Lecture 9: Economic Fluctuations and Unemployment

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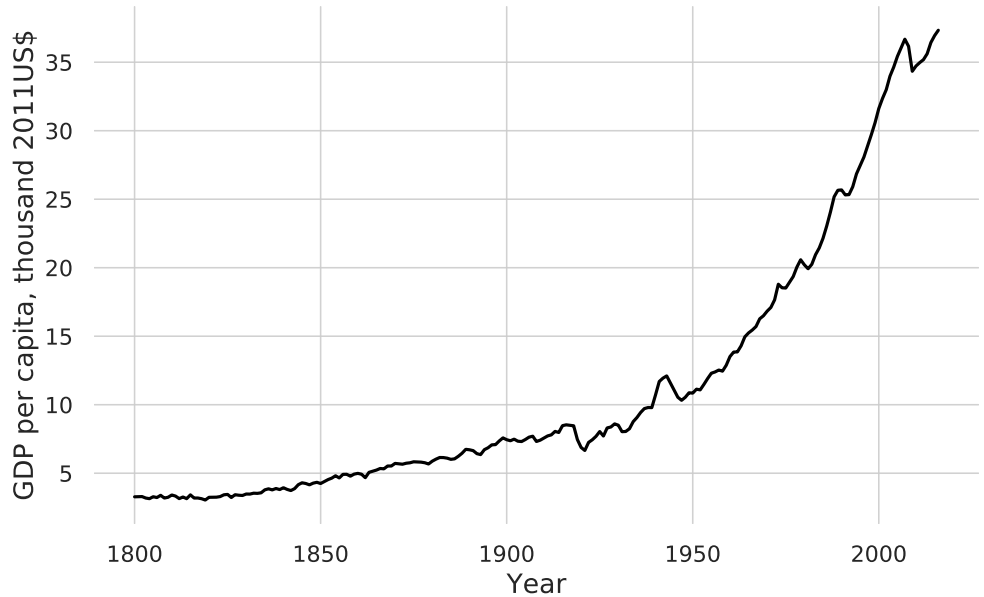
EC566 | Macroeconomics for Business

This lecture

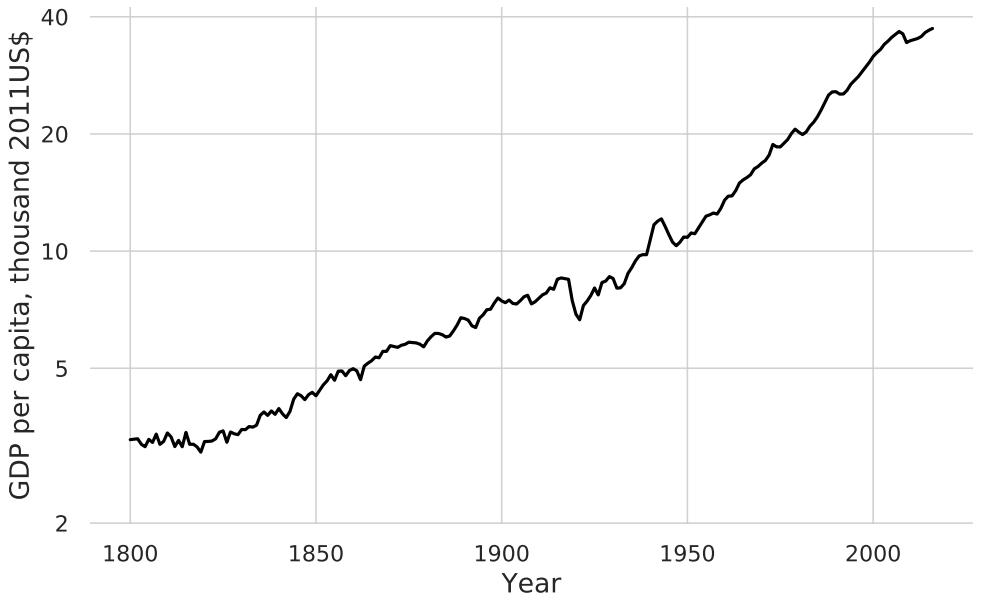
- Measuring the size of an economy: GDP
- How households smooth fluctuations in their income
- The role of firms' investment decisions in the business cycle
- Understanding inflation

UK GDP per capita over time

Linear scale



Log scale

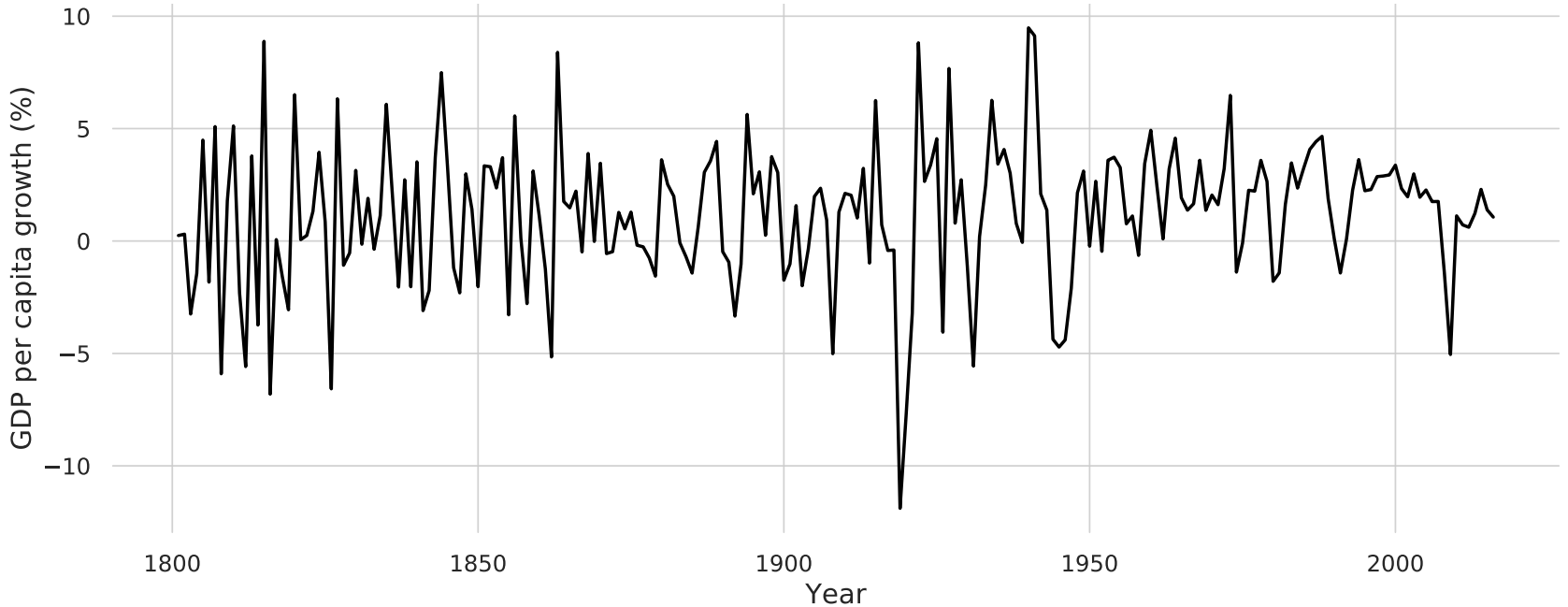


Data source: Madison Project Database

- UK gdp per capita has grown substantially over the long-run
- The growth has not been smooth

