# Session 8: Components of Demand

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# Course Outline

1. Components of Demand:
    1.1 Consumption
    1.2 Investment
    1.3 Government

**Useful information:**

- Suggested references: *Macroeconomics (O. Blanchard)*.
- Assessment: MCQ and PS (available this Friday on Blackboard).
- Online Exercise Session: TBA
- OH: after class and via email (Zoom or in person).

# Components of Demand: Investment

# Investment

- Firms need capital to produce goods.
- To invest, they borrow at the real interest rate $r$.
- The real interest rate is the cost of borrowing.
- Lower interest rates $\longrightarrow$ cheaper borrowing $\longrightarrow$ more investment.

Key Takeaway:

- Higher interest rates make borrowing more expensive, reducing investment.

# Firms: Simplified Optimization Problem

**How do firms decide how much to invest?**

- Firms maximize profits by choosing capital investment $K$.
- The firm's profit function is:

$$\pi = f(K) - K(1 + r) \tag{1}$$

- Firms borrow $I$ to finance capital ($K = I$).
- After production, they must repay $I(1 + r)$ in the next period.
- Investment $I$ is a decreasing function of $r$.

# Investment and Interest Rates

- Firms compare the expected return from investment with the cost of borrowing.
- The cost of borrowing is the real interest rate.

Investment rule:

- If borrowing is cheap $\rightarrow$ more investment.
- If borrowing is expensive $\rightarrow$ less investment.

Key takeaway:

- Investment is a decreasing function of the real interest rate.

## Investment and Crisis

Key Observations:

- Interest rates were historically low.
- Despite this, investment remained weak.

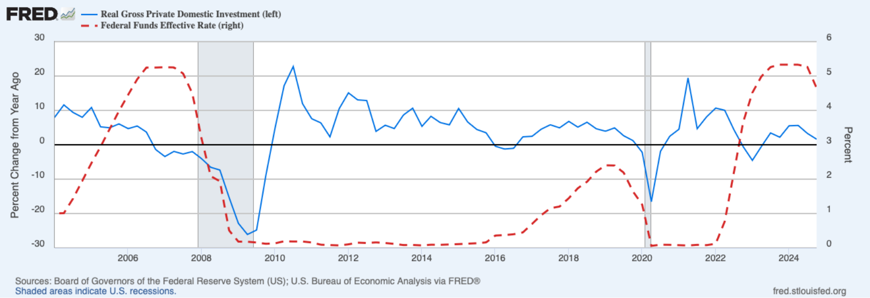


**Figure 1:** Investment Rate and Fed Fund Rate

# Investment and Crisis

Understanding the Puzzle:

- Traditional models suggest low rates should boost investment.
- However, the investment response was weaker than expected.

Possible Explanations:

- Economic uncertainty discouraged firms from committing to long-term projects.
- Credit conditions remained tight, limiting access to funding.
- Structural factors, such as declining business confidence, may have reduced investment appetite.

# Determinants of Investment

- **Uncertainty about future outcomes** $\longrightarrow$ Firms delay investment if demand or inflation is uncertain.

- **Financing conditions** $\longrightarrow$ Even if central bank rates are low, banks may set higher lending rates due to risk.

- **Bank intermediation premium** $\longrightarrow$ The spread between bank lending rates ($r_F$) and policy rates ($r$) affects borrowing costs.

Key takeaway:

- Investment decisions depend on interest rates, uncertainty, and financing constraints.

# Investment and Expectations

- Investment decisions depend strongly on expectations about the future.

Examples:

- If firms expect strong demand $\rightarrow$ they invest more.
- If firms expect a recession $\rightarrow$ they postpone investment.

Examples of uncertainty:

- Future economic growth
- Inflation
- Government policy

# Summary: What Drives Investment?

Main determinants of investment:

- **Interest rates** Lower borrowing costs encourage investment.
- **Economic expectations** Firms invest when they expect strong future demand.
- **Financial conditions** Credit availability affects firms' ability to borrow.
- **Uncertainty** High uncertainty can delay investment decisions.

Key takeaway:

- Investment depends on both financial conditions and expectations about the future.

# Components of Demand: Government

# Government: Role in the Macroeconomy

**Key Questions:**

- What does the government spend on?
- How does it finance expenditures?

**Two Main Themes:**

- Government Budget Constraint: Budget deficits today must be offset by budget surpluses in the future.
- The Fiscal Problem of the 21st Century: Many advanced economies face unsustainable long-term debt projections.

# What Does The Government Spend On?

- United States (2024):
  - **Total Spending:** \$6.752 trillion (23.4% of GDP)
  - **Total Revenues:** \$4.919 trillion (17.1% of GDP)
  - **Budget Deficit:** \$1.833 trillion (6.4% of GDP)

- Italy (2024):
  - **Total Spending:** \$1.110 trillion (53.8% of GDP)
  - **Total Revenues:** \$996.59 billion (46.6% of GDP)
  - **Budget Deficit:** \$78.2 billion (3.4% of GDP)

- What is a budget deficit? A budget deficit occurs when the money going out exceeds the money coming in for a given period.

- What is a budget surplus? A surplus occurs when the government collects more money than it spends.

# Types of Government Spending

Government expenditures can take different forms:

- **Government purchases ($G$)**
  - Infrastructure (roads, bridges)
  - Public services (education, defense)
  - Public sector wages
- **Transfer payments ($Tr$)**
  - Pensions
  - Unemployment benefits
  - Social assistance

Key distinction:

- Government purchases directly affect GDP.
- Transfers redistribute income but do not directly increase production.

