Principles of Economics II

Lecture 6: Economic fluctuations and unemployment

Fall 2020
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Outline

- **Introduction**

- **The business cycle**

- **Measuring the aggregate economy: GDP**

- **Economic fluctuations and consumption**

- **Economic fluctuations and investment**

- **Inflation**

Context

- **Previously looked at how individuals make decisions about saving and consumption (Principles I, Unit 10)**

- **These decisions also depend on economic conditions (prices, unemployment), and affect firms' decisions (investment)**

  - How do households and firms respond to economic conditions?

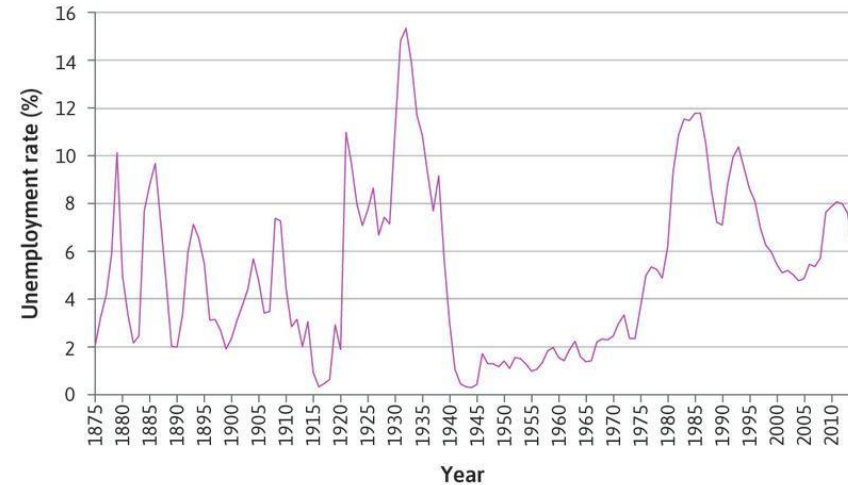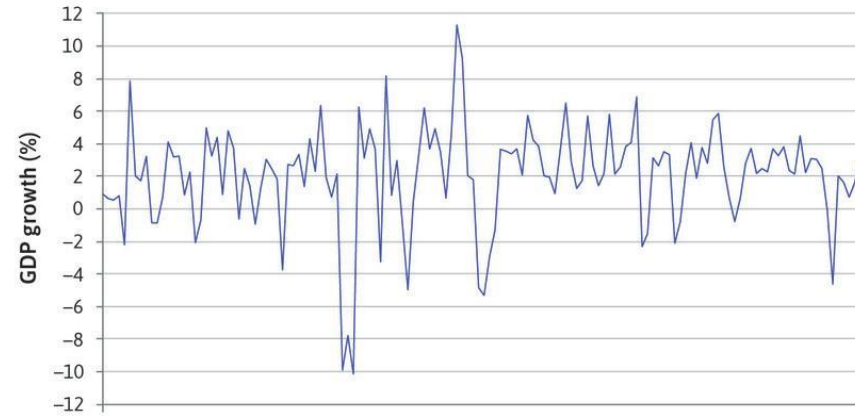 - What indicators can we use to measure economic conditions?

The business cycle

UK GDP per capita (1875–2014)
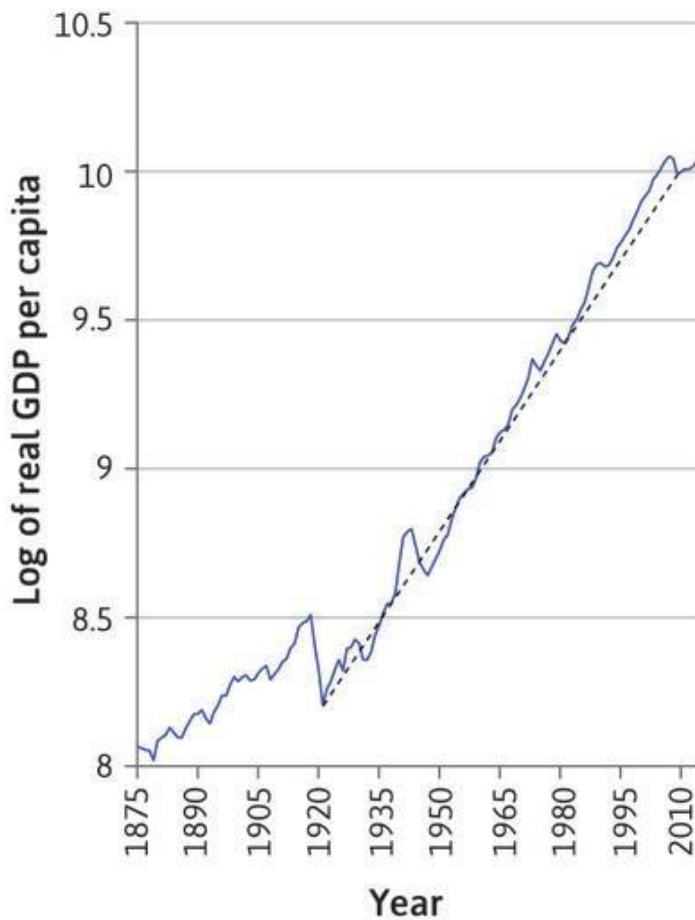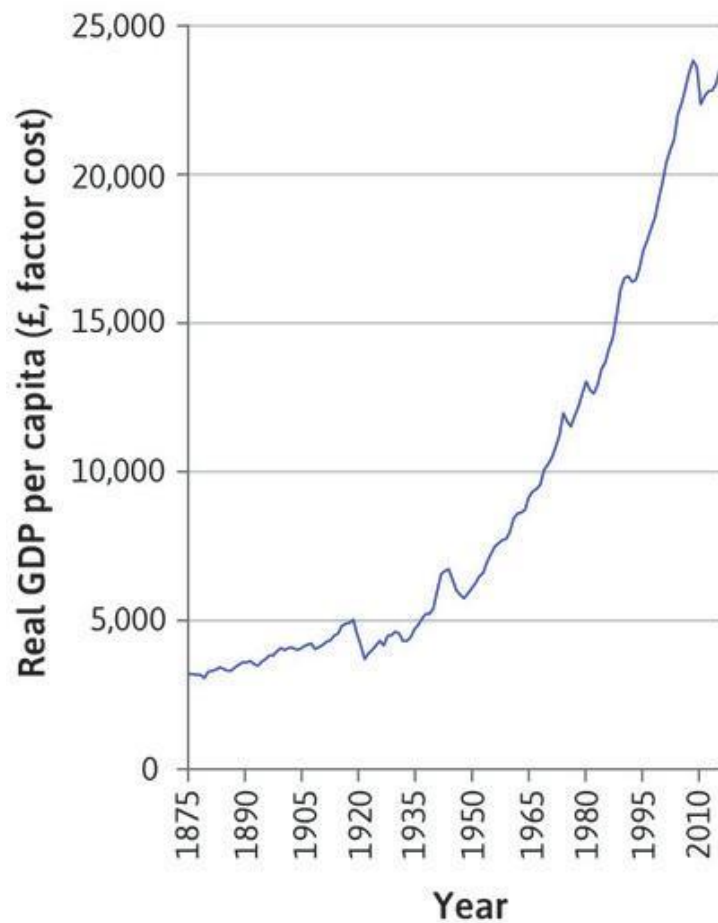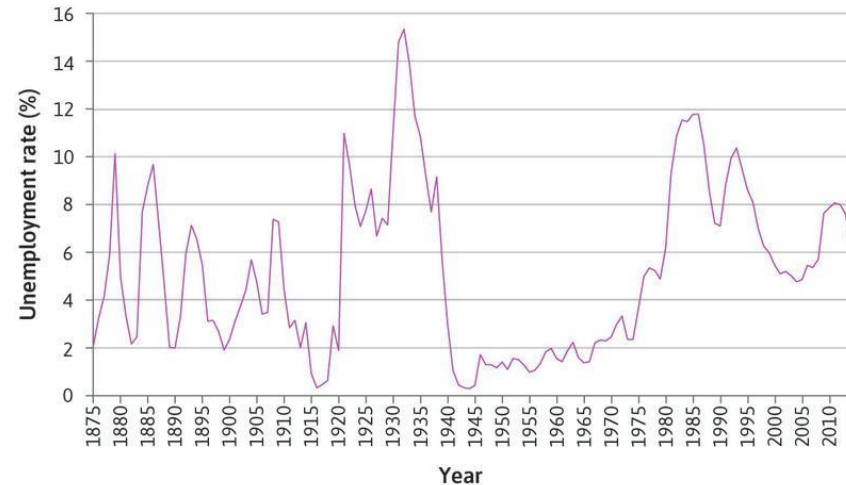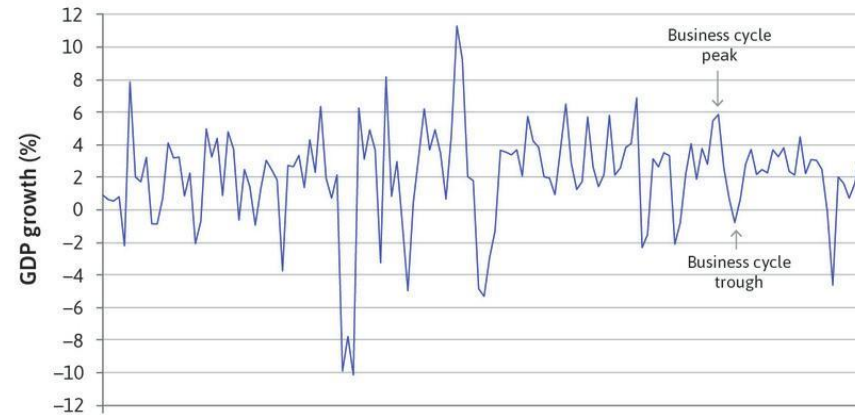
UK GDP growth and unemployment rate (1875–2014)