The business cycle

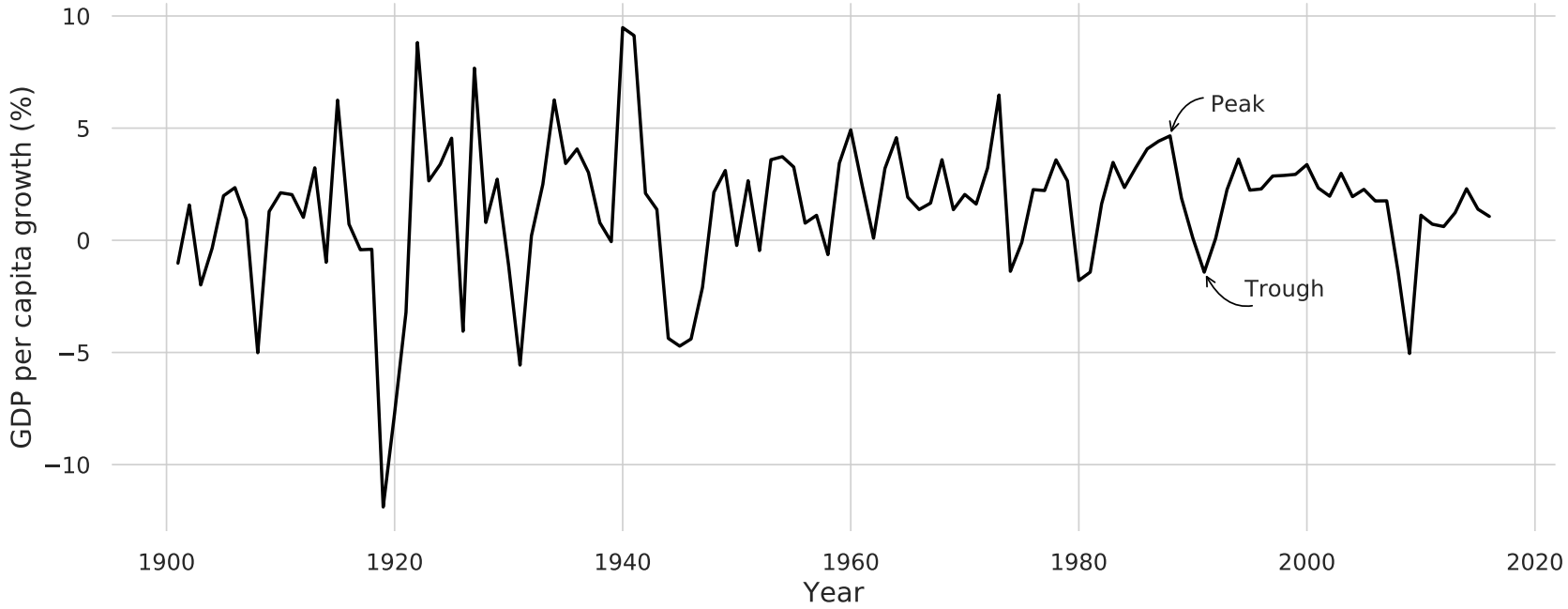
- Business cycle = Alternating periods of positive and negative growth rates.



