Economic fluctuations and unemployment

ECONOMICS

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UCL

Lecture 13

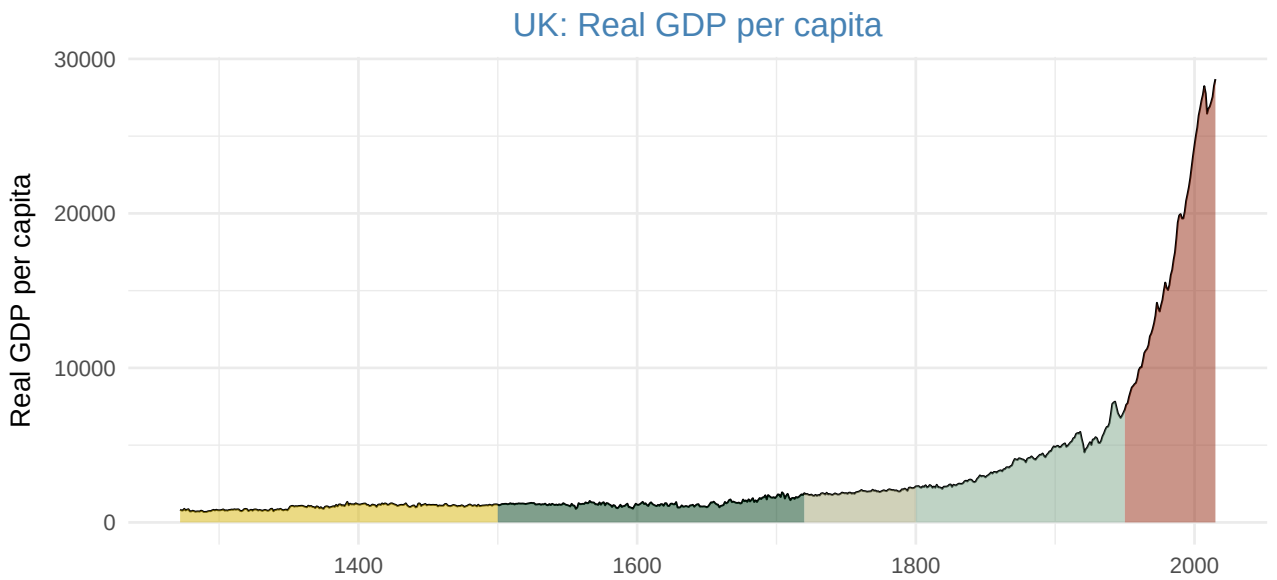
Context

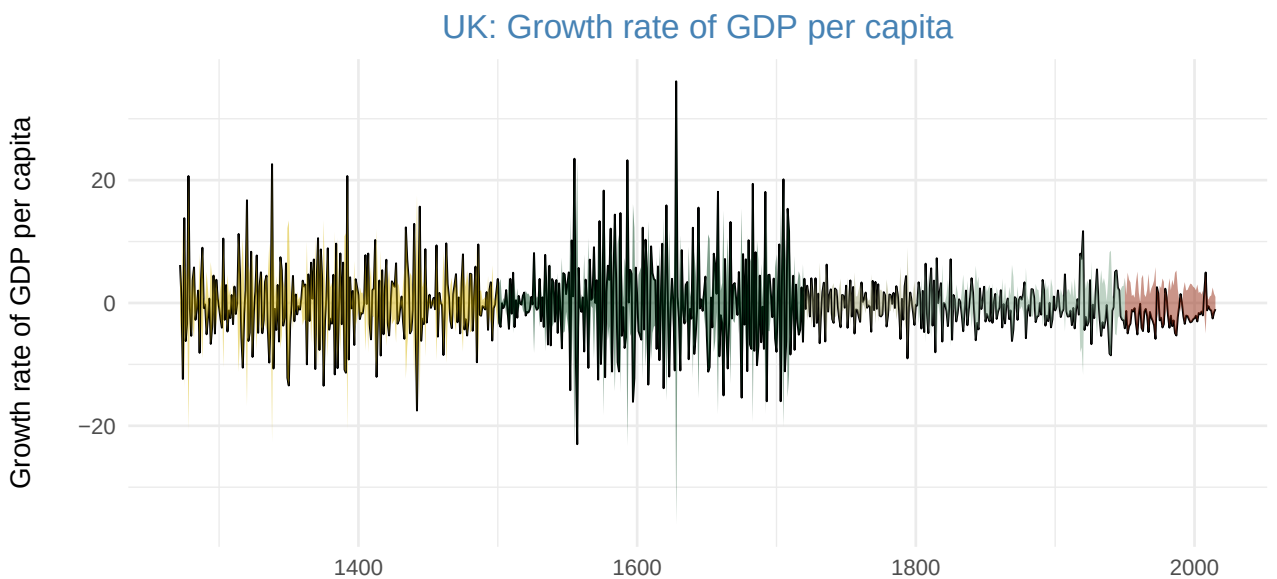
Previously,

- we have looked at how individuals make decisions about *saving* and *consumption* (Unit 10)
- how these *decisions* depend on economic conditions like market *prices* and *unemployment*

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*

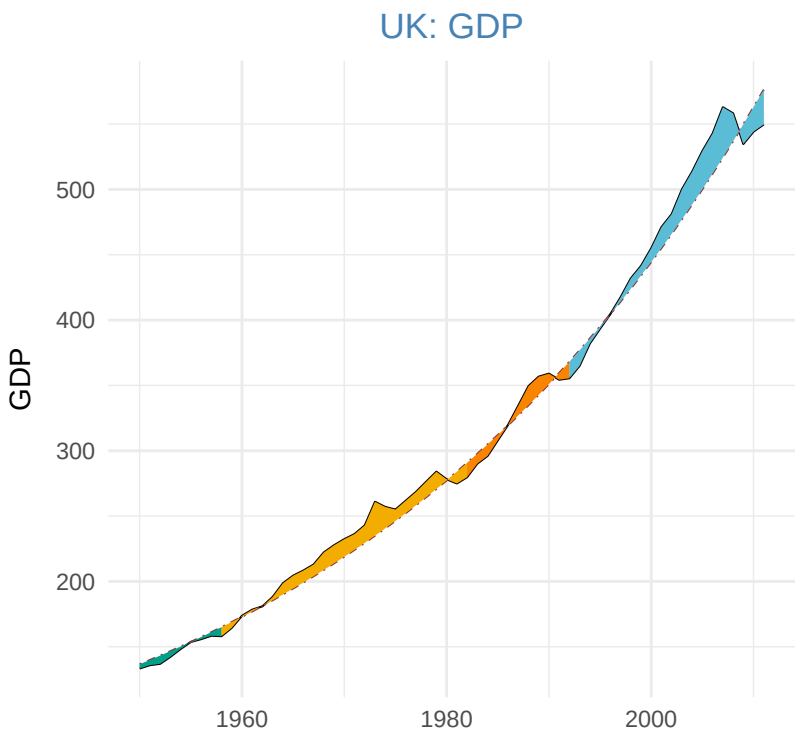


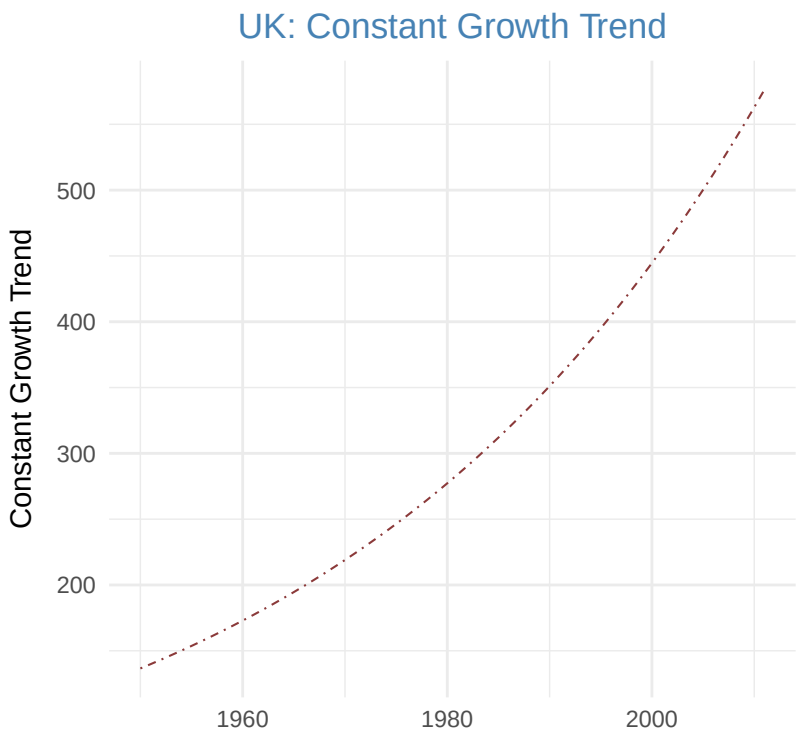


Taking a *long view of the performance of UK's economy* gives us a sense of tranformation that took place during the industrial revolution and initiated the hokey stick growth.

It is striking to note how the volatility of the growth process has varied over the centuries. The volatility has gone down significantly in the last 70 years. This lecture will explore *what increases and decreases the volatility of the economic growth in a modern economy*.

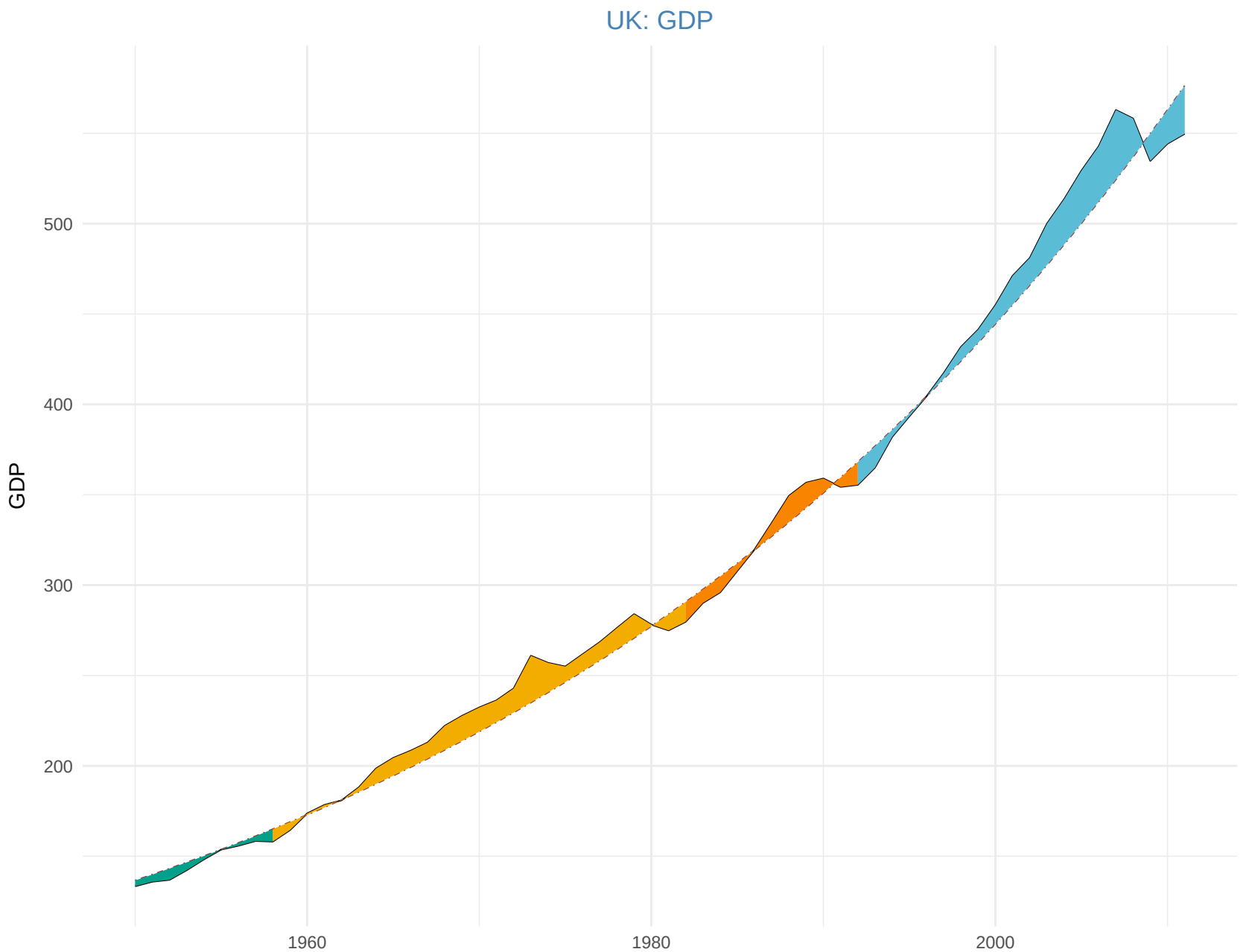
UK's Total GDP Growth and Constant Trend



