Chapter 3: Components of Demand

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ESCP - Macroeconomics EF01
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Course Outline

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

Useful information:

- Suggested references: *Macroeconomics (C.I. Jones).*
- Assessment: MCQ and PS (available this Friday on Blackboard).
- Online Exercise Session I: Thursday March 20th at 3-4pm.
- Online Exercise Session II: Monday April 2nd at 3-4pm.
- OH: after class (10-10.30am) and via email (Zoom or in person).

Quick Rewiew

Components of Demand

In a market economy, spending decisions are made by:

- Consumption.
- Investment.
- Government.
- Exporters and Importers.

Government spending is decided by policymakers. Because it can be chosen independently from the general income level, it is fully autonomous.

In this course, we will focus on consumers and firms and take the decisions of exporters and importers as exogenous.[1]

[1] For our purposes, we could also have made the stronger assumption that the economy is closed, that is, exports and imports are zero.

Consumption Decisions: Overview

Key Determinants of Consumption Choices:

- Present vs. Future Consumption Trade-off
- Determined by:
  - Real Interest Rate (r) $\rightarrow$ Market preference for the future
  - Current and Future Income (Y_t, Y_{t+1}, ...)
  - Expectations and Variability

Two Household Types:

- Ricardian Households: Can reallocate consumption intertemporally.
- Keynesian Households: Face credit constraints, consuming current income.

Ricardian vs. Keynesian Consumption Behavior

Ricardian Consumers (Optimization Approach):

- Maximize utility: $U(C_1, C_2) = \log(C_1) + \beta \log(C_2)$
- Subject to intertemporal budget constraint:

$$C_1(1+r) + C_2 \leq Y_1(1+r) + Y_2 \tag{1}$$

- Consumption smoothing $\rightarrow$ Response to income shocks is small: $MPC_R = \frac{1}{1+\beta} \ll 1$

Keynesian Consumers (Credit Constraints):

- Cannot borrow $\rightarrow$ Consume all income: $C_1 = Y_1$
- Stronger response to income shocks: $MPC_K = 1$
- Consumption follows current income directly.

