

Unit 13

Economics Fluctuations and Unemployment

Hui-Jun Chen

The Ohio State University

February 28, 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)

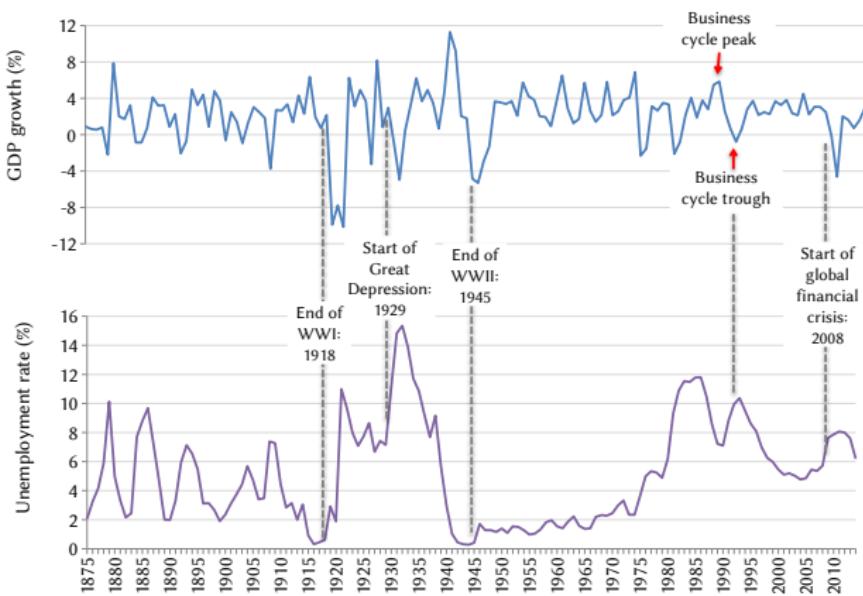
The Business Cycle

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.

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

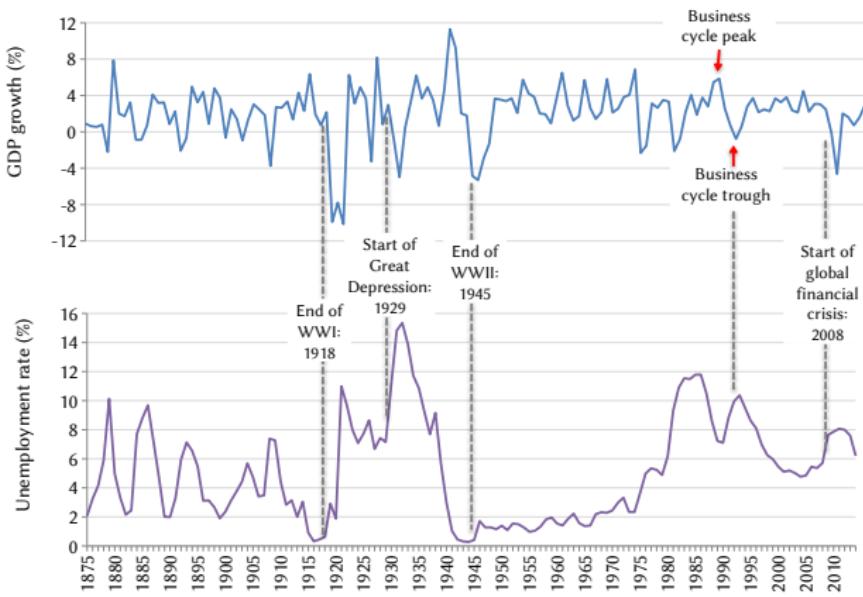


Okun's Law

- **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

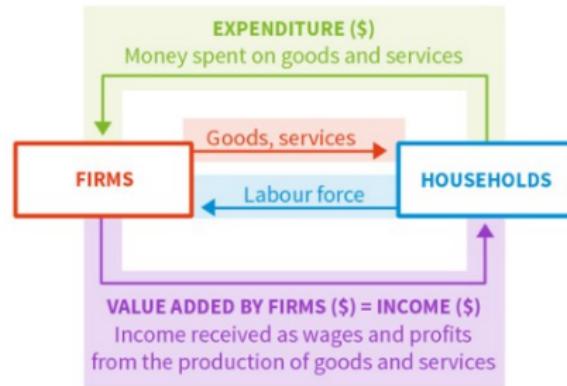
3 equivalent ways to
measure GDP:

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.

