Chapter 3: The Neoclassical Theory of Income Distribution

Production Function: Denote Y = F (K, L); shows how output (Y) the economy can produce with K units of capital and L units of labor. The level of technology A is taken as given.

The **Cobb-Douglas** production function: $Y = AK^{\alpha}L^{1-\alpha}$; A > 0, $0 \leq \alpha \leq 1$.

Scale all inputs up by the same factor (a positive number) z; output increases from Y_1 to Y_2. Provided that $Y_2 = zY_1$, the production function has **constant returns to scale**. In other words, if inputs are doubled, output doubles as well.

Marginal Product of Labor: The extra output the firm can produce using an additional unit of labor (holding other inputs fixed): MPL ≈ F (K, L +1) – F (K, L) (approximation).

- **Definition**: $MPL = \frac{\partial Y}{\partial L}$ and $MPK = \frac{\partial Y}{\partial K}$ (first partial derivatives w.r.t. L and K).
- **Geometric Interpretation:**
  - Slope of the graph of Y vs. L is the MPL.
  - Slope of the graph of Y vs. K is the MPK.
- **Diminishing Marginal Returns**:
  - Hold capital constant; as more labor is added, MPL decreases.
  - Hold labor constant; as more capital is added, MPK decreases.
- **Cross-factor Effects:**
  - $K = \overline{K}$ and L↑ or A↑ $\Rightarrow$ MPK↑.
  - $L = \overline{L}$ and K↑ or A↑ $\Rightarrow$ MPL↑.
  - $K = \overline{K}$, $L = \overline{L}$, and A↑ $\Rightarrow$ MPK↑ and MPL↑.

Firm's Demand for Factors: Markets are competitive; each firm takes W, R, and P as given.

- Cost of one more unit of labor = W
- Marginal benefit of hiring labor = value of marginal product of labor = (MPL)(P)
- Cost of one more unit of capital = R
- Marginal benefit of buying capital = value of marginal product of capital = (MPK)(P)
- In equilibrium, firms demand labor and capital until **MPL = W/P and MPK = R/P**
- Labor Income = WL
- Capital Income = RK

Note: Links to the articles are available on the TA website
https://mywebspace.wisc.edu/sswisher/web/302.html

Required Reading: "How Did Economists Get It So Wrong?" (Paul Krugman)

What problems are faced by the current economy?

How do "saltwater" and "freshwater" economists differ in terms of:

i. The efficacy of market (efficiency)?

ii. Fiscal policy?

iii. Monetary policy?

Discuss the economic policies proposed by Krugman.

Optional Reading:

"Chicago Schooled" (Michael Fitzgerald)

"Moving beyond GDP as Well-being's Metric" (John Nichols)