

Unit 13

Economics Fluctuations and Unemployment

Hui-Jun Chen

The Ohio State University

March 1, 2023

Introduction

Introduction

Textbook

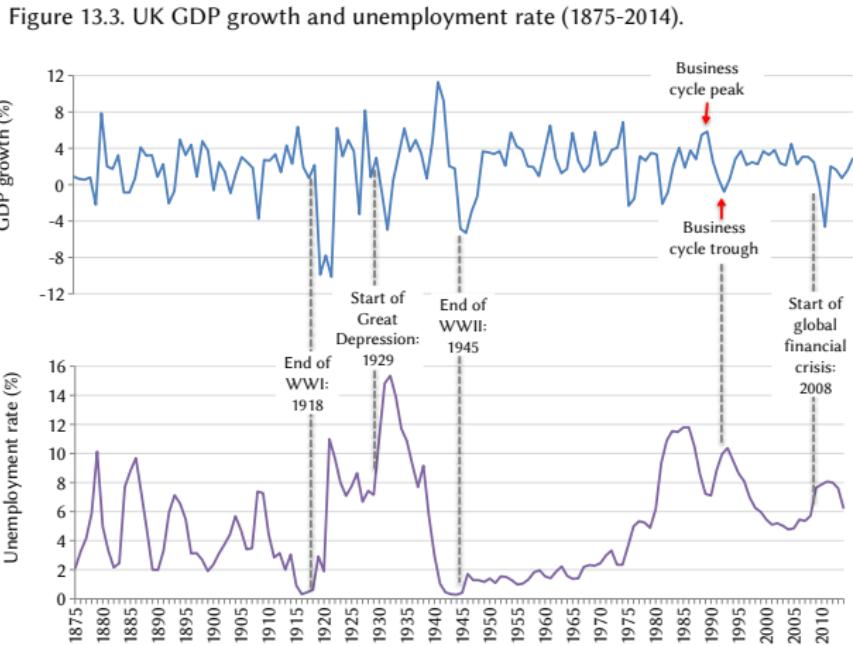
- In Unit 10, we introduced *time* to individual
 - intertemporal substitution, bank & financial system ...
- Recall Lucas' critique: agg. behavior replies on micro foundation
- What are the **dynamics** of the whole economy? (business cycle)
- How to measure aggregate economy? (3 approach on GDP)
- What drives the agg. dynamics? (Econ Fluctuations & Investment)
- Does price have dynamics? (Inflation)

The Business Cycle

The Business Cycle

Def: Alternating periods of positive and negative growth rates.

- Recession: period when output is declining or below its potential level
- The business cycle affects labour market outcomes.

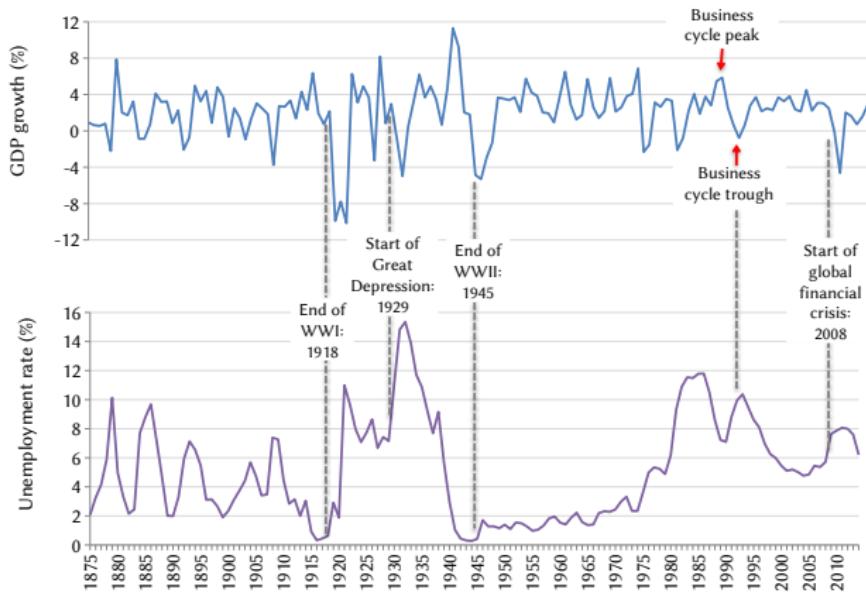


Okun's Law

- **Def:** a strong and stable negative relationship between unemployment and GDP growth.

