

The Full-Employment Model

Stiglitz, Walsh (2006)

Economics

Chapter 24 (MA6)

Macroeconomic Equilibrium

- all markets are interrelated
 - what happens in one market will have impact on other markets
- wages, interest rates and prices adjust to ensure that demand equals supply in each market
 1. labor market
 2. product market
 3. capital market

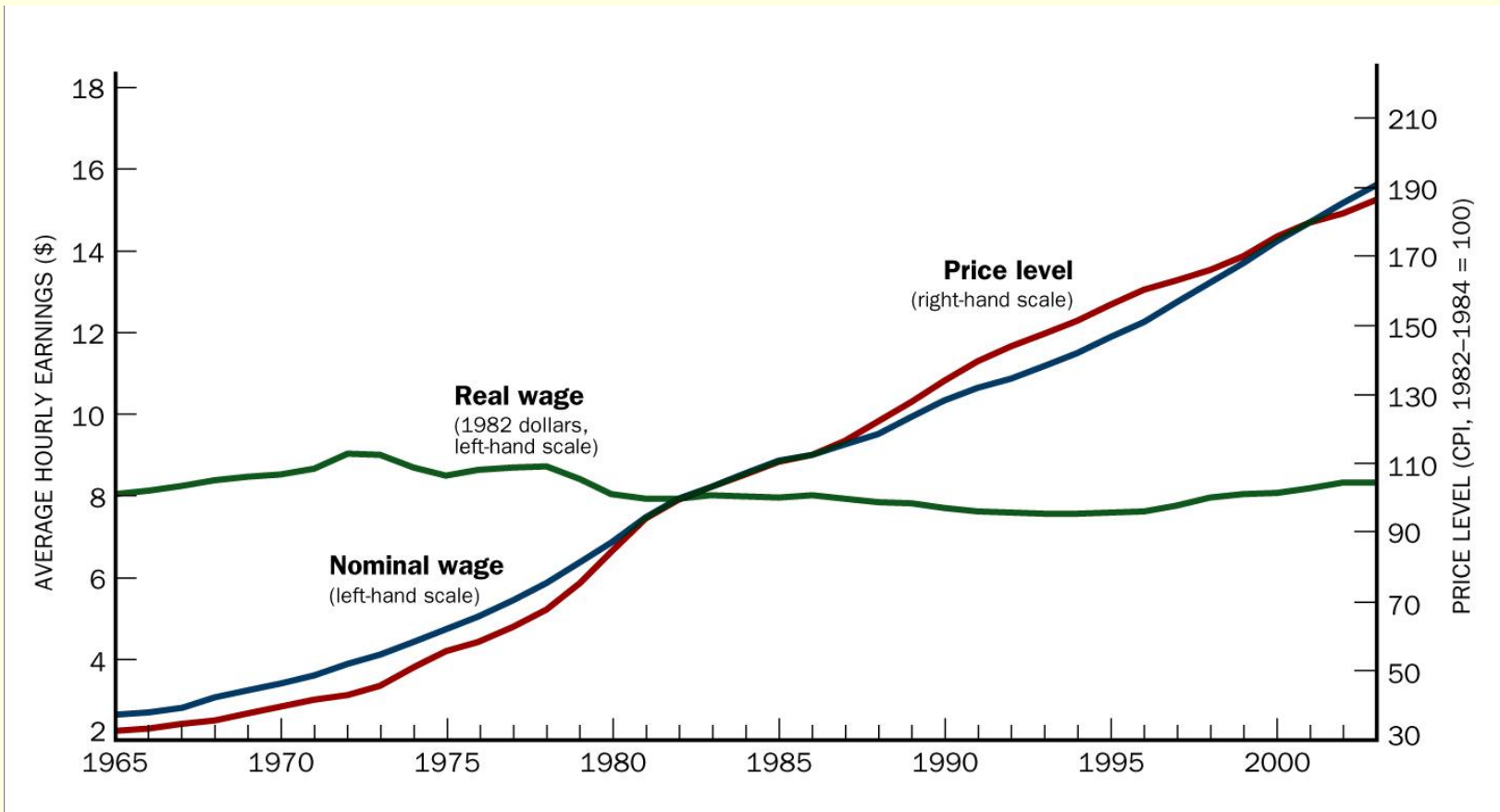
Full Employment

- occurs when the demand for labor equals the supply of labor
 - no qualified worker who wishes to get a job at the going market wage will fail to get one
 - no firm that wants to hire a worker at the going wage will fail to find a qualified employee
- the unemployment rate will not be zero
 - because of frictional, seasonal and structural unemployment there are still some workers unemployed

The Labor Market

- w ... nominal wage
- P ... price level
- real wage = w/P
- what matter to worker is how much their wages will buy
- what matters to firms is the cost of labor relative to the price they receive for their output