Ricardian vs. Keynesian Consumption Behavior

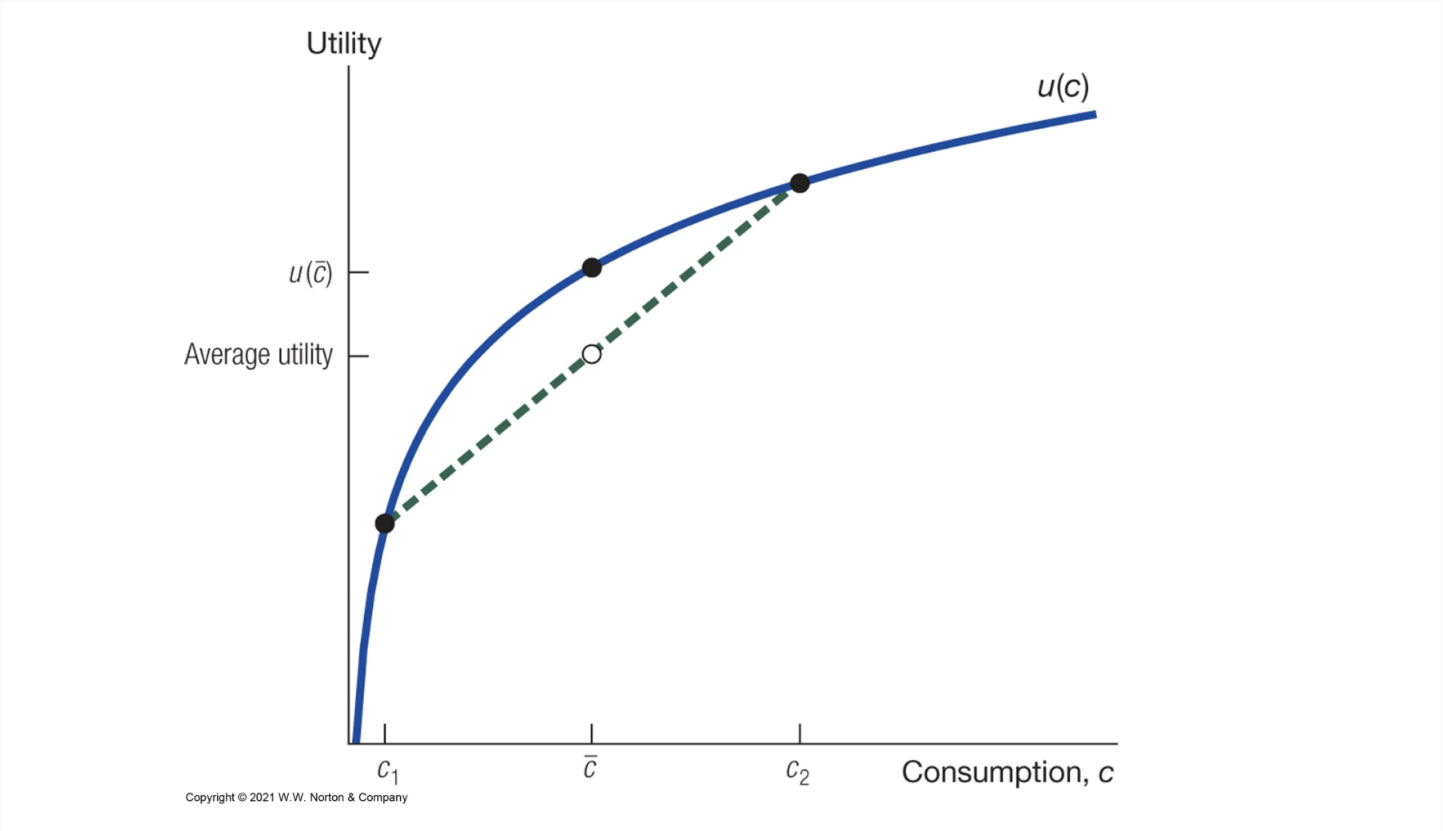

Figure 1: Consumption Smoothing

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Consumption Smoothing vs. Keynesian Households

Understanding the Graph:

- The **solid blue curve** represents the utility function $u(c)$, which is concave.
- The **dashed green line** represents the average utility when consumption fluctuates between c_1 and c_2 instead of being smoothed.

Key Takeaways:

- A household that can smooth consumption at $\bar{c}$ achieves a higher utility $u(\bar{c})$ than the average utility of fluctuating consumption.
- Keynesian households, who are credit-constrained, consume all their income in each period, leading to fluctuations between c_1 and c_2.
- Since utility is concave, the average utility from fluctuating consumption is lower than from smooth consumption.
- This highlights the welfare benefit of consumption smoothing, which Ricardian households can achieve but Keynesian households cannot.

Key Insights from Previous Lecture

Main Takeaways

- In the short run, output can deviate from its potential due to demand shocks, rigidities, and financial constraints.
- Consumption depends on income, interest rates, and expectations, with different behaviors for Ricardian and Keynesian households.
- Investment is influenced by borrowing costs, business confidence, and uncertainty.
- Government policies play a crucial role in stabilizing short-run fluctuations, but long-term fiscal constraints must be considered.

Open Questions

- How do interest rates affect demand and output in a dynamic setting?
- What role does inflation play in short-run economic fluctuations?
- How do central banks respond to shocks to stabilize the economy?

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:

$$\pi = f(K) - K(1 + r) \tag{2}$$

- 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 Crisis

Key Observations:

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

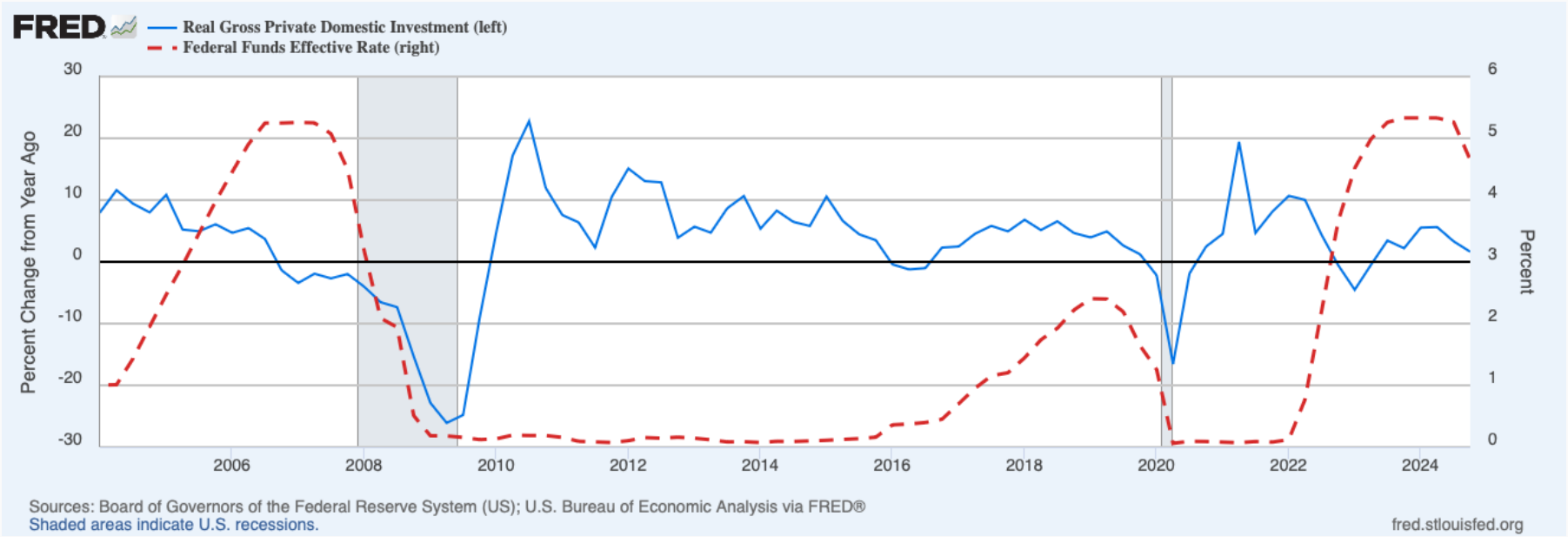

Figure 2: Investment Rate and Fed Fund Rate

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.

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.