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

	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.

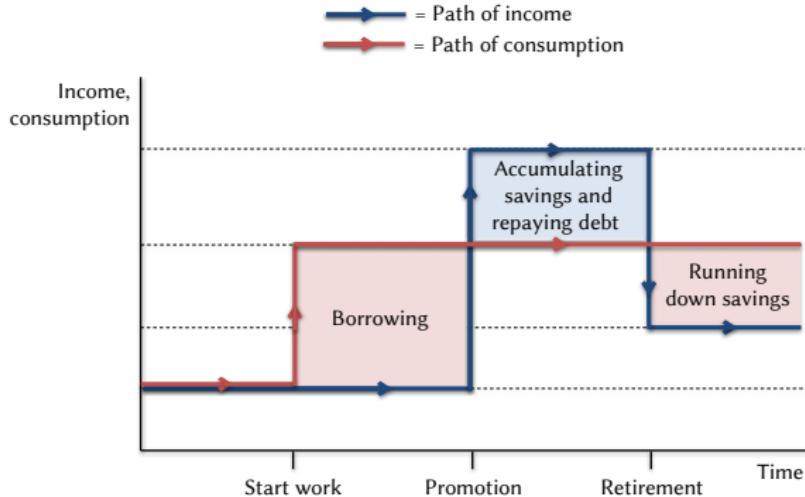
② aggregate shocks: Good or bad fortune strikes the entire economy

- 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:



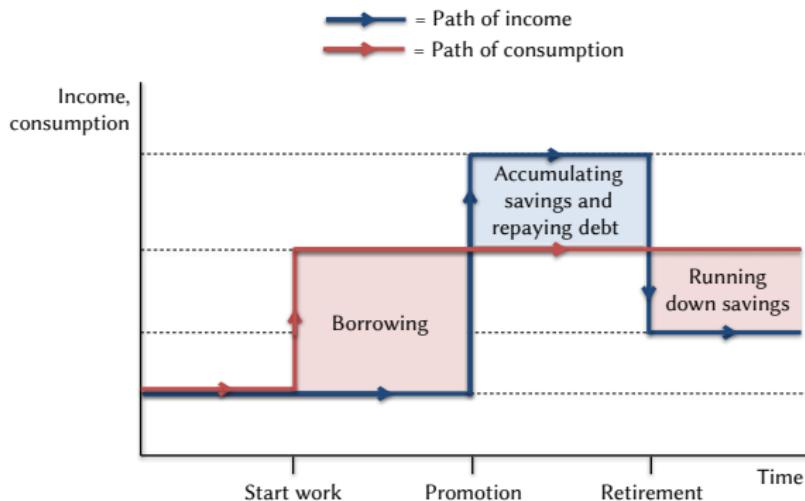
Consumption Smoothing

Figure 13.10. Consumption smoothing through our lifetime.

■ Red line:

long-run
consumption if
shocks are
permanent

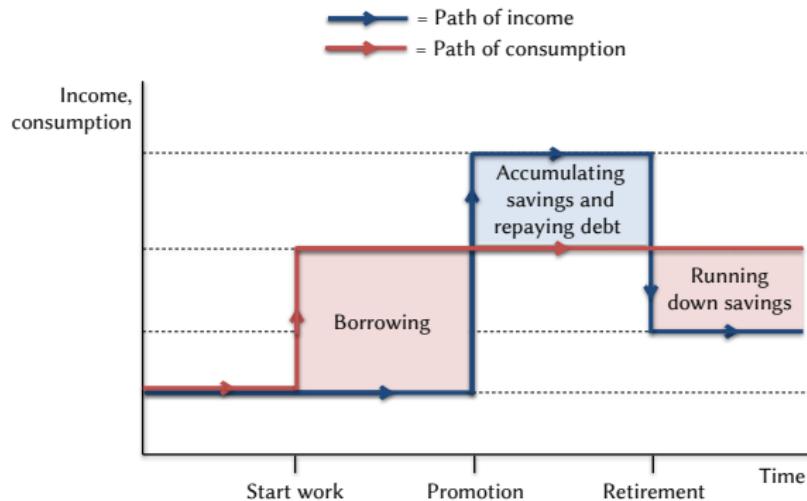
■ Blue line: Income flow at each period (Income shocks)



