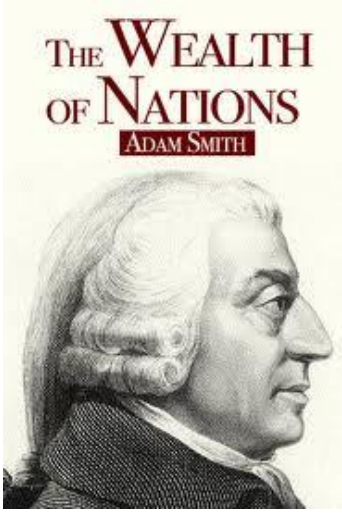
Economics

Theme 4: A global perspective

Course companion 7

The role of the state in the macro economy



Name: _____ Tutor group: _____

Teacher: _____

Contents

The important stuff on the new narrow syllabus to revise is in BOLD!

4.5.1 Role of the state in the macro economy – not on narrow syllabus:

In Theme 2 we studied the impact of tax and government spending on the circular flow of income, and studied fiscal policy. This course companion will build on this knowledge, to consider the macroeconomic effects of changes in taxation more fully; the reasons for changes in the size and composition of public expenditure and the significance of its level for the economy; and the significance of the state of public finances. The booklet also includes some revision of monetary policy and a focus on macro-economic policy in the global context.

Public expenditure (government spending)

Specification: 4.5.1 Public expenditure
a) Distinction between capital expenditure, current expenditure and transfer payments
b) Reasons for the changing size and composition of public expenditure in a global context
c) The significance of differing levels of public expenditure as a proportion of GDP on:

- productivity and growth
- living standards
- crowding out
- level of taxation
- equality

Types of public expenditure:
Current expenditure: This is day-to-day expenditure on goods and services, e.g. salaries of teachers, drugs used by the NHS.

Capital expenditure: This relates to expenditure on long-term investment projects such as new hospitals and roads.

Transfer payments: These are payments made by the state (from tax revenues) to individuals in the form of benefits for which there is no production in return; examples include child benefit, state pensions and the jobseekers' allowance.

Reasons for public expenditure
Microeconomic management of the economy, to correct market failure (Theme 1 revision):

- Provide public goods e.g. defence
- Provide merit goods where external benefits or information failure
- Reduce external costs e.g. pollution, waste
- Redistribute income
- Prevent absolute poverty

Note: Due to scarce resources an increase in spending in one area will involve an opportunity cost.

Public expenditure also contributes to the macroeconomic management of the economy, as part of government fiscal policy.

Country example: UK – Changing size & current composition of UK government spending

Figure 1: Public sector spending for 2021-22 (Figures from 2021 Budget)

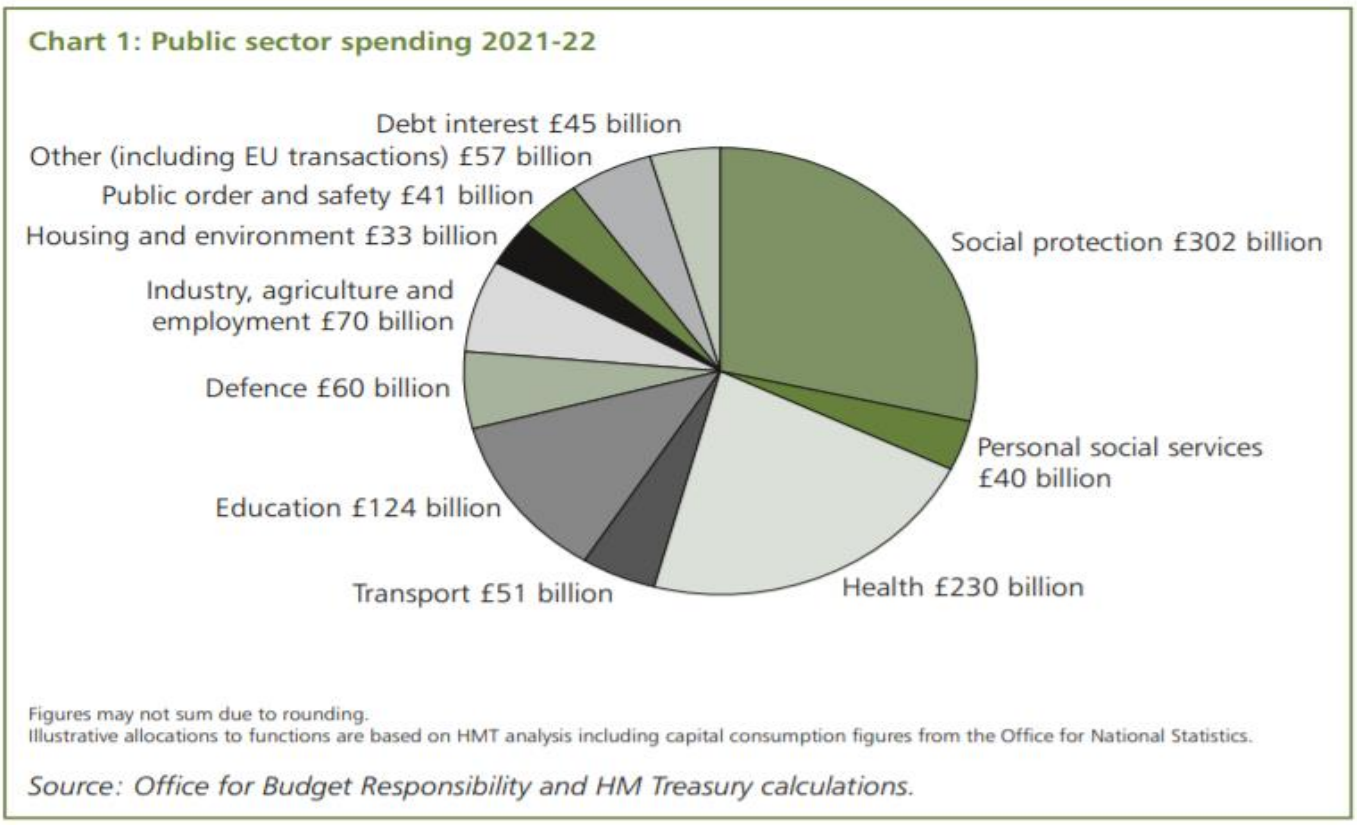


Figure 2: Public sector spending from 2000-01 to 2025-26 (Figures from 2021 Budget)

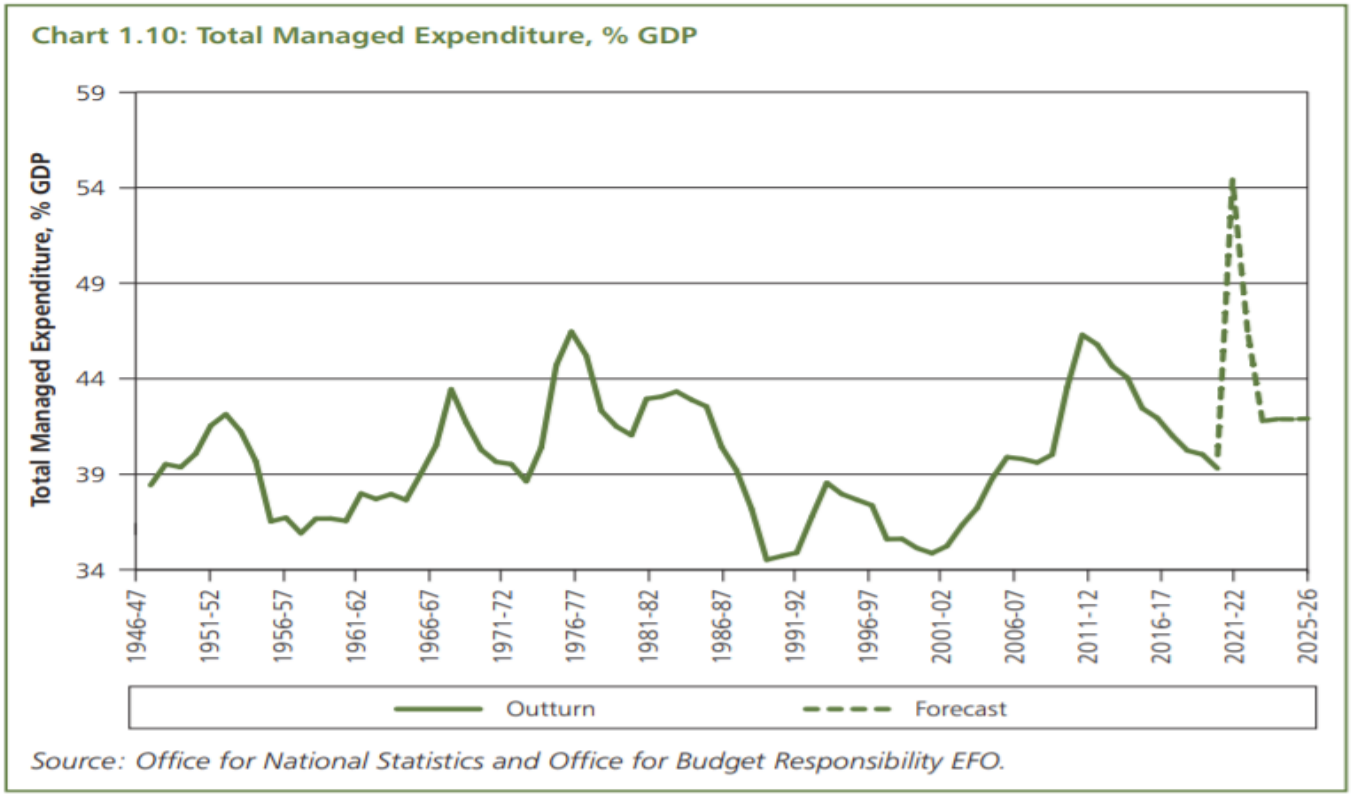
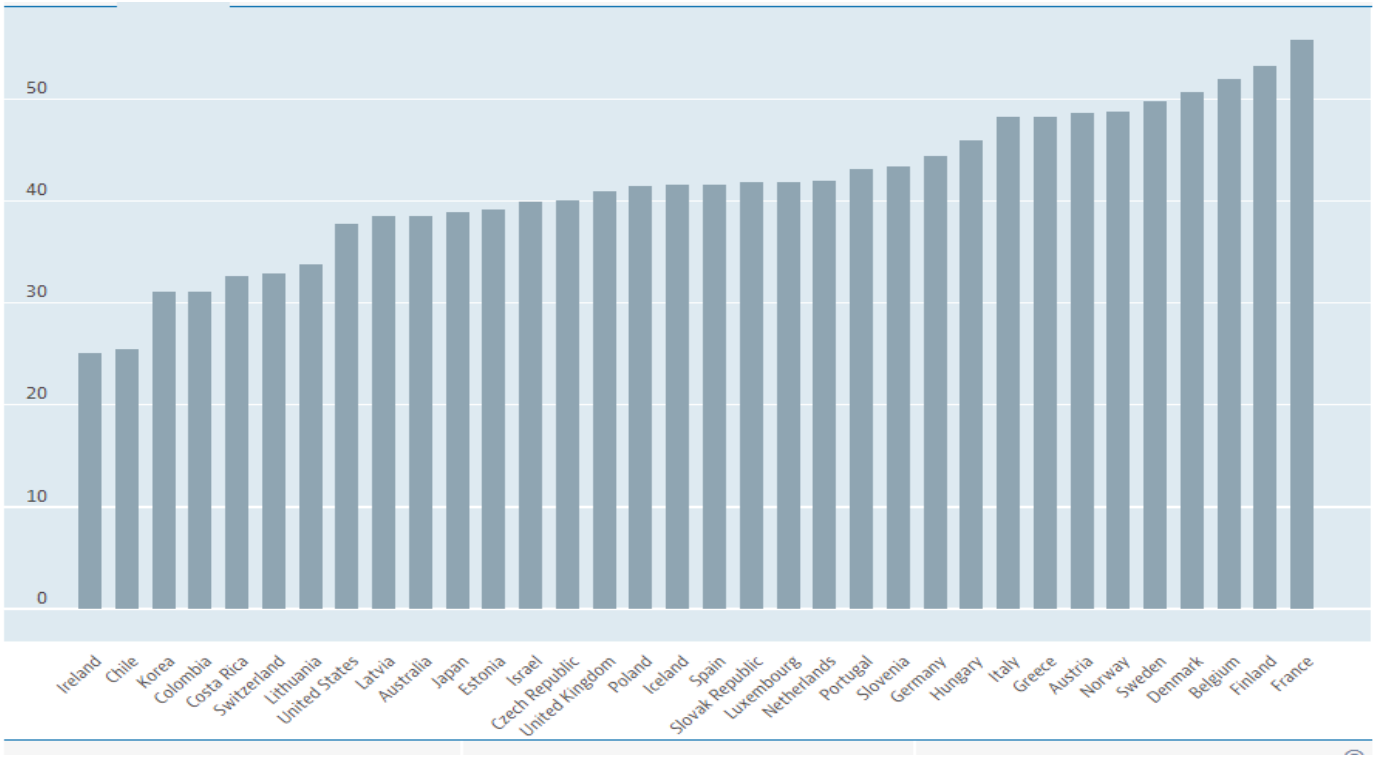


Figure 3: International comparison of government expenditure as a percentage of GDP



Questions

1. Using Figure 1 identify the main areas of government spending

2. Using Figure 2 describe the changes to public sector net debt since 1946-47 and the forecast over the next few years

3. Using Figure 3 compare government spending as a % of GDP in the UK compared to other developed economies

Impact of increased levels of public expenditure as a proportion of GDP:

1. Explain the benefits of increased government spending:

Productivity and growth
Why could government spending increase productivity and growth?