Data source: Madison Project Database

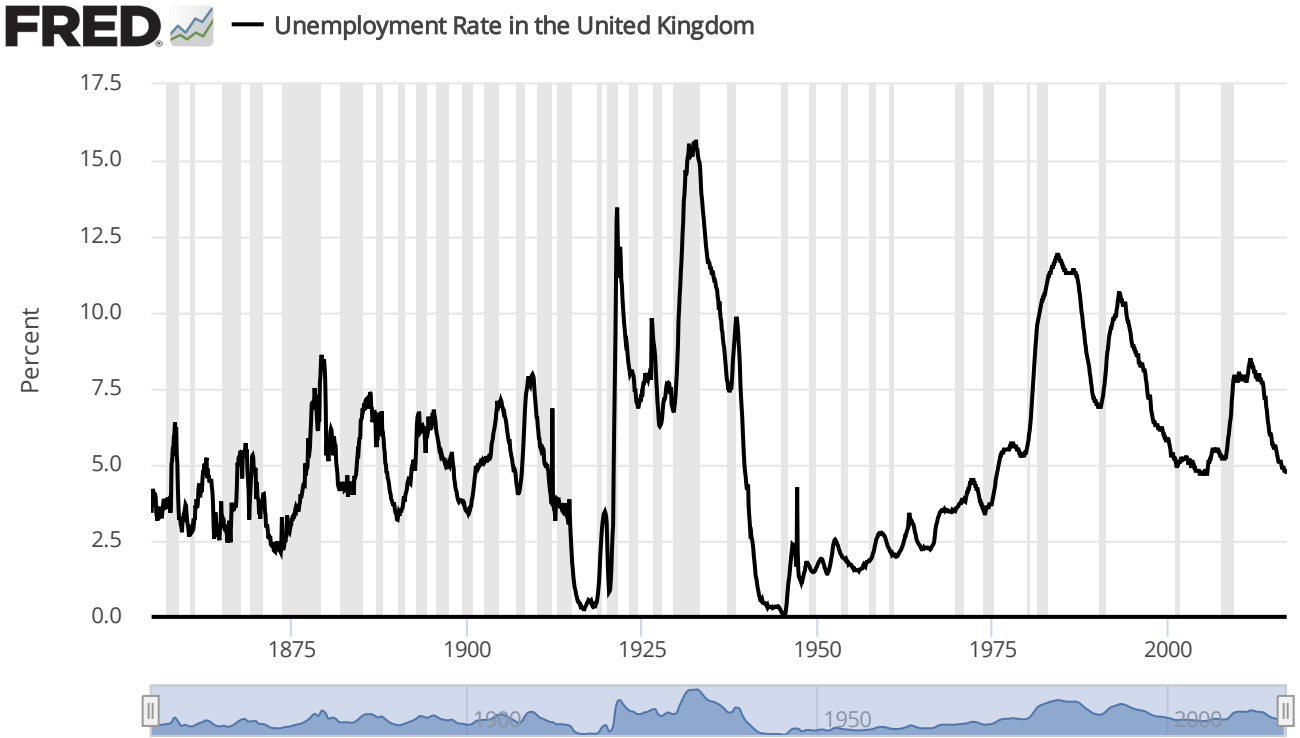
Recession

- Recession = period when output is declining or below its potential level



Business cycle and labor market

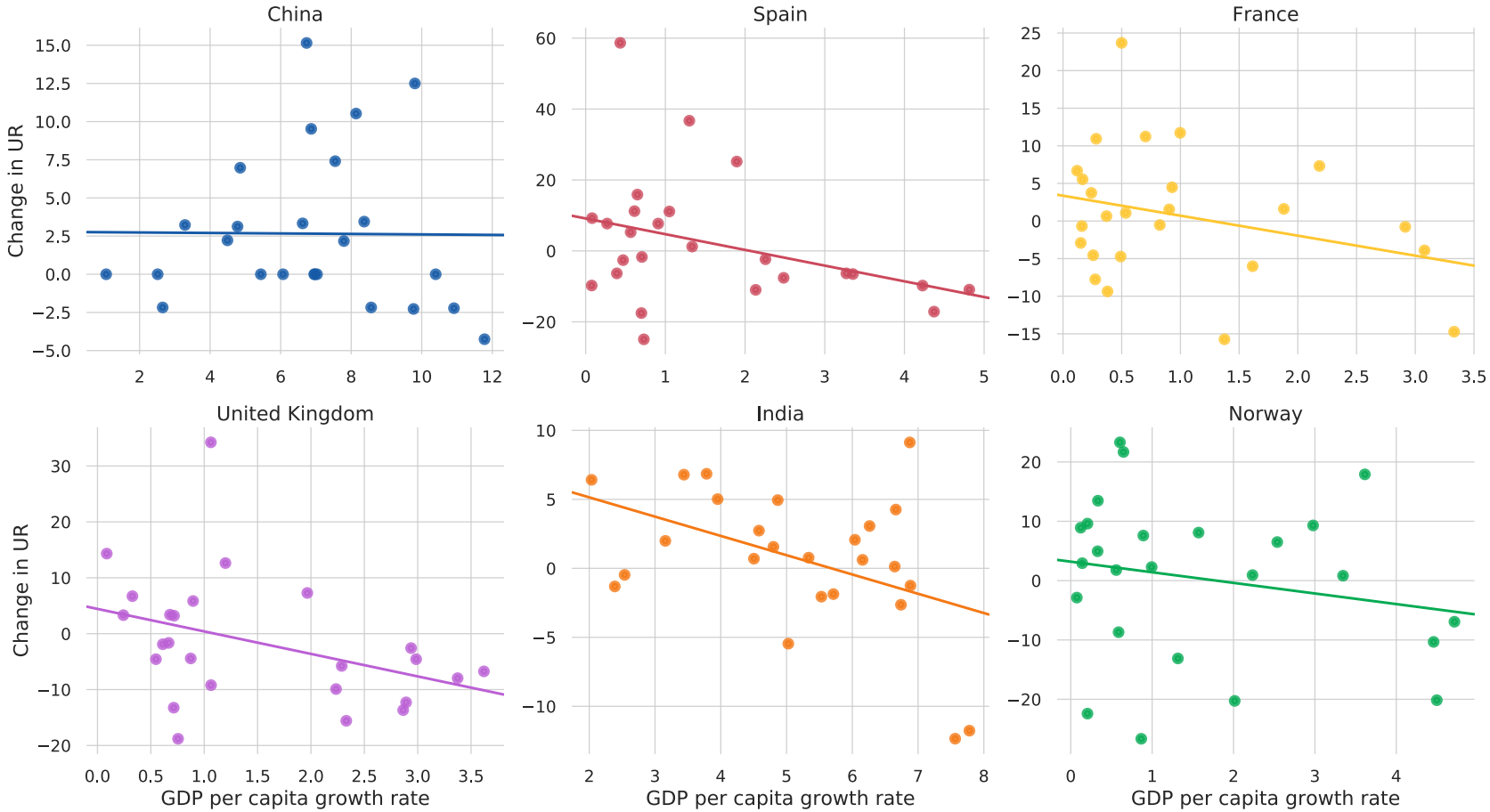
- Unemployment goes up during recessions



Source: Bank of England

Okun's law

There is a negative correlation between gdp growth rate and change in unemployment rate