Consumption Smoothing

Figure 13.10. Consumption smoothing through our lifetime.

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

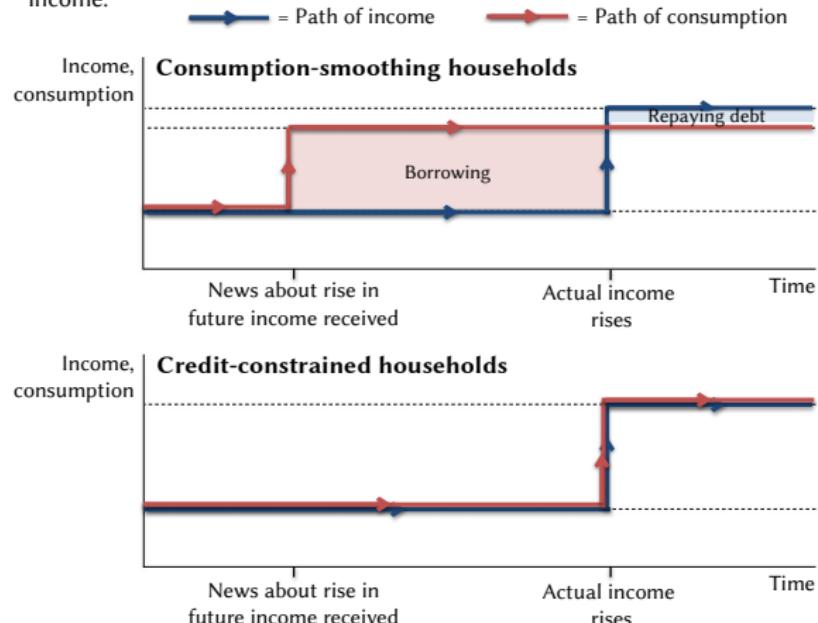


Limitation on Consumption Smoothing

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

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

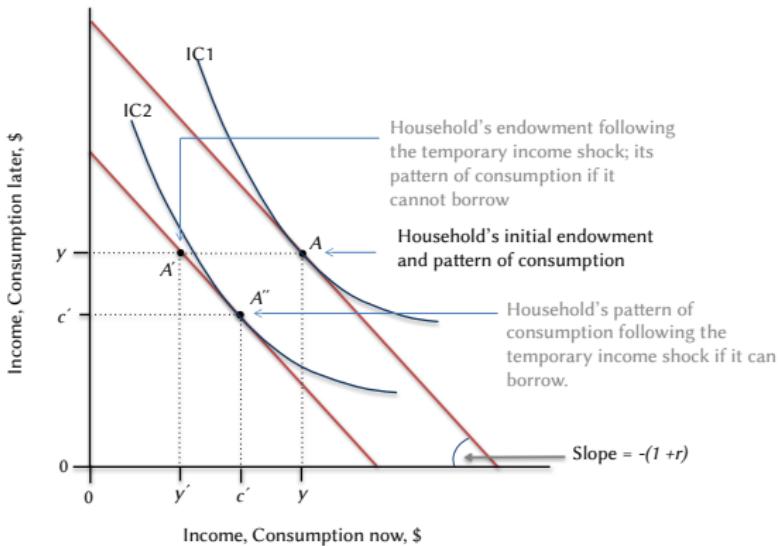
Figure 13.11. Consumption when credit constraints bind: An anticipated rise in income.