- Output falls → Unemployment rises → Well-being falls

Figure 13.3. UK GDP growth and unemployment rate (1875-2014).



Measuring the Aggregate Economy

Measurement of GDP

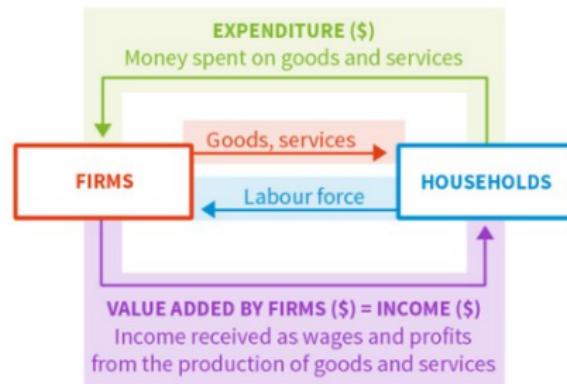
3 equivalent ways to
measure GDP:

Figure 13.6. The circular flow model: Three ways to measure GDP.

① Total spending
on domestic
products

② Total domestic
production
(measured as
value added)

③ Total domestic
income



Components of GDP

$$GDP = C + I + G + X - M$$

- Consumption (C): Expenditure on consumer goods and services
- Investment (I): Expenditure on newly produced capital goods (incl. equipment, buildings, and inventories: unsold output)
- Government spending (G): Government expenditure on goods and services (excluding transfers to avoid double-counting)
- Net exports (trade balance): Exports (X) minus imports (M)

Components of GDP (Cont.)

Figure 13.7. Decomposition of GDP in 2013 for the US, the Eurozone, and China.

| | US | Eurozone (19 countries) | China |
|-------------------------|-------|-------------------------|-------|
| Consumption (C) | 68.4% | 55.9% | 37.3% |
| Government spending (G) | 15.1% | 21.1% | 14.1% |
| Investment (I) | 19.1% | 19.5% | 47.3% |
| Change in inventories | 0.4% | 0.0% | 2.0% |
| Exports (X) | 13.6% | 43.9% | 26.2% |
| Imports (M) | 16.6% | 40.5% | 23.8% |

Private Consumption (C) makes the largest share . . . C is the most important?

Components of GDP growth

Figure 13.8. Contributions to percentage change in real GDP in the US in 2009.

$$\begin{aligned}
 \text{Percentage change in GDP} &= \\
 &\quad (percentage change in consumption \times \\
 &\quad \quad share of consumption in GDP) \\
 &\quad + \\
 &\quad (percentage change in investment \times \\
 &\quad \quad share of investment in GDP) \\
 &\quad + \\
 &\quad (percentage change in government spending \times \\
 &\quad \quad share of government spending in GDP) \\
 &\quad + \\
 &\quad (percentage change in net exports \times \\
 &\quad \quad share of net exports in GDP)
 \end{aligned}$$

| | GDP | CONSUMPTION | INVESTMENT | GOVERNMENT SPENDING | NET EXPORTS |
|------|------|-------------|------------|---------------------|-------------|
| 2009 | -2.8 | -1.06 | -3.52 | 0.64 | 1.14 |

In terms of percentage change, investment is the most volatile!

Economics Fluctuation

Shocks

Def: an unexpected event to agent(s)

There are two broad types of shocks:

① idiosyncratic shocks: Good or bad fortune strikes the household

- Self-insurance: saving and borrowing; other HH are not involved.
- Co-insurance: support from social network or government.