Nominal Wages, Price and Real Wages



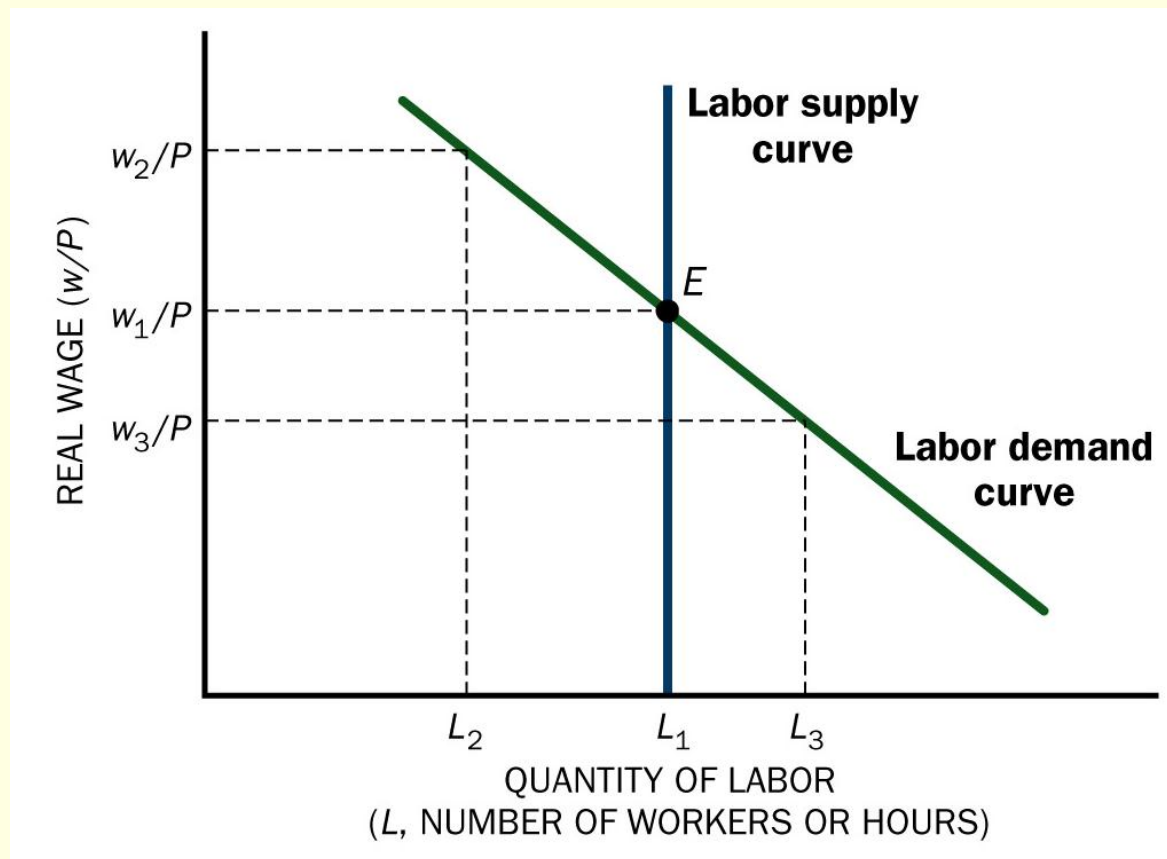
The Labor Demand Curve

- at lower wages the quantity of labor demanded is greater
 - labor is less expensive compared to other inputs
 - labor is less expensive relative to the price of the output, so the value of labor's marginal product exceeds the wage
- if wages fall and all other prices in the economy also fall in proportion, the demand for labor will not change

The Labor Supply Curve

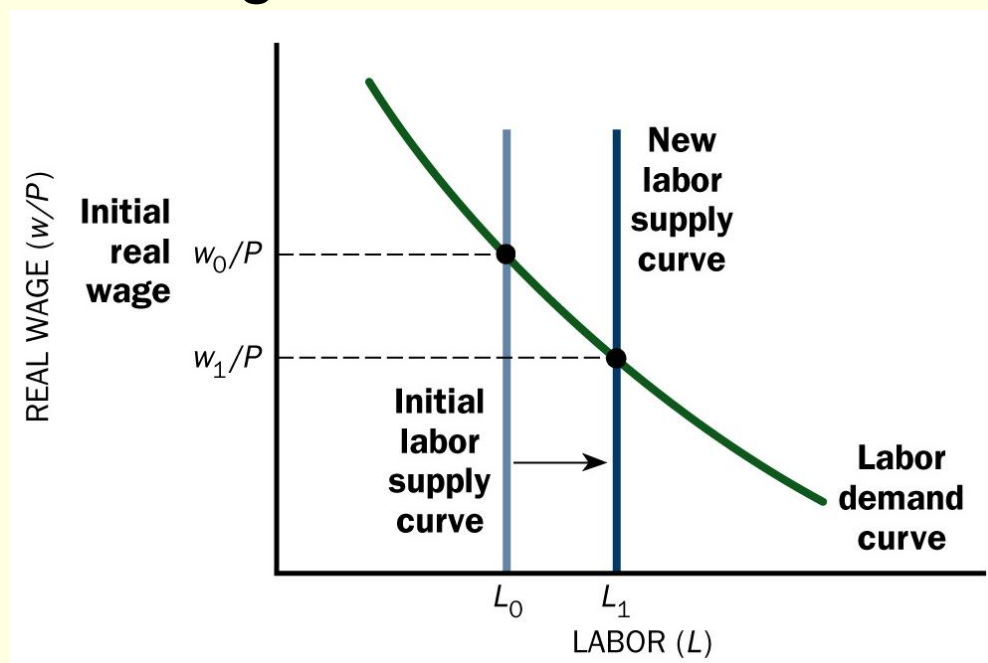
- vertical - perfectly inelastic
- an increase in the real wage has two effects that work in opposite directions
 - the income effect: workers are better off, so they want to buy more goods and leisure - they supply less labor
 - the substitution effect: leisure is more expensive – workers supply more labor
- the income and substitution effects almost exactly offset one another, so labor supply is constant

