



Articles

What are the Arguments For and Against the Government's Promotion of Renewable Energy?	
Ray Powell	2
How should a Deficit on the UK's Balance of Payments Current Account be Corrected?	
Ruth Tarrant	8
How does UK Economic Performance affect the Government's Budget Deficit or Surplus?	
Andrew Threadgould	20
How will Increasing Consumer Debt affect the UK Economy?	
Mark Jewell	28

Regular Features

Prize Competition for AS Students	Inside front cover
Economics of the Internet	
<i>The Rapid Growth of Music Downloads</i>	
Peter Cramp	14
View from the City	
<i>How Tight are Monetary Conditions?</i>	
George Buckley	16
The International Economy	
Nigel Tree	25
Multiple Choice Question and Answer	
Robert Nutter	33
Back to Basics	
<i>Absolute and Comparative Advantage</i>	
Rachel Cole	35
Current Topics in Economics	
<i>The Economics of Harry Potter: The Final Volume?</i>	
Stephen Romer	38
Making Sense of Economic Data	
<i>Has the Tax System got it Wrong on Private Equity</i>	
Andrew Reeve	42
Data Question and Answer	
<i>Exchange Rates and Recessions in the USA</i>	
Tony Emery	46
Prize Competition for A2 Students	Inside back cover

Subscription Details

The price of an annual subscription (4 issues) to individuals and institutions is £20.95.

Further subscriptions are available as part of a bulk mailing to the same address at £10.95 each. A free copy is sent with all orders of 20 or more.

Economics Today is edited by Peter Maunder and is published by Economics Today Ltd., Stocksfield Hall, Stocksfield, Northumberland NE43 7TN. Tel: (01661) 844000. Fax: (01661) 844111.

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©Economics Today Ltd
ISSN 0969-4641

Typeset by George Wishart & Associates, Whitley Bay.
Printed by Potts, Cramlington.

What are the Arguments For and Against the Government's Promotion of Renewable Energy?

Ray Powell, Head of Economics at Wimbledon High School and a Chief Examiner in A Level Economics discusses the prospects for biofuels, wind and hydro power to become larger sources of energy in the future.

Introduction

The January 2007 AQA AS exam paper on *Markets and Market Failure* included two data response questions, respectively on the economics of tobacco consumption and on the growing use of biofuels as alternatives to fossil fuels such as coal and oil. In the outcome, 95% of the candidates who sat the exam answered the question on tobacco and only 5% chose to answer the biofuel question, the main part of which was:

Using the data and your economic knowledge, assess the case for and against government intervention to encourage car manufacturers to build cars that use fuels other than petrol.

There were a number of reasons why this second question on alternatives to fossil fuels was so unpopular. Two of these were:

- Questions had not previously been set on this topic.
- Consequently, teachers have not prepared their students to answer questions on the topic.

This reluctance of candidates to tackle unfamiliar questions in examinations is well-known to Chief Examiners. But it is clear that this particular question does relate to all AS specifications which consider how markets work (and sometimes fail) and the rationale of government intervention in markets.

For the benefit of students of economics sitting examinations in the future we here review the topic of renewable energy and discuss the issues surrounding government policy towards renewables.

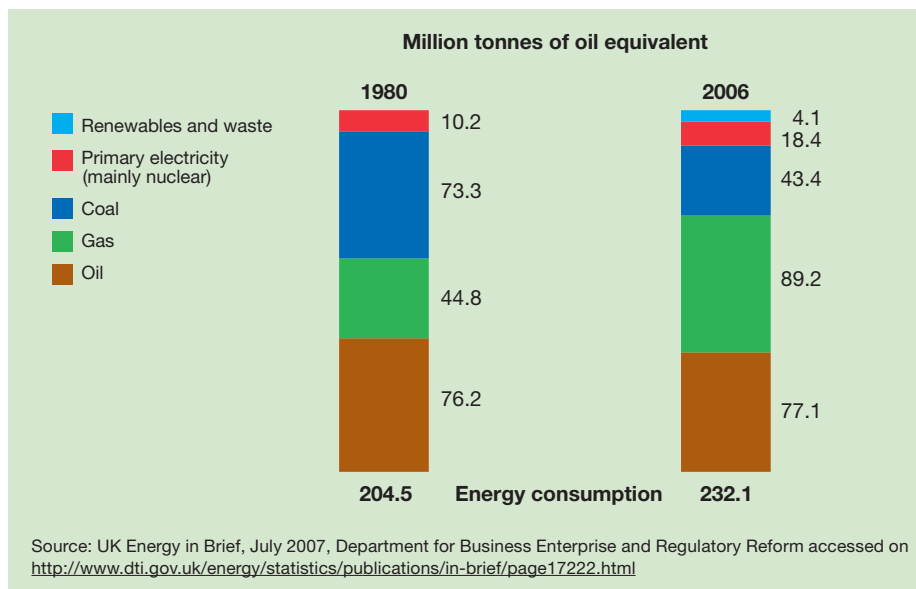
This article is in four parts. We first briefly survey the current state of UK energy sources. In the light of this we explain four of the main sources of renewable energy: hydroelectric power, biofuels, wind energy and solar power. Next we address the issue posed in the article's title, as to whether or not the UK government should promote the use of renewable

Exam Board	AS	Unit	A2	Unit
AQA	✓	1		
Edexcel	✓	1,2		
OCR	✓	2881 & 2882		
WEJC	✓	1		
CCEA	✓	1		
Int. Bacc.		Standard 2		

energy. Finally we consider the case for using carbon taxes rather than subsidies to create in the energy industry a 'level playing field' on which renewable energy can be commercially provided in profitable markets.

Figure 1 shows non-renewable fossil fuels accounting for 89.8% of UK energy in 1980, with nuclear energy making up almost all the remainder. Renewable fuels are not shown explicitly in the 1980 data, though hydroelectric power (a renewable energy source) supplies part of the primary electricity shown in the bar graphs. By 2006, total UK energy consumption had risen by over 13% from 204.5 to 232.1 million tonnes of oil equivalent, with fossil fuels falling to 77.5% of the enlarged total.

Figure 1: Changes in sources of UK energy, 1980-2006



Sources of renewable energy

Figure 2 shows the relative importance in 2006 of the sources of renewable energy currently used in the UK, while Figure 3 illustrates how the sources changed between 1990 and 2005. If we examine Figures 1 and 2 together, we can see that in 2006 total renewables (at 4.3 million tonnes of oil equivalent) were just 1.86% of total energy use (at 232.1 million tonnes of oil equivalent). Quite clearly therefore, renewables are not as yet an important source of UK energy, the bulk of which as Figure 1 shows is provided by fossil fuels and nuclear power.

The slices of the 'pie' graph in Figure 2 show the relative importance of the various sources of renewable energy that in 2006 made up the overall total of 4.3 million tonnes of oil equivalent. At 82%, biofuels and waste accounted for by far the largest proportion, followed by wind and hydroelectric power, at 8.2% and 8.0% respectively. At less than 1%, solar power hardly figures at all, while the contributions of *potential* sources of renewable energy such as wave and marine power were too small to measure. Figure 3, by contrast, taken from the UK Government's recently published White Paper on Energy, shows renewable energy used in the course of electricity generation as a proportion of total electricity generation. In this rather narrower context, electricity generated from renewable sources grew from about 1.8% of total electricity to reach 4.2% in 2005. Note also the rise over the years shown in Figure 3 in the relative importance of wind, wave, solar and biofuels in electricity generation, and the relative decline of hydroelectricity.

Figure 2: UK renewable energy sources in 2006*

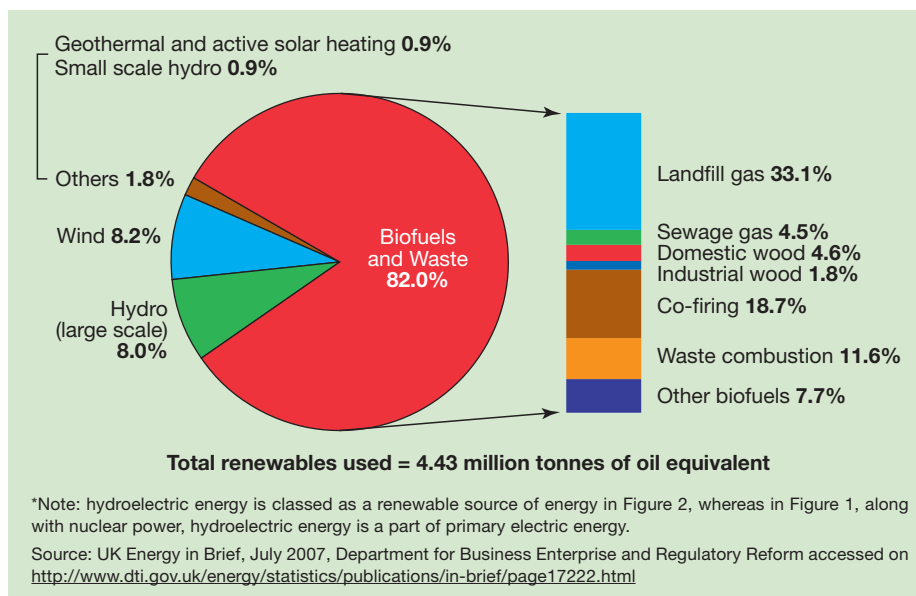
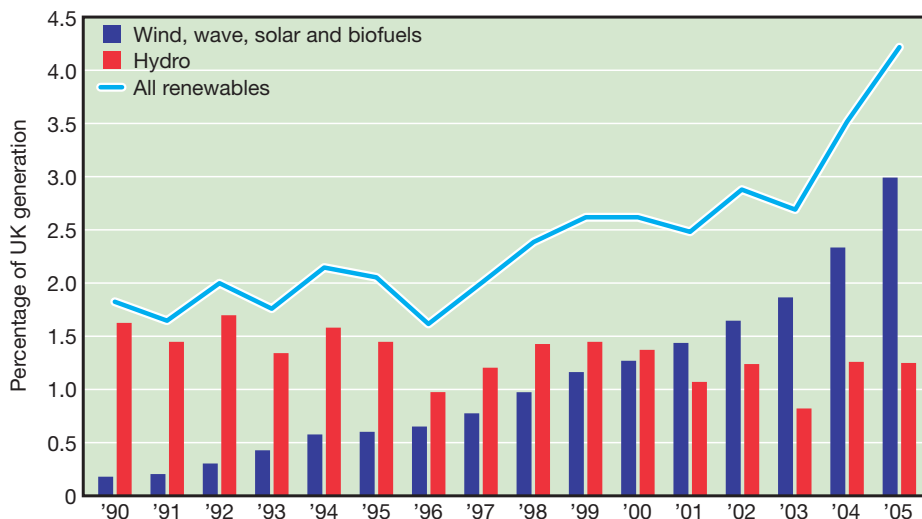
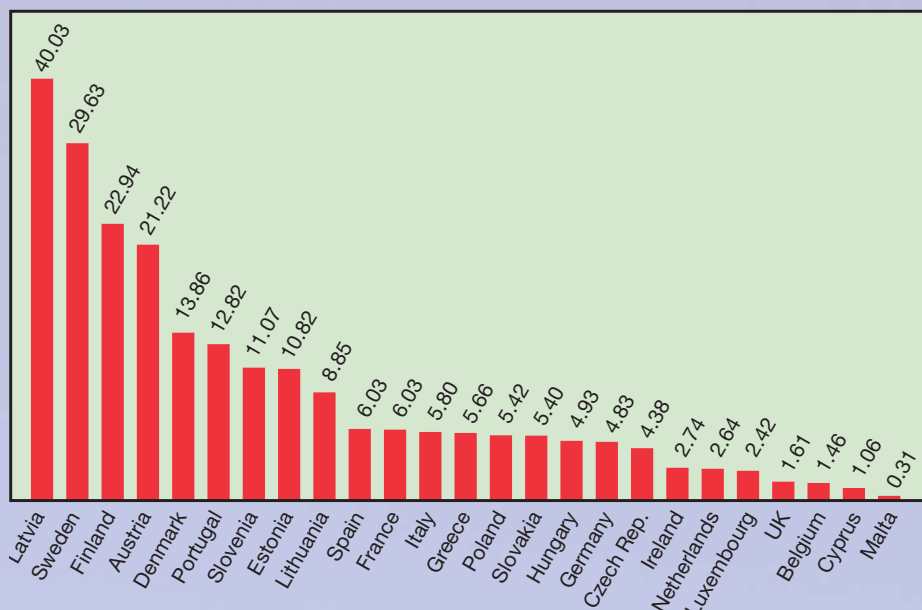


Figure 3: Growth in generation of electricity from renewable sources, 1990-2005



Source: Meeting the Energy Challenge, a White Paper on Energy, UK Government, 2007 accessed on <http://www.berr.gov.uk/files/file39569.pdf>

Figure 4: Percentage shares of renewable energies in primary energy consumption of European Union countries in 2005



Source: http://ec.europa.eu/energy/res/index_en.htm

Renewable energy in the UK compared to that in other EU countries

Figure 4 shows the percentage importance of renewable energy in the total energy use of twenty-five European Union countries (the EU-25) in 2005. Bulgaria and Rumania which have since joined the EU are not shown.

Note that the UK was fourth from bottom of the league table, ahead only of Belgium, Cyprus and Malta. Scandinavian countries, Latvia and Austria headed the list. Reasons for the differences include large government subsidies for renewable energy, the hydro capacity available in Sweden, Finland and Austria, the use of wind power in Denmark, and biofuels produced from waste timber in Sweden.

The main sources of renewable energy

► Hydroelectric power

Hydroelectric power, produced when falling water rotates turbines which generate electricity, has been used in the UK for many years. Indeed, the world's first hydroelectric facility opened in Northumberland in 1870, though, for geographical reasons, hydropower has never been an important source of UK energy.

In the UK, large-scale investment in new hydro sites is unlikely. This is because the best sites for hydropower have already been used, and it is no longer politically acceptable to flood valleys and dispossess landowners to create large hydro schemes. However,

technical progress means that small-scale hydro projects are quite feasible. Hydro power may also grow in importance because hydro and wind power can now be used together. Wind power suffers from the fact that high winds often do not coincide with periods of high demand for electricity. The resulting lack of synchronisation can be overcome by siting wind turbines near to hydroelectric plants. When electricity produced from wind turbines exceeds the demand for electricity, the 'spare' wind energy can be used to pump water uphill and into reservoirs. The reservoirs then act as 'batteries', storing latent energy until it is turned into hydropower when the demand for electricity increases.

► Biofuel

Biofuels are fuels derived from *biomass*, which is living or recently dead biological material e.g. plants such as maize and sugar cane, and wood. As the January 2007 AQA examination question showed, biofuels are becoming increasingly important as a fuel for motor vehicles. For many years ethanol derived from sugar cane has been an important biofuel in Brazil, and more and more maize is being grown in the USA for conversion into ethanol. However, biofuels are currently much less important as a replacement for petrol in mainland Europe and the UK, partly because of a lack of investment in refinery and filling station capacity. Although biofuels comprised 82% of the renewable energy used in the UK in 2006, this mostly involved the burning of

waste and landfill gases, rather than the production of ethanol for use as a motor vehicle fuel.

It is also worth noting that, unlike wind energy and solar power, ethanol has three serious disadvantages. First, a significant growth in ethanol production will commandeer land previously used for agriculture. This may cause a significant rise in food prices, particularly for sugar and grains such as barley, wheat and maize. Second, unlike other sources of renewable energy, carbon is released into the atmosphere when biofuel is burnt. Also, cutting down trees to make room for the growing of crops used to produce ethanol, means that in future years less carbon is absorbed from the atmosphere. Finally, the growing of sugar cane and maize, which are the main current sources of biofuel, significantly reduces soil fertility. For all these reasons, the UK government should think twice before promoting the use of biofuel.

► Wind energy

Wind turbines cost more to build than fossil-fuel burning power stations of similar capacity, but once built, as is the case with other renewables, wind energy does not require the purchase of fuel. As a result, the lack of future fuel costs significantly outweighs the extra initial investment cost. This means that wind energy is now commercially viable, without the need for subsidy, providing the 'wind potential' of a prospective site is adequate, and providing fossil fuel prices remain high. This means that wind energy can be supplied by markets.

Nevertheless, four problems have had to be overcome to make wind power attractive as a commercial venture which markets rather than the government can provide. These are: wind variability; turbine size; the cost of transporting electricity from Scotland, where the best sites are located to the main market in England; and 'eyesore' or visual pollution.

The problem of wind variability can be overcome by combining the provision of wind energy with hydropower. Significant technical improvement in the design of wind turbines has also helped to overcome the problem. The large wind turbines currently being built can generate energy even when wind speed is very low. Also, in future wind turbines will be located offshore where lack of wind is much less of a problem, particularly to the north west of the

British Isles. And on the basis that it is almost always windy somewhere, cheap methods of transporting electricity across the country, or indeed across Europe, can enable power to be produced continuously to meet demand.

However, this is impractical if the cost of transporting electricity is high. Because electricity leaks out of cables, transport costs increase the greater the distance between power generation and the consumer. But electricity leakage is much greater in alternative current (AC) cables currently used in the UK than in direct current (DC) cables. If a DC transmission grid is built (as has happened in Norway), it will be possible to transport wind-generated electricity commercially from one side of a continent to the other. It is also worth noting that wind power can be used to meet 'non-base-load' seasonal demand rather than 'base-load' demand. This basically means that as demand for electricity is greatest in cold and windy winters, wind-power can meet peak demand exactly when demand is greatest.

Despite the technical progress taking place that favours wind power, investment in wind power has been slow in the UK because of a proliferation of little local battles over planned developments. This is an example of the NIMBY (not in my backyard) problem. Arguably, people do not want unsightly wind turbines or power lines on their doorsteps. The pressure group *Highlands Before Pylons* campaigns against the aesthetic consequences from investing in wind turbines and the pylons required for long-distance transmission.

► Solar power

At present, electricity produced from solar power is at least two to three times as expensive as electricity produced from conventional sources. This means that solar power is not as yet a practical source of energy for power station companies. However, solar power, supplied from solar panels located on rooftops, is competitive when used to 'top-up' conventional energy used for central heating and water heating. Here, the main comparison when determining competitiveness is with the retail prices households have to pay for electricity and gas, rather than with the costs incurred by power companies in producing conventional energy.

Despite its geographical position and climate, the UK receives about half as much solar energy as many hotter and

sunnier countries. But while there is sufficient solar energy in the UK to provide for all the central heating and water heating requirements of well-designed dwellings, seasonal variations in availability make year-round solar heating impractical. Like wind power, solar energy is 'free' in the sense that no fuel is used, but relatively expensive compared to electricity produced from non-renewable fuels, though technological improvements are reducing the cost of solar installations relative to the energy produced. A solar-powered space and water heating system installed in a house takes about eight years to pay for itself, and this figure is falling.

Should the UK government promote the use of renewable energy?

There is of course a debate on the role of government in promoting the use of renewable fuels, but the debate is about the *extent* to which the government should be involved, and about the methods used to *encourage* or to *replace* markets, rather than on whether promotion itself should occur.

Two words, **depletion** and **degradation**, suggest why the UK government, and indeed all governments, *should* promote renewable energy. **Depletion** occurs when economic resources such as fossil fuels are used up in the course of production and/or consumption. By contrast, **degradation** refers to the adverse effects on other economic resources, such as the atmosphere, that occur when fossil fuels are burnt.

► Resource depletion

Of the three main non-renewable fossil fuels (coal, oil and natural gas) oil and to a lesser extent gas are closest to a level of depletion at which rising prices caused by scarcity have severe adverse effects on important economic activity. The threat, and indeed the inevitability, of growing shortages of oil and gas, therefore explain why governments must promote the use of renewable sources of energy. For the UK, this argument is backed up by the fact that most of the world's main reserves of oil and gas are located in other countries, particularly in the middle east and Russia. The UK government, together with the governments of other EU countries, believes that a growing proportion of total energy used in the country should be drawn from renewable sources located within

national frontiers, or in other friendly countries.

Renewable energy sources by contrast are not subject to resource depletion, and with the exception of biofuels, the energy is supplied 'free' or more or less free once the initial investment in capital equipment such as wind turbines, pylons and cables has taken place. (For those of you studying A2 economics, economists say that the **marginal cost** of supplying an extra unit of renewable energy is zero or close to zero.)

Drawing these arguments together, there is a case for the government promoting the use of renewable energy to ensure security of future energy supplies and to limit the adverse effects the economy would suffer if overseas producers of oil and gas suddenly withdraw supplies or hike up prices to unjustifiable levels.

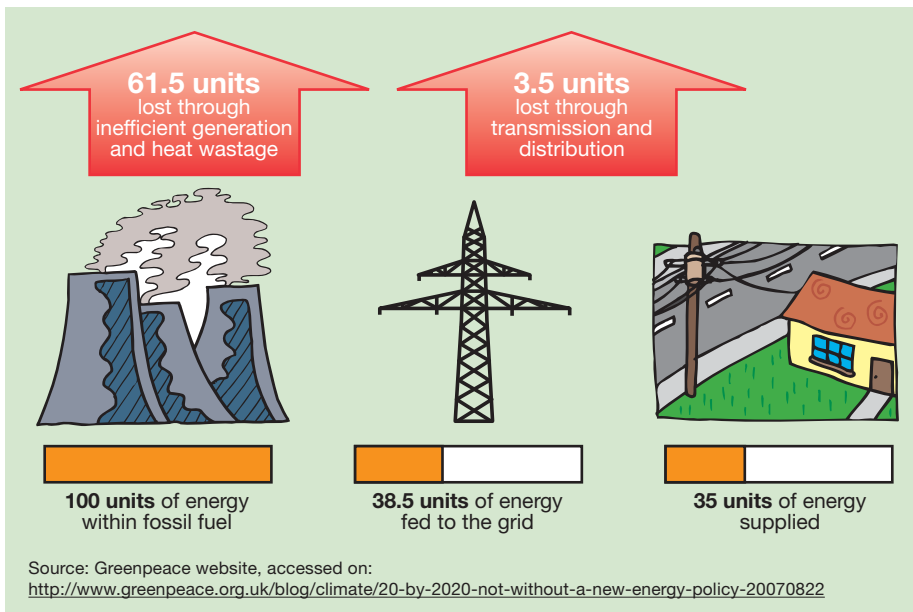
► Resource degradation

When non-renewable fossil fuels are burnt to supply energy, pollutants are released into the environment, and particularly into the atmosphere, that are having increasingly harmful effects on economic activity, peoples' health, and most worryingly, upon the ability to sustain human and other forms of life on planet Earth in future centuries (or possibly even decades). Virtually everybody these days is familiar with the term **global warming**, and with the possible adverse effects of global warming on climates, sea levels, ocean currents and desertification. The most important cause of global warming is the release of carbon into the atmosphere when fossil fuels are burnt.

In the language of economics, carbon and other pollutants such as sulphur are **negative externalities** or **economic costs**. Negative externalities provide one of the best-known examples of **market failure**. In the absence of government intervention through regulation and/or taxation, firms and households burn too much fossil fuel because the people burning the fuel bear to only a minor degree the cost of the pollution they generate. Most of the pollution is dumped into the atmosphere and the pollution costs are borne by other people (known to economists as **third parties**).

Carbon pollution in the atmosphere leads to global warming because some of the heat generated by the sun's rays is unable to radiate back into space,

Figure 5: Energy losses when electricity is produced from fossil fuel



instead becoming trapped within the atmosphere. Figure 5 illustrates another way in which the burning of fossil fuel for electricity generation contributes to global warming. As Figure 5 shows, producing electricity from fossil fuel is extremely inefficient because most of the latent energy contained in the fuel is released as heat which enters the atmosphere.

Conventional electricity generation is an example of nineteenth and early twentieth century technology. The technology reflected the relatively cheap prices of fossil fuels existent at the time, a lack of concern about the wasted energy disappearing up power station chimneys, and general ignorance of the harmful effects of the wasted heat and pollutants emitted into the atmosphere. But times have now changed, and we must forward to new technologies that do not have these adverse effects.

Economic theory and renewable energy policy

UK governments have almost always preferred 'market modification' to 'replacing the market'. An obvious way to modify the market for renewable energy is to subsidise renewables in order to close the gap between the cost of producing renewable energy and the price of energy produced from fossil fuels. Subsidising renewable energy can be justified by the fact that the **private cost** of producing energy from fossil fuel is much less than the true cost or **social cost**. This is because burning coal, gas and oil to produce energy unleashes massive **external costs** (or **negative**

externalities) in the form of environmental pollution.

But in many countries, particularly the USA, fossil fuels are themselves heavily subsidised. If fossil fuel subsidies are kept, it will require a huge subsidy for renewable fuel to get the *relative* prices right for both energy sources. But even if subsidising renewable energy achieves this outcome, **market failure** would still exist because the prices of *all* fuels would now be too low compared to the prices of other goods. Subsidising renewable fuels does not solve the problem of **resource misallocation**, when fossil fuels are also subsidised.

For this reason, many economists now urge governments to abolish *all* subsidies (which use up taxpayers' money) and rely instead solely on **taxing negative externalities**. Justified by the '**polluter must pay**' principle, high **carbon taxes** imposed on fossil fuels, rather than subsidies, should form the main plank of energy policy.

However, higher taxes are not politically popular, particularly in America. Partly for this reason, governments have chosen to create **markets in 'permits to pollute'** based on carbon **emissions trading**, in preference to imposing raw carbon taxes. A market in permits to pollute works in the following way. Energy companies able to reduce pollution by more than the law requires sell their 'spare' permits to other power stations, who, for technical or other reasons, decide not to, or cannot, reduce pollution below the maximum limit. The latter still comply with the law, even when exceeding the maximum

emission limit, because they buy the 'spare' permits sold by the former group of power stations. But in the long run, even power stations that find it difficult to comply with the law have an incentive to reduce pollution. By doing so, they avoid the extra costs that otherwise result from the requirement to buy pollution permits.