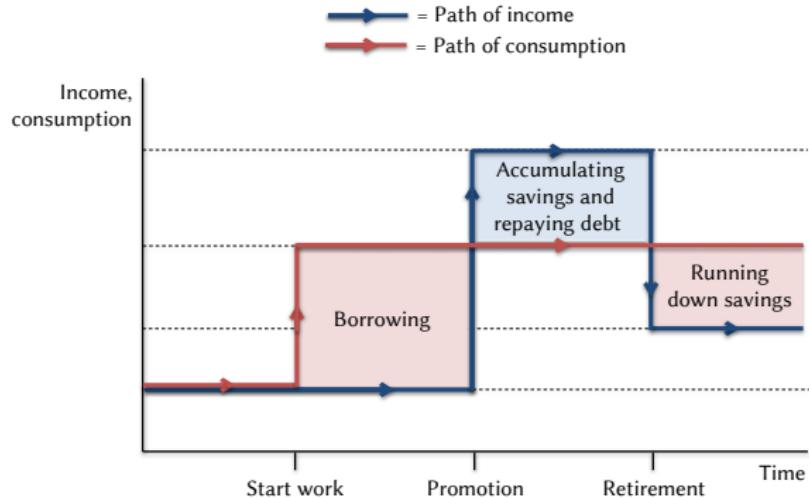
② aggregate shocks: Good or bad fortune strikes the entire economy

- Co-insurance is less effective but even more necessary
- In farming economies of the past that were based in volatile climates, people practised co-insurance based on trust, reciprocity, and altruism.

Consumption Smoothing

Figure 13.10. Consumption smoothing through our lifetime.

- Households make lifetime consumption plans based on expectations about the future, and react to shocks:



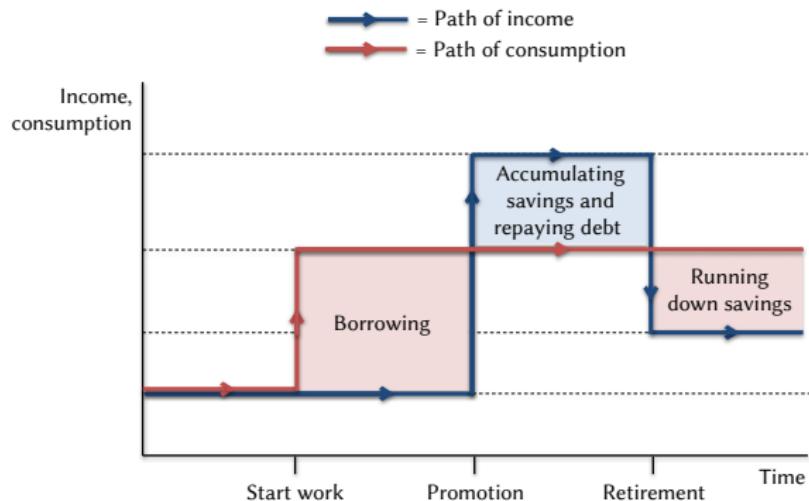
Consumption Smoothing

Figure 13.10. Consumption smoothing through our lifetime.

■ Red line:

long-run
consumption if
shocks are
permanent

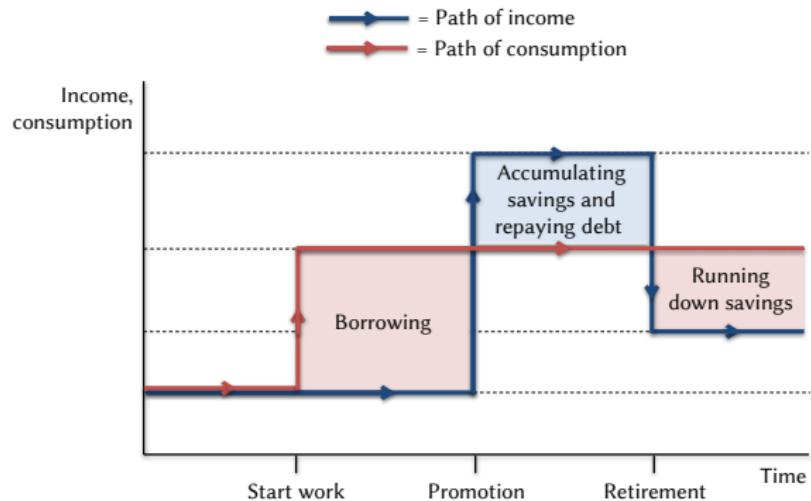
■ Blue line: Income flow at each period (Income shocks)



Consumption Smoothing

Figure 13.10. Consumption smoothing through our lifetime.

