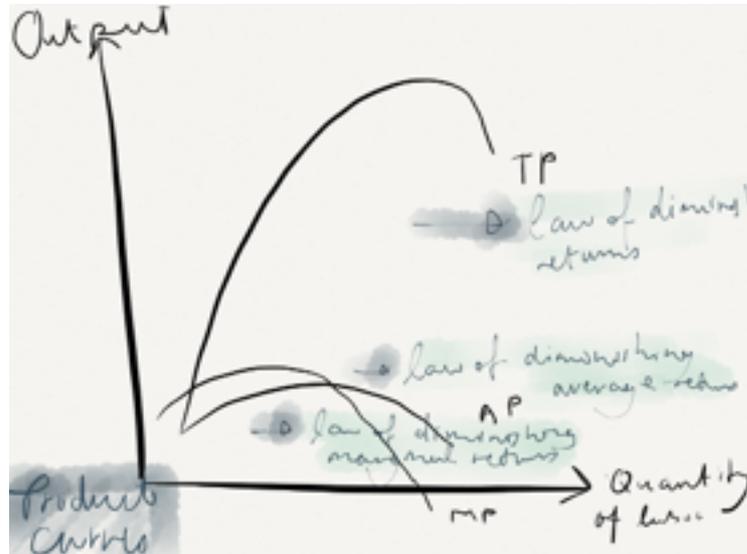
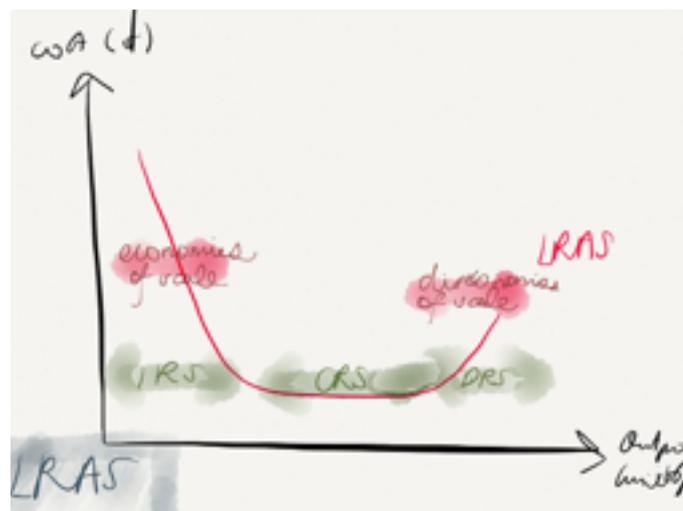


## DISTINGUISH BETWEEN DECREASING RETURNS TO SCALE AND THE LAW OF DIMINISHING RETURNS. [10M, M13]

The law of diminishing returns states that as we add more units of a variable input (for example, agricultural labour) to fixed inputs of land and capital, the change in total output will rise and then eventually fall (diminishing marginal returns is when marginal product falls; similarly, diminishing average returns is when average product falls). As seen on the diagram below, as the quantity of labour increases, the total output increases only up to a certain point, and then starts to fall when marginal product becomes negative. This illustrates the law of diminishing returns.



Decreasing returns to scale, on the other hand, is when a given percentage increase in *all* inputs to production leads to a smaller percentage increase in output, thus increasing long term average costs. The key difference between the law of diminishing returns and decreasing returns to scale is that the former is in the *short run*, where at least one factor of production is fixed, whilst the latter is in the *long run*, where all factors of production/ inputs can be varied. As seen on the diagram below, long run average costs start to increase.



As seen above, as output increases and the quantity of factors of production increases, there is at first a decrease in LRAC due to economies of scale and so on. However, there is eventually decreasing returns to scale. An increase in costs past a certain output on the LRAC curve can be due to a variety of factors: for example, there can be managerial difficulties: as firms get larger, it becomes more difficult for them to coordinate and communicate with each other. Marketing diseconomies can also arise as there are extra costs for workers to travel around, and so on.

Both decreasing returns to scale and the law of diminishing returns leads to increases in costs of production for firms; however, the critical difference is whether it occurs in the short run or long run.