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As an Economy nears Full Employment will Inflation have to Increase?

__Jonathan Mace__ of Malvern College considers some key aspects of macroeconomics.

Exam Board	AS	Unit	A2	Unit
AQA			✓	6(15.2)
Edexcel			✓	6
OCR			✓	2887 (5.7.5)
WEJC			✓	5(B)
CCEA				
Int. Bacc.	Higher 3.5			

Before Gordon Brown made the short journey from No. 11 Downing Street as Chancellor of the Exchequer to No. 10 as Prime Minister, he had spent 10 years presiding over a very NICE (A non-inflationary consistent expansion) economy.[1] Inflation in the UK has remained low and stable, growth of the national income has continued at a sustainable pace and at the same time unemployment has continued to fall. The UK economy seems to have punched traditional economic theory in the teeth and emerged laughing. What does traditional economic theory suggest will happen to prices as the economy nears full employment? How and why has the UK economy achieved stable prices and falling unemployment?

What is full employment?

Like many areas of the subject there is no one agreed definition of full employment. For the purposes of this article we will assume that everyone who wants to work at the given wage rate in an economy is working. (The labour market is in equilibrium – labour supply = labour demand.) Therefore the only type of unemployment that exists at this point is *voluntary unemployment*. This is known as *the natural rate of unemployment*. Economic theory would suggest that as the economy gets closer to full employment inflation will rise. There is an *economic trade off*. But will this always be the case? Evidence examined later in the article will show that inflation is not an inevitable consequence of the economy approaching full employment but a starting point must be a theoretical understanding of why this trade off can occur.

Phillips Curve

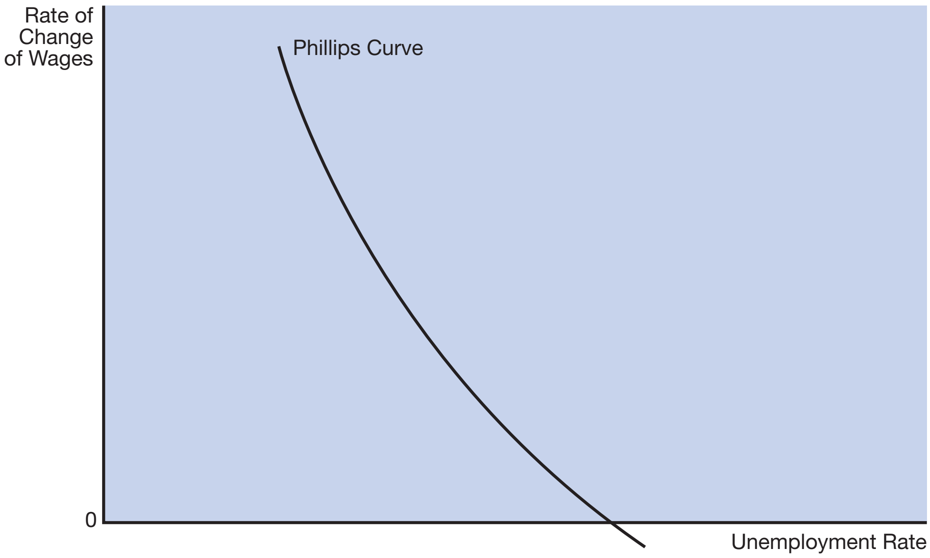
In 1958 a New Zealand born economist from the London School of Economics, A.W. Phillips published a significant piece of work examining the relationship between the rate of change of money wages in an economy and the level of unemployment. He used UK data from 1861 to 1913. The original Phillips curve can be illustrated using Figure 1.

Since the original publication of his findings the curve proposed in Figure 1 has been adapted into many forms but the one most commonly used by economists is shown by Figure 2. Wage inflation in an economy has been replaced by the economy's inflation rate – i.e. the increase in prices. This is due to the fact that since wages make up a large proportion of firms' costs, changes in wages feed directly through to changes in the price level.