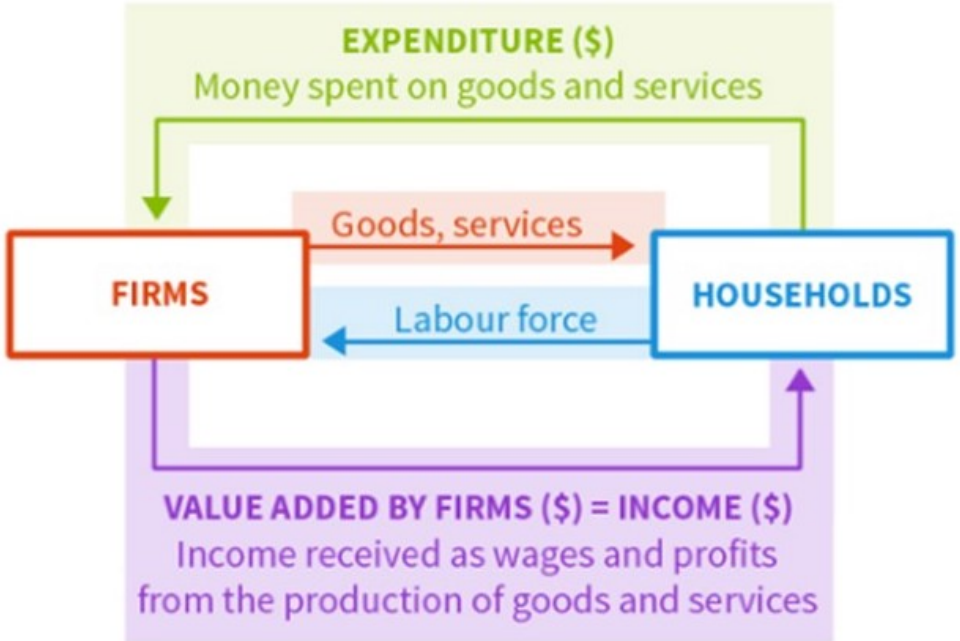


Measuring the aggregate economy

- National accounts
  - system used to measure overall output and expenditure in a country.
- **Gross Domestic Product (GDP):** Market value of all the goods and services produced within a country during a period of time.
- 3 equivalent ways to measure GDP:
- *1. Spending:*
  - Total spending on domestic products
  - By households, firms, the government, and the residents of other country's on domestic production
- *2. Production:* Total domestic production
  - measured as value added
  - to constuct value added, cost of intermediate inputs must be substracted
  - value added is used (instead of gross output) to avoid double counting
- *3. Income:* Total domestic income
  - wages, profits, incomes of the self-employed, taxes paid to government

Circular flow model

- You can measure GDP at the production stage, spending stage and income stage.
- All these approaches should give the same value
- Any spending on a good/service is an income to someone else
- Any spending on a good/service must be made to a good/service produced.



Components of GDP

- Consumption (C)
  - Expenditure on consumer goods and services
  - Goods are normally tangible things: cars, furniture, laptops,...
  - Services are normally intangible: transportation, housing, health care,
- 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)

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

- GDP is also known as Y, or **aggregate demand**

Exports, imports, and government

- How do we account for international transactions:
  - imports: domestic consumption of foreign production,
  - exports: foreing consumption of domestic production?
- Exports are included:
  - because exports are domestic production
- Imports are excluded
  - because imports are foreign production
- **Net exports** = Exports - Imports
  - Also called **trade balance**
- How do we incorporate government?
  - Treat it as another producer – public services are “bought” via taxes
  - Assume that cost of production captures the value added

Components of GDP, data

	US	Eurozone	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%

- In advanced economies, consumption is the largest component of GDP
- In China, investment is the largets component of GDP
- Share of investment in GDP is smaller in advanced economies

Contributions of each component to change in GDP

percentage change in GDP =

- percentage change in consumption $\times$ share of consumption in GDP

$+$

- percentage change in investment $\times$ share of investment in GDP

$+$

- percentage change in government spending $\times$ share of government spending in GDP

$+$

- percentage change in net exports $\times$ share of net exports in GDP

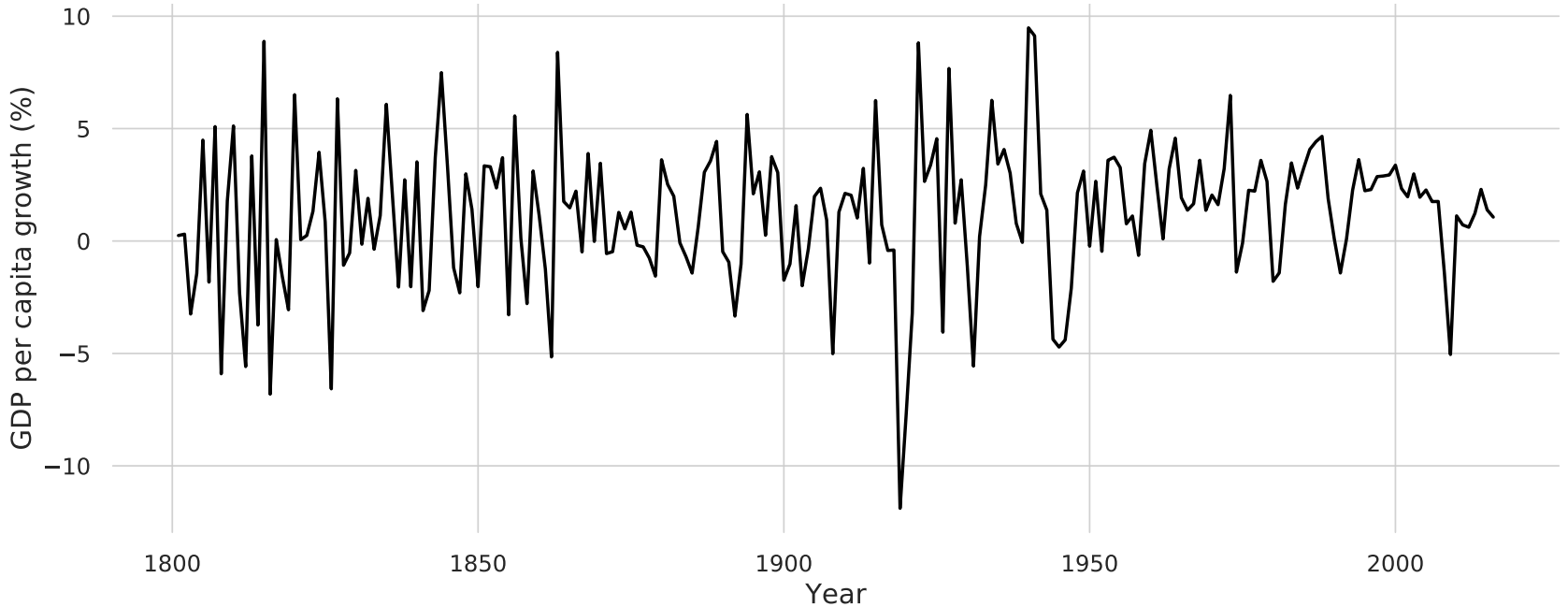
Contribution of components to US GDP growth

	GDP	Consumption	Investment	Government spending	Net exports
2009	−2.8	−1.06	−3.52	0.64	1.14

- Investment share is small, but it's contribution to growth is large.

How do households cope with fluctuations

- Economies fluctuate between good and bad times



Data source: Madison Project Database

- To answer this question, first understand different kind of shocks

Shocks

Shock = an unexpected event (such as extreme weather) which causes GDP to fluctuate.