Labor Demand and Supply Curves



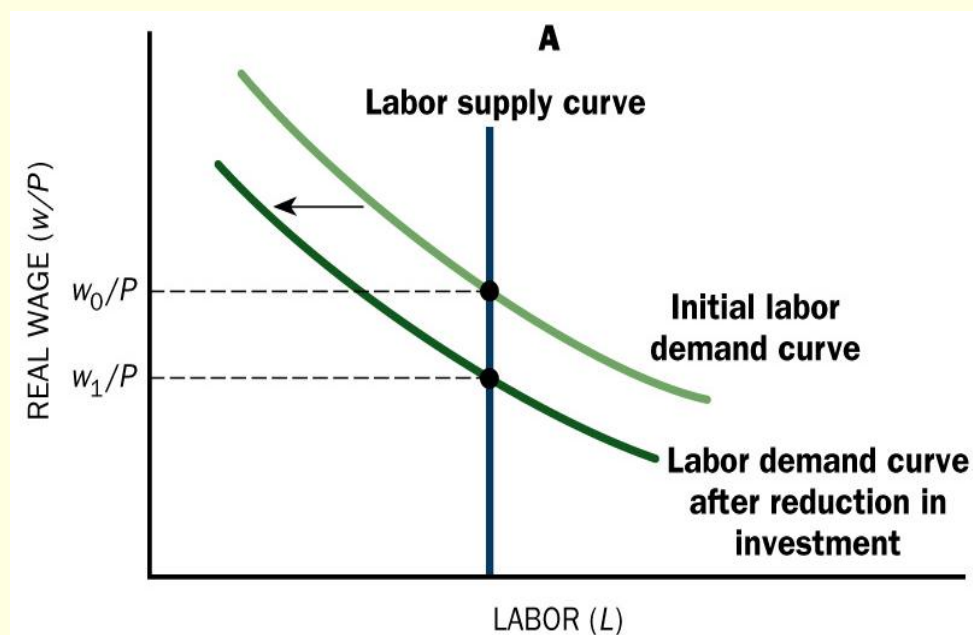
Shifts in the Supply of Labor

- at each real wage more people enter the labor market
 - the equilibrium real wage falls
 - firms create more jobs – employment rises to absorb increase in labor supply