The European Union now operates a market in permits to pollute for carbon pollution. However, the EU market has been criticised for setting the pollution limit too high and granting too many pollution permits. Some argue that the main effect of the market has been to encourage rather than discourage pollution. The UK government operates a market-based system known as the Renewables Obligation (RO). Under the RO scheme, a fixed proportion of the electricity that power-distributing companies buy has to come from renewable sources. Electricity distributors (who for the most part sell electricity produced from fossil fuels) that fail to meet this obligation must put money into a 'pot' which is then shared among renewable energy providers. But critics argue that the RO system is too complex and uncertain, which has meant that a lot of planned renewable capacity has not actually been built. This is likely to mean that the UK will fail to meet the Government's target of producing 10% of electricity from renewable sources by 2010. Earlier this year, the Government's White Paper on Energy Policy promised a radical revision of the RO scheme, but as yet there are no details.

Questions for discussion

1. How can renewable energy contribute to the UK's energy needs and to national security?
2. Do you agree that government policy to promote renewable energy should modify rather than replace the market?
3. In what ways may renewable energy provide a solution to market failure in energy markets?
4. How relevant is the '*polluter must pay*' principle to renewable energy policy?
5. Compare carbon taxes and subsidising renewable energy as energy policies.
6. How useful are tradable pollution permits and Britain's Renewables Obligation in UK renewable energy policy?

Useful web sources

- ▶ Energy White Paper: Meeting the Energy Challenge, 2007: <http://www.dti.gov.uk/energy/whitepaper/page39534.html>
- ▶ UK Energy in Brief July 2007: <http://www.berr.gov.uk/files/file39881.pdf>
- ▶ Policy Frameworks for Renewables, the Carbon Trust, 2006: <http://www.carbontrust.co.uk/Publications/publicationdetail.htm?productid=CTC610>
- ▶ Cambridge Econometrics report on renewable energy, 2007: http://www.camecon.com/press_releases/uk_energy_environment.htm
- ▶ Renewable Energy, National Audit Office, 2005: http://www.nao.org.uk/publications/nao_reports/04-05/0405210es.pdf
- ▶ Shell Renewables website: <http://www.shell.com/home/content/rw-br>
- ▶ Greenpeace: <http://www.greenpeace.org.uk/climate/problems>
- ▶ Friends of the Earth: <http://www.foe.co.uk/campaigns/climate/resource/experts.html>

Summary of key points

- ▶ Renewable energy accounted for less than two per cent of Britain's total energy in 2006. Biofuels, wind and hydropower are the main current sources of renewable energy.
- ▶ Biofuels have two important disadvantages: they are not carbon neutral and they displace food production from agricultural land and raise food prices.
- ▶ Technical developments favour the growth of wind power, which is becoming increasingly commercially viable, providing fossil fuel prices remain high.
- ▶ Solar power is not currently important in electricity generation, but is viable at certain times of the year for water and central heating.
- ▶ Carbon taxes on fossil fuels are preferable to subsidies for renewables for encouraging the development, production and use of renewable energy.



with Chief Examiner,
Robert Nutter

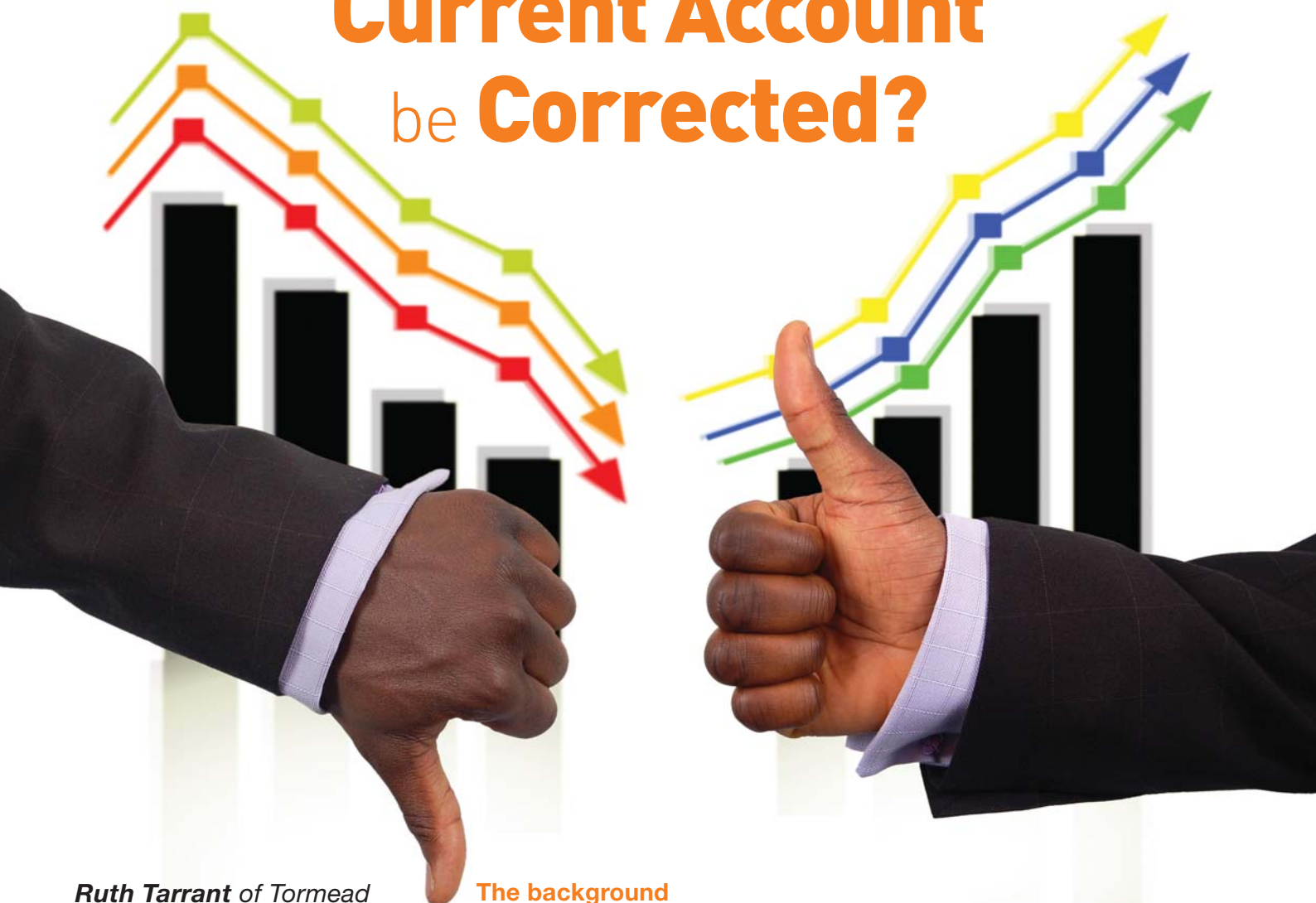
1. In 2007 Unity Power, the energy group, announced plans to open a coal mine in Wales. Investigate the reasons for this development.
<http://icwales.icnetwork.co.uk> www.guardian.co.uk <http://news.bbc.co.uk>
2. The Climate Change Levy was introduced in 2001 as an energy tax on business.
 - (a) Investigate the objectives of the tax and how it operates.
www.businesslink.gov.uk (search engine) <http://en.wikipedia.org>
 - (b) Research the way in which a business's climate change tax liability is calculated.
www.cclevy.com (use the link 'calculate')
3. The European Union Emissions Trading Scheme is about to enter its second phase running from 2008 to 2012. Investigate how the allocation scheme will work for this period.
<http://news.bbc.co.uk> <http://en.wikipedia.org>
<http://ec.europa.eu/environment/climat/emission.htm>

Volume and value, traded EU emissions in millions of tonnes of CO₂ and millions of euros

	2005		2006		2007*	
	Mt CO ₂	€m	Mt CO ₂	€m	Mt CO ₂	€m
Exchanges	262	5,400	817	14,575	1,550	15,903
Bilateral	100	1,818	200	3,568	200	2,600
Total	362	7,218	1,017	18,143	1,750	18,503

Note: The exchanges category includes both exchange-traded contracts and cleared OTC contracts. *Forecast Source:

How should a Deficit on the UK's Balance of Payments Current Account be Corrected?



Ruth Tarrant of Tormead School, Guildford, reviews possible approaches to reducing an external deficit.

The background

The UK has experienced a deficit on its Balance of Payments current account since 1984. Whilst the deficit at the moment is not as large (as a percentage of GDP) as it was in the late 1980s, many policy makers believe it is a cause for concern. This article will examine what is meant by a current account deficit, explain why a consistent deficit may be a cause for concern, and then evaluate a number of methods that could be used to correct the UK's deficit.

What is meant by a deficit on the current account?

The Balance of Payments is a record of a country's transactions with the rest of the world – a bit like a country's international bank account. It consists of three accounts. Elements included in the **current account** are the *balance of trade* which includes the value of exports and imports of goods and services, *transfer payments* (money transferred between governments) and

income payments (income paid to UK citizens abroad, either from work, or as dividends/returns on investment). The **financial account** measures transactions involving foreign currency reserves and investment (both by foreign companies investing in the UK, and UK companies investing abroad). Finally, the small **capital account** measures movements in capital between countries, and is often associated with migration.

Exam Board	AS	Unit	A2	Unit
AQA	✓	2	✓	6(15.4)
Edexcel	✓	3	✓	6
OCR	✓	2883	✓	2887 (5.7.4)
WEJC	✓	3	✓	6(B)
CCEA			✓	4
Int. Bacc.		Standard 4.5 and 4.7		

Table 1: Current account balances, £ millions, seasonally adjusted

Year	Trade in goods/services			Transfers			Current Account Balance
	Goods	Services	Total	Income	Central Gov't	Other	
2002	-47,705	16,830	-30,875	23,443	-5,633	-3,448	-16,513
2003	-48,607	19,162	-29,445	24,646	-6,976	-3,146	-14,921
2004	-60,893	25,918	-34,975	26,596	-8,304	-2,645	-19,328
2005	-68,676	24,611	-44,178	25,734	-9,429	-2,579	-30,452
2006	-83,631	29,194	-54,437	18,555	-9,583	-2,316	-47,781

Source: ONS www.statistics.gov.uk

A deficit occurs when the amount of money leaving a country exceeds the amount of money coming in. Note that we refer to *money* rather than *goods*. So, a deficit on the current account can arise in a number of ways. Firstly, the value of imports is high – goods are coming *into* the country and so money must be *leaving* the country in order to pay producers overseas. Conversely, the value of exports could be low – few goods are *leaving* the country, and so little money is coming *into* the country. Secondly, the government may be paying out more to other governments or institutions than it is receiving. Thirdly, there may be more payments to foreigners of income on investments made by them in the UK, than we are receiving from investments made by UK citizens/companies abroad.

Why do we have a deficit in the UK?

Let us look first at the trade in goods (or **visible trade**). Trade in goods has recorded a deficit virtually every year since 1900. This means that we import a greater value of goods than we export. Whilst the UK has exported oil since the 1970s, the income earned from this does not outweigh the considerable value of goods imported such as food and textiles. Table 1 shows that the deficit on the trade in goods is continuing to increase; this can be attributed to the rise of economies such as China and India, combined with de-industrialisation in the UK.

Trade in services (or **invisible trade**) shows the opposite pattern – we have a surplus on trade in services. The UK has a comparative advantage in financial services, such as insurance, and is highly competitive in areas such as consultancy. However, our strong performance in services is not enough to outweigh the significant deficit on the trade in goods. Table 1 shows that the

net value of services exported in 2006 is roughly one third of the net value of goods.

In terms of transfer payments, the UK government pays a considerable amount more money to the European Union than it receives back. Since more money leaves the country than enters the country, a deficit is therefore recorded. The final item – investment income – generally fluctuates more, but since 1999 has recorded a surplus, as past investments abroad provide a flow of income into the UK, although this surplus has recently begun to decrease.

The data in Table 1 show that the most significant factor causing the overall increasing current account deficit is clearly the deficit on trade in goods.

Should we be concerned with the current account deficit?

In terms of economics, today's news headlines tend to be more concerned with the rates of inflation, unemployment and interest than trade deficits. Trade

deficits, however, were big news in the 1960s. Under a floating exchange rate (which we have in the UK), the overall balance of payments must balance; this means that a deficit on the current account must be matched by surpluses on the financial and capital accounts. In other words, to fund the current account deficit, foreigners must be bringing money into the UK through purchasing UK assets. So, the stock of UK assets owned by foreigners must be increasing more quickly than the UK stock of overseas assets.

This may not necessarily initially seem to be a problem. However, assets held by foreigners, such as businesses, generate a flow of income for their owners, who then take this income out of the country; this withdrawal from the circular flow of income may cause recession and all the problems associated with it. In the short term, the current account deficit may not matter. But a persistent deficit certainly can cause problems.

The UK's deficit in visible trade is continuing to increase.



Figure 1: The effect of an expenditure reduction policy on the macroeconomic equilibrium, starting from a level of full employment with inflation

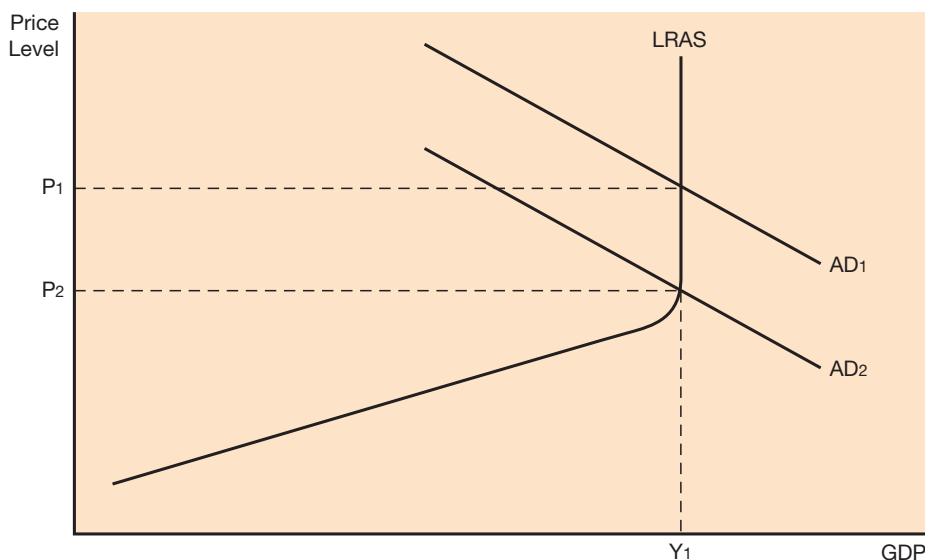
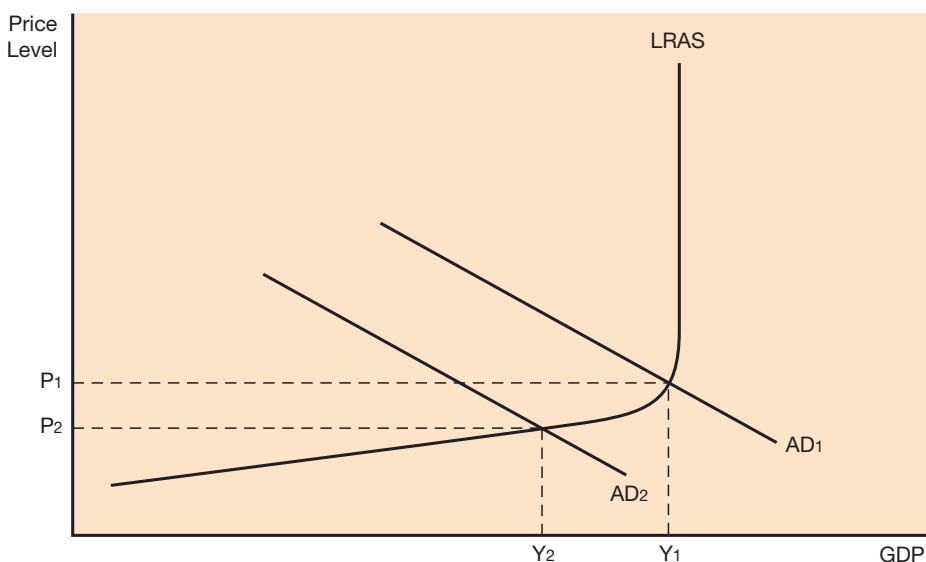


Figure 2: The effect of an expenditure reduction policy on the macroeconomic equilibrium, starting with an initial equilibrium of unemployment with low inflation



So how can the deficit be corrected?

There are a number of methods:

- ▶ managing demand in the UK economy (through expenditure-reducing or expenditure-switching policies)
- ▶ exchange rate adjustment
- ▶ supply side policies

We will look at each of these in turn, and evaluate their usefulness and effectiveness for the UK economy.

Managing demand:

▶ Expenditure-reducing policies

In the UK, we have a fairly high income elasticity of demand for imports. This means that as incomes rise, our demand for imports increases. Since UK average incomes have risen, demand for imports

has risen, and this is reflected by the deficit on the current account. So, the government could choose to reduce demand for imports.

One way of achieving this is through an **expenditure-reducing** policy. Expenditure-reducing policies require overall expenditure by UK consumers to be reduced. So, demand for imports falls, but so does demand for domestically produced goods. Governments can manipulate demand in this way by increasing taxation, or cutting back Government spending.

The effect of this is essentially **deflation** of the economy. The Aggregate Demand curve will shift left. Figures 1 and 2 show two different scenarios. In Figure 1, the expenditure reduction policy is actually rather helpful – the general level of prices falls, from P_1

to P_2 , and we remain roughly at full employment, with no change in the level of output at Y_1 . The expenditure-reducing policy has helped to cool down an overheating economy.

In Figure 2, however, the scenario is somewhat different. Expenditure has been reduced by the same amount as in Figure 1, but we have started from a different macroeconomic equilibrium. Expenditure reduction in this case causes the macroeconomic equilibrium to occur at a level well below that of full employment. Expenditure reduction in this case has caused unemployment, and the level of output has fallen from Y_1 to Y_2 . The objective of restoring a balance in the current account quite clearly conflicts with the UK government's policy objective of low unemployment. If workers are caught in long-term unemployment, their skill levels fall, and this reduces the long term productive capacity of the economy, limiting the potential for economic growth in the future. Furthermore, expenditure reduction through imposition of taxes may cause businesses to reduce their level of investment, again reducing the long term productive capacity of the economy. This may worsen the current account situation in the future, as we are unable to produce as many goods for export.

In the UK, governments are generally reluctant to use such expenditure reducing policies because of the impact on employment and growth prospects – expenditure reduction policies are only a short-term measure for correcting Balance of Payments deficits.

Managing demand:

▶ Expenditure-switching policies

Another method of reducing demand for imports is to use an **expenditure-switching** policy. Such a policy aims to reduce demand for imports by replacing it with demand for domestically produced goods.

The quickest way to switch the demand of consumers is to **impose tariffs and/or quotas** on imports. Tariffs, as a tax on imports, will raise the price of imported goods to consumers, therefore reducing demand for them, and increasing demand for home-produced products. This is shown in Figure 3.

There are a number of problems for the UK with using tariffs, however. Most importantly, as part of the European Single Market, the UK is not allowed to



Expenditure-switching policy aims to reduce demand for imports.

impose tariffs that are different from those used across the rest of the European Union, as we have a **Common External Tariff**. Secondly, even if we were able to impose tariffs, they generally result in some degree of **retaliation** by our trading partners who in turn impose tariffs on our exports – since this is likely to reduce demand for our exports, the current account deficit may not be corrected and may even be worsened!

Thirdly, the imposition of tariffs interferes with free trade. Free trade is beneficial for consumers in a number of

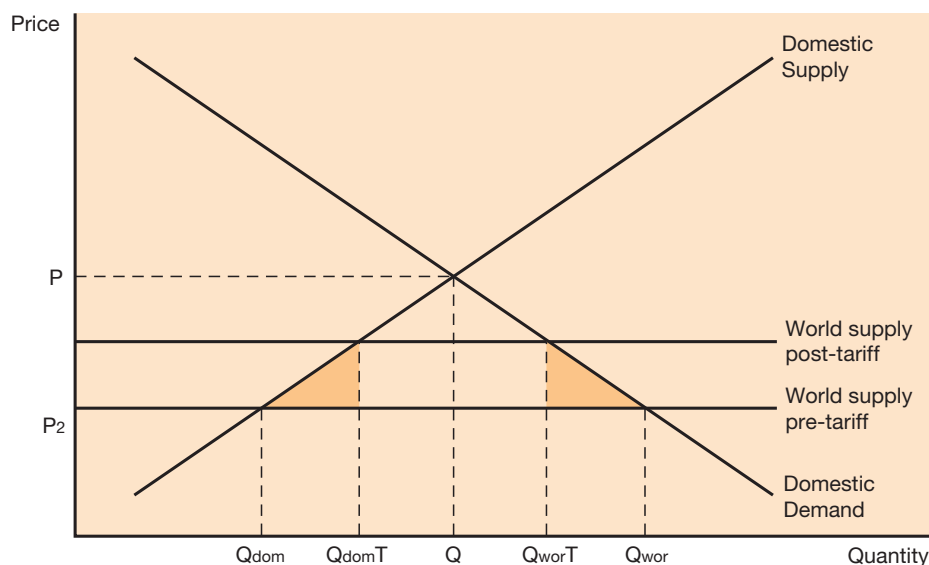
ways, as it allows us to purchase goods of a higher quality or goods that are differentiated in some way. If we are not able to access these goods, then consumers will be worse off if they have to buy lower quality products that are not exactly what they want. The fact that society is essentially worse off is indicated by the ‘**deadweight loss**’ in Figure 3 shown by the two shaded triangles. Quotas have a similar effect.

Finally, such a policy could be inflationary. If prices of imports rise as a result of a tax, then the prices that UK consumers pay in the shops will rise, and

this will be reflected in the CPI. In addition, reducing the level of imports and increasing demand for domestically produced goods will shift the Aggregate Demand curve for the UK outwards, i.e. the opposite effect of an expenditure reducing policy. This movement will add to inflationary pressures, particularly if the UK is already close to its full employment level of income. This is indicated in Figure 4.

So, expenditure-switching policies are not a feasible option for the UK to pursue in order to correct the deficit on the current account. They are illegal, in terms of our commitment to the EU, and are likely to be inflationary. Achieving a balance on the current account through this method clearly conflicts with the government’s macroeconomic objective of low inflation.

Figure 3: The effect of a tariff on imports



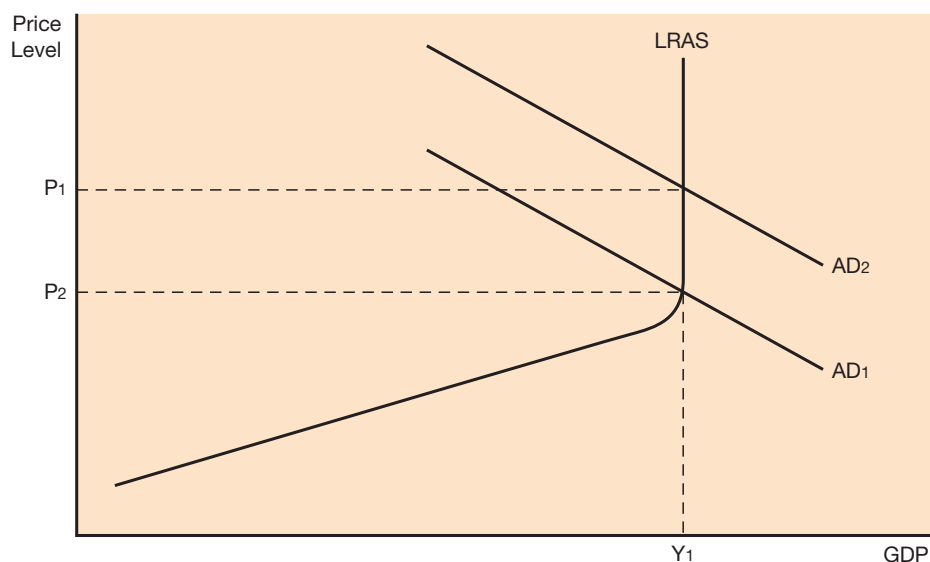
Before the tariff, Q_{dom} is the amount supplied by domestic producers, and the difference between Q_{dom} and Q_{wor} is the amount imported. After the tariff is imposed, the amount supplied by domestic producers rises to Q_{domT} , and the amount imported falls, to the difference between Q_{domT} and Q_{worT} .

Exchange rate adjustment

Altering the relative price of goods traded between countries is the second method that might help correct a deficit. There are two factors which affect the price of our exports relative to imports, or our competitiveness: the cost of production of our exports and the exchange rate. So, if the exchange rate changes, then the prices of exports and imports changes.

In the UK, we have a floating exchange rate, which means that the price of the pound is determined by the forces of demand and supply. If the exchange rate

Figure 4: The effect of an expenditure-switching policy on the macroeconomic equilibrium



appreciates, then this means that the pound becomes more expensive for people overseas. So, UK goods/services become more expensive, and so demand for exports falls. At the same time, the price of foreign goods/services becomes cheaper, and so demand for imports increases. The opposite occurs with a *depreciation* of the exchange rate.

For several years now, many economists have considered Sterling to be the world's strongest currency. This means that the value of the pound is very high – consequently, our exports are expensive and imports are cheap. So, the strength of the pound is likely to be an important reason for the current account deficit.

This means that a depreciation of Sterling could lead to an improvement in the current account. However, we shall

now investigate why this is a rather risky strategy.

Firstly, and theoretically, we need further information to help us decide whether devaluation would actually result in an improvement in the current account. Let us imagine that demand for our exports is relatively price inelastic. If the price falls as a result of a depreciation, then the *earnings* from export of that good would actually fall. If at the same time, imports are also relatively price inelastic, then even though demand for imports would fall as a result of the price increase, the *value* of imports would actually increase. A combination of these two factors would *worsen* the current account deficit! The only way in which a depreciation can result in an improvement in the current account is if the sum of elasticities of

imports and exports is greater than one. This result is known as the **Marshall-Lerner Condition**.