A 'trade off' exists between inflation and unemployment. If as in Figure 2 the government decides it wants to reduce unemployment from 6% to 4% it will incur a rise in inflation from 3% to 5%.

If a government wished to reduce the level of unemployment in the economy they should, according to Phillips, expect a trade off in terms of higher levels of inflation. This relationship began to break down in the 1970s, the UK began to experience 'stagflation' – rising inflation and unemployment. We will return to this later in the article. For the purposes of building your analysis you should also consider this argument in terms of AD/AS analysis.

Figure 1: The original Phillips Curve

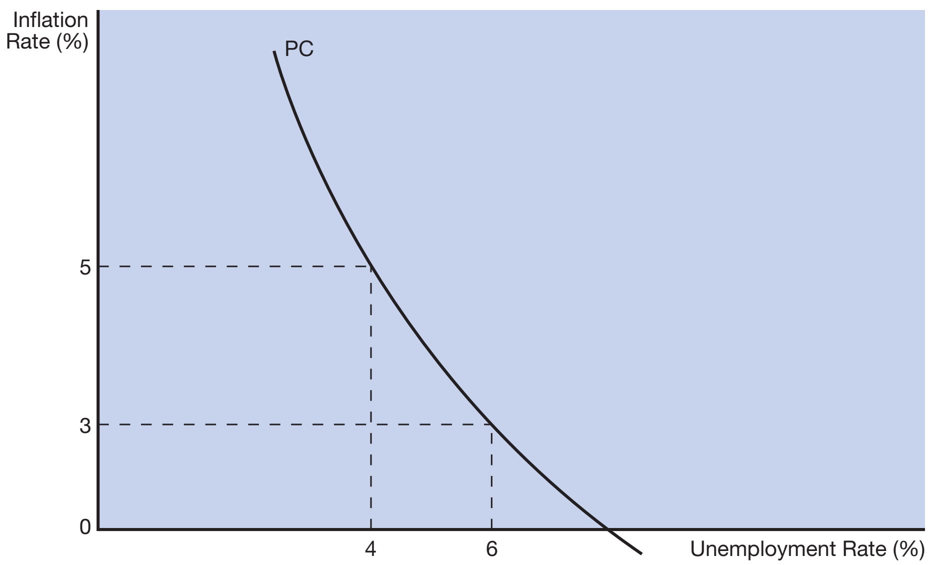


Aggregate Demand and Supply

Based on Figure 3, if the economy is originally in equilibrium P_1Y_1 and it feels that the current level of unemployment is too high (the output gap is too large ($Y_{FE} - Y_1$) (spare capacity exists in the economy) they may engage in counter cyclical demand management. Demand management means trying to adjust the level of Aggregate Demand (AD) nearer to full employment, in order to reflate the economy. These policies are known as expansionary or reflationary economic policies. These can take the form of fiscal or monetary policies.

As the output gap falls ($Y_{FE} - Y_2$) (and hence unemployment falls) there is increased pressure on prices (P_2). The economy begins to experience demand-pull inflation. So in this case as the economy nears full employment inflation will rise.

Figure 2: The amended Phillips Curve



1. http://www.bankofengland.co.uk/publications/speeches/2003/speech204.pdf

A booming economy such as China's may cause a rise in demand for commodities leading to inflation.