The panels show UK GDP growth and the unemployment rate for the period 1875–2014

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The arrows highlight the peak and trough of a business cycle during the late 1980s and early 1990s
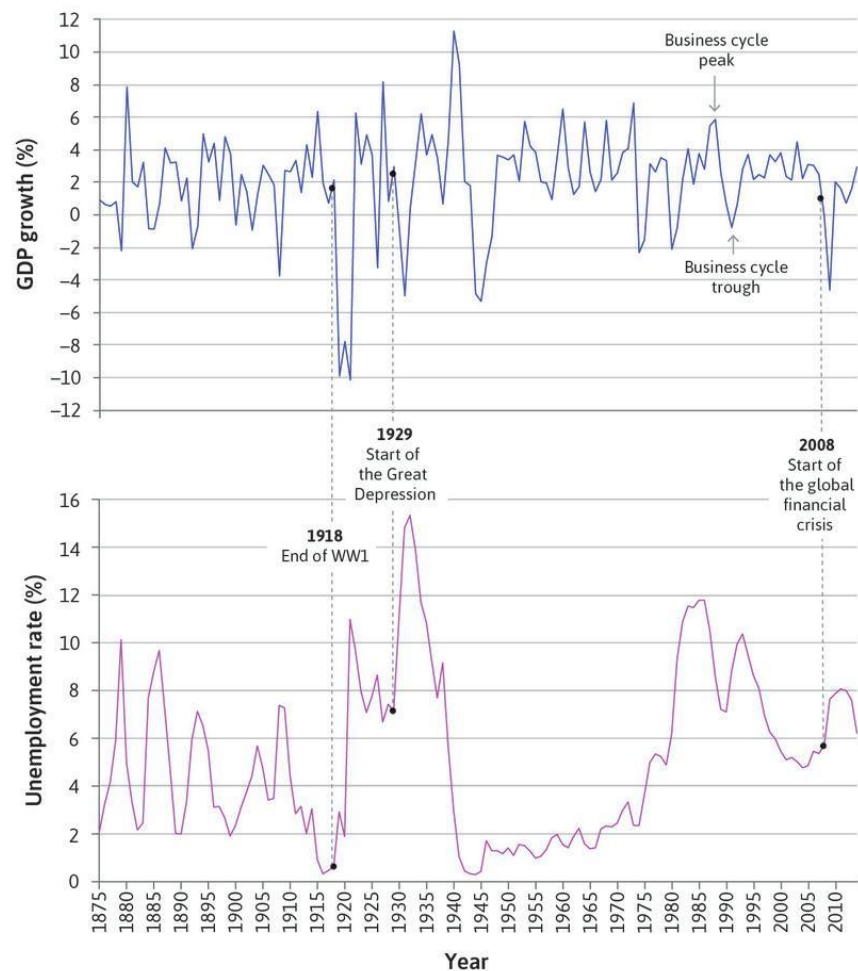
UK GDP growth and unemployment rate (1875–2014)

The panels show UK GDP growth and the unemployment rate for the period 1875–2014

The arrows highlight the peak and trough of a business cycle during the late 1980s and early 1990s

In the twenty-first century, the 2008 financial crisis followed a period in which fluctuations were limited (the great moderation)

UK GDP growth and unemployment rate (1875–2014)

We can see that downturns in the business cycle are associated with rising unemployment

In the business cycle of the early 1990s, unemployment continued to rise for a time after the growth rate began to rise
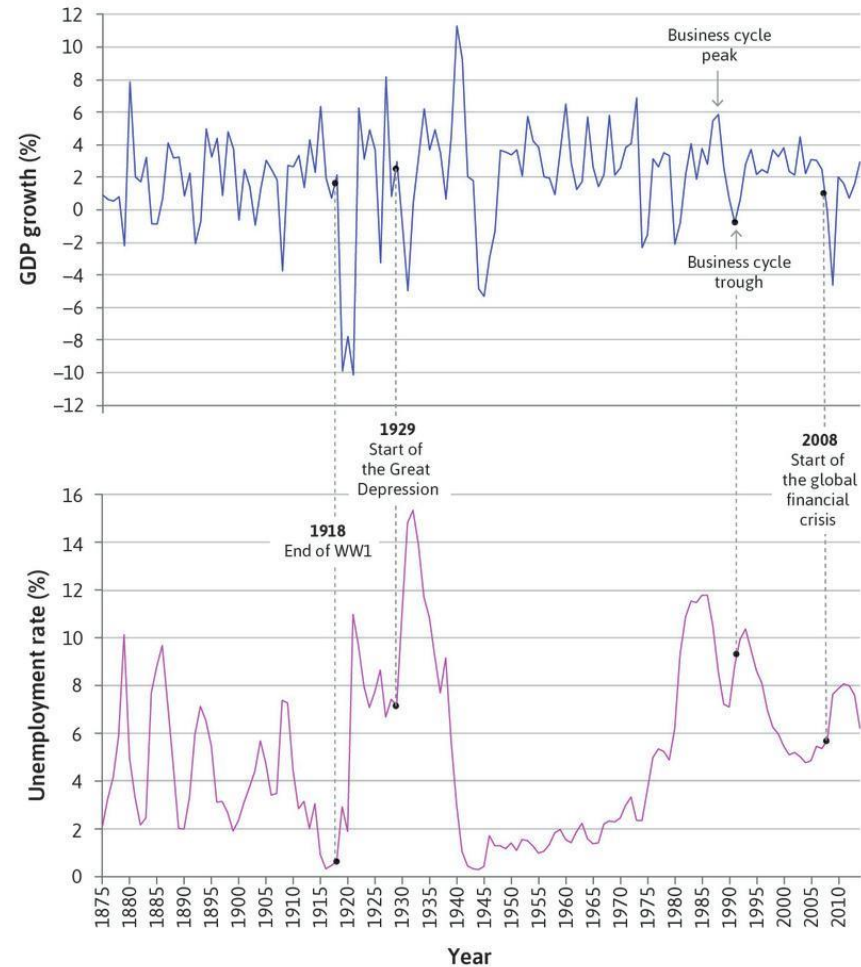
GDP growth in Finland (1976–2017)

After 1975, annual GDP growth has been 2,3%, but fluctuations have been large

The business cycle

- **Economic growth is not a smooth process**

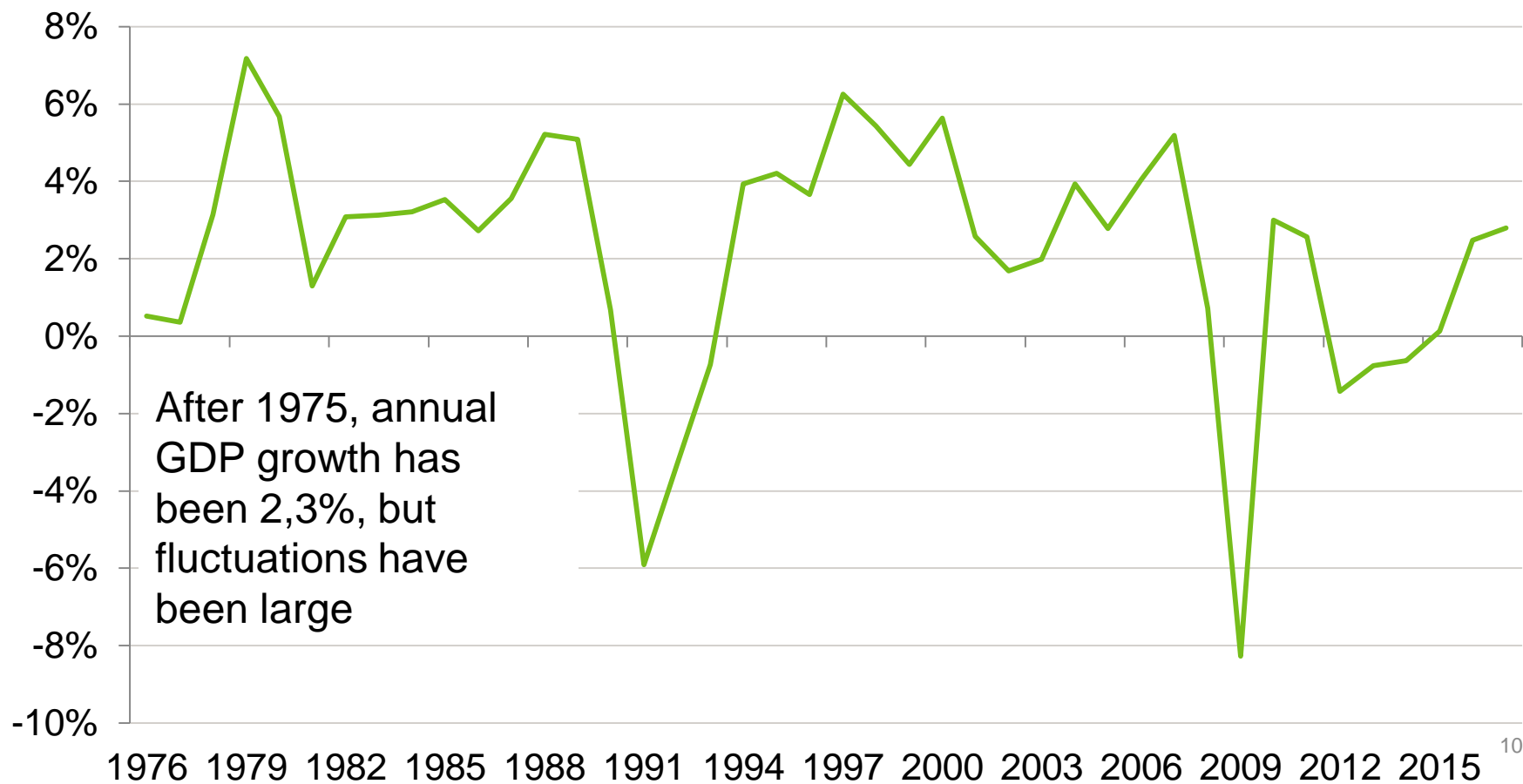 - Business cycle = Alternating periods of positive and negative growth rates. The economy goes from boom to recession and back to boom

- **Recession:**

  - NBER definition: output is declining. A recession is over once the economy begins to grow again.

  - Alternative definition: the level of output is below its normal level, even if the economy is growing. A recession is not over until output has grown enough to get back to normal.