Secondly, should the Marshall-Lerner Condition hold, then we would need to be aware of the **J-Curve Effect**. This empirical theory tells us that following a depreciation (or a devaluation in the case of a fixed exchange rate), the deficit will initially worsen before it improves. This is caused by *time lags*. For example, businesses tend to be tied into contracts in order to reduce risk and uncertainty in the market. These contracts usually specify the prices which will be paid, and are usually specified in the local currency. So, should Sterling depreciate, which would make imports more expensive, British businesses may still have to buy the same quantities of goods from abroad as they were before the depreciation, thus *increasing* the value of imports in the short run, before contracts can be adjusted.

Should the UK government be satisfied that the Marshall-Lerner Condition applies, they could choose to get involved in a 'dirty float', and increase their foreign currency reserves (which increases the supply of Sterling) in order to 'help' the pound to depreciate. However, the UK government is committed to free market determination of the pound's exchange rate, and so they are unable to intervene in the market in this way in order to manipulate the exchange rate. An alternative measure would be for the Bank of England to reduce the interest rate, thus reducing demand for the pound, as investors look to other countries that provide a higher return. However, a lower interest rate would stimulate Aggregate Demand within the UK, and result in inflation. The focus of the Bank of England's Monetary Policy Committee is use of the interest rate *solely* to influence the rate of inflation, and has nothing to do with manipulation of the interest rate for maintaining balance on the current account.

So again, this approach to correcting a Balance of Payments deficit is not really feasible in the UK economy at the moment, as it would likely conflict with our inflation target.

Supply-side policies

This is the third potential method of correcting a deficit. As mentioned earlier, there are two factors to consider when thinking about the competitiveness of UK exports – the cost of production and the exchange rate. We have now ruled

Training and education have been important supply-side policies.



out the use of the exchange rate as a means of correcting the current account deficit, but what about trying to affect the costs of production?

Reducing production costs, and improving the quality of UK-made goods and services, will improve the competitiveness of the UK economy. The most sustainable way of achieving this is through supply-side policies. Supply-side policies are those policies which aim to affect the quantity and/or quality of the factors of production available to us. They have the effect of shifting the Aggregate Supply curve outwards, thus increasing the capacity of the UK economy to grow without having inflationary consequences.¹

The British government has, since Mrs Thatcher's days, been active in improving the supply-side of the economy. Corporation taxes (taxes on the profits of businesses) have been reduced, in order to encourage businesses to expand and develop new techniques and products. Education and training have been emphasised again and again, with the setting of numeracy and literacy targets for both children at school and adults, as well as a whole host of other measures. Flexible working, including encouragement of part-time working, has been introduced as a right. Foreign Direct Investment has been actively encouraged, so that companies from overseas may share good practice and efficient production techniques with us.

Improving the supply-side of the economy will not only help to bring the UK's current account back into balance, it should reduce unemployment through the creation of new employment opportunities. It allows economic growth. It also reduces the potential for inflation. All of the government's core macro-economic objectives can be achieved.

Conclusion

There are a number of methods that could be used to correct the UK's deficit on the current account. However, all methods, apart from supply-side policies, result in a worsening of the other macroeconomic objectives. It is for this reason that supply side policies have been chosen as the best means for helping to tackle the current account deficit in the UK, despite their costs.

1. See an earlier article in *Economics Today* by Ray Cobb, 'To what extent have supply side policies reduced unemployment in the UK?', January 2006, Vol. 13, No. 3, pp.22-25.

Questions for discussion

1. What factors are likely to lead to an increase in the deficit on the current account?
2. Is it necessary to correct a deficit on the balance of payments' current account?
3. Is a surplus on the current account better than running a deficit?
4. What might be the significance for the UK economy of an increase in the size of the current account?

Summary of key points

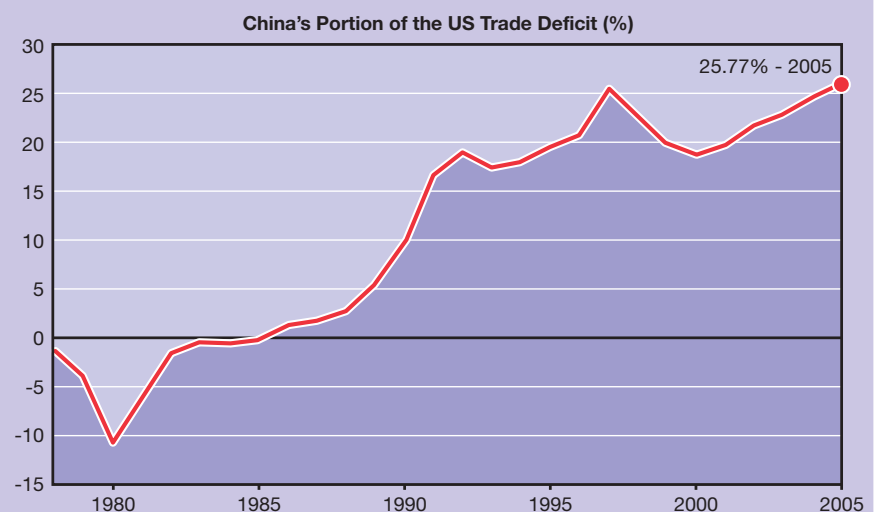
- ▶ The current account is the largest component of the balance of payments, and has been in deficit for many years.
- ▶ Persistent current account deficits can cause problems for the economy in the future, as money flows overseas.
- ▶ Demand management policies for correcting the current account deficit include expenditure-reducing and expenditure-switching policies, but these can have an adverse knock-on effect on the achievement of the government's other macroeconomic objectives.
- ▶ Exchange-rate adjustment is another way of correcting a current account deficit, but this is not a feasible option for the UK because of our floating exchange rate.
- ▶ The use of supply-side policies is considered a more appropriate way of correcting the deficit because it allows all other macroeconomic objectives to be achieved, although the cost may be high.



with Chief Examiner,
Robert Nutter

1. Investigate whether the UK has a structural deficit on its balance of payments current account and the extent to which deindustrialisation in the last 25 years has contributed to it.
2. The trade deficit in the US has been over 5.5% of GDP in recent years. Investigate the role of China in this problem.

<http://news.bbc.co.uk>



3. Research the role of the International Monetary Fund (IMF) in dealing with countries' balance of payments current account deficits. Visit <http://www.imf.org> and access the link: 'What the IMF does'.



The Rapid Growth of Music Downloads

Peter Cramp, of Nottingham High School, discusses the recent phenomenon of music downloads.



Digital music sales, downloaded from the internet to the purchaser's computer, grew from 5.5% of the UK's music industry's sales in 2005 to 10% in 2006. In some sectors, the majority of sales are now downloads. This is most notably the case in the market for singles where in 2006 there were 51.6 million downloads compared to 15.4 million CD sales.

MP3 players drive sales of downloaded music

A major driver of download music sales has been the popularity of MP3 players, such as iPods. Music downloaded to a computer is easily transferred to the hard drive of an MP3 player, offering the user the convenience (utility) of carrying a large amount of music on a portable device. Economically, MP3 players and download music are complements to each other. The popularity of MP3 players is illustrated by the fact that they, along with peripherals such as docking stations and carrying cases, now account for 25 pages of the Argos catalogue!

The market for MP3 players is dominated by the iPod, produced by Apple. Launched in October 2001, in excess of 80 million units had been sold by the end of the first quarter of 2007. Estimates of its market share vary, but it is generally thought to be around 70%. The reasons for this dominance include the iPod's early launch, allowing it to become established before rivals even had their products on the market. It also has advantages over some of its competitors, with users finding its 'clickwheel' particularly convenient. However, a large part of its success could be attributed to its

sleek design and the image associated with the product.

Although the market for MP3 players appears highly competitive, with plenty of choice available, Apple may have a considerable amount of monopoly power through the iPod. Consumers may be willing to pay more for the iPod than other MP3 players with similar characteristics simply because the iPod is *the* MP3 player to be seen with. But Apple must be careful not to over-exploit this as too high a price could see consumers turn to substitutes such as Creative's Zen or Microsoft's Zune, billed as an attempt to find an 'iPod killer'.

The pricing of download music

The market leader is Apple's iTunes, enjoying over half of the UK market, largely because of the high degree of compatibility of its Software with the iPod. Napster is the nearest challenger to iTunes with a market share of around 10% and there are numerous providers with small market shares. Prices for music downloads are low, typically 79p for a single song from iTunes, or £7.99 for a complete album. There are a number of possible reasons for this:

- ▶ The costs of providing downloads are much lower than those of selling CDs from a 'bricks and mortar' store. The fixed costs of maintaining a website are much lower than renting and running premises in prime high street locations. It is also true that the marginal cost of providing an additional download of a song from a website is negligible with the exception of royalties and fees dues to the artist and the music company.

- ▶ There are a number of download sites all selling the same songs, so there is a high degree of substitutability. The products of different download providers are broadly homogenous. Any firm charging a significantly higher price than other download providers would be unlikely to win much business, as there is a high cross price elasticity of demand between the products of different providers.
- ▶ If legal downloads carried a high price, it is likely that users would resort to illegal sites and file sharing. This is a particular problem for download providers and the music industry in general because digital music files can so easily be transferred from one computer to another. If the price of a legal download exceeds the value placed by the user on buying the music legitimately rather than enjoying the same song illegally for nothing, then potential sales are lost.
- ▶ Apple makes little or no profit from iTunes, using the low price of music downloads to help boost demand for the iPod. Other download sites cannot afford to charge significantly higher prices than iTunes.

Downloaded music hits CD sales

The growth of the download music market means an uncertain future for the main substitute to digital music, the CD. The volume of CD sales in the UK declined by 2.5% in the first half of 2006, (see Figure 1). However, for the moment the CD remains the dominant format, at

least for album sales. Possible reasons include:

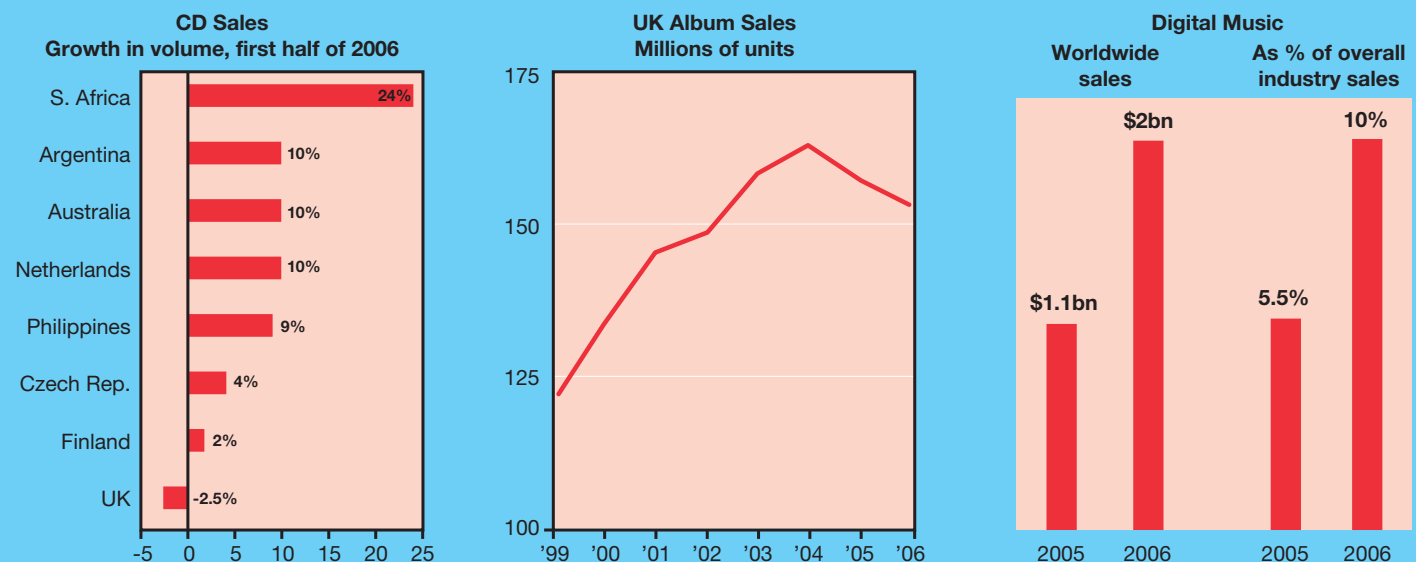
- ▶ Cheap downloads have put downward pressure on the price of CDs, making them more affordable.
- ▶ Further downward pressure on CD prices has been exerted by super-markets and internet sales of CDs.
- ▶ Older buyers tend to prefer CDs.
- ▶ Even amongst 16-24 year olds, survey data suggests that 58% choose the CD as their preferred format, for reasons including that CDs can be used in many different music systems and that they like lyric sheets and cover art.
- ▶ Music labels are finding ways to package CDs in more attractive ways, for example by selling in box sets or the inclusion of bonus tracks.

Despite this, Mark Mulligan at Jupiter Research has forecasted a decline in the market for CDs of five per cent a year for the next five years. Accurate forecasts are notoriously difficult to make, however. In the mid-1990s some analysts were forecasting that there would be no CD factories in operation by 2006!

Conclusion

Download music sales look set to enjoy continued growth as more people become comfortable with purchasing music in this way and the market for MP3 players looks far from saturated. Some analysts forecast that total sales of iPods will reach 500 million (another 400 million sales) before this point is reached. In turn, IoS research suggests that digital music sales will account for 25% of the UK music market by 2010.

Figure 1



Source: N. Fildes, 'How music majors plan to breathe life back into the CD after its digital death', *The Independent*, 19 January 2007.



George Buckley,
UK economist at
Deutsche Bank
examines recent
monetary conditions.

How Tight are Monetary Conditions?



Introduction

Economists often talk about changes in 'monetary conditions', but what exactly do we mean by this? Generally speaking, what we are talking about is how interest rates and the exchange rate act together to affect the economy – the idea being that higher interest rates and an appreciating currency both have a negative impact on growth (and vice versa).

There seems little doubt that monetary conditions have become tighter – or more restrictive – in the UK recently. The Bank of England's official interest rate has risen from 4.50% to 5.75% since the middle of 2006, while the 'effective' exchange rate (i.e. what sterling is worth against a basket of other currencies) has risen too, by about 7% since early 2006.

Moreover, at the time of writing, financial market interest rates (at which banks borrow from, and lend to, each other) have risen even more than the official Bank of England rate, mainly because of concerns that commercial banks may be exposed to losses from holding risky assets (in particular US low quality – or sub-prime – mortgage debt). This implies that we have seen an even sharper tightening in monetary conditions than would be suggested by looking at the Bank of England's official rate alone.

Financial conditions indices also include assets such as house prices.



Putting it into a single number

First of all, how exactly do interest and exchange rates impact on the economy? Inflation-targeting central banks set interest rates to affect the balance of aggregate demand, relative to supply, which then affects inflation. Interest rate changes impact on demand directly (albeit with lags), but as we suggested above their level tells us only part of the story about the tightness of overall 'monetary conditions'. In particular, movements in the exchange rate (which, of course, are also affected by interest rate changes relative to those in the rest of the world) affect the demand for both exports and imports, so it is important to consider the currency when evaluating the tightness of current conditions.

The need to account for both interest and exchange rates in judging the degree of monetary tightness (or looseness) has been addressed by the use of monetary conditions indices, or MCIs. The concept is simple: we are attempting to capture – in a single number – monetary conditions in the economy. The way we do it is to apply weights to interest and exchange rates reflecting their relative importance in affecting economic growth and inflation.

While assessing MCIs is fraught with difficulty, they can be informative, if used with care, in telling us something about the stance of monetary policy. They can

prove a useful tool in an economy such as the UK's, which is particularly open to world trade (exports from, and imports to, the UK each account for around a third of total GDP).

We can even go one step further. *Financial conditions indices*, or FCIs, not only include interest and exchange rates, but also other asset prices – such as share and house prices. Higher equity and real estate prices should have the opposite effect on financial conditions to rising interest and exchange rates because as they rise, conditions become better – households have more available resources at their disposal when house prices or stock markets are higher.

Given the rise in equity and house prices over the past year one would expect this broader *financial conditions index* to be looser than its *monetary conditions equivalent* – and as we will see later that is indeed the case.

The relative importance of interest and exchange rates

The first question on your mind right now is probably – how do we determine the relative importance of interest rates and the exchange rate in this single number reflecting monetary conditions? That is, how do we choose the weights for an MCI?

While the Bank of England does not publish an MCI, some central banks

have done so in the past. So, to begin with, it is worthwhile considering the weights that these institutions have selected. For the New Zealand economy, for example, the Reserve Bank has used relative weights of 2:1 on interest rates and the exchange rate respectively, while for Canada the Bank of Canada has suggested a ratio of 3:1.

What does this mean? It means that for Canada, a *one percentage point* increase in interest rates should have the same effect on the economy as a *three percent* appreciation of the currency. Whereas in New Zealand, the central bank thinks that a *one percentage point* increase in interest rates will have the same impact on growth and inflation as a two percent appreciation of the currency.

Both of these weightings would probably place too much importance on the exchange rate in the case of the UK, even though the UK operates a significantly open economy. So how do we go about determining the relative importance of interest rates and exchange rates for the UK, or any economy for that matter?

There are a number of ways to do this, but let's keep things simple – all we need to know is that they are based on (often highly sophisticated) models of the economy which attempt to estimate how much growth and inflation change when interest rates and exchange rates move.

What do conditions look like in the UK?

For the mathematicians among us, what does an MCI look like as an equation? And before the non-mathematicians among us decide to skip this bit, we promise to make it really easy!

$$\text{MCI} = \alpha r + (1 - \alpha)x$$

What this says is exactly what we've been suggesting in the text above – just that the MCI is a weighted average of interest rates (r) and the exchange rate (x), where α is the weight (as a proportion) on the interest rate, and $(1 - \alpha)$ is the weight on the exchange rate.¹ Interest rates tend to have the larger effect on the economy so we would usually expect to find, for most economies, that α is somewhat larger than 0.5.

OK, enough of the math – let's now plot the MCI in a chart. The way we do this is to show it as a percentage difference from its long-run average (or neutral) level. When the line is above zero, it tells us that the interest rate-exchange rate combination is 'restrictive' (policy is 'tight') – that is, all other things being equal, it will encourage growth to fall below its trend rate and inflation below its target – and when it is below zero it is 'accommodative' (policy is 'loose') which should eventually generate growth above trend, and inflation above target.

We said earlier that there's a bit of a science to selecting the appropriate weights, or level of importance, for interest rates and the exchange rate in a monetary conditions index. The most commonly used weights for the UK economy are 4:1 – in other words, a one

percentage point increase in interest rates should have the same effect on the economy as a four percent appreciation of the currency.

Let's illustrate this with an example. Another way we can recreate the negative effects on economic growth and inflation of a 4% rise in sterling (say from 1.47 to 1.53 against the euro, and from 2.03 to 2.11 against the US dollar) would be for the Bank of England to raise interest rates from their current level of 5.75% to 6.75%.

This 4:1 rule is shown as the line in Figure 1. Even if a range of ratios were used from 2:1 to 10:1 the lines turn out to be very similar to the line shown, however much weight we place on the exchange rate relative to the interest rate. Why is this so? The reason is simply that the exchange rate (against a basket of other currencies) has been relatively stable over the past decade.² So making exchange rates a more important component of the index does not make as much of a difference as it would if the currency were extremely volatile.

The current level of the MCI looks to be broadly around the neutral (or average) level, according to the chart, after having been accommodative (or below average) over the past two years. Basically, what happened was that between mid-2004 and mid-2006 policy became accommodative as the Bank of England reacted to weaker growth and inflation by cutting interest rates. That then helped the economy, encouraging economic growth and inflation to rise. In response to this renewed strength, the Bank then raised interest rates from mid-2006 onwards, which helped cause the

exchange rate to appreciate and overall conditions to tighten.

Criticisms of using monetary conditions indices

MCIs – despite their name – are by no means perfect guides to the state of monetary conditions in an economy. Indeed, it is well known that the current Governor of the Bank of England – Mervyn King – is particularly sceptical of using such 'rules of thumb'. So, what are some of the problems with using monetary conditions indices?

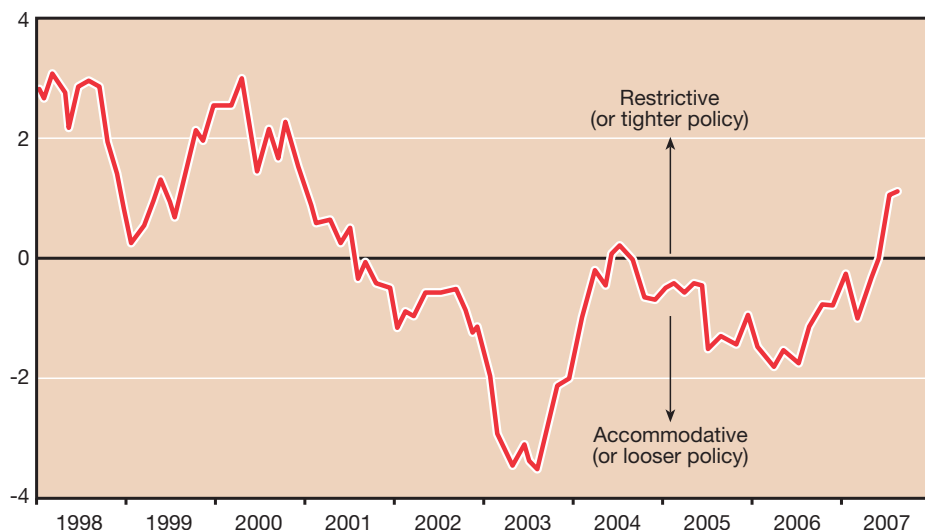
First, choosing how important we make the interest rate and the exchange rate is far from an exact science. Even though we said that different weights give broadly similar results, sometimes the deviation can be large. In other words, there are occasions during which, if we selected the wrong weights, we could have been significantly wrong about how loose or tight conditions actually were in the economy.

Second, we know that changes in interest rates and the exchange rate do not affect the economy instantaneously. Rather, it takes time for economic agents to respond to changing conditions. This is what economists refer to as the *transmission mechanism* of monetary policy. Importantly, the impact on the real economy of a change today in interest rates and the exchange rate may not occur at the same time as each other in the future. So aggregating the two rates into a single index may be somewhat misleading.

Third, an important consideration is which interest rate we should use in the MCI. Should we use short-term interest rates, such as the Bank of England's official rate or the rate at which banks will lend to each other overnight, or should we use longer term market rates such as households' two-year fixed mortgage interest rates (the most popular mortgage product on the market?)

This has become more of an issue recently as banks have become less willing to lend for short periods of time, thus driving up overnight to three-month

Figure 1: Monetary conditions have become tighter



Source: DB Global Markets Research, ONS, BBG, Haver, IMF, OECD, EC

1. In the equation interest rates and exchange rates are specified in real terms (i.e. after accounting for inflation) and as differences from their long-run average, or 'neutral', levels.

2. The levels might look a little different to those presented in the previous chart because this is specified in *nominal* terms – i.e. we have not accounted for changes in inflation, unlike before. The relatively short time scale of this chart means that it is not as important to remove the effects of inflation as when we are looking over long periods of time, because inflation tends to be relatively stable over short periods.

market interest rates (relative to longer-term rates and the Bank of England's official interest rate). This is all due to US sub-prime problems – the fact that some banks hold riskier mortgage assets has reduced the willingness of financial institutions to lend to each other without increased compensation for the risk they are taking – i.e. higher interest rates.

In the chart of our monetary conditions indicator above we have used three-month inter-bank rates. But let's now take a look at how the recent divergence in market interest rates of differing maturities alters our MCI. The credit crunch in the financial markets has affected our MCI and it now makes a more material difference which interest rate we use. Using one-month and three-month rates, monetary conditions have become tighter. But using longer-term rates conditions have become slightly looser.

So, which interest rate should we be looking at to judge overall monetary conditions? The dependency of households on shorter borrowing rates in the UK than, say, the US or (particularly) the euro area suggests the use of a shorter rate, although it is worth bearing in mind the rise in popularity of fixed rate mortgage loans over recent years should help postpone some of the effects of monetary tightening.

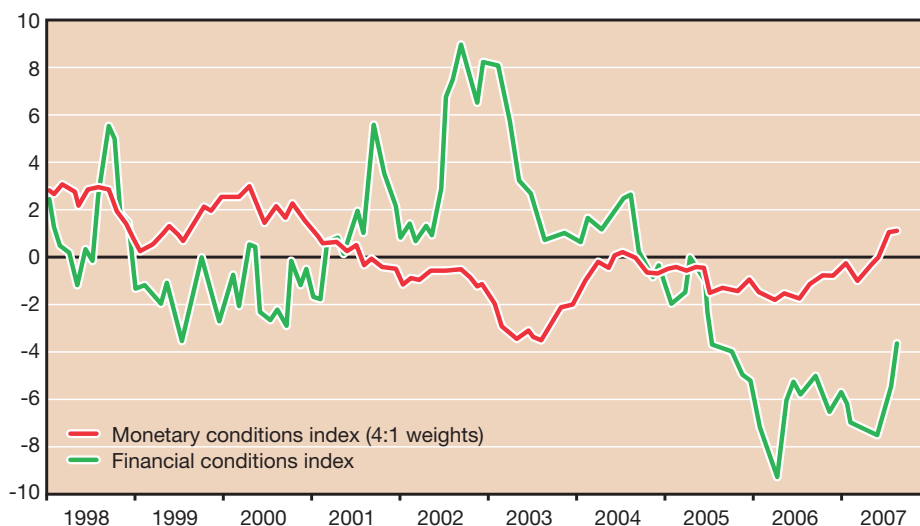
A final criticism of using MCIs is that it is important to establish the determinants of exchange rate movements in order to correctly interpret shifts in the MCI. For example, were the exchange rate to remain unchanged following a surprise rise in interest rates, then the actual tightening in monetary conditions might be less sharp than the central bank would have anticipated ahead of the move.