Living standards
Why could government spending increase living standards?

Equality
Why could government spending increase equality?

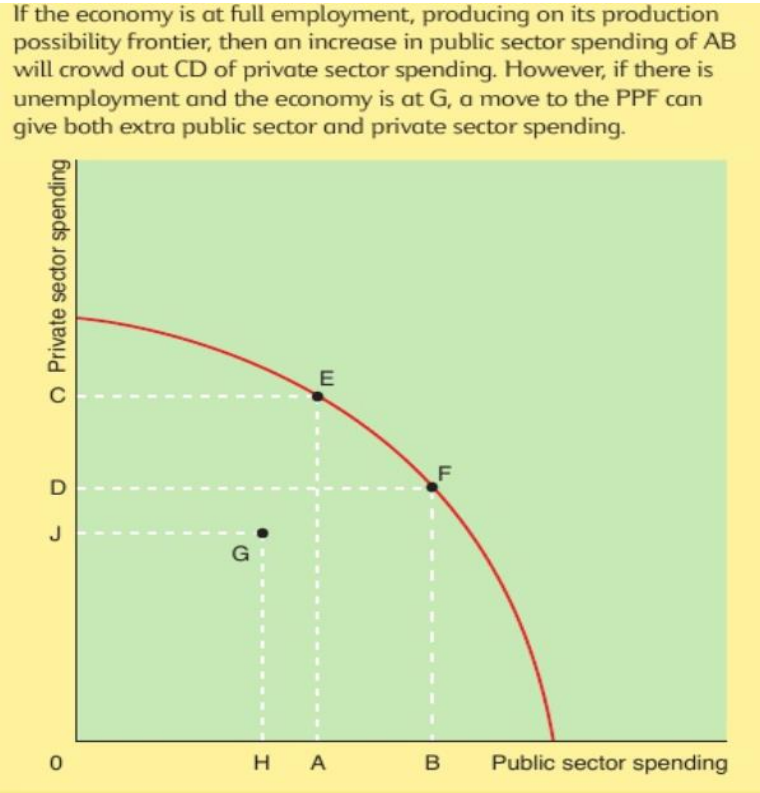
2. Explain the problems of increased government spending:

Taxes
Explain the problems of having high taxes to pay for public spending

National Debt
Explain the problems of higher government debt to pay for public spending

Problems of increased government spending:

Crowding out



Disadvantages of increased levels of public expenditure as a proportion of GDP:

Explain disadvantages	Evaluation: Advantages, depends on…
Crowding out: Resource crowding out: occurs when the economy is operating at full employment and an increase in public expenditure results in insufficient resources being available for the private sector (see diagram above – increase in public spending of AB). Financial crowding out: occurs when increased public expenditure or tax cuts are financed by increased public sector borrowing, so increasing the demand for loanable funds and driving up interest rates. This reduces private sector investment (see problems with budget deficits for further details)	• Resource crowding out may not occur if high unemployment (e.g. economy at G on diagram above) • Crowding in: if high unemployment then increased government spending could lead to higher private sector spending through the multiplier effect, e.g. diagram above: government spending moves economy from G to F, extra HB of government spending crowds in JD of private sector spending. • Quantitative easing in the UK has kept interest rates low despite budget deficit. This is because the Bank of England buys bonds which raises the price and reduces the interest rate on bonds (see section on QE for further details)

Reasons for changes in the size and composition of public expenditure:

Explain impact on size of public expenditure	Impact on composition of public expenditure
Increasing average income As incomes increase over time, the government may gain more tax revenue. As income rise, the revenue from income tax rises. As consumption rises, the revenue from VAT rises Therefore governments have more funds to spend on public services	There may be more spending on health and education as demand increases There may be more spending on state pensions as the government is committed to raising state pensions in-line with average incomes.
Changing age distribution of population The UK has an ageing population. This will mean there is more demand for government spending over time.	There may be more spending on state pensions There will be greater demand for health care and social care
Changing expectations As new medicines and health treatments are developed individuals expect to have access to the latest treatment More young people expect to go to university More individuals expect to drive cars This will mean there is more demand for government spending over time.	There is greater demand for health care, higher education and new roads as expectations change over time.
The Financial crisis There was a big increase in public spending following the financial crisis	The government spent money lending to banks and buying shares in the banks to prevent them from collapsing The government spent money on infrastructure projects in an attempt to increase AD and GDP Rising unemployment caused increased spending on unemployment benefits

4.5.2 – Taxation – on the new narrow syllabus – revise this area:

Specification: 4.5.2 Taxation
a) Distinction between progressive, proportional and regressive taxes
b) The economic effects of changes in direct and indirect tax rates on other variables:

- incentives to work
- tax revenues: the Laffer curve
- income distribution
- real output and employment
- the price level
- the trade balance
- FDI flows

Purposes of taxation

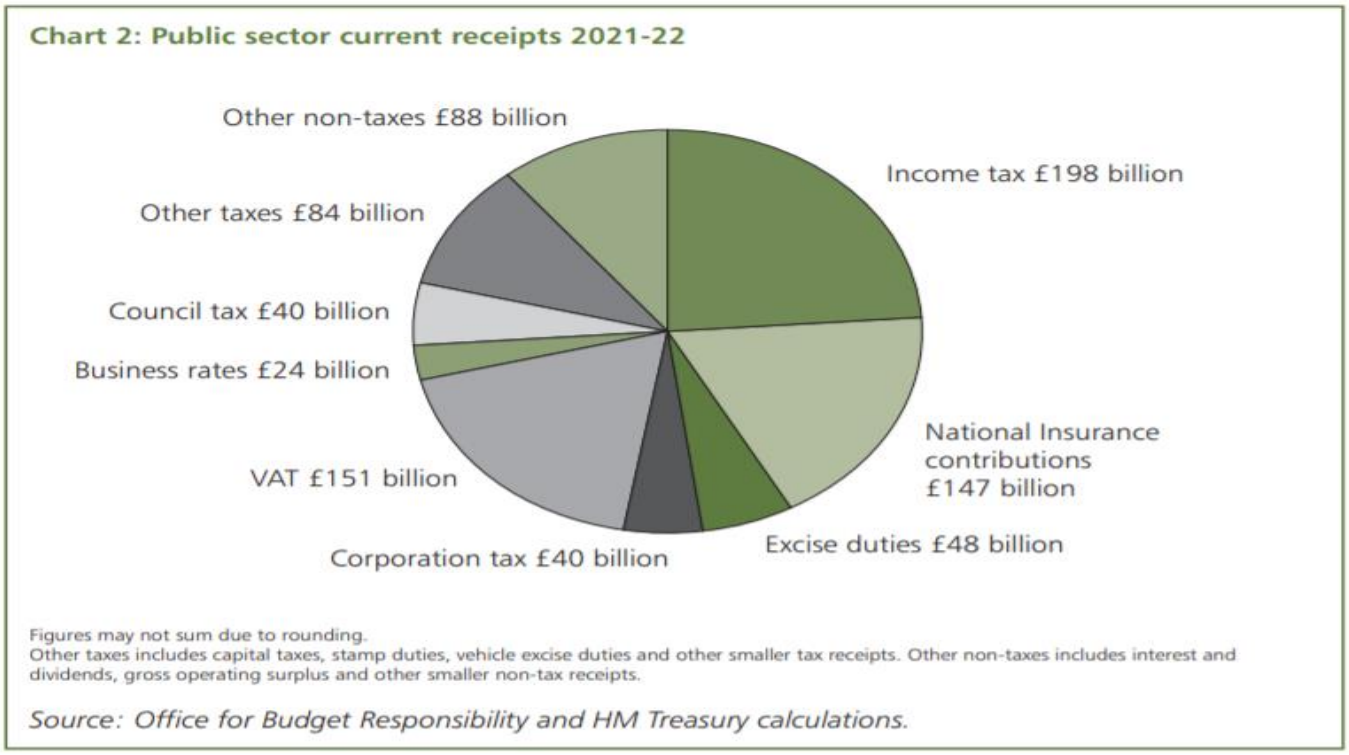
- To pay for government expenditure
- **Microeconomic** management of the economy, e.g. to correct market failure such as externalities (Theme 1)
- **Macroeconomic** management, as part of fiscal policy
- To redistribute income

Direct taxes: Direct taxation is levied on income, wealth and profit, e.g. Income tax, National insurance contributions, Capital gains tax, Corporation tax
Indirect taxes: Indirect taxes are levied on spending by consumers on goods and services, e.g. VAT, or specific taxes on fuel and alcohol, car tax. (See Theme 1).
Progressive taxes: as income rises, a larger percentage of income is paid in tax (e.g. UK income tax).
Proportional taxes: – the percentage of income paid in tax is constant, no matter what the level of income.
Regressive taxes as income rises, a smaller percentage of income is paid in tax (for example, excise duties on tobacco, alcohol in the UK).

The main taxes in the UK are:

- **Income tax:** a tax on the income of individuals. See table below.
- **National insurance contributions:** Tax on labour, paid by both employees and employers.
- **Corporation tax**: tax on company profits.
- **Capital gains tax:** Tax on capital gains, i.e. the difference between the buying price and selling price of an asset, e.g. shares, buy-to-let property (person's main home exempt)
- **Inheritance tax:** tax on value of assets left on death.
- **Excise duties:** taxes levied on a narrow range of goods e.g. vehicle fuel, alcohol, tobacco & betting.
- **Value added tax (VAT):** tax on expenditure, currently 20% (some essential goods exempt e.g. food, children's clothes)
- **Council tax**: Tax imposed on domestic property by councils, based on estimated sale value in 1992.
- **Business rates**: a local authority tax on business property, based on estimate of reasonable yearly rent.

UK tax revenue



UK income tax rates and bands 2021-22

Band	Taxable income	Tax rate
Personal Allowance	**Up to £12,570**	**0%**
Basic rate	**£12,571 to £50,270**	**20%**
Higher rate	**£50,271 to £150,000**	**40%**
Additional rate	**over £150,000**	**45%**

Question: Why is income tax progressive in the UK?

Taxation and inequality

Table 1 Percentage of income paid in tax, 2012-13

	Quintile groups of all households ranked by equivalised disposable income					
	Bottom	2nd	3rd	4th	Top	All households
Original income	5 536	11 952	23 069	38 697	81 284	32 108
Gross income (original income plus benefits)	12 690	20 769	29 692	43 388	83 950	38 098
Direct taxes and employees, NIC	1 256	2 257	4 620	8 635	20 322	7 418
Indirect taxes	844	1 911	5 029	6 474	9 140	5 623
Direct taxes as a percentage of gross income	9.9	10.9	15.6	19.9	24.2	19.5
Indirect taxes as a percentage of gross income	27.5	19.2	16.9	14.9	10.9	14.8
Taxes as percentage of original income	85.7	52.2	41.8	39.0	36.2	40.6
Taxes as percentage of gross income	**37.4**	**30.1**	**32.5**	**34.8**	**35.1**	**34.2**

Source: adapted from *The Effects of Taxes and Benefits on Household Income*, 2012-13, www.ons.gov.uk.

(a) Analyse the extent to which each of the following are progressive in the UK:

(i) Direct taxes

(ii) Indirect taxes

(iii) Total taxes as a percentage of gross income

(iv) Stretch question – what has changed about corporation tax in recent years?

