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Unit 2

Producer Behavior (Ch. 6)

9/23

ECON 323 – MICROECONOMIC THEORY – DR. STRICKLAND

Introduction



How do firms determine production?

Goal: maximize profits. This informs:

- How much to produce (output)
- Which combination of inputs to use

Production



Production: process of turning inputs into outputs

- Output: goods/services q OR Q
- Inputs: capital and labor
 (k) (L)

Production function: describes the relationship between combinations of inputs and a firm's output

$$q = f(k, L)$$

COBB DOUGLAS: $q = K^a L^b$, $a > 0, b > 0$



Production in the Short Run

Short run: period in which capital is fixed

$$q = f(\bar{K}, L)$$

$$\text{ex. } q = K^{0.5} L^{0.5} \Rightarrow \bar{K} = 4 \Rightarrow q = (4)^{0.5} L^{0.5} = \underline{2 L^{0.5}}$$

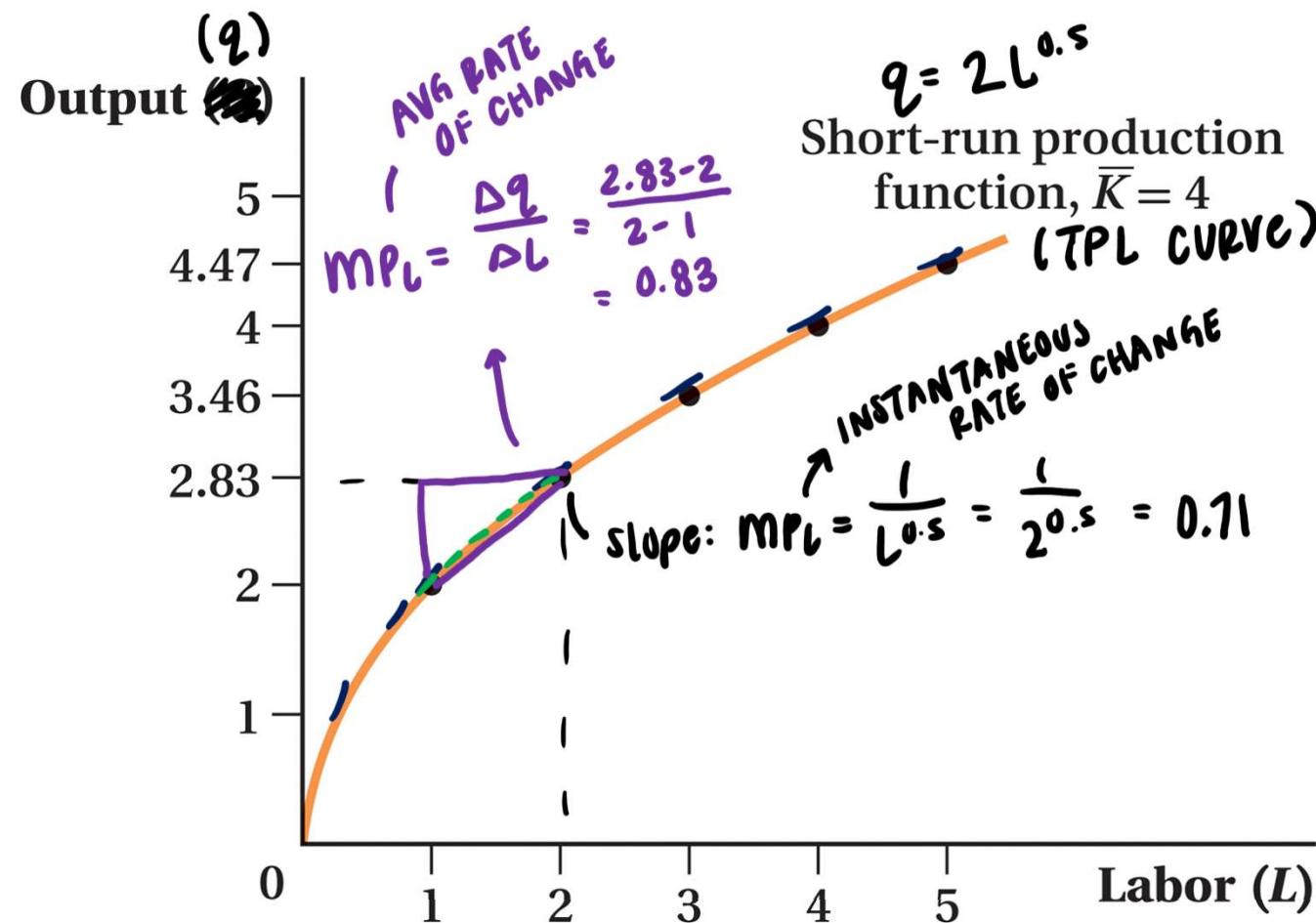
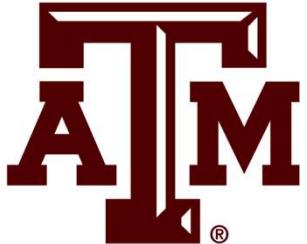
"SHORT RUN PRODUCTION
FUNCTION"

"TOTAL PRODUCTIVITY OF
LABOR" (TPL)

Production metrics:

- Marginal product of labor $MP_L = \frac{\Delta q}{\Delta L}$
- Average product of labor $AP_L = \frac{q}{L}$

Production in the Short Run



① UPWARD SLOPING
 $\uparrow L \Rightarrow \uparrow q$

② SLOPE IS MPL:
 $MPL = \frac{\Delta q}{\Delta L}$

SLOPE IS DECREASING
 (STeeper \rightarrow Flatter)

* DIMINISHING MARGINAL RETURNS (DIMINISHING MPL)

③ $APL = \frac{q}{L}$
 ex. $L=2$: $APL = \frac{2.83}{2} = 1.42$