- **The business cycle affects labour market outcomes**

Okun's law

Okun's Law = a strong and stable relationship between unemployment and GDP growth

Changes in the rate of GDP growth are negatively correlated with the unemployment rate

Output falls → Unemployment rises → Well-being falls
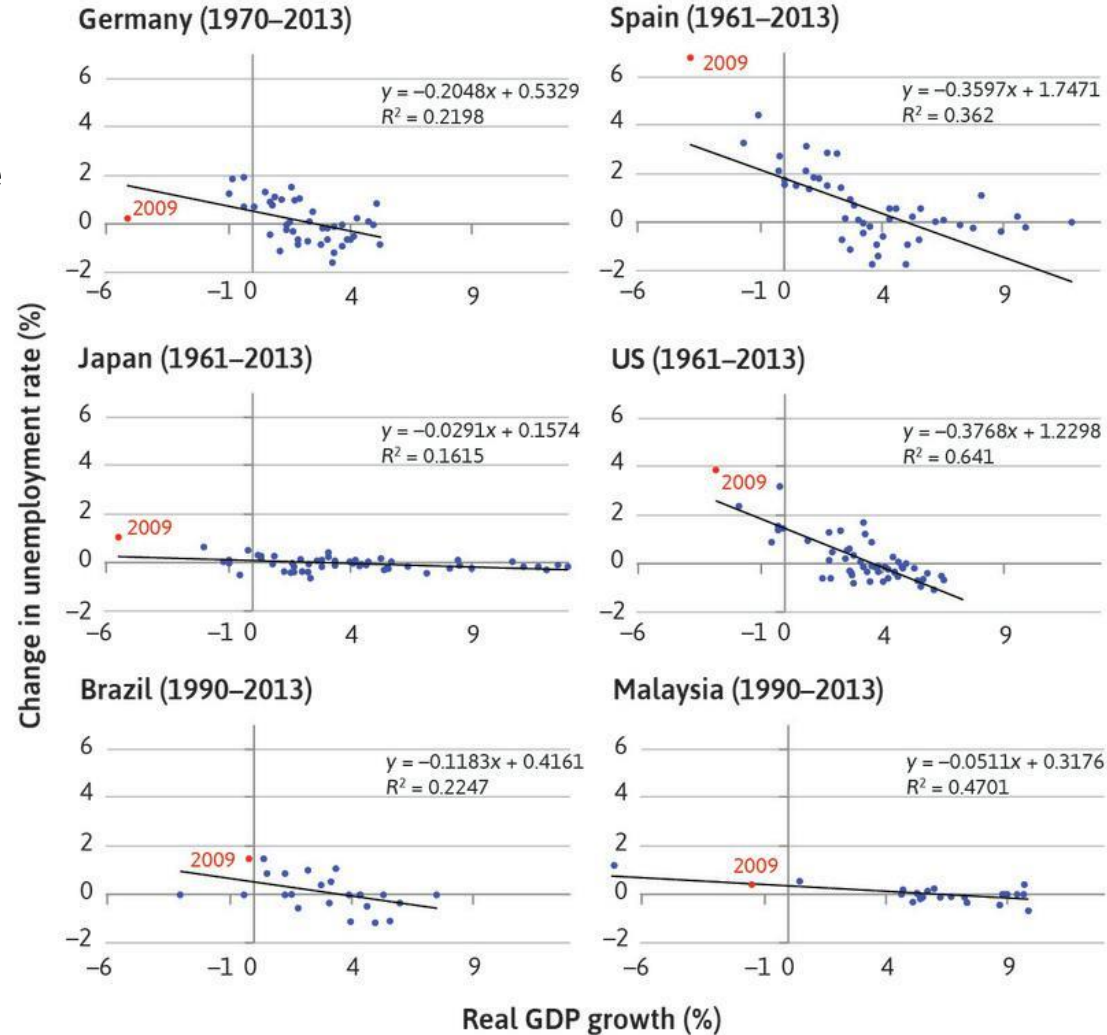
Measuring the aggregate economy

Measuring the aggregate economy

National accounts

System used to measure overall output and expenditure in a country

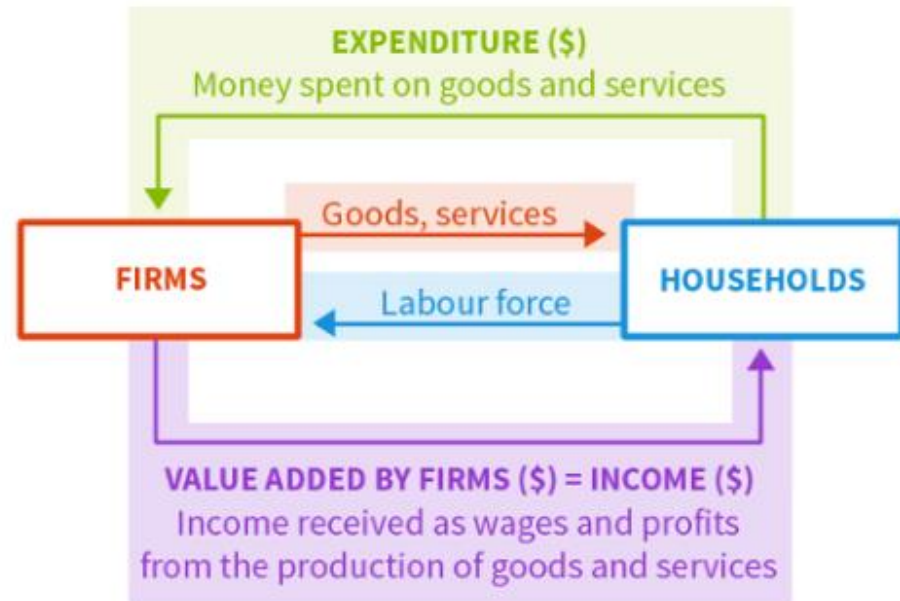**Three equivalent ways to measure Gross Domestic Product or GDP:**

Total spending on domestic products

Total domestic production (measured as value added)

Total domestic income

Circular flow model

EXPENDITURE ($)
Money spent on goods and services

Goods, services

FIRMS

Labour force

HOUSEHOLDS

VALUE ADDED BY FIRMS ($) = INCOME ($)
Income received as wages and profits
from the production of goods and services

Components of GDP

- **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, and investment (excluding transfers to avoid double-counting)
- **Net exports (trade balance)**
  - Exports (X) minus imports (M)
- **GDP = C + I + G + X – M**

Components of GDP

GDP Y = Consumption **C** + Investment **I** + Government **G** + Export **X** − Import **M**

Net export

Examples

- **Are transactions of used cars included in the GDP?**

- **How about new houses and old houses?**

- **If a bakery buys eggs and flour, are they included in the GDP if we calculate it using total spending approach? What if a household buys eggs and flour?**

- **A tractor bought by a farmer?**

- **French wine bought from Alko?**

Production or value-added approach

- **Consider a new pair jeans that were domestically produced and sold for €50**

  - Spending approach would add €50 to the GDP

- **The value-added approach would look at the production chain**

  - A farmer produces the cotton and sells it to a thread maker for €10

  - The thread maker sells the thread to a fabric maker for €20

  - The fabric maker sells the fabric to a jeans producer for €30

  - The jeans produces sells the jeans for €50

  - The value-added: 10 + 10 + 10 + 20 = €50

Components of GDP

In most countries, private consumption makes up the largest share of GDP

	US	Eurozone (19 count.)	China	Finland
Consumption (C)	68%	56%	37%	55%
Government spending (G)	15%	21%	14%	24%
Investment (I)	19%	20%	49%	22%
Exports (X)	14%	44%	26%	36%
Imports (M)	16%	41%	24%	37%

Components of GDP growth

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

Percentage change in GDP = (percentage change in consumption × share of consumption in GDP)

+

(percentage change in investment × share of investment in GDP)

+

(percentage change in government spending × share of government spending in GDP)

+

(percentage change in net exports × share of net exports in GDP)
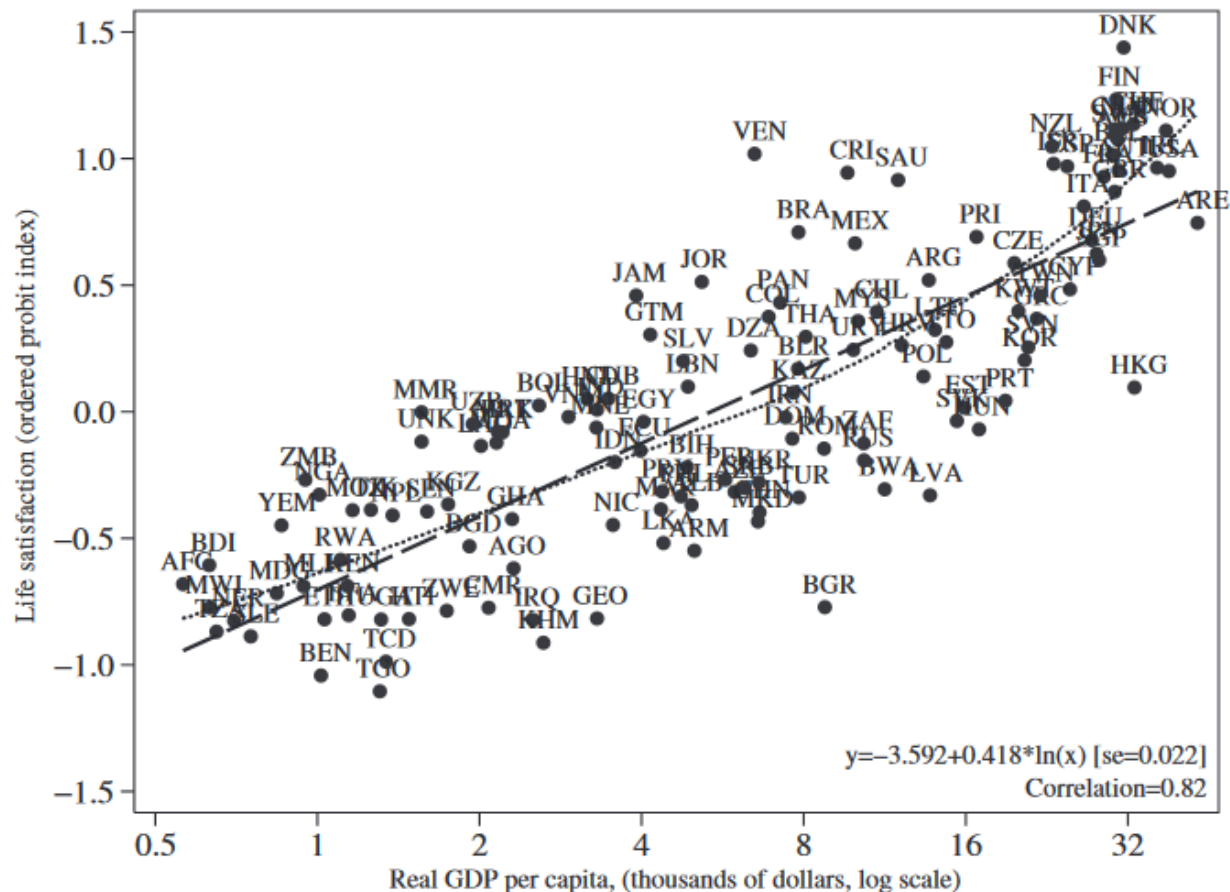
Shortcomings of GDP as measure