# U.S. Government Spending and Revenue

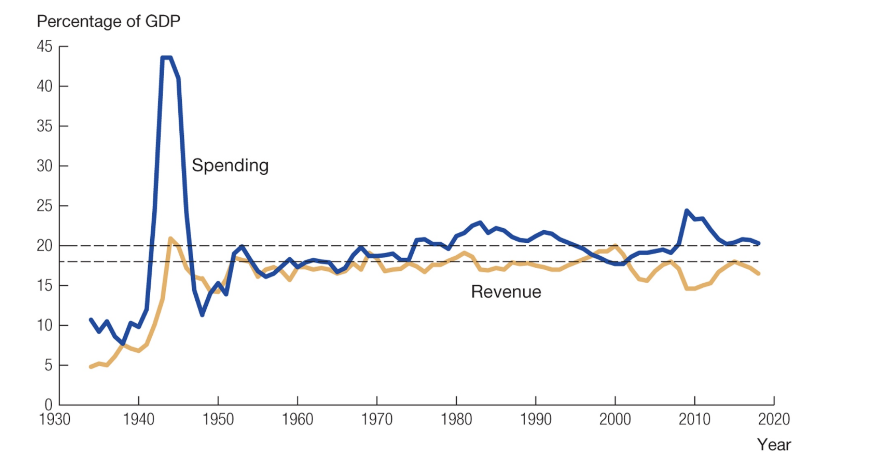


**Figure 2:** U.S. Government Spending and Revenue

# How Does it Finance Expenditures?

Government Budget Constraint

$$G_t + Tr_t + iB_t = T_t + \Delta B_{t+1} \tag{2}$$

- $G_t$ = Government spending
- $Tr_t$ = Transfer payments (e.g., Social Security)
- $iB_t$ = Interest payments on debt
- $T_t$ = Tax revenues
- $\Delta B_{t+1}$ = New borrowing

Key Insights:

- Budget deficits increase government debt.
- Governments finance deficits issuing new debts or thssough taxes and spending cuts (austerity, 2010-2019).
- The budget constraint must hold in present discounted value terms.

# Why Do Governments Run Deficits?

Governments may run budget deficits for several reasons.

<u>Economic stabilization:</u>

- During recessions, governments increase spending or reduce taxes.
- This helps support economic activity.

<u>Public investment:</u>

- Governments may borrow to finance infrastructure or education.
- These investments can increase long-term economic growth.

<u>Unexpected events:</u>

- Financial crises
- Wars
- Pandemics

# How Does it Finance Expenditures?

Debt Accumulation:

- Budget deficits lead to increased government debt.
- U.S. Debt-GDP ratio exceeded 120% in 2024.
- Debt held both by U.S. entities and foreign investors.

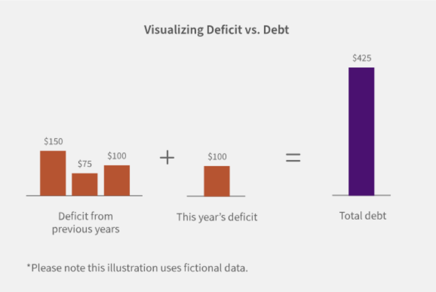


**Figure 3:** US Deficit vs Debt

# How Does it Finance Expenditures?

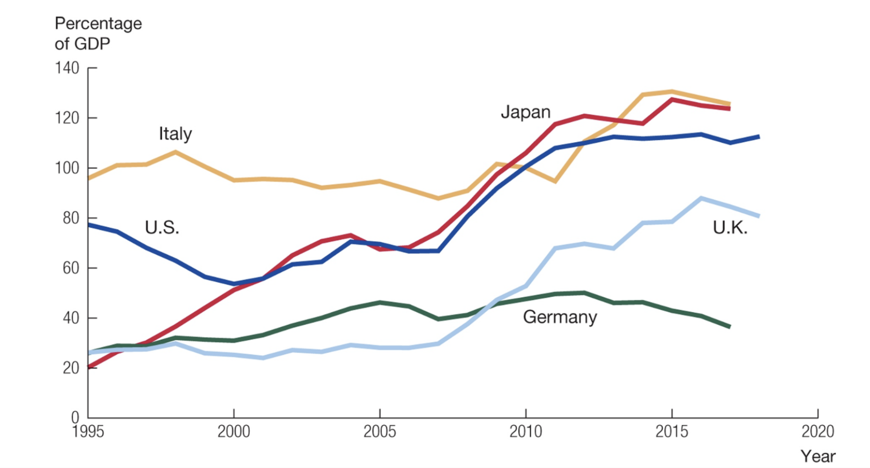


**Figure 4:** Debt-GDP Ratio Across Countries

# When Is Government Debt Sustainable?

Government debt is usually evaluated relative to the size of the economy.

Debt-to-GDP ratio:

- Measures government debt compared to national income.
- A higher ratio means a larger debt burden.

Key idea:

- If the economy grows faster than government debt, the debt burden can remain manageable.

Example:

- After World War II many countries had very high debt, but strong economic growth gradually reduced debt ratios.

## Government: Key Aspects

- Governments play a crucial role in macroeconomic stability.
- Budget deficits and debt accumulation must be managed responsibly.
- Government finance expenditure through debt accumulation, taxes and austerity.
- Countries have different welfare system and thus different spending policies (Scandinavian countries vs USA).
- Economic growth can help reduce the ratio of Debt-GDP.