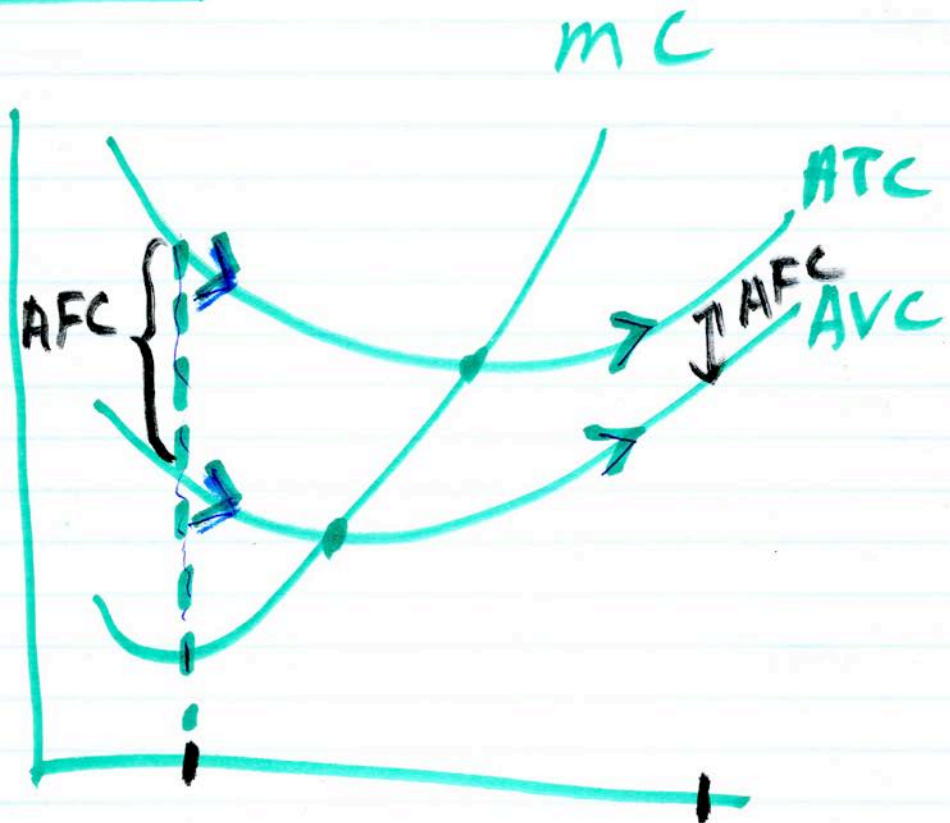


# Together

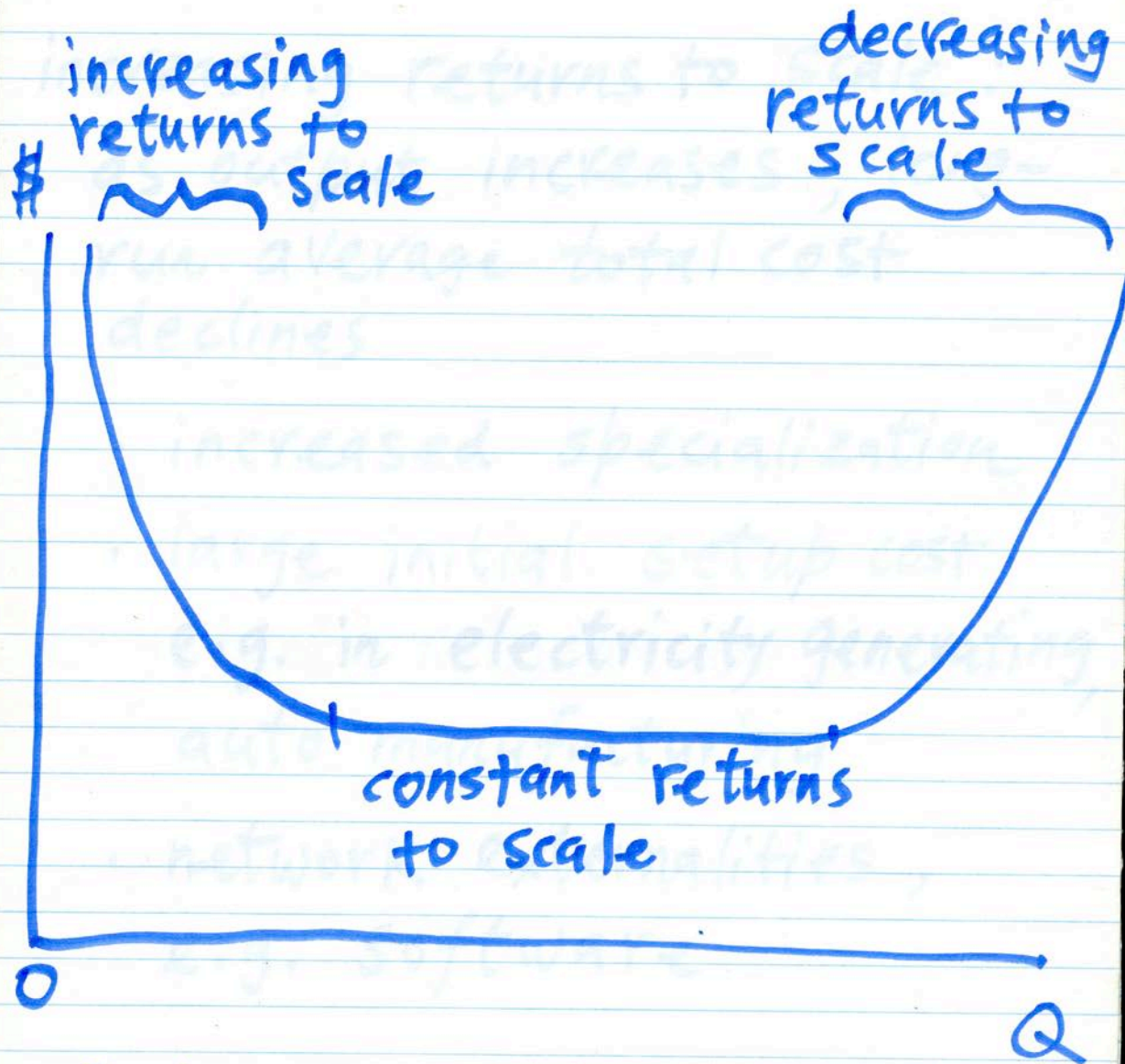
#



- marginal crosses average at minimum
- marginal below, average ↓
- marginal above, average ↑

## Short-Run versus Long-Run Costs

- In the long run, a firm's fixed cost becomes a variable it can choose
- long-run average total cost curve: relationship between output and average total cost when fixed cost has been chosen to minimize average total cost for each output



shape of long-run average total cost curve: U-shaped



increasing returns to scale :  
as output increases , long-  
run average total cost  
declines

- increased specialization
- large initial setup cost  
e.g. in electricity generating,  
auto manufacturing
- network externalities ,  
e.g. software

decreasing returns to scale:

as firms grow in size,  
become more difficult  
to co-ordinate and to  
organize their activities

Constant returns to scale:

scale or output has no  
effect on a firm's long-  
run average total cost



## ch 12 Perfect Competition and the supply curve

- use cost curves