- **It is a conventional measure of the size of an economy**
  - Measures the size of the pie, not how it is distributed
  - Does not measure environmental quality

- **Distinguish aggregate GDP from GDP per capita**
  - Often growth of GDP per capita is the more interesting one

- **GDP per capita is a flawed measure of living standards**
  - Does not measure leisure time or other important aspects in life that make people happy
  - At the same time, it correlates strongly with many measures of living standards

In defense of GDP

Despite the shortcomings, in practice, GDP turns out to be a surprisingly useful indicator of the health of nations
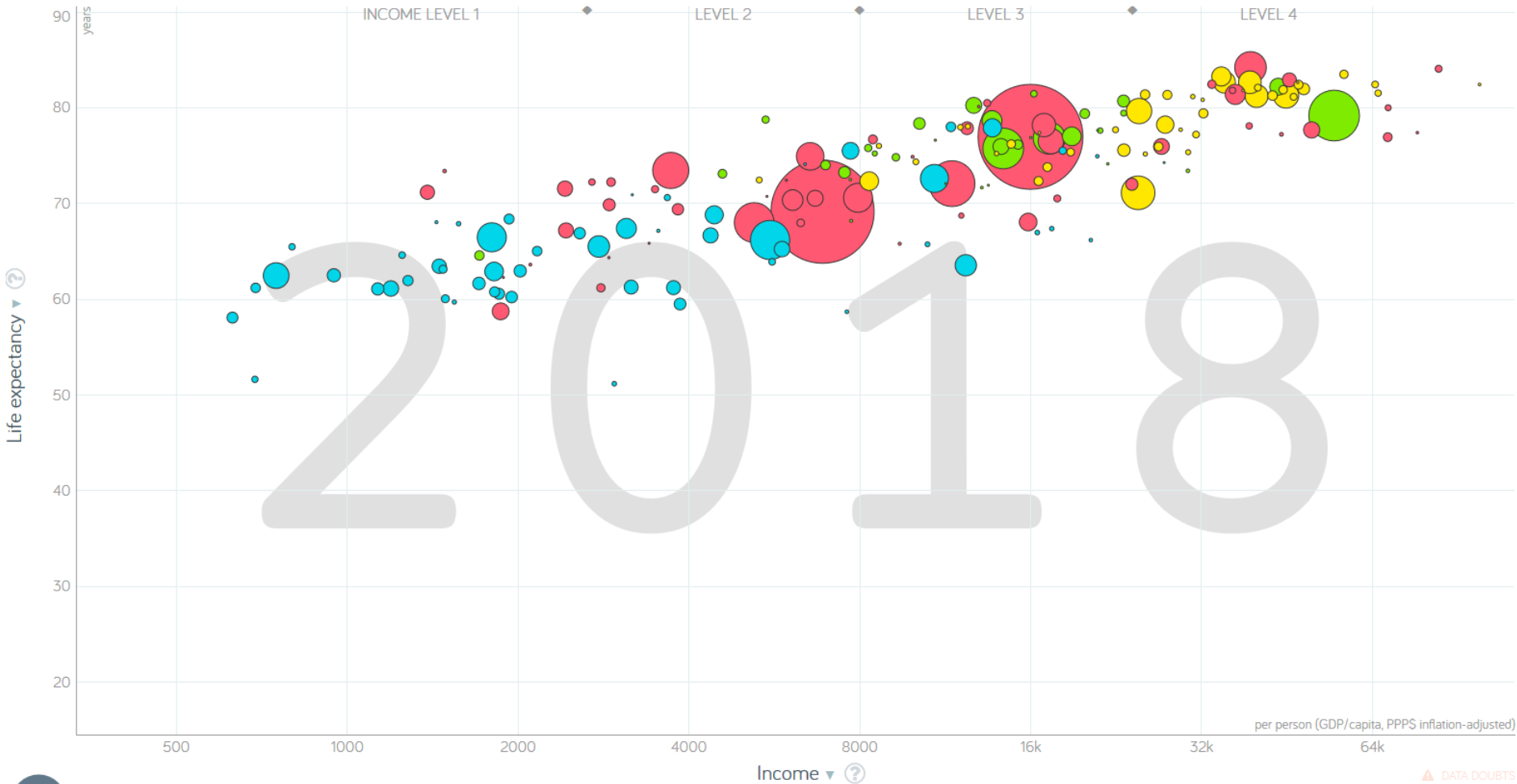
It is highly correlated with other measures of well-being

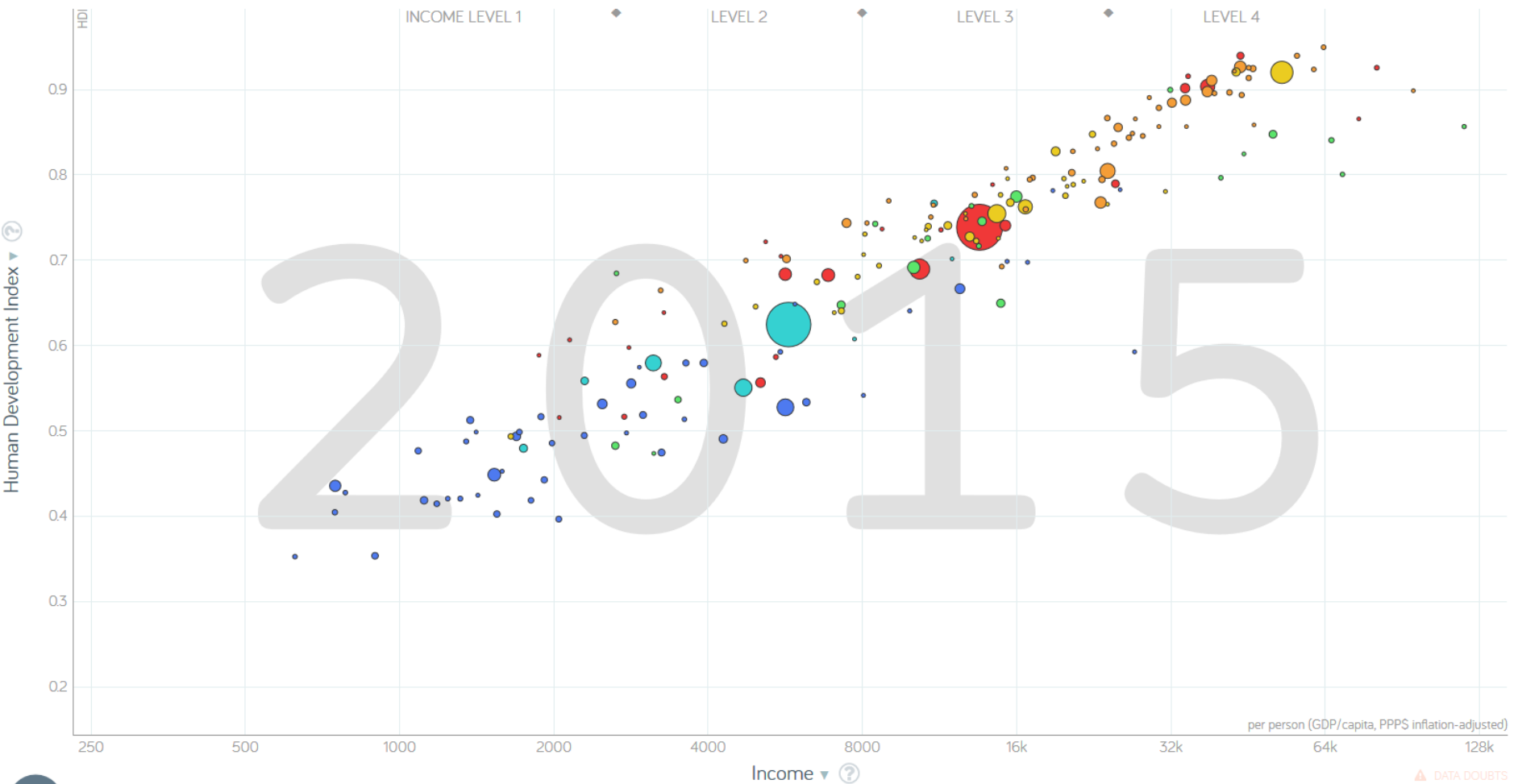**Figure 4.** Life Satisfaction and Real GDP per Capita: Gallup World Poll[a]

$y = -3.592 + 0.418*\ln(x)$ [se=0.022]
Correlation=0.82

Life satisfaction (ordered probit index)

Real GDP per capita, (thousands of dollars, log scale)

In defense of GDP

In defense of GDP

Discussion

- **A little boy accidentally breaks a shopkeeper's window**

- **A crowd gathers and one of the bystanders says to the shopkeeper:**

  - Look at the bright side. The town economy is going have a boost from this. The window maker is going to have more business. The window maker is then going to spend the extra money on something, say bread. The baker now has more money and so on and so on.