Direct taxes

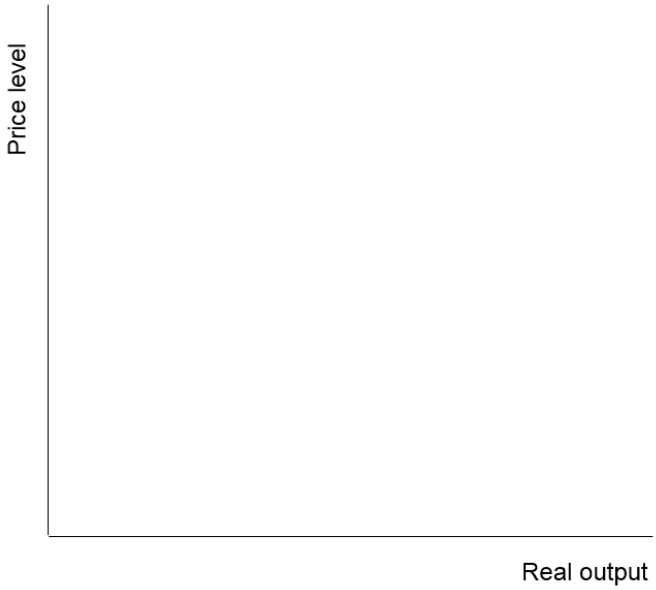
An increase in direct taxation and the circular flow of income

Between 2010 and 2021 the UK government has increased the personal allowance from £6,475 to £12,570, effectively cutting the amount of income tax paid.
What will be the impact of this cut in income tax on the level of national income? Use the circular flow of income model to explain.

Income tax (direct tax) and AS/AD

(a) Draw an AS/AD diagram to show the impact of this cut in income tax.

(b) Explain your diagram and state the impact on real output and the price level.



Evaluation

Corporation tax (direct tax) and AS/AD

Between 2021 and 2025, the UK government plans to increase the rate of corporation tax from 19% to 25%. This will be in a set of tax bands, making corporation tax progressive for the first time.

(a) Draw an AS/AD diagram to show the impact of this rise in corporation tax.
(b) Explain your diagram and state the impact on real output and the price level.

Evaluation

The Laffer curve

Laffer curve: a curve which shows that at low levels of taxation, tax revenues will increase if tax rates are increased; however, if tax rates are high, then a further rise in rates will reduce total tax revenues because of the disincentive effects of the increase in tax.

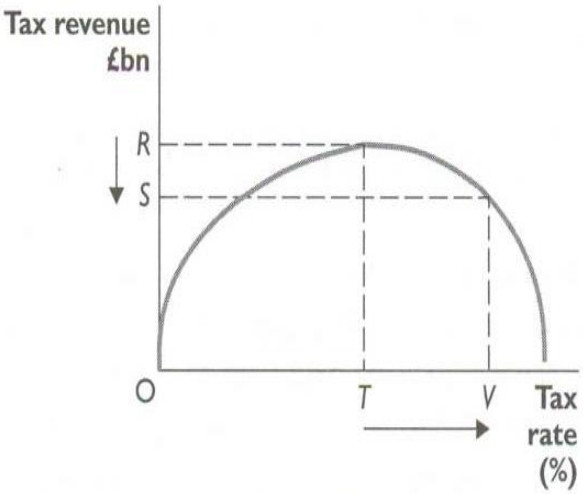


Figure 5 The Laffer curve

Effect of an increase in direct taxation e.g. income tax increased to 50% for high earners

- When the tax rate is increased to point T, tax revenues increase.
- However, a further increase in the tax rate from T to V causes a fall in tax revenue from R to S.

This may be explained by the following factors:

- increased disincentives to work;
- an increase in tax avoidance and evasion;
- and a rise in the number of tax exiles.

Indirect taxes

In January 2011 the UK government increased VAT from 17.5% to 20%.

a) Draw an AS/AD diagram to show the impact of this increase in VAT.

b) Explain your diagram and state the impact on real output and the price level.

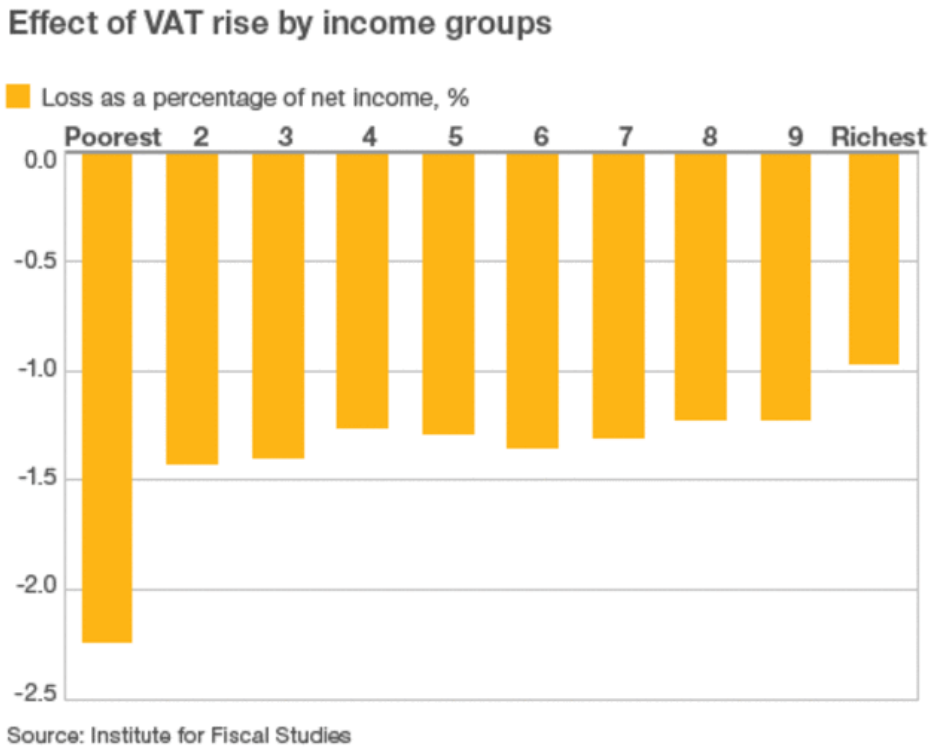
<u>Evaluation</u>

VAT and AS/AD

VAT rate rises from 17.5% to 20% BBC, 4 January 2011

The standard rate of VAT has risen from 17.5% to 20% as the government looks to boost tax revenues to cut its deficit.

Business groups have warned that retailers will be hit by the increase, while opponents of the rise have said the poorest will be hit hardest. The government says the rise is necessary to help bring down the UK's high budget deficit. Chancellor George Osborne said the move was more "progressive" than a hike in income tax or National Insurance. Food, children's clothing, newspapers and magazines are not subject to VAT. When unveiling the VAT rise over the summer, Chancellor George Osborne said it would raise more than £13bn a year by the end of the parliament. However, the Labour opposition has accused the government of penalising low-income families. Although they will end up paying less VAT in total, lower income households spend a bigger share of their incomes on taxed goods, meaning they are proportionately harder hit.



Meanwhile, retailers are left worried that they may face a big drop in sales starting this week. Research by the Centre for Retail Research and online shopping group Kelkoo has suggested that retail sales will fall by about £2.2bn in the first three months of the year as a result of the rise in VAT. More than seven out of 10 retailers polled by the BRC thought that their customers would bring forward purchases to beat the VAT increase.

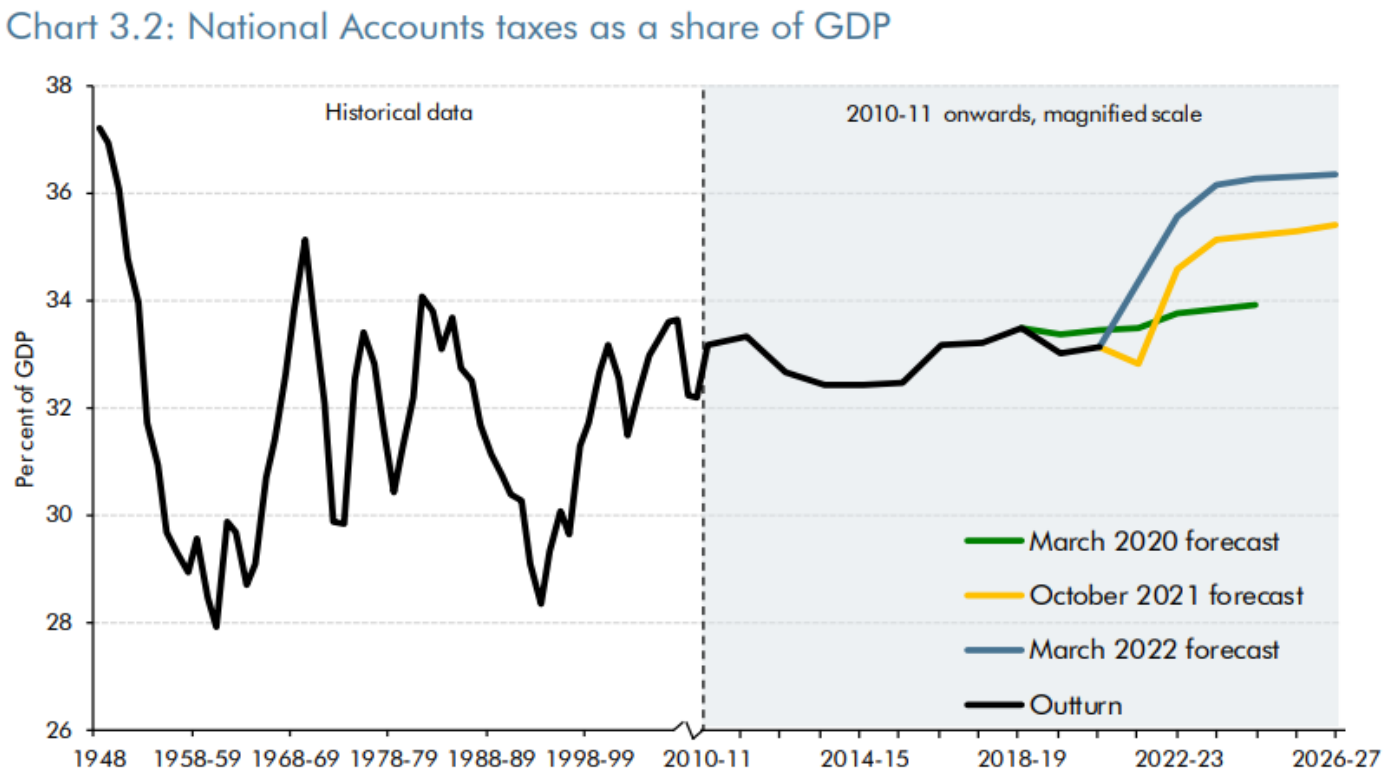
The effect of the VAT rise:

- A £9.99 cuddly toy rises to £10.20 at the new VAT rate
- A £500 flat-screen TV rises to £510.64
- A £15,000 new car rises to £15,319.15

The rise is particularly unwelcome for those sensitive to the cost of petrol, coming on top of rising oil prices and an increase in fuel duty. However, others suggest that the impact on sales may be quite short-lived. "The increase will inevitably affect the first quarter of this year, possibly the second quarter," said Adrian Houstoun, from the chartered accountancy firm Kingston Smith. But he thinks that a 2% price rise is unlikely to have a lasting impact, and eventually people will revert to their old spending habits.

What is the likely effect of raising VAT on inequality?

Tax as a % of GDP



Questions

1. Describe tax revenue as a % of GDP

2. Why is the government increasing tax as a % of GDP?

3. What are the problems of increasing tax as a % of GDP?

4.5.3 and 4.5.4 - Public sector finances and fiscal policy: on narrow syllabus, please revise:

Specification: 4.5.3 Public sector Finances

a) Distinction between a fiscal deficit and the national debt
b) Factors influencing the size of fiscal deficits
c) Factors influencing the size of national debts
d) Distinction between automatic stabilisers and discretionary fiscal policy
e) Distinction between structural and cyclical deficits
f) The significance of the size of fiscal deficits and national debts

Specification: 4.5.4: Macroeconomic policies in a global context

a) Use of fiscal policy in different countries, with specific reference to the impact of:
    - Measures to reduce fiscal deficits and national debts
    - Measures to reduce poverty and inequality
    - Measures to increase competitiveness
b) Use and impact of macroeconomic policies to respond to external shocks to the global economy.