- Profit maximization
- One type of market structure - perfect competition
- What is the supply curve?

## Perfect Competition

- Price-taking producers
- Price-taking consumers
- each producer small market share

market share: fraction of the total industry output accounted for by that producer's output



## standardized product

- commodity
- consumers regard the products of diff producers as the same good
- free entry and exit (except for some conservative economists)



What's standardized  
product

- Champagne
- Korean Kimchi

Production and Profits

Profit = Total Revenue -  
Total Cost

$$= TR - TC$$

choose output until  
profits maximized

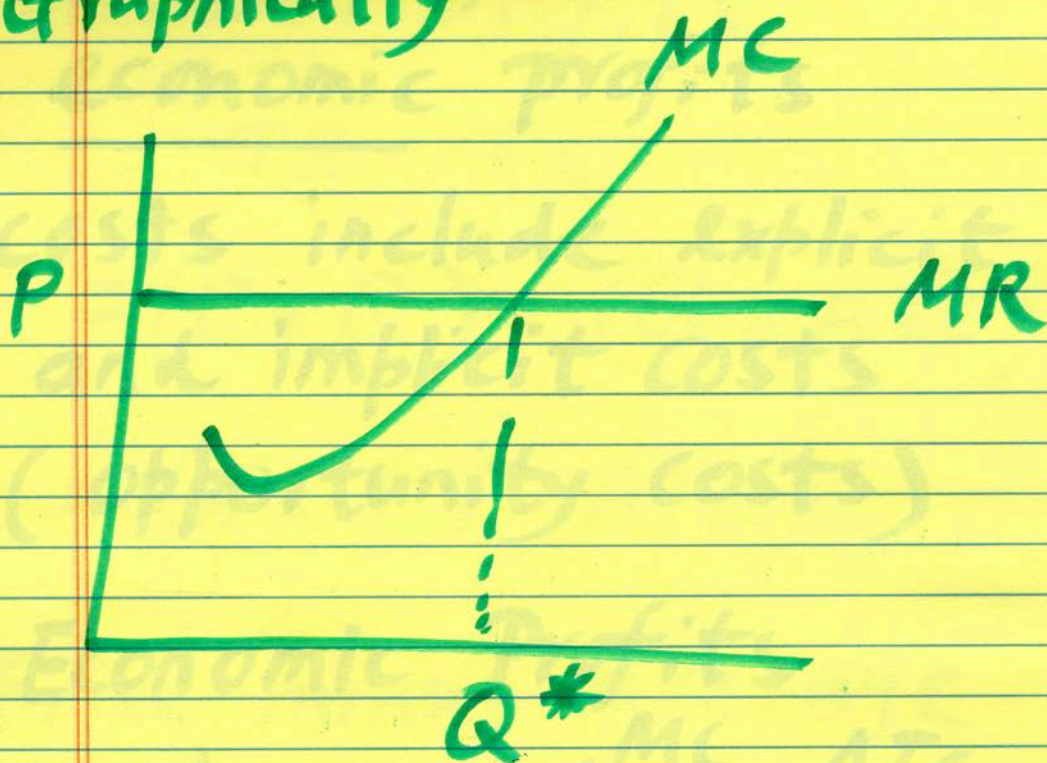
'How much' decision  
use marginal analysis  
until extra revenue =  
extra cost

marginal revenue  $MR =$   
marginal cost  $MC$

For perfectly competitive  
firm,  $MR = P$ , D-curve  
facing it is perfectly  
elastic  $MC$  —  $MR = P$



Graphically



$Q^*$  : profit maximizing  
or optimal output

Produce until  $Q^*$

$$P = MC \text{ or } MR = MC$$