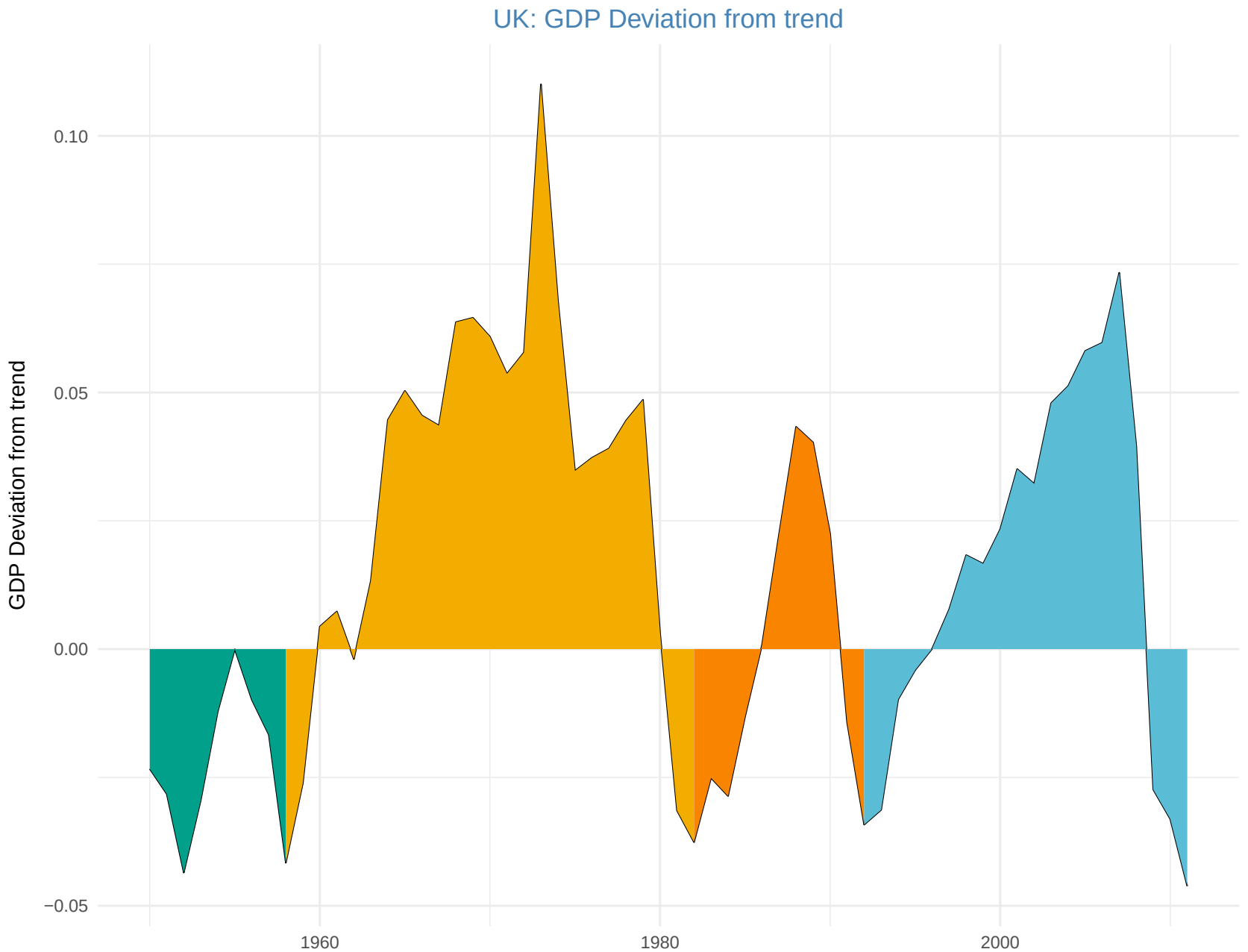


One the left side we have the Uk's total GDP from 1950 to 2011. On the right side we have the constant trend, i.e., the way the GDP would evolved the growth rate would not have varied and the economy would have growth at a constant rate.

In UK's case, a growth rate of 2.39% gives that us the constant trend on the right hand side.

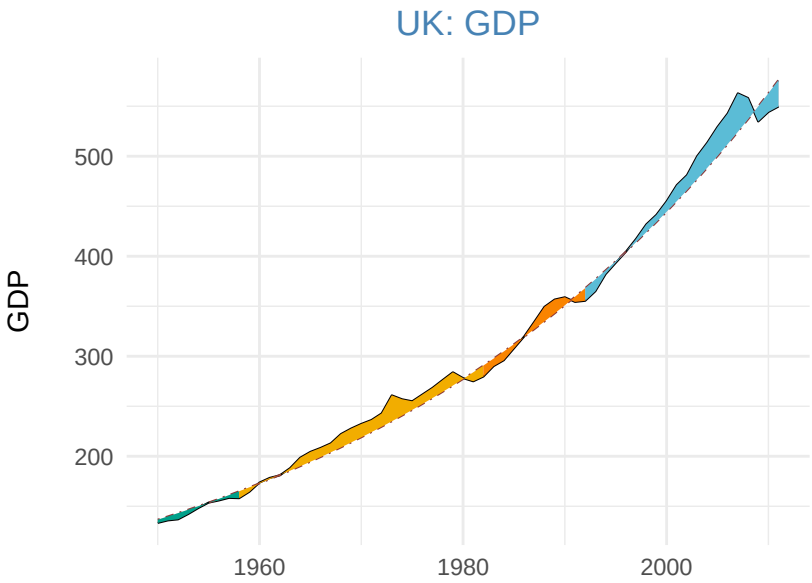


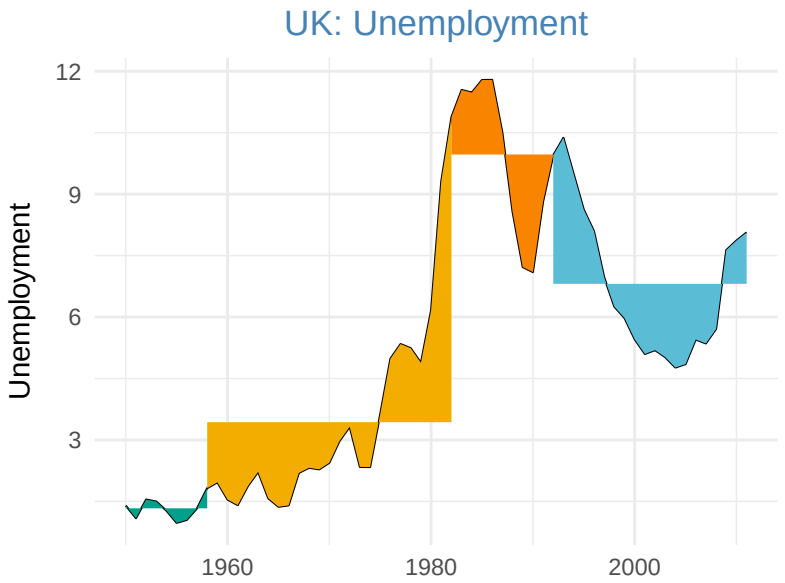
If UK's total GDP had grown at 2.39% per year from 1950 to 2011, it would have looked like the dotted line on the graph. The solid line on the graph shows how the total GDP has varied from this constant trend. The objective of the lecture is to understand what makes the growth rate volatile.

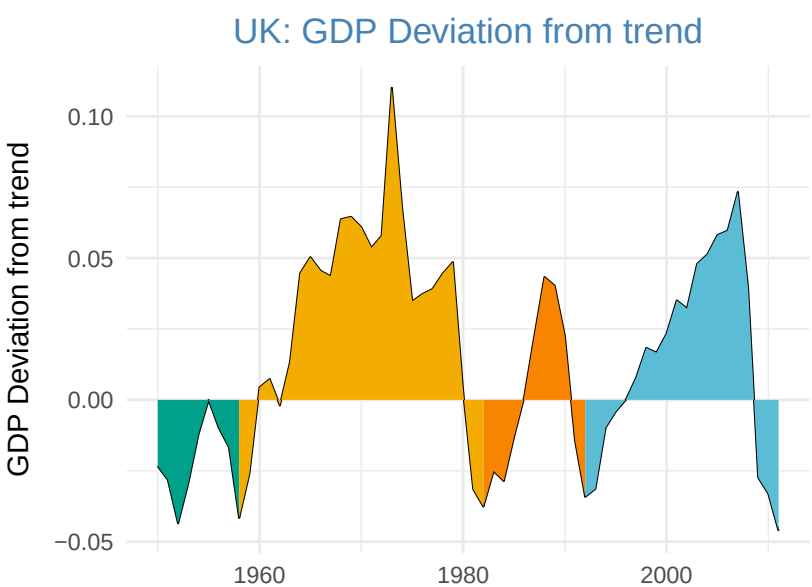


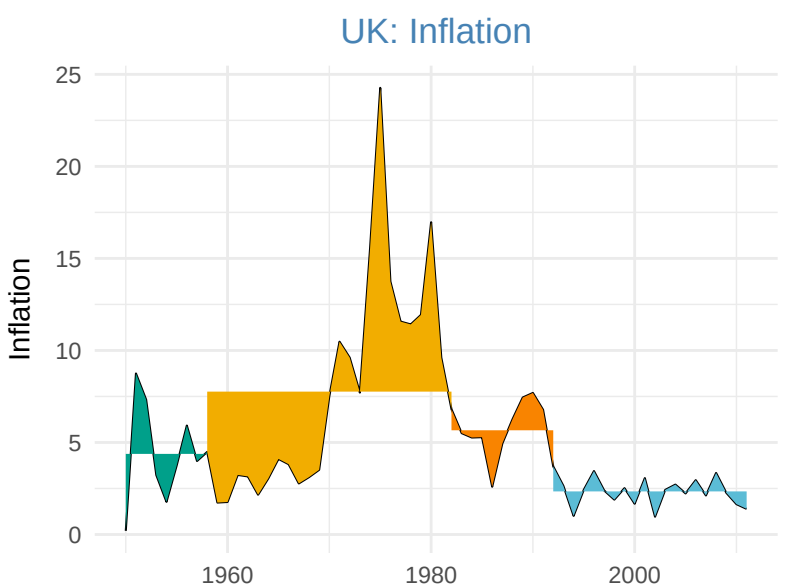
This graph shows the how far the UK's economy has deviated from the constant trend in particular year in terms percentage. For instance, the maximum positive deviation is close to 11% in mid 70's. That means that the actual GDP was 11 percent more than the constant trend, i.e., the path where the economy would have grown at a constant 2.39% from 1950 to 2011.