Financial conditions

As we mentioned above, we can add asset prices, such as equity and house prices, to our monetary conditions index to create a financial conditions index (FCI). What this says is that it is not just the interest and exchange rate that are important in determining monetary conditions – but rather asset prices too, such as the price of houses and equities.

Figure 2 shows what an FCI in the UK might look like. It shows that conditions are currently loose (i.e. the line is below zero) because of the strong rises in real equity and house prices over recent years. Basically, increased wealth accruing to households has more than

Figure 2: A comparison with financial conditions



Source: DB Global Markets Research, ONS, BBG, Haver, IMF, EC, Halifax

offset the negative impact on their disposable incomes as a result of higher interest rates.

There is even more criticism about the use of a financial conditions index. The reasons we might be more suspicious about the FCI include the following: (i) housing is an illiquid asset, and in addition borrowing against the value of one's house in recent years seems not to have been used to support consumption as much as in previous housing booms; this raises questions about the usefulness of including house prices in the index; (ii) asset prices are affected by interest rates, which also appear in our FCI (although that 'double counting' argument was used with respect to the currency); (iii) a large portion of equities held by the household sector are not held directly but are in pension funds, which again are illiquid – price rises here may thus not be a good guide to current financial conditions; (iv) it is more difficult to look at house and share prices relative to their long-run averages, because they tend to rise over time.

Conclusions

The construction of monetary and financial conditions indices recognises the importance of not only interest rates but also the exchange rate and asset prices in influencing 'monetary conditions'.

The reason that these indices are so popular among financial commentators is that they represent simple rules of thumb of how, relatively speaking, changes in various financial markets impact on economic growth and inflation. But rules of thumb must always be interpreted with care, particularly

given that the *events* that might cause interest and exchange rates to move can be just as important in impacting aggregate demand as the *movements themselves*.

As a result of the tightening in monetary conditions over the past year, and with households seemingly more sensitive to changes in interest rates now than in the past, we suspect that the Bank of England has reached the top of its tightening cycle.

Taking a year off before university?

Deutsche Bank has two vacancies for research assistants to work for six-month periods within its Emerging Markets Research team in London. The positions run from July 2008 - January 2009 and from January - July 2009.

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Closing date: Friday 4th January 2008



How does UK Economic Performance affect the Government's Budget Deficit or Surplus?

Andrew Threadgould, Head of Economics and Business, Dulwich College, discusses how the state of the economic cycle influences both the level of tax revenue and of government spending.

Exam Board	AS	Unit	A2	Unit
AQA			✓	6(15.3)
Edexcel			✓	6
OCR			✓	2887 (5.7.2)
WEJC	✓	3(B)		
CCEA			✓	6
Int. Bacc.	Standard 3			

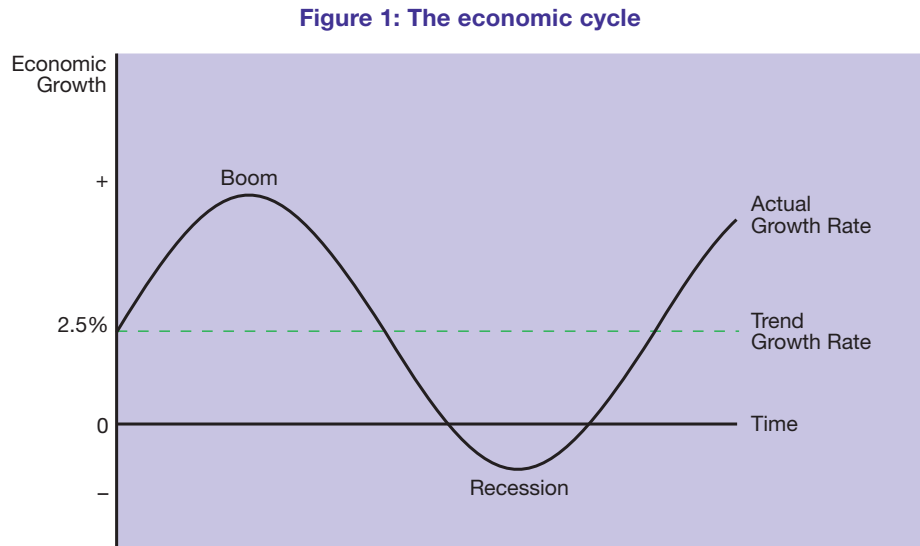
Strong performance in the macroeconomy can be summarised by movements in the key indicators of GDP growth, unemployment and inflation. A strong economy will grow at a sustainable rate and enjoy both low inflation and low unemployment. Economic growth is the rate at which the total output, income and expenditure in the economy increases, expressed as an annual change. Historically, the UK economy has grown at an average rate of approximately 2.5% per year, but in most years actual growth will be higher or lower than this. This fluctuation in economic growth (the economic cycle) has a major impact on the government budget.

In a boom the economy is growing by more than the trend rate. Output and incomes are rising and both households and firms increase expenditure. This reduces unemployment as firms demand more factors of production (including labour) to meet the extra demand. However, higher demand may push prices upwards, causing both demand-pull and cost-push inflation. Demand-pull inflation arises as the demand for goods and services increases above the productive capacity of firms; the resulting shortage leads to higher prices. In addition, as unemployment falls it becomes more difficult for firms to find suitably skilled and available workers, and thus wage costs must increase to recruit and retain workers.

Differing levels of economic growth have a major influence on the government's financial position. Governments perform two main functions in the economy: they raise revenue and they spend. In the UK this is the responsibility of the Treasury. The government raises revenue through taxation and borrowing, and this revenue is used to fund spending. This can be expressed in the formula:

$$\text{Government Spending (G)} = \text{Tax Revenue (T)} + \text{Borrowing (B)}$$

Spending and taxation are easily understood but what is meant by borrowing? Borrowing occurs when the government issues bonds. Bonds are an IOU: a promise to repay a certain amount of money at a fixed date in the future. The government can sell bonds to households, firms, banks and investors, both in the domestic economy and abroad. Total borrowing at any point in time is called the National Debt: the outstanding loans represented by



previous bond issues which await redemption.

The relative level of government spending to taxation is called the budget position. When government spending equals tax revenue (and borrowing is therefore zero) the budget is in balance. When spending is lower than tax revenue the budget is in surplus, thus borrowing is unnecessary and the Treasury may actually reduce borrowing by buying back bonds, or save funds for years when the budget is in deficit. A deficit occurs when tax revenue is lower than spending, and the government must issue bonds (or draw on previous surpluses) to fund the shortfall.

The budget position changes due to two main factors:

Firstly, changes in the level of economic activity will affect the amount of tax revenue collected and the spending commitments of the government; this occurs as a normal function of economic activity and is called **fiscal drag** or **automatic stabilisers**. Secondly, the government may choose to respond to

changes in the economy using fiscal policy; since fiscal policy involves the use of taxes and spending, this has a direct impact on the budget position. This is called **active** or **discretionary fiscal policy**.

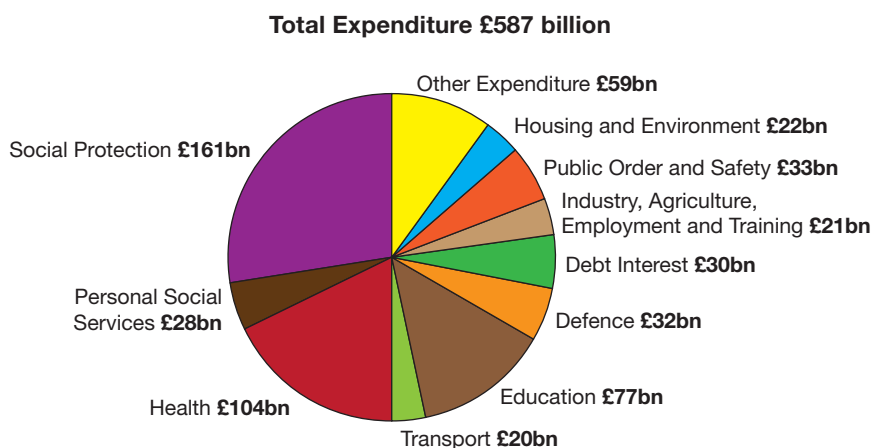
Taxes are levied on three main measures: income, expenditure and wealth.

Income tax is the main source of tax revenue in the UK. Most households contribute tax through the PAYE (Pay As You Earn) system where income tax and national insurance are deducted at source by the Inland Revenue. Current marginal income tax rates are shown in Table 1.

Table 1: UK Income Tax

Bands of taxable income	2007-08 Rate of tax
£	%
1-2,230	10
2,231-34,600	22
Over 34,600	40

Figure 2: Government spending



Source: HM Treasury, Budget 2007 Summary Leaflet.

Note that the tax rate increases for higher incomes. Thus higher income households pay both more tax and a higher proportion of their income as tax. This is called a progressive tax system.

VAT is an example of a sales tax: a tax on expenditure. VAT is levied on most household goods and the tax (currently 17.5%) is included in the price of these goods in the UK (readers who have been to the USA will have noticed that sales taxes there are added at the till). Taxes on expenditure are also called indirect taxes because they can be avoided by not consuming taxable goods and services. Certain goods (usually 'demerit' goods such as alcohol, tobacco and fuels such as petrol) and some imports may also be taxed in this way. One issue with expenditure taxes is they are often regressive. This means that, unlike with a progressive system such as income tax bands, a higher income household may actually pay a lower proportion of their income as tax. An example is alcohol, where two households may both consume, say, five bottles of wine per month. Both households will pay the same alcohol duty (assuming they buy the same wine!) but if one household has a higher income, the tax burden falls more heavily on the lower income household.

It is important here to distinguish between income and wealth. Income refers to a flow of funds over a period of time (e.g. a salary per year, a wage per hour); wealth is a stock. *Ceteris paribus*, as incomes rise it can be expected that wealth will increase in the economy. Wealth is the value, at a point in time, of all assets owned by a household or a firm. In the UK, households hold wealth related to financial assets (savings, bonds, shares, pensions), property (positive equity in the main home and, possibly, other properties) and other non-financial assets (consumer durables such as cars, furniture, art and antiques). In the UK, these assets are usually taxed when they are sold. Main homes are not subject to capital gains tax (basically, a tax on 'profit' made by a household rather than a firm) but second homes are, as are sales of shares and non-financial assets over a certain value. Higher wealth in the economy, perhaps resulting from a housing market boom or a stock market bubble, will increase capital gains and stamp duty payments to the government.

Government spending can be divided into two broad groups: **capital spending**

and **current spending**. Capital spending increases the productive capacity of the economy, and can be thought of as investment by the government. This includes building, expanding or updating hospitals, schools, government buildings and the transport infrastructure. Current spending funds the day-to-day running of the public sector, for example wages to doctors, teachers and government officials and supplies of drugs to the NHS.

Capital spending takes place within a structure of long-run planning as it commits the government to a suitable level of current spending in the future to fund the running of capital projects. Another commitment by the government is social protection, or the welfare state: payments to particular groups such as the unemployed, including unemployment benefits and tax credits. The cost to the government of social protection in the year 2007-2008 is forecast to be £161bn – the largest single category of spending in the budget (Figure 2).

The position of the economy on the economic cycle has a strong influence on both tax revenue and benefits payments.

During a boom, where economic growth is stronger than usual, incomes, wealth and spending will all rise. This will usually cause an increase in tax receipts, as more activity than usual becomes taxable, and possibly at a higher rate of tax. Table 1 shows the marginal rates of income tax, and if the economy is performing strongly it is likely that a higher proportion of workers will be drawn into higher tax bands as firms pay higher wages and salaries. This is **fiscal drag**: if the average tax burden is increased, this will slow down economic growth. A progressive tax regime therefore acts as an automatic check on the

growth of the economy, but overall the economy will still grow even as the government enjoys higher tax revenue. In addition, falling unemployment also reduces the number of benefits claimants, freeing government funds for alternative uses or allowing spending to fall. The budget position is more likely to be in surplus under these conditions: this represents a net withdrawal from the circular flow of income.

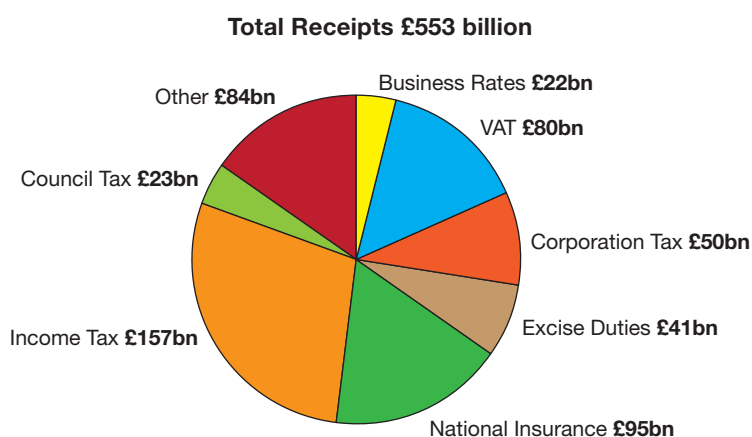
On the other hand, in a downturn or recession, tax receipts will fall as incomes, wealth and spending grow slowly or even decline. In addition, higher unemployment will increase benefits payments. When combined, the impact of lower tax revenues and higher spending is likely to push the budget into deficit. This deficit represents a net injection of income into the circular flow, and exerts a slight but significant upward impact on economic growth.

The current government uses two fiscal rules which reflect the importance of automatic stabilisers in the economy. The **golden rule** states that current spending should equal tax receipts over the course of the economic cycle. This means that the surplus accrued in a boom must be used to fund the deficit in slowdown and recession, except for capital spending. Capital spending is constrained by the **sustainable investment rule**: National Debt must be kept at or below 40% of GDP in any given year.

In addition to the automatic impact of fiscal drag, the government may choose to use discretionary fiscal policy to try to reduce the fluctuations in the rate of economic growth experienced over the economic cycle.

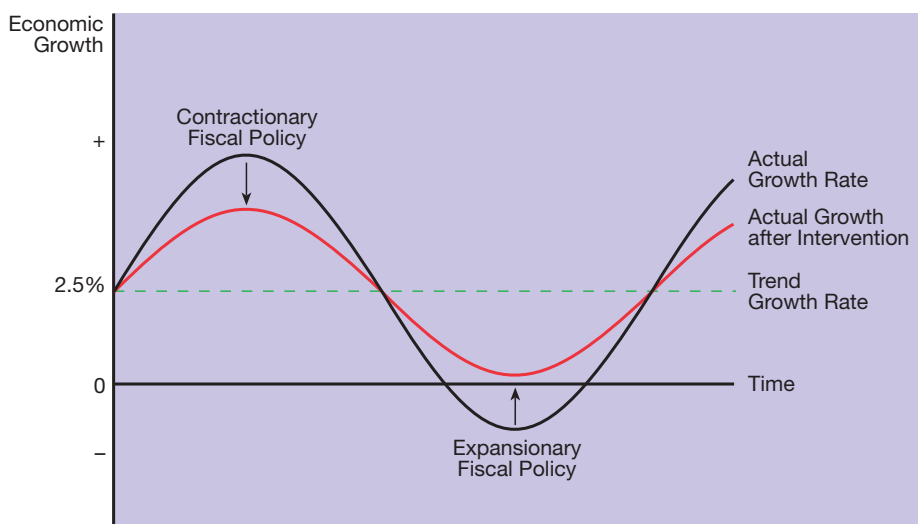
By increasing the automatic budget deficit arising in a recession by increasing spending further and/or

Figure 3: Tax revenue



Source: HM Treasury, Budget 2007 Summary Leaflet.

Figure 4: The economic cycle after intervention



cutting taxes, the government can increase economic growth and reduce the depth of the recession. Similarly, cuts in spending and/or increased taxation, on top of those occurring naturally through fiscal drag, can slow down growth in a boom and reduce the inflationary pressure usually associated with such a period.

In reality, active fiscal policy may not be so simple to administer. Increasing tax rates during a boom, even if this makes economic sense, may be politically problematic. In addition, there are arguments that changes in rates of taxation may not always have a predictable impact on tax revenue. The Laffer Curve shows the relationship between the marginal rate of, say, income tax (t) and the revenue (T) generated at each rate between 0% and 100%.

At 0% tax, tax revenue will be zero. Similarly, it can be assumed that a 100%

tax rate prevents any rational economic agent from undertaking taxable activities – thus tax revenue will also be zero here. There is an optimal tax rate, t_1 , at which tax revenue is maximised (T_1). A tax cut or increase will therefore either increase or reduce tax revenue depending on whether the rate is currently above or below t_1 .

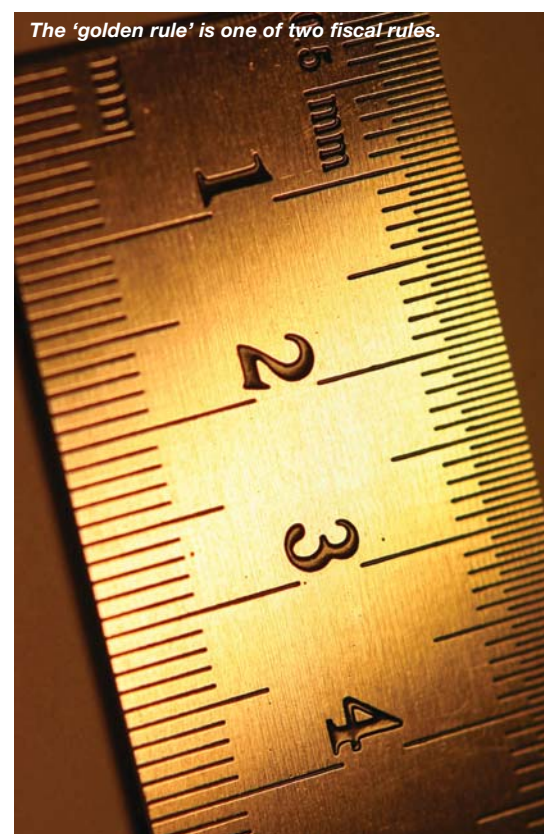
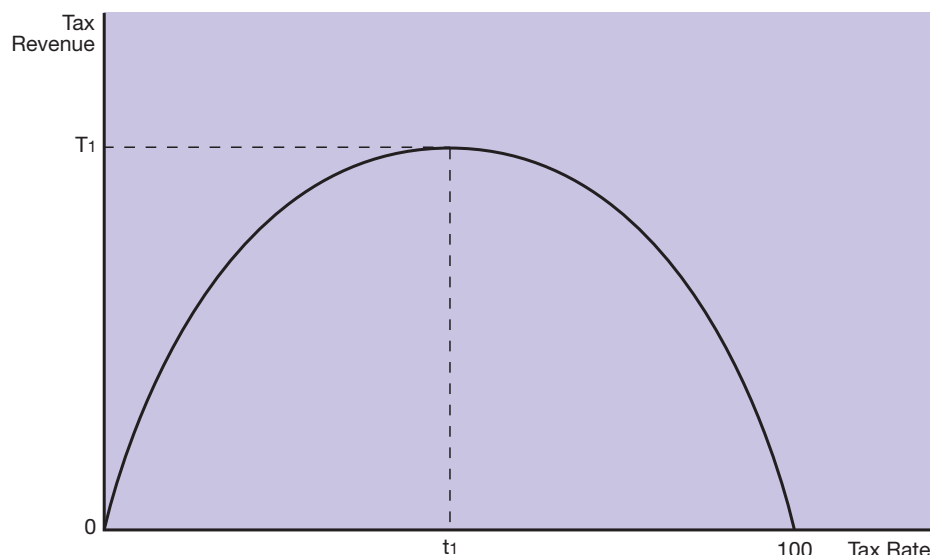
Similarly, increasing government spending can be controversial. The theory of 'crowding out' focuses on the impact of greater government spending on private sector investment. Both government spending (G) and investment (I) are components of aggregate demand, and the theory goes that an increase in government spending may actually reduce opportunities for the private sector, thus lowering investment. Government organisations are not necessarily burdened by the constraint of profit maximisation and it can be argued that it is difficult for private firms

to compete in markets distorted by public sector involvement. A fiscal expansion aiming to inject higher spending into the economy may therefore be less effective than expected if it is partially outweighed by the resulting fall in investment.

Inflation will also affect fiscal plans. Spending on welfare payments such as benefits and state pensions, as well as public sector salaries, needs to increase at least in line with inflation if the real incomes of pensioners, the unemployed, teachers and nurses are to be maintained. Thus a period of high inflation will also create inflationary pressure in government spending – although this may be funded through the higher tax revenues resulting from increases in income, spending and wealth. However, another danger of the instability associated with inflation is that it can harm the international competitiveness of UK industry, and UK firms may lose business and reduce the size of their workforces. The UK may therefore experience **structural unemployment** which cannot be tackled with demand-management expansion alone. In addition, firms may move operations abroad to where costs are lower and the Treasury may lose tax revenues as a result.

The government taxes and spends to achieve a number of objectives, one of which is to provide those goods and

Figure 5: The Laffer Curve



services which would be underprovided or not provided at all by free markets (merit and public goods), such as the provision of law and order, defence, healthcare and education; other government objectives are to help stabilise the macroeconomy and to redistribute income and alleviate inequality and poverty. The stability of the economy affects the government's ability to achieve its other objectives effectively. In the past, UK governments have been tempted (or forced) to run successive budget deficits and some economists argue that this creates harmful levels of inflationary pressure. The present fiscal policy framework attempts to prevent this by imposing fiscal rules on the government. Difficulties have arisen, however, over interpretations of when a particular economic cycle begins and ends (which is obviously crucial in determining whether the golden rule has been obeyed). The budget position is also vulnerable to exogenous shocks such as recent flooding in parts of the UK, financial crises or terrorist attacks. In these situations, the government can use tax cuts and discretionary spending to support a struggling economy, but of even greater importance, to alleviate suffering and fulfil the primary aim of government: to maximise social welfare.

Questions for discussion

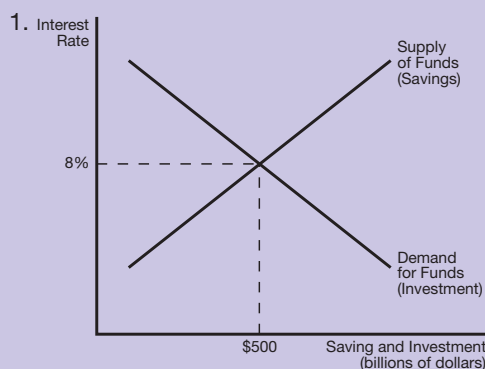
1. What criteria may be used to judge macroeconomic performance?
2. Why do tax revenues tend to rise when economic growth is strong?
3. Why does government spending tend to rise when economic growth is weak?
4. Using Figure 3, classify each tax as (a) a tax on income, (b) a tax on expenditure, or (c) a tax on wealth.
5. What are the fiscal rules used by the present government and to what extent do they constrain active fiscal policy?
6. Why may the exact impact of changes in spending and taxation be difficult to predict?
7. How do the UK's fiscal rules differ from the Stability and Growth Pact used in the eurozone?
8. What assumptions may form the basis of the argument that high levels of government spending will only create inflation in the long-run?
9. Is the economic cycle inevitable? What theories are available to explain why economic growth may fluctuate?

Summary of key points

- ▶ Governments raise revenue through taxation and borrowing to finance their expenditure programme.
- ▶ The Labour government has been using two fiscal rules in determining its stance on using taxation and spending over the economic cycle.
- ▶ Taxation and expenditure policies each raise difficulties when used in a discretionary manner. The Laffer Curve illustrates this aspect with respect to the relationship between changes in tax rates and tax revenue.

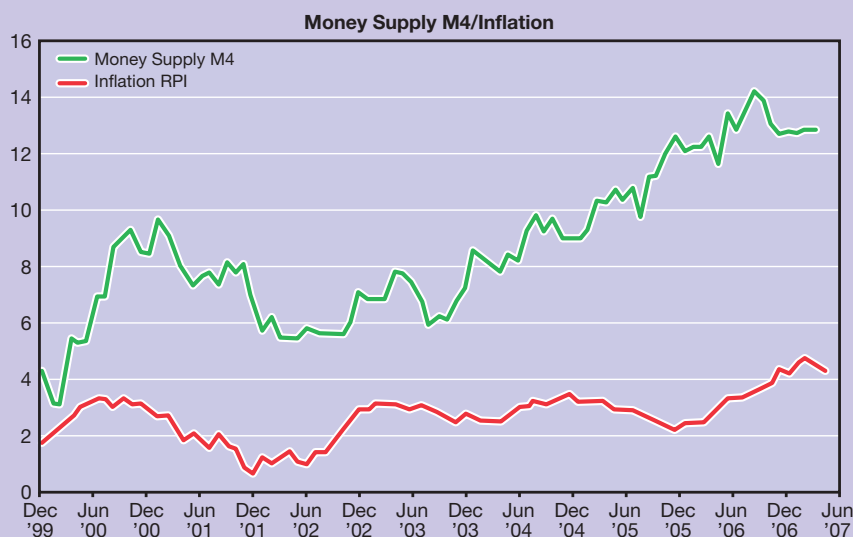


with Chief Examiner,
Robert Nutter



Research the loanable funds theory and investigate the impact of government borrowing on the market for loanable funds.

2. Investigate the possible impact of government borrowing on the money supply.



3. The government's Comprehensive Spending Review in 2007 will set the parameters for public spending for the three years from 2008 until 2011. Research the likely direction of public spending over this period.
4. Research the functions of the Debt Management Office (DMO).
<http://www.hm-treasury.gov.uk> <http://www.bankofengland.co.uk>
<http://www.ifs.org.uk> <http://www.dmo.gov.uk>



The International Economy

In this feature, Nigel Tree looks at recent developments in the world economy, including trade, output and economic development.