There are two broad types of shocks:

- Good or bad fortune strikes the household
  - A disease affecting a family member
  - A family member losing a job
  - etc
- Good or bad fortune strikes the entire economy
  - Financial crisis
  - Large political crisis
  - Coronavirus
  - etc

Household shocks

People use two strategies to deal with shocks that are specific to their household:

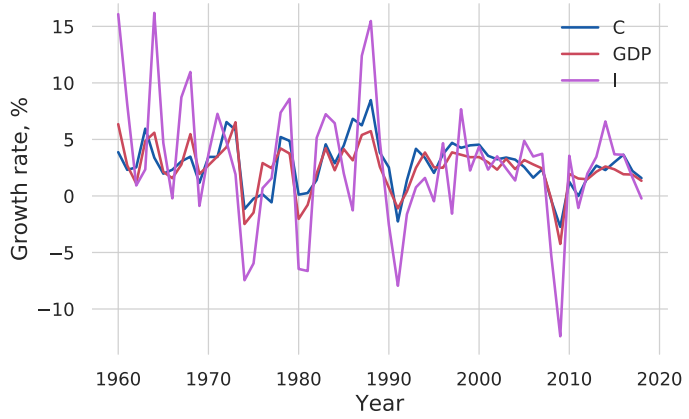
1. Self-insurance
    - saving and borrowing
    - Other households are not involved.
    - Households want to smooth their consumption
    - Consumption too much later, and very little now is not desirable
2. Co-insurance
    - support from social network
    - households are to a degree alturistic
    - support from government (unemployment benefits).

Economy-wide shocks

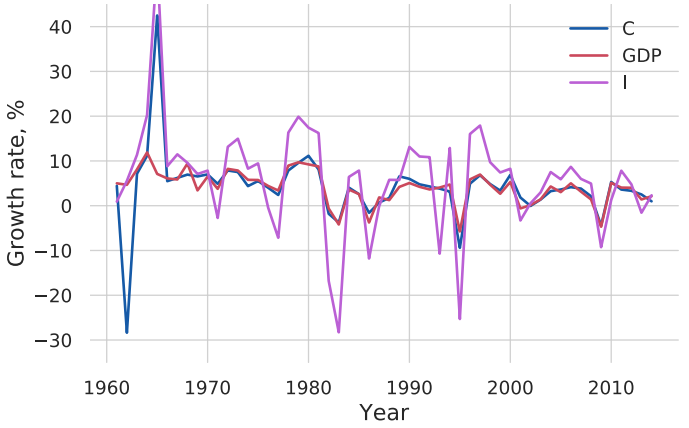
- Co-insurance is less effective
    - the bad shock hits everyone at the same time.
- But when these shocks hit, co-insurance is even more necessary.
- In farming economies of the past that were based in volatile climates, people practised co-insurance based on trust, reciprocity, and altruism.

Consumption fluctuates less than investment

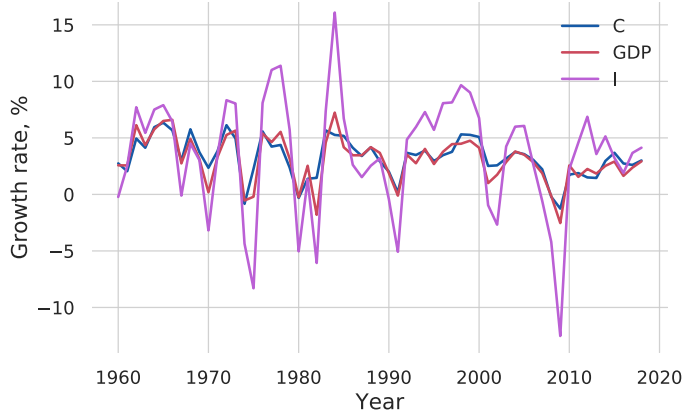
United Kingdom



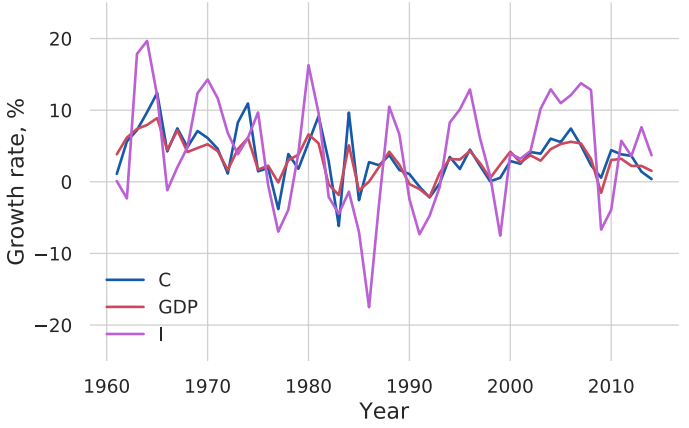
Mexico



United States

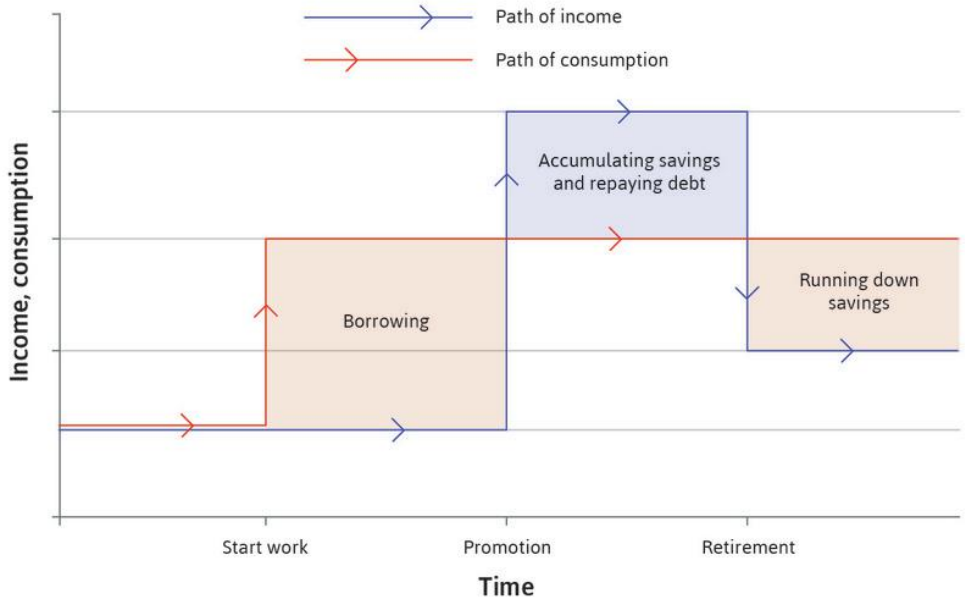


South Africa



Why is consumption smooth?