The deviation from the growth rate shows us clearly the *business cycles* UK has experienced. Each cycle (marked by a particular color) starts with a trough, grows till it reaches its peak and end with a trough. At the trough we see that start of a new business cycle (marked by a new colour).

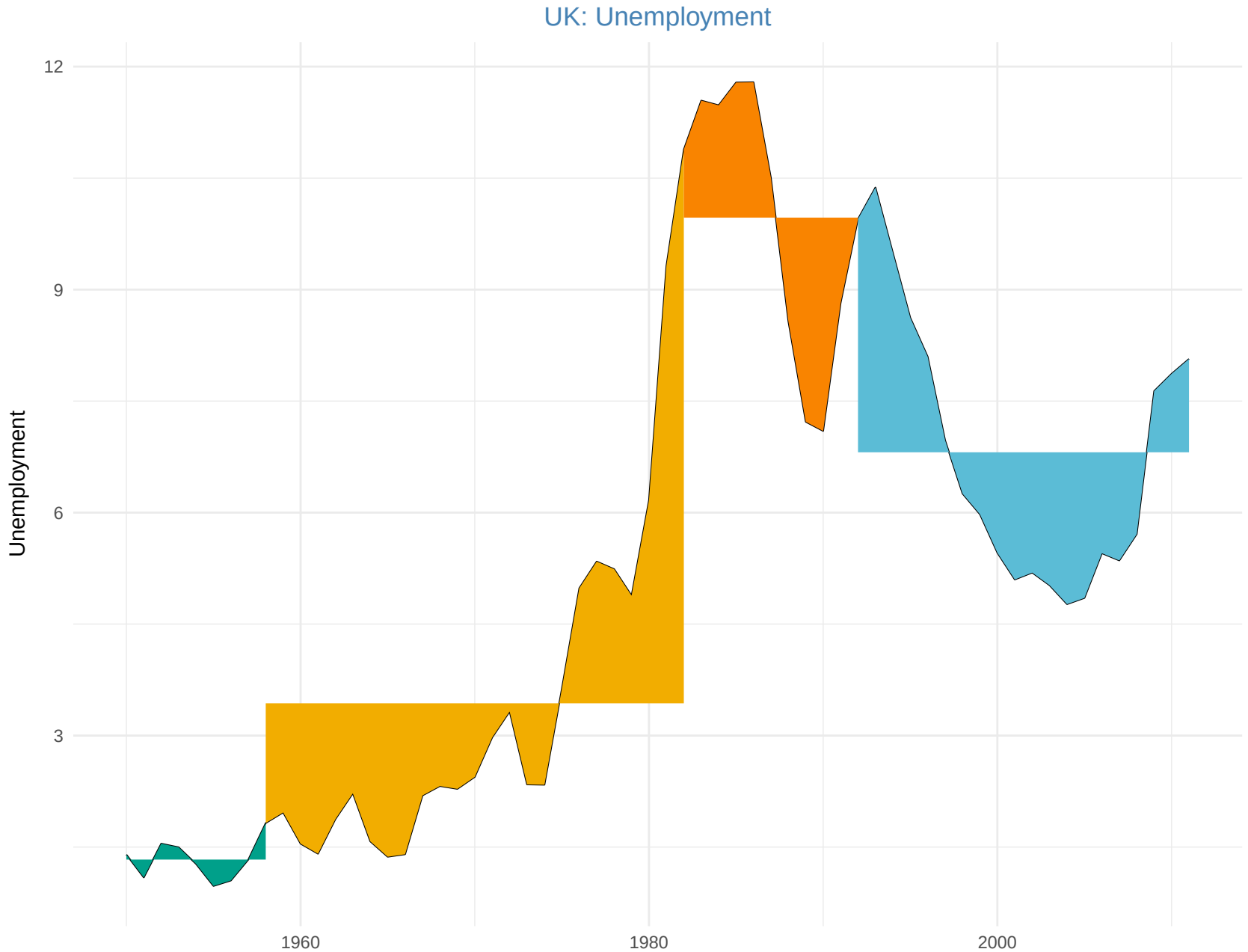


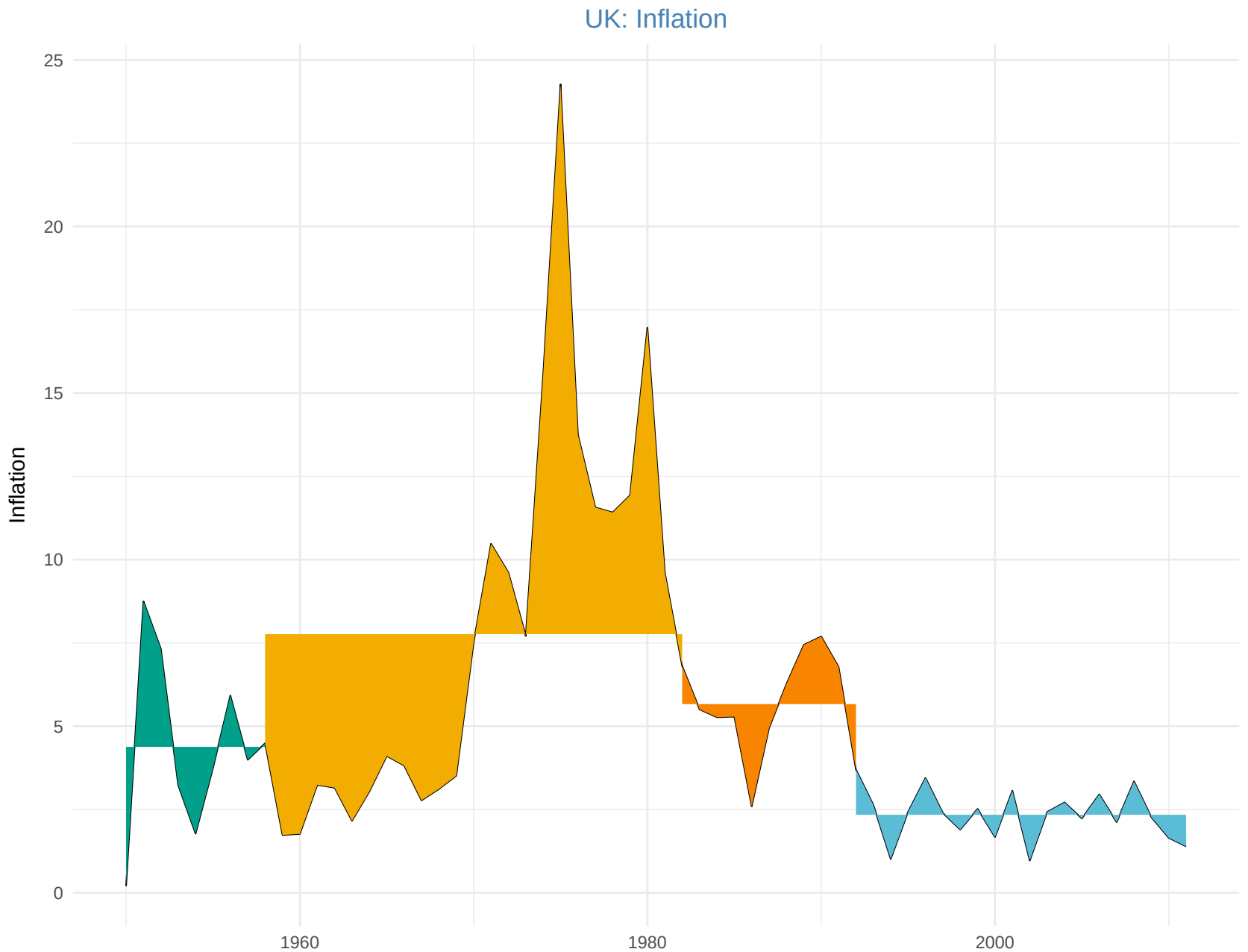






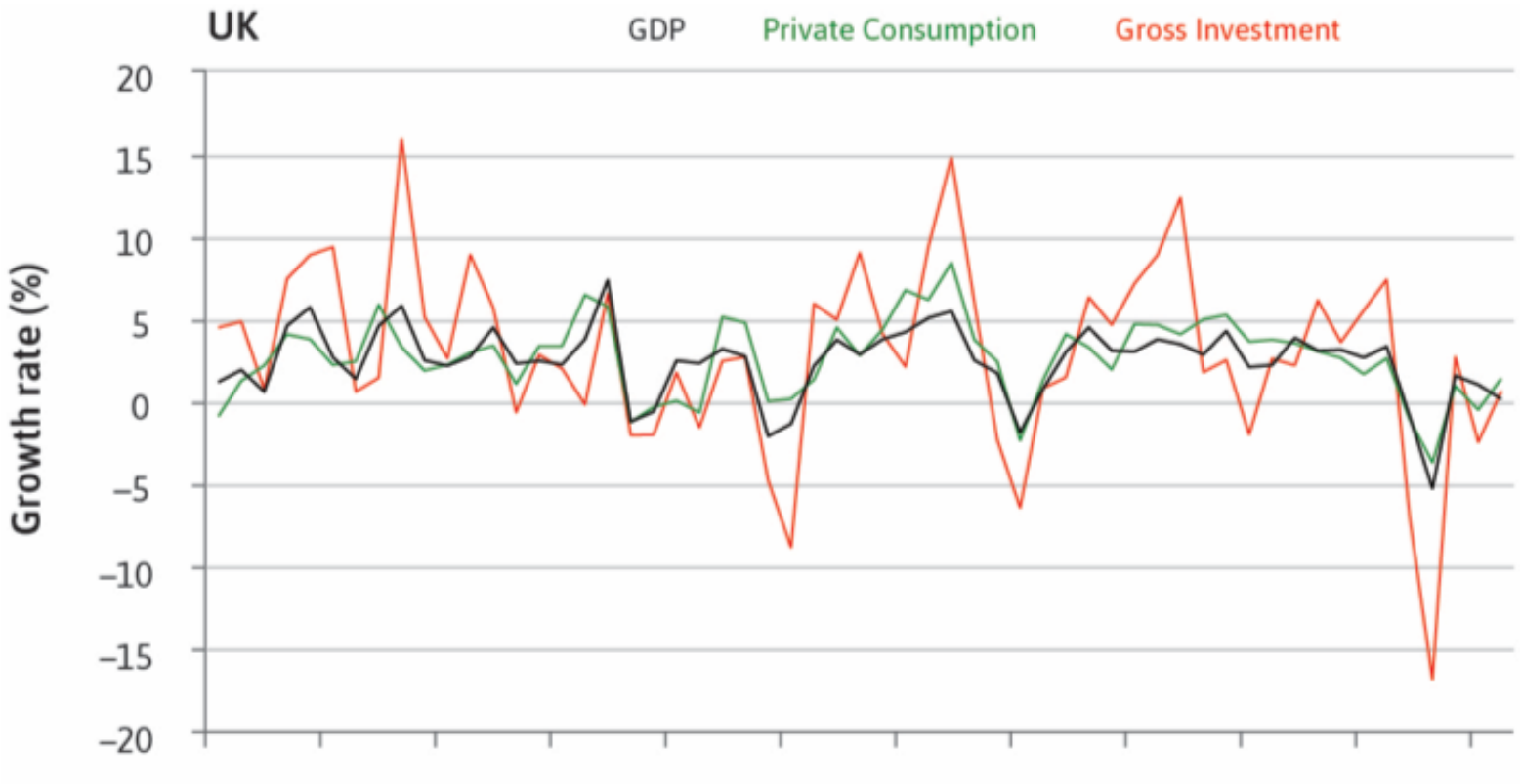
This graph allows us the see what has happened to unemployment and inflation during each business cycle in UK from 1950 to 2011.





Output, consumption & investment

Which components are comparatively more volatile?



