

# Principles of Microeconomics-II

## L6: Factor Markets

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Ananya Iyengar

# The Demand for Labour

- Production Function:  $Y = f(L, \bar{K}, \bar{Land})$
- $Y$  is sold at price  $p$ ;  $L$  is hired at wage rate  $w$ .
- Perfect competition in the output market:  $p$  is exogenous.
- Perfect competition in the factor market:  $w$  is exogenous.
- Profit maximising behaviour  $\implies L$  is endogenous.

# The Marginal Product of Labour

$MP_L = \frac{\Delta Y}{\Delta L}$  is diminishing.

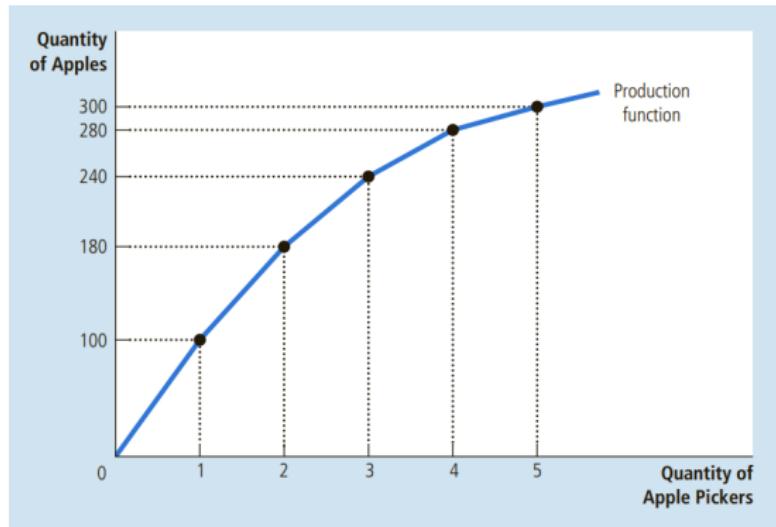


Figure: Diminishing MPL. Source: Chapter 18, Mankiw (2018)

# Optimal Choice

**Recall:** All optimal choice involves equating marginal benefit to marginal cost.

- What is the marginal cost of hiring labour? **The wage rate  $w \rightarrow$  part of the firm's cost!**
- What is the marginal benefit of hiring labour? **The value of marginal product  $p \times MP_L \rightarrow$  part of the firm's revenue!**

# Optimal Choice

- $w$  is a given parameter.
- $VMP_L$  is downward sloping and a function of  $L$ .



**Figure:** Demand for labour in perfect competition. *Source:* Chapter 18, Mankiw (2018)

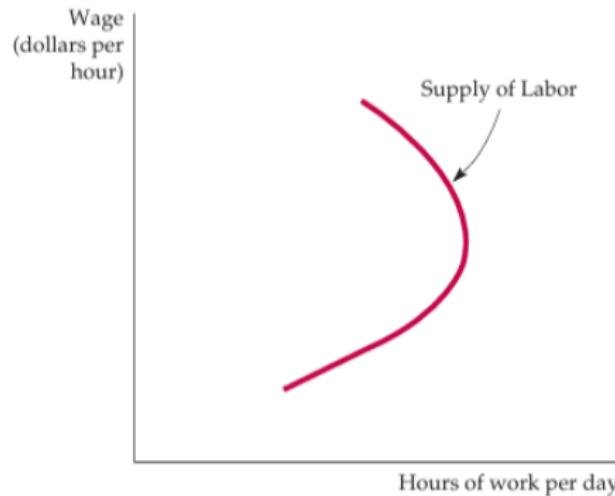
## Comparative Statics: Shift of the Labour Demand Curve

- Changes in output price  $p$ ;
  - Labour-saving v/s labour-augmenting technological growth;
  - Other factors of production.

# Labour (Hours?) Supply

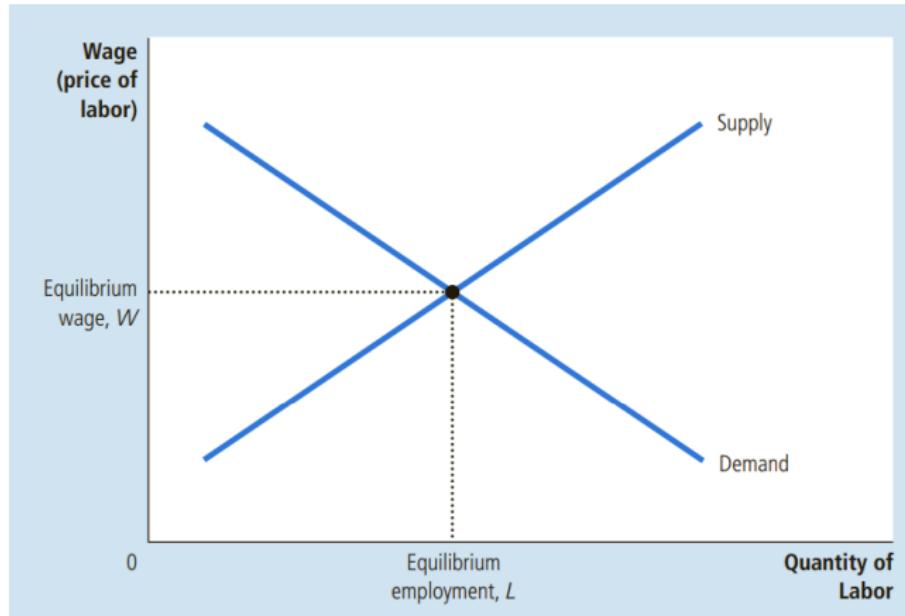
- Predicated on the labour-leisure trade-off.
- $w$  is the opportunity cost of leisure.
- $\uparrow$  in  $w \implies$ 
  - ① Leisure is relatively more expensive  $\rightarrow$  more labour. (Substitution Effect)
  - ② Richer in real terms  $\rightarrow$  less labour. (Income Effect)
- When we assume that the  $SE > IE$ , upward sloping labour supply curve.