- Households make lifetime consumption plans based on
  - expectations about the future
  - react to shocks
- Readjust long-run consumption if shocks are permanent
- Do not change long-run consumption if shocks are temporary
- Suppose a worker expects a promototion in the future
- They will want to increase consumption now
  - Higher consumption than income now
  - Lower consumption than income when promoted
  - Higer consumption than income when retired



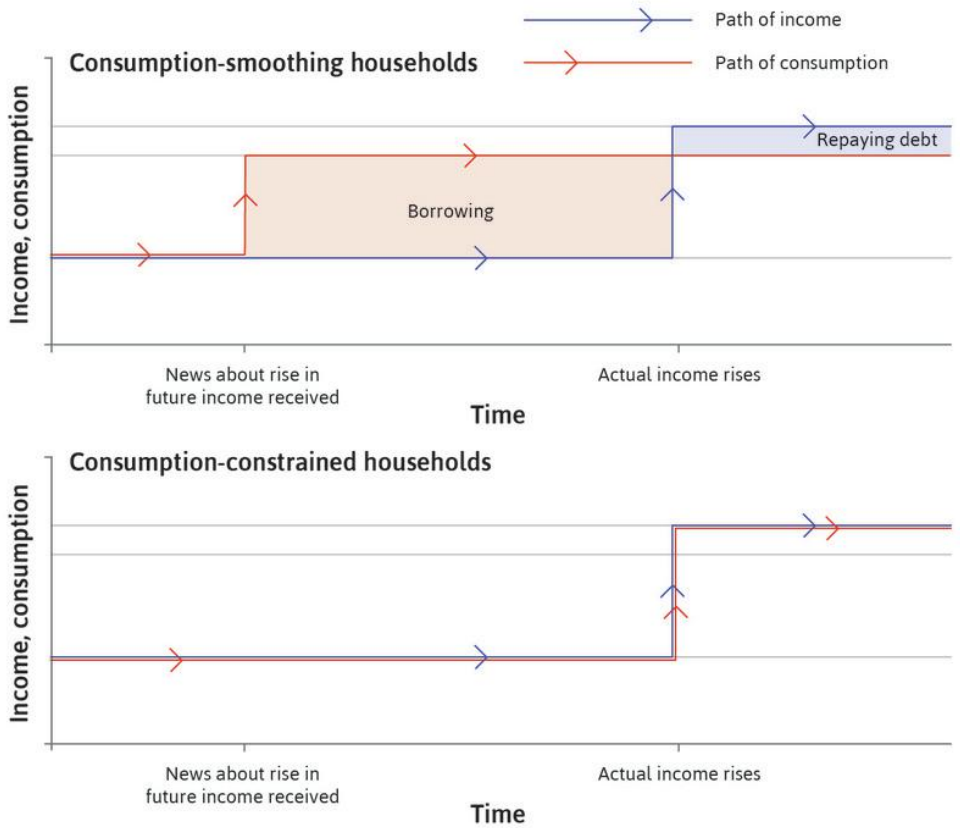
- They achieve consumption smoothing by
  - borrowing now,
  - and saving and paying debts when promoted
  - consuming savings when retired

Consumption smoothing and the aggregate economy

- Consumption smoothing is a basic source of stabilisation in an economy.
- Shocks will be dampened when households smooth their consumption
  - when they base their consumption on lifetime income
- However, there are limits of consumption smoothing:
  - credit constraints
  - weakness of will
  - limited co-insurance
- Limits of consumption smoothing may amplify the initial shock.
- This helps us understand the business cycle and how to manage it.

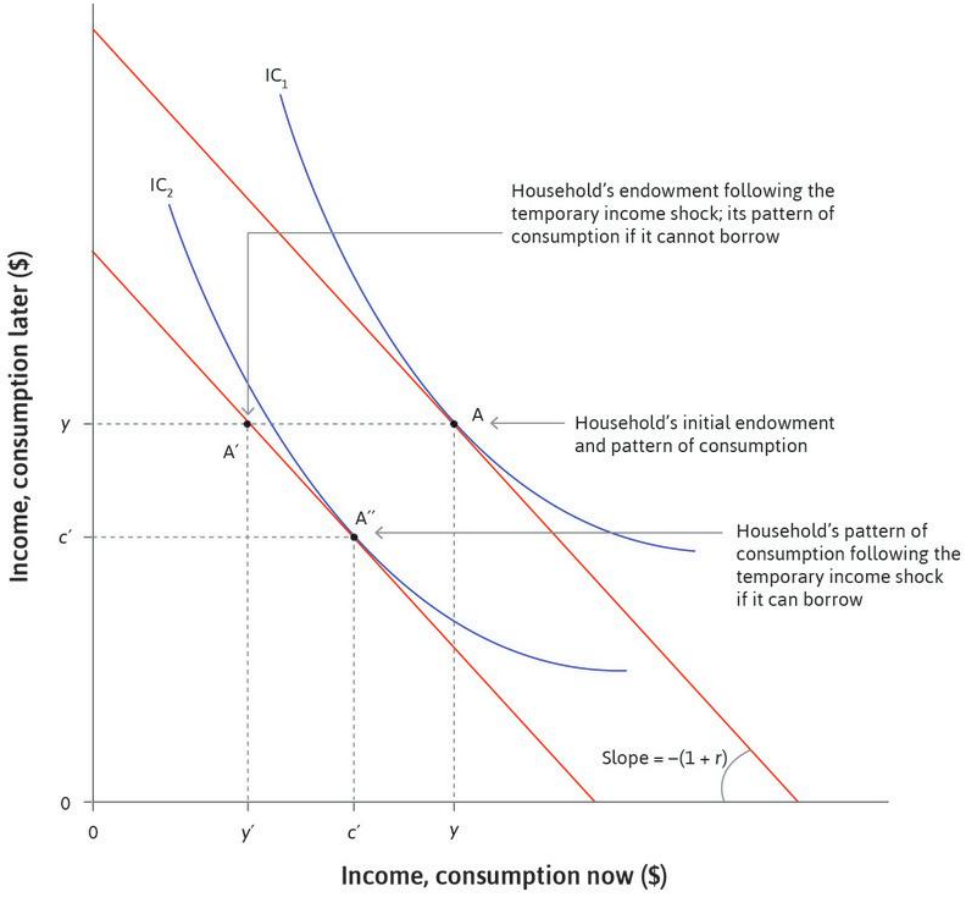
Limits of consumption smoothing: credit constraints

- Credit constraints – limits on amount borrowed/ability to borrow.
- The households unable to adjust to a temporary income shock have lower welfare.
- Suppose households are expecting in increase in income in the future
- Not credit constrained household can borrow and increase consumption now
- Credit constrained householf cannot borrow and consumes as much as household income



