more output is produced.
      ii. Because MR decreases eventually, MC will *increase* eventually (at the same time and the same rate).
   c. Total Cost. The sum of fixed and variable costs for any quantity of output.
   d.



IV. Average / Marginal Costs

a. AFC. Fixed costs per unit produced. Because fixed costs are the same regardless of output, AFC will decrease as more units are produced – the same amount is being spread over more output.

b. AVC. Variable costs per unit produced. AVC will decrease at first as limited cost increases are spread over more output, but will increase as the law of diminishing returns takes effect.

c. ATC is the sum of AFC and AVC (or TC / Q).

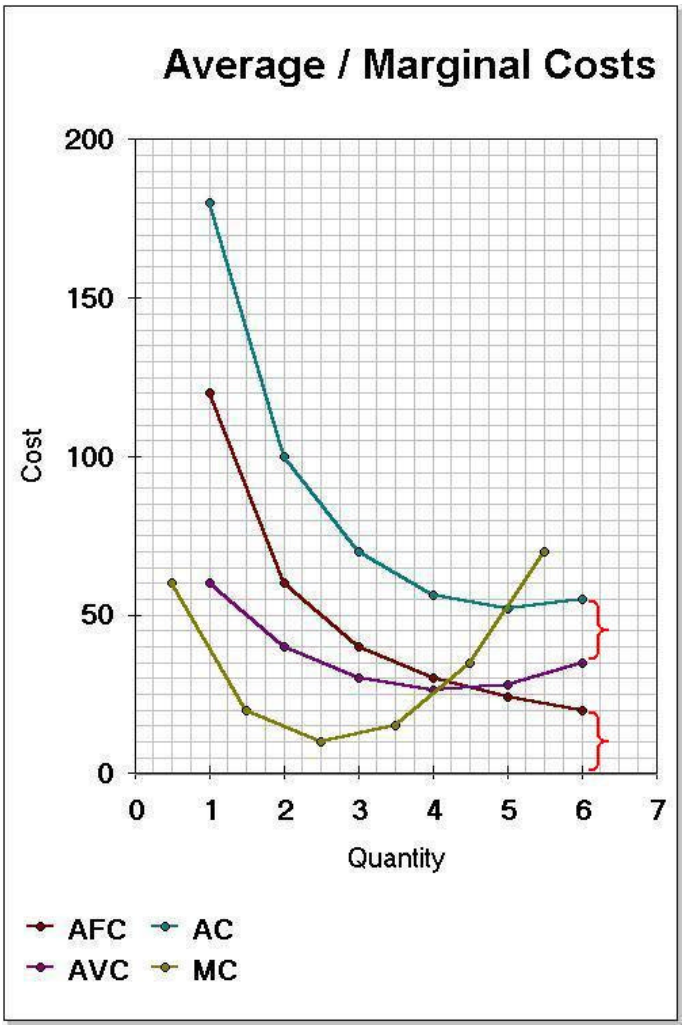
d. MC is the cost added by adding a single unit of output.

   i. See the law of diminishing returns.

   ii. MC might decrease at first, but will eventually increase.

   iii. MC is plotted "on the half." It's the cost change *between* units of output, so it's plotted between units.

e.



V. Long-Run

a. ATC

   i. A firm should switch to a bigger plant before it starts producing in the upward sloping portion of its ATC curve.

   ii. The new plant will have a new ATC curve, somewhere to the right of the first – higher quantities can be produced at similar costs.

iii. The long-run ATC curve is composed of the downward-sloping portions of short-run ATC curves and results in another “dish” shaped curve, but over a much larger range of output.

b. Economies and Diseconomies of Scale
    i. Economies of Scale
        1. Realized as the firm’s long-run ATC slopes down. Bigger plants yield lower and lower costs per unit of output.
        2. Labor specialization. Give each employee a specialized task, which (s)he can become adept at.
        3. Managerial specialization. Managers can use their talents to the fullest extent, managing the maximum number of employees and only supervising areas where they have strong ability.
        4. Efficient capital. The most efficient production techniques (robotics and computer automation, for example) can only be utilized by firms able to afford the needed capital.
    ii. Diseconomies of Scale
        1. Realized as the firm begins climbing its long-run ATC.
        2. Managers too far removed from production.
        3. Employees aren’t inspired to do their best work; production needs more management.