Average cost (long run and short run)

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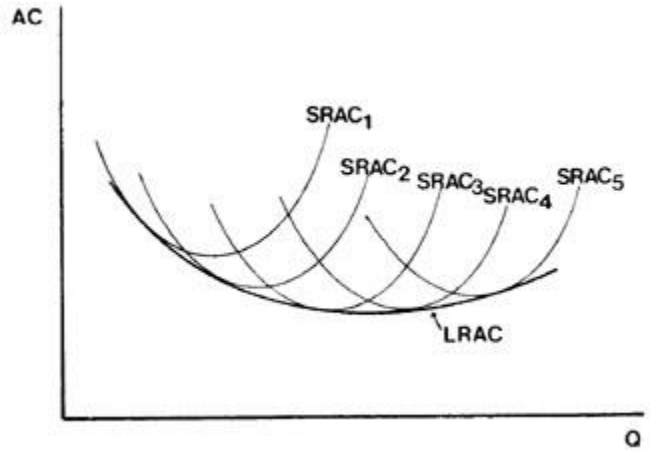
Average Cost (Long & Short Run)

Average cost is equal to total cost divided by the number of units produced (output). Average cost is essentially a way to disperse cost evenly across all units of output. There are multiple variations of average cost, including average fixed cost and average variable cost. These are just extensions of the concepts of fixed and variable costs, using the same equation that is used for average total cost. Average fixed costs are total fixed costs divided by the number of units produced (quantity or output). Similarly, average variable cost is total variable costs divided by output.

Graphically, the average cost curves are u-shaped. The reason for this U is the fact that there are some fixed startup costs that are in place, even if output (quantity) is zero. This accounts for the left half of the U. The right half of the U is caused by diseconomies of scale that occur at higher level of production/output, where the cost is increasing at a higher rate than the output.

Short run costs are assumed to be fixed since there are factors in production that can not be adjusted. The short run average cost curves shows the minimum possible cost of producing at each output level when variable factors are operated in a cost-minimizing fashion (Baye, 2006). Over the long run it is assumed that all costs are variable because managers can change all input levels (Baye, 2006). The LRAC is below all points show for the short run average costs except where the short run uses fixed costs optimally (Baye, 2006).



(Anonymous, 2007)

In the long run there are three situations that may cause average costs to either decline, increase or stay the same. The first situation is economies of scale, this is when a firm has the ability to increase production with lower average costs. This is typically due to the firm's size. The second situation that may lead to a firm experiencing increasing average costs is diseconomies of scale. This may be caused by additional expenses incurred when increasing production levels. If a firm is able to use automation or other technology in the production process, it may experience constant return to scale in the long run, this will result in average costs remaining constant as production levels increase.

Real life examples:

In order to understand average cost curves, one must first understand the relationship between marginal cost and fixed costs. Consider a bakery. There are several fixed costs that do not change based on the number of cakes sold. That is, rent, ovens, etc can all be considered up front, fixed costs. Whether the bakery bakes 100 cakes or zero cakes, they have purchased their oven and are committed to paying their rent. Other costs (ingredients, staff wages, the electric bill) are based on how much the bakery produces. If they increase production, they will certainly have to buy more ingredients and hire more bakers. They have already paid for their oven and paid their rent, so their total fixed costs remain unchanged. Their average fixed costs decrease as production

increases, as these fixed costs are allocated for each unit of output. The bakery can maximize their efficiency by increasing production until their average costs are at their lowest point. At this point, they will pay the least amount on a per-unit basis. If they decrease production, they will be on the left side of the U, and if they increase production, they will be on the right side of the U. They want to operate at the bottom of the U.

Questions:

1. Why are average costs curves "U" shaped?

a. Managers can't find the optimal level of output so it will never be constant

b. Some costs exist even in there is zero output and diseconomies of scale exist

c. They thought about a "W" shaped curve, but the variables won't align

d. It is impossible to use fixed factors optionmally in the short run

Answer b: Even when there are zero outputs there are costs involved such as building, labor, materials, etc. Then once the production startes you must take the total costs and divide them across the total output.

2. What would cause a company to produce on the left side of the U in the short run?

a. They are not producing enough

b. They are producing too much

c. a and b

d. none of the above

Answer a. When a company is producing on the left side they are not producing enough to optimize their costs. They need to increase production until they are producing at the bottom part of the curve (i.e. they are coving all their fixed and variable costs).

3. What happens to AFC as production increases

a. It rises

b. If falls

c. Not enough information

d. Normal goods it would rise, Inferior goods it would fall

Answer b: When production increases we are able to spread the total cost of production over more items, which causes the average cost to fall.

References:

Anonymous (2007). "Micro-Economic Analysis of Production". Retrieved from http://www.fao.org/DOCREP/003/V8490E/v8490e07.htm on April 18, 2007.

Baye, M (2006). "Managerial Economics and Business Strategy". McGraw-Hill Education, New York, NY. 2006.