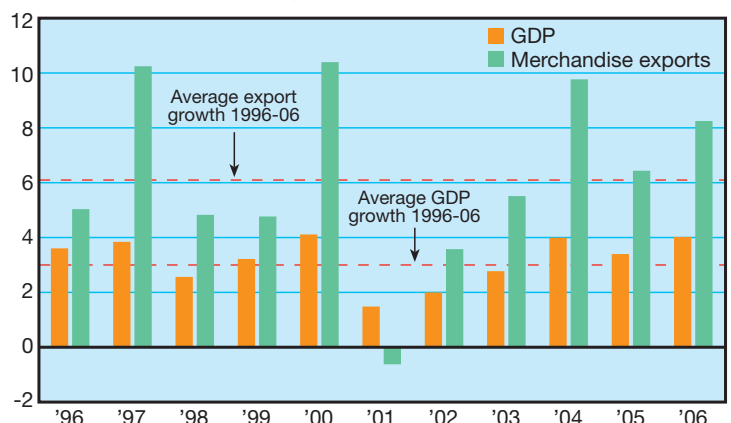
The World Economy: Trade, Output and the Global Outlook

According to the World Trade Organisation (WTO) global gross domestic production (GDP) growth accelerated to 3.7% in 2006, which was the second best performance since 2000. This was largely due to economic recovery in Europe but what was particularly pleasing was that growth in the least-developed countries was above 6% for the third year running. As a result of this favourable, global economic situation world merchandise exports grew in real terms by 8.0% in 2006, compared with a growth of 6.5% in the previous year. Recent changes in GDP and world merchandise exports can be seen in Figure 1.

As far as trade growth was concerned, China's merchandise exports grew by 27% in 2006 and overall Asia was the most buoyant region with growth of 13.5%. Developing countries' share of world merchandise exports reached an all time record of 36% and the 0.9% share of least-developed countries was also the largest ever recorded since records began in 1980. Regional growth rates can be seen in Figure 2.

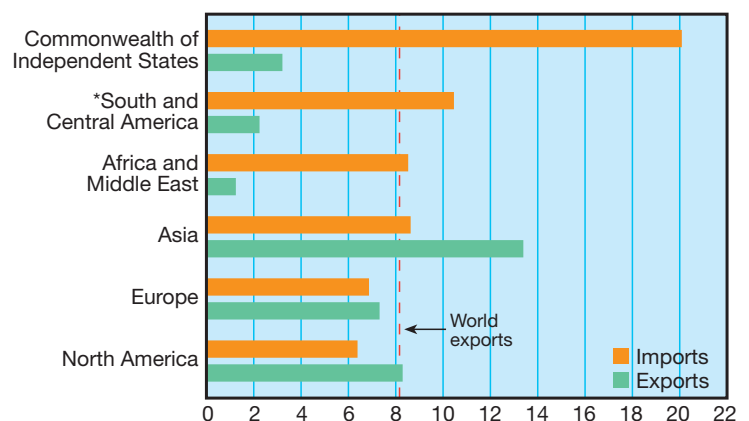
What are the forecasts for the world economy over the next 18 months? In July 2007, in its World Economic Outlook Update, the International Monetary Fund (IMF) noted that the global economy has continued to expand at a brisk pace in the first half of the year. With the US recovering in the 2nd quarter, above trend growth in the euro area and Japan, and rapid growth in China, India and Russia, the IMF has forecast global growth at 5.2% for 2007 and 2008.

Figure 1: Growth in the volume of world merchandise trade and GDP, 1996-2006, (Annual percentage change)



Source: WTO

Figure 2: Real merchandise trade growth by region, 2006, (Annual percentage change)



Source: WTO *includes the Caribbean



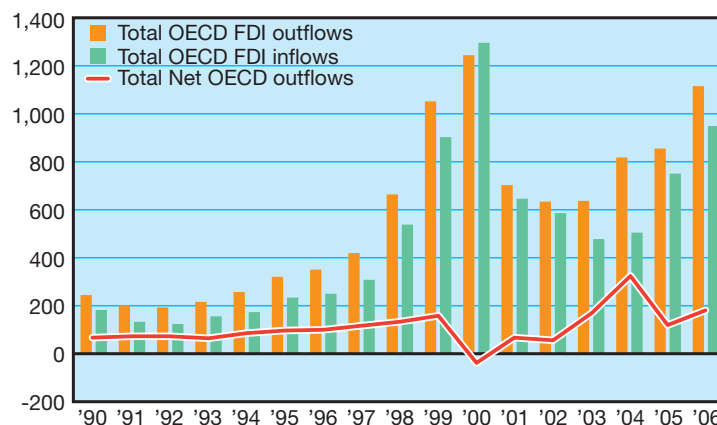
Whilst inflation has remained relatively low despite strong growth around the world, supply constraints have created an increased inflationary risk. This may lead to a monetary tightening with higher interest rates. However, on balance, the IMF feels that the risk of US demand falling due to corrections in the housing sector has fallen although one of the ongoing global concerns is the rise in protectionism.

Foreign Direct Investment

The United Nations Conference on Trade and Development (Unctad) reported that global foreign direct investment flows (FDI) increased by one-third in 2006 to \$1.23 trillion. This was the second highest level ever and was due largely to higher share prices and increased mergers and acquisitions activity.

This was echoed by the Organisation for Economic Co-operation and Development which represents the world's 30 wealthiest countries. They put the increases in FDI flows down to strong macroeconomic growth, strong corporate profitability, generally low interest rates, high stock prices and generally high real estate prices. Recent changes can be seen in Figure 3.

Figure 3: Foreign Direct Investment Flows to and from OECD, \$US billion



Source: OECD International Direct Investment database

The OECD also noted that one new phenomenon was the fact that companies based in developing and emerging economies were now becoming active outward investors. Particular examples in 2006 was the takeover of the Anglo-Dutch Corus group by Tata Steel from India to form the world's fifth biggest steel company; and, CVRD of Brazil became the world's second largest mining company after taking over Inco of Canada. There was also the impact from China encouraging its companies to expand abroad and the development of hedge funds and private equity capital companies as a new class of

investor looking for global investment opportunities. (For more on this read Andrew Reeve's article elsewhere in this issue).

According to the OECD, there was a 22% increase in FDI in 2006, and they expected a 20% rise in 2007 into OECD countries. The US was the world's largest recipient of FDI in 2006 and also the biggest foreign investor into OECD countries.

Trade Liberalisation

In November 2001, the 142 members of the WTO met in Doha and agreed to launch a new trade liberalisation round commencing in January 2002. The World Bank has estimated that if all trade barriers were abolished it would boost global income by £1,945bn, and lift 320m people out of poverty. In fact, since 1948 there have been eight such rounds of tariff reductions which have seen tariffs in the industrialised world cut by more than 80%. Also, during this period, trade has grown faster than international output in all but eight years, showing the importance of trade as an 'engine of growth'.

The basic tension in these negotiations was between the developing countries that wanted developed countries to abandon their agricultural subsidies and the developed countries that were calling upon the developing countries to make big reductions in their tariff barriers. However, in a meeting at Potsdam in June 2007, the US, EU, India and Brazil failed to agree on just these issues, causing an overall collapse in the trade talks.

It now looks as though nothing will be agreed before 2010 at best, which is five years after the initial target date. Phil Thornton, lead consultant at Clarity Economics summed it up in a quote in the *Independent* on 22nd June 2007 when he said: "If this really is the death of the Doha round, it has been as agonisingly painful as it has been inevitable. Sadly, the United States, European Union and Japan have failed to offer a genuine package of cuts in agricultural protection despite the multi-billion pounds' worth of benefits that companies in those countries would have gained from improved access to services and manufacturing sectors in fast-growing emerging economies. There has been a desperate shortage of political ambition."

Overseas Aid and Development

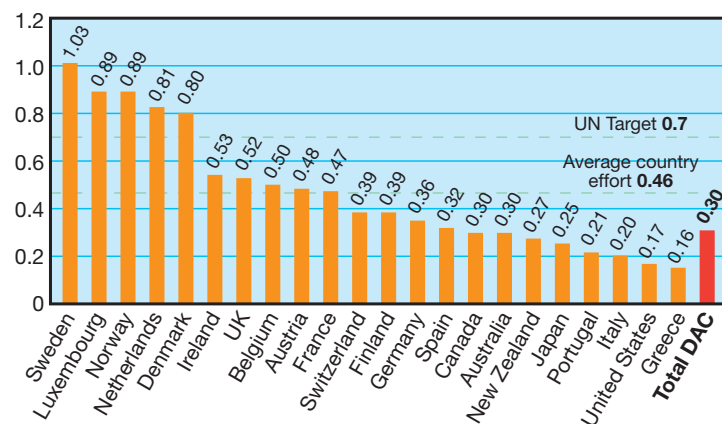
In April 2007 the World Bank published its World Development Indicators 2007. In this it noted that global poverty rates had continued to fall between 2000 and 2004. It estimated that the proportion of people living on less than \$1 a day fell to 18.4% in 2004, amounting to some 985m people. By contrast, this figure was put at 1.25bn in 1990. However, an estimated 2.6bn people, half of all the population in the developing world, were still living on an income of under \$2 a day.

The reason for the overall improvement is the fact that developing countries have averaged 3.9% annual growth in GDP per capita per year since 2000. But, the statistics are somewhat skewed because China has seen a drop of 260m from 2000-2004 in the numbers of its population who live on less than \$1 a day. In fact the extreme poverty rate for the whole of East Asia fell to 9% in 2004. However, on the downside, those living in extreme poverty in Sub-Saharan Africa totalled 298m in 2004, which was roughly the same as five years earlier.

In the G8 summit at Gleneagles in 2005, Tony Blair got pledges from the heads of the top eight industrialised nations to spend \$50bn more each year on aid until 2010, with half of this increase going to Sub-Saharan Africa. But according to the OECD in April 2007, excluding one-off debt relief to Nigeria, aid to Africa was static in 2006. The Chairman of the OECD's development assistance committee, Richard Manning was quoted as saying: "The promises will not be credible unless we begin to see substantial rises in 2007 and 2008. The shortfall reflected a lack of will in the rich nations, rather than Africa's inability to absorb more aid."

Overall, aid from the 22 members countries of the OECD Development Assistance Committee totalled £52.6bn in 2006, which was a 5.1% fall in real terms. This total figure represented 0.3% of these countries' Gross National Income (GNI). This compares with a target figure set by the United Nations of 0.7% of GNI. The contributions of individual countries can be seen in Figure 4.

Figure 4: Net Official Development Assistance, 2006 as a percentage of GNI



Source: OECD, 3 April 2007

The only countries which met or exceeded the UN target were Sweden, Luxembourg, Norway, the Netherlands and Denmark. When gross amounts of giving are measured the largest donor was the US, followed by the UK, Japan, France and Germany. However, net contributions by the US in 2006 amounted to \$22.7bn which represented a fall of 20% in real terms. Also, its ODA/GNI ratio fell to 0.17%.

In July 2007, Unctad reported on the extent of the 'brain drain' – the emigration of skilled workers – from the least developed countries (LDCs). It noted that Haiti, Cape Verde, Samoa, Gambia and Somalia had all lost more than half their university-educated professionals in recent years. In total it is estimated that one million skilled persons from LDCs were working in developed countries in 2004, which amounts to a brain drain of 15%. For developing countries in general, the rate was below 8%. The loss of this human capital can have serious consequences for the improving of agriculture, industry and the general infrastructure in developing countries.


Unctad also noted that official aid was often less effective than it could be due to the lack of understanding of the role played by technological change in economic growth. In LDCs 70% of the labour force works in agriculture, but between 2003-2005 only \$22m per year was given to support national agricultural research, and \$12m a year for agricultural education and training. Commitments to these areas had halved over the previous five years. Unctad notes that agricultural research is a key priority for poverty reduction and called for more development investment in science-based agricultural development.

The number living in extreme poverty in Sub-Saharan Africa has not improved over the past five years.



How will Increasing Consumer Debt affect the UK Economy?

Mark Jewell, Head of Economics and Politics, Radley College,
examines the growing concern about the level of indebtedness
of consumers in the UK.



Exam Board	AS	Unit	A2	Unit
AQA	✓	2		
Edexcel	✓	3		
OCR	✓	2883		
WEJC	✓	2		
CCEA	✓	2		
Int. Bacc.		Standard 3		

The amount of debt UK consumers have been accumulating in recent years has been making alarming headlines. It is a statistic about which the Monetary Policy Committee (MPC) of the Bank of England has been most concerned when making its decision on where to set the base rate (which affects the interest rates set by all banks and building societies throughout the economy). In an echo of the religious disapproval of money lending in earlier Christian society, today's rising consumer debt is widely regarded by contemporary political commentators as a worrying problem for individuals, both debtors and lenders, and for the stability of the macro economy. In this article, we shall attempt to explore these claims from an economist's perspective.

First, a definition is necessary. Consumer debt is the sum of money owed by a household (the debtor) to another person (the creditor or lender), usually a bank. The person becomes a debtor because he usually wants to spend more money than his income and must therefore borrow a sum of money, which he promises to repay with interest at a later date. Nowadays one of the two major ways to borrow is from your credit card company, by purchasing things on your credit card and then meeting the minimum repayment requirement on your monthly bill. This is called *unsecured debt* because the lender has no right to claim any specified assets of yours if you default on the debt (fall behind on repayments). By contrast, households can borrow sums of money from banks and building societies in the form of loans or *mortgage equity withdrawal*, where certain assets (e.g. your house) are put up as security (collateral), which the creditor can sell to repay the debt if the debtor fails to make the scheduled repayments. This type is called *secured debt*.

We can see from the data in Tables 1 and 2 that UK consumer debt has expanded enormously since 2000. This is especially true for secured debt. For example, mortgage equity withdrawal has almost quadrupled in real terms in the last seven years, increasing at a faster rate than incomes.

Is debt bad?

In a mature capitalist economy, it is usually of mutual benefit for banks to lend and householders and firms to borrow.¹ Without access to credit, firms would struggle to raise the necessary finance to start up commercial operations and individuals would be condemned to 'living within their means'. However, most people expect their incomes to rise substantially over their lifetimes, as they accumulate more skill and experience in their jobs (human capital) and receive inherited money on the death of their parents. If they could not borrow in their twenties and thirties against their expected higher future incomes, they would struggle to buy a house or a car or start up a family until they were in their late middle age! Therefore taking on debt as young adults enables them to live independently much earlier before they repay the money owed when their incomes are peaking. This behaviour is modelled in the life cycle permanent income model. This model assumes that households can accurately estimate their future

income stream and they then wish to 'smooth' their consumer spending to achieve a stable standard of living over their adult life, borrowing as young adults before repaying the debt as older workers. This requires that banks are willing to lend against the security of a person's future income. In practice, because of the risk of being left with 'bad debt' if a borrower defaults due to unforeseen circumstances, banks are reluctant to lend large sums without the added security of current assets like savings or a house unless they can charge an excessive interest rate. This will limit the extent to which individuals can smooth their desired consumption pattern.

Of course, borrowing is not mutually beneficial if careless and greedy banks encourage consumers to borrow excessively. Banks stand to make a profit by lending at higher interest rates than they pay to their savers. In a very competitive banking sector many householders are seduced by offers of cheap credit ('buy now, pay later!'). However if loans are made to financially

Table 1: Consumer debt

	Outstanding consumer credit lending to individuals by banks £m	Outstanding net unsecured lending to individuals by other lenders (including retailers) £m
31 July 2000	61,292	39,525
31 July 2001	69,290	40,623
31 July 2002	79,307	44,198
31 July 2003	81,461	53,824
31 July 2004	87,644	58,444
31 July 2005	94,296	64,480
31 July 2006	97,785	68,285
31 July 2007	97,926	72,694

Source: Bank of England

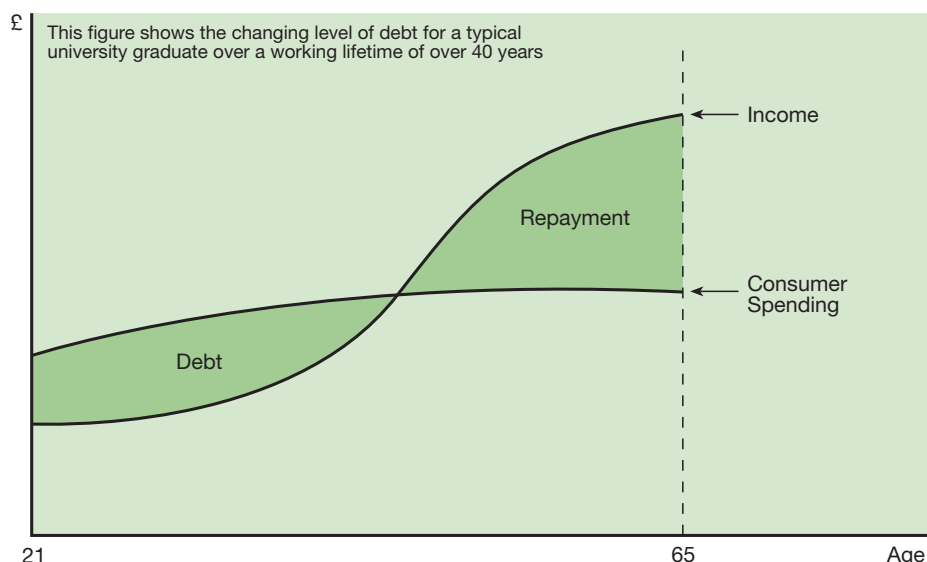
Table 2: Mortgage equity withdrawal

	Mortgage equity withdrawal £m	Household post tax income £m	Mortgage equity withdrawal as a % of post tax income
2000	12,064	657,579	1.8
2001	20,796	702,353	3.0
2002	39,493	726,831	5.4
2003	57,298	761,766	7.5
2004	49,588	790,791	6.3
2005	36,586	835,988	4.4
2006	49,738	869,547	5.7

Source: Bank of England

1. Mohammed Yunus provides a compelling case history of how the availability of credit ('micro loans') to the poorest people in LDCs like Bangladesh has been pivotal in reducing poverty there. See *Banker to the Poor*, published by PublicAffairs, New York.

Figure 1: Life cycle permanent income hypothesis



weaker individuals (the 'sub-prime' sector) whose ability to repay may be destroyed if they lose their job, the consequences may be nasty for both parties. The debtor may have his house repossessed to pay off his debts. And if this raises insufficient funds, he may be forced into bankruptcy (and be refused credit in the future) and the bank gets stuck with 'bad debt', which it has to write off at a cost to its shareholders. If banks and their customers get carried away with over-optimism about the future path of incomes or house prices, it is easy to see how indebtedness for some could result in losses to both parties.

In the UK the banking system is regulated adequately enough to ensure that banks apply safeguards to their lending and established banks are keenly aware of the dangers to their short term profitability and long term reputation of lending too freely. Borrowers too are increasingly aware of the dangers of overstretching themselves. Hence, the danger of bad debt is confined to only a tiny minority of borrowers, despite the recent rise in home repossessions, county court judgments on unpaid debt and personal insolvencies and bankruptcy as shown in Table 3. Figure 2 shows that only 1 in 800 mortgaged properties were repossessed in the first half of 2007.

However, there has been criticism of the perceived softening of bankruptcy penalties recently as, for example, in *Fantasy Island* by Larry Elliot & Dan Atkinson, published by Constable in 2007. If people fear bankruptcy less, there is less to stop them deliberately overstretching themselves financially by

taking on more debt than they can hope to repay. On the other hand, if bankruptcy is less punitive, it may encourage more business innovation, which could result in more wealth creation, higher employment and downward pressure on inflation as markets become more competitive.

What about current UK debt trends?

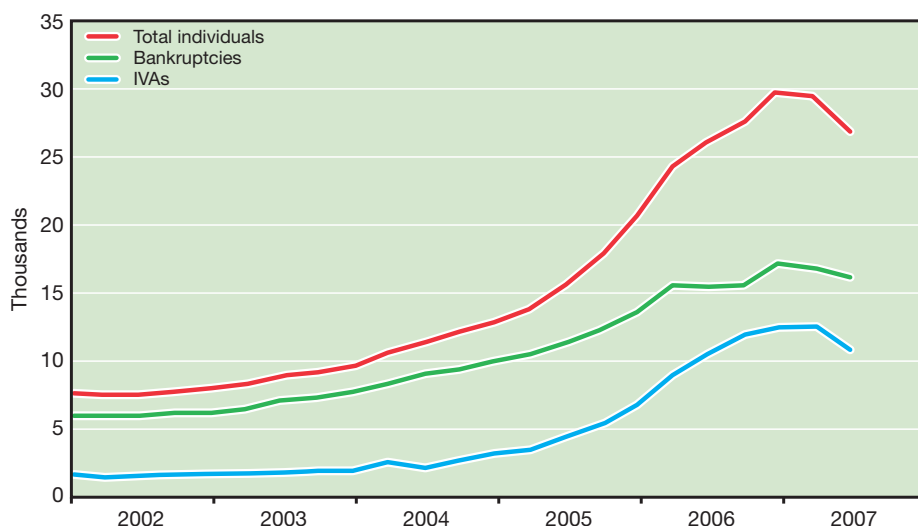
Just looking at the rising tide of consumer debt can be very misleading. It could represent a consumer spending binge ahead of a painful period of repayment. Or it could reflect a desperate attempt to maintain living standards when real incomes are falling. However, it seems the UK debt mountain has grown since 2000 through a spectacular rise in *secured* borrowing, especially borrowing against rising house values. Household net financial wealth (assets minus debts) on average has remained fairly constant over recent years. In other words, people have not been readily using their credit cards for flat-screen TVs and iPods so much as borrowing more (against their houses) to buy financial assets (like shares or second homes on buy-to-let mortgages). And as these assets have been growing in value, households can afford to take on more debt without becoming less wealthy overall. This would appear to be sensible household borrowing. Furthermore, as house values are driven

Table 3: Mortgage repossessions

	Number	As a % of total mortgages
2004 H1	3,700	0.03
2004 H2	4,300	0.04
2005 H1	7,400	0.06
2005 H2	7,700	0.07
2006 H1	10,800	0.09
2006 H2	11,900	0.10
2007 H1	14,000	0.12

Source: Council of Mortgage Lenders

Figure 2: Number of individual insolvencies in England and Wales, seasonally adjusted



up by the extra demand, there is likely to be a very considerable 'wealth effect' whereby homeowners are feeling encouraged to spend more on consumer goods and services by their strengthening net wealth positions. This is likely to keep aggregate demand rising to help underpin continued economic growth.

Who loses?

However, the boost to consumption will be reduced to the extent that first time homebuyers find getting on the housing ladder ever harder (as they try to grow their savings to reach an ever increasing target sum for a typical 5% deposit on a property). And the rise in house values must not accelerate too fast or rising inflation will cause the MPC to raise interest rates which will raise the repayments on debt and squeeze debtors. In short, rising consumer (secured) debt is not problematic, but accelerating debt will hurt first time buyers and may lead to interest rate (upward) correction to squeeze debtors if left unchecked.

More seriously, major problems can arise if rising debt is part of a *speculative bubble* in the housing market. Unfortunately, the UK housing market is particularly susceptible to booms and busts as shown by the 1986-1990 boom, 1990-94 bust and the current 1996-2007 boom. Is the unprecedentedly long current boom, fuelled by rising debt, about to end in a painful bust like last time?

In theory, house prices should reflect the present value of the stream of rental earnings (discounted by the rate of interest) which a property generates over its lifetime. For your first home this relates to the savings in rent you make by living in your own home. For example (ignoring inflation), if a new home would rent out for £10,000 per year for 100 years before falling down, you would save £1 million in rent over 100 years by buying it outright today. But because money in a savings account grows at compound interest rate, you could put aside much less than £1 million to meet the rental payments. For example, at 5% interest per annum, £76 would grow to your final year's rent [= £76 x (1.05)¹⁰⁰]. On these figures, this house would be worth paying approximately £200,000 for today (£200,000 banked today would grow sufficiently to meet the rental costs).

Now admittedly, the calculation above is rather simplistic and assumes that

The 'wealth effect' has led to greater spending on consumer goods.



interest rates stay constant and rent stays the same (and ignores maintenance costs). In reality, rent is determined by the forces of demand and supply. Hence, if population and incomes grow faster than the supply of new housing, it is likely that rents will be driven up as housing becomes relatively scarce. Arguably, we have that situation in the UK with net immigration, a growing economy and tough green belt controls on house building. So one would expect house prices to grow faster than the rate of inflation. But this makes housing an attractive financial investment. Unfortunately, demand is driven by *expected* house prices too – when people expect house prices to go up, they buy *before* any price rise, which causes prices to rise. The more speculators see that they can grow their personal wealth in this way, the more speculative house buying occurs and property values can exceed any realistic value of the prospective rental yields they are capable of generating. Over-optimistic projections lead to a 'speculative bubble', which is far more likely to 'burst' in a frenzy of speculative selling to protect against falling house prices than 'gradually deflate' to house price levels appropriate to future rental yields. There is a much publicised fear that the UK housing market is currently over-valued and due for a sharp downward correction, as occurred in the 1990s after the last housing boom. If this occurs, the sharply rising consumer (unsecured) debt may be a symptom of the real problem: speculation in the

housing market; but it won't be the underlying cause.

Does rising debt make us more susceptible to economic shocks?

Insofar as the freedom to borrow and lend at market rates of interest has been made easier by liberalisation of the banking sector since the 1980s, UK households have responded rationally and borrowed more, encouraged by the favourable macro economic conditions since 2000. Historically low inflation has meant lower nominal (and real) interest rates and consumer confidence has been boosted by 15 years of continuous economic growth, which households are assuming will continue, all underpinned by rapidly rising housing wealth. When interest rates become lower and are expected to stay low, households can borrow more without debt interest repayments rising as a proportion of (rising) incomes. This is why consumer borrowing has mushroomed since 2000.

