

# Business Cycles, Economic Growth, and Financial Markets

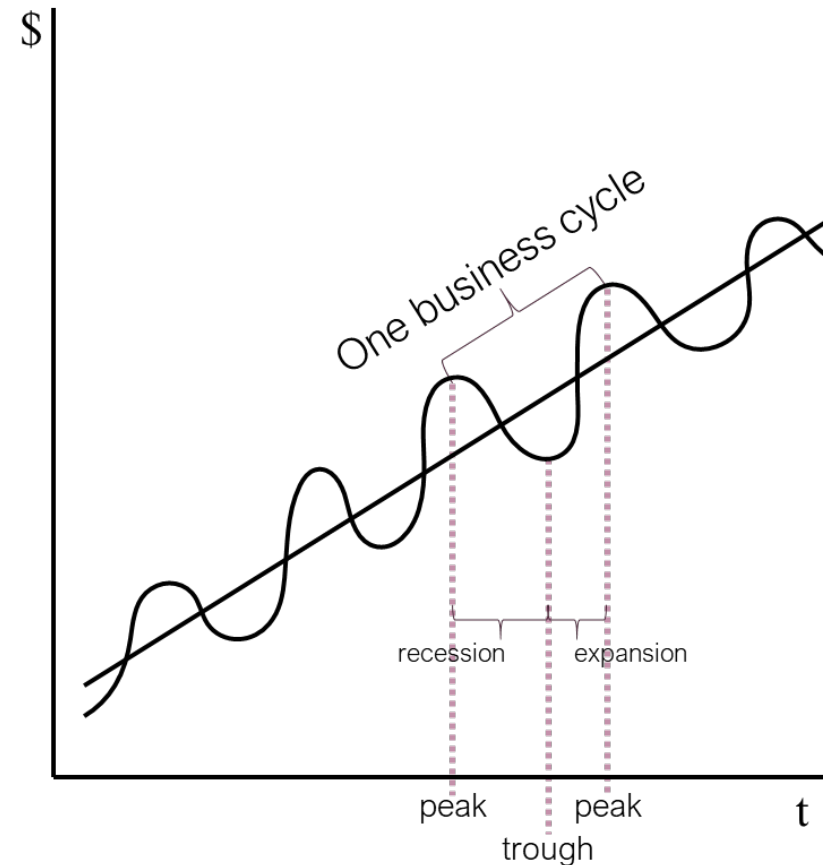
Topic 7

# Learning Objectives

- Have a closer look at business cycles
- Discuss the difference between economic growth and development
- Calculate growth rates
- Analyze the determinants of long-term economic growth
- Model the behavior of borrowers and lenders in the market for loanable funds using the model of economic interaction known as the model of supply and demand

# The Business Cycle

- It shows how GDP behaves over time or in the short-run
  - Expansion (booms)
  - Recession (bust)
- Economic growth is the long-term trend, which is the average growth of the economy over multiple business cycles.



