CONCEPTS OF COST

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- **LONG-RUN MARGINAL COST:**
- The long-run marginal cost curve can be derived easily from the long-run total cost curve, since the long-run marginal cost at a level of output is given by the slope of the total cost curve at the point corresponding to that level of output.
- Besides, the long-run marginal cost curve can be derived from the long-run average cost curve, because the long-run marginal cost curve is related to the long-run average cost curve in the same way as the short-run marginal cost curve is related to short-run average cost curve , e. i.,it falls and rises faster than the LAC curve and cuts the latter at its minimum point.

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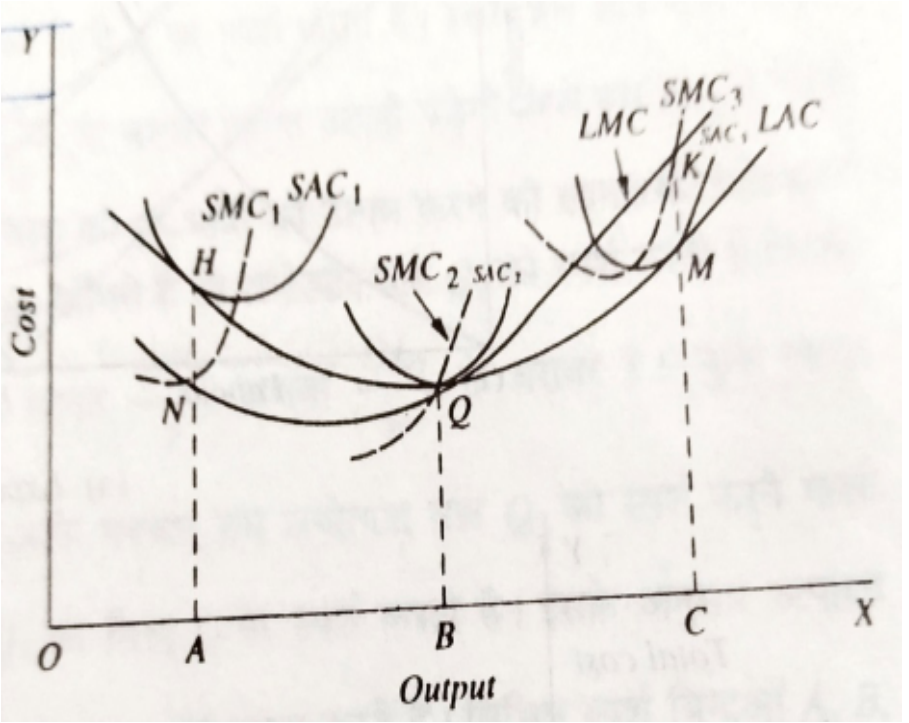
- long-run marginal cost curve can be derived from the long-run average cost curve. Just as the SMC is related to the SAC, similarly the LMC is related to the LAC and, therefore, we can derive the LMC directly from the LAC. In this diagram, there is three plant sizes and the corresponding three SAC and SMC curves. The LAC curve is drawn by enveloping the family of SAC curves. The points of tangency between the SAC and the LAC curves indicate different outputs for different plant sizes.



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- If the firm wants to produce OA output in the long run, it will have to choose the plant size corresponding to SAC1. The LAC curve is tangent to SAC1 at point H. For OA output, the average cost is AH and the corresponding marginal cost is AN .If LAC curve is tangent to SAC1 curve at point H, the corresponding LMC curve will have to be equal to SMC1 curve at point N. The LMC will pass through point **N**. In other words, where LAC is equal to SAC curve (for a given output) the LMC will have to be equal to a given SMC.
- If output OB is to be produced in the long run, it will be done at point Q which is the point of tangency between SAC2 and the LAC. At point Q, the short –run average cost (SAC2) and the short-run marginal cost (SMC2) are equal and, therefore, the LAC for output OB is BQ and the corresponding LMC is also BQ. The LMC curve will, therefore pass through point Q.
- Finally, for output OC , at point M the LAC is tangent to SAC3. For OC output at point K, LMC is passing through SMC3. By connecting points N ,Q and K, we can draw the long-run marginal cost curve.

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- **Relationship between Long- run Average Cost (LAC)and Long- run –marginal cost curve(LMC):**
- Long- run –marginal cost curve(LMC) bears the same relationship to its Average Cost(LAC) Curve which the Short- run – marginal cost curve(SMC) bears to the short- run –average cost curve(SAC) ,e.i. ,
- LAC is the least when LMC = LAC
- LAC curve is falling when LMC < LAC
- LAC curve is rising when LMC > LAC .
- LMC falls and rises faster than the LAC and cuts the latter at its minimum points.

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- **Relationship between LMC and SMC's:**
- When the firm has decided and constructed proper scale of plant for producing a given output , SMC would equal LMC at that output. Suppose the size of plant chosen by firm to produce output OA(in given figure)is SAC1. Since SAC1 is tangential to the LAC curve, SMC is also equal to LMC at this output. This condition holds for other Short –run average and marginal cost curves also. For example, at output OB , the LAC and SAC are equal. For this output , the LMC and SMC are also equal. Similar is the case at output OC.
- To be continued…….

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