Lecture 8: Saving, Investment and the Financial System

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**Review: Income = Output**

- Total value of income must equal the total value of expenditures because expenditures are financed by income earned by households.
- Households own L, K, R.
- The components of income are:
  - Wages
  - Profits (dividends)
  - Prices paid for resources
How the Economy Actually Works
How the Economy Actually Works

- $Y = C + I + G + (X-IM)$
- Consumption and saving (households) is funded from disposable income (income less taxes)
- Investment is funded using people’s savings
- Government expenditure is funded using taxes (net of transfer payments) from household’s total income
- Import expenditures are made by all three sectors of the economy
- Export income comes from the Rest of World
Financial Institutions...

- are the institutions in the economy that help to match one person’s saving with another person’s investment.
- move the economy’s scarce resources from savers to borrowers.
- are opportunities for savers to channel unspent funds into the hands of borrowers.
Financial Institutions in the U.S. Economy

- There are two broad types:
  - Financial Markets
    - Stock Markets
    - Bond Market
  - Financial Intermediaries:
    - Banks
    - Mutual Funds
    - Other (usually private sources)
Financial Markets: The Stock Market

- **Stock** represents ownership in a firm, thus the owner has claim to the profits that the firm makes.
- Sale of stock infers “equity finance” but offers both higher risk and potentially higher return.
- Stock prices determined by demand and supply for specific stocks
- U.S. Markets in which stock is traded:
  - New York Stock Exchange
  - American Stock Exchange
  - NASDAQ
Financial Markets: The Bond Market

- A **bond** is a certificate of indebtedness that specifies obligations of the borrower to the holder of the bond.
- Referred to as “debt-finance”
- Characteristics of a bond:
  - **Term**: the length of time until maturity.
  - **Credit Risk**: probability the borrower will fail to pay interest or principle.
  - **Tax Treatment**: municipal bonds on which taxes are deferred on the interest.
**Financial Intermediaries: Banks**

- Banks take in deposits from people who want to save and make loans to people who want to borrow.
- Banks pay depositors interest and charge borrowers higher interest on their loans.
- Banks help create a *medium of exchange*, by allowing people to write checks against their deposits.
**Financial Intermediaries: Mutual Funds**

- *A Mutual Fund* is an institution that sells shares to the public and uses the proceeds to buy a selection, or portfolio, of various types of stocks, bonds, or both.
- Allows people with small amounts of money to diversify their investments across many stocks to avoid risk.
Financial Intermediaries: Other

Other financial intermediaries include:

- Savings and Loans Associations
- Credit Unions
- Pension Funds
- Insurance Companies
- Loan Sharks
Saving and Investment in the National Income Accounts

- Recall: GDP is both total income in an economy and the total expenditure on the economy’s output of goods and services:
  \[ Y = C + I + G + NX \]
- Assume a closed economy:
  \[ Y = C + I + G \]
- National Saving or Saving is equal to:
  \[ Y - C - G = I = S \]
Saving and Investment in the National Income Accounts

- National Saving or Saving is equal to:
  \[ Y - C - G = I = S \text{ or} \]
  \[ S = (Y - T - C) + (T - G) \]
  where “T” = taxes net of transfers

- Two components of national saving:
  - Private Saving = \((Y - T - C)\)
  - Public Saving = \((T - G)\)
Saving and Investment

- **Private Saving** is the amount of income that households have left after paying their taxes and paying for their consumption.

- **Public Saving** is the amount of tax revenue that the government has left after paying for its spending.

- For the economy as a whole, saving must be equal to investment.
The Market For Loanable Funds

- Financial Institutions coordinate the economy’s saving and investment in

  The Loanable Funds Market

- The **Supply of Loanable Funds** comes from people who have extra income that they want to loan out.

