

Production

Law of Variable Proportion

(Law of Diminishing Returns)

Law of Variable Proportion OR Law of Diminishing Returns

■ Assumptions of the law of Variable Proportions

1. The law of variable proportions (or diminishing returns) as stated above holds good under the following conditions:
2. The state of technology is assumed to be given and unchanged. If there is improvement in technology, then marginal and average products may rise instead of diminishing.
3. There must be some inputs whose quantity is kept fixed. It is only in this way that we can alter the factor proportions and know its effects on output.
4. The law is based upon the possibility of varying the proportions in which the various factors can be combined to produce a product. The law does not apply to those cases where the factors are used in fixed proportions to yield a product.

Law of Variable Proportion

OR

Law of Diminishing Returns

- **Three Stages of the Law of Variable Proportions:**
- The behavior of output can be classified in three stages when quantities of some factors is combined with fixed quantities of other factors.
- Can be explained through following diagram and table;

Law of Variable Proportion OR Law of Diminishing Returns

- **Explanation:**
- First consider following table.
- Assume that there is a given fixed amount of land with which more variable factor, labour, is used to produce wheat.
- With a given fixed quantity of land as labour is increased from 1 unit to 7 units, total product increase from 80 quintals to 504 quintals of wheat.
- Beyond the employment of 7 units of labour, total product diminishes.

Law of Variable Proportion

OR

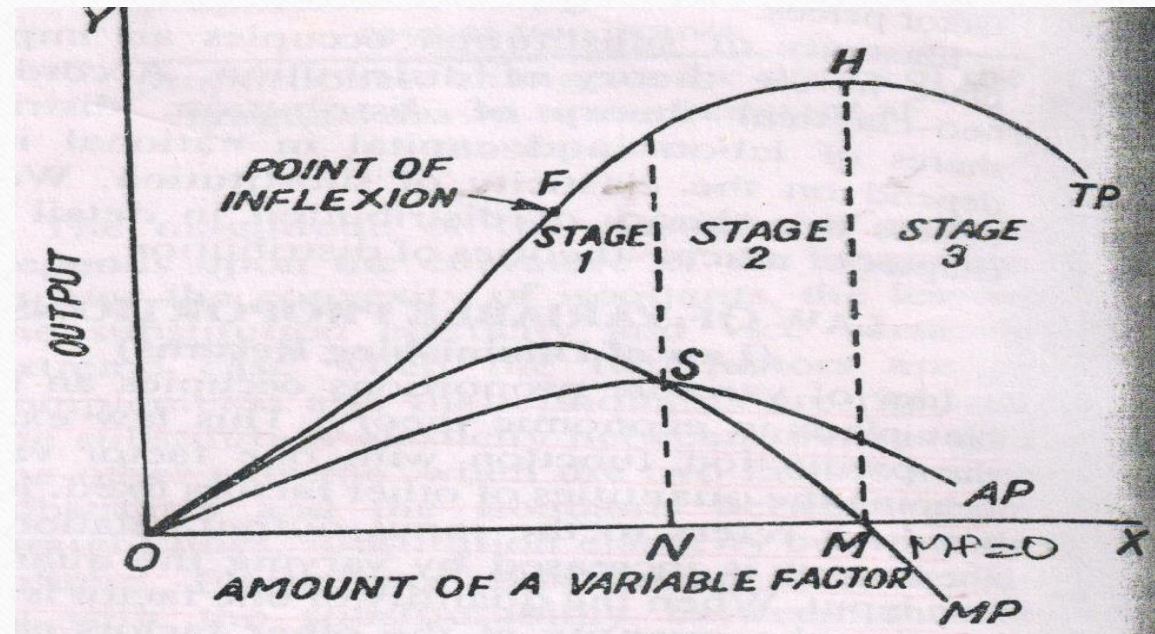
Law of Diminishing Returns

■ Table: Three Stages of Law of Variable Proportions

Units of Labour	Total Product (Quintals)	Marginal Products (Quintals)	Average Products (Quintals)
1	80	80	80
2	170	90	85
3	270	100	90
4	368	98	92
5	430	62	86
6	480	50	80
7	504	24	72
8	504	0	63
9	495	-9	55
10	470	-25	47

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- Diagrammatic Presentation:
- Figure: Three Stages of Law of Variable Proportions



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- Col 3 of table reveals that the marginal product of labour initially increases upto 3 units of labour;
- Beyond the use of three units of labour, it starts diminishing.
- After the use of 8 unit labour, marginal product becomes negative, and hence, total product diminishes.
- As regards to average product of labour, it rises up to the use of fourth unit of labour and beyond that it falls throughout.

To be continued -----