Figure 3: Aggregate demand moving closer to full employment

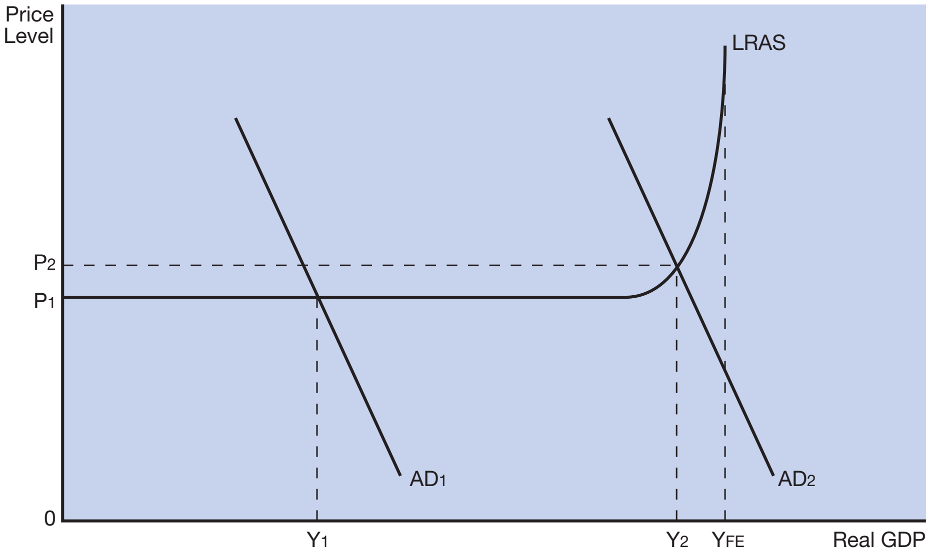
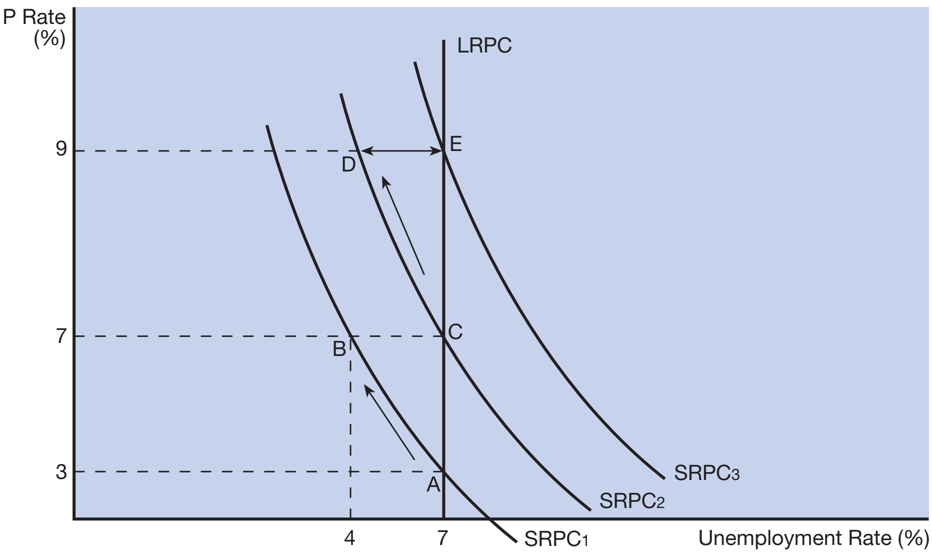


Figure 4: The Expectations Augmented Phillips Curve



Aside from the AD/AS analysis of inflation other reasons why as unemployment falls inflation will rise could include:

- An increased number of workers in work increases the bargaining power of workers and hence they push for higher wages. Higher wages = higher unit costs which could potentially lead to higher prices.
- As unemployment falls in an economy there is a risk that the economy will suffer skills shortages. This in turn can drive wages and earnings higher, leading to increased unit costs.
- A booming economy (as in the case of China) might cause a rise in demand for commodities. This can lead to further cost push inflation.
- If actual unemployment falls below the NAIRU (non-accelerating rate of unemployment) inflation may rise.

What is NAIRU and how does it explain the trade off between inflation and unemployment?

NAIRU and the Long Run Phillips Curve

As stated earlier in the article the existence of the trade off between inflation and unemployment was supported by data up until the 1970s. But the model began to break down and monetarist economists under the leadership of Milton Friedman adapted the model to create the Expectations Augmented Phillips Curve and the concept of NAIRU. Figure 4 can be used to explain the Expectations Augmented Phillips Curve.

Assume that the economy is in long-run equilibrium at point A on the $SRPC_1$ (Short Run Phillips Curve). We can assume that at this point the economy is at full employment and therefore in Figure 4 a natural rate of unemployment of 7% exists, economic agents in the economy expect inflation of 3%, and therefore will negotiate pay increases to this level.