Limitation on Consumption Smoothing

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

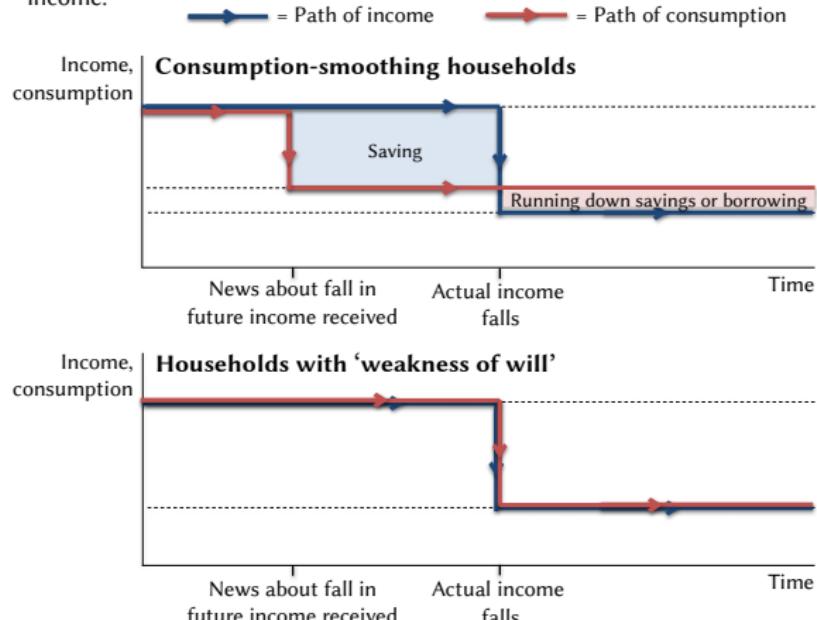
Figure 13.12. Credit-constrained and unconstrained households: An unanticipated temporary fall in income.



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.



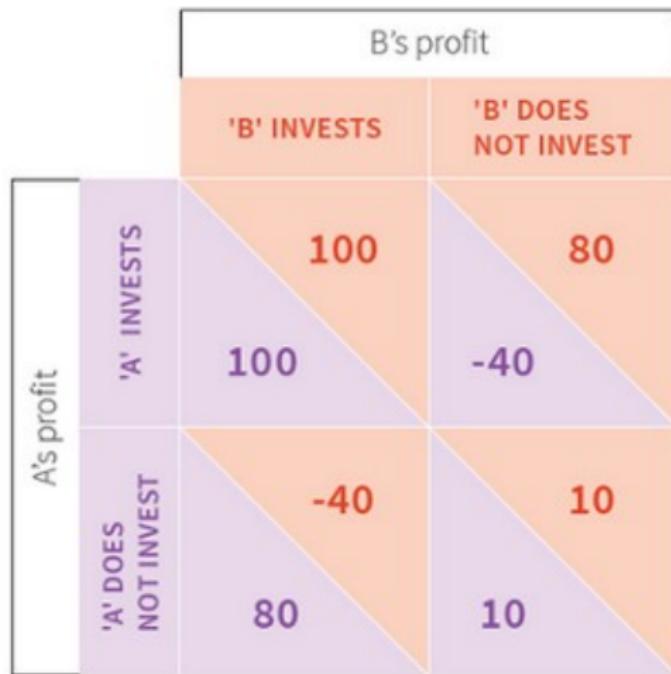
Optimal Investment

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.

