CONCEPTS OF COST

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- **Long- run Average Cost Curve:** Long- Run Average cost curve is the long –run total cost divided by the level of output. The Long –Run Average Cost (LAC) is derived from the short – run –average cost curve. Each point on the LAC corresponds to a point on a short- run cost curve (SAC)which is tangent to the LAC at that point. LAC depicts all the least possible average cost for producing all possible levels of output. In the long run, each firm can use different sized plant. The average cost of production with the help of the plant is minimal. Changes in production with demand will change with the size of the plant. Each plant has a short-term average cost curve (SAC). With it we can predict long-run average cost curve(LAC).

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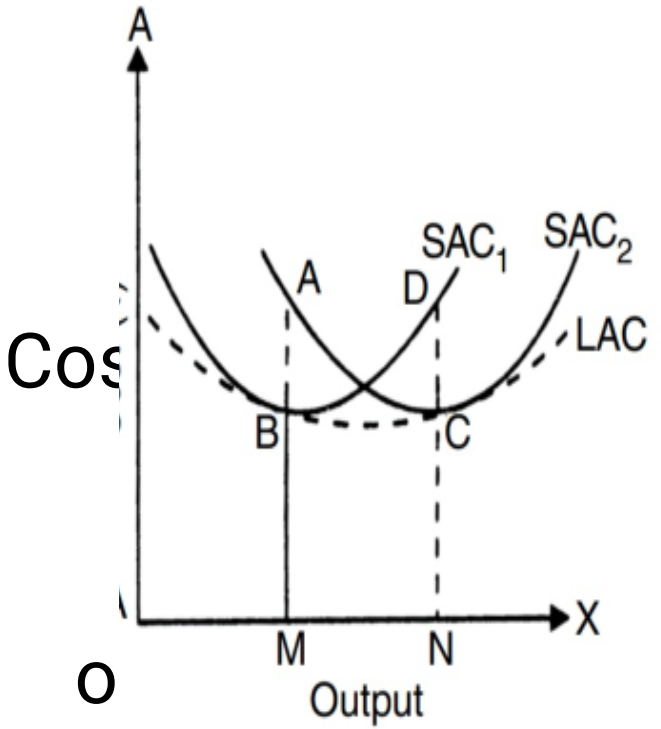
- Suppose a firm can use two types of plants; small plant and big plant . Short-run cost curve of small plant is SAC1 and big plant is SAC2. On various quantities of production both short-run cost curves can be determined with the aid of various quantities of output produced by the plant from which the average cost will be minimal.

- In this figure, There are two plants . Small plant's average cost curve is SAC1 while large plant's average cost curve is SAC2. If the firm wants to produce quantities of OM , The level of output OM is produced at a cost MB with the small plant , while its cost is MA if produced with large plant .firm will select the small plant(MB< MA,) as known from SAC1. But if the firm is to produce more than OM i.e., ON, The level of output ON is produced at a cost ND with the small plant , while its cost is NC if produced with large plant .The firm will use the larger plant.(NC< ND) . If we take the value of the firm's plant has lots of different sizes each level of the minimum cost of the plant will reveal the long term average cost curve (LAC). Therefore, The production will be done by both small plant (SAC1) and large plant (SAC2) OM and ON respectively on the minimum average cost.



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- If we assume that there are a very large number of plants, we obtain a continuous curve, which is the planning LAC curve of the firm. Each point of this curve shows the minimum(optimal) cost for producing the corresponding level of output.The LAC Curve is a locus of points denoting the least cost of producing the corresponding output. It is a planning curve because on the basis of this curve the firm decides what plant to setup in order to produce optimally (at minimum cost) the expected level of output. The firm chooses the short-run plant which allows it to produce the anticipated (in the long-run) output at the least possible cost. In the traditional theory of firm, the LAC Curve is U-shaped and it is often called the 'envelope curve' because it envelopes the SAC Curves. The U shape LAC reflects the law of returns to scale. As per these laws the unit costs of production decreases as plant size increases , due to the economies of scale which the larger plant size make possible. Traditional theory of firm assumes that a plant size is optimal only for a particular level of output beyond the optimal size of plant if it is produced further , then LAC starts upward sloping due to diseconomies of scale in the form of managerial inefficiency.