- **Does this make sense? Is GDP going to be higher because a window was broken? What is the counterfactual that you need to think about?**

Economic fluctuations and consumption (C)

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

  - Good or bad fortune strikes the entire economy

Household shocks

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

    - Self-insurance – saving and borrowing. Other households are not involved

    - Co-insurance – support from social network or government

- **This reflects that households prefer to smooth their consumption and that they are (to a degree) altruistic**

Economy wide shocks

- **Co-insurance is less effective if the bad shock hits everyone at the same time**

    - Extreme weather, wars etc.

    - Also shocks that hit a large fraction of the population, but not everyone (shocks in demand for export goods)

- **But when these type of shocks hit, co-insurance is even more necessary**

Smoothing consumption

The blue line shows the path of income over time: it starts low, rises when the individual is promoted and falls at retirement
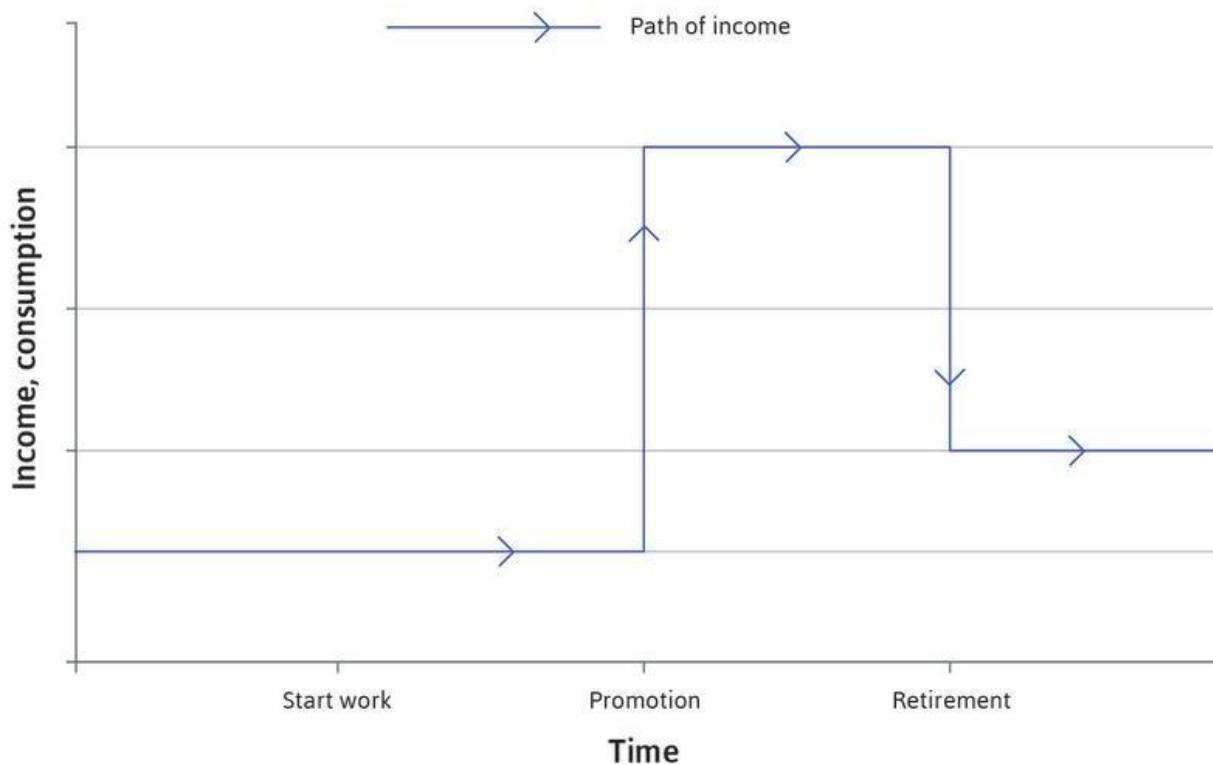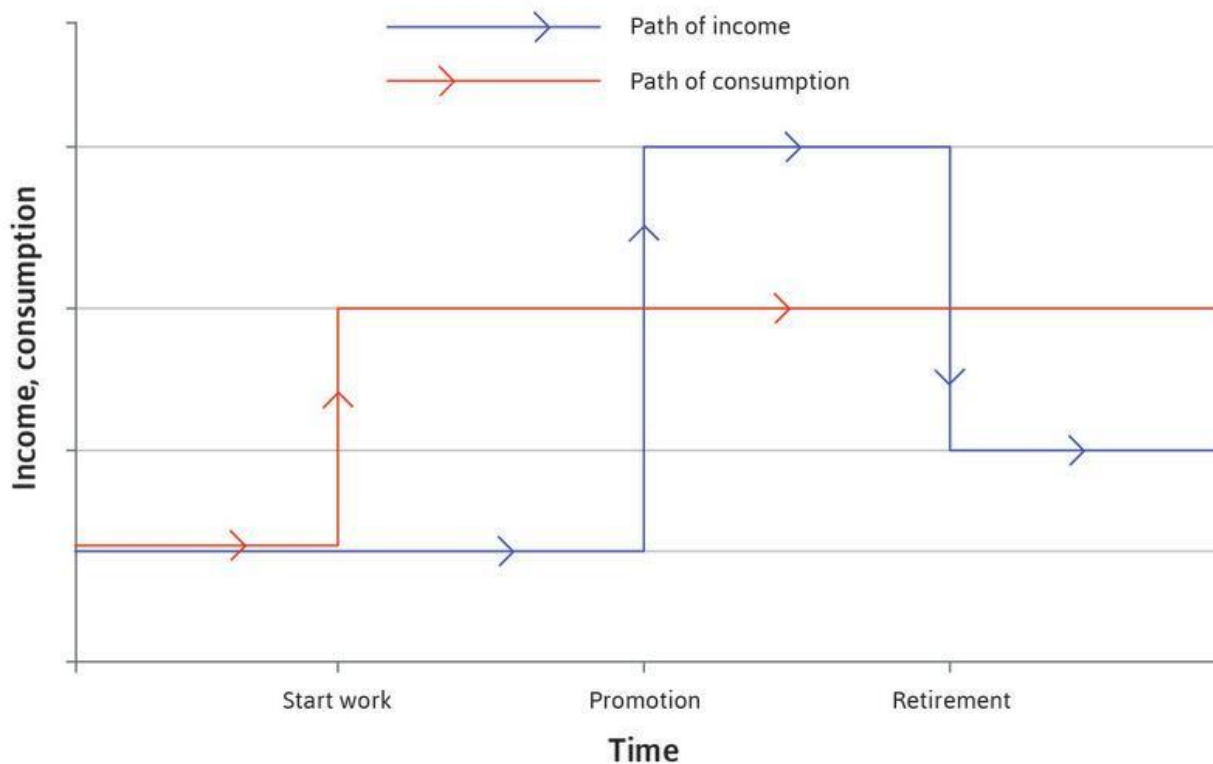
Smoothing consumption

The blue line shows the path of income over time: it starts low, rises when the individual is promoted and falls at retirement

Consumption expenditure is the red line

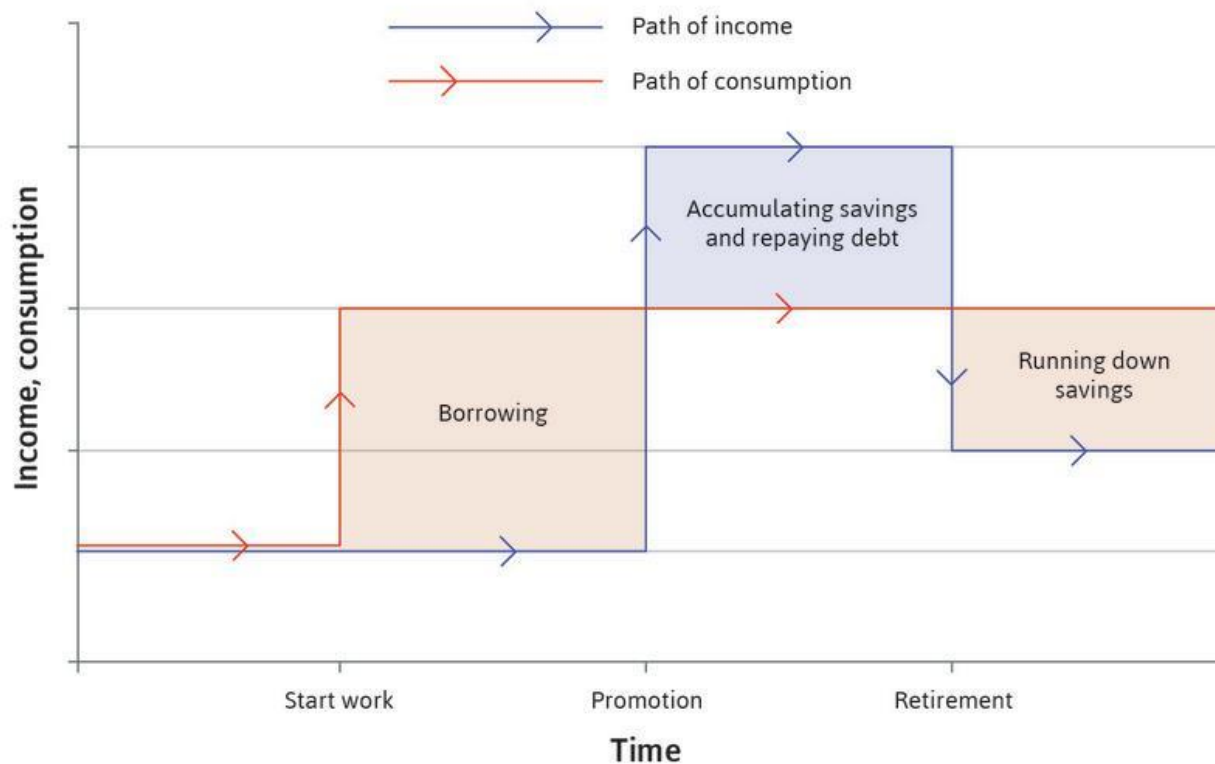It is smooth (flat) from the point at which the individual first gets a job

