

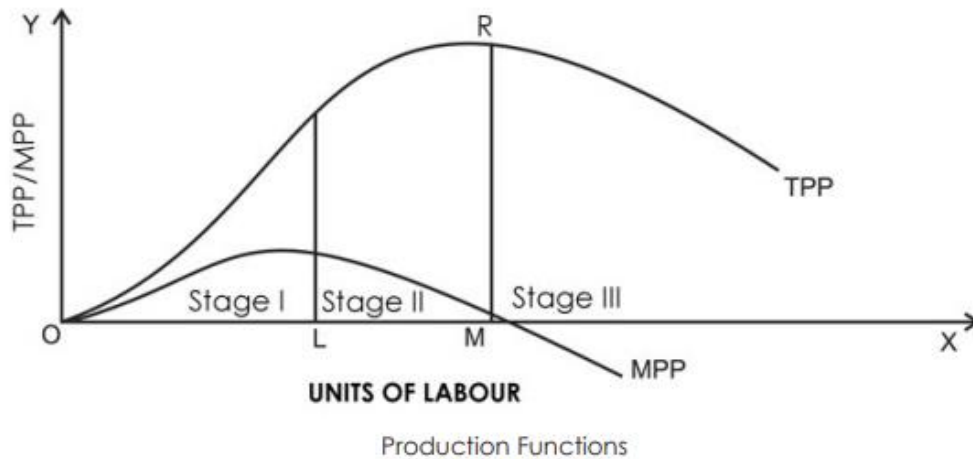
MBA- I semester, paper- Managerial Economics, MB 102, TOPIC- STAGES OF LAW OF VARIABLE PROPORTION.

STAGES OF LAW OF VARIABLE PROPORTION

Fixed Factor : Land (Acres)	Variable Factor: Land (Units)	TPP (Total Physical Product) (Quantity)	MPP (Marginal Physical Product) (Quantity)	
1	0	0	-] Stage I
1	1	2	2	
1	2	6	4	
1	3	12	6] Stage II
1	4	16	4	
1	5	18	2] Stage III
1	6	18	0	
1	7	14	-4	
1	8	8	-6	

The law has three stages as explained below:

1. **Stage I** – The TPP increases at an increasing rate and the MPP increases too. The MPP increases with an increase in the units of the variable factor. Therefore, it is also called the stage of increasing returns. In this example, the Stage I of the law runs up to three units of labour (between the points O and L).
2. **Stage II** – The TPP continues to increase but at a diminishing rate. However, the increase is positive. Further, the MPP decreases with an increase in the number of units of the variable factor. Hence, it is called the stage of diminishing returns. In this example, Stage II runs between four to six units of labour (between the points L and M). This stage reaches a point where TPP is maximum (18 in the above example) and MPP becomes zero (point R).
3. **Stage III** – Now, the TPP starts declining, MPP decreases and becomes negative. Therefore, it is called the stage of negative returns. In this example, Stage III runs between seven to eight units of labour (from the point M onwards).



Significance of the three stages

Stage I

A producer does not operate in Stage I. In this stage, the marginal product increases with an increase in the variable factor.

Therefore, the producer can employ more units of the variable to efficiently utilize the fixed factors. Hence, the producer would prefer to not stop in Stage I but will try to expand further.

Stage III

Producers do not like to operate in Stage III either. In this stage, there is a decline in total product and the marginal product becomes negative.

In order to increase the output, producers reduce the amount of variable factor. However, in Stage III, he incurs higher costs and also gets lesser revenue thereby getting reduced profits.

Stage II

Any rational producer avoids the first as well as third stages of production. Therefore, producers prefer Stage II – the stage of diminishing returns. This stage is the most relevant stage of operation for a producer according to the law of variable proportions.