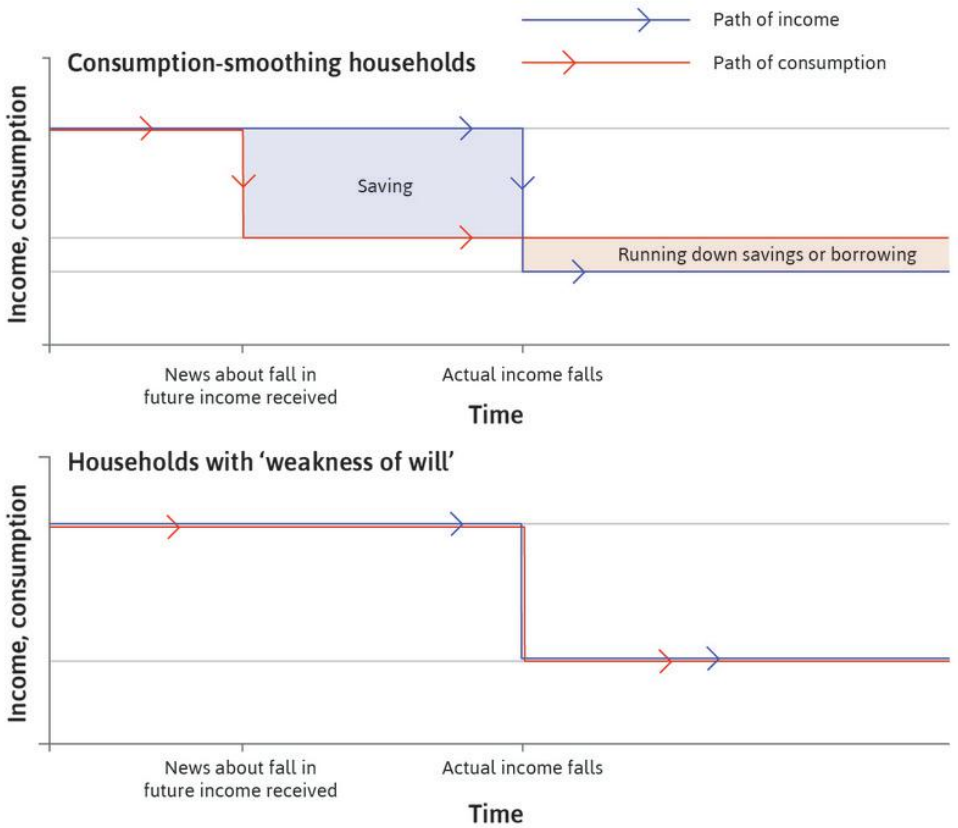
Negative income shock

- We can use two-period model analyze the effects of a negative income shock
- This household currently have an income of y now and later
- It can borrow at an interest rate, r
- It choose to consume at point A
- Suppose its income now declines unanticipatedly
  - It earn $y' < y$ now, but its future income remains the same
- If it cannot borrow, it will consume at point A'
- If it can borrow, it will consume at point A''
  - It trades later consumption for current consumption
  - It reaches higher utility level



Limits of consumption smoothing: weakness of will

- Weakness of will – inability to commit to beneficial future plans.
    - Becuase it requires sacrificies now
- Suppose this household is expecting a future reduction in income
- To smooth consumption it needs save now while having higher income
- If it does not save because of weakness of will, it may regret it later.



Why is investment volatile?

- Firms don’t have preferences for smoothing like households.
- Firms respond to innovations by investing in machines embedding new technology
  - Example: incorporation of ICT into production
  - If they don't invest to acquire new technology, they will lose market
  - Leads to clustering of innovation
  - Investment by one firm *pushes* other firms to invest
- Investment by one firm may *pull* other firms to invest
- Credit constraints may lead to clustering of innovation
  - If economy is in downturn and firms are not making enough profit, they cannot borrow to invest
- They adjust investment plans to both temporary and permanent shocks, to maximise their profits.

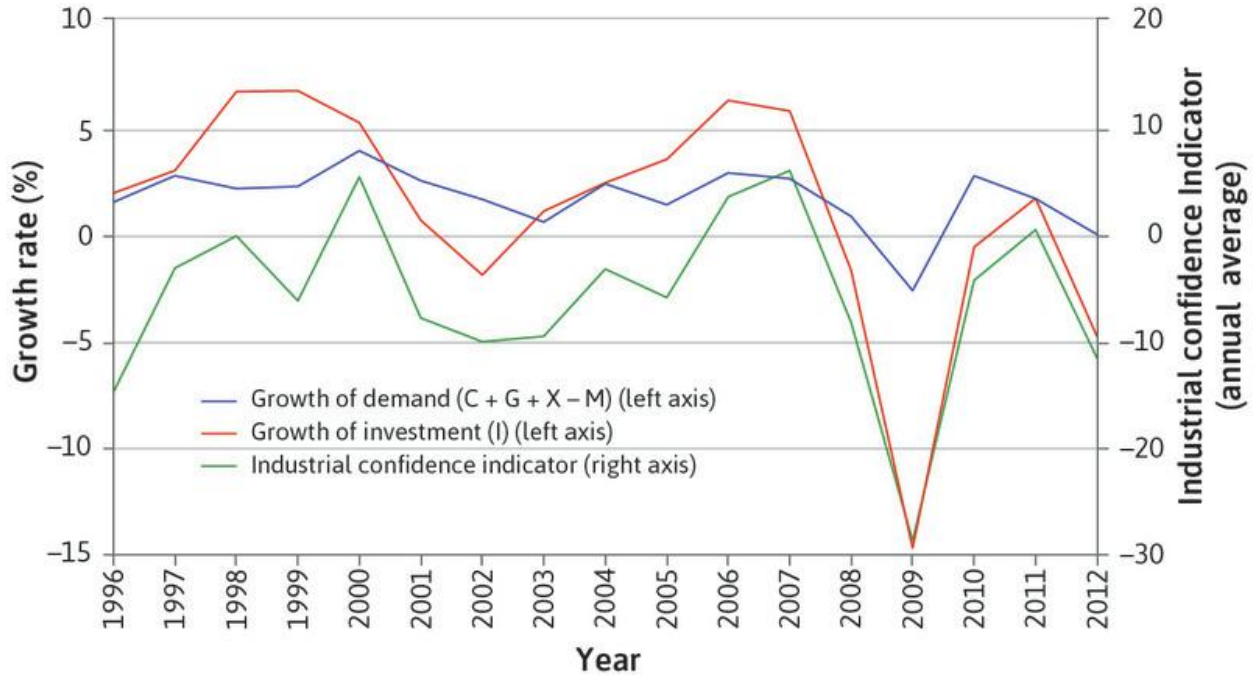
How one firms' investment decision affect another firm's investment decision