Smoothing consumption

The individual borrows while young

At this time, income is low

The individual saves and repays the debt when older and earning more, and finally runs down savings after retirement, when income falls again

Consumption smoothing and the aggregate economy

- **What if the individual shown in the figure encounters an unexpected income shock?**

- **The individual will make a judgement about whether the shock is temporary or permanent**

  - Permanent shock: We should adjust the red line in the figure up or down to reflect the new long-run level of consumption that the individual adopts, consistent with the new pattern of income

  - Temporary shock : Little will change. A temporary fluctuation in income has almost no effect on the lifetime consumption plan, because it makes only a small change to lifetime income

Consumption smoothing and the aggregate economy

- **Consumption smoothing is a basic source of stabilisation in an economy**

- **Limitations to consumption smoothing mean it cannot always stabilise the economy; it may amplify the initial shock**
  - Credit constraints, weakness of will, limited co-insurance

- **This helps us understand the business cycle and how to manage it**
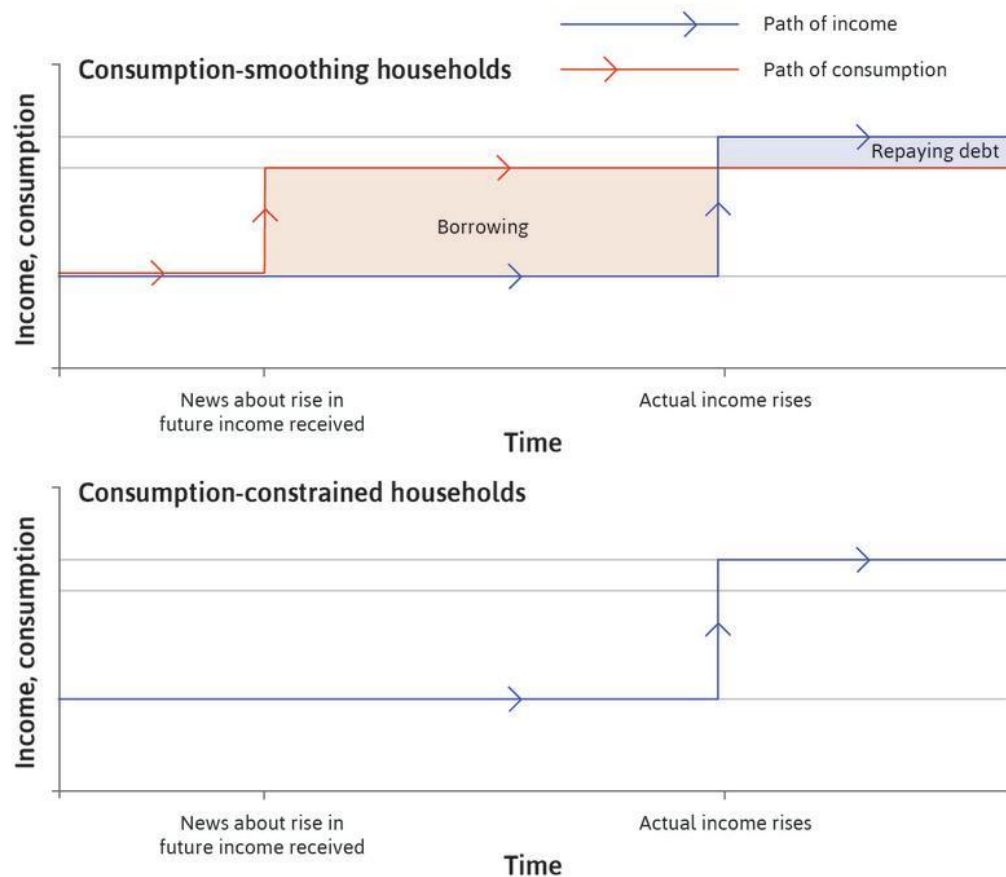
Credit constraints

The blue lines on the figure show that the path of income over time is the same in both households
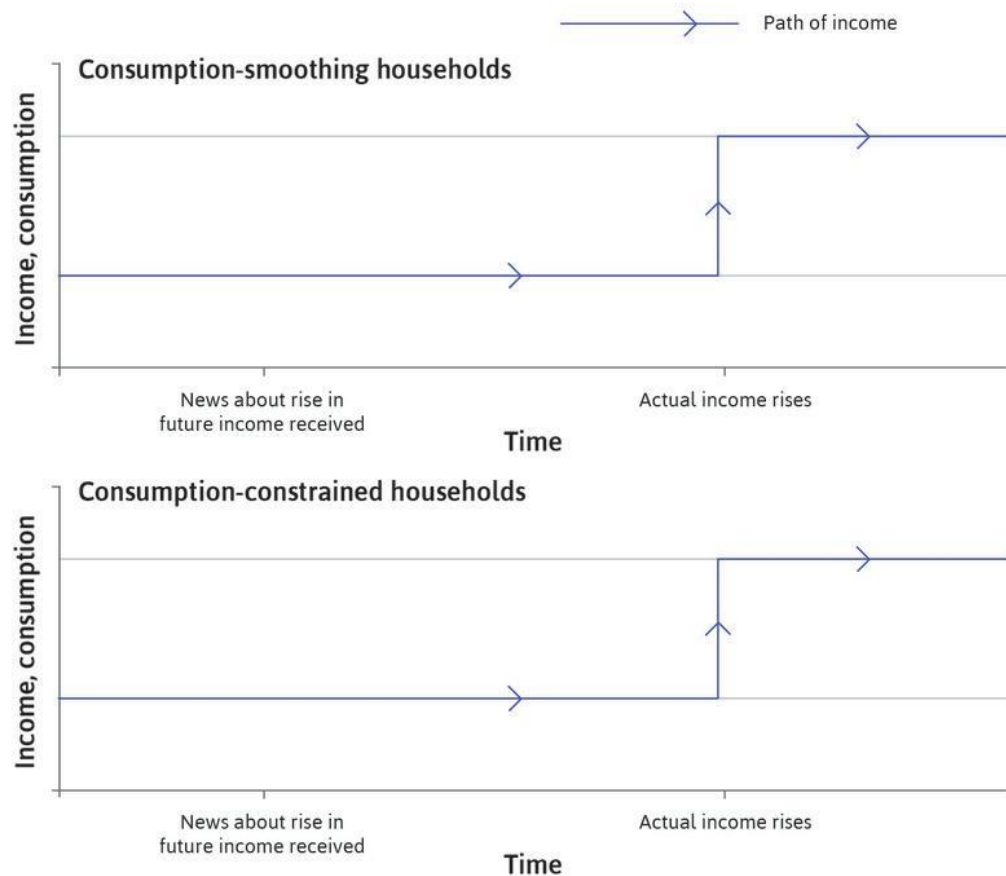
Credit constraints

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The red line in the top panel shows that, in a consumption-smoothing household, consumption changes immediately once the household receives the news

Credit constraints

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A credit-constrained household that cannot borrow has to wait until the income arrives before adjusting its standard of living
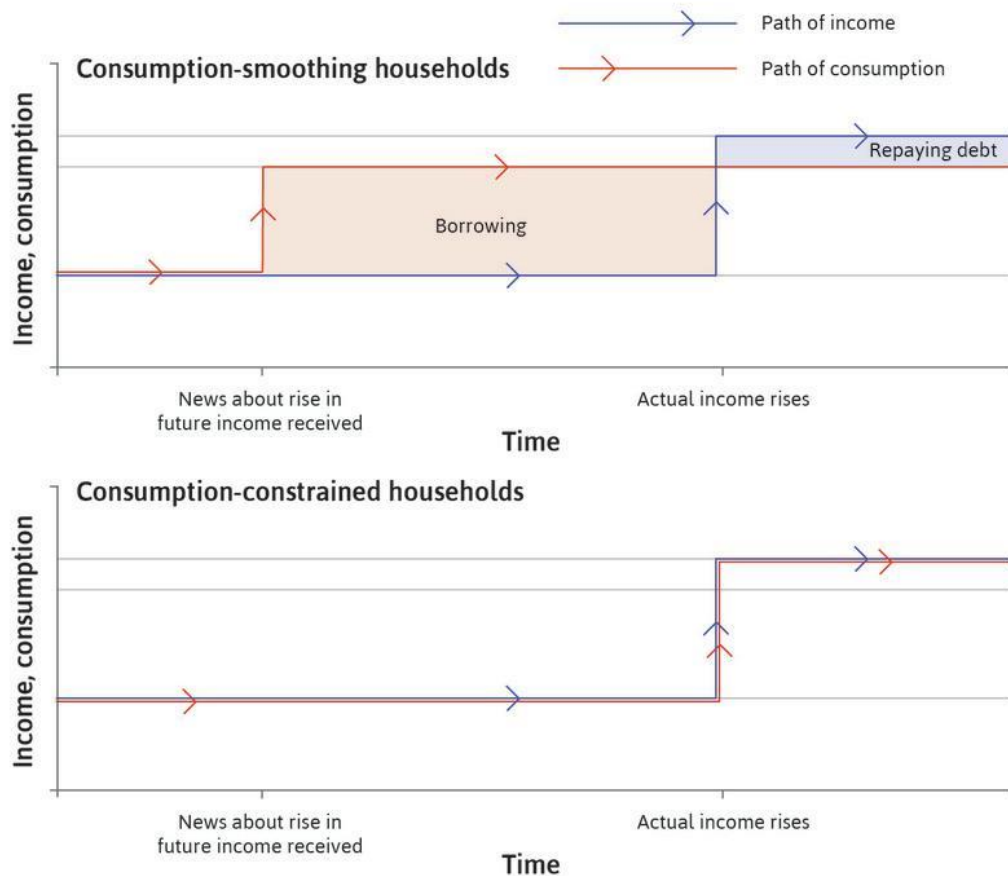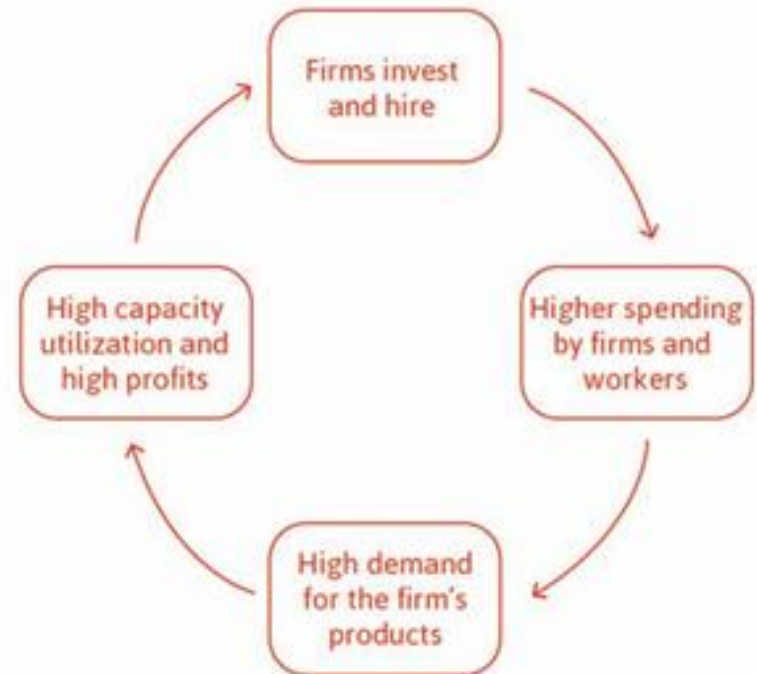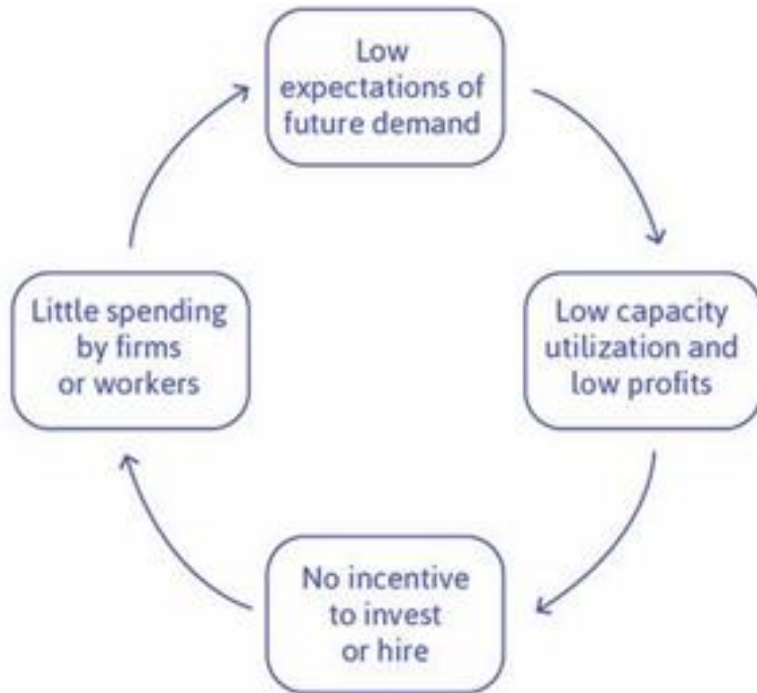
Economic fluctuations and investment (I)

