Law of Variable Proportions

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Law of Variable Proportions

Law of variable proportions occupies an important place in economic theory. This law examines the production function with one factor variable, keeping the quantities of other factors fixed. In other words, it refers to the input-output relation when output is increased by varying the quantity of one input.

Assumptions of Law of Variable Proportion

1.Constant state of Technology: It is assumed that the state of technology will be constant and with improvements in the technology, the production will improve.

2.Variable Factor Proportions: This assumes that factors of production are variable. The law is not valid, if factors of production are fixed.

3.Homogeneous factor units: This assumes that all the units produced are identical in quality, quantity and price. In other words, the units are homogeneous in nature.

4.Short Run: This assumes that this law is applicable for those systems that are operating for a short term,

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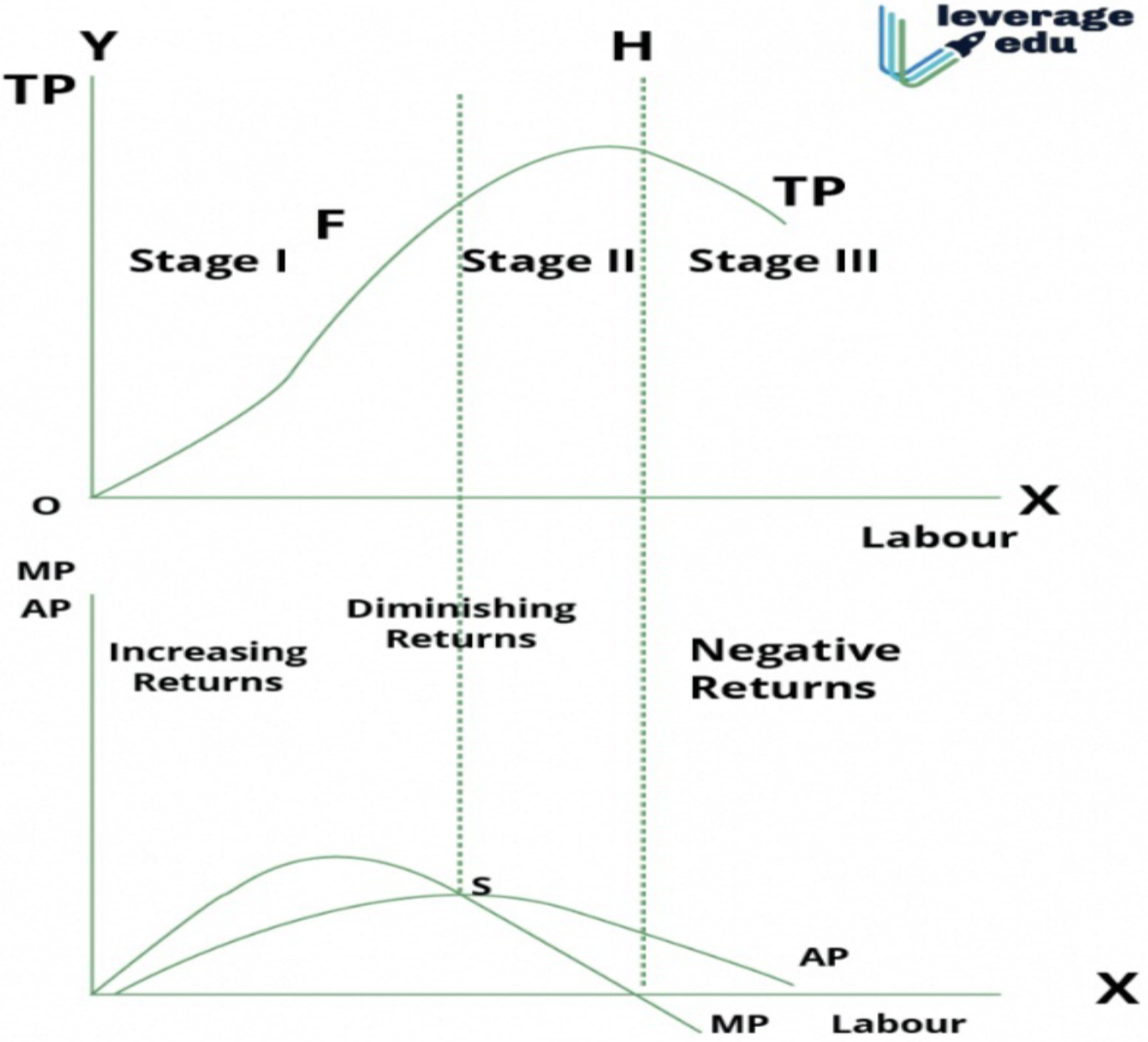
FIRST STAGE OF PRODUCTION

In this stage:

Total product increases at increasing rate as more variable factors are applied with fixed factors.

Average Product also increases at a speed less than Marginal Product.

Marginal Product increases at a speed greater than increase in Average Product



3 Stages of Law of Variable Proportion

- Up to 3 units of labour employed, the TP is rising at an increasing rate (2,6,12). This constitutes Stage 1 of the law, which is the Stage of Increasing Returns. Therefore, during the first stage, the TP curve increases significantly.
- Beyond the 3rd unit of labour, the TP starts rising at a diminishing rate (12,16,18), which means the TP curve rises at a slower rate. This eventually makes the marginal product (MP) starting to fall. Constituting the second stage of the Law of Variable Proportion which is called the Stage of Diminishing Returns.
- After the employment of 6 units of labour, the TP starts to fall, indicating the 3rd stage which is the Stage of Negative Returns. Even after employing 6 units of labour, it fails to yield the marginal product, that is when the MP comes to zero. Eventually, the TP curve starts sloping down and the marginal product goes to negative in the x-axis.

SECOND STAGE OF PRODUCTION

In this stage:
Total product increases at diminishing rate and become maximum or highest.
Both Average Product and Marginal product falls but fall in MP is greater than fall in AP.
MP also reaches the level zero.

THIRD STAGE OF PRODUCTION

In this stage:
Total Product starts to decline.
AP falls but remains positive.
MP becomes negative.