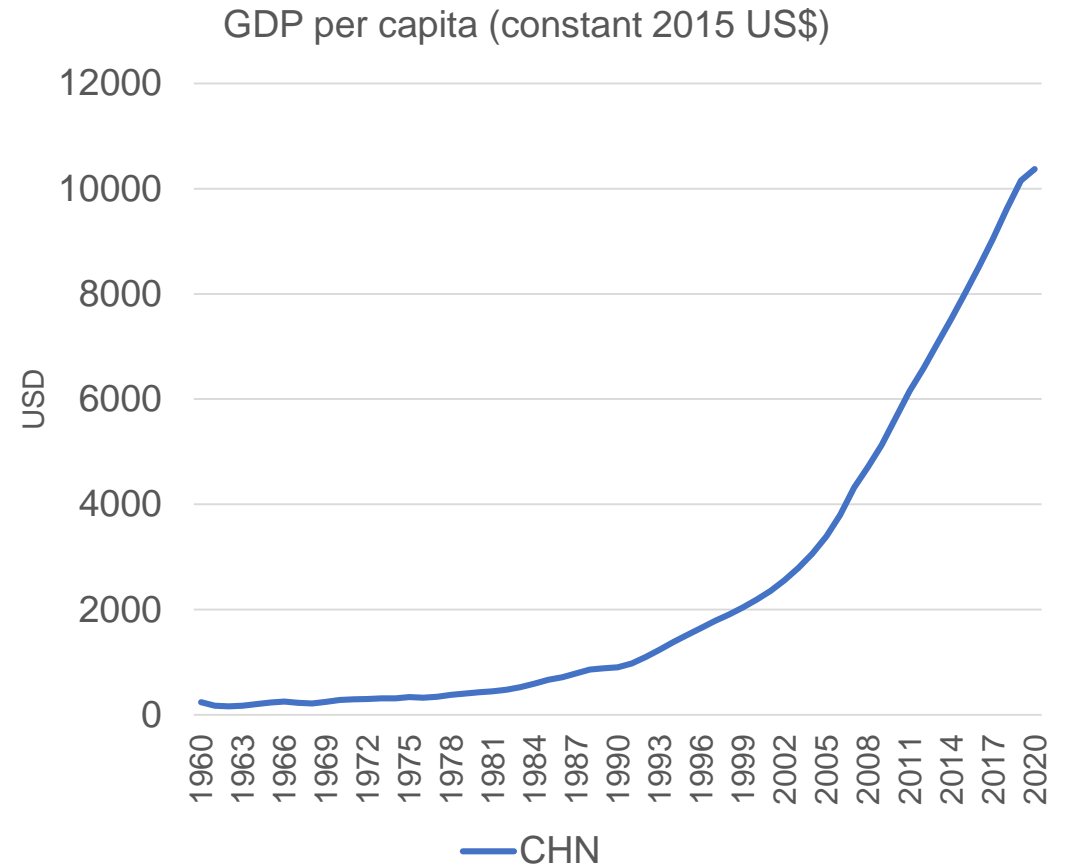
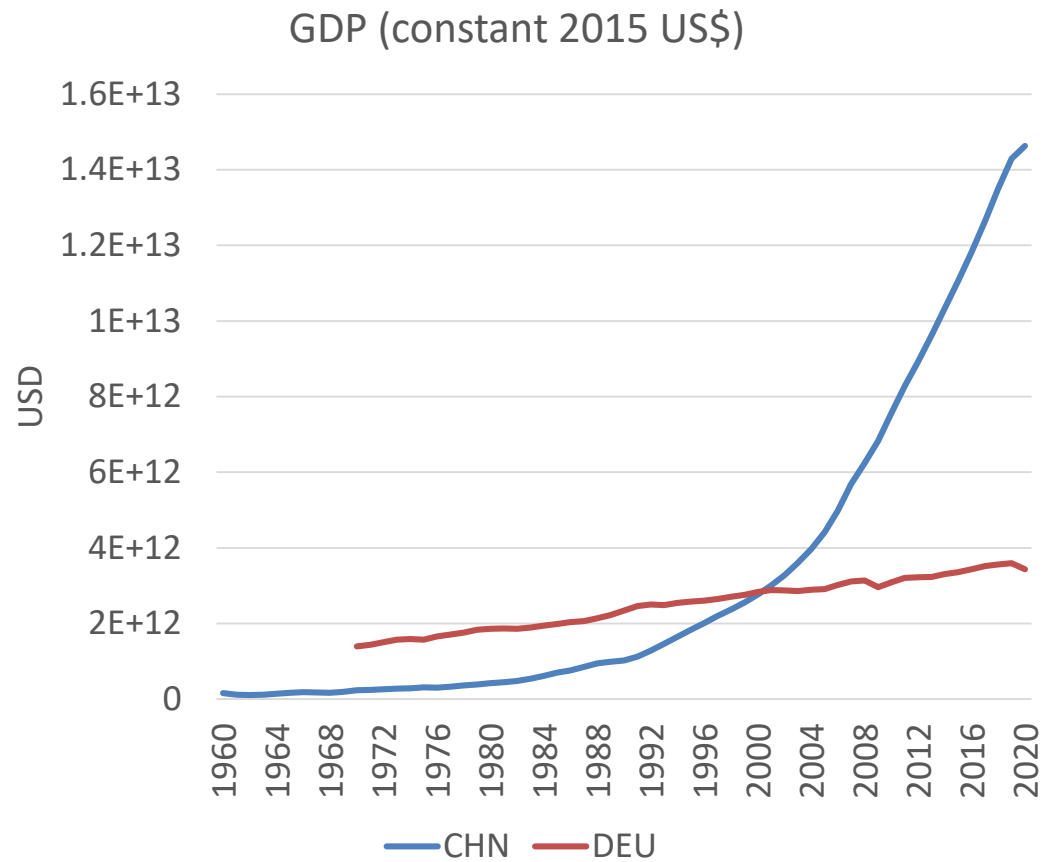
# Recessions

