

# **LAW OF VARIABLE PROPORTION**

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# WHAT IS THE LAW?

- The nature of rate of change in output due to change in variable factors
- Change in only one variable factor

# STATEMENT OF LAW

- As we increase quantity of only one input keeping other inputs fixed, total product initially increases at an increasing rate, then at a diminishing rate and finally at a negative rate

# ASSUMPTIONS

- The state of technology is assumed to be given and unchanged
- There must be some inputs whose quantity is kept fixed
- The law applies to the field of production only
- All variable factors are equally efficient

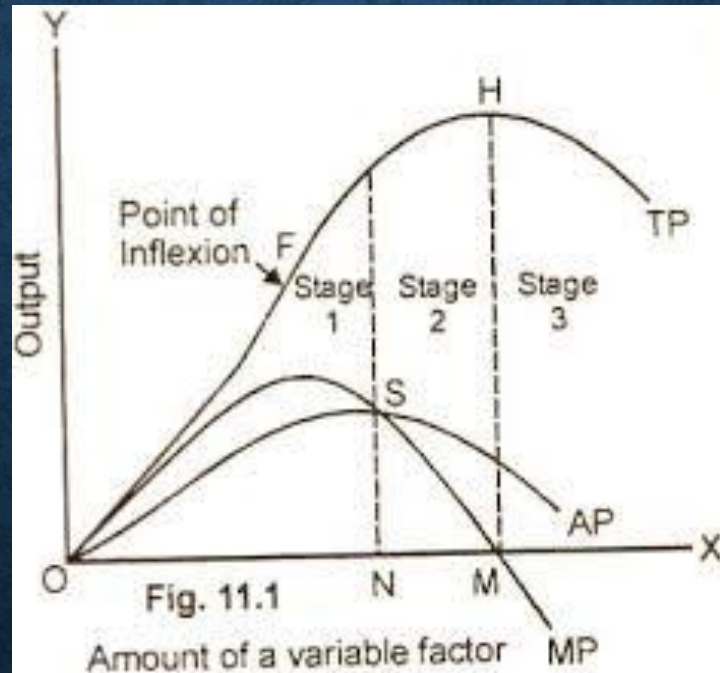
# EXAMPLE

- A farmer has 1 acre of land (fixed factor) on which he wants to increase the production of wheat with the help of labour (variable factor)
- When he employed more and more units of labour, initially output increased at an increasing rate, then at a decreasing rate and finally at a negative rate

# EXAMPLE

Fixed factor (land)	Variable factor (labour)	TP	MP	AP	Phase
1	1	10	10	10	1 <sup>st</sup> (Increasing Returns)
1	2	30	20	15	
1	3	45	15	15	2 <sup>nd</sup> (Diminishing Returns)
1	4	52	7	13	
1	5	52	0	10.4	3 <sup>rd</sup> (Negative Returns)
1	6	48	-4	8	

# DIAGRAM



# THREE PHASES

- Phase I – TP increases at an increasing rate and MP also increases
- Phase II – TP increases at decreasing rate and MP falls
- Phase III – TP starts decreasing and MP not only falls, but also becomes negative



# REASONS OF PHASE I

- Better utilisation of the fixed factor
- Increasing Efficiency of variable factors
- Indivisibility of fixed factor

# REASONS OF PHASE II

- Optimum combination of factors
- Imperfect substitutes

# REASONS OF PHASE III

- Limitation of fixed factor
- Poor coordination between variable and fixed factor
- Decrease in efficiency of variable factor