- Consumption smoothing: do not change long-run consumption if shocks are temporary

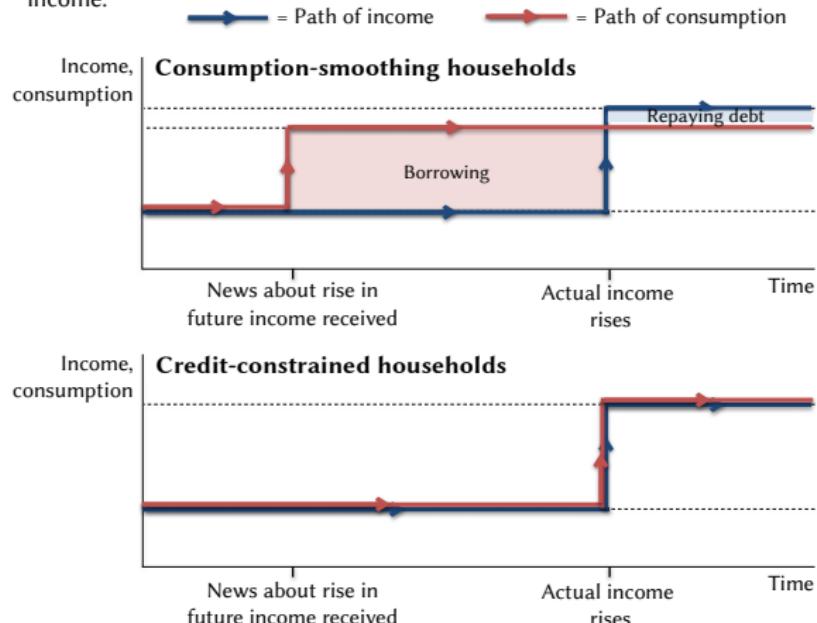


Limitation on Consumption Smoothing

- Credit constraints: limits on amount borrowed/ability to borrow.

- The households unable to adjust to a temporary income shock have lower welfare.

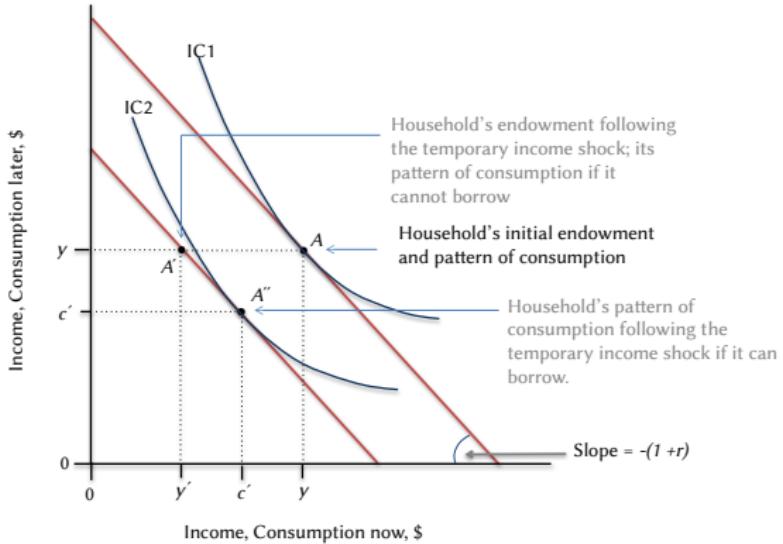
Figure 13.11. Consumption when credit constraints bind: An anticipated rise in income.



Limitation on Consumption Smoothing

- Another angle using $C - C'$ figure
- A' : credit-constrained allocation
- A'' : credit-unconstrained allocation

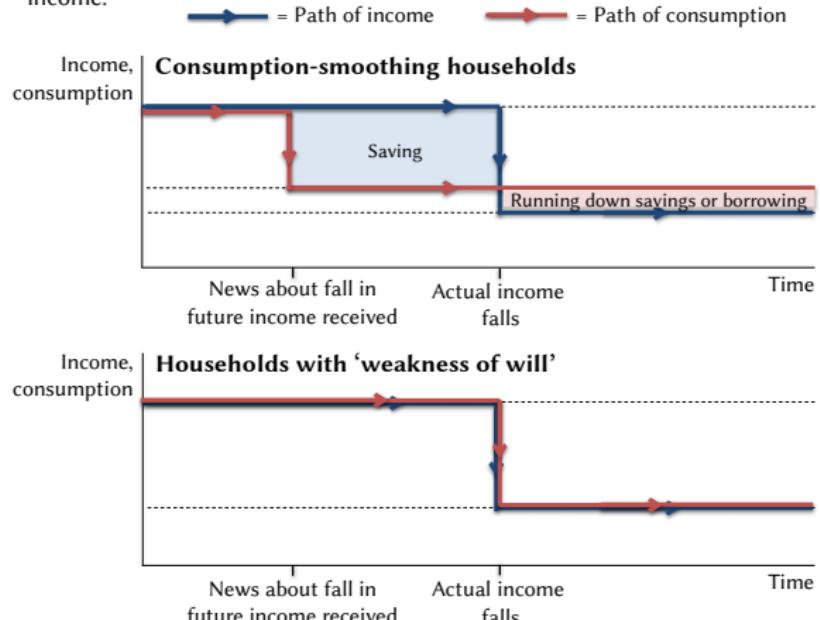
Figure 13.12. Credit-constrained and unconstrained households: An unanticipated temporary fall in income.