U.S. Government Spending and Revenue

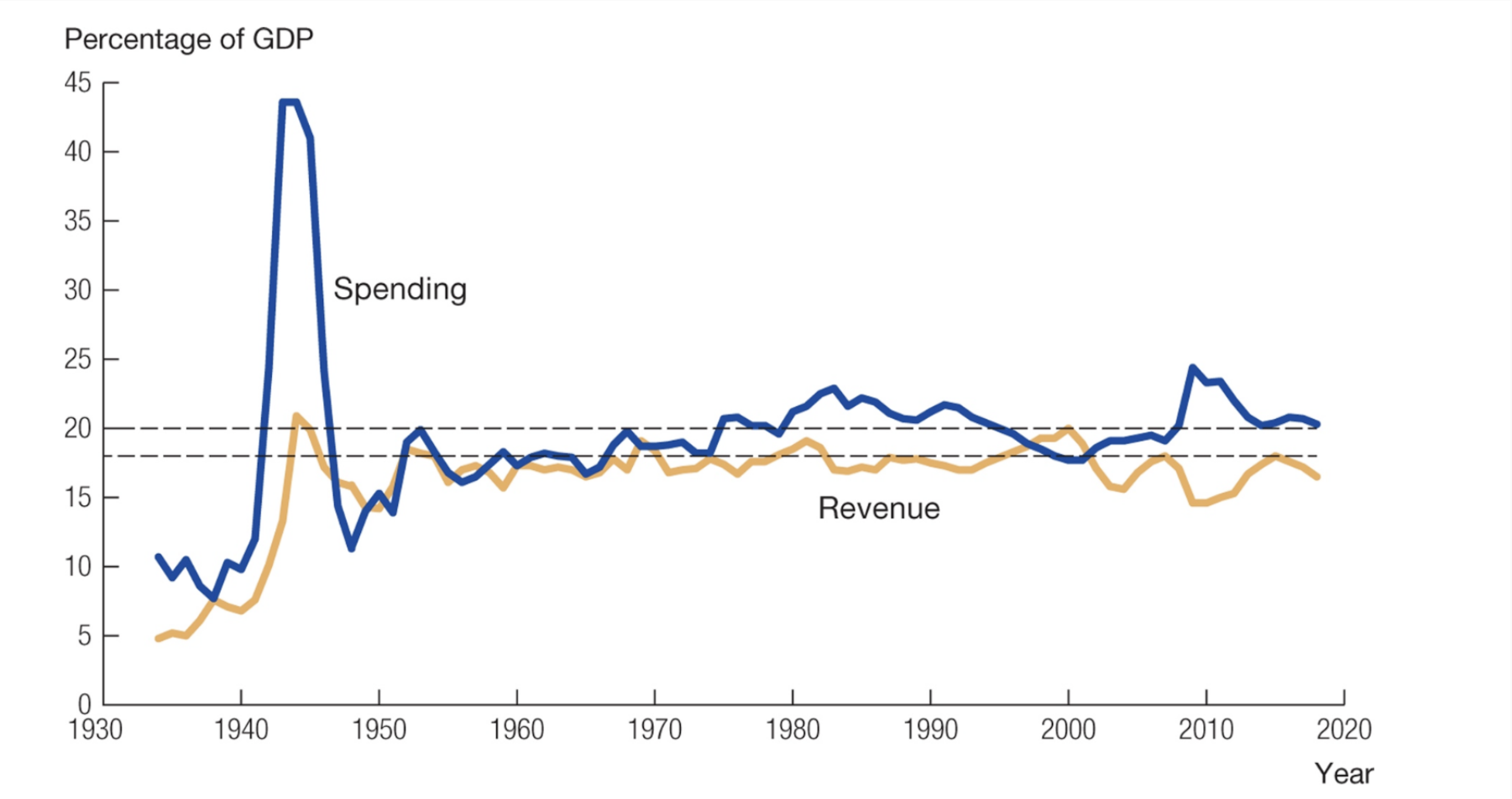

Figure 3: U.S. Government Spending and Revenue

How Does it Finance Expenditures?

Government Budget Constraint

$$G_t + Tr_t + iB_t = T_t + \Delta B_{t+1} \tag{3}$$

- G_t = Government spending
- Tr_t = Transfer payments (e.g., Social Security)
- iB_t = Interest payments on debt
- T_t = Tax revenues
- ΔB_{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.

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.

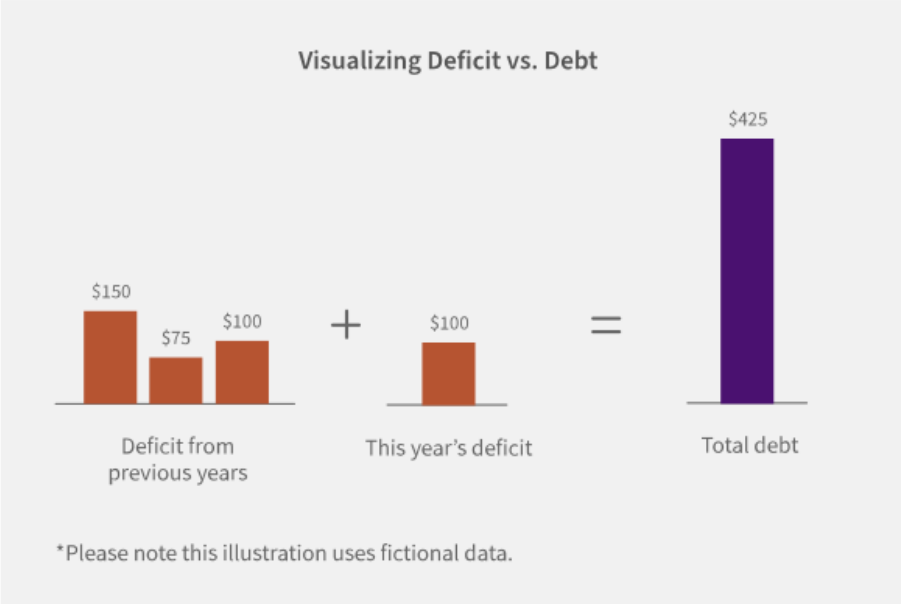

Figure 4: US Deficit vs Debt

How Does it Finance Expenditures?