However, in our era of low inflation, debt takes longer to repay in real terms. And debt servicing ratios (debt repayments/disposable income) are especially vulnerable to sharp rises in interest rates, falling incomes and falling house values, especially when these situations all combine.

The effect on the macro economy is complex and uncertain. If the current upward trend in energy prices continues, fuelled by rising demand from manufacturing companies in China and supply shocks from an insecure Middle East, we

can expect inflation to be contained only by upward movements in the base rate by the MPC. This will raise mortgage costs and squeeze household budgets for the majority of households who borrow on a variable rate mortgage, which might cause a slowdown in the economy and a rise in unemployment, made worse by a downward multiplier effect. Some unfortunate households who had overstretched themselves by having just bought houses at peak prices and then lost their jobs would struggle to keep up with repayments and may suffer repossession and bankruptcy, especially if they fell into *negative equity* (where the value of their house falls to less than the debt owed to the bank when they borrowed to buy it) as a speculative bubble was bursting. Negative equity for those not suffering unemployment still impedes economic growth by preventing those householders from selling their house and moving to an equivalent property in search of a better job.

However, two factors limit the chances of this happening. First, in the short term, households might be able to borrow to finance higher repayments ('distress borrowing'), for example if they had positive mortgage equity they could withdraw. Second, the fact that UK households are currently so vulnerable to interest rate rises has made the MPC more likely to use only small ¼% rises in base rates to get spending (and therefore inflation) under control. Hence the damage to indebted household budgets will be gradual and more manageable. Also, some households are net savers and will be able to increase consumer spending following a rise in interest rates (although there are fewer net savers and they are usually assumed to have a lower marginal propensity to consume).

Conclusion

Rising debt need not be alarming. Indeed, taking on debt is a rational way for households to smooth their spending patterns over their lifetimes, even for the unsecured credit card variety. Bringing forward expenditure on goods and services enables an economy to achieve a faster sustainable growth rate. Furthermore, using secured debt to purchase financial assets like housing is also prudent financial behaviour so long as the assets purchased are not over-priced as in rising speculative bubbles. Much of the UK's growth in consumer debt has resulted in positive benefits for

creditors and debtors. However, if the rate of growth in unsecured consumer debt is too fast it can lead to inflation, which requires policy correction (interest rate rises to slow growth). Moreover, in the case of rapidly increased secured borrowing to fund house buying, it can leave first time buyers stranded at the foot of the property ladder and encourage the instability of a speculative boom and bust in property, which can drag down growth and cause many households to suffer from having overstretched themselves.

Questions for discussion

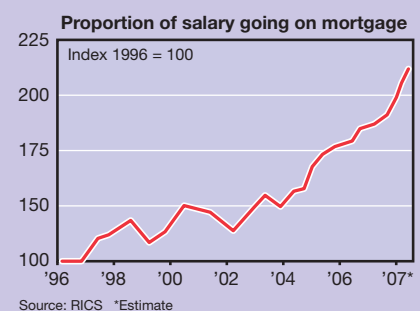
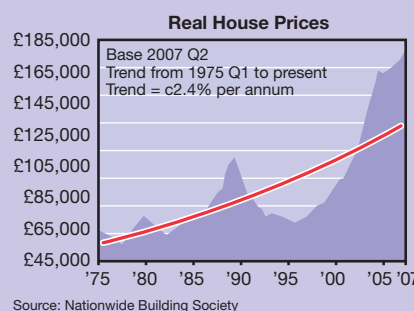
1. When is debt a bad thing?
2. Why are banks reluctant to lend to poorer clients? How then could 'micro lending' be made to work to reduce poverty in LDCs? (See footnote on page 29.)
3. Why are falling house prices so destructive to the macro economy?
4. Is the UK property market currently over valued?

Summary of key points

- ▶ Rising consumer indebtedness has caused alarm to several observers of the UK economy including the Bank of England.
- ▶ Nonetheless borrowing large sums can be entirely safe and rational for consumers, for example younger people whose rising future incomes can repay their debt.
- ▶ In the UK much recent borrowing has been secured and has fed a booming property market and there is a danger that such spending could destabilise the UK property market and precipitate a recession.
- ▶ The Monetary Policy Committee has started to raise base rates in a controlled way to restrain speculation in property.



with Chief Examiner,
Robert Nutter



1. Investigate recent trends in the average house-price to earnings ratio and why it has been of concern to economists in recent years.
www.housepricecrash.co.uk
2. In the summer of 2007 the housing market in the USA went into crisis following defaults by borrowers in the sub-prime mortgage lending market. Research the reasons for this crisis and why it has had major repercussions in global financial markets.
<http://news.bbc.co.uk> <http://en.wikipedia.org>
3. Investigate the permanent income hypothesis with particular regard as to how consumers may manage their debt.
<http://en.wikipedia.org>

Multiple Choice

QUESTION & ANSWER

In this regular feature Chief Examiner **Robert Nutter** of Watford Girls' Grammar School, looks at AS and A2 questions which in this volume will aim to reflect the order that schools and colleges cover topics from the specifications. There are three AS (1-3) and three A2 (4-6) questions per edition plus explained answers.

Questions

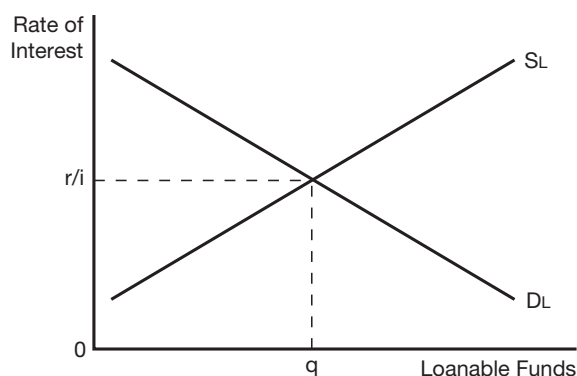
- Following a 20% rise in the price of petrol the demand for cars with a low mileage to the gallon falls by 15%. The cross elasticity of demand for these cars with respect to the price of petrol is
A. -1.33. C. +1.25.
B. -0.75. D. +1.55.
- After the severe flooding in the UK during the summer of 2007 there were calls for the government to spend more on flood defences. Governments normally provide flood defences because they are an example of a
A. merit good. C. demerit good.
B. quasi-public good. D. public good.
- The rise in the value of the pound against the US dollar in 2007 during which it rose to over \$2 to the pound will benefit all of the following except
A. British holidaymakers in the USA.
B. A British firm importing its components priced in dollars.
C. A British pop group earning royalties in the USA.
D. US firms exporting to the UK.

- The ticket prices shown below are for a theatre.



It can be deduced from the data that decisions on ticket prices made by the theatre are an example of

- price leadership.
 - predatory pricing.
 - price discrimination.
 - limit pricing.
 - marginal cost pricing.
- If an economy faces a significant increase in the world price of oil it will cause a shift in the
A. short-run aggregate supply curve to the right.
B. long-run Phillips Curve to the left.
C. long-run aggregate supply curve to the right.
D. short-run Phillips Curve to the right.
E. production possibility curve to the left.
 - The diagram below shows the market for loanable funds in equilibrium at the interest rate r/i . DL and SL represent the demand and supply of loanable funds. What would cause the supply of loanable funds to shift to the left?



- The abolition of income tax on income from savings.
- A new tax credit for investment by firms.
- A budget deficit by the government.
- An increase in the marginal propensity to save.
- A fall in the price of capital goods.



How does a rise in petrol prices affect cross elasticity in Question 1?



Answers

1. Cross-elasticity of demand measures the responsiveness of quantity demanded for one product as a result of a change in the price of another. The cross-elasticity of demand for cars with respect to changes in the price of petrol can be calculated as follows:

$$\frac{\% \text{ change in quantity demanded of cars}}{\% \text{ change in the price of petrol}} = \frac{-15\%}{+20\%} = -0.75$$

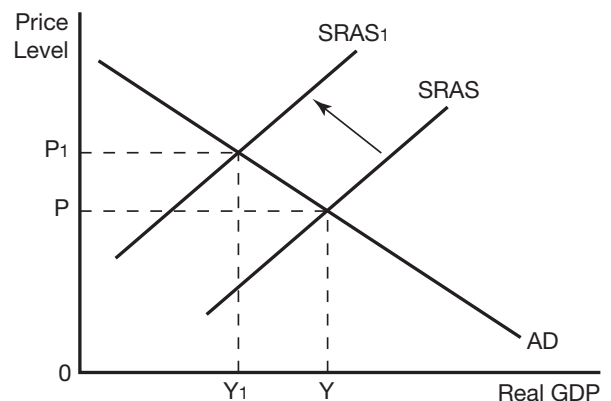
The result is negative meaning that the two products are complements. As the price of petrol rises people may switch from cars with a high fuel consumption to those which are more fuel efficient. The answer is B.

2. The key characteristics of a public good are non-excludability and non-diminishability. Non-excludability means that the provider of a public good cannot prevent people from consuming it. Non-diminishability (non-rivalry) means that the consumption of the good by one person does not diminish its availability to others. Hence public goods are provided by the government from taxation as private firms have no incentive to supply them. A supplier of a public good cannot make consumers pay for it and hence there is no potential for profit. Flood defences, which are socially necessary, are a public good provided by the government. Quasi-public goods such as roads are usually provided by the government but non-payers can be excluded by tolls, and the more people who use road space the less there is available to others. Flood defences are thus a pure public good and roads a quasi-public good. The answer is D.

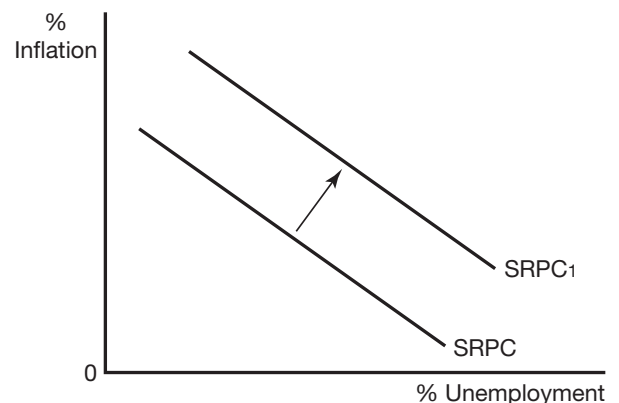
3. When the pound is high against the dollar anyone earning an income in dollars which has to be converted for spending into pounds will be disadvantaged. A British pop group earning 5 million dollars in royalties would find it converting to 4 million pounds sterling if the exchange rate was £1 = \$1.25. However, if the exchange rate rose to £1 = \$2 only £2.5 million would be earned. The answer is thus C.

4. If a product or service is sold at a different price to different consumers this is an example of price discrimination. In this case the theatre is charging a different price depending on the day or time in a day that people watch the play. The market has been separated by time with the peak times, where demand is price inelastic, showing the higher prices. The off-peak times where there is spare capacity in the theatre have lower prices to encourage more customers. Each sub-market is separated in such a way to prevent resale between them. The answer is thus C.

5. A rise in oil prices would shift the short-run aggregate supply curve to the left, raising the price level, reducing national income and raising unemployment.

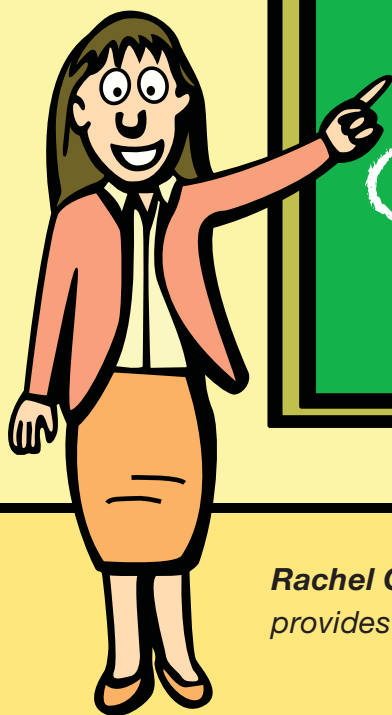


As the price level is higher, the inflation rate (% change in the price level from the previous year) is also higher but so is unemployment. The short run trade-off between inflation and unemployment is now less favourable as the short run Phillips Curve has shifted to the right.



The answer is thus D.

6. The demand for loanable funds come from firms (borrowing for purchase of capital goods and from household (borrowing for mortgages). The supply of loanable funds comes from economic agents who wish to save some of their income. The demand for loanable funds will be high when interest rates are low and the supply of loanable funds will be low when interest rates are low. When the government runs a fiscal/budget deficit public sector saving is negative and when the government borrows to finance the deficit this reduces the supply of loanable funds to households and firms. This causes the supply of loanable funds to shift to the left raising the long term interest rate. The effect on the long term money markets is often described as 'crowding out'. The answer is thus C.



Rachel Cole, Teacher at Cheltenham Ladies' College and a Principal Examiner, provides a perspective on some key economics concepts.

As a teacher I probably spend two hours a week by the photocopier. Sometimes queuing, maybe cursing when it jams, but eventually after several attempts I get the machine to operate in a way that I can tolerate. It's not uncommon for my students to be given an apology with a photocopied handout – the holes in the wrong place, the pages slightly out of order, or just a few copies having some pages missing where the machine had overheated and malfunctioned. As I give out my sheets I tell the class that I just don't have a comparative advantage in photocopying. Actually I don't have an absolute advantage either. In this *Back to Basics* I will explain my economic advantage in what seems like a failure scenario.

To understand the concepts of absolute and comparative advantage, it's best to think in terms of costs. How much does it cost the headteacher to employ me for the two hours of photocopying? Could she buy that photocopying any more cheaply from someone else? It's made simpler if you could imagine that teachers are paid by the hour and produce a certain value in every hour that they teach, and that they also produce value when photocopying but not as much per hour.

The headteacher at my school pays me around £30 an hour when I'm at work, which make it expensive photocopying – and that's before all the damage I've done kicking the paper-feeder and the queue I've caused by doing the job just before lessons start

when everyone else also wants to photocopy. There's a willing junior secretary who will do the job, and she'll take far less time, make fewer mistakes, and can prevent the build-up of a queue by using the machine when all the teachers are in lessons. This is a clear cut economic decision – the school will get more output from the same input by employing secretaries to do all the photocopying.

If it is so clear cut, why doesn't my school do it? There are three obvious reasons. First, when I get two freed-up hours the school won't save any money as I won't accept a cut in my pay. Second, the secretaries are always too busy. Third, I know exactly what I want photocopied and it will be quicker for me to do it than explain to someone else how to do it. None of these are very good economic arguments. The first two are shown to be flawed by using the theory of absolute advantage, and the third can be shown to be weak by comparative advantage.

Absolute advantage

If my cost of producing an extra unit (that is, marginal cost) is less than the cost of someone else producing that unit then I have an absolute advantage. If I can produce more value for the school by teaching more lessons or helping students with problems I have an absolute advantage in teaching Economics. If the secretary is the most efficient at photocopying then she has an absolute advantage in that. I should *specialise* in teaching and the secretary

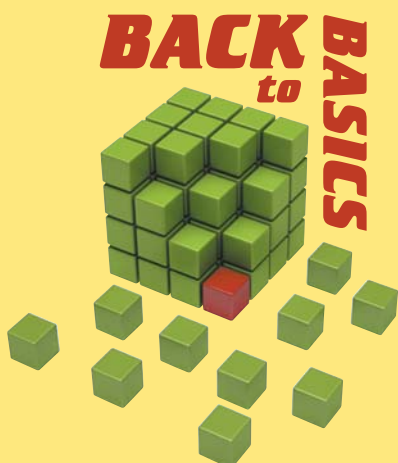
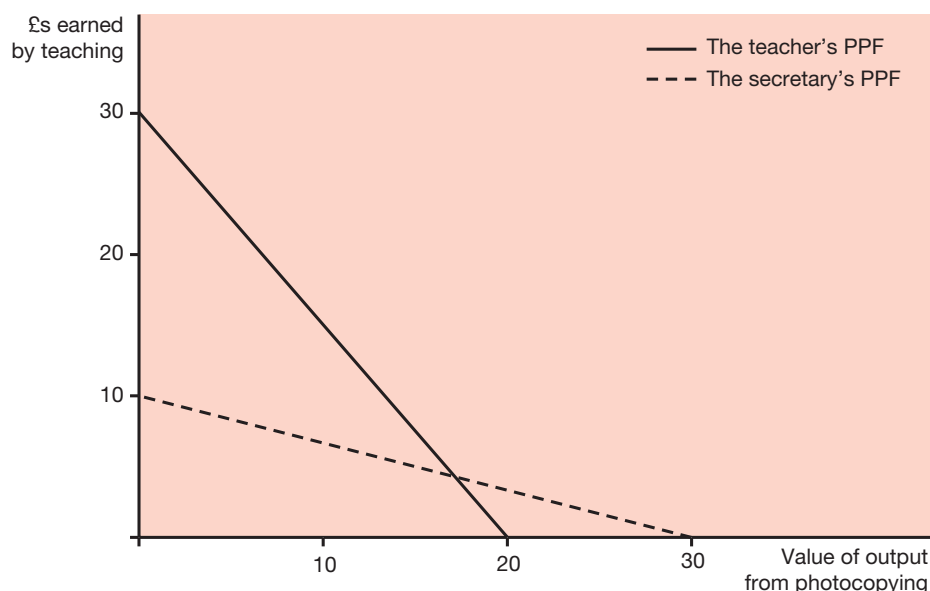


Figure 1: Production possibility frontiers



in photocopying. Even if it means taking on more secretaries the school will get better value from its resources if it uses this division of labour. In fact most schools do have secretaries with time allotted for this as this is now required by national agreement.¹

At this point most people writing about absolute advantage give some figures to prove the case. It is important to have an analytical tool to use to describe what is going on, but I find it is best using pictures. If you like you can use the numbers on these figures to extract cost ratios, but alternatively you can just look at the slopes and see which is steeper relative to an axis, and which is further away from the origin.

The production possibility frontier (PPF) shows the most that can be produced if resources are used to the full. If the resource here is time, I could spend an hour teaching (producing £30 in value) or an hour photocopying (producing £20 in value). I will do a combination of both and because I can't just do the teaching I won't be able to produce the maximum value from my time, £30. In this example the secretary could work as a teaching assistant and can earn £10 an hour. But she is a very efficient copier and the value of her output is £30 if she specialises in that. She is so efficient there might not be enough photocopying to keep her busy all week – one of the conditions of this argument is that there is a big enough market. It also assumes that we do not get worse at what we do if we spend too long on it – that is, in the long run, that

there are no diseconomies of scale.

Given these facts, it is clear that for every hour worked there will be £30 worth of output from each worker if we specialise. We can then 'trade' what we produce – actually the school does this, as schools are run a little like a planned economy – but effectively I 'buy' the copying from the secretary and there is more output at a lower price. The PPF can be seen to shift outwards in Figure 2 when people start specialising, and then they 'trade', in line with their absolute advantage.

So we are producing more value, and that's even ignoring the fact that the amount we are paid is different. Looking briefly at costs rather than output, say that the secretary costs £10 an hour and I cost £30, but the secretary does it in less time. If I could be persuaded to teach more classes rather than

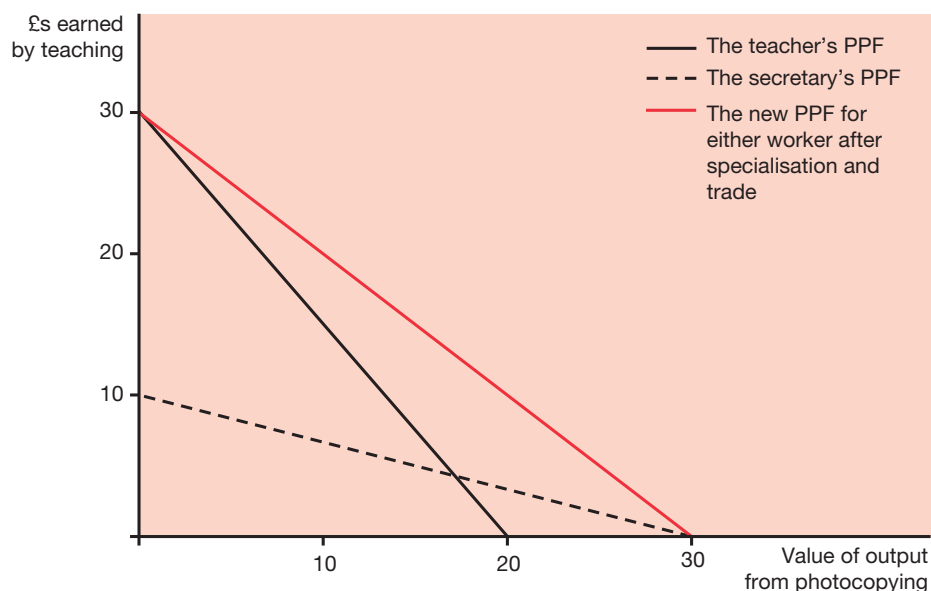
photocopy the school makes a net gain of £20. You don't need a degree in management to see that employing more secretaries is a good decision, even if the teachers get cross. The head teacher could even give the money saved back to both types of staff – so everyone could gain.

The principle of absolute advantage demolishes the first two reasons for not getting the secretary to do my photocopying. The school does save a lot of money although it might not be clear and it might take time and angry unions to change the timetable. And if the secretaries are too busy then a school which wants to save money will actually take on more secretaries. But what about the third argument – that I am the best person to do my own photocopying. I am the most efficient at doing my own copying and it would take me longer to explain to someone else to do it than just do it myself. I am arguing that I have an absolute advantage in both activities. In this case surely specialisation is not a good economic decision?

Comparative advantage

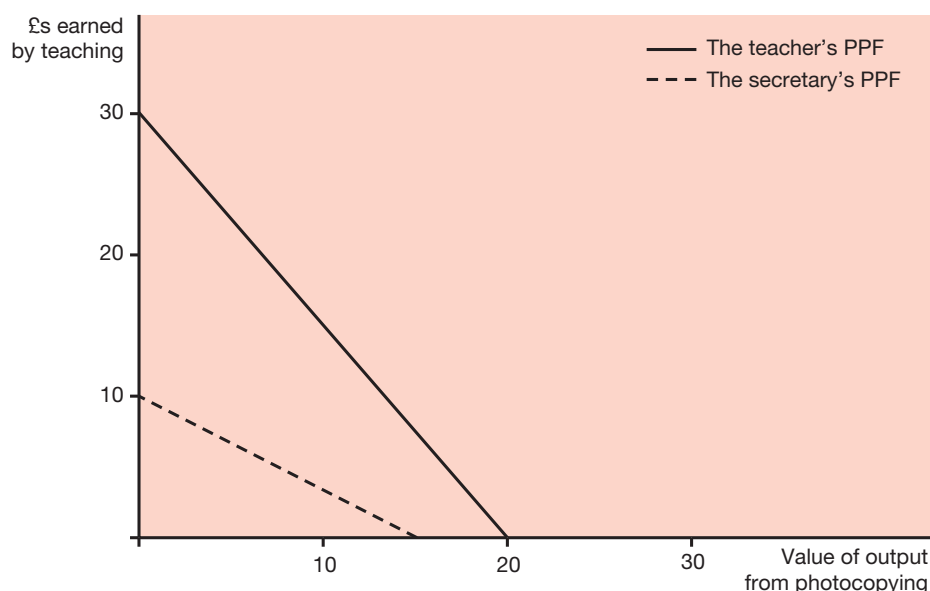
The comparative advantage argument is that even though I might be better at both activities, I am *relatively* better at one rather than the other. I am able to produce much more value for the school by teaching (£30 relative to the £10 which the secretary could earn as a teaching assistant). Let's now assume that the secretary can only produce £15's worth of copying in an hour, and I can produce more than the secretary per hour (£20) in terms of copying because I know what I'm doing and would take

Figure 2: Absolute advantage



1. *Raising Standards and Tackling Workload National Agreement* between Government, employers and five teaching unions, January 2003.

Figure 3: Comparative advantage



longer to explain how to do it rather than do it myself. Here it is still better if I specialise and then trade, because I can produce more value in each hour worked, and can buy in the copying at a lower cost.

We can still produce a higher value of output between us if I stick at what I am best at, and the secretary does what she's best at. I have an absolute advantage in both activities – better money earned by teaching than she could get and also I am better at doing my own photocopying because I am sure of what I'm doing, even if I do get frustrated. However it would still be better for me to do an extra hour of teaching, worth £30, with which I could 'buy in' photocopying as long as that didn't cost more than £30. In Figure 3 I could get £30's worth of photocopying if the secretary did it, rather than £20's worth if I did it. Okay, the secretary would take longer, but the total bill for her is less than £20. So the school has paid less and got more out. I have got a comparative advantage in teaching and the secretary has a comparative advantage in photocopying, even if I'm actually better at both. The secretary is *relatively* better at copying than me, her opportunity cost is lower, and therefore by specialising and 'trading' we can get more output from the same amount of inputs.

This can be shown by adding a new PPF in Figure 4 which shows the total amount that can now be produced if there was specialisation and trade. More output from the same amount of inputs is the same as saying there is a shift outward of the PPF. This is shown by the new PPF shown in red. It's a slightly

complicated issue in that in just one hour I can't now gain the full £30 value of copying. But I could if more secretary time were used, and that would still be profitable because the secretary is working for only £10 an hour but producing a value of output of £15. That is why the right-hand section of the PPF is shown as a broken line.