Limitation on Consumption Smoothing

- **Weakness of will:** inability to commit to beneficial future plans.
- A household is able to smooth consumption but doesn't, and may regret it later.

Figure 13.13. Consumption when households are weak-willed: An anticipated fall in income.



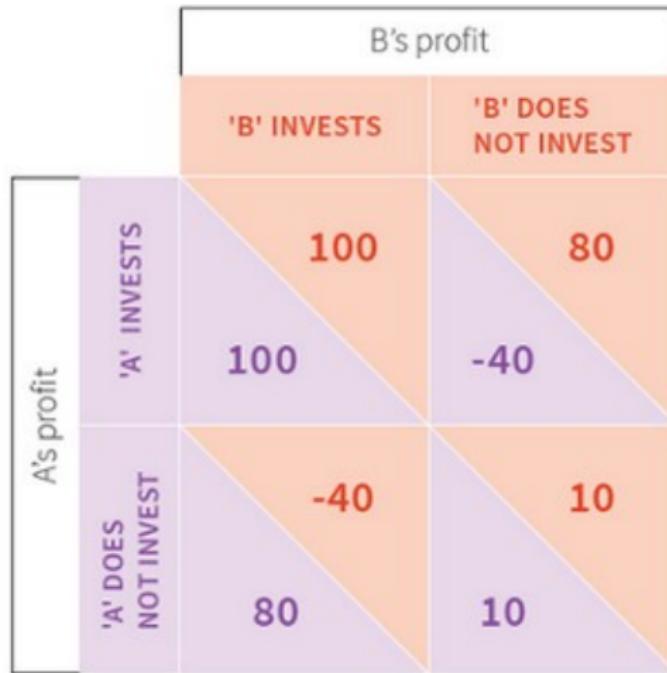
Optimal Investment

Why investment is volatile?

- Firms don't "smooth" investment; investment is **lumpy**.
 - Firms' goal is to max profit, and disband a firm is common
- High demand → high capacity utilisation → investment → even higher demand
- Investment decisions depend on firms' expectations about future demand

Investment as a coordination game

Figure 13.15. Investment decisions as a coordination game.



Confidence Matters

- **Business confidence** coordinates firms to invest at the same time.
- The benefits of **coordinating investment** makes cycles **self-reinforcing**.
- Firms respond positively to the growth of demand in the economy ⇒ why investment is more volatile than GDP.

Other Components

- Government spending is **less volatile** than investment (does not depend on business confidence)
- Exports depend on **demand from other countries**, so will fluctuate according to the business cycles of major export markets.