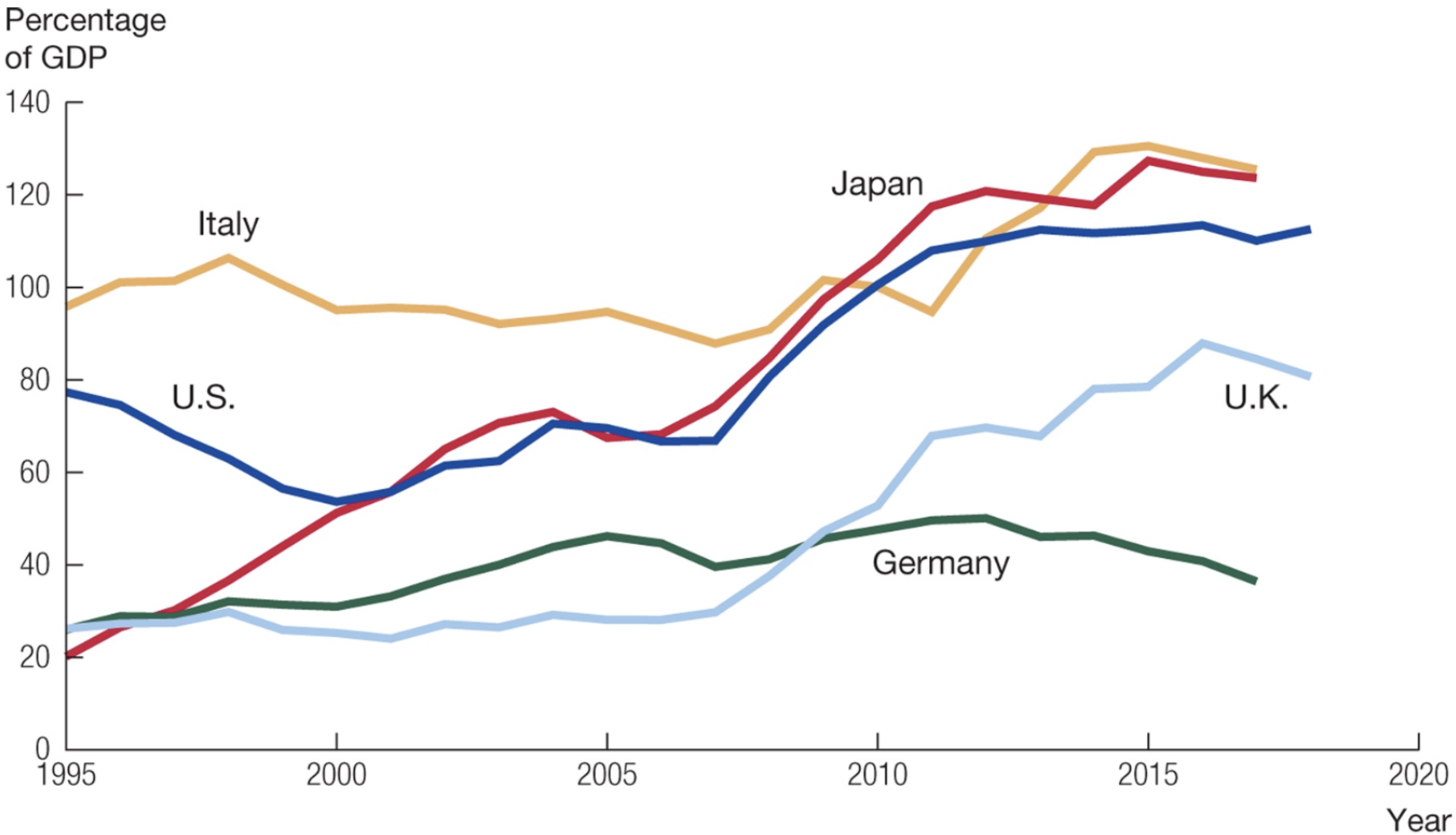

Figure 5: Debt-GDP Ratio Across Countries

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.