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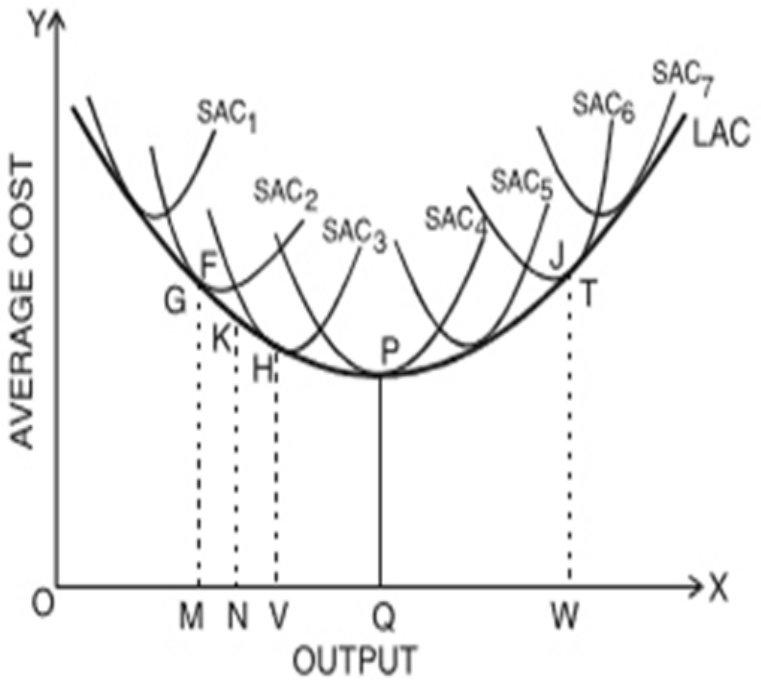
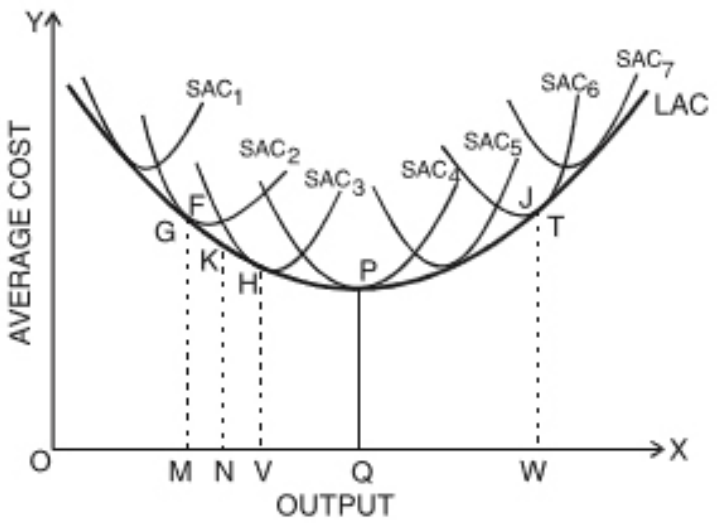
Every point of the LAC curve is a tangent point on some SAC. In this figure, LAC initially is tangent to SAC at its falling part because till Point P , LAC has a negative slope, therefore at point of tangency shape of SAC must also be negative. Similarly when LAC is rising it touches the SAC curves at their rising part since slope of LAC is positive so at point of tangency the slope of SAC must also be positive. Only at the minimum point P of the LAC is the corresponding SAC also at a minimum. Thus at the falling part of the LAC the plants are not worked to full capacity ;to the rising part of the LAC the plants are overworked and only at the minimum point M is the (short- run)plant optimally employed.



From this figure , it is observed that to produce an output OM, the corresponding point on the long run average cost curve is ‘G’. Also, the corresponding SAC is SAC_2. Therefore, the firm operates on SAC_2 at point G. Similarly, the firm chooses different SACs based on its output requirement. It is also possible for the firm to produce the output OM with SAC_3. However, this will lead to a higher cost of production as compared to SAC_2. On the other hand, to produce a higher output OV, the firm requires SAC_3. If the firm uses SAC2 for the same, then it results in higher unit similarity. The long run average cost curve is not tangent to the minimum points of the SACs. For that matter, the long run average cost curve is tangential to the falling portions of the SACs while it is declining and the rising portions of the SACs while it is rising.



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- Therefore, to produce an output less than OQ at the least cost, the firm operates the plant at less than its full capacity or less than its minimum cost of average production. To produce an output larger than OQ at the least cost, the firm operates the plant beyond its optimum capacity. OQ is the optimum point because the output OQ is produced at the minimum point of the long run average cost curve and the corresponding SAC (SAC_4). While other plants are used at less than or more than their full capacity, only SAC_4 is operated at the minimum point.
- To be continued……