Distinction between fiscal deficits and the national debt

Fiscal policy is the use of taxation, government spending and government borrowing

A fiscal deficit or budget deficit is where a government spends more than they receive in revenue in one year. The government must therefore borrow to finance their spending

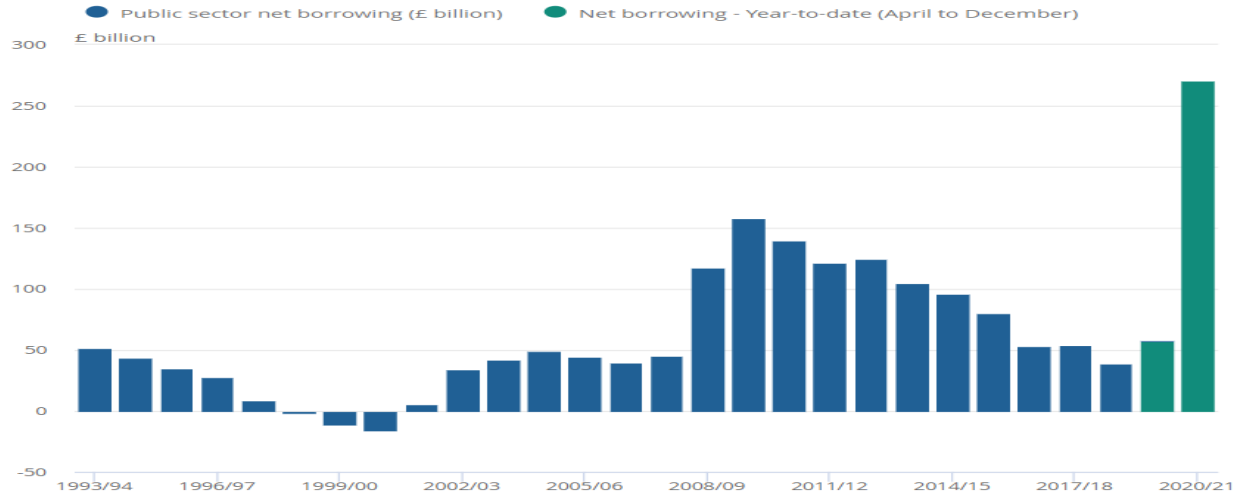
The national debt is the total accumulated government debt over time. If the government has a budget deficit the national debt will rise.

A fiscal surplus or budget surplus is where a government receives more in tax revenue than they spend in one year. The government could choose to reduce the national debt or they could cut taxes or raise government spending

*NOTE: Most of the UK national debt is owed to financial institutions based in the UK who possess UK government bonds. Don’t confuse the national debt for foreign debt!

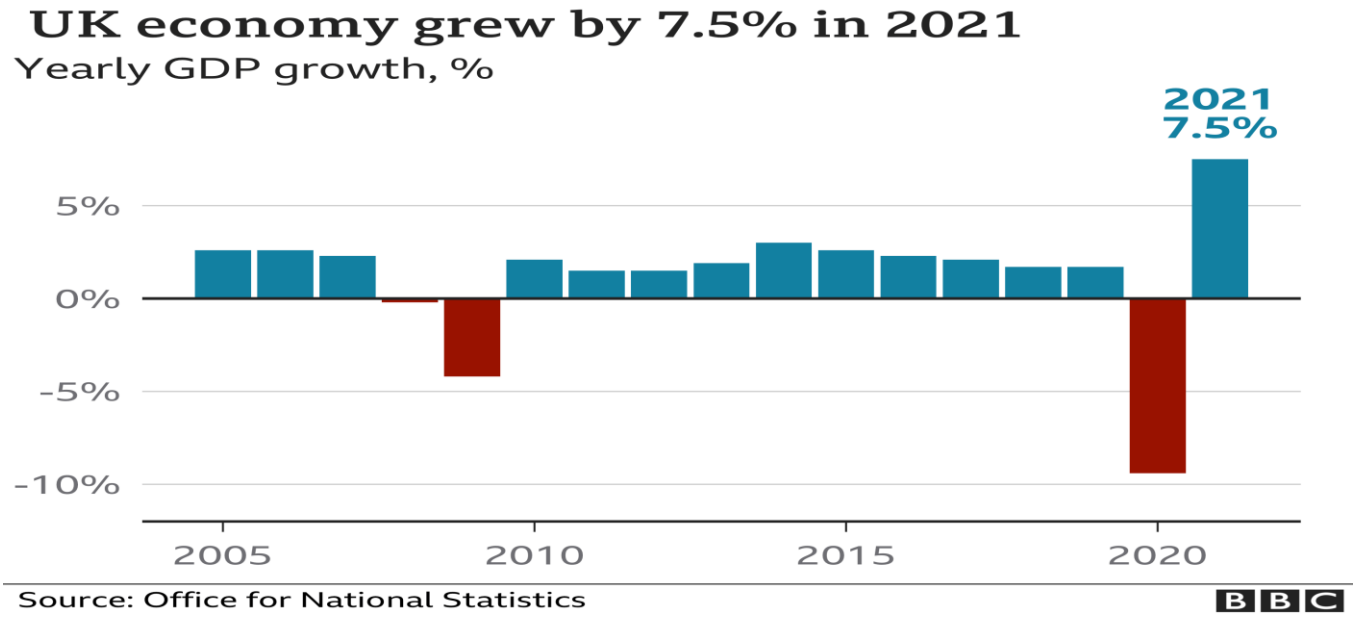
Factors affecting budget deficits and the national debt

UK budget deficit from 1993/4 to 2020/21



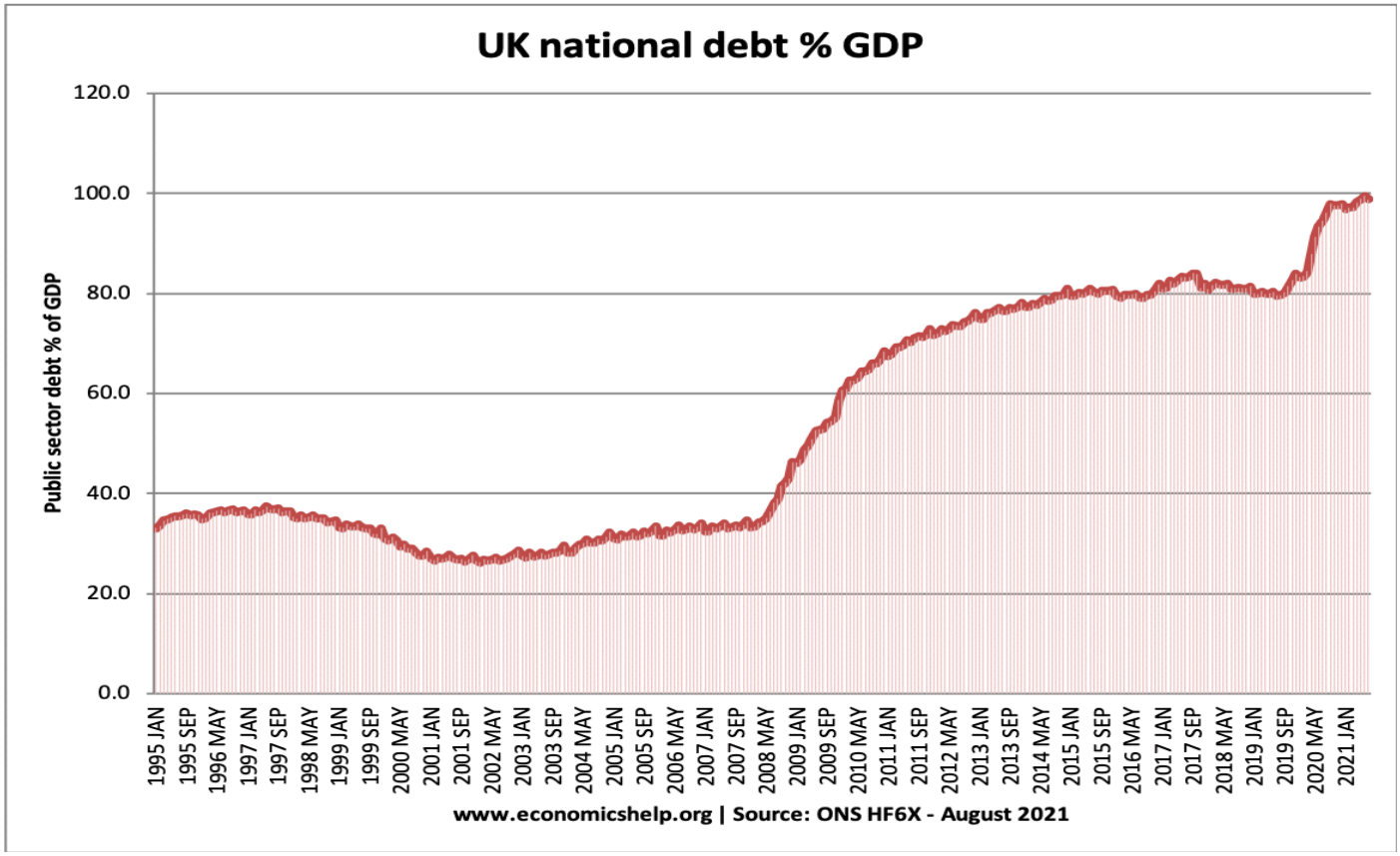
Describe the change in government borrowing from 1993/4 to 2020/1

GDP growth and government borrowing



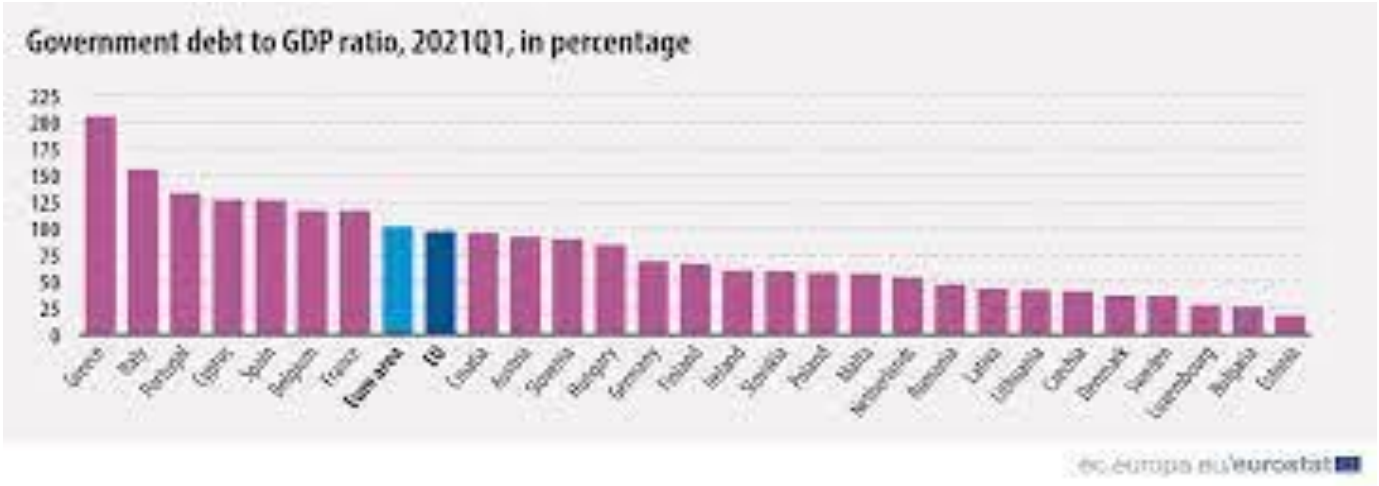
Explain why there is a link between government borrowing and the change of GDP