We can clearly see that while investment is more volatile than the GDP. This means that investment is one of the sources that adds to the volatility in the economy.

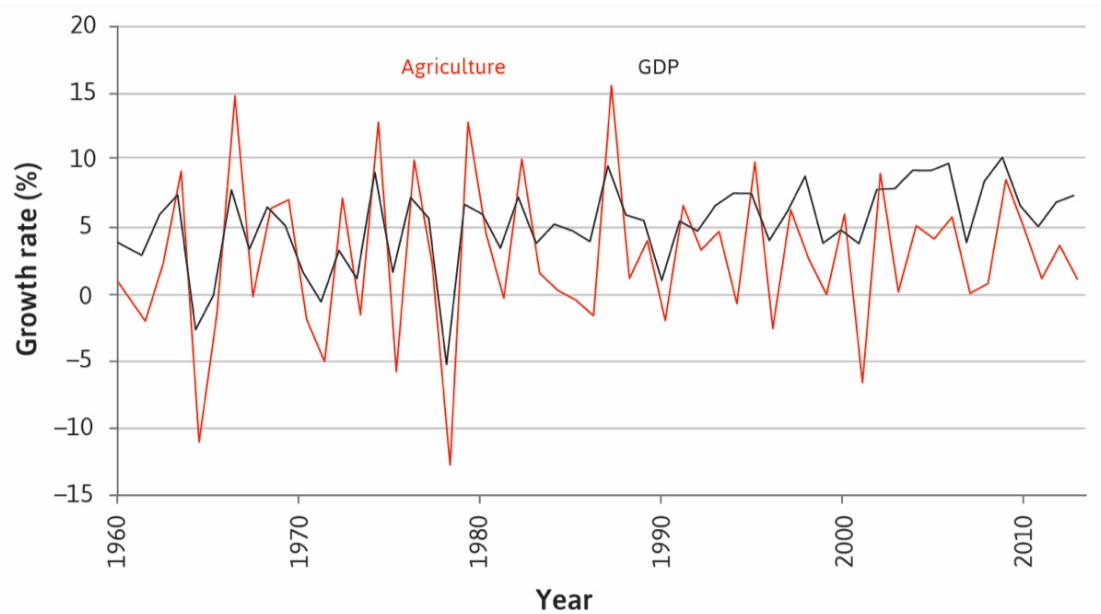
Economic fluctuations

India (1961–2014)

Economy *fluctuates* between good and bad times.

This is true for *industrialised* as well as *agrarian* societies.

Role of *agriculture shocks* in driving *fluctuations* in India's economy changes over time



We can do that same analysis sector-wise, i.e., is one particular sector more or less volatile than the total GDP. In India 's case, we find that the agriculture sector is more volatile than the total GDP. Can you think why this happens?

Do you think the construction sector is more or less volatile than the total GDP in UK? It would be useful exercise to try to justify your answer. Try to build an argument using the fact you know about the construction sector in UK.

The business cycle

potential capacity of the economy just denotes the output the economy produces when its inputs are being used at *normal* level

Economic growth GDP growth rate exhibits a systematic pattern of fluctuation

Business cycle alternating periods of positive and negative growth rates

. . . *affects labour market outcomes*

Recession period when output is *below* its potential capacity *(negative growth)*

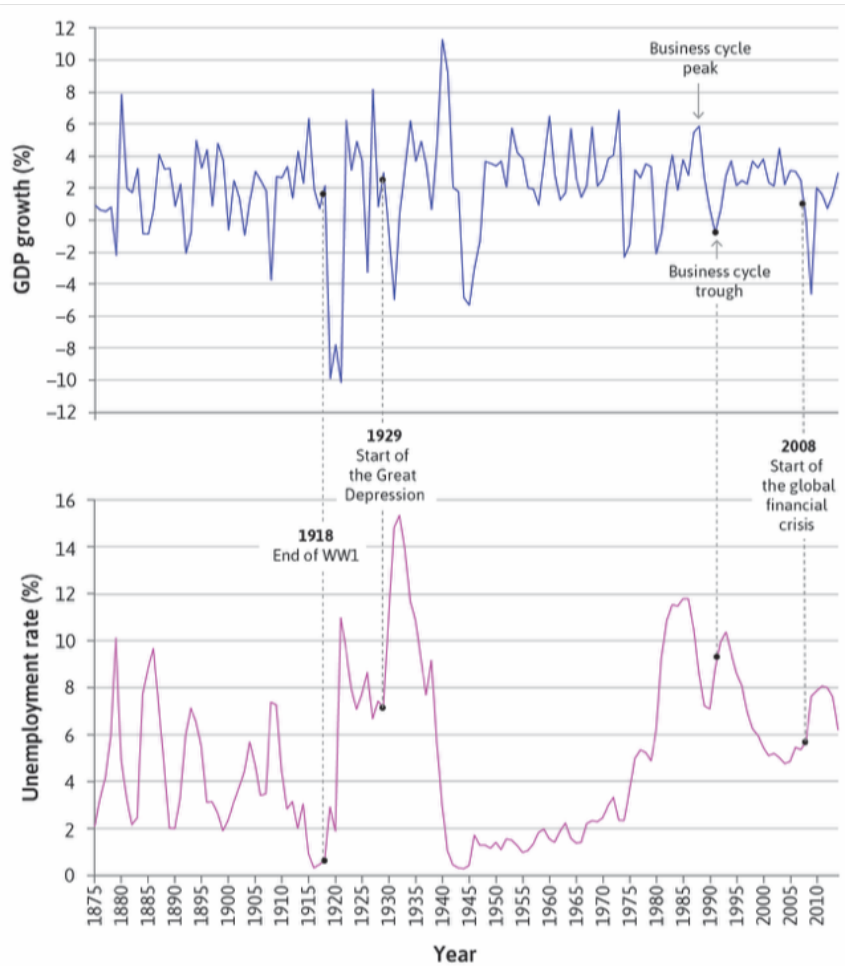
Boom period when output *above* its potential capacity *(positive growth)*

Total GDP Growth & Unemployment

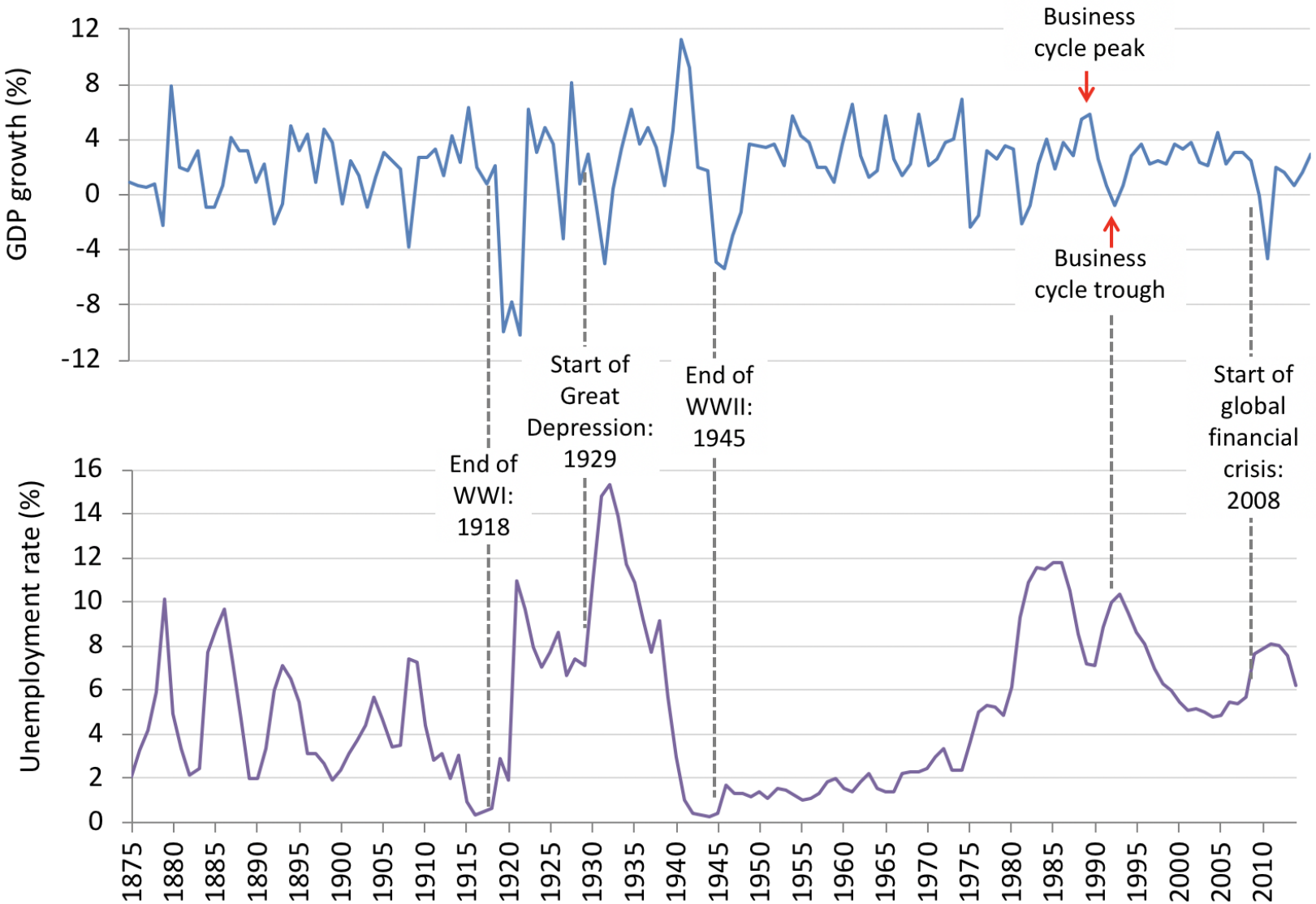
UK's GDP has always been *cyclical*, though the nature of business cycle has changed since the 1980

Business cycle peaks are associated with *low unemployment*

Business cycle troughs are associated with *high unemployment*



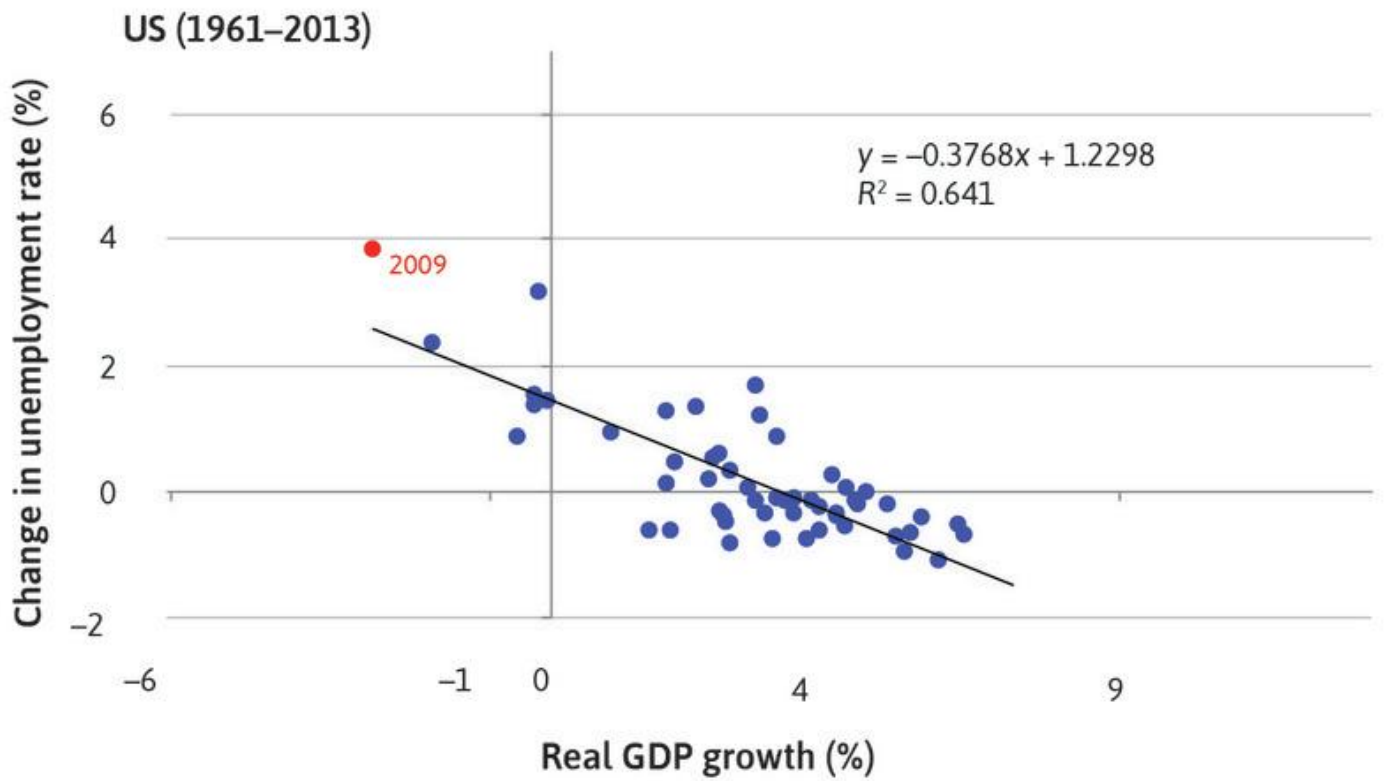
Impact of UK's Business cycle fluctuations on Unemployment