Volatile investment

- **Firms don't have preferences for smoothing like households**

- **They adjust investment plans to both temporary and permanent shocks, to maximise their profits**

- **Investment decisions depend on firms' expectations about future demand**

Vicious and virtuous circle

Investment as coordination game

Actors: the two firms (A and B)

Actions: Invest, or Do not invest

Information: they decide simultaneously

Payoff: profits from investment

Investment is the best response to other firms' investment, not invest is best response to other firms' not investing

There are two Nash equilibria in this game (upper-left and lower-right)

		B's profit	
		B invests	B does not invest
A's profit	A invests	100 100	80 −40
	A does not invest	−40 80	10 10

Business confidence – Eurozone
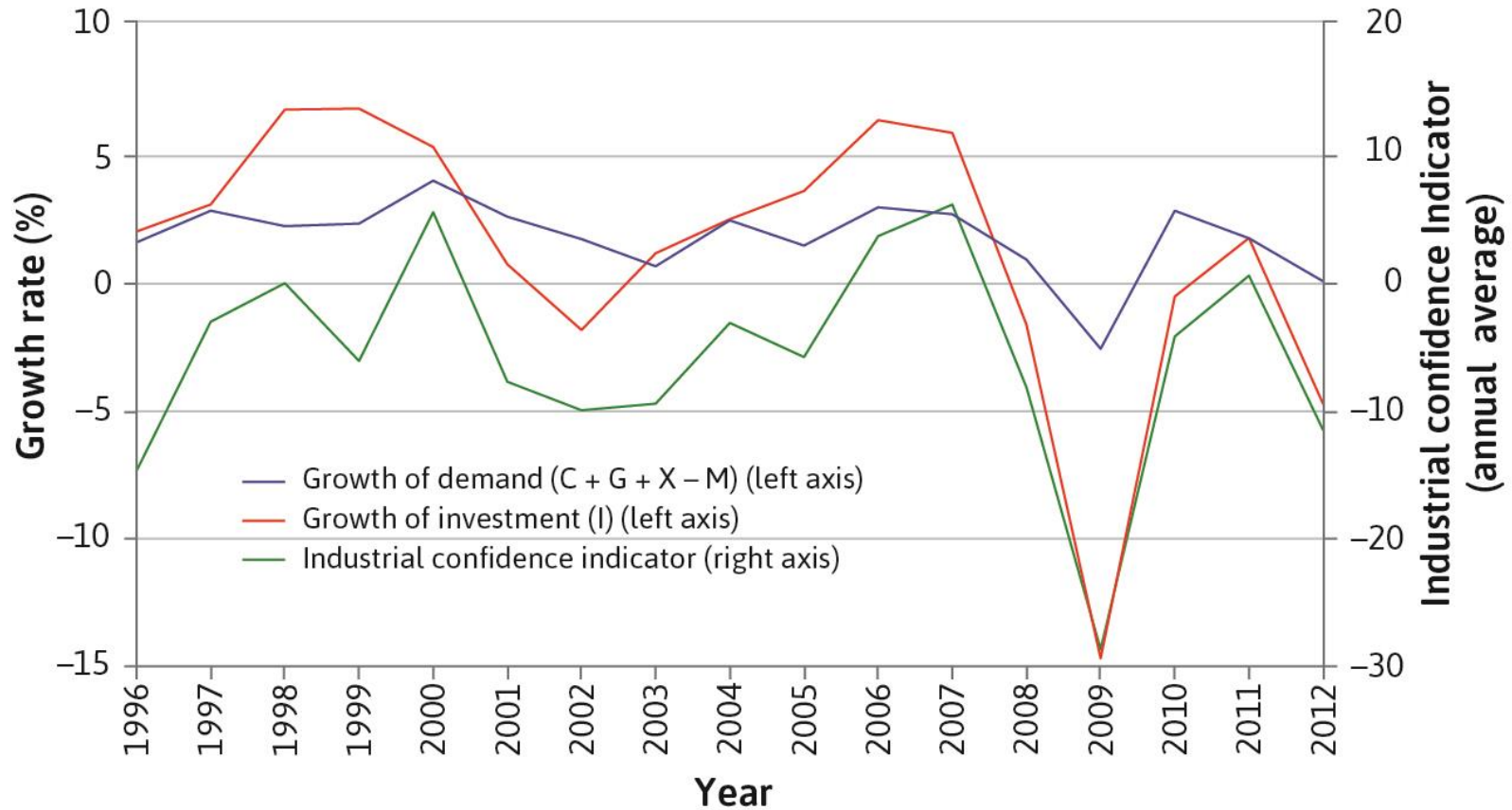
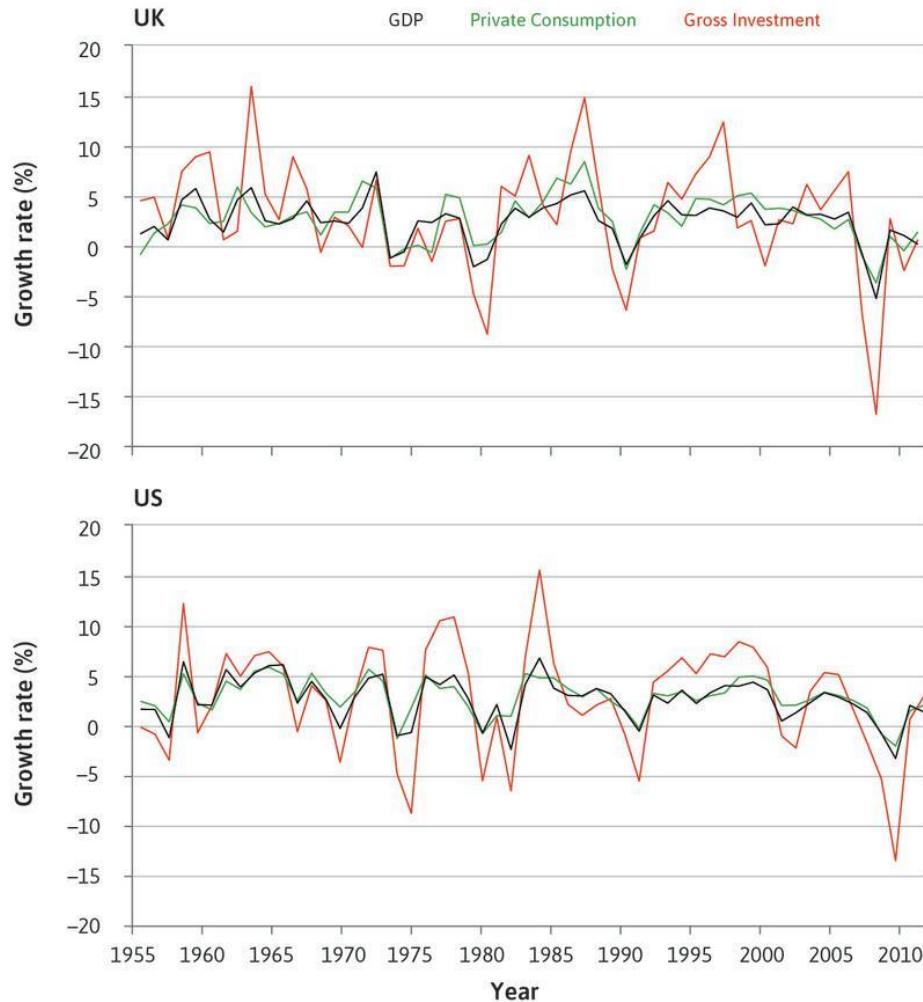Business confidence may help firms coordinate investment