- Investment decisions depend on firms’ expectations about future demand
- If one firm expects other firm to invest, it will also invest
  - High demand → high capacity utilisation → investment → even higher demand
- If one firm expects other firm not to invest, it will not invest
- The result may be both firms investing, or both firms not investing

Business confidence

- Business confidence coordinates investment decisions

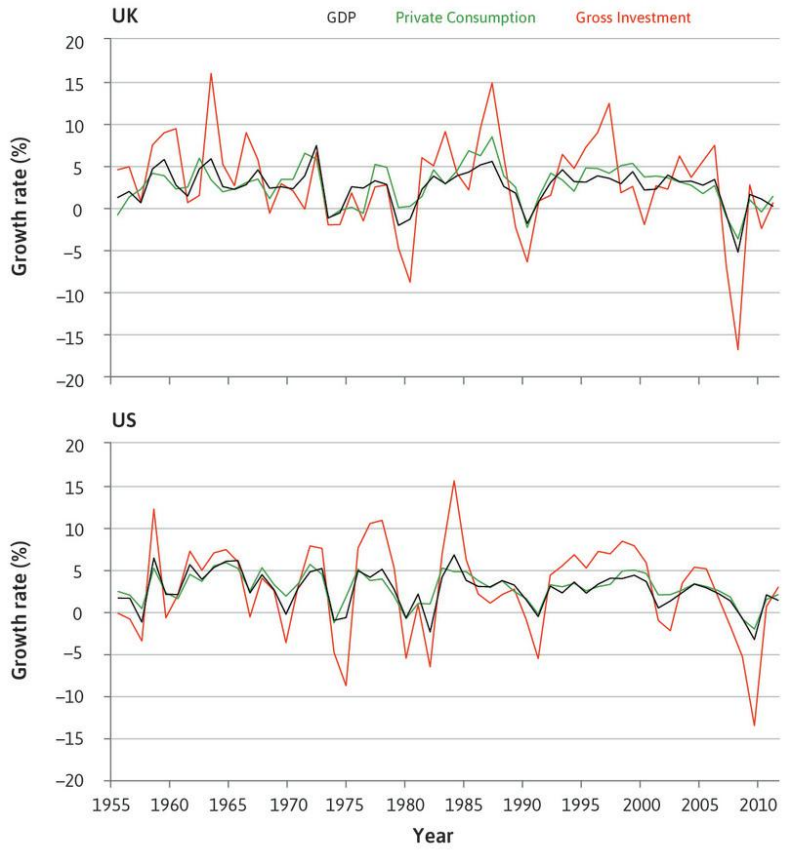
Investment and business confidence in the Eurozone (1996–2012):



Graph from Core The Economy, data from Eurostat

Investment and the aggregate economy

- The benefits of coordinating investment makes cycles self-reinforcing.
- Firms respond positively to the growth of demand in the economy.
- This is why investment is more volatile than GDP.



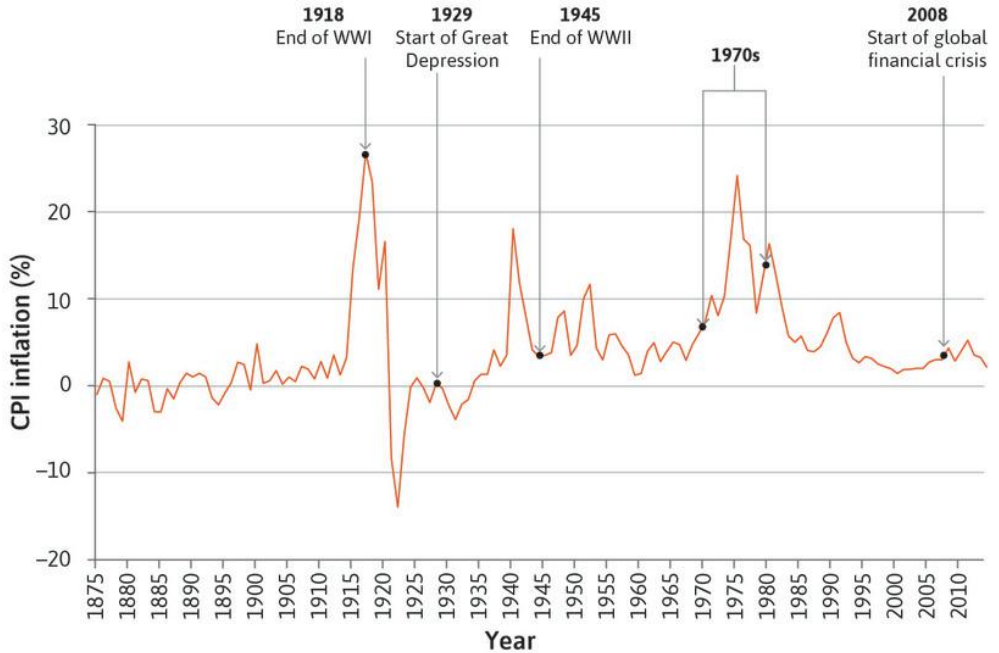
Other components of GDP

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

Inflation

Inflation

- Inflation = an increase in the general price level in the economy
- Inflation tends to be lower during recessions (high unemployment)



Measuring inflation

- The Consumer Price Index (CPI) measures
  - the general level of prices that consumers have to pay for goods and services,
  - including consumption taxes
- CPI is baased on a representative bundle of consumer goods
  - *cost of living*
- Common measure of inflation = change in CPI
- GDP deflator = A measure of
  - the level of prices for domestically produced output (ratio of nominal to real GDP)
- GDP deflator tracks prices of components of GDP (C, I, G, NX)
- GDP deflator allows GDP to be compared across countries and over time

Trends in inflation

- Upward spikes in inflation during economic crises
- general downward trend since 1970s
- inflation tends to be higher in poor than in rich countries

Summary

- Economic growth is not a smooth process
  - the economy goes through a business cycle
- Households try to smooth their consumption over the business cycle (problem: credit constraints)
- Investment is more volatile than GDP
- Inflation moves with the business cycle
- System of national accounts to measure the economy

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

- Measuring GDP as income, spending, production