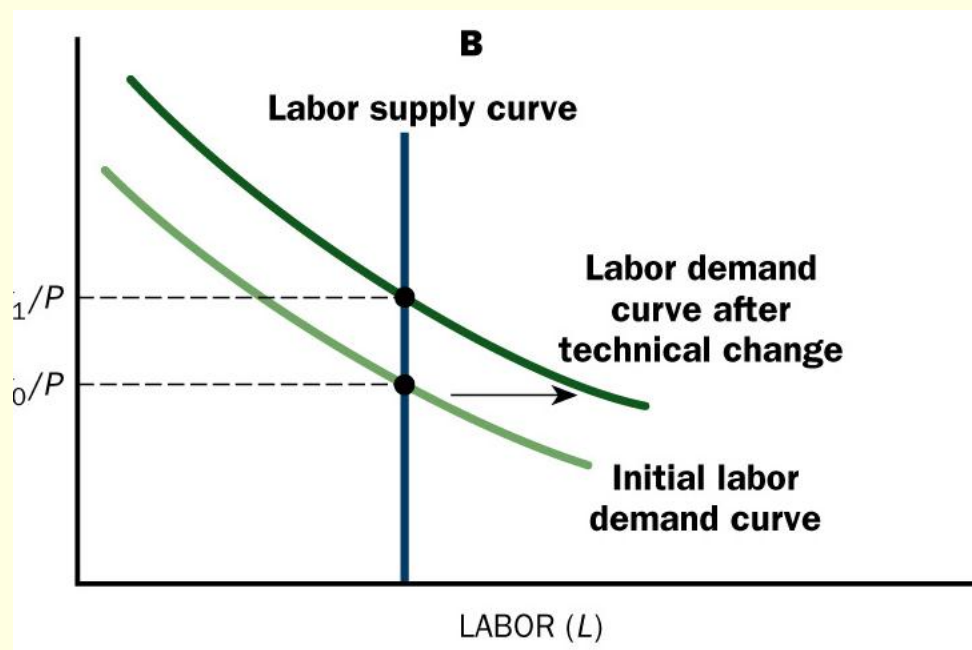
Shifts in the Demand of Labor

- decrease in investment leads to a reduction in the productivity of workers – the demand curve shifts to the left
 - the equilibrium real wage falls



Shifts in the Demand of Labor

- technological progress increases the productivity of workers – firm is able to produce more output per hour of labor hired – the demand curve shifts to the right
 - the equilibrium real wage rises

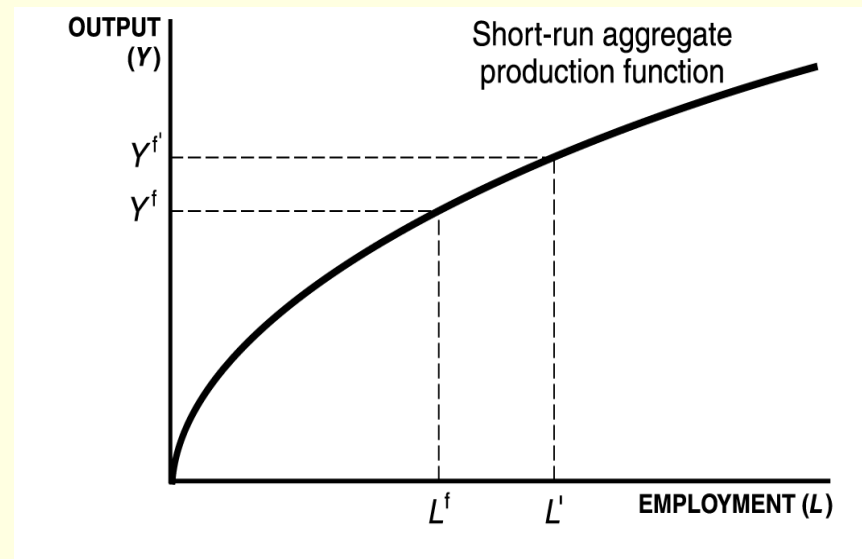


Skilled versus Unskilled Labor

- an increase in investments or technology may increase the demand for skilled workers but decrease the demand for unskilled workers
- a focus only on the aggregate labor market is not sufficient to understand the wage inequality phenomenon

Short-Run Aggregate Production Function

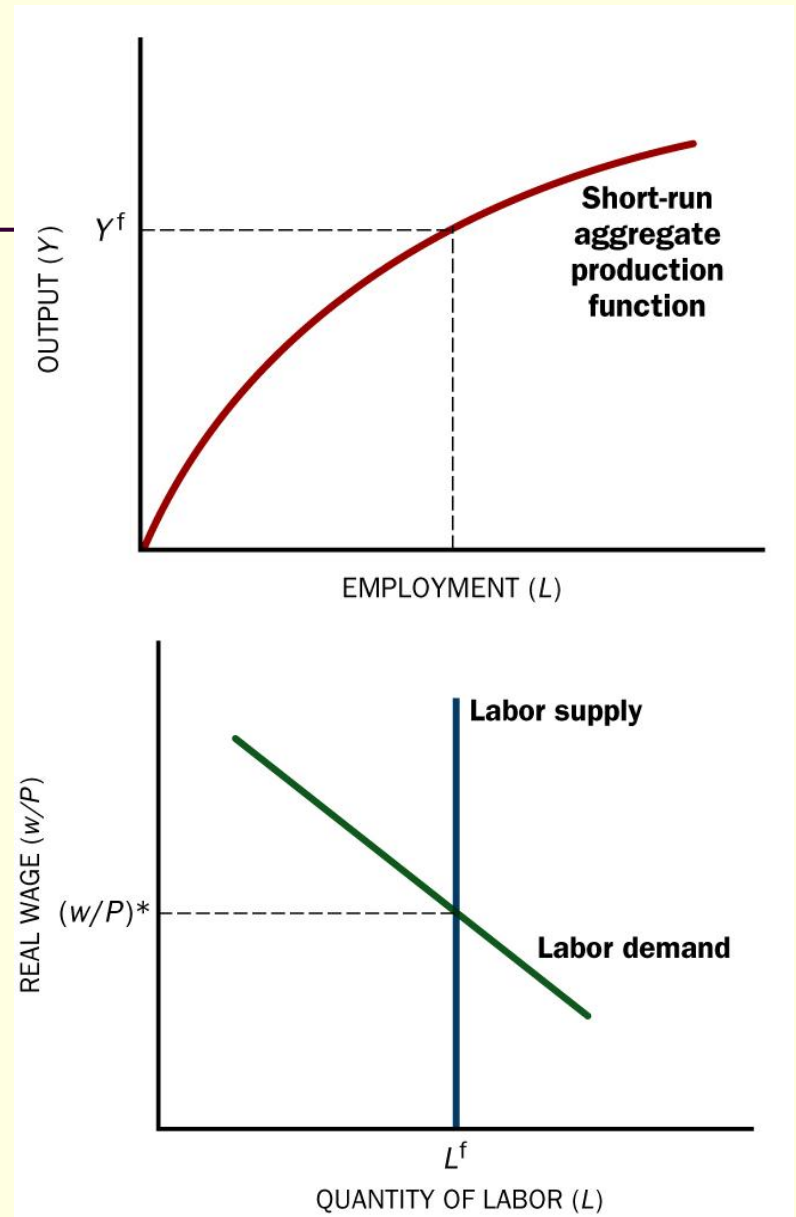
- the relationship between employment and output with a fixed amount of capital
 - as more workers are hired, output goes up, but at diminishing rate
 - diminishing returns to labor