US Growth & Unemployment

Empirical regularity in US data: a *1% increase in growth rate* tends to *decreases unemployment rate by 0.38%*

Financial Crisis, 2009: greater than usual increase in unemployment



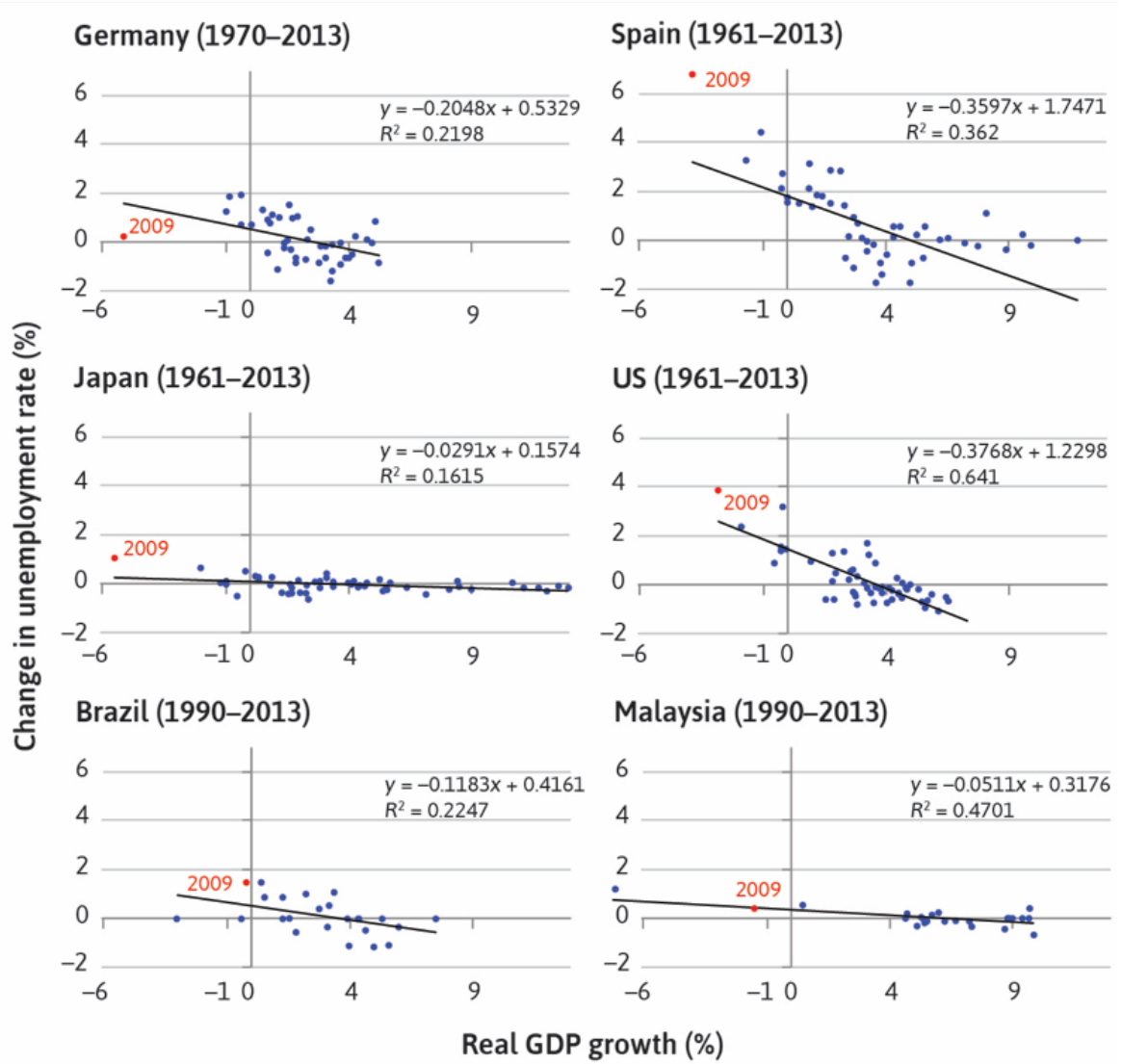
Okun's Law

Okun's Law *change in GDP growth rate* is *negatively correlated* with *unemployment rate*

Output falls
↓
unemployment rises
↓
well-being falls

Okun's coefficient correlation coefficient between GDP growth and unemployment

Okun's Law



Measuring the aggregate economy

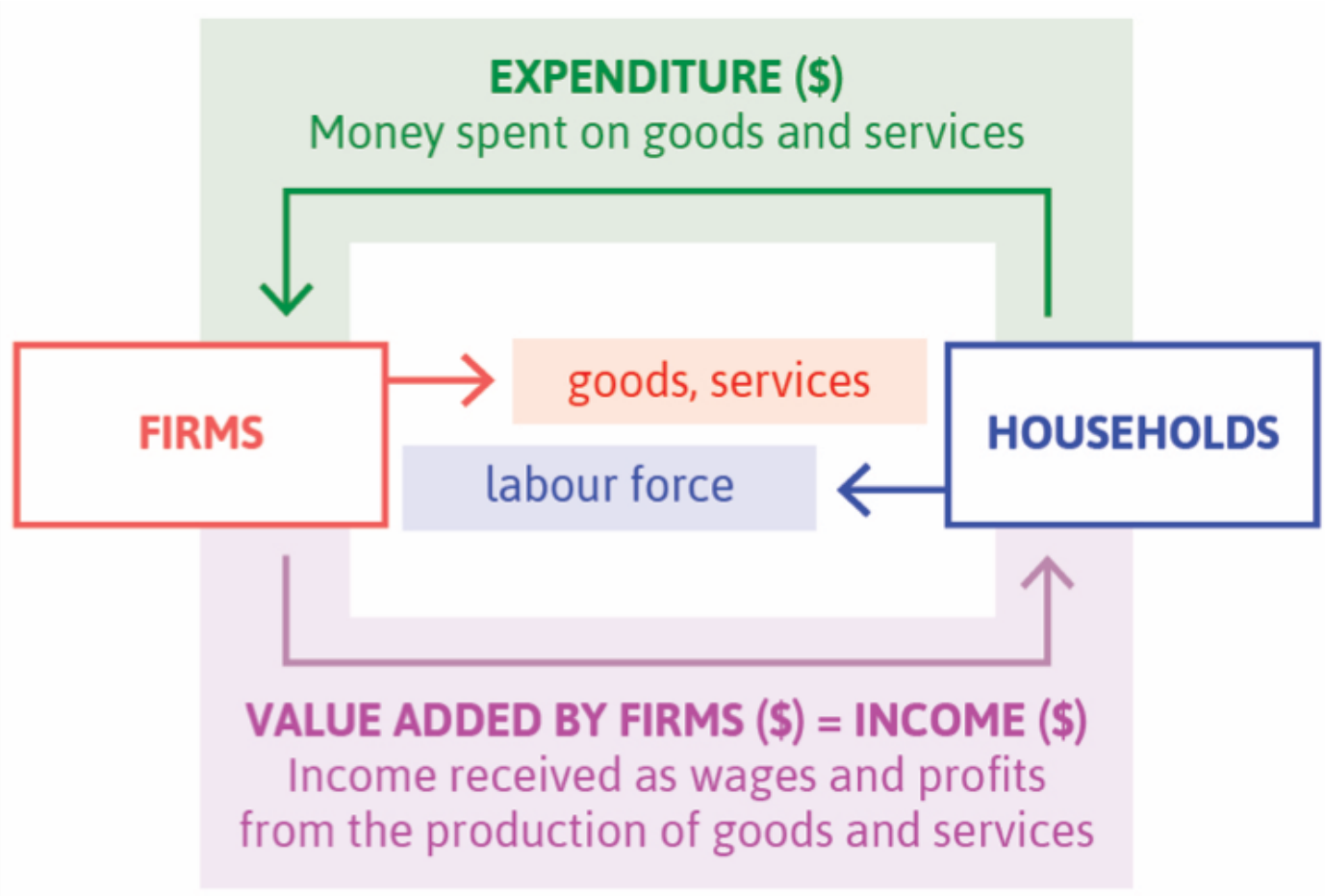
National accounts system used to measure overall output and expenditure in a country

3 equivalent ways to measure GDP

1. Total spending on domestic products
2. Total domestic production (measured as value added)
3. Total domestic income

Circular flow model shows this equivalence

Circular flow



Exports, imports, and government

How do we account for *international transactions*?

Foreign production is domestic consumption *(imports)*; or *domestic production* is foreign consumption *(exports)*

we include exports and exclude imports

How do we incorporate government?

treat it as another producer

public services are "bought" via *taxes*

Components of GDP

$$Y = C + I + G + (X - M)$$

Output (Y)	Gross domestic output
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 $(X - M)$	trade balance

Components of GDP

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

	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%

Component of GDP

Percentage change in *GDP* =

% change in *Consumption* × Share of *Consumption* in *GDP*

+

% change in *Investment* × Share of *Investment* in *GDP*

+

% change in *Net export* × Share of *Net export* in *GDP*

+

% change in *Government expenditure* × Share of *Government expenditure* in *GDP*

Exogenous shocks

Exogenous shock an *unexpected* event (such as extreme weather) which causes GDP to fluctuate

There are two broad *types of shocks*:

Idiosyncratic shock good or bad fortune strikes the household

ill-health

Co-variate shock good or bad fortune strikes either the entire economy or very large parts of it

weather shocks

Household shocks

Households hit by shocks use *two types of coping strategies*:

Self-insurance saving and borrowing

. . . other households are not involved in this type of insurance

Co-insurance support from their own family or wider social network *or*

support from the government

Households *behavioural characteristics*:

households prefer to *smooth their consumption* and

households are (to a degree) *altruistic*

Economy-wide shocks

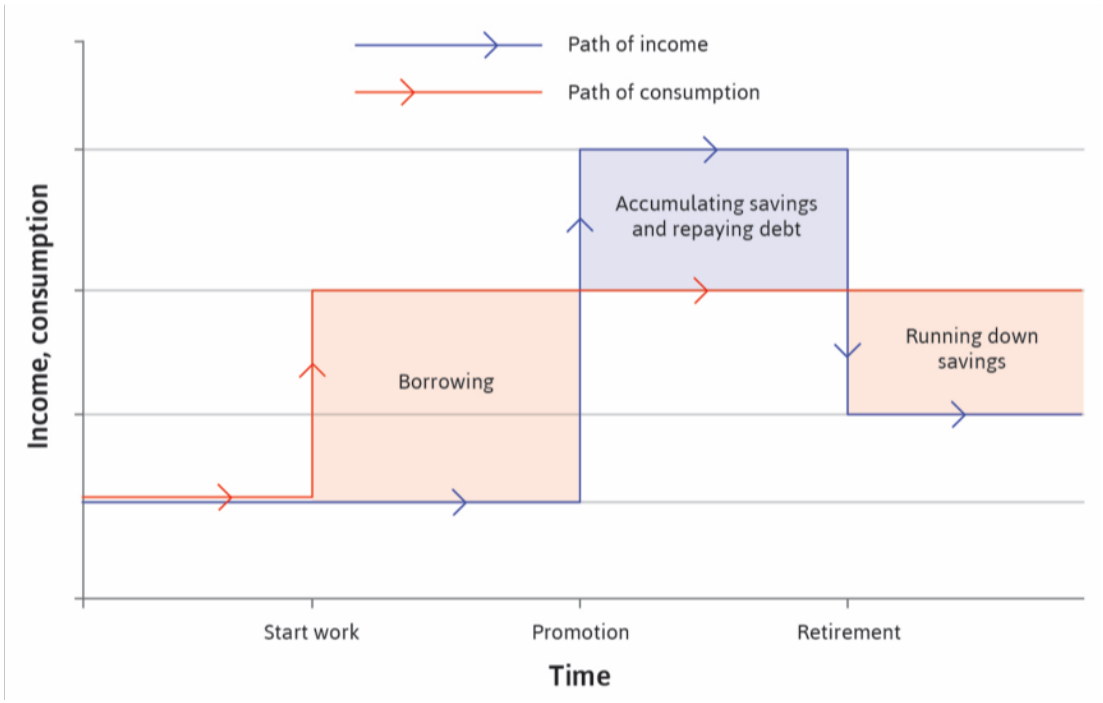
Co-insurance less effective if the bad shock hits everyone at the same time *(covariate shocks)*

… 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*.

Smoothing Consumption

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



Re-adjust long-run consumption *(red line)* if shocks are permanent

Do not change long-run consumption if shocks are temporary

Consumption smoothing

Consumption smoothing is a basic source of stabilisation in an economy.

Limitations to consumption smoothing due to

credit constraints,

weakness of will,

limited co-insurance

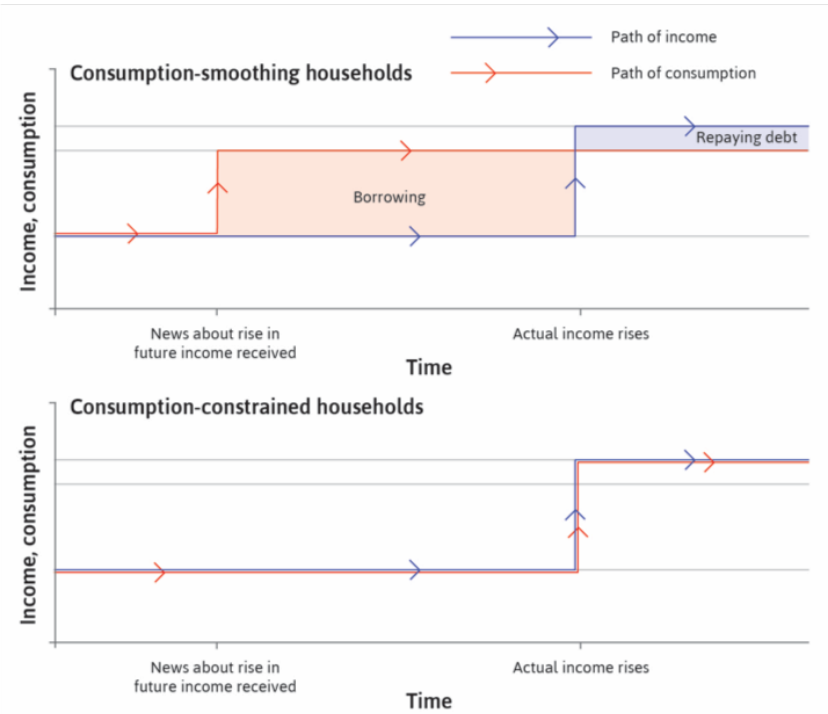
These limitations imply that the economy *does not automatically stabilise* and *initial shocks may be amplified*.

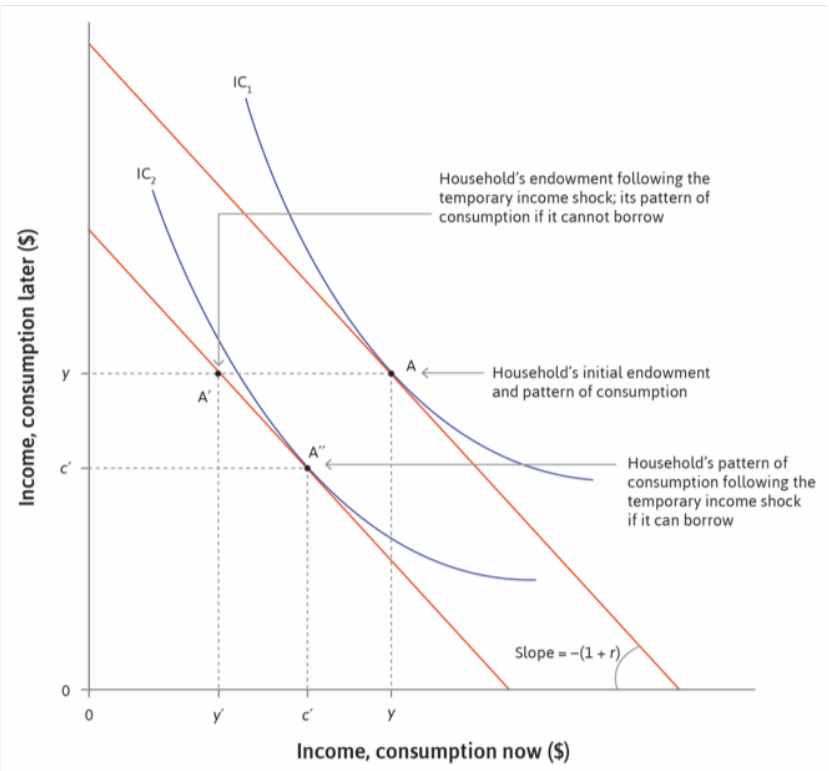
This helps us understand the business cycle and how to manage it.

LIMITATIONS TO SMOOTHING: CREDIT CONSTRAINTS

Credit constraints: limits on *amount borrowed*/*ability to borrow*

$A \to A'$ due to shock, credit constraints imply it can't reach A''



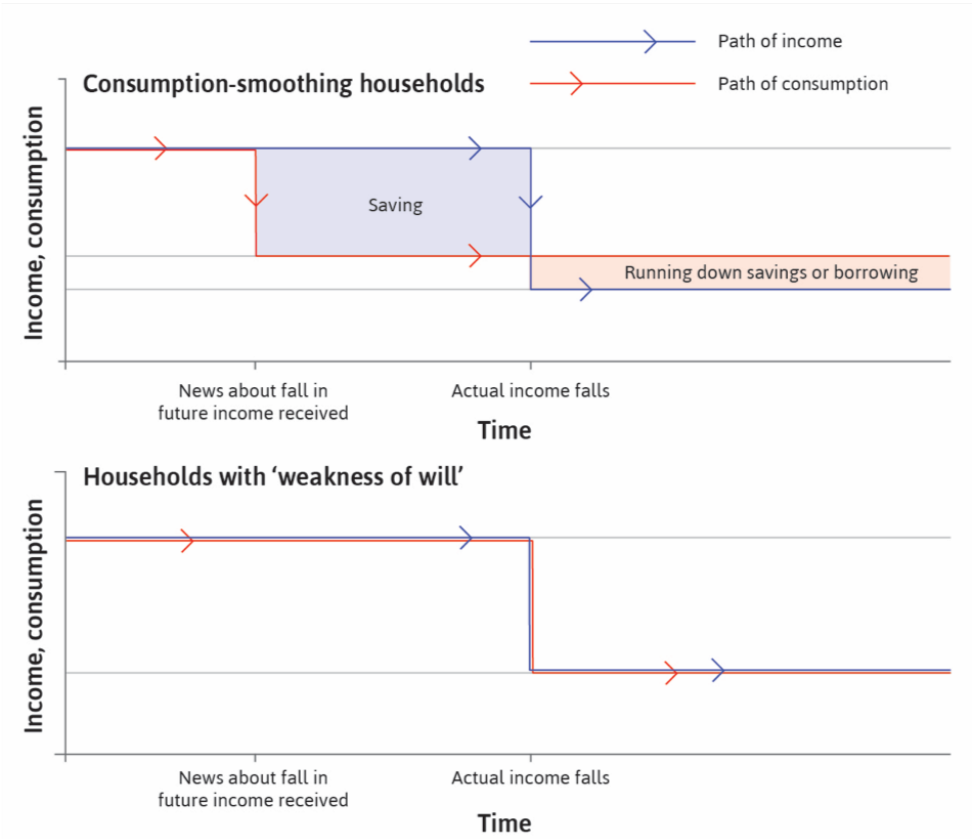


Households that are *unable to adjust* to a temporary income shock have *lower welfare*

LIMITATIONS TO SMOOTHING: WEAKNESS OF WILL

Weakness of will: inability to commit to beneficial future plans.

A household that doesn't smooth consumption due to *weakness of will* may *regret* it later.



Investment Volatility

Firms *don't smooth their investment*

investment is volatile due to a *feedback loop* that runs through the economy

Circular flow model helps us understand this process

people in the economy are both *workers* and *consumers*

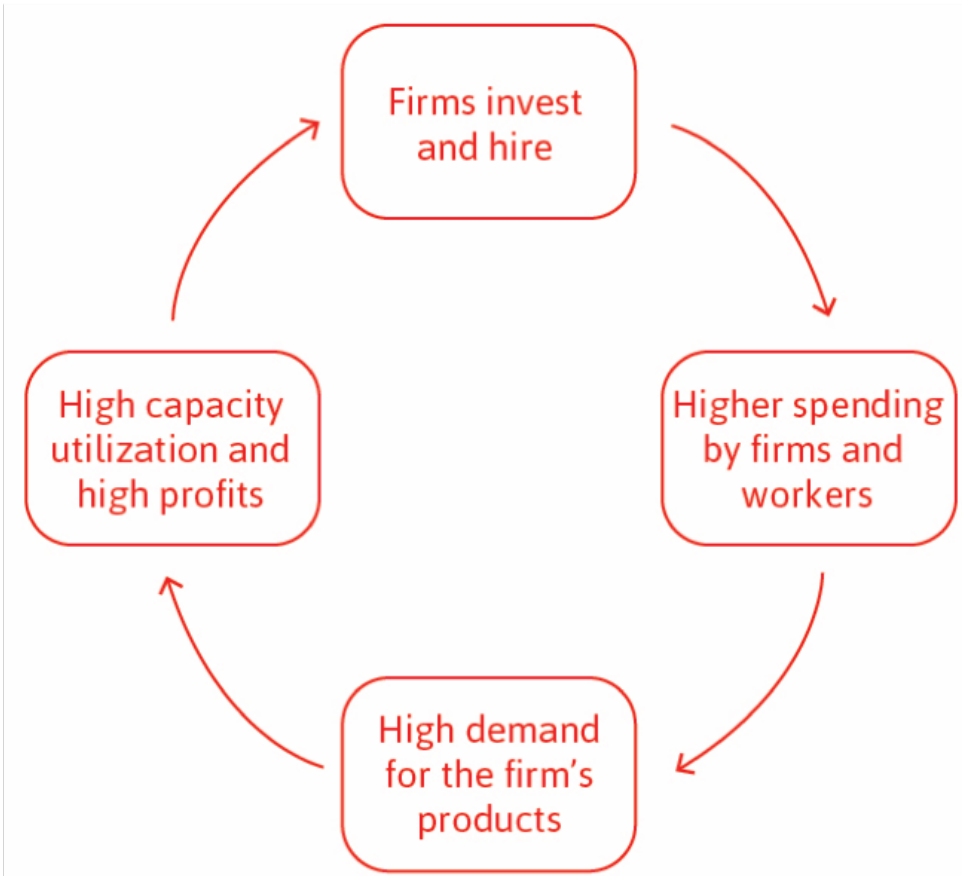
Firms adjust their investment to

both *temporary* and *permanent shocks*

in order to *maximise their profits*

Investment Volatility

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



Investment as a coordination problem

Firms across the economy *make investment decisions simultaneously*

> A firm's *demand* and thus their *profits* are affected by *other firm's investment decision*