- A significant decline in activity spread across the economy, lasting more than a few months, visible in industrial production, employment, real income, and wholesale-retail.
- Good for Business?
  - Every recession is eventually followed by a time of expansion
  - The trade-off: reducing production cost, cutting prices, closing stores, laying off workers vs. committing resources for future expansion

# The Effect of Business Cycles

- On the inflation rate
  - $\pi$  increases during economic expansion
  - $\pi$  decreases during economic recession
- On the unemployment rate
  - Unemployment decreases during economic expansion
  - Unemployment increases during economic recession

# Economic Growth



# Economic Growth and Development

- Economic growth refers to sustained increases over time in the value of GDP.
  - Measured by the GDP growth rate
  - Adjusted for inflation -> RGDP
  - Adjusted for population growth -> RGDP per capita
- Economic Development refers to improvements over time in quality of life and living standards.
  - Assessed by factors such as life expectancy at birth, infant mortality, literacy rates, access to clean drinking water/ vaccinations/ electricity/ telephone/ internet, etc.
- Economic growth is often used as a proxy measure of economic development.

# Calculating Growth Rates

- The growth rate of real GDP or real GDP per capita during a particular year is equal to the percentage change from the previous year.

- $$\text{RGDP Growth Rate} = \frac{\text{RGDP}_t - \text{RGDP}_{t-1}}{\text{RGDP}_{t-1}} \times 100$$

Year	GDP (in trillion USD)	Growth Rate
2017	12.3	
2018	13.9	
2019	14.3	
2020	14.7	