UK national debt as a % of GDP



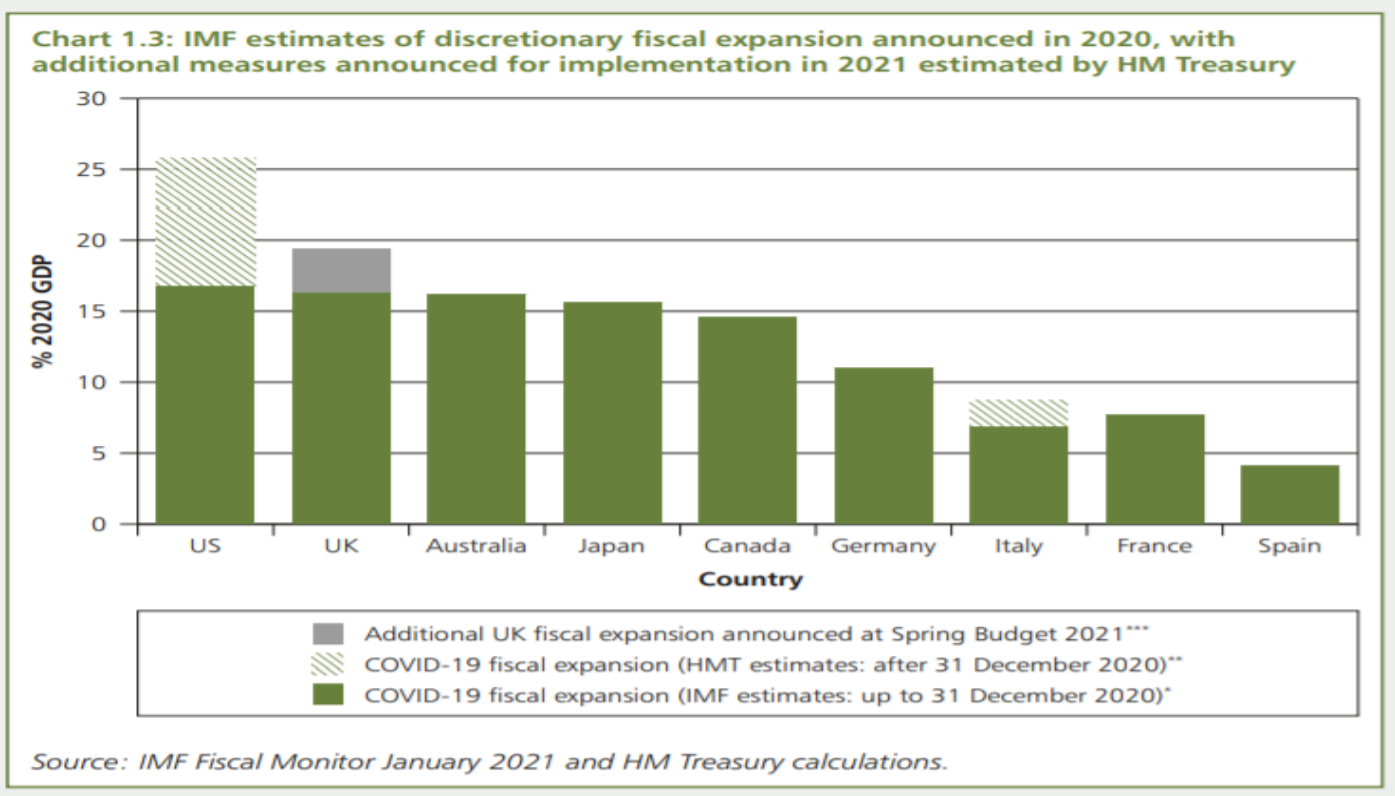
Explain the change in the national debt from 2000/1 to 2020/1

International comparison of government debt as a % of GDP



Compare government debt as a % of GDP between the UK and other European countries

Fiscal policy response to covid



How has the Covid crisis affected government spending in the UK in comparison with other developed economies?

Automatic stabilisers: a process by which government expenditure and tax revenue varies with the business cycle, thereby helping to stabilise the economy without any conscious intervention from government.

The rate of economic growth can be stabilised by fiscal policy, even if the government does nothing to change policy. What would be the effects on government spending and taxation of a fall in real GDP?

As GDP falls, tax revenue will _____ because

This will happen even if the government does not adjust tax rates. Also, as GDP falls, government spending will _____ because

This will happen even if the government does not adjust spending plans. In a recession, this will have the effect of:

Discretionary fiscal policy: Expansionary fiscal policy

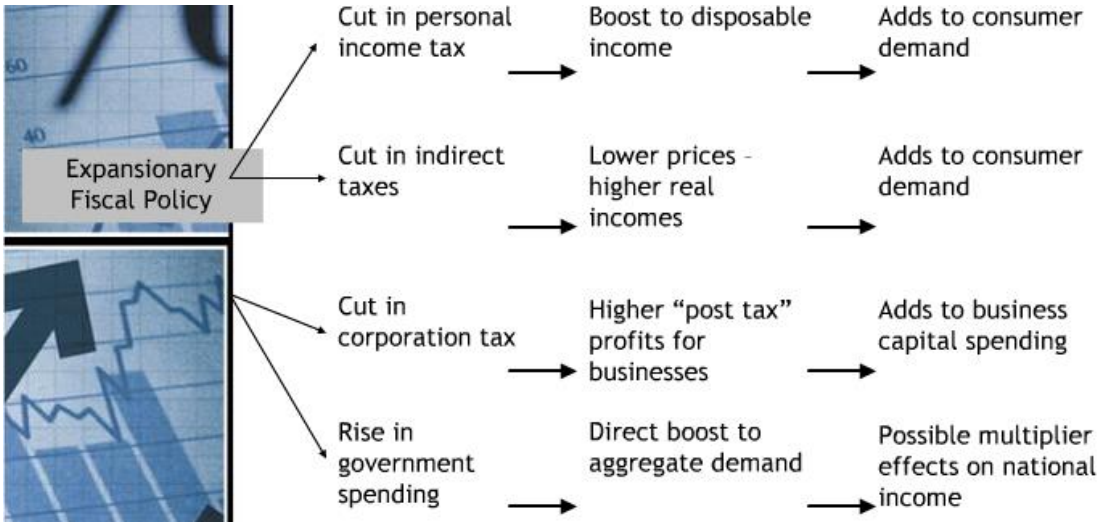
Demand management: government use of fiscal or other policies to manipulate the level of aggregate demand in the economy.

Active or discretionary fiscal policy: the deliberate manipulation of government expenditure and taxes to influence the economy.

Expansionary fiscal policy: fiscal policy used to **increase aggregate demand** (cut in taxes or increase in government spending).

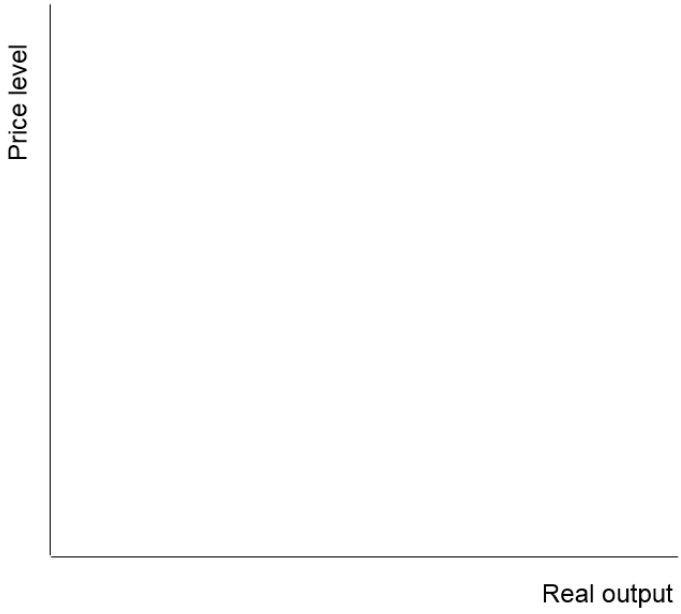
Budget deficit: a deficit which arises because **government spending** is **greater than its tax receipts**. The government therefore has to **borrow** money to finance the difference.

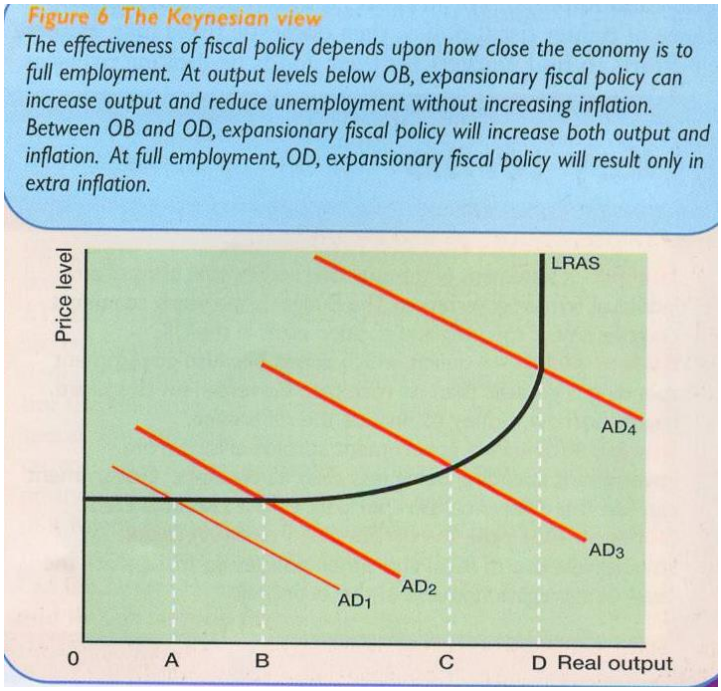
The diagram below shows the transmission mechanisms for an expansionary fiscal policy:



Question 1

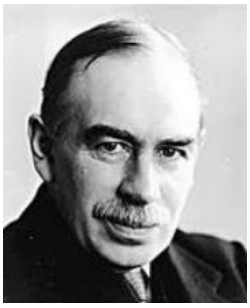
a) Draw an AS/AD diagram to show the impact of an expansionary fiscal policy, such as increased spending on infrastructure.
b) Explain your diagram, stating the impact on the price level and real output.

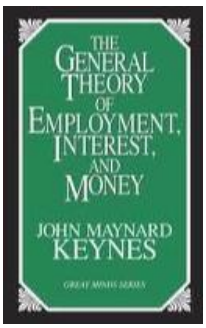




Historical country example of expansionary fiscal policy: Roosevelt 'New Deal'

- The recessions & high unemployment of the 1920's/1930's led to new thinking on the role of government, led by **John Maynard Keynes** who published the **'General Theory of Employment, Interest and Money'** in 1936.
- Keynes challenged the Classical assumption that a market economy tends to naturally restore itself to full employment after temporary shocks, e.g. through lower wages
- Keynes believed government intervention was needed to increase spending in the economy and create jobs.





http://www.youtube.com/watch?v=W_pmsRP311c&feature=related

1. How did Roosevelt apply Keynesian economics in his policy of intervention in the economy? Note examples of programmes introduced.

Discretionary fiscal policy: Contractionary fiscal policy

Contractionary fiscal policy or tighter fiscal policy: used to **reduce aggregate demand** (increase taxes or reduce government spending). I.e. shift AD curve left.
Budget surplus: a government surplus arising from **government spending** being **less than its tax receipts**. The government can use the difference to repay part of the National Debt.
Fiscal austerity: tax rises or government spending cuts designed to reduce a government budget deficit.

Country example: Greek government austerity measures in 2011
Source: http://www.bbc.co.uk/news/business-13940431 19 October 2011
The Greek parliament is preparing to vote on further austerity measures to try to meet its terms for another payment under the bail-out from the European Union and the International Monetary Fund. The five-year plan was changed to allow for more money to be raised through tax increases and less money to be saved through spending cuts. The plan involves cutting 14.32bn euros ($20.50bn; £12.82bn) of public spending, while raising 14.09bn euros in taxes over five years.

Question 2

a) Draw an AS/AD diagram to show the impact of fiscal austerity in Greece (contractionary fiscal policy).

b) Explain your diagram, stating the impact on the price level and real output.

c) Which macro-economic objectives could be achieved by a contractionary fiscal policy?

Distinction between structural and cyclical deficits

Cyclical deficit: that part of the fiscal deficit which is caused by government spending and taxes changing through the trade cycle.

Structural deficit: that part of a fiscal deficit that exists even when the cyclical deficit is zero at the top of a boom.

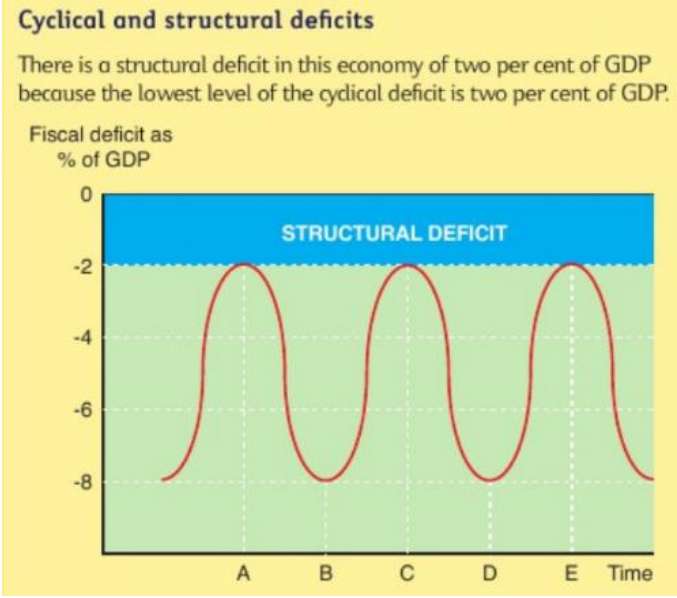
Primary deficit or surplus: the actual fiscal deficit or surplus not taking into account interest payments on the National Debt.