- The **Demand for Loanable Funds** comes from those who wish to borrow to make investments.
The Real Interest Rate

- There are two types of interest rates
  - Nominal \( (i) \): The return posted on financial assets (savings accounts, bonds, etc.)
  - Real \( (r) \): The return from a nominal rate accounting for inflation.

\[
\text{Real rate} = \text{nom. rate} - \text{expected inflation rate}
\]
The Real Interest Rate

- **Savers** - when they decide to save consider the actual return - the real interest rate.
- **Investors** - when they borrow they consider the actual cost of borrowing - the real interest rate on the debt.
- Overall then, the real interest rate is a "price" in the economy that determines supply (savings) and demand (investment) for loanable funds provided by financial institutions.
The Market For Loanable Funds

Interest Rate vs. Loanable Funds: The supply of loanable funds increases as the interest rate increases.
The Market For Loanable Funds

Real Interest Rate

Supply

Demand

Loanable Funds
The Market For Loanable Funds

Real Interest Rate \( (r) \)

Supply

Demand

Loanable Funds

\( r^* \)

\( Q^* \)
The Market For Loanable Funds

Supply

Demand

Real Interest Rate

$r^*$

$q^*$

Loanable Funds

Movement to equilibrium is consistent with principles of supply and demand.
The Market For Loanable Funds

- The supply and demand for loanable funds depends on the real interest rate.
- Equilibrium in the loanable funds market determines the real interest rate and quantity of loanable funds in the economy.
- *Saving* represents the supply of loanable funds.
- *Investment* represents demand.
Government Policy That Affects The Economy’s Saving and Investment

- Policies that influence the loanable funds market:
  - Taxes and Saving
  - Taxes and Investment
  - Government Budget Deficits
- Observe how policy affects equilibrium interest rates and funds.
Government Policy That Affects Saving and Investment

- Taxes on consumption reduce the incentive to spend. A tax increase would alter the incentive for households to save at any given interest rate and would affect the supply of loanable funds resulting in the:
  - Supply curve shifting to the right.
  - Equilibrium interest rate would drop.
  - Quantity demanded for funds would rise.
The Market For Loanable Funds

Real Interest Rate

Supply

Demand

Loanable Funds

$ r^* $
The Market For Loanable Funds

Real Interest Rate

$\text{Demand} \quad \text{Loanable Funds}$

$\text{Supply}$

Taxes on consumption reduce the incentive to spend, affecting the supply of loanable funds.
Government Policy That Affects The Economy’s Saving and Investment

- A Tax Break on investment would increase the incentive to borrow if an investment tax credit were given.
- An investment tax credit would:
  - Alter the demand for loanable funds.
  - Cause the demand curve to shift to the right.
  - Result in higher interest rate and greater saving.
The Market For Loanable Funds

- Demand
- Supply

Real Interest Rate

\( r^* \)

\( Q^* \) Loanable Funds
The Market For Loanable Funds

**Real Interest Rate**

**Supply**

Tax Break on investment would increase the incentive to borrow, altering the demand for loanable funds.

**Demand**

![Graph showing supply and demand for loanable funds with a tax break on investment increasing the demand.](image-url)
The Market For Loanable Funds

Real Interest Rate

\( r_1^* \)

\( r_2^* \)

Supply

Demand

Loanable Funds

\( Q_1^* \)

\( Q_2^* \)
Government Policy That Affects Saving and Investment

- **Government Budget Deficit:**
  - When the government spends more than it receives in tax revenues the accumulation of past budget deficits is called the government debt.

- The budget deficit (not the debt):
  - Alters the supply curve, reducing supply.
  - Causes the supply to shift to the left.
  - Results in *Crowding Out*. 


Government Policy That Affects The Economy’s Saving and Investment

- When the government borrows to finance its budget deficit, it reduces the supply of loanable funds available to finance investment by households and firms.
- This deficit borrowing “crowds out” the private borrowers who finance private (non-government) investments.
The Market For Loanable Funds

Real Interest Rate

Supply

Demand

 Loanable Funds

\( r^* \)

\( Q^* \)
Government borrowing to finance its budget deficit reduces the supply of loanable funds.
The Market For Loanable Funds

Supply

Demand

Real Interest Rate

$r_2^*$

$r_1^*$

Loanable Funds

$Q_2^*$

$Q_1^*$
Summary:

- Financial markets coordinate borrowing and lending and thereby help allocate the economy’s scarce resources efficiently.
- Financial markets are like other markets in the economy. The price in the loanable funds market is the real interest rate.
- Supply in market created by saving (both Public Savings and Private Savings).
- Demand in market created by investors.
- Government can influence savings and investment by tax policies on (i) saving (ii) investment and (iii) its budget deficit.