# The Rule of 70

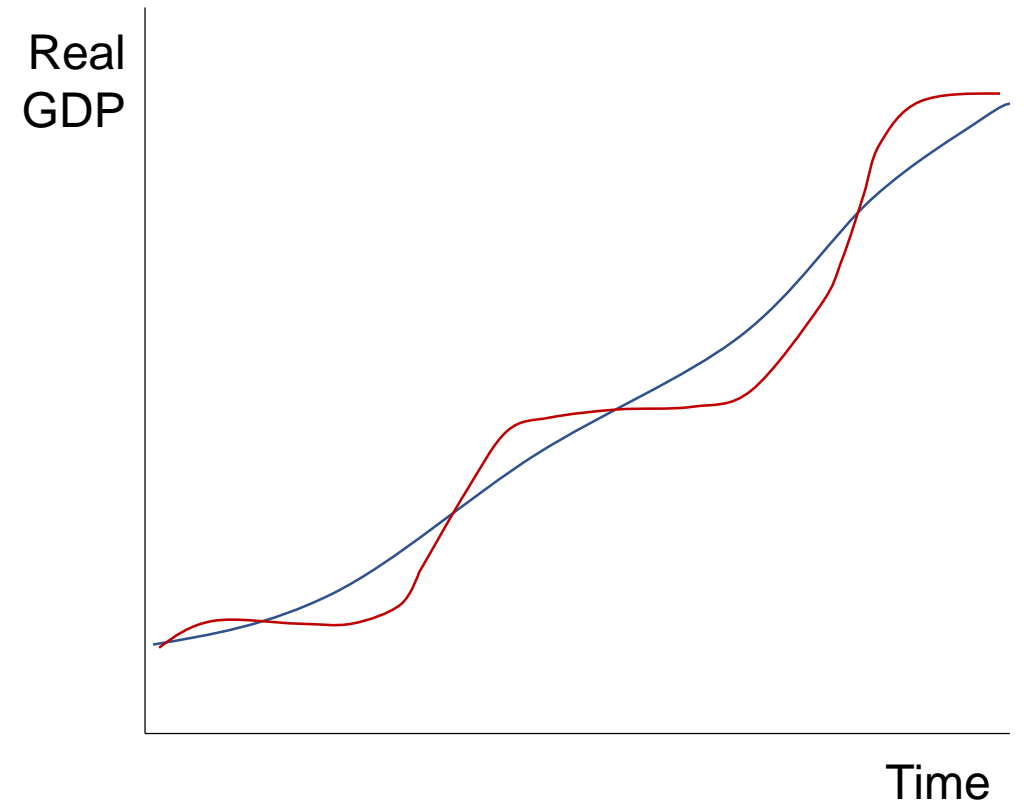
- We can judge how rapidly an economic variable is growing by calculating the number of years it would take for it to double.
- One easy way to calculate approximately how many years it will take real GDP per capita to double is the use of the rule of 70.
- Number of years to double =  $\frac{70}{\text{Growth Rate}}$
- If RGDP is growing at a rate of 6% per year, how long will it take for it to double?

# Determinants of Long-Run Growth

- Labor productivity
  - The quantity of goods and services that can be produced by one worker or by one hour of work
- Labor productivity depends upon:
  - The quantity of capital per hour worked (physical and human capital)
  - The level of technology
- Property rights and the enforcement of contracts
- Efficient financial system, systems of education, transportation and communication

# Potential GDP

- The level of real GDP attained when all firms are producing at capacity.
- Capacity of a firm is not the maximum output the firm is capable producing, but its output when operating on normal hours, using normal workforce.



# The Financial System

- The system of financial markets and financial intermediaries through which firms acquire funds from households.
- Financial Markets
  - Markets where financial securities, such as stocks and bonds, are bought and sold
- Financial Intermediaries
  - Firms, such as banks, mutual funds, pension funds, and insurance companies, that borrow funds from savers and lend them to borrowers
- Financial System Services
  - Risk sharing (Risk: the chance that the value of a financial security changes)
  - Liquidity (ease with which a financial security can be exchanged for money)
  - Information (facts about borrowers and expectations about returns)

# Saving and Investment

The total value of saving in the economy must equal the total amount of investment.

- Remember:

- In an open economy:

- $$Y = C + I + G + NX$$

- In a closed economy:

- $$Y = C + I + G, \text{ because } NX = 0$$

- Then:

- $$-I = Y - C - G$$

- $$S = S_{\text{private}} + S_{\text{public}}$$

- $$S_{\text{private}} = Y + TR - C - T$$

- $$S_{\text{public}} = T - G - TR$$

# Savings Equals Investment Condition

$$S = S_{\text{private}} + S_{\text{public}}$$

Or

$$S = (Y + TR - C - T) + (T - G - TR)$$

Or

$$S = Y - C - G$$

Or

$$S = I$$

# Budget Deficits and Surpluses

- **Balanced Budget**
  - When the government spends the same amount it collects in taxes
  - $T = G + TR$
- **Budget Deficit**
  - When the government spends more than it collects, meaning that public savings is negative
  - $T < G + TR$
- **Budget Surplus**
  - When the government spends less than it collects, meaning that public savings is positive, resulting in higher levels of investment spending
  - $T > G + TR$