The government decides that this level of unemployment is too high and decides to target aggregate demand. AD increases and this in turn causes an increased demand for labour. This though increases inflation to 7%. In the short run, workers are attracted back to work because they believe higher wages will be on offer and the economy moves from A to B. Workers though have suffered money illusion, nominal wages

have risen but real wages have not done so. These workers now leave their jobs and unemployment goes back to the natural rate, but now with inflation at 7%.

The economy does not return to point A. People will expect prices to continue to rise at 7% and will negotiate wage increases to this level. The economy will be at point C, on a new SRPC2. This process will continue and any attempt to use demand management again will only result in higher inflation (C to D to E), on a new SRPC3. Based on this analysis monetarist economists say that the long run Phillips Curve (LRPC) is vertical at the natural rate of unemployment (NRU). If the economy has settled at this natural rate (NRU), as long as governments do not use expansionary policies, inflation will not increase. The natural rate of unemployment is the unemployment that occurs when the economy is at full employment and the labour market is in equilibrium.

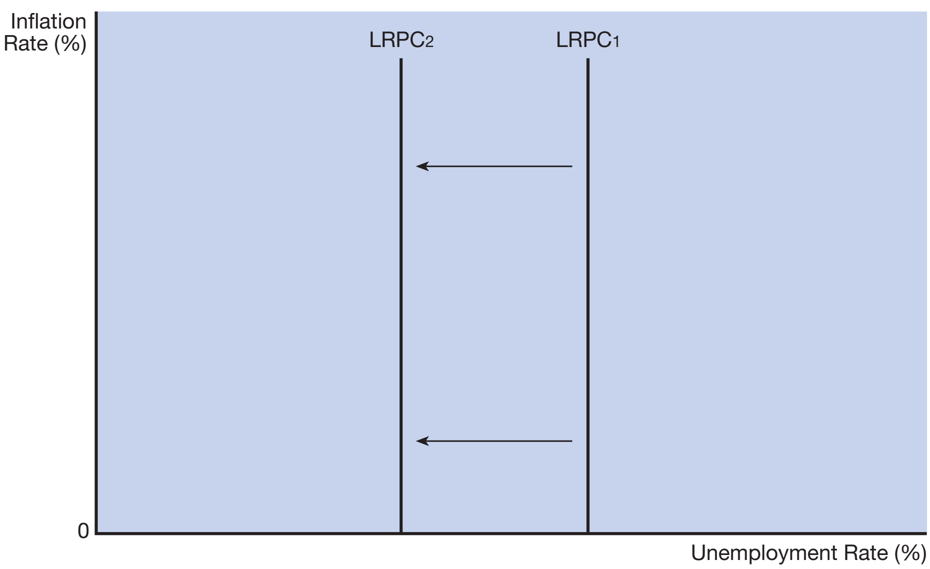
Whether inflation will always increase depends upon the level of NRU with any given economy.

The OECD recently published some research that tried to calculate changes in the NRU in a variety of economies. A selection of these rates is summarised in Table 1. Long run unemployment or the natural rate can be reduced but this requires *supply side* rather than demand side policies. Economies that have a highly flexible labour force, with strong occupational and geographical mobility are likely to have a very low NRU. This would have come about through strong investment in the supply side.

Supply side policies therefore aim to shift the LRPC to the left as in Figure 5. This reduces the level of natural unemployment, e.g. Australia in Table 1.

The conclusion that can be drawn here is that all economies may experience a trade off but they will experience it at different rates depending upon the level of NRU that exists in the economy.

Figure 5: Reducing NRU



Other reasons why it is not inevitable inflation will accelerate

- There may be rising productivity in the economy which would offset the impact of rising wages and hence leave unit labour costs unchanged.
- Effective monetary policy can help keep inflation down as unemployment falls. This being the case in the UK where since 1997 Gordon Brown (now Alistair Darling) and the Bank of England have been engaging in 'Third