Current budget deficit: occurs when government revenues are less than current expenditure. It does not include government capital expenditure.

Structural and cyclical deficits

A **cyclical fiscal deficit** occurs during a downturn in the economy because tax revenues will be falling and government expenditure (for example on social benefits) will be increasing. Such a deficit should disappear when the economy returns to its trend growth rate (cyclical deficit is 6% on diagram).

A **structural fiscal deficit** remains even when the economy is operating at its full potential. It is, therefore, regarded as a more serious problem than a cyclical deficit (structural deficit is 2% on diagram).



Question 3

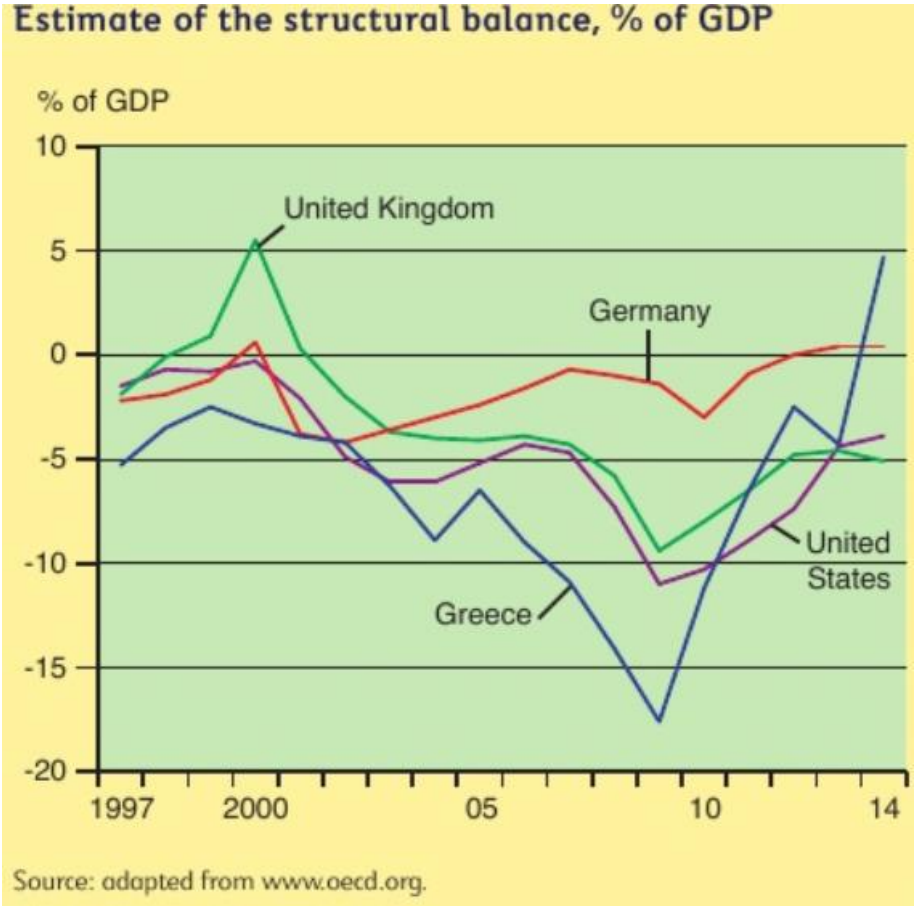
The shows OECD estimates of the structural deficits or surpluses for four countries.

a) Which country over the period:

(i) Had the highest average structural deficit

(ii) Saw the largest improvement in its structural deficit?

b) Greece cut its structural deficit from 2010 onwards by cutting public spending and raising taxes. These fiscal austerity measures cut Greek GDP by one quarter between 2009 and 2013. Explain why fiscal austerity cut GDP



Costs and benefits of large budget deficits/national debts

Problems with high budget deficits and/or high national debts

Opportunity cost of increased debt repayments
Governments borrow money by selling bonds. The bondholders receive a rate of return from holding these assets. If the government continues running large budget deficits then more money must be repaid with interest. The UK now pays more in debt interest than is spent on Defence. What is the opportunity cost of this?

Confidence of financial markets
If governments run a large budget deficit then investors in bond markets may lose confidence of the ability of the government to repay the loans. In this case they may be less willing to lend to governments if there is a higher risk they will not get their money back. As a result, the price of the bonds will fall and the interest rate will rise. This is because bondholders receive a fixed payment for owning bonds. If the price of the bond falls the fixed payment becomes larger as a % of the price the bondholder pays for the bond.

A country may even face a debt crisis where they are unable to borrow except at very high rates of interest. Give examples of countries who were forced to request a bailout:

Evaluation
When are countries more likely to face a debt crisis? Is this likely to happen to the UK?

Crowding Out
Crowding Out arises when increased government spending reduces private sector spending. There are 2 types:

Resource crowding out
This is where the government uses labour and capital at the expense of the private sector. For example, if the government builds new infrastructure such as railways or motorways they may need to employ engineers and construction workers. This could mean there are less skilled workers available to work in the private sector.

Evaluation
When is this less likely to be a problem?

Financial crowding out
This is where increased government borrowing reduces private sector investment. If the government needs to borrow more they will need to offer higher interest rates to bondholders to persuade them to lend to the government. If the government offers higher rates of interest then banks will also have to offer higher rates of interest to savers to attract savings and will charge higher rates of interest to borrowers. How will higher interest rates affect investment?

Evaluation
To what extent is increased government borrowing responsible for low levels of investment in the UK?

What effect does quantitative easing have on interest rates?

Reasons not to reduce the budget deficit quickly
Lower growth and higher unemployment
Government Spending represents an _____ into the circular flow of income
Taxation represents a _____ from the circular flow of income.
If the government reduces the budget deficit there is a smaller net _____ into the circular flow of income and Aggregate Demand will _____ .

Why could there be a negative multiplier effect?

What is the effect on output and employment if austerity measures are implemented?

Why could this make it harder to reduce the budget deficit?

<u>Conclusion</u>

Monetary policy revision

Definition
The use of changes in the rate of interest, the money supply and the exchange rate to influence the rate of growth of aggregate demand and the rate of inflation

The Monetary Policy Committee (MPC)

- The **Monetary Policy Committee** (MPC) meets at the Bank of England. It is chaired by the Governor of the Bank. There are 9 members in total, 5 from the Bank and 4 independent experts.
- The MPC meets monthly to decide on the Bank Rate and the amount of QE
- The MPC is responsible for meeting the government's inflation target
- The MPC publishes the minutes of its meetings (8 times a year) and if the inflation target of 2% is missed the Governor must send an open letter to the Chancellor

Each member of the MPC has expertise in the field of economics and monetary policy. Members do not represent individual groups or areas. They are independent. Each member of the Committee has a vote to set interest rates at the level they believe is consistent with meeting the inflation target. The MPC's decision is made on the basis of one-person, one vote. It is not based on a consensus of opinion. It reflects the votes of each individual member of the Committee.

Source: Bank of England

The Bank's remit and the inflation target

- ✓ The inflation target is 2% CPI inflation. The target is announced each year in the Budget
- ✓ Although the Bank has independence, in extreme circumstances the Government could instruct the Bank for a limited period
- ✓ The target is NOT the lowest possible rate of inflation. Inflation below target is considered just as undesirable as above the target.
- ✓ If the target is missed by 1% point or more, either side of target, then the Governor has to write an open letter to the Chancellor explaining why the target has been missed and what can be done to get back to target.
- ✓ It is recognised that it is very unlikely that inflation will be 2% all the time. There are many factors that change all the time making it unlikely the target will be hit exactly. The idea is that the MPC aims to get inflation back to target within a reasonable time.

Effect of a rise in interest rates:

1. Explain the effects of a rise in interest rates on consumer spending

2. Explain the effects of a rise in interest rates on investment

3. Read the paragraph below and complete the sentences below to explain the effect of a rise in interest rates on the demand for exports and imports.

Interest rates and exchange rates

A higher UK relative interest rate (compared to other countries) will attract hot money flows into the UK to take advantage of higher interest on bank deposits. This means depositors will need to buy £s in the foreign exchange market. The causes a rise in the demand for £s and a rise in the exchange rate.

A fall in the UK rate of interest would cause hot money outflows and a fall in the exchange rate.

A rise in UK interest rates will attract saving or hot money to UK banks. Therefore, the demand for the pound will _____ and the value of the pound will _____. A _____ in the value of the pound will cause the price of exports to _____ and the demand for exports to _____. It will also cause the price of imports to _____ and the demand for imports to _____. A rise in the value of the pound will usually cause a worsening of the current account balance (ie a larger current account deficit). This is assuming the demand for imports and exports is price _____.

The effect on Aggregate Demand

Explain the effect of rising interest rates on Aggregate Demand by completing the following sentence

A rise in interest rates will usually cause consumer spending to _____, investment to _____, the value of exports to _____ and the value of imports to _____. Therefore AD is likely to _____ and inflation will _____.

Draw a diagram to show how a rise of interest rates would reduce the growth of AD and therefore reduce the rate of inflation:

Quantitative easing

What is quantitative easing?
Quantitative easing means that the Bank of England electronically creates money and uses this to purchase assets in the economy. The Bank of England increased the money supply by £200 billion on Thursday 19th March 2020 following the coronavirus pandemic.

Is this the same as printing money?
The Bank of England doesn't necessarily need to print more money. Only a very small % money in the UK economy is in notes and coins. Most money in the economy appears as a number on a computer screen in a bank account.

Why has this policy been used?
The Bank of England creates money in order to increase Aggregate Demand. This is in order to keep inflation at 2% and prevent a deep recession and deflation. In recent years, the Bank of England increased the money supply following the financial crisis, the EU referendum and the Coronavirus health crisis.

What assets were purchased?
The Bank of England has purchased £895 billion of bonds since 2008-9. Of these assets £875 billion were government bonds, but £20 billion were corporate bonds. Most of these are government bonds, but they also purchased a few corporate bonds.

What is a government bond?
If the government wishes to spend more than they raise in revenue they can sell bonds. The bondholder receives a rate of return on these assets. For example, the government may sell a bond for £100 and then pay out £10 each year to the bondholder. The bondholder would make a £10 profit or a 10% rate of return. These bonds can be bought and sold on the bond market. If the price of the bond goes up then the interest rate will fall as the amount payable on the maturity date will remain the same. Therefore, there is an inverse relationship between the price of the bond and the interest rate or yield. Bonds are usually bought by large financial institutions such as banks, pension funds, hedge funds, large companies or private investors.

How could the Bank of England 'reverse' the policy and reduce the money supply?
The Bank of England could reduce the money supply by selling their bonds to private sector organisations. The money used to buy these bonds is withdrawn from the economy by the Bank of England.

How does QE work?

1. Increased cash for those who sell the assets
   If individuals or firms sell bonds to the Bank of England then they will gain cash from selling these bonds which they can then spend in the economy. As the demand for bonds rises, the price of the bonds will rise and investors can sell them for a profit. This may provide more funds for businesses to invest and more funds for banks to lend. However, following the recession the banks were unwilling to lend so the Bank of England bought most of the bonds from the non-bank private sector.

2. Higher prices of other assets
   As the Bank of England buys bonds the price of bonds rises and the interest rate on the bonds will fall. Therefore, investors may look to buy other assets instead. This has caused a rise in demand for shares and a rise in the value of shares on the stock market. How would a rise in share prices affect Aggregate Demand?

3. Lower long-term interest rates
   If the Bank of England buys government bonds the price of the bonds will _____ and the interest rate on the bonds will _____ . This will _____ long term market interest rates as the commercial banks will be able to offer _____ interest rates to savers. This is because there is less competition for savings from the government. This should also lead to _____ rates of interest for borrowers.
   How would a fall in long-term interest rates affect consumption and investment?

4. Reduced value of the £
   If there is an increase in the money supply this is likely to reduce interest rates. How will this affect the value of the pound?

   How is this likely to be beneficial for the UK economy?

Evaluation of QE

Effect on output and inflation

It is estimated QE has contributed to higher growth and inflation. (The Bank estimates that the first £200bn of QE had the effect of boosting GDP by 1.5-2% and CPI inflation by 0.75-1.5%) Martin Weale (MPC member) and Tomasz Wieladek estimate that if the Bank of England purchase government bonds worth 1% of nominal GDP this would lead to a rise of about 0.18% of real GDP and 0.3% in CPI in the UK.

It has been estimated that in the United States if the Federal Reserve purchase government bonds worth 1% of nominal GDP this would lead to a rise of about 0.36% of real GDP and 0.38% in CPI in the US.