# The Market for Loanable Funds

- Or:
  - How to apply the savings equals investment condition to the financial markets?
- Market for loanable funds:
  - The interaction of borrowers and lenders that determines the market interest rate and the quantity of loanable funds exchanged
  - Closed economy assumption



# Demand and Supply for Loanable Funds

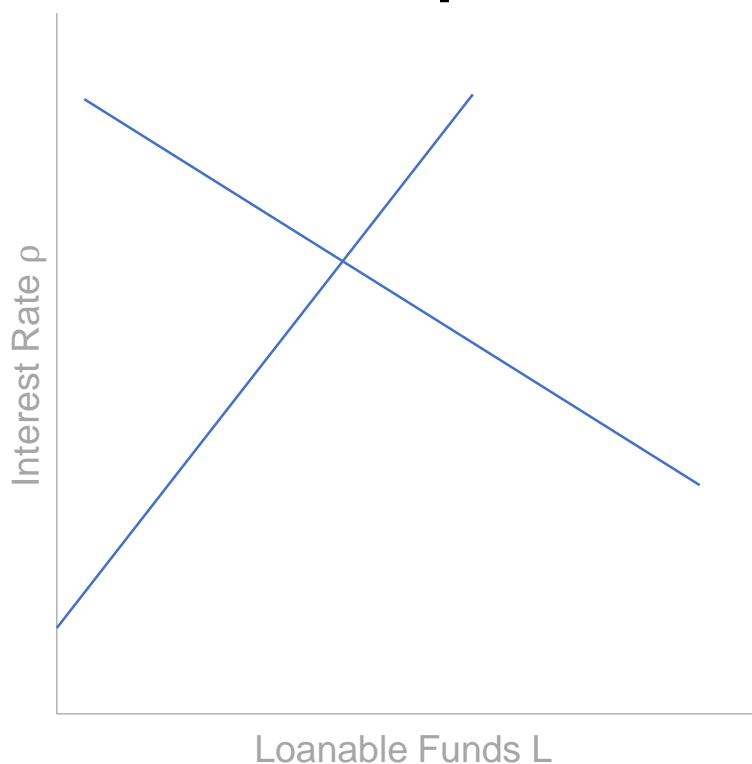
- Demand for loanable funds:
  - Determined by the willingness of firms to borrow money
  - Depends upon the return a firm expects to make on an investment with the interest rate they have to pay
- Supply of loanable funds:
  - Determined by the willingness of households to save, which in turn depends upon the interest rate they receive when lending their savings
  - Determined by the extent of government saving or dissaving

# Nominal vs. Real Interest Rate

- Interest Rate:
  - Cost of borrowing funds, expressed as a percentage of the amount borrowed.
- Nominal Interest Rate:
  - The stated interest rate on a loan.
- Real Interest Rate:
  - Corrects the nominal interest rate for the effect of inflation on purchasing power.
  - *Real Interest Rate = Nominal Interest Rate – Inflation Rate*
- Equilibrium in the market for loanable funds determines the real interest rate