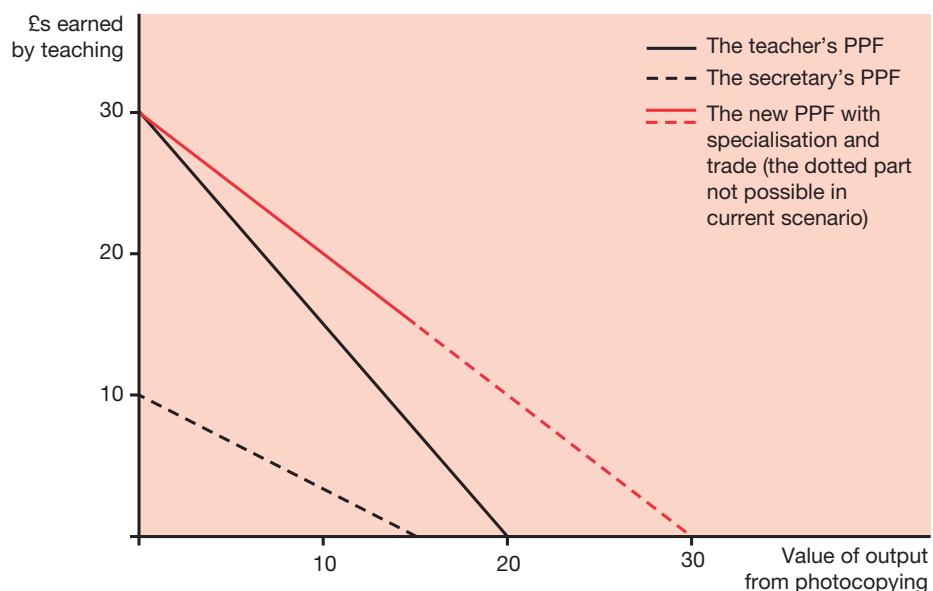
This can be applied to workers, firms and whole countries. Yes there are some assumptions such as there needs to be enough demand and there must be either constant or increasing returns to scale. Transport and transaction costs of traded goods and services must be cheap and the exchange rate benefiting both sides. We also ignore any external costs as production levels rise. But if you can ignore these things, you have more output from the same inputs. Everyone can be better off with no one being

worse off. Surely that makes good economics sense?

Questions for discussion

1. A doctor is earning £80 an hour in a clinic, but paperwork is taking up 10 hours a week and she doesn't get anything extra for that. Her managers have tried to persuade her to delegate paperwork to a secretary but she insists she is the most efficient person to do her own paperwork. Imagine you are a management consultant brought in to help improve the productivity in the clinic and to make the doctor morale improve to reduce staff turnover. What would you suggest?
2. How much should the secretary be paid in the photocopying example? Should the rewards from specialisation be shared between the teacher and the secretary, or taken by the organisation that governs the trade? In a free market would the gains from trade be split equally?
3. Rice is grown quite cheaply in Italy but much more cheaply in Vietnam. The UK buys a lot of rice from Italy – why is that?
4. One of the main arguments in favour of globalisation is that more trade means everyone can be better off with no one being worse off. However every year there are protests at any talks aimed at increasing trade between countries. What is it about the terms of trade that might mean that not all countries enjoy the benefits of comparative and absolute advantage?

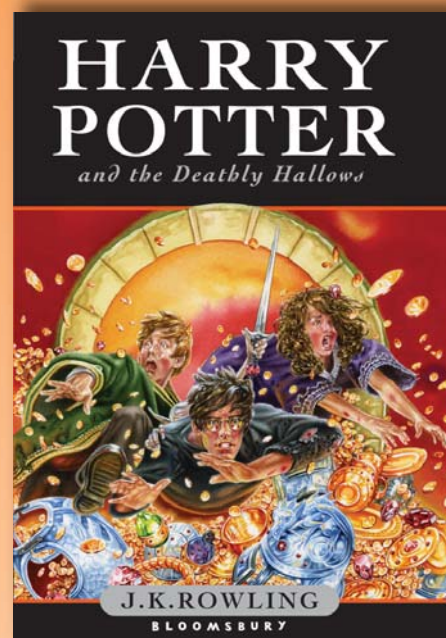
Figure 4: Specialisation and trade





The Economics of Harry Potter: The Final Volume?

In this article **Stephen Romer** reviews the extraordinary appeal of the J.K. Rowling series of books about Hogwarts School.



In 1997, Bloomsbury Publishing issued *Harry Potter and the Philosopher's Stone*, a fantasy story by an unknown author whose manuscript had previously been turned down by eight other publishers. It was about a boy battling a wizard, and was seen as a book which might achieve some modest success in the children's market.

In reality, the publication of the first Harry Potter book represented the start of the greatest commercial phenomenon in the history of publishing. For the next decade, the Potter series would make – and then break – records for sales in book markets all over the world.

By early 2007, the first half dozen

Potter books had been translated into 64 languages and published in 93 countries. Total global sales? About 325 million copies. And the books' author, J.K. Rowling, had become the wealthiest writer in history with a personal fortune in excess of half a billion pounds.

By 2007, four Hollywood movies of Harry Potter books had been produced, blockbusters with an aggregate global box office gross in excess of \$3.5 billion. Warner Brothers Potter merchandising was worth more than \$2 billion per annum. Universal Studios was building a theme park, 'The Wizarding World of Harry Potter', in Florida at a cost of \$1 billion. And then there were the video

games of the books clocking up many millions in yet further Potter-related revenue.

As regards the books, however, all good things come to an end: the seventh instalment of Harry Potter's adventures at Hogwarts School would be the last, said J.K. Rowling. And when the publication date of that final book, *Harry Potter and the Deathly Hallows*, was announced for Saturday 21 July 2007, there was a pre-publication frenzy of anticipation among Potter fans remarkable even by the standards set by the earlier books.

For *Deathly Hallows*, total advance sales worldwide exceeded 2 million copies, up from the 1.5 million advance orders for the previous book, *Harry Potter and the Half Blood Prince*, released in 2005. And more, much more than this, when the 2007 book was eventually published its full commercial impact was astonishing: in the US 8.3 million copies were sold in the first 24 hours, and in the UK (a smaller market but with proportionately higher sales) the first day saw 2.6 million units fly off the shelves of book retailers. The latter figure contrasts with about 2 million for the 2005 book. Within a month of publication, total UK sales of *Deathly Hallows* had amounted to 3.9 million copies.

Harry's fans went potty, and such was the impact that, within 24 hours of its release, more than 10% of all UK households had acquired a copy of *Harry Potter and the Deathly Hallows*. It had become the fastest-selling book in UK publishing history. The 'Harry Hysteria' of July 2007 provided a stimulus to all sectors of the bookselling market – conventional bookshops in the High Street, grocery supermarkets carrying bestselling books, and on-line bookstores.

Among the latter, Amazon enjoyed a 20% increase in its share price in mid-2007 partly due to excitement about the forthcoming *Deathly Hallows*. Orders had been accepted from as early as December 2006, an extraordinary seven months ahead of publication. It would become the biggest selling book title in Amazon's history. And more generally, the sheer volume of on-line sales in the UK (approximately 600,000 copies) caused the Royal Mail to organise a fleet of additional *Deathly Hallows* vehicles to ferry the books from the warehouses of Amazon, Waterstones Online and other mail order outlets.

Bargaining Power

Harry Potter and the Deathly Hallows was issued by Bloomsbury at a Recommended Retail Price (RRP) of £17.99. However, fierce price competition meant that most bookshops, supermarkets and internet sellers would offer the book at half price. As a matter of fact, the whole question of the pricing of *Deathly Hallows* became the subject of controversy in the period leading up to P Day.

Was a RRP of £17.99 too high? Asda, the supermarket giant, certainly thought so and expressed its opinion in no uncertain terms, accusing Bloomsbury of cashing in at the expense of the book market. Asda argued that, as the first Potter book, *The Philosopher's Stone*, had had a RRP of £10.99 it was difficult to justify £17.99 for a subsequent book.

Asda's 350 stores had ordered half a million copies of *Deathly Hallows*, but what was particularly interesting was Bloomsbury's response to Asda's

The pricing of *Harry Potter and the Deathly Hallows* may not have been a game of 'quidditch', but it is an example of what is sometimes referred to as a 'game' in Economics.

accusations of 'profiteering' on the RRP of the new title. Bloomsbury threatened to withhold supplies of the book from Asda. And in the end, the supermarket felt obliged to relent, backing down and offering an apology.

This episode is illustrative of how the vast success of the Potter books has given Bloomsbury significant bargaining power in its dealings with the normally very powerful supermarket sector. And a further example of this bargaining strength: on *Deathly Hallows*, Bloomsbury was in a position to say it would accept only an unusually low 10% return of unsold stock.

Bloomsbury's power reverses what has increasingly come to be seen as the standard economic relationship between the publishing industry and the book retailing sector, a relationship in which the latter often has the upper hand. For instance, the major book-selling firms normally have enough bargaining strength to oblige publishers to pay the sellers for in-store promotions of a particular title. Take the Christmas season (crucial to the book trade): in

2006, WH Smith was reportedly charging publishers £50,000 per week to have a book included in its (seemingly disinterested) recommended list.

To have a title listed as 'book of the week' (or similar) in Smith or Waterstone's would cost perhaps £10,000. And as for those familiar Three-for-the-Price-of-Two bookshop promotions, these are paid for by the publishers. A firm that is unwilling to pay will be a publisher of books which probably sell poorly, having little or no in-store visibility from the point of view of the bookstore browser. Such lack of visibility is a rather disadvantageous situation when you consider the sheer numbers of new books published in the UK every year (about 200,000).

Price Cuts

In its fight with Asda, Bloomsbury's argument was that £17.99 was a reasonable price given that *Deathly Hallows* is a book of 608 pages, well over twice the length of *The Philosopher's Stone*. However, it is interesting to note that the supply side costs of a Harry Potter book published by Bloomsbury (or a car manufactured by General Motors, a barrel of oil refined by BP or a mortgage account administered by the Halifax Bank) depend on the *average cost of production per unit*. It might have been more effective for Asda to argue that with the vast increases in the volume of production of successive Potter books significant economies of scale in the production process would have arisen, effectively driving down the unit costs of production of successive books.

The pricing of *Harry Potter and the Deathly Hallows* may not have been a game of 'quidditch', but it is an example of what is sometimes referred to as a 'game' in Economics. It is a strategic situation in which each player – each retailer of the new book – must decide what price to charge given the assumed pricing strategies of the other players.

In any given oligopoly market, firms are usually assumed to have a common interest in the avoidance of out-and-out price competition. If one firm were to make a unilateral price cut (hoping to enlarge its market share), the other oligopolists would probably respond by making matching price cuts. In the end, all of the firms would be worse off.

Thus, when you look at prices in an oligopoly market, it is often safe to make the assumption that you will see some



J.K. Rowling – the author of this hugely successful series.

form of parallel pricing which studiously avoids unilateral price cutting with its built in danger of a mutually ruinous price war. But what was remarkable about the pricing of *Deathly Hallows* in July 2007 was that it turned out to be a relatively rare example of price cutting among oligopolists (supermarkets and book chains), a price war which wiped out profits by taking the average retail price of the new book down to £8.99. This was a loss-making price, well below the wholesale price (£10.74) at which Bloomsbury was supplying the book.

Bloomsbury

As noted above, Harry Potter's author, J.K. Rowling, has accumulated vast wealth from her creation. For example, from the first 24 hours of sales of *Deathly Hallows* in the UK alone, J.K.'s bank

account saw another £5 million 'rowling' in. But it is not just the author herself who has enjoyed a windfall: for the publisher, Bloomsbury, and its shareholders, Harry Potter is the fabled gift that keeps on giving.

In 2005, for example, Bloomsbury published *Harry Potter and the Half-Blood Prince* and made profits reportedly in excess of £20 million from that one title. And from the Potter boom as a whole, Bloomsbury has built a cash reserve in the region of £50 million, more than sufficient to withstand the relatively lean years in which there is no new Potter book.

2006 was one such year, between *Half-Blood Prince* in 2005 and *Deathly Hallows* in 2007. 2006 did not see the publication of a new Potter title and Bloomsbury's profits dropped to

£5.2 million, down by almost 80%. On the average, Harry Potter has accounted for more than 50% of Bloomsbury's turnover during the past decade, and has facilitated the stability and growth of one of the few remaining independent publishing companies.

Although 2007's *Deathly Hallows* is to be the final instalment in the saga of Harry Potter, Ron, Hermione and Lord Voldemort, there is some scope, albeit diminishing, for Potter's publisher to continue to cash in over the next few years. A paperback of the 2007 book will be expected in 2008, and further new editions, boxed sets, audio books and other spin-offs may well be launched in years to come. And then there is J.K. Rowling's next book on whatever non-Harry Potter topic that might happen to be.

Like bookselling, book publishing in the UK is an industry with an oligopoly structure. It is dominated by four major multinational conglomerates which account for well over half of the publishing market – Random House, Harper Collins, Hachette and Penguin. Prevailing trends in the organisation of the publishing industry in recent years indicate that, sooner or later, independent publishers tend to be taken over by one of the dominant firms.

Bearing in mind that *Deathly Hallows* is the final Potter book, it is interesting to ask if Bloomsbury will be able to survive as an independent. Or will it attract takeover bidders to which its shareholders, having enjoyed the Potter boom years, will be only too pleased to sell? Bloomsbury's strategy is to attempt to keep shareholders content by sustaining the rapid rate of growth of recent years by using some of its Potter profits to invest in new markets – it has made recent acquisitions in the US and Germany (together with the UK, these are the largest national book markets in the world). And it is investing in adding new authors to its list.

Often compared with Roman Abramovich in the soccer transfer market, Bloomsbury has been able to wield a bigger cheque book than its rivals and to sign up some of the best (or most commercial) literary players. In recent years, Bloomsbury has added to its list a number of big names including William Boyd, the novelist, Hugh Fearnley Whittingstall, the TV chef, and Germaine Greer, the controversial writer and broadcaster.

Bloomsbury has been using its

£50 million Harry Potter windfall to sign up these and other celebrity authors. But it is important to note that there is no guarantee of success because publishing is an industry in which a high level of risk is usually associated with any given book project. In Bloomsbury's case, this is illustrated by the poor sales of the memoirs of the former Home Secretary, David Blunkett, for which a substantial advance was paid, and the reported £1 million paid for the autobiography of Gary Barlow, a pop star of years gone by.

For its critics, Bloomsbury has exhibited a degree of desperation about its post-Potter viability, significantly overbidding other publishers for possibly inferior book titles. And in entering the celebrity-orientated mass market, a once serious literary publishing house has, say some observers, sacrificed its integrity in what may turn out to be a futile attempt to appease institutional shareholders in the City of London. With the last Harry Potter book, Bloomsbury's train may well have left the station – departing from Platform Nine and Three Quarters.

Gimmicks

Sales were numbered in the millions, but there were few purchasers of *Harry Potter and the Deathly Hallows* who paid the full RRP of £17.99. Waterstone's was offering the book at £8.99 and a free *Guide to the Wizards of the World*. Most other major sellers, including the supermarkets, also priced the book at half the RRP.

But an industry-wide price of £8.99 might seem counter-intuitive since it suggests that what should be the most profitable book for many years ends up being given away at a loss of £1.75 per unit – bear in mind that the wholesale price was £10.74.

Over the years, a successful Potter-business gimmick has been to ensure that each new book is produced under conditions of maximum security so that, apart from the author and her editor, no one knows how the narrative develops ...until just after midnight on publication day when sales begin. It has been a brilliant business idea to permit sales of each new book from 00.01am on P Day, but not before.

And when the great moment approaches, long queues of excited children (and their browbeaten parents) form outside city centre bookshops from mid-afternoon ready for an extended wait until the magic moment when they can at long last get their hands on the



new tome. Now this scenario of midnight opening implies that losses to booksellers may well be significantly more than £1.75 per book: you must take into account the additional variable costs incurred (wages and other bills) in all-night opening on *Deathly Hallows* publication day.

There is, however, another view which says that these losses by bookshops are going to be outweighed by the longer term beneficial spin-off from midnight Potter publication parties. Excitement about a new Harry Potter story introduces tens of thousands of children to the idea of going to bookshops, and thus improves the chances that they will become habitual bookshop users later on in life. And this argument insists that the future market is further enlarged if the youthful consumer comes to regard his local bookshop, with its discounted Potter books, as a place of low prices and value for money.

Questions for discussion

1. Describe the economic environment of the publication of *Harry Potter and the Deathly Hallows*.
2. What factors influence the bargaining power in the relationship between the publishing and book retailing sectors?
3. Why in July 2007 did the majority of book retailers sell *Deathly Hallows* at a loss?
4. Outline the probable sources of economies of scale in the manufacture of Harry Potter books.
5. Bloomsbury Publishing hopes to sustain rapid growth by expanding its TV, sports and celebrity lists. What are the pitfalls of this strategy?
6. Was it rational to spend the summer holiday reading Harry Potter? Is there a utility-maximising number of pages one might aim to read (and not exceed)?

Summary of key points

- ▶ The Harry Potter series has broken all previous business records in the publishing and bookselling industries.
- ▶ There are economies of scale in the manufacture of large numbers of copies of a single book title, but reduced production costs are not always reflected in that book's RRP.
- ▶ The future of Bloomsbury Publishing after the publication of the final Harry Potter book is an interesting question
- ▶ The final Harry Potter book in 2007 was sold at a loss in many outlets.
- ▶ Booksellers see long-term gains in cut-price Potter books; it might encourage young Potter fans to become book buyers as adults.

Has the Tax System got it Wrong on Private Equity?



Andrew Reeve, Head of Economics and Business Studies, The King's School, Macclesfield, discusses the phenomenon of publicly-quoted companies being acquired and returned to private enterprise.

One of the largest business news stories of 2007 has been the take over of Alliance Boots, the retail chemist chain, by Kohlberg Kravis Roberts (KKR). At first glance this might appear to be strange. Boots is far from an interesting company; it does not have the glamour of a football club, airline or media company. Indeed, Boots the Chemist might be said to be rather dull. So, why the big interest in this takeover? The answer is that Alliance Boots is being taken over by a private equity firm and at the present time, private equity is in the media spotlight.

What is private equity?

The concept of private equity was introduced into the United Kingdom

around 25 years ago from the United States of America. In that time it has grown exponentially. According to the British Venture Capital Association, the private equity industry invests in around 1300 UK businesses each year.¹ Today, the private equity industry buys one in three companies sold and employs one in five people outside of the public sector.² The United Kingdom has a large private equity industry, second in importance to the United States and accounting for 51% of the total European total annual private equity investment.

So, what is private equity? Private

1. www.bvca.co.uk/doc.php.

2. www.bbc.co.uk, 'Money Talk'. Marek Gumienny interviewing Managing Director of Candover private equity firm on 20 June 2006.

equity firms are groups of wealthy investors who seek out under-performing companies and take them over, inserting their own management teams. Many of these under-performing companies are quoted on the London Stock Exchange and therefore, by being taken over they are 'de-listed' from the stock market and returned to private ownership. So essentially, private equity is a capital market in parallel to publicly-quoted companies.

There are two major types of private equity. The first type, venture capital and buy-out funds. Venture capital is the type of funding seen on the BBC television show *Dragon's Den*. A venture capitalist is often a wealthy individual or small fund that looks to invest in companies at an early stage in their development. This is very risky investment as the firm will generally have no track record at all. On the other hand the second type of private equity, buy-out funds, involves investment in more mature businesses than typical venture capital investments.

Private equity investors usually own the newly acquired business for several years, during which time they will work with the company's management at improving the company's performance, operations and strategic direction. Once the company has been improved, the private equity firm will look to sell it off. Often, this involves selling to a management buy-out team or another private equity firm. However, in about 20% of the cases, the exit by the private equity firm involves an initial public offering (IPO), in other words, the company is floated on the stock market.³

Who are the large private equity firms and how does private equity work?

The private equity firm in the media spotlight is currently KKR. This is an American firm established in 1976 and led by its co-founding members Henry Kravis and George Roberts. Over the years, KKR has completed more than 150 transactions with a total enterprise value of over \$318 billion.⁴ Other firms in the industry include Blackstone, GS Capital, Firestone, Bain Capital, Carlyle Group, Goldman Sachs and Permira. Tables 1 and 2 identify the largest firms in this area of business finance.

Tables 3 and 4 show some of the major transactions by these leading private equity firms.

Table 1: The 10 largest funds (completed)

Fund	Year	Size
1. Blackstone	2006	\$15.6bn
2. Texas Pacific	2006	\$15.0bn
3. Permira	2006	\$14.7bn
4. Providence Equity	2006	\$12.0bn
5. Apollo Investment	2006	\$10.1bn
6. Cinven	2007	\$8.6bn
7. GS Capital Partners	2007	\$8.5bn
8. Bain Capital Fund	2006	\$8.0bn
9. CVC European	2005	\$7.9bn
10. Carlyle Partners	2005	\$7.8bn

Source: P. Smith, 'Secretive sector steps into the glare of publicity', Special Report on Private Equity, *The Financial Times*, 24 April 2007.

Table 2: The 10 largest funds (still open)

Fund	Size
1. GS Capital Partners	\$19.00bn
2. KKR	\$16.63bn
3. Carlyle Partners	\$15.00bn
4. Thomas H Lee	\$9.00bn
5. Hellman & Friedman	\$8.00bn
6. Silver Lake Partners	\$8.00bn
7. Carlyle Europe Partners	\$5.00bn
8. Terra Firma Capital	\$4.00bn
9. Doughty Hanson	\$3.00bn
10. Fortress Investment	\$4.00bn

Source: *Ibid*.

Table 3: Top 10 private equity deals (in US)

	Year	Value (\$bn)	Target	Acquiror
1.	2007	44.37	TXU	KKR, TPG
2.	2006	37.71	Equity Office Properties	Blackstone
3.	2006	32.15	HCA	Bain Capital, KKR
4.	1988	30.20	RJR Nabisco	KKR
5.	2006	27.49	Kinder Morgan	GS Capital
6.	2006	27.39	Harrah's Entertainment	Apollo Management
7.	2007	27.03	First Data	KKR
8.	2006	26.70	Clear Channel Commun	Bain Capital
9.	2006	17.45	Freescale Semiconductor	Firestone
10.	2006	17.37	Albertsons	Supervalu

Source: *Ibid*.

Table 4: Top 10 private equity deals (in Europe)

	Year	Value (\$bn)	Target	Acquiror
1.	2007	16.62	Alliance Boots	KKR
2.	2006	11.29	VNU	Valcon Acqu
3.	2005	10.62	TDC	Nordic Telephone
4.	2006	10.41	AWG	Osprey Acyu
5.	2006	9.48	Philips Semiconductors	KKR
6.	2006	6.37	TDF	Texas Pacific
7.	2006	6.13	Assoc British Ports	Admiral Acqu
8.	2004	5.98	National – Scotland/South	Scottish and S. Energy
9.	2005	5.85	Amadeus Global travel Dist	Wam Acqu
10.	2005	5.14	ISS	PurusCo

Source: *Ibid*.

3. www.bvca.co.uk/doc.php.

4. www.KKR.com.

The 30 largest private equity deals in 2003-04 resulted in a 25% increase in jobs according to the *Financial Times*.



Let us turn our attention to how private equity works. Assume that there is an under-performing firm called 'Dizzy Ltd'. The price tag on this large corporation is £3 billion. A private equity firm such as Charterhouse, KKR or Blackstone considers taking it over. Even though these private equity firms are large, they cannot afford to buy outright firms such as Dizzy Ltd. Indeed, the private equity firm puts in relatively little of their own money, say £10 million. They then encourage other investors, such as pension funds, to put in a further £490 million. The remaining £2.5 billion is borrowed from banks. This is a huge amount of borrowing and if any other type of business asked to borrow these proportions of money, the request would probably be refused. We therefore say that private equity takeovers are highly leveraged. The banks are willing to lend this proportion of money because the private equity firm will tend to place a new management team into 'Dizzy Ltd' and their track record of improving under performing businesses is impressive.⁵

5. Example adapted from J. Randall, 'How tax system has got it wrong on private equity', *The Daily Telegraph*, 23 June 2007.

Some case studies

1. KKR set to take over Boots

Alliance Boots is the United Kingdom's largest retailer and wholesaler of drugs. Alliance Boots owns 2,600 'Boots the Chemists' stores in the UK and 400 overseas outlets in countries such as Thailand and Italy. At the time of writing this article, in the summer of 2007, KKR has offered £11.1 billion to take over the firm, de-listing it from the stock market and turning it into a privately owned firm. This values the company at £11.39 per share to Boots investors. The deal is a part-funded venture between KKR and Mr Stefano Pessina, the deputy chairman of Boots. Mr Pessina already owns 15% of the business. The current board of directors has already backed the bid and it is believed that KKR and Mr Pessina own around 28% of the company.

2. AA-Saga

In 2004 Saga, a company specialising in meeting the travel and insurance needs of those of pensionable age, was purchased by the private equity firm, Charterhouse. In the same year, the AA was sold by the utility company Centrica to two private equity companies, CVC and Permira. On the 25th June 2007, the three private equity firms announced a merger of Saga and the AA to form a new £6.15 billion brand. At first, it might appear strange that an insurance company specialising in older customers and a breakdown firm should merge. However, there are huge potential cross-selling opportunities between the two firms. The AA has 15 million members on its database and out of these, 40% are over 50 years old. The merger is essentially matching up Saga's efficient sales performance with the AA's customer database. Once again, the deal is based on a highly-leveraged structure with the new company having £4.8 billion of debt. On the other hand, Charterhouse, CVC and Permira were due to receive £2.4 billion of profits.