Investment and aggregate economy

Investment is much more volatile than consumption

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
  - Government also acts as an automatic stabilizer through transfers and investment on public infrastructure

- **Exports depend on demand from other countries**
  - Will fluctuate according to the business cycles of major export markets

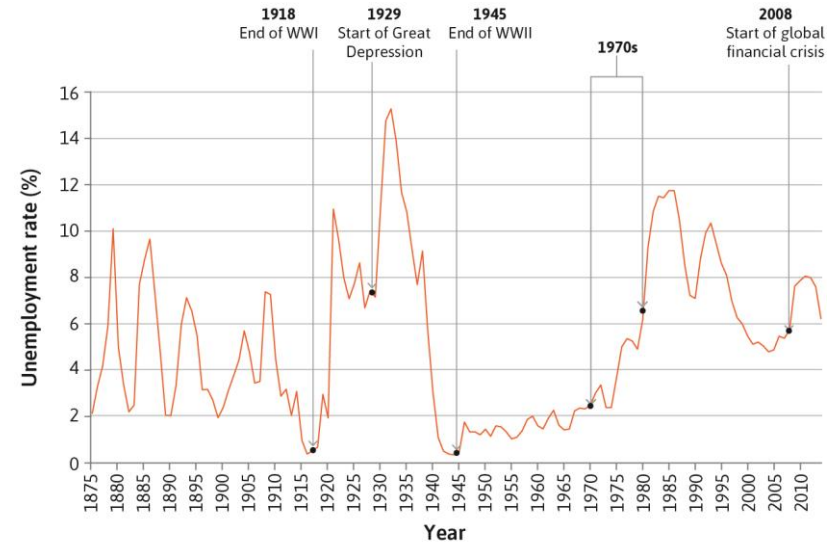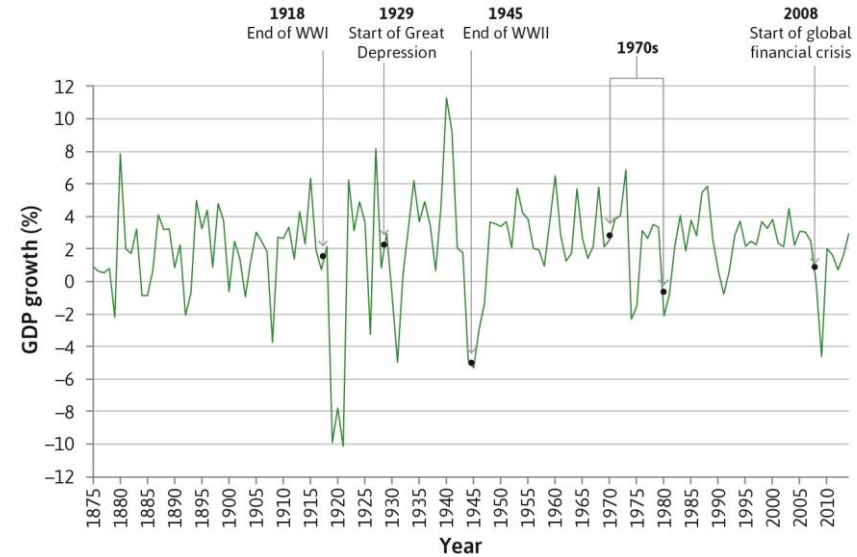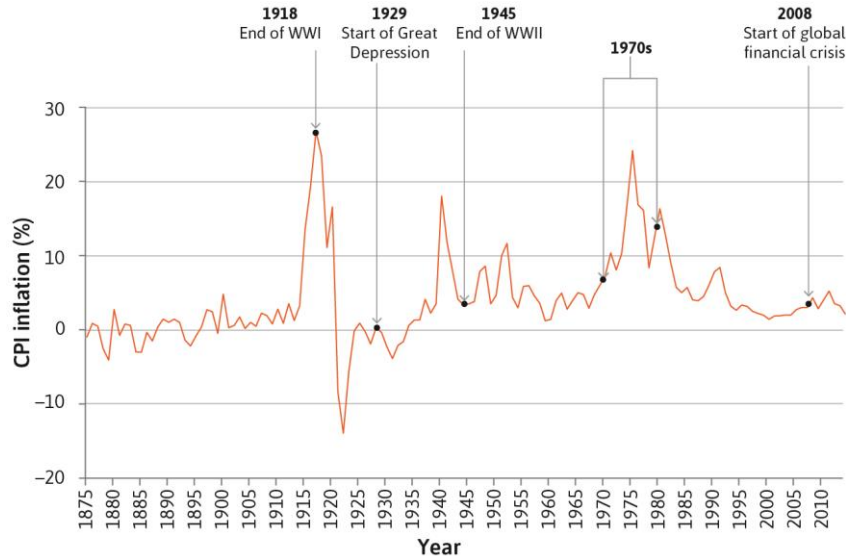# Inflation

Measuring inflation

- **Inflation is an increase in the general price level in the economy (deflation is decrease in the price level)**

- **Common measure of inflation is change in the Consumer Price Index (CPI)**

  - Measures the general level of prices that consumers must pay for goods and services, including consumption taxes

  - Based on a representative bundle of consumer goods – "cost of living"

  - The goods and services in the basket are weighted according to the fraction of household spending they account for

  - Excludes exports, which are consumed by foreign residents, but includes imports, which are consumed by domestic households
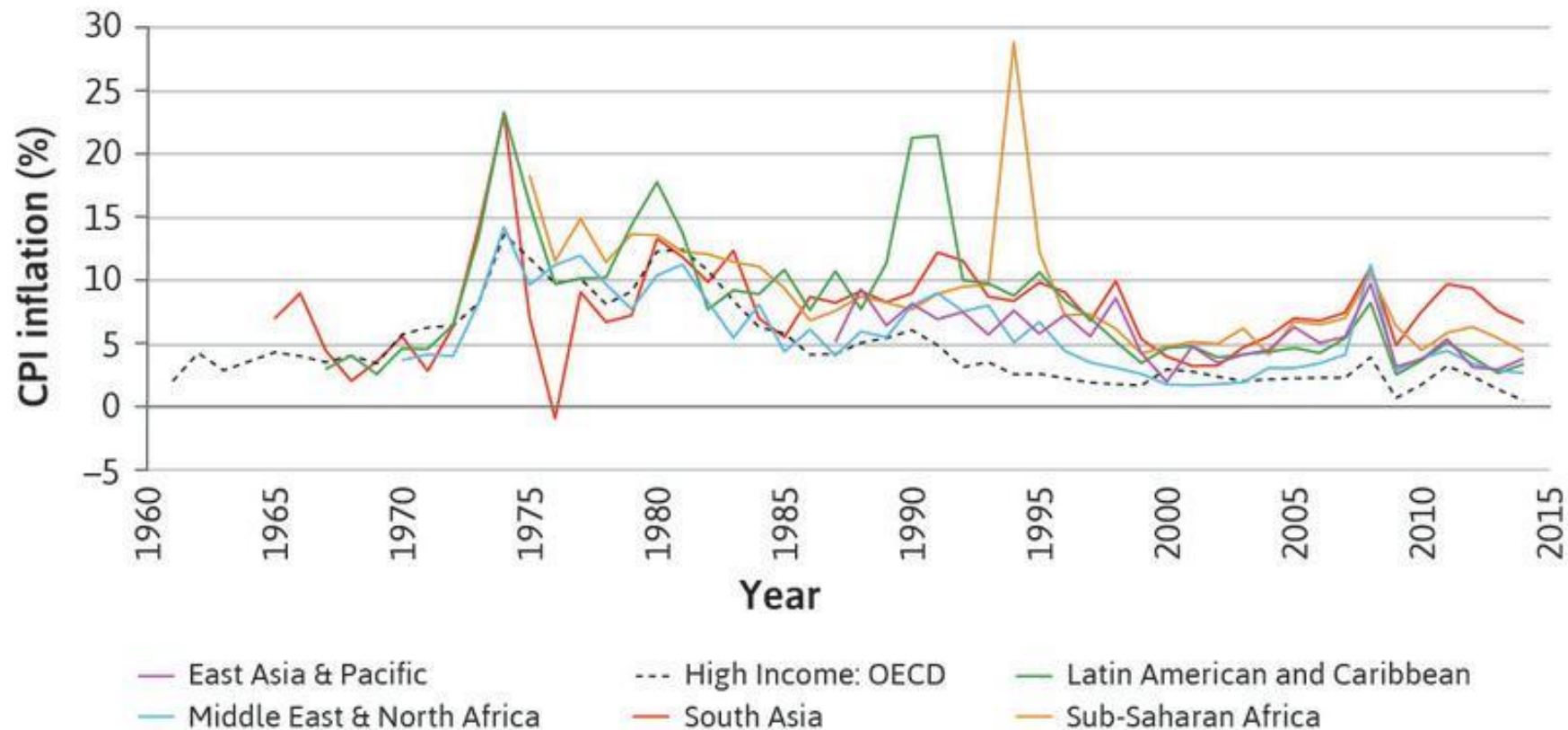
Measuring inflation

- **GDP deflator is a 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
- **The real GDP series shows how the size of the home economy changes over time, taking into account changes in the price of domestically produced goods and services**

Inflation, GDP, and Unemployment

Inflation tends to be lower during recessions (high unemployment)

Inflation levels and volatility in high- and low-income economies

Legend:
- East Asia & Pacific
- Middle East & North Africa
- High Income: OECD
- South Asia
- Latin American and Caribbean
- Sub-Saharan Africa

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; the outcome of a self-reinforcing coordination game

  - 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**