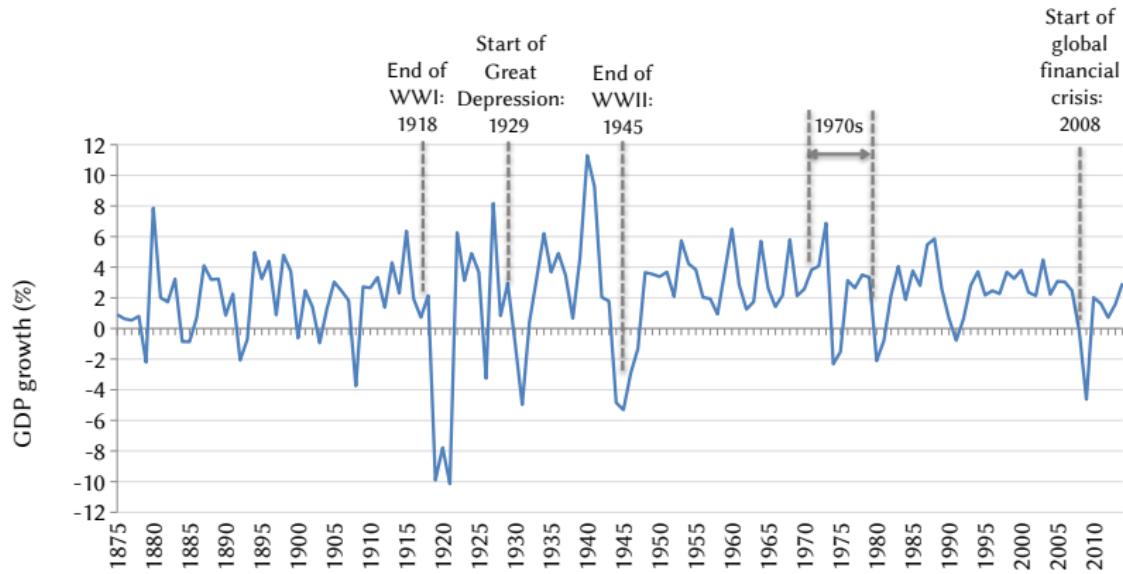
Inflation

Inflation, GDP and Unemployment

Inflation: an increase in the general price level in the economy

Inflation tends to be lower during recessions (high unemployment)

Figure 13.18a. UK GDP growth (1875-2014).

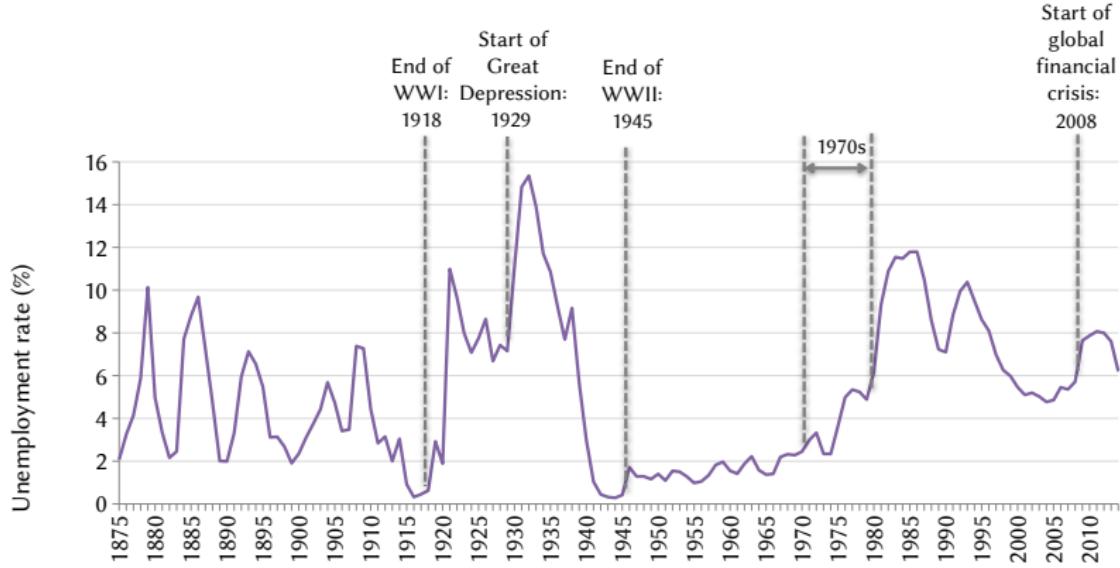


Inflation, GDP and Unemployment

Inflation: an increase in the general price level in the economy

Inflation tends to be lower during recessions (high unemployment)

Figure 13.18b. UK unemployment rate (1875-2014).