It is however very hard to measure its precise effects. We don't know what would have happened if there was no increase in the money supply.

Effect on borrowing

It is certainly true that QE has made it much easier (and cheaper) for governments to borrow. Interest rates on UK government bonds have been very low since 2009.

Initially QE did not result in an increase in bank lending due to a lack of confidence in the financial sector. However, in recent years bank lending and consumer borrowing have been much stronger as confidence returned.

Negative effects of QE

QE has been damaging to savers and pensioners. It has hampered their spending power. Why is this?

Why could QE create greater inequality?

Some claim that a large rise in share prices is unsustainable. Why could a rise in share prices create macro-economic instability?

Effects of reversing the policy

Before the covid crisis, the Federal Reserve began to reverse the policy of Quantiative easing by selling their bonds back onto the market. This reduces the money supply by withdrawing money from the economy. What effects would this have?

Extension: Relationship between monetary and fiscal policy

https://obr.uk/box/debt-maturity-quantitative-easing-and-interest-rate-sensitivity/

Debt maturity, quantitative easing and interest rate sensitivity

March 3rd, 2021

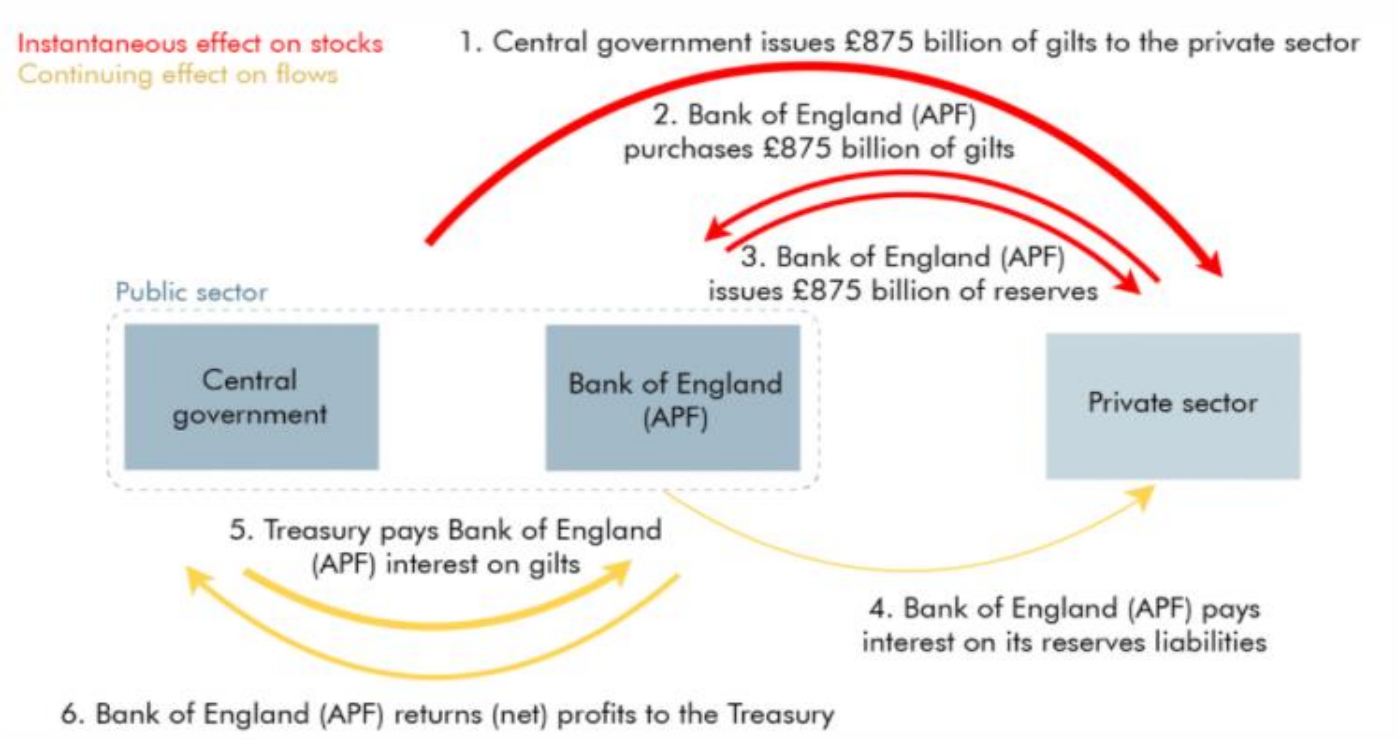
The average maturity of UK government bonds (known as gilts) is longer than the average maturity of government debt in most other advanced economies. But the average maturity of the *net debt of the public sector as a whole* (including the Bank of England) has shortened considerably since the global financial crisis. This is due to large-scale gilt purchases by the Bank of England, via its Asset Purchase Facility (APF), as part of its quantitative easing (QE) operations.

These gilt purchases have been financed through the creation of extra central bank reserves. These can be thought of as akin to a deposit account that private banks hold at the central bank, on which the Bank pays interest at its policy rate ('Bank Rate'). The gilts are therefore effectively replaced as a liability of the public sector (the outstanding interest on the debt is returned to the Treasury via the APF) by the reserves created to finance their purchase (Figure A).

By the end of 2021-22, 32 per cent of the public sector's gross debt (£875 billion out of £2.7 trillion) will be in the form of central bank reserves issued to finance gilt purchases. As these reserves currently pay an interest rate of 0.1 per cent – whereas the gilts they have in effect refinanced pay an average interest rate of 2.1 per cent – the net interest saving for the public sector as a whole is estimated at £17.8 billion in 2021-22.

However, because the gilts purchased by the Bank have an average maturity of 13 years, whereas the liabilities issued to finance them carry an overnight rate of interest, this net saving comes at the price of a significant reduction in the average maturity of the net debt of the public sector as a whole. This dramatically increases the sensitivity of debt interest spending to changes in short-term interest rates.

Figure A: Direct effects of the Asset Purchase Facility on the public finances



To illustrate this, the left-hand panel of Chart A shows that the mean maturity of the government's total gilt liabilities, including those held in the APF, was over 15 years at the end of 2020, very long by international standards. This means that changes in long-term interest rates affect debt interest payments relatively slowly (with around a third of the effect felt within five years). By contrast, the interest paid on the entire stock of central bank reserves responds immediately to changes in Bank Rate. The Bank has not yet completed all the purchases necessary to complete its latest round of QE, but the effect of the £750 billion worth of gilts by the end of 2020 has been to reduce the effective mean maturity of the gilt stock to 11 years. By the end of the current gilt purchase programme in 2021-22, it will have fallen further to around 10 years. This lower mean maturity results in greater interest rate sensitivity.

On the face of it, this looks very similar to what would have happened if there had been no gilt purchases by the Bank but the Government had issued an equivalent quantity of Treasury bills (which typically pay a rate of interest that is very close to Bank Rate) instead of the gilts that were acquired by the APF. And the response of debt interest spending to changes in interest rates would indeed be very similar. Such Treasury bills would need to be refinanced as they matured, however, leaving the Government exposed to financing risk. That is not an issue with financing through the issuance of central bank reserves, as reserves do not mature as bills do and can only be redeemed into cash. So while the effect on interest rate sensitivity is similar to what would have happened if the Government had financed its borrowing by issuing £875 billion of 3- month Treasury bills, the effect on financing risk is the equivalent to having done so by issuing that amount of perpetual floating-rate bonds.

Exchange rate systems

Specification: 4.1.8 Exchange rates
a) Exchange rate systems:

- **floating**
- **fixed**
- **managed**

b) Distinction between revaluation and appreciation of a currency (see Yr1 Exchange rate booklet)
c) Distinction between devaluation and depreciation of a currency (see Yr1 Exchange rate booklet)
d) Factors influencing floating exchange rates (see Yr1 Exchange rate booklet)
e) Government intervention in currency markets through foreign currency transactions and the use of interest rates
f) Competitive devaluation/depreciation and its consequences
g) Impact of changes in exchange rates: (see Yr1 Exchange rate booklet)

- the current account of the balance of payments (reference to Marshall-Lerner condition and J curve effect)
- economic growth and employment/unemployment
- rate of inflation
- foreign direct investment (FDI) flows

Definitions: Changes to the exchange rate

A **depreciation** of the exchange rate is a **fall** in the value of a currency in terms of other currencies due to market forces

An **appreciation** of the exchange rate is a **rise** in the value of a currency in terms of other currencies due to market forces

A **devaluation** of the exchange rate is a **fall** in the value of a currency in terms of other currencies due to a the policy of a government or central bank

A **revaluation** of the exchange rate is a **rise** in the value of a currency in terms of other currencies due to a the policy of a government or central bank

Floating exchange rates

In a floating or free exchange rate system, the value of a currency is determined by market forces. Governments do not intervene in the foreign exchange markets.

Fixed exchange rates

A fixed exchange rate system is one where a currency has a fixed value against another currency or commodity. The best example of a fixed exchange rate system is the Gold Standard.

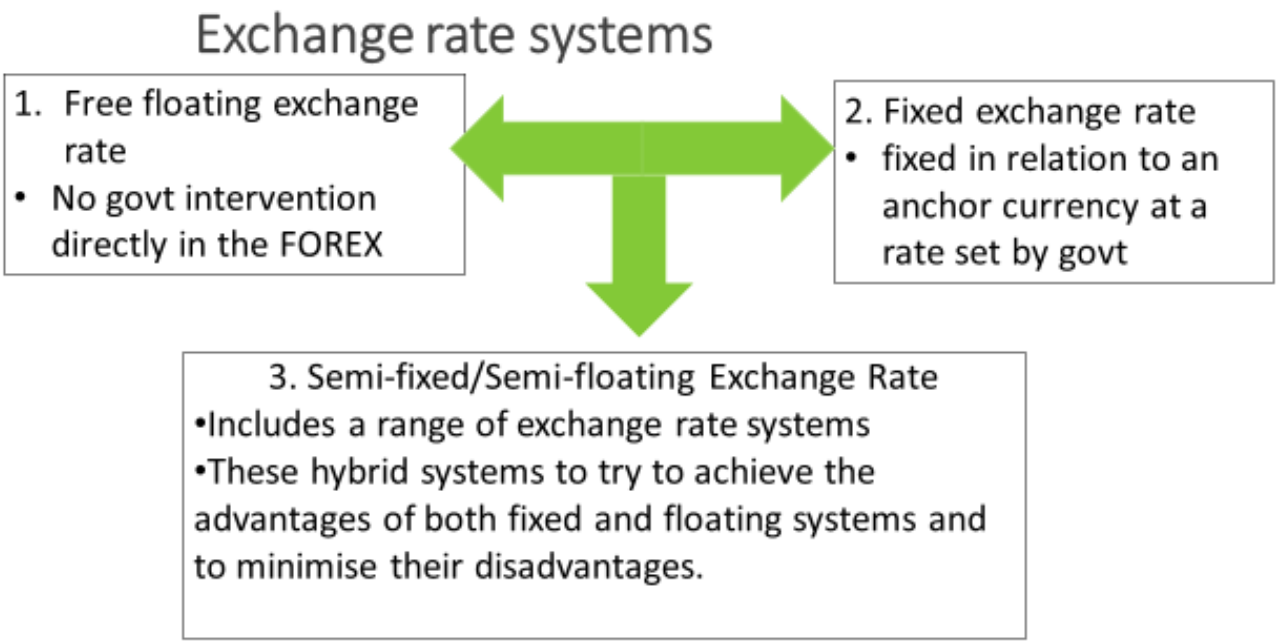
Intermediate or semi fixed exchange rate systems

In an intermediate exchange rate system, the exchange rate is allowed to float within specific limits set by the government. The government will intervene to influence the value the domestic currency to prevent the exchange rate from moving outside the parameters they have set.

Managed exchange rates

The UK currently operates an exchange rate system called a ‘managed float’. Under this system, the pound is allowed to float. However, the Bank of England influences the exchange rate by setting interest rates. The United States, The Eurozone and Japan also have managed floating exchange rate systems

Summary of exchange rate systems



Adjusting the exchange rate

A monetary policy tool is to manipulate the exchange rate. Why would governments wish to manipulate the exchange rate?

Examples of fixed exchange rate systems

The Gold Standard

Under the Gold Standard, the major trading nations fixed the exchange rate between gold and the domestic currency. For example, a £1 note would exchange for 0.257 ounces of gold. Because other currencies such as the French Franc and the German Mark could also be converted into gold, there was a fixed exchange rate between currencies. The supply of money was restricted by the level of gold reserves that were held by the Bank of England. Only £1 was issued for every 0.257 ounces of gold held in reserve.