Potential Product

- in the long run: the full employment level of output Y_f (potential output) can be derived from the aggregate production function
 - which gives the relationship between output and employment, holding technology and the capital stock fixed

Equilibrium in the labor market and the determination of potential GDP



Demand and Equilibrium Output

- product market equilibrium: the supply of goods produced by firms must balance with the demand for goods
- firms will not continue to produce at the full-employment level if their production go unsold
- economy's financial sector (capital market) plays a critical role in achieving this balance

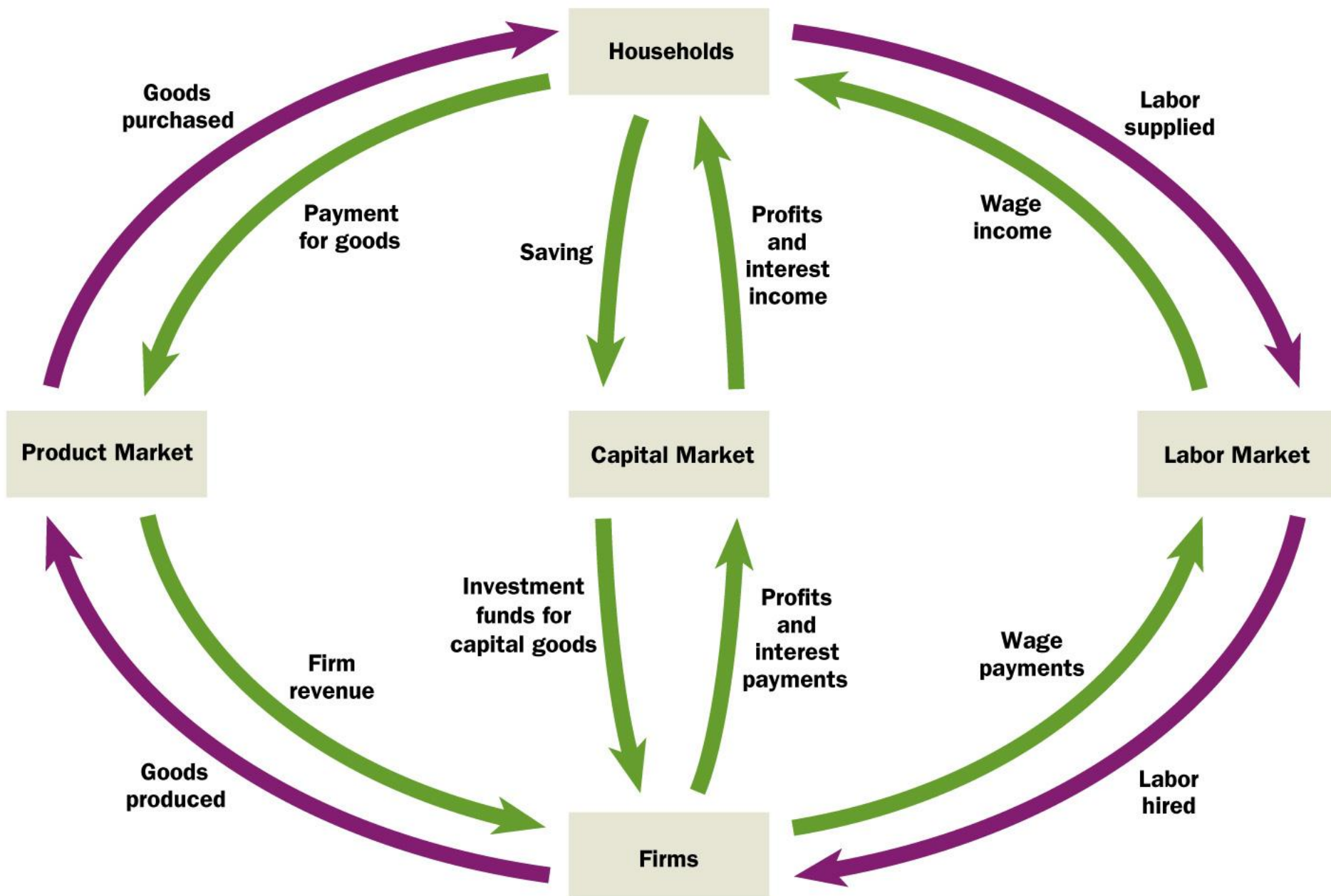


Figure 6.6 The Circular Flow of Income

The Circular Flow of Income

- the entire output is eventually paid out to households as income
- these income payments are just enough to buy all of the output
- the model with no foreign sector and no government!

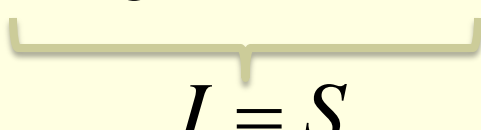
Leakages and Injections

- households do not choose to spend all their income on goods, they save part of it – household saving is a leakage out of the spending stream
- other sectors of the economy spend more than the incomes they receive, so they need to borrow funds in the capital market – investment spending is an injection into the spending stream