# Movements in $S$ , $I$ , and $\rho$

## The Market Equilibrium

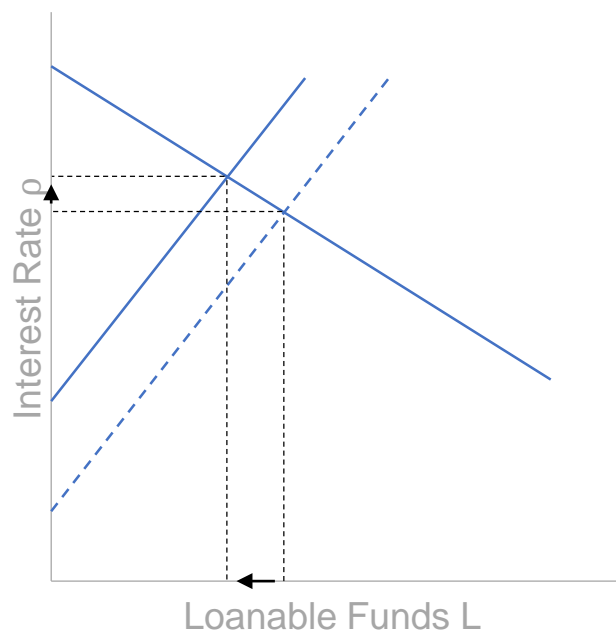


- Determines the quantity of loanable funds that will flow from lenders to borrowers
- Determines the real interest rate that lenders will receive and borrowers must pay
- Ceteris Paribus Condition