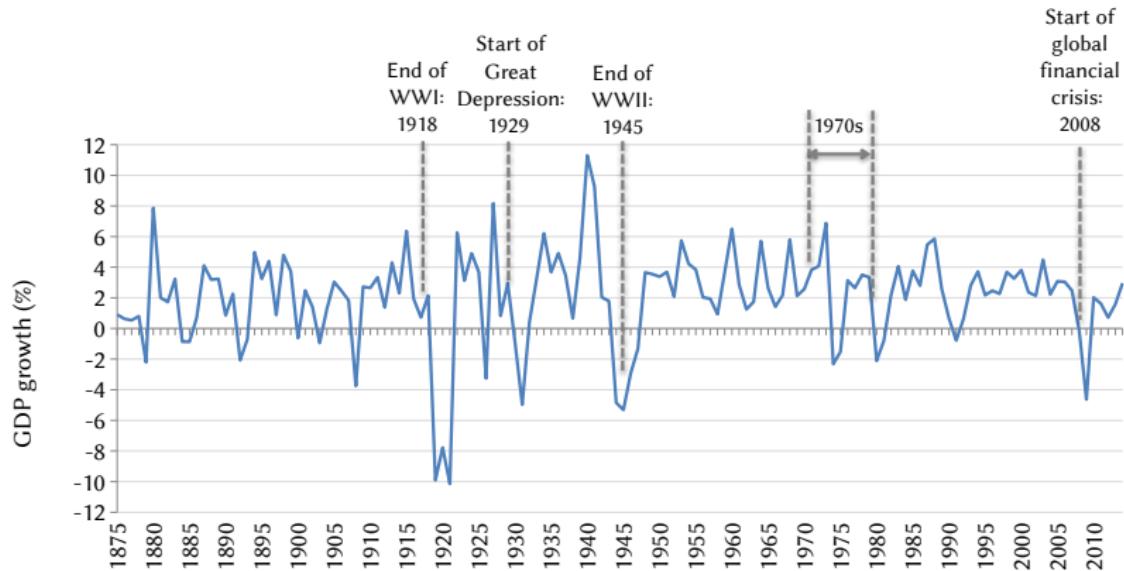
Inflation

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).

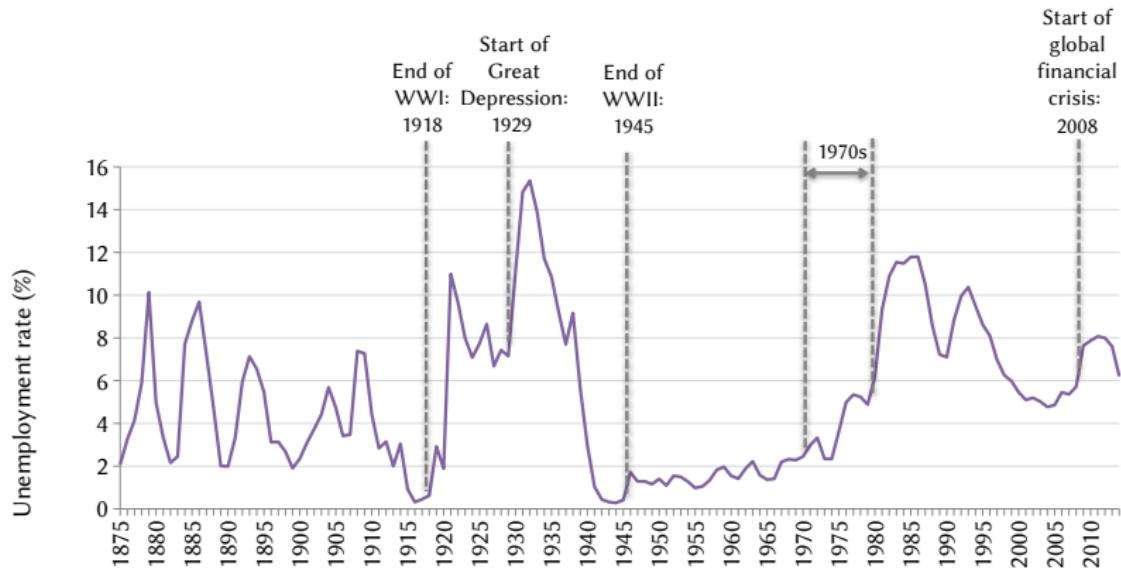


Inflation, GDP and Unemployment

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).