Currency Boards

A small but increasing number of small countries have adopted currency boards. This is a form of fixed exchange rate system where the price of one currency is fixed against the price of another.

The ABC of a currency board (Edited from The Economist)

A country that introduces a currency board commits itself to converting its domestic currency on demand at a fixed exchange rate. To make this commitment credible, the currency board holds reserves of foreign currency (or gold or some other liquid asset) equal at the fixed rate of exchange to at least 100% of the domestic currency issued.

Unlike a conventional central bank, which can print money at will, a currency board issues domestic notes and coins only when there are foreign-exchange reserves to back it. Under a strict currency-board regime, interest rates adjust automatically. If investors want to switch out of domestic currency into, say, dollars then the supply of domestic currency will automatically shrink. This will cause interest rates to rise, until eventually it becomes attractive for investors to hold local currency again.

The predictability and rule-based nature of a currency board are two of its biggest advantages. Like any fixed exchange-rate system, a currency board offers the prospect of a stable exchange rate, which can promote both trade and investment. Its strict discipline also brings benefits that ordinary exchange-rate pegs lack. Profligate governments, for instance, cannot use the central bank's printing presses to fund large deficits.

But discipline has its drawbacks. Like other fixed exchange-rate systems, currency boards prevent governments from setting their own interest rates. Hong Kong's interest rates are in effect set by America's Federal Reserve. Because its inflation rate has been higher than in America, this has resulted in low—and sometimes negative—real interest rates in the 1990s. In turn, this cheap money fuelled a bubble in property and share prices.

If local inflation remains higher than that of the country to which the currency is pegged, the currencies of countries with currency boards can also become overvalued and uncompetitive. Governments cannot use the exchange rate to help the economy adjust to outside shocks, such as a fall in export prices or sharp shifts in capital flows. Instead, domestic wages and prices must adjust. In countries where these prices are sticky, such as Argentina, the risk of currencies becoming overvalued is high.

A currency board can also put pressure on banks and other financial institutions if interest rates rise sharply as investors dump local currency. For emerging markets with fragile banking systems, this can be a dangerous drawback. Also a classic currency board, unlike a central bank, cannot act as a lender of last resort. A conventional central bank can stem a potential banking panic by lending money freely to banks that are feeling the pinch. A classic currency board cannot.

Questions

1. What are the benefits of a currency board fixed exchange rate?

2. What are the potential disadvantages of a currency board fixed exchange rate?

Country examples: Argentina: Currency board

In the late 1980's and early 1990's, the Argentinian economy was in deep trouble. Inflation peaked at 3000% in 1989 whilst GDP was 10% lower in that year than in 1980. As part of a recovery plan, the Argentinian government introduced a currency board system in 1991. The Argentinian peso was pegged against the US dollar at an exchange rate of 1 peso to $1. Inflation fell to 3.4 per cent in 1994 but by this stage the peso was overvalued against the dollar and Argentina's main trading partners. However, this resulted in lower output and higher unemployment in Argentina. A number of exchange rate crises in the 1990s culminated in the currency board being abandoned in 2002. The value of the peso fell by two thirds against the US dollar. The depreciation of the peso made it harder for Argentina to repay foreign lenders.

Questions

1. Why would fixing the Peso at a high rate reduce inflation in Argentina?

2. Why did the eventual depreciation of the peso make it harder to repay foreign lenders?

Intermediate or semi fixed exchange rate systems

In an intermediate exchange rate system, the government will sometimes have to intervene to manipulate the exchange rate. There are two policies the government could follow:

Buying and selling reserves

Central banks such as the Bank of England can increase the value of the pound through _____ reserves of foreign currency and gold and _____ the pound on the foreign exchange market. The value of the Pound will be reduced by _____ reserves of foreign currency and gold and _____ the pound on the foreign exchange market.

Adjusting interest rates

If the Bank of England increased interest rates the value of the pound would _____. The demand for the pound would _____ and the supply of the pound would _____. This would happen because

Examples of Intermediate exchange rate systems

The Exchange Rate Mechanism

This was a system designed to lead onto the creation of a single European currency. Participant countries agreed to keep their currencies within band around a central reference point. For example, when Britain joined the ERM the pound was allowed to fluctuate around a reference point of £1 = DM2.95. Central banks were committed to intervene in foreign exchange markets and use interest rate policy to keep their domestic currency within the agreed limits.

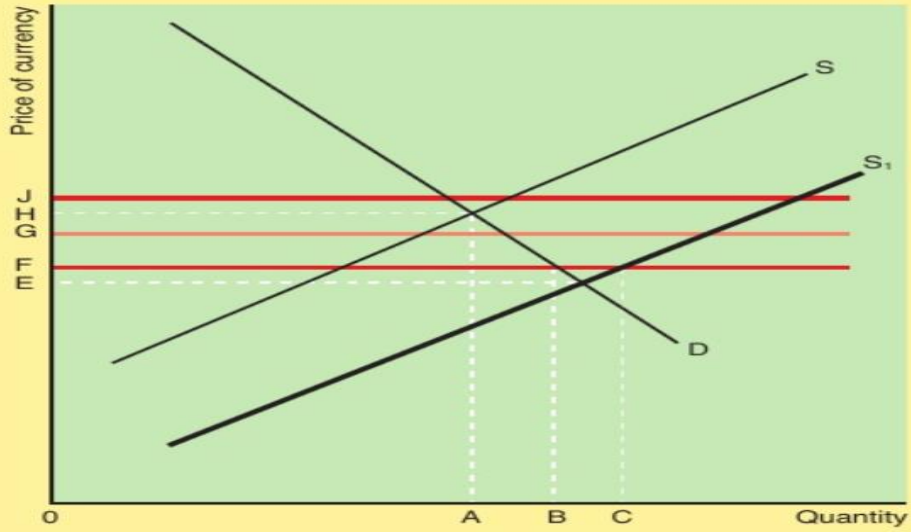
The Bretton Woods agreement

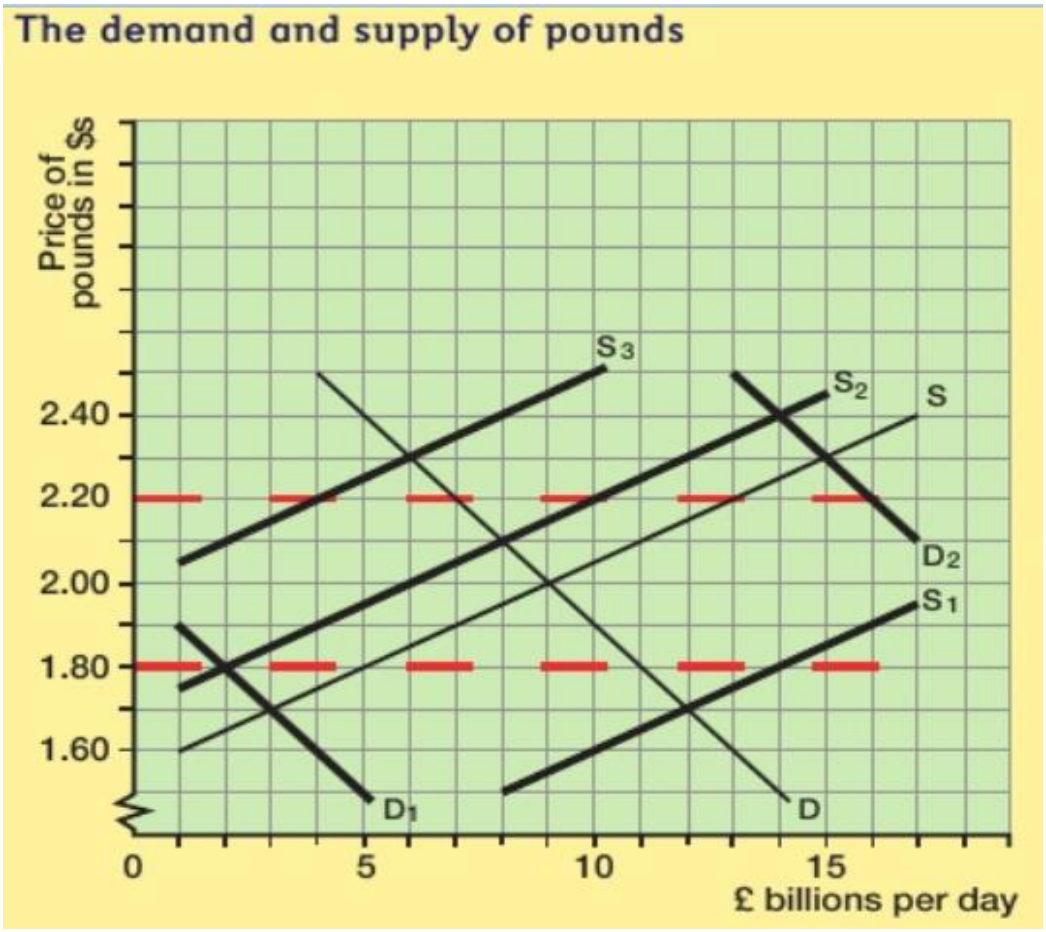
In 1944 the allied powers met in the American town of Bretton Woods to discuss trade after the war. Britain and the other participating countries agreed to fix their currencies to the US dollar. Between 1949 and 1967 the pound was valued at $2.80. The value of the pound was allowed to fluctuate on a daily basis between $2.78 and $2.82. The Bank of England guaranteed to maintain the value of the pound between these limits.

Figure 5

Central bank intervention in the foreign currency markets

If the central bank wishes to maintain a minimum price of OF for its currency, but the supply curve is S_1 and the demand curve is D, then it has to buy BC currency.





D and S are the free market demand and supply curves for pounds in dollars. The Bank of England is committed to keeping the dollar price of sterling between $2.20 and $1.80.

(a) What is the free market price of the pound?

(b) With a demand curve D, how much currency (in £) will the Bank of England have to buy or sell per day if the supply curve shifts from S to:

(i) S1

(ii) S2

(iii) S3?

(c) With a supply curve S, how much currency (in £) will the Bank of England have to buy or sell per day if the demand curve shifts from D to:

(i) D1

(ii) D2?

Evaluation of fixed exchange rate systems

Explain benefits of fixed exchange rate systems	Evaluation: Disadvantages, limitations, possible solutions, depends on..

4.5.4 Macroeconomic policies in a global context – on narrow syllabus, please revise:

a) Use of fiscal policy, monetary policy, exchange rate policy, supply-side policies and direct controls in different countries
b) Use and impact of macroeconomic policies to respond to external shocks to the global economy
c) Measures to control global companies' (transnationals') operations:
d) Problems facing policymakers when applying policies:

Use of macroeconomic policies in different countries
As the world economy recovered from the financial crisis many European governments introduced austerity measures to reduce their budget deficits. This meant cutting government spending and raising taxes. For example, the German government has chosen to run budget surpluses in recent years. The Greek government was forced to cut spending and raise taxes in order to gain a bailout loan from the EU and the IMF.
Many governments have introduced policies to reduce inequality and poverty. For example, the Brazilian government introduced a welfare programme called 'Bolsa Familia' which has helped to reduce poverty in Brazil.

Use of macroeconomic policies to respond to external shocks to the global economy
Governments around the world have used fiscal policy to support their economies following the Coronavirus pandemic. For example, the French government has offered loans to businesses to prevent them from becoming insolvent. Following the Financial crisis of 2008-9 the American and Chinese governments increased borrowing to finance new infrastructure projects and increase output and employment through the multiplier effect. Central banks around the world have responded to the Coronavirus pandemic. For example, the US central bank, the Federal Reserve cut interest rates to try to increase output and employment.

Measures to control global companies
The problems of controlling multinational companies (MNCs) or transnational companies (TNCs) were discussed in the globalisation booklet. It is difficult for governments to impose regulations on TNCs to protect workers' rights or to protect the environment. This is because TNCs may choose to move to another country where the regulations aren't as tough. It is also difficult for governments to force TNCs to pay taxes. This is because TNCs may choose to move to another country with lower business taxes or they can find loopholes in the tax system to avoid paying tax such as transfer pricing.

Problems facing policymakers when applying policies
It is always difficult for governments to implement fiscal policy and it is difficult for central banks to implement monetary policy. This is because the economic data used to make decisions could be inaccurate and out of date. For example, GDP figures are an estimate of the total output of an economy but it is quite challenging to measure the output of all the businesses and public sector organisations. The figures are usually revised several times as more information becomes available. Therefore, policy makers may be using statistics that are out of date. They may not realise the economy has fallen into a recession or they may not realise the depth of the recession. Therefore, the policy response may be too slow and too weak to prevent a deep recession.