Leakages and Injections

- the total level of spending will balance with the level of output at full employment if the leakages out are balanced by injections into the spending stream
- leakage = saving
- injection = investment

$$C + I = Y^f$$

$$I = Y^f - C \qquad Y^f - C = S$$

$$I = S$$

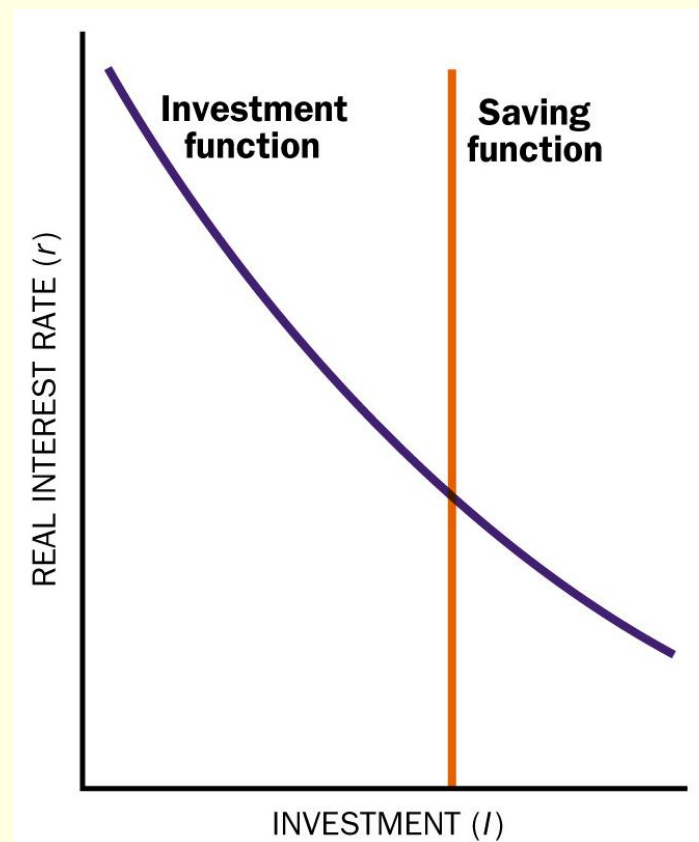
Household saving

- disposable income – how much income a household has after paying taxes
- with income fixed at its full-employment level, the level of savings depend on the return that households can earn on their savings
 - the interest rate corrected for changes in the price level - the real interest rate

real interest rate = market interest rate – rate of inflation

Household saving

- because of income and substitution effect, the saving does not respond to changes in real interest rate – the saving function is completely inelastic



Investment

- in macroeconomics investment refers to physical investment in capital goods, not financial investment
- two key determinants of investment:
 - firm's expectations concerning future sales and profits
 - real rate of interest
- the investment function gives the level of investment at each value of the real rate of interest