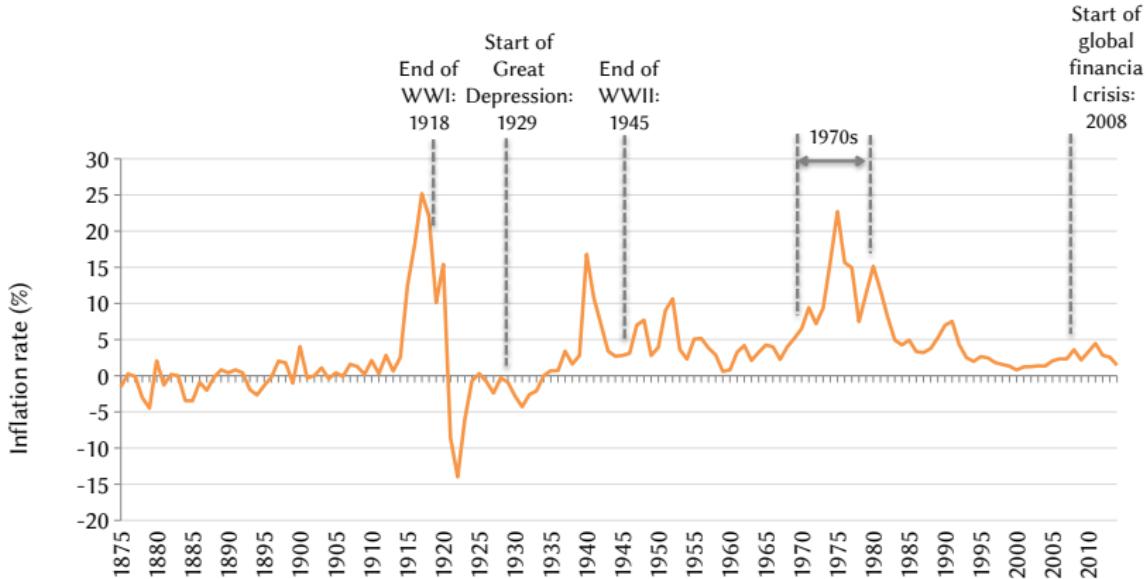


Inflation, GDP and Unemployment

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

Inflation tends to be lower during recessions (high unemployment)

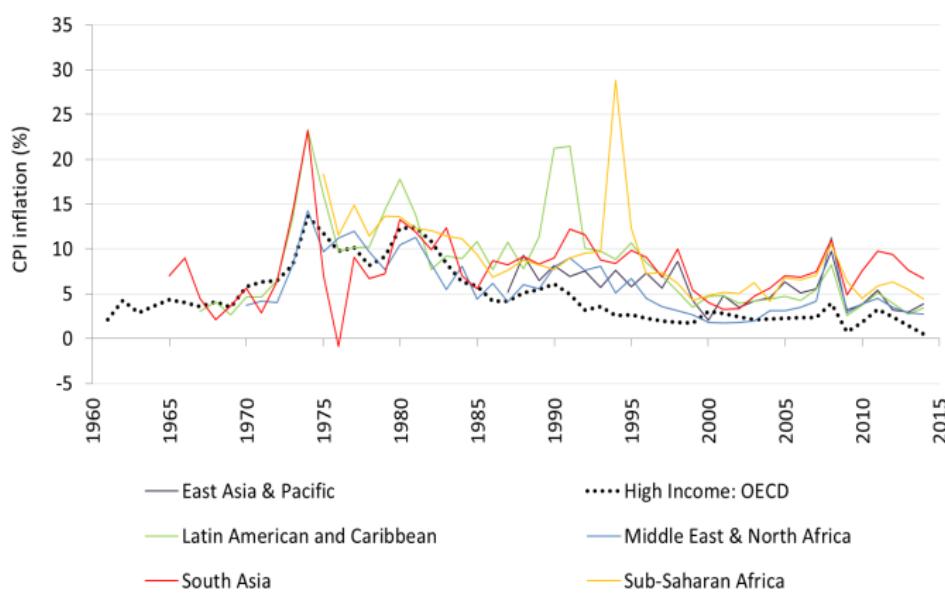
Figure 13.18c. UK inflation rate (1875-2014).



