

The long- run average cost

[Business](#), [Management](#)



The long- run is defined as the time period in which any production factor may be changed. Hence, in the long- run, there is no fixed cost. The Long- run Average Cost (LAC) is the total cost divided by the quantity produced. (Positive) economies of scale occur when the LAC is declining over an output range (up to point A in the diagram). If the LAC is increasing, then diseconomies of scale (or negative economies of scale) are present (after point B in the diagram). A stable LAC necessitates constant economies of scale (output range QAQB in the diagram). DIAGRAM: Draw a usual LAC diagram, with one exception.

The LAC is usually U- shaped curve, i. e. there is a minimum point. However, draw at the minimum point a straight line. Then, make the curve upsloping. The point at the beginning of the straight line should be named 'A' and the point at the end of the line 'B'. Economies of scale imply that a given increase in the amount of production factors will cause a more than proportionate increase in quantity produced. Diseconomies of scale imply the opposite. In the case of constant economies, the change in production factors will lead to an analogous change in quantity produced.

More formally, economies of scale arise if the cost function is subadditive (Tirole, 1990). Many small firms find that they need equipment but are unable to make maximum use of it. For instance, a small farmer may use a tractor on average only 3 days a week. If he were able to take on more work he might be able to use it 5 days a week. The total cost of the tractor is the same whether used for 3 days or 5, days a week (apart from possible depreciation) but the average cost per job done will be lower the more it is used. This is an example of an indivisibility.

Greater efficiency may be achieved in the sense that more output can be gained with the same number of employees. For example, three accountants may be needed whether a firm has 50 or 80 employees. Furthermore, some expenditures become rational only if a firm has or plans to achieve a certain size, for example R&D. Similarly, a large firm may economise on transportation, advertisement('spreading overheads', 'marketing economies'). Productive efficiency is said to exist when production takes place at lowest average cost.

The output range over which average costs are at a minimum is said to be the optimal level of production. The output level at which lowest cost production starts is called the minimum efficient scale (MES) of production (point A in diagram). External and internal economies of scale The economies of scale discussed so far in this unit have been internal economies of scale. Internal economies arise because of the growth in output of the firm. External economies of scale arise when there is a growth in the size of the industry in which the firm operates¹.

For instance, the growth of a particular industry in an area might lead to the construction of a better local road network, which in turn reduces costs to individual firms. Or a firm might experience lower training costs because other firms are training workers that it can then poach. The government might assist with export contracts for a large industry but not a small industry. Positive external economies of scale will shift the LAC curve of an individual firm downwards. External diseconomies of scale

These will shift the LAC curve of individual firms in the industry upwards. They occur when an industry expands quickly. Individual firms are then forced to compete with each other and bid up the prices of factor inputs like wages. X- inefficiency Organisational slack or X- inefficiency were terms by Leibenstein to describe the inefficiency arising because a firm fails to minimise its costs of production. Inertia, bureaucracy and waste may be the prime causes of X- inefficiency.

So when a manager receives a Mercedes when she "deserves" an Audi or when an employee effectively works for 6 hours instead of 8, then organisational slack is present (in a Greek public firm, 1 out of 4 employees was found to be absent per day, due to 'legitimate reasons'). In addition, different interest groups in the firm might be able to exploit their potential power to their advantage, thus increasing organisational slack (e. g. departments may compete on budget grounds).

LAC and the output decision A rational firm will opt to produce at the profit maximising output, i. e. at the point where $MC = MR$. Hence, the LAC is a significant factor that determines the long- run position of the firm. For instance, if the price is lower than LAC, the firm makes losses and it should leave the sector. However, one should note that the entrepreneur must take into consideration both demand and cost factors. LAC may be highly important but it is still one edge of the scissor; the other being market demand. For example, a firm will decide to expand production as long as $MC < MR$ (and $P > LAC$), irrespective of the presence of positive or negative scale economies.