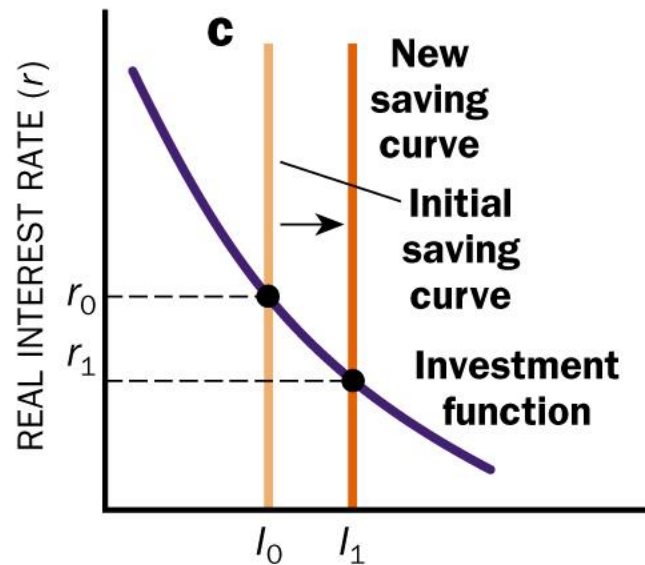
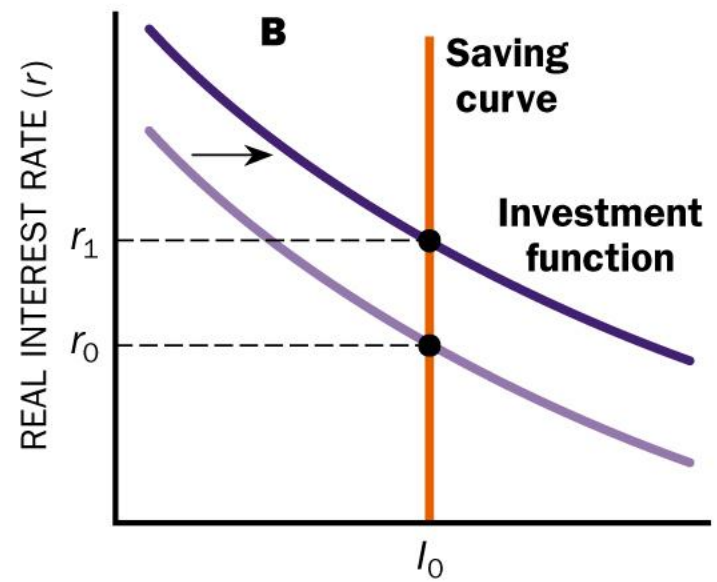
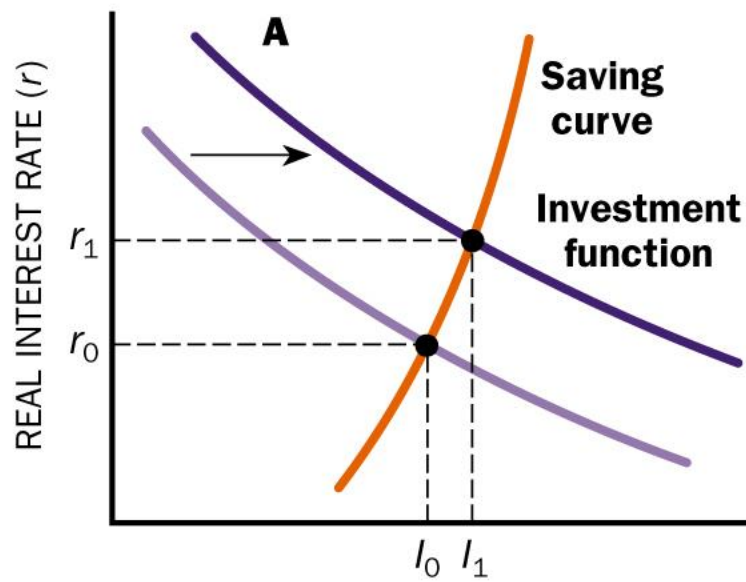


Figure 6.8 Equilibrium in the Capital Market at Full Employment

Equilibrium in the Capital Market

- savings = investment when the real interest rate adjust to balance demand and supply in the capital market

leakages = injections

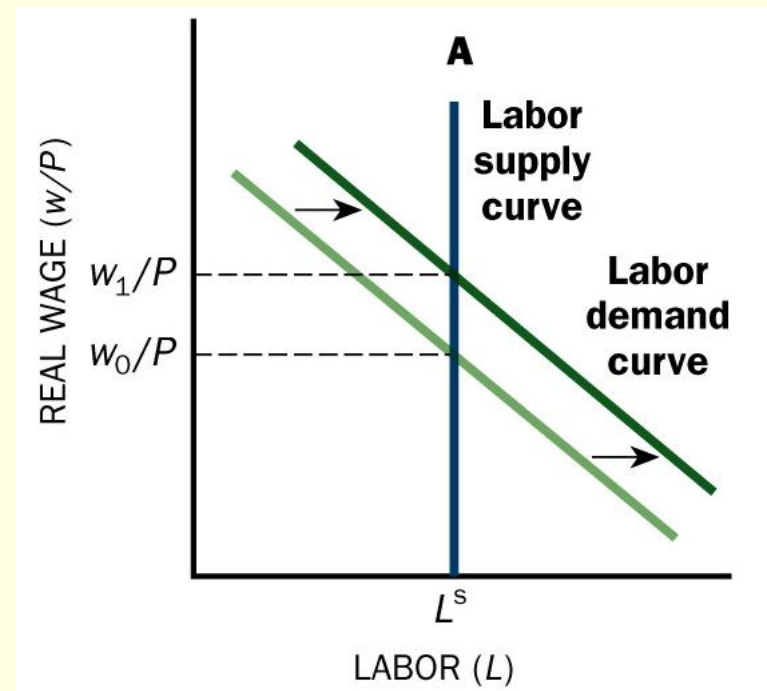
- condition needed to ensure that the product market was in equilibrium