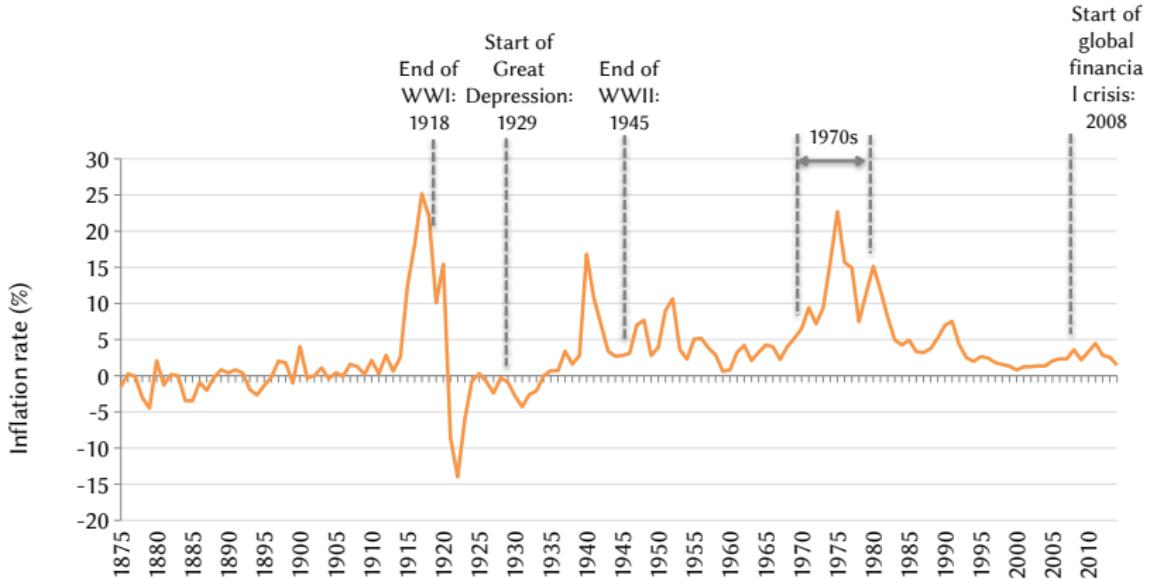


Inflation, GDP and Unemployment

Inflation: an increase in the general price level in the economy

Inflation tends to be lower during recessions (high unemployment)

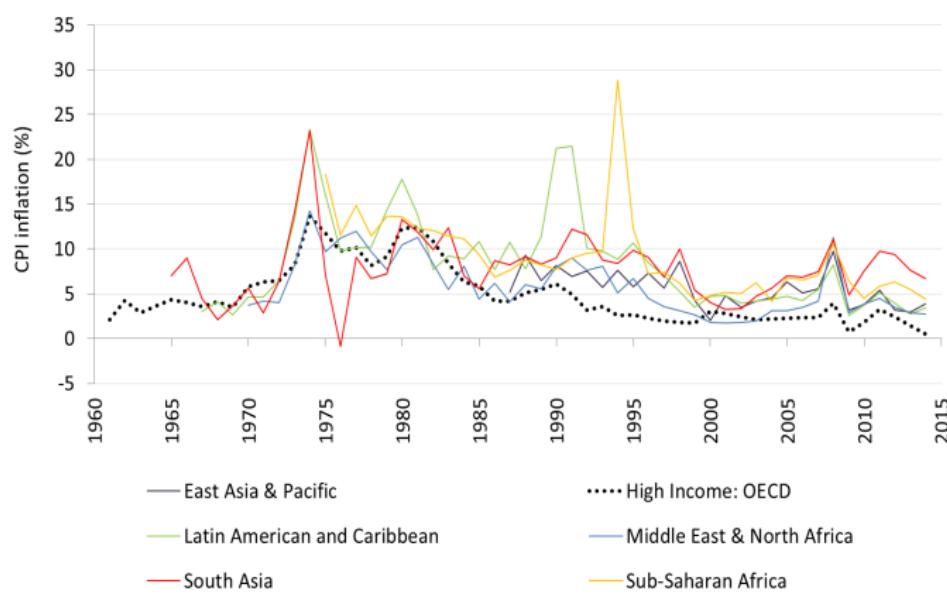
Figure 13.18c. UK inflation rate (1875-2014).