Cross Country Trend in Inflation

- Upward spikes in inflation during economic crises

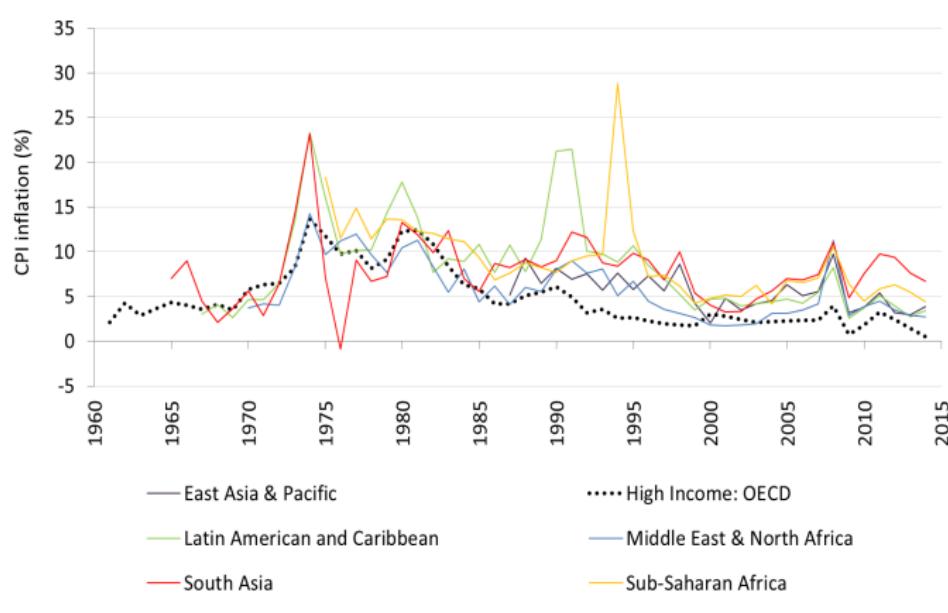
Figure 13.19. Inflation levels and volatility in high- and low-income economies.



Cross Country Trend in Inflation

- general downward trend since 1970s

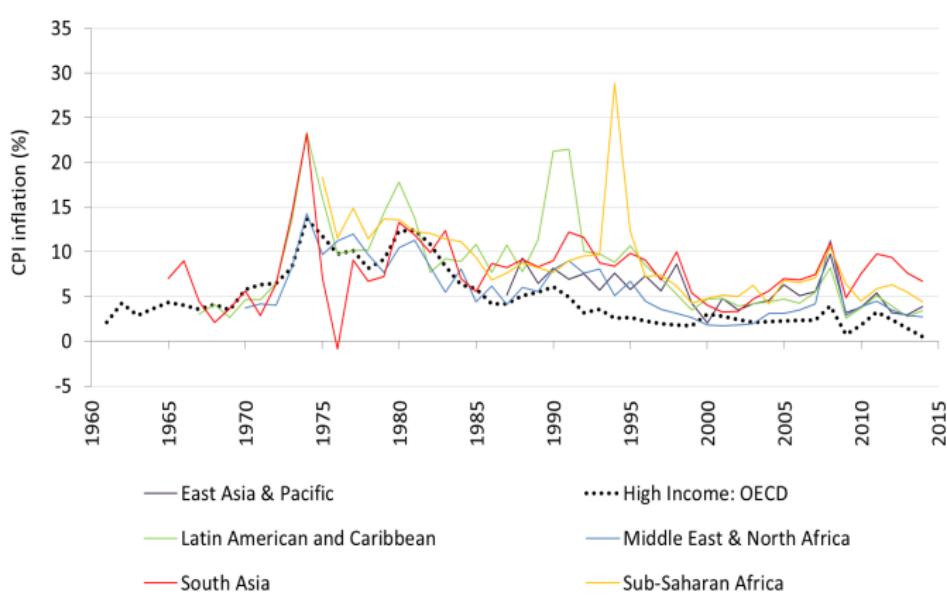
Figure 13.19. Inflation levels and volatility in high- and low-income economies.



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

Appendix

References I