We can get insight into this process by analysing a simple two player investment game

Actors	Two independent firms
Actions	*Invest*, or *Do not invest*
Information	they make their decision *simultaneously* without knowing other firm's decision
Payoff	Profits resulting from their investment

Investment: A coordination game

Multiple-equilibrium

Invest is the best response *if other firm invests*

Do not invest is the best response if the *other firm does not invest*

A's profit	B's profit: B invests	B's profit: B does not invest
A invests	100 / 100	80 / –40
A does not invest	–40 / 80	10 / 10

Investment and the aggregate economy

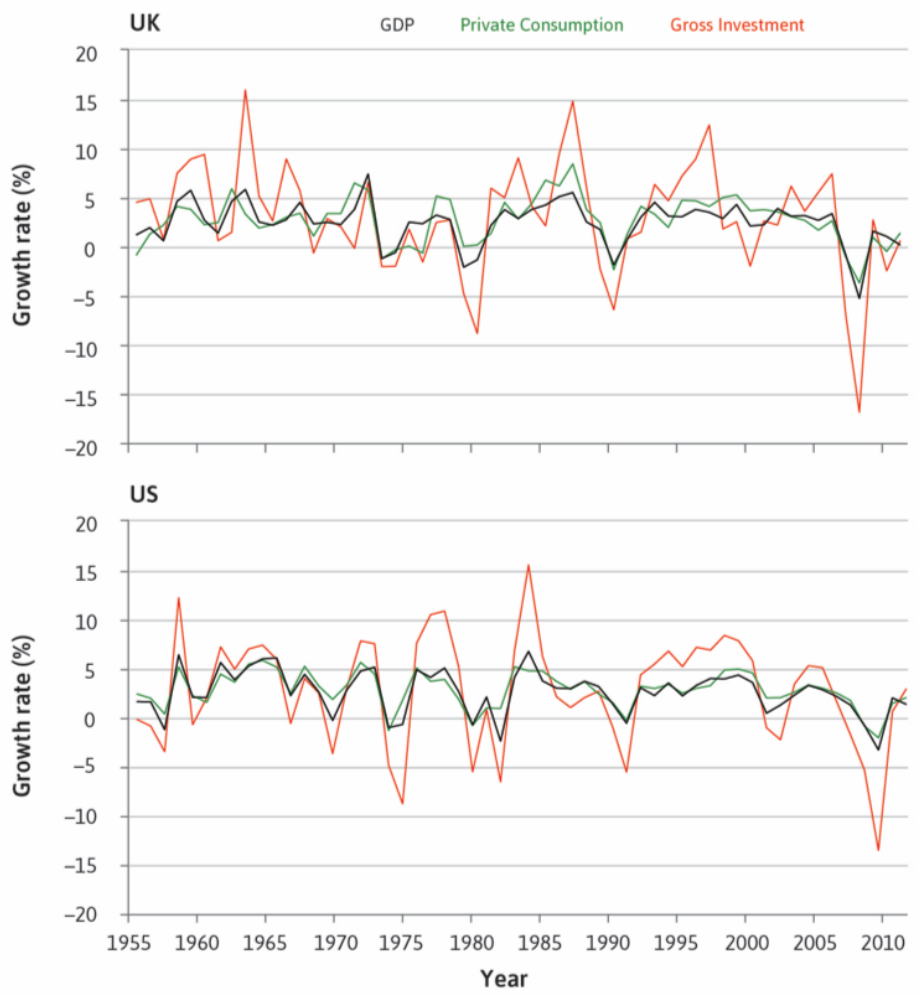
Investment is more volatile than GDP

Firms respond positively to the *growth* of demand in the economy

The coordination game makes *investment* a self-reinforcing process

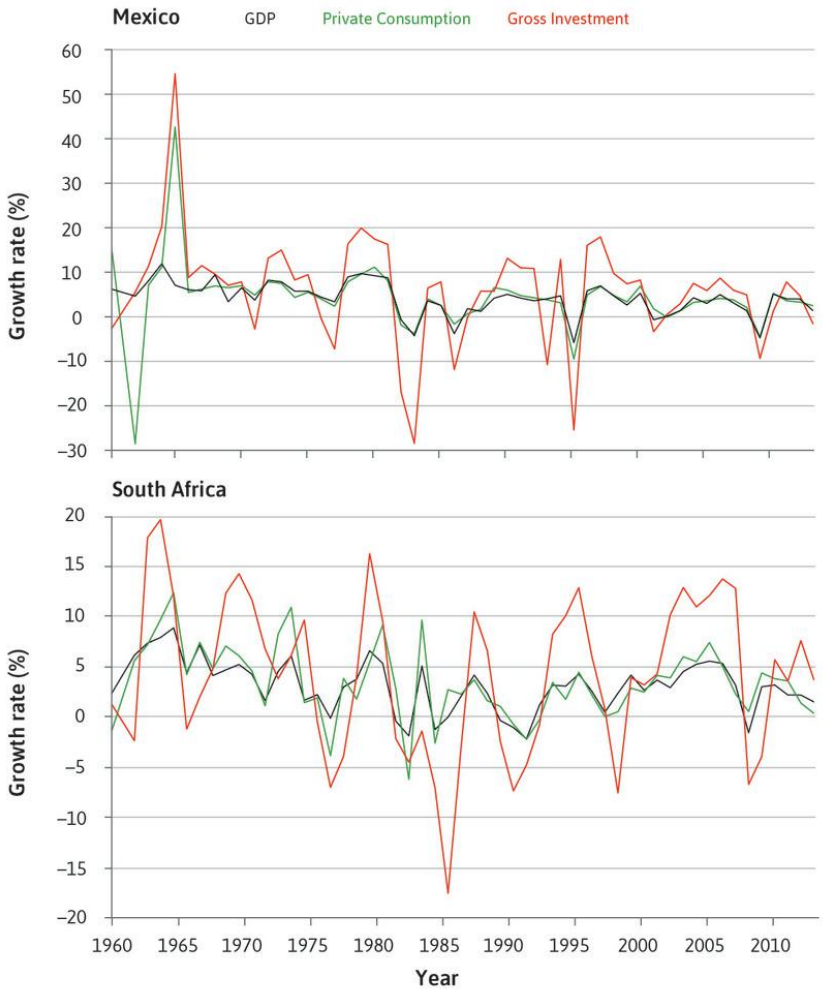
UK AND US

Evidence of *consumption smoothing* and *excess volatility of investment*



Mexico and South Africa

Evidence of *consumption smoothing* and *excess volatility of investment*



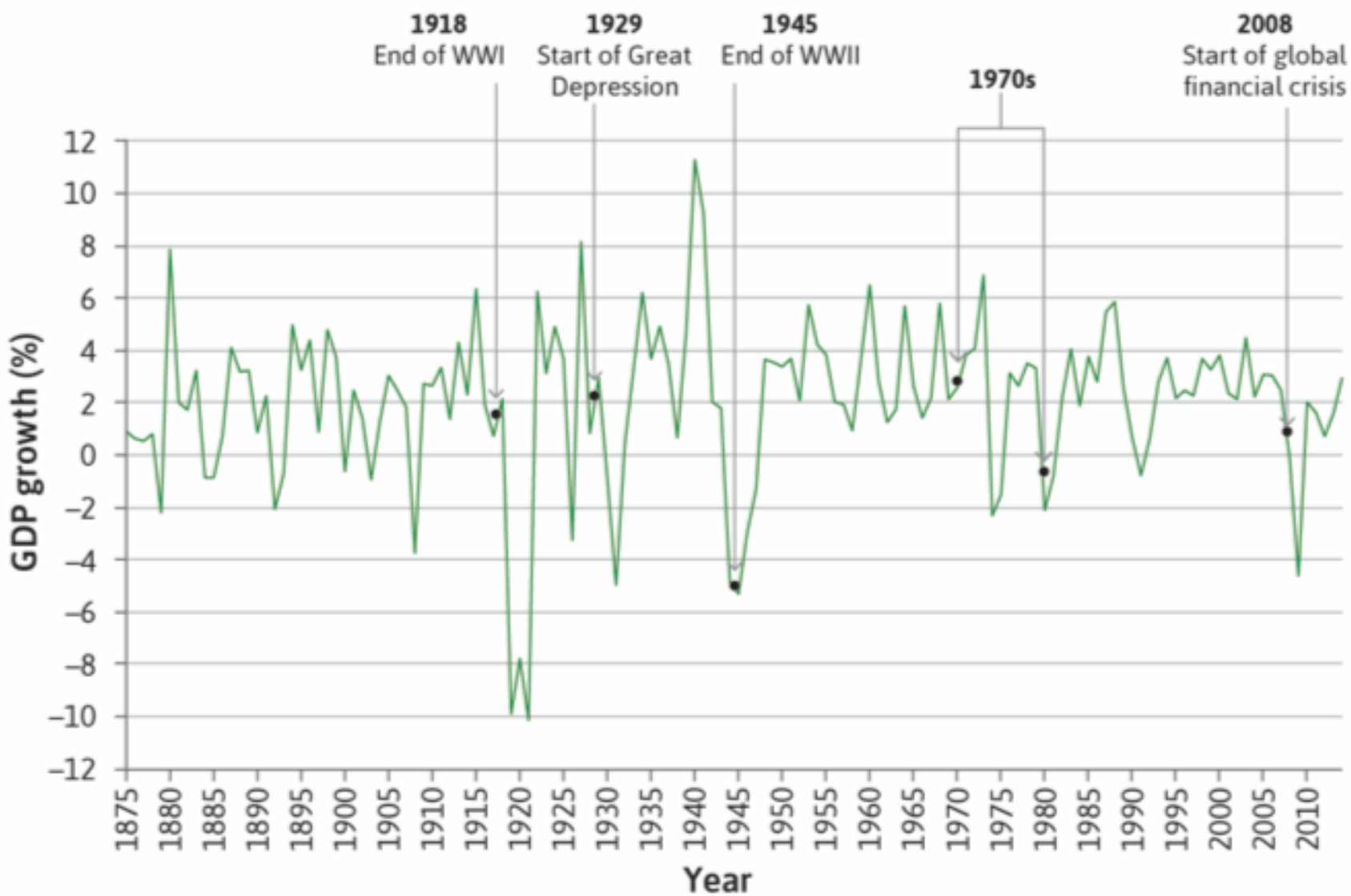
Inflation, GDP, and Unemployment

Inflation an increase in the general price level in the economy

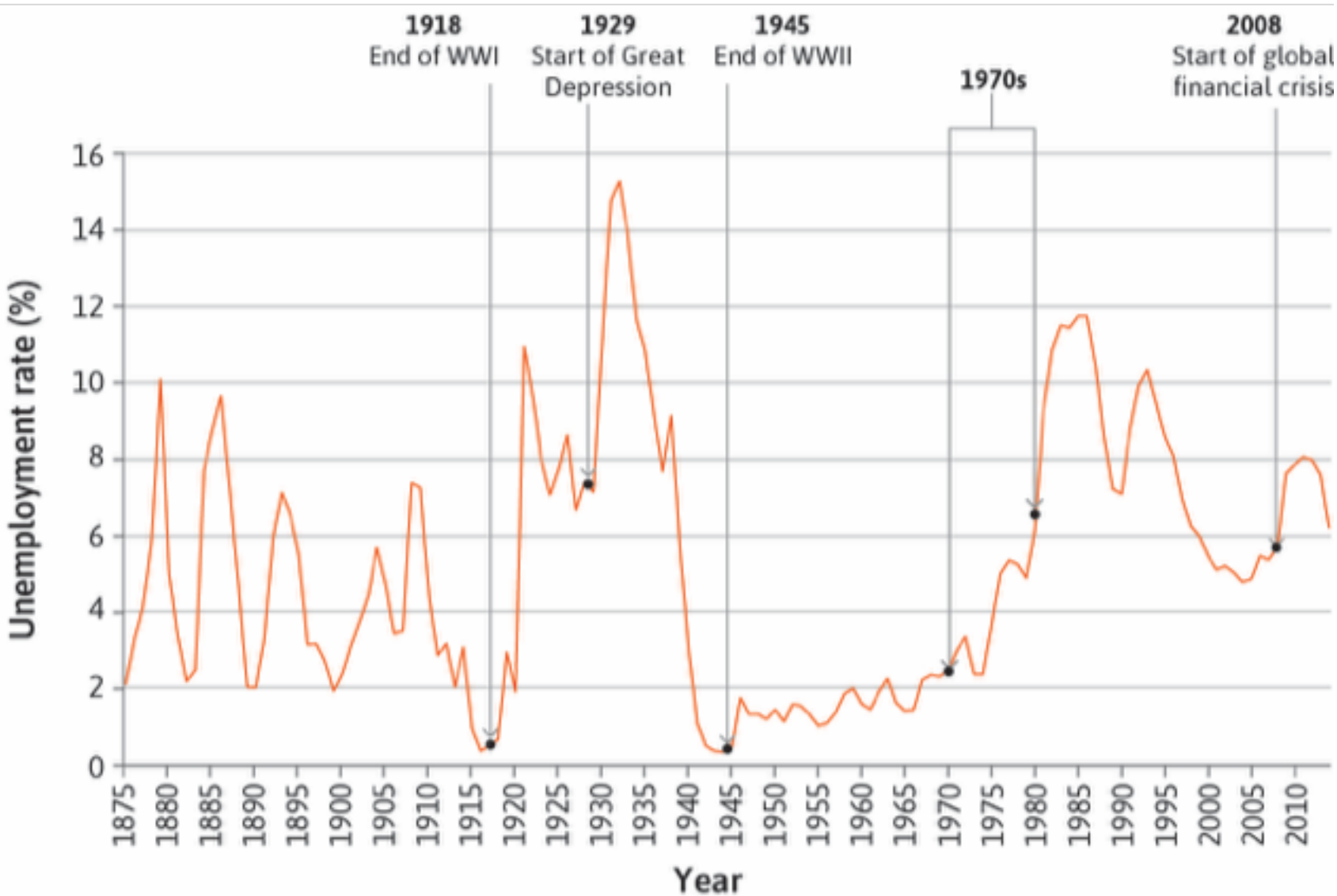
measured as a percentage change in prices over period of a year