Table 5: Analysis of 30 largest private equity deals, 2003-04

2003 Company	Employers 2003-04	Latest available Employees	Change + / -
Canary Wharf Group	1,180	751	-429
S&N Retail	n.a.	n.a.	n/a
Debenhams PLC	23,549	24,716	1,167
Gala Group Ltd	9,748	17,500	7,752
Pubmistress Ltd	n.a.	n.a.	n/a
Inmarsat Ventures	537	479	-58
LINPAC	12,064	8,166	-3,898
Weetabix	2,843	1,612	-1,231
Waste Recycling Group	847	200	-647
Torex PLC	n.a.	n.a.	n/a
Fitness First	6,000	13,000	7,000
Pizza Express	7,586	7,483	-103
Aviagen Group	1,500	1,500	0
Accantia Health & Beauty	300	60	-240
Warner Village cinemas	2,000	4,000	2,000
2004			
South of England and Scotland Gas Pipelines	2,000	4,000	2,000
Warner Chilcott	n.a.	n.a.	n/a
AA	10,000	7,000	-3,000
Saga	2,999	3,854	855
NHP	8,000	30,000	22,000
HHG (Pearl)	1,100	200	-900
Four Seasons Health Care	20,000	20,000	0
New Look	12,166	15,406	3,240
Baxi Group	3,000	6,000	3,000
Queens Moat Houses	n.a.	n.a.	n/a
Auto Bar Group	n.a.	n.a.	n/a
Mentmore	254	438	184
Odeon Cinemas	8,600	8,200	-400
Dunlop Standard Aerospace (Engine repair division)	3,962	2,500	-1,462
Condor Ferries	1,000	900	-100
Totals	141,235	177,965	36,730

For fuller details of the deals *The Financial Times* scrutinised, see www.ft.com/buyoutsurvey.
Source: A. Taylor & C. Bryant, 'Workforce analysis', *The Financial Times*, 2 April 2007.

Private equity and job losses

Trade Unions have been severely critical of private equity deals in recent years. Clearly, if a business is taken over by a private equity firm, then there is a high chance of job losses as the new owners will be looking for ways to streamline the business. Indeed, trade unionists have condemned private equity firms as being 'asset strippers', only interested in making short term profits out of under-performing businesses. Take, for example, the AA. In 2004 it was sold to CVC and Permira for £1.7 billion. Since then around 3,000 jobs have been axed. Another example is 'Accantia', the firm which produces the 'Simple' brand of bathroom products such as shampoos and shower gels. In 2004, Accantia was acquired by the private equity firm 'Duke Street'. At the time of the acquisition, Accantia employed 300 staff and today,

despite being more profitable, it employs only 60. However, the perception that all private equity deals end in job losses is incorrect. *The Financial Times* has published an analysis of the largest 30 private equity deals made in 2003-2004. Together, these are worth around \$31 billion. It found that since these takeovers occurred, 36,700 additional jobs have been created in the companies involved, which amounted to around a 25% increase. One of these firms is 'Fitness First' which, since being placed under new private equity management, has launched a new strategic expansion overseas. Table 5 summarises the finding by *The Financial Times*, comparing 2003-2004 with the most recent employee information for the companies involved. These findings were supported by the Work Foundations employment figures which showed that 60% of

private equity-controlled companies had increased jobs over six years, while 36% had reduced employment.

Fat cats and the 10% tax loop hole

Students of economics should be aware that one of Gordon Brown's last jobs as Chancellor of the Exchequer was to abolish the 10% tax band for low earners. However, there is still a 10% taxation band on the profits of entrepreneurial activity. This was introduced by Gordon Brown as Chancellor, to encourage small scale entrepreneurial activity within the United Kingdom. But, this taxation band is being exploited by private equity firms.

Let us go back to the hypothetical example of 'Dizzy Ltd' quoted earlier. Remember that the private equity firm has only invested £10 million of its own money out of the £500 million equity funding. Also remember that the banks have lent the remaining £2.5 billion in order to complete the purchase. Let us now assume that after improving the business, Dizzy is sold for £4 billion, a profit of £1 billion. Unbelievably, the private equity firm will have negotiated a 20% slice of the profits, despite only investing 2% of the funds. It seems unfair, therefore, that these private firms are able to claim the special 10% tax rate on all of their profits, when only a small proportion of this has actually been invested. As Jeff Randall stated:

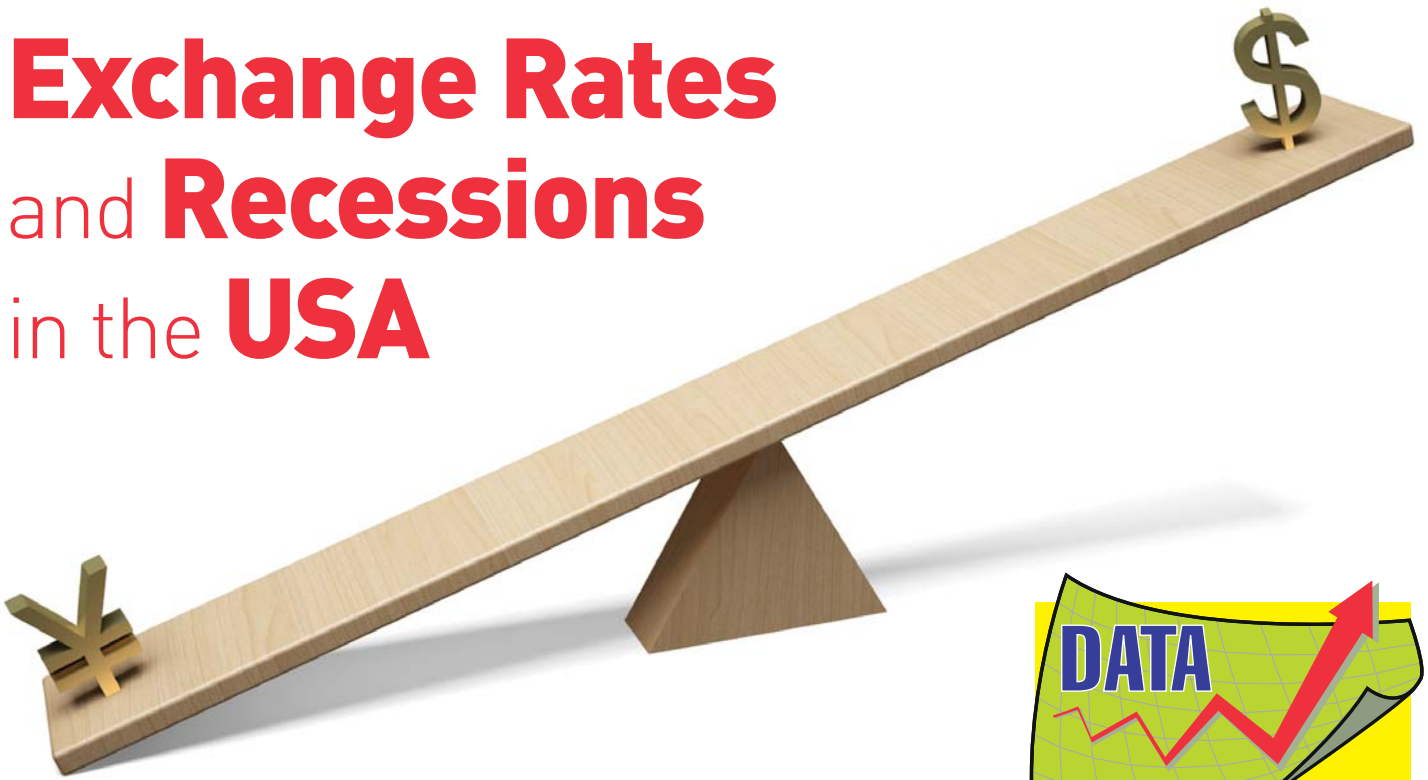
If the partners for the private equity firms are prepared to inject only 2% of the risk equity, they should only be entitled to no more than 2% of their share of the overall profits. This has led to a perverse situation of some of the richest individuals in the country being taxed at a lower rate than the cleaners cleaning their offices."

The Daily Telegraph, 23 June 2007.

Summary

Private equity has been a significant business story over the past few years. Although the trade unions are wary of the deals, citing job losses in certain sectors, there is some evidence that private equity is good for the United Kingdom's economy because it has led to the creation of jobs. However, the escalation of deals in the past few years are too recent to analyse in order to determine their true economic importance.

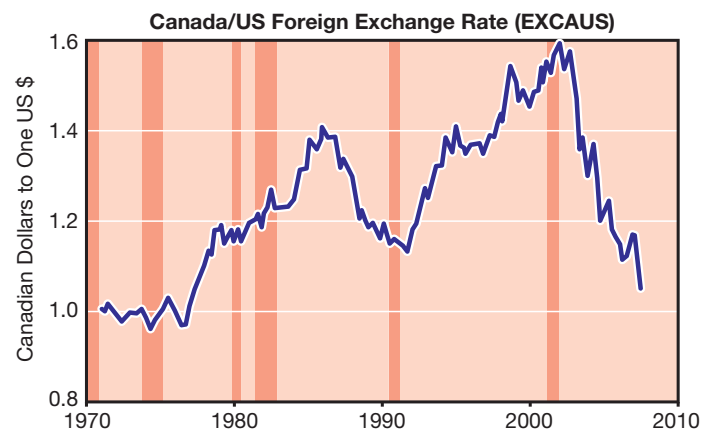
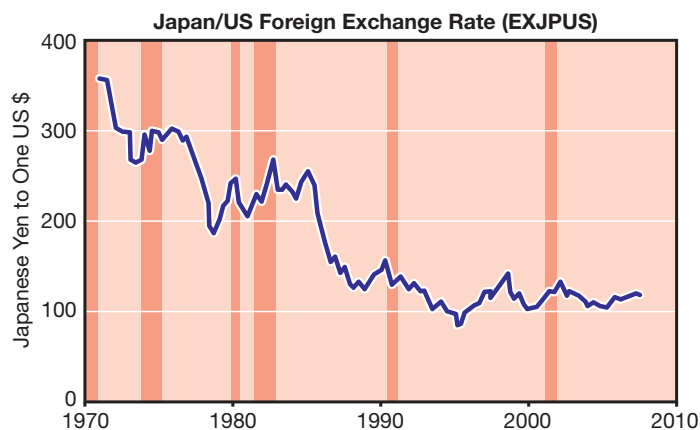
Exchange Rates and Recessions in the USA



Tony Emery of Bury College, and a Principal Examiner, considers a data response question on some macroeconomic data.



The graphs show long run (1970 to 2007) trends in the US \$ exchange rate against the Japanese Yen and the Canadian \$. In these thirty-six years five periods have been identified as recessions in the US and these are shown as shaded areas on the graphs. Study the graphs and answer the questions which follow.



Source: <http://research.stlouisfed.org>

- (a) (i) Compare the change in the value of the Japanese and Canadian exchange rates against the US \$ between 1970 and 2006. (4 marks)
- (ii) Why are many countries' exchange rates usually quoted against the US \$? (2 marks)
- (iii) Use the graphs to suggest how the exchange rate between the Canadian \$ and the Japanese Yen might have altered between 1970 and 2006? (3 marks)
- (b) (i) What is meant by a recession? (3 marks)
- (ii) Examine the evidence in the graphs for the assertions that:
- recessions are a regular and predictable feature of economic activity.
 - in times of economic weakness, such as a recession, a country would face a depreciating exchange rate.
- (iii) Explain why a country might experience an appreciating exchange rate during a recession. (6 marks)
- (c) Discuss whether the US government should be equally concerned about the changes in both the exchange rates between 2000 and 2006. (6 marks)

Suggested approaches to this question

- (a) (i) Compare the change in the value of the Japanese and Canadian exchange rates against the US \$ between 1970 and 2006.** (4 marks)

The Yen rose against the US \$ by about 300%. The Canadian \$ fell by under 20%.

This can be a tricky exercise! Be sure to realise the need to reverse the direction of the change because the graphs show the changing value of the US \$. Secondly, be prepared to approximate values shown in graphs. Finally, recognise the difference in the scale of the two graphs, which exaggerates the relative changes.

- (a) (ii) Why are many countries' exchange rates usually quoted against the US \$?** (2 marks)

This reflects the importance of the US \$ in international trade and the quantity of US \$s owned by the international community, both as official reserves and privately. This makes it the pivotal currency. In earlier times the same applied to sterling when the UK was a leading economic power.

Be prepared to clarify things that you have previously just taken for granted.

- (a) (iii) Use the graphs to suggest how the exchange rate between the Canadian \$ and the Japanese Yen might have altered between 1970 and 2006?** (3 marks)

In 1970 one Canadian \$ exchanged for about 360 Yen. By 2006 the rate of exchange was 1 to 100 approximately. There had been a fall of 260 Yen per Canadian \$ or about 72%. The Canadian \$ weakened significantly.

You have to be prepared to manipulate numbers so it's worth having a calculator to hand.

- (b) (i) What is meant by a recession?** (3 marks)

A recession is a sustained period when output, employment and real income are falling. It is usually identified as a period of two consecutive quarters of falling aggregate output. It is interesting that although there is this definition the American authorities have an independent panel of experts who decide when a recession can be identified. This is what is shown in the graphs.

The mark allocation suggests that a combination of the features and definition are required.

- (b) (ii) Examine the evidence in the graphs for the assertions that:**
- recessions are a regular and predictable feature of economic activity.

While 1970, 1980, 1991 and 2002 suggest regularity (about every decade), this is contradicted by 1974 and 1983. It would be difficult to predict the next recession on this basis. There are currently predictions of an imminent downturn, this would not match the 10/11 year frequency. The length of the recessions also varies between one and two years suggesting more inconsistency. This data is only for the US, which might be atypical of other developed nations.

- in times of economic weakness, such as a recession, a country faces a depreciating exchange rate. (6 marks)

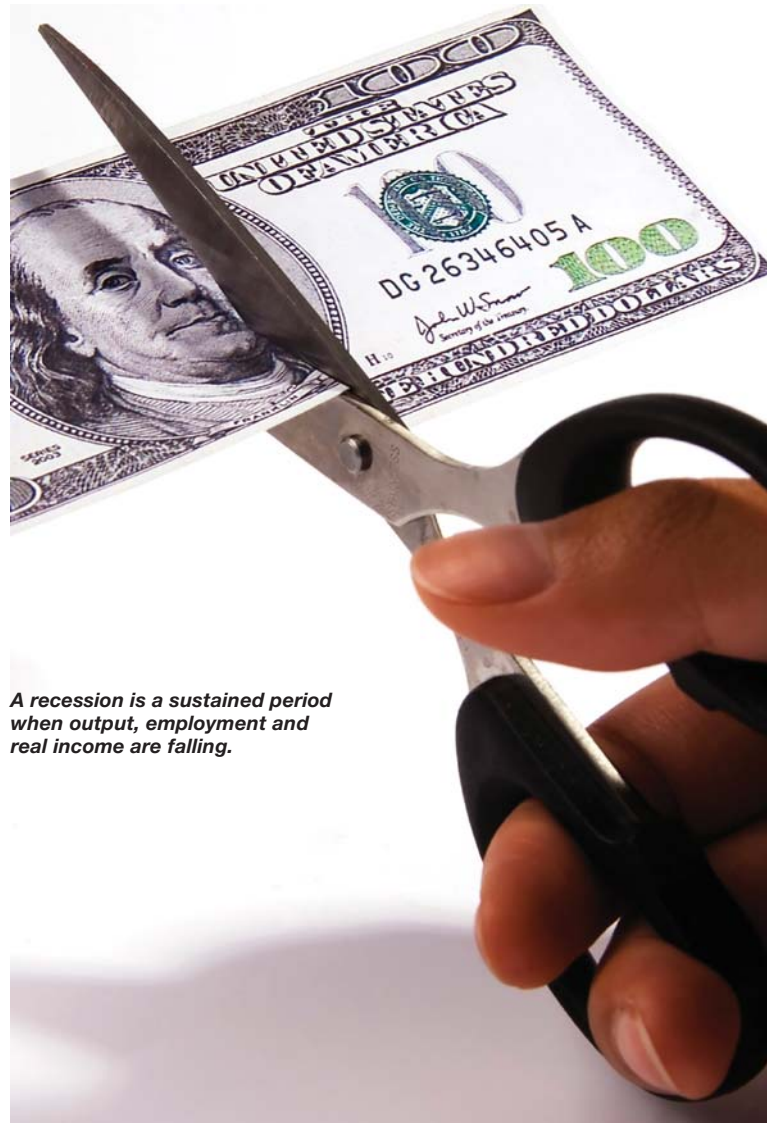
This can be checked against 10 recession periods (five for each of the currencies). There seem to be four when the rates rose, four when they fell and two when they were about the same at the end as the start of the period. During the recessions the exchange rates both rose and fell. The behaviour was the same for both rates in each recession. The assertion is not borne out in a conclusive way by the graphs.

Several points here:

- do not be over-impressed by apparently authoritative statements;
- be prepared to find conflicting data; and
- remember to stay within the confines of the question, which only asks for judgement of the evidence not explanations.

- (b) (iii) Explain why a country might experience an appreciating exchange rate during a recession.** (6 marks)

This was seen in four of the five recessions shown in the data. If unemployment was rising and incomes were falling aggregate expenditure would fall. This might reduce the demand for imports and lower the demand for foreign currency. If the real price level falls, exports may become more competitive, resulting in increased sales and higher demand for the domestic currency. This combination would



A recession is a sustained period when output, employment and real income are falling.



push up the exchange rate given the right elasticities of demand. The impact of flows for investment and speculative flows might be uncertain but assets might look cheap to put upward pressure on the exchange rate or loss of confidence might work in the opposite direction. Government expansionary policy might also affect the position. The direction of flows would also depend on the depth of the recession relative to other economies.

A lot of possibilities with six marks available so try to go beyond the trade elements. Be sure to clarify any assumptions underlying your analysis.

(c) Discuss whether the US government should be equally concerned by the changes in both of the exchange rates between 2000 and 2006. (6 marks)

Start by identifying the changes that need discussing. The US \$ rose against the Yen (about 10%) but fell against the Canadian \$ (about 20%). This is the reverse of the pattern over the whole period. In trade terms there might be a worsening in the balance with Japan but an improvement with Canada. This suggests that there should be more concern with the US \$ Yen exchange rate.

Such a conclusion, however, needs more background information than is available in the data. What is the starting position on the trade balances? Are they deficits or surpluses? Are the trends likely to continue or are they approaching a turning point? What is the relationship between the economies? Are they rivals or do they complement one another with significant interdependence?

It's worth considering what an A level candidate might be reasonably expected to know which would help to tackle the question. The fact that the US and Japan are the two biggest economies and traders in the world is relevant and that there is a large trade imbalance working in Japan's favour. Also there is the fact that the US and Canada are two of the partners in the North American Free Trade Area. These again support the original conclusion. Without more data this must remain a very tentative suggestion.

Note the change in the time period! This part is more of a consideration of the limitations of data than the repetition of a standard argument. The examiner will be looking to reward the ability to reason from an economic perspective, so show that you have a critical but constructive approach to the issues. It is important to appreciate the limitations of data for particular tasks.

Additional tasks

1. Compare recent to earlier recessions in the US by going to the website NBER.org/cycles.
2. Use the same website to look at the thinking behind the conclusions of The Business Cycle Dating Committee, which has to produce a report on its decisions similar to that of the MPC in the UK.
3. At www.dailyreckoning.co.uk you can read an explanation of the 'Impending US economic recession'.
4. Details of the economic relations between the US and Japan and Canada can be found by visiting tokyo.usembassy.gov and Canada.usembassy.gov. This would help for part (c).
5. Finally put US dollar crisis into any search engine and take your pick. There is even a website called dollarcrisis.com, although the articles by F. William Engdahl and William Keegan are particularly useful.

THE ESSENTIAL MAGAZINE FOR 'A' LEVEL ECONOMICS

ECONOMICS TODAY

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November 2007

Volume 15 · Number 2

ECONOMICS TODAY



IN THIS ISSUE:

HOW SHOULD A
CURRENT ACCOUNT
DEFICIT BE
CORRECTED?

HOW DOES UK
ECONOMIC
PERFORMANCE
AFFECT THE BUDGET
DEFICIT OR SURPLUS?

HOW WILL INCREASING
CONSUMER DEBT
AFFECT THE UK
ECONOMY?

VIEW FROM THE CITY:
*How tight are monetary
conditions?*

CURRENT TOPICS IN
ECONOMICS:
*The economics of
Harry Potter*



What are the arguments for and against the
Government's promotion of renewable energy?

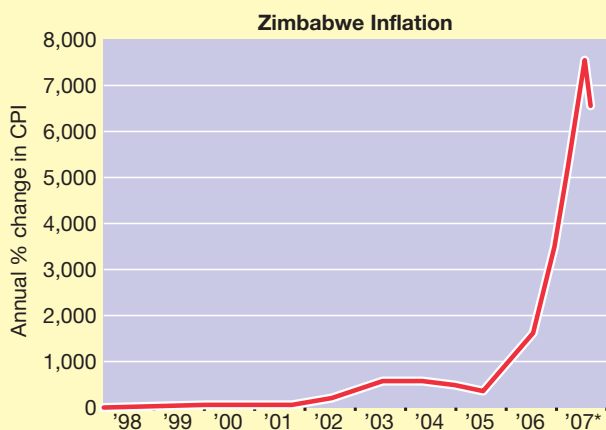
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ECONOMICS TODAY

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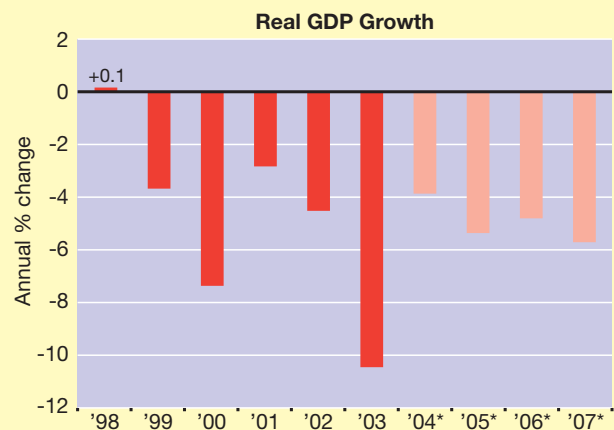
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Inflation in Zimbabwe could reach 100,000%



Source: IMF *Estimates



According to the International Monetary Fund inflation in Zimbabwe could reach 100,000% by the end of 2007. As the left-hand chart above shows, official figures from the Zimbabwe government show that the inflation rate reached a record high of 7,634.8% in July, and then declined to 6,592.8% in August. This is the highest inflation rate in the world although other sources put the current inflation rate much higher.

It would appear that Zimbabwe is on the verge of hyperinflation similar to the situation in Germany in 1923. Once it reaches this level, the currency ceases to act as a medium of exchange. The right-hand chart above shows that Zimbabwe's economy is imploding, with continuous falls in real GDP since 1999. Apart from runaway inflation, there are also acute shortages of fuel and foreign currency and severe food shortages.

The government introduced price controls in July

which attempted to force prices down by 50% in many areas. However, businesses were not able to sell at a profit at these prices which led to shops and supermarkets having virtually empty shelves. This led to accusations that it was not clear what prices the government were basing their inflation measurements on as little was being sold at the official price levels. About 6,000 people, mainly retailers, were fined for breaking the regulations. But in August the government did allow a 300% rise in the price of cooking oil and cattle.

In August, Abdoulaye Bio Tchane, the IMF's director for Africa said: "International experience shows that once inflation reaches high levels and policies do not change, inflation rates tend to accelerate exponentially." Whether this will be the fate of Zimbabwe remains to be seen.

Prize Competition

for AS Students



Consumer Debt

Read the article 'How will Increasing Consumer Debt affect the UK Economy?' on pages 28 to 32 and then answer the questions. The numbers in brackets tell you how many letters there are in each word of the answer. All you have to do is send your 10 answers to us by 7th February 2008. The first one out of the hat will win £25 in music tokens.

1. What does this define? "The sum of money owed by a household to another person." (8,4)
2. What type of debt is incurred by borrowing on a credit card? (9)
3. If a household borrows from a bank or building society against the security of their house, what is this form of loan called? (8,6,10)
4. What is another word for when a house is put up as security for a loan? (10)
5. What do economists call the model or hypothesis whereby young adults borrow money knowing that they will be able to repay the debt as older workers? (4,5,9,6)
6. What name is given to the lending sector where banks lend to those who may find it more difficult to repay? (3-5)
7. What is it called when homeowners feel better off due to rising house values and spend more on consumer goods as a result? (6,6)
8. In theory, house prices should reflect the present value of a stream of _____ . (6,8)
9. What is it called when homeowners owe more in mortgage borrowing than the value of their house? (8,6)
10. What is it called when households borrow to finance higher mortgage repayments? (8,9)

Send your answers to: **Economics Today Ltd., Stocksfield Hall, Stocksfield, Northumberland NE43 7TN**, marking your envelope 'Prize Competition'.



**£25 in music
tokens to be won!**

Prize Competition

for A2 Students



UK's Balance of Payments

Read the article 'How should a Deficit on the UK's Balance of Payments Current Account be Corrected?' on pages 8 to 13 and then answer the questions. The numbers in brackets tell you how many letters there are in each word of the answer. All you have to do is send your 10 answers to us by 7th February 2008. The first one out of the hat will win £25 in music tokens.

1. Since what year has the UK experienced a deficit on its Balance of Payments current account? (4)
2. What is another name for trade in goods? (7,5)
3. How could you describe the UK's income elasticity demand for imports? (6,4)
4. What is the name given to a policy which aims to reduce demand for imports by replacing it with demand for domestically produced goods? (11-9)
5. What is the name given to fixed limits on the amount of a particular good which can be imported? (6)
6. What is the name given to the loss to society as a whole as the result of the imposition of a tariff? (10)
7. What is the name given to the situation where the sum of the elasticities of imports and exports is greater than one? (8-6,9)
8. What is the name given to the situation where a depreciation in the exchange rate causes the current account deficit to initially worsen before it improves? (1-5,6)
9. The reduction of corporation tax to encourage businesses to expand and be more productive is an example of what type of policy? (6,4)
10. If the type of policies in the answer to Question 9 are applied, in what direction will these policies shift the Aggregate Supply curve? (8)

Send your answers to: **Economics Today Ltd., Stocksfield Hall, Stocksfield, Northumberland NE43 7TN**, marking your envelope 'Prize Competition'.

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