Equilibrium in the Capital Market

- capital market equilibrium ensures that leakages equal injections at full-employment output (potential GDP)
- when saving equal investment at full-employment output, aggregate demand equals the economy's full-employment level of output (supply)

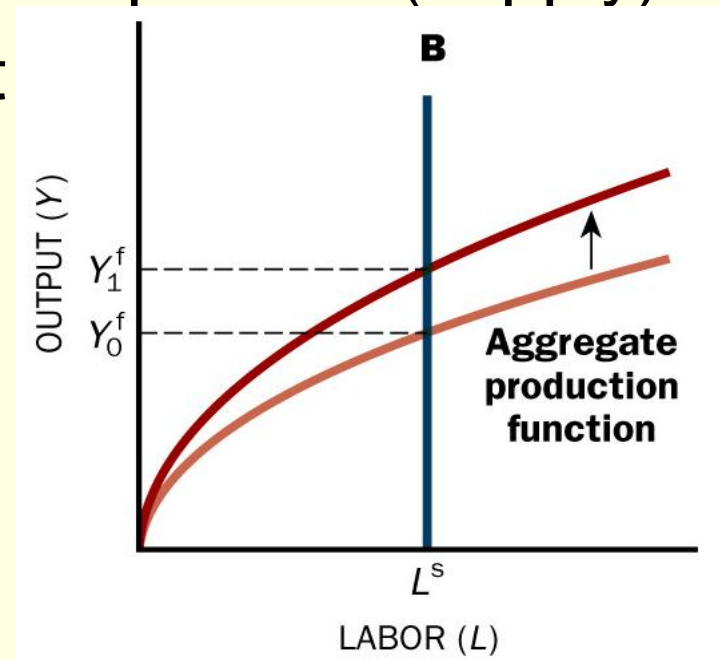
Effects of Introducing PCs into the Economy (A)

1. workers are more productive – increases marginal product of workers
2. increases the quantity of labor demanded – labor demand curve shifts to the right
3. the real wage rises



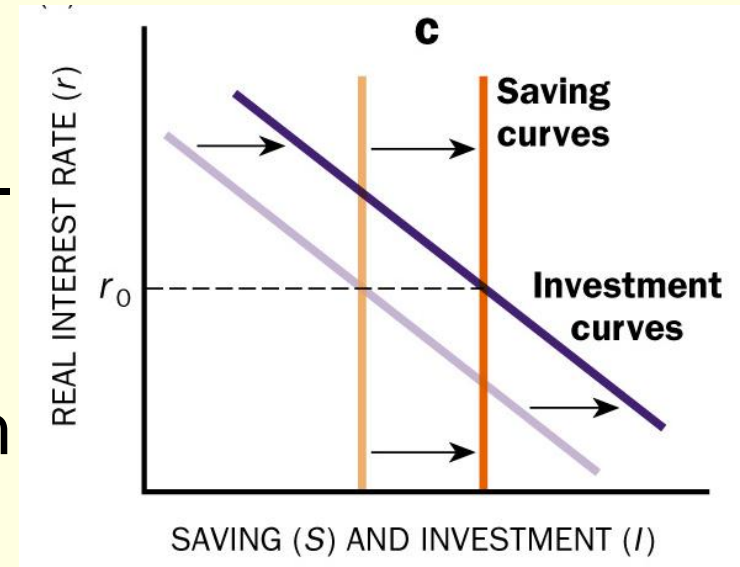
Effects of Introducing PCs into the Economy (B)

1. workers are more productive – upward shift of the short-run production function
2. increase in full-employment product (supply)
3. aggregate demand must also rise to maintain product market equilibrium



Effects of Introducing PCs into the Economy (C)

1. this change in demand will occur if the real interest rate adjust to maintain saving equal to investment in the capital market
2. investment at each level of the real interest rate rises (firms face advantages of PCs)
3. increase in full-employment income leads to increases in consumption and saving at each interest rate



Exercise 1

We assumed that the labor supply did not depend on the real wage so far. Assume now that at higher real wages, more individuals wish to work. Trace through how each of the steps in the analysis has to be changed.

- a) Show the equilibrium in the labor market.
- b) What happens to real wages, employment, GDP and saving if the labor supply function shifts to the right?

Exercise 2

Describe the changes in the economy associated with the rise in labor force participation among women.