# Labour Supply



**Figure:** Backward Bending Labour Supply. *Source:* Rubinfeld & Pindyck (2018)

# Market Equilibrium



**Figure:** Market Equilibrium in a Perfectly Competitive Labour Market. *Source:* Chapter 18, Mankiw (2018)

# Comparative Statics & Free-Market Anti-Immigration Sentiment

- Shifts in labour demand and supply.
- Immigration: an increase in the supply of labour.
- Can this be used to justify an anti-immigration stance? **No!**
  - ① General equilibrium effects;
  - ② Cheap labour slows down mechanisation;
  - ③ Migrants may not compete in same markets

# Immigration and Demand Response in Neoclassical Theory

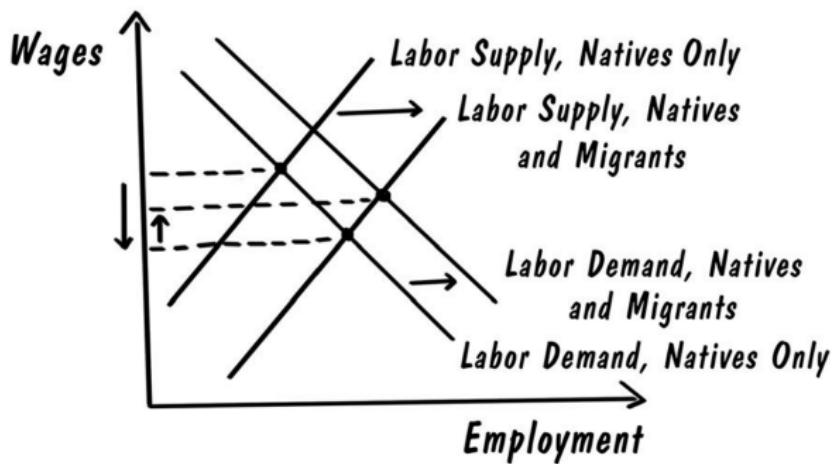


FIGURE 2.2 Napkin economics redux. Why more migrants do not always lead to lower wages.

Figure: Immigration. Banerjee & Duflo (2019).

# Market for Capital

**Capital:** Physical stock of goods and services used in production.

- The **rental price of capital**: opportunity cost of alternative use → real rate of return.
- At equilibrium, = **value of marginal contribution to the production process**.

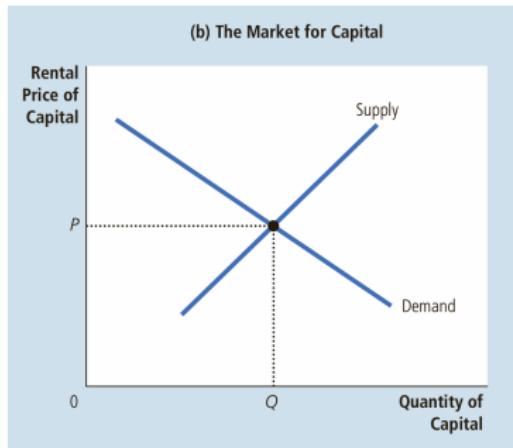


Figure: Market for Capital. Source: Chapter 18, Mankiw (2018)

# Market for Land

Highly inelastic supply! As above -

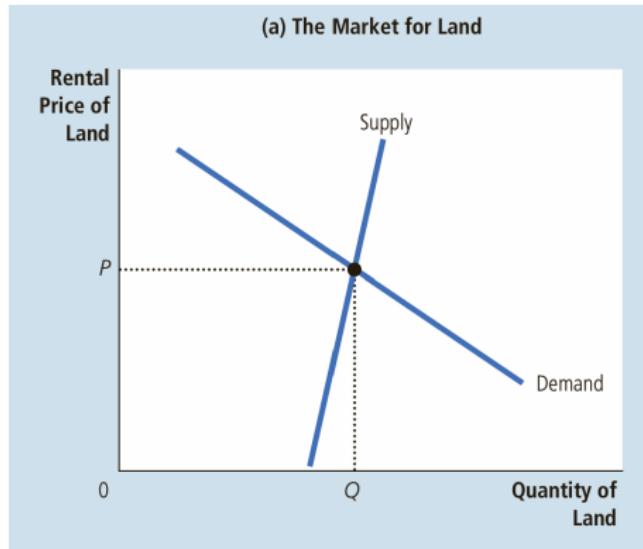


Figure: Market for Land. *Source:* Chapter 18, Mankiw (2018)

# Application: Cobb-Douglas Production Function

$$Y = AK^\alpha L^{(1-\alpha)}$$

Here,

- $\alpha = \frac{1}{3}$ ,  $P = 2$ ,  $A = 3$ ,  $K = 10,00,000$ ,  $L = 1,000$ .
  - Marginal Product of Labour  $MP_l = \frac{2}{3}A\left(\frac{K}{L}\right)^{\frac{1}{3}}$ .
- ① What is the value of  $Y$ ?  $PY$ ? The wage rate  $W$ ? The real wage  $\frac{W}{P}$ ?
  - ② Compute the labour share in income in this economy.
  - ③ What would the labour share be if inflation raised  $P$  to 3?
  - ④ What would the labour share be if a famine reduced  $L$  to 125?

**CA Assignment:** Problems and Applications, Chapter 18 of Mankiw (2018). Due Saturday, November 1.