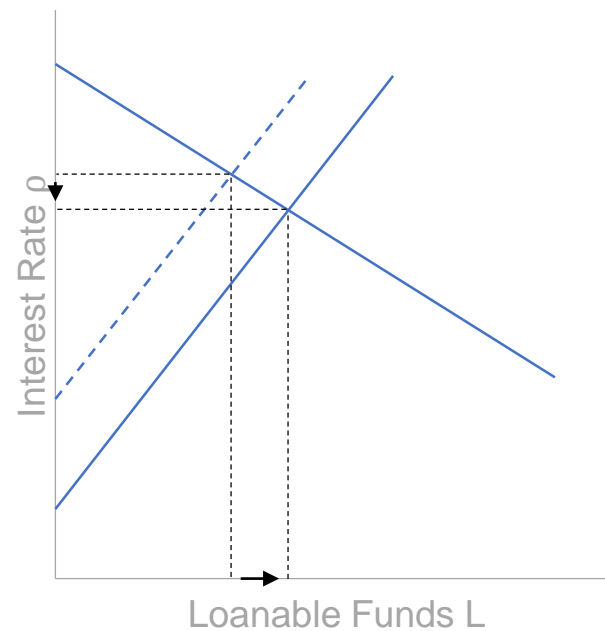
# Movements in $S$ , $I$ , and $\rho$

## Government Budget Deficit

- Crowding out

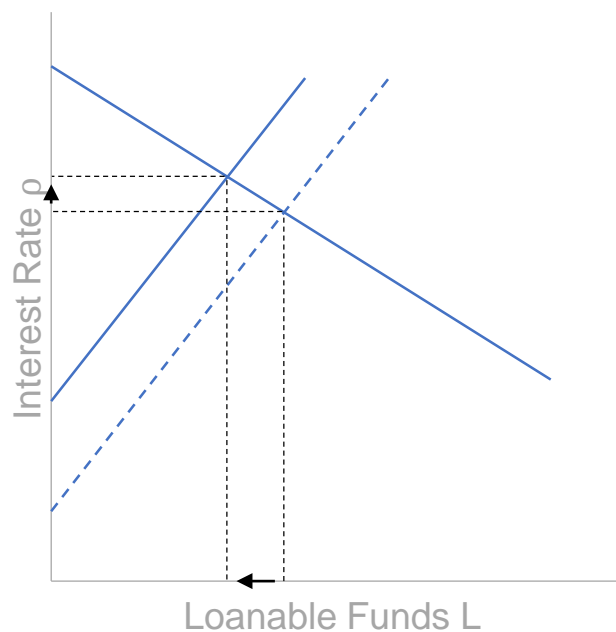


## Government Budget Surplus

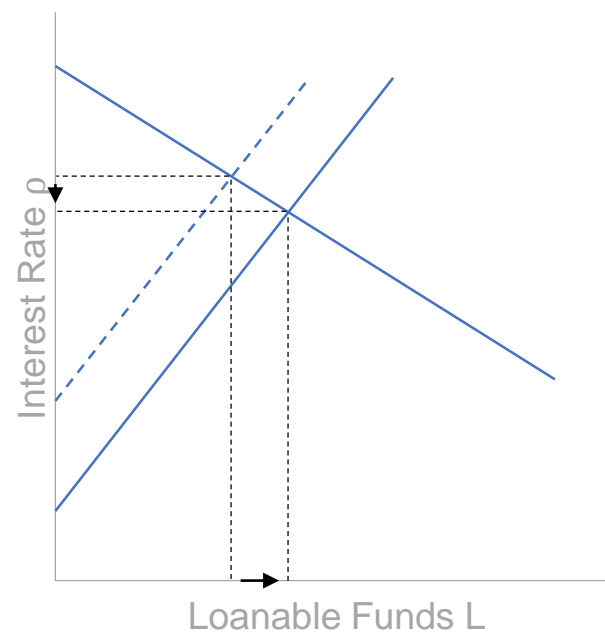


# Movements in $S$ , $I$ , and $\rho$

**Increased Household Consumption**



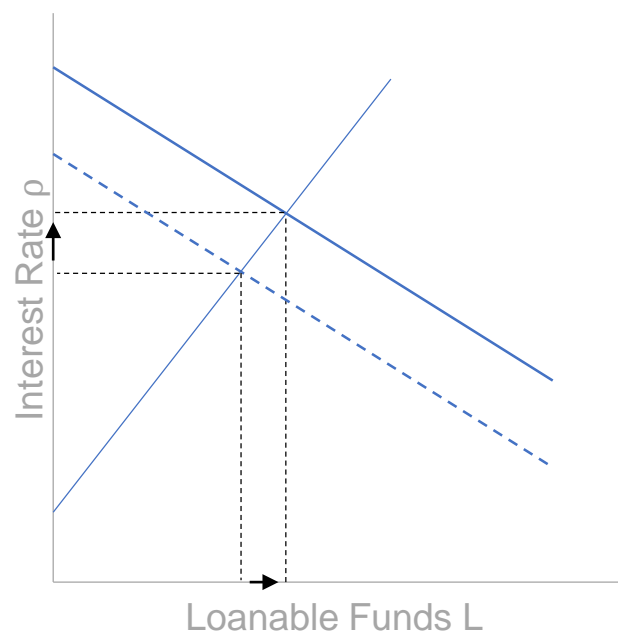
**Increased Household Savings  
e.g. retirement accounts**



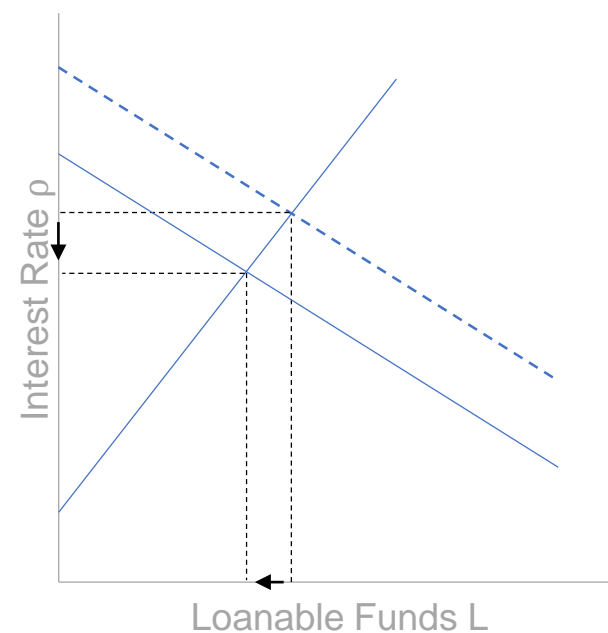
# Movements in $S$ , $I$ , and $\rho$

## Expected Future Profits

- Technological Change



## Corporate Taxes



# Summary

- Economic growth refers to sustained increases over time in the value of GDP, whereas Economic Development refers to improvements over time in quality of life and living standards.
- The total value of saving in the economy must equal the total amount of investment.
- The interaction of borrowers and lenders that determines the market interest rate and the quantity of loanable funds exchanged happens in the market for loanable funds.