Cross Country Trend in Inflation

- Upward spikes in inflation during economic crises

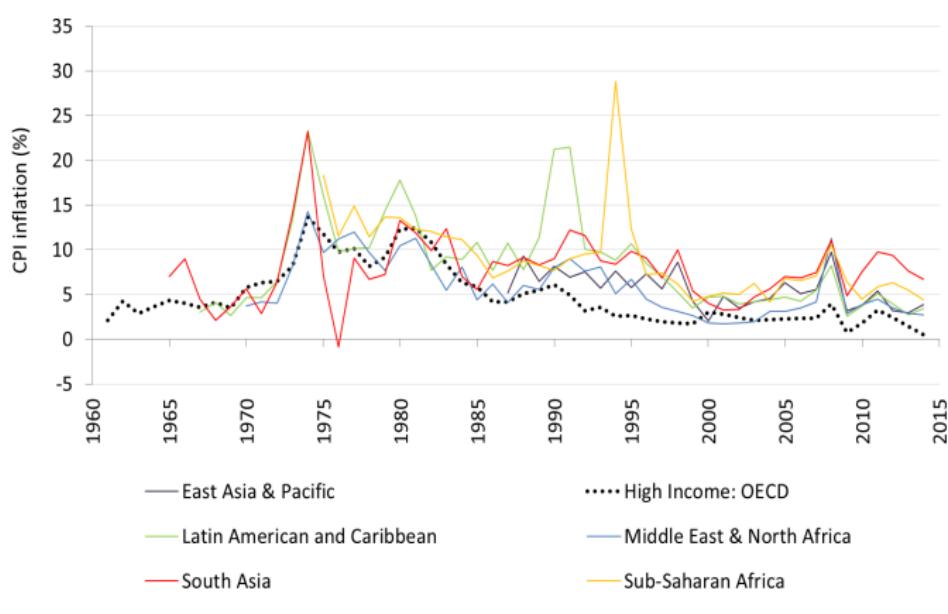
Figure 13.19. Inflation levels and volatility in high- and low-income economies.



Cross Country Trend in Inflation

- general downward trend since 1970s

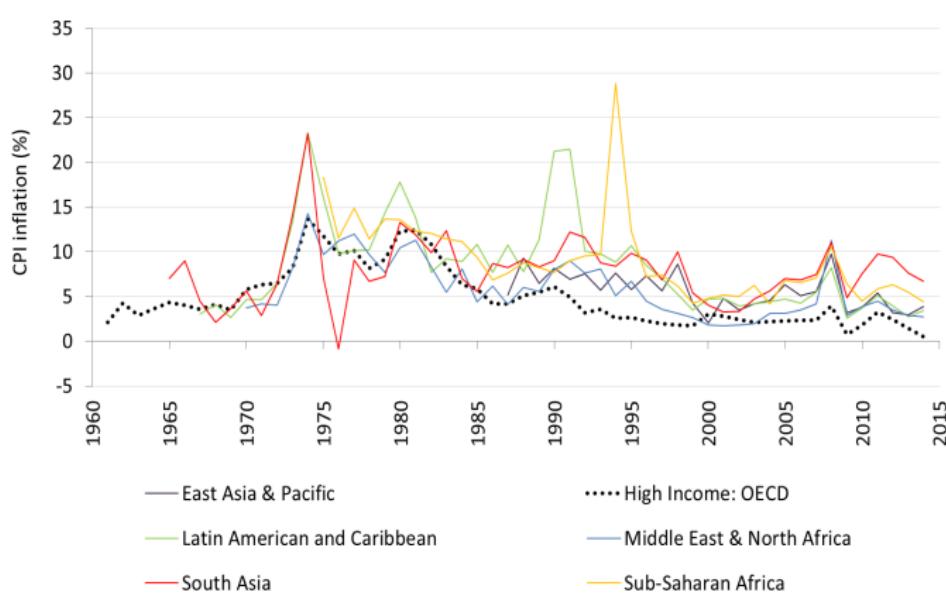
Figure 13.19. Inflation levels and volatility in high- and low-income economies.



Cross Country Trend in Inflation

- inflation tends to be higher in poor than in rich countries

Figure 13.19. Inflation levels and volatility in high- and low-income economies.



Measuring inflation

- ① **Consumer Price Index (CPI)**: general level of prices that consumers have to pay for goods and services, including consumption taxes
 - measure the “cost of living”
 - Based on *consumption basket*, different across countries
 - Common measure of inflation = change in CPI
- ② **GDP deflator**: measure of the level of prices for domestically produced output (ratio of nominal to real GDP)
 - Tracks prices of components of GDP (C, I, G, NX)
 - Allows GDP to be compared across countries and over time