Inflation tends to be lower during recessions when the unemployment is high

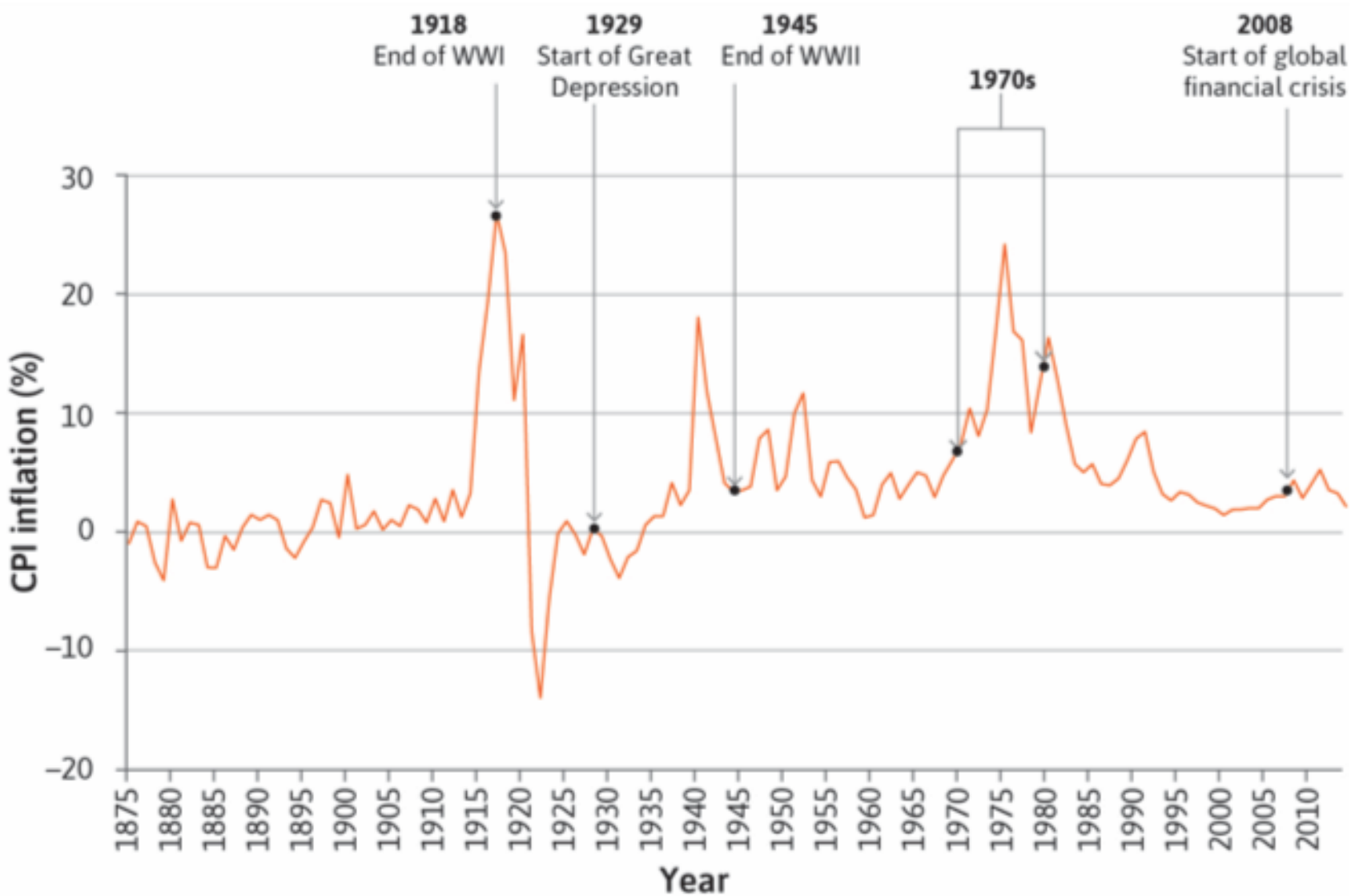
UK's GDP Growth rate



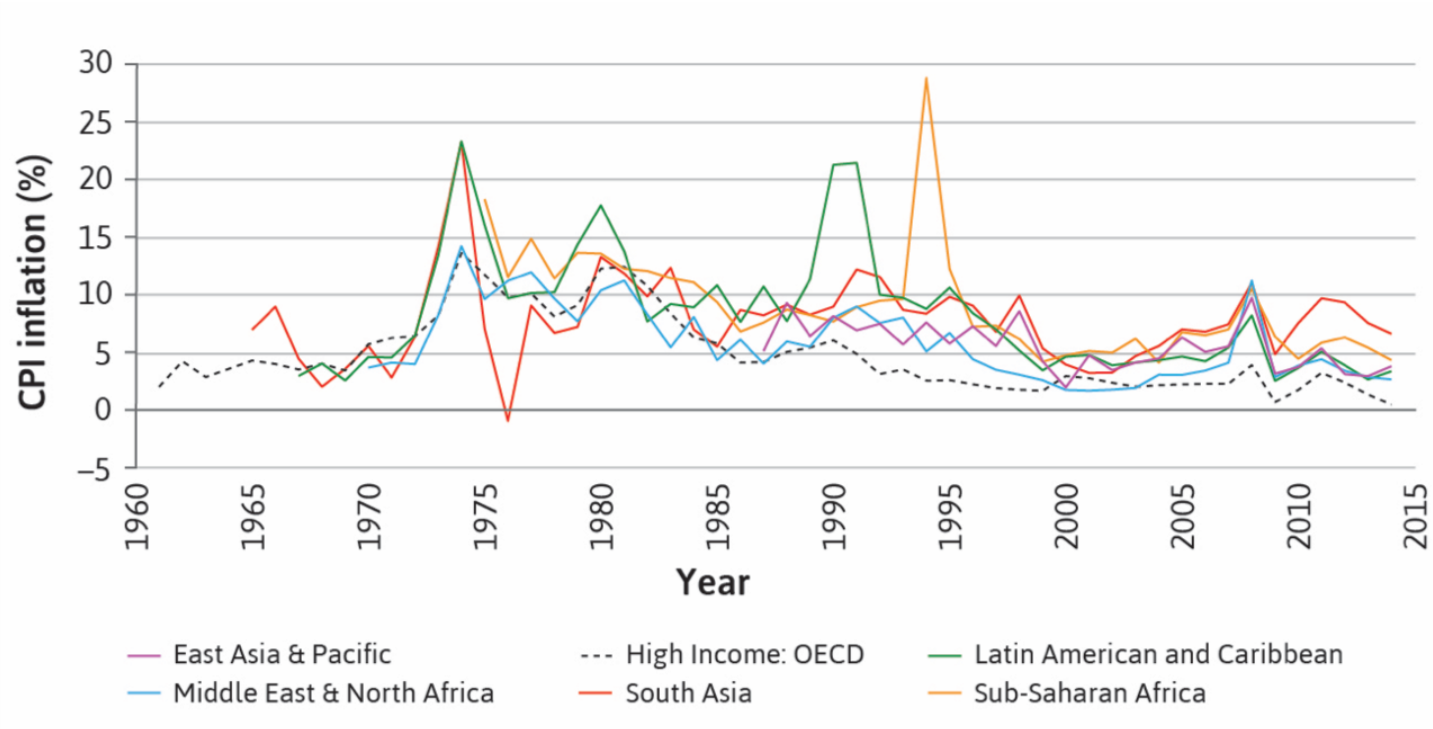
UK's Inflation Rate



UK's Unemployment rate



Trends in inflation



Upward spikes in inflation during economic crises

General *downward trend since 1970s*

Inflation tends to be *higher in poorer countries*

Measuring inflation

Consumer Price Index (CPI)

A measure of the level of *prices* for *goods and services consumed domestically* (includes consumption taxes)

based on a representative bundle of consumer goods – *"cost of living"*

includes imports but excludes export

Measuring inflation

change in CPI is commonly used as a measure of inflation

Measuring inflation

GDP deflator A measure of the level of *prices* for *domestically produced output*

Tracks prices of components of GDP components produced domestically, i.e., consumption, investment, government expenditure and export (excludes import)

Allows GDP to be compared across countries and over time

Summary

1. 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

2. System of national accounts to measure the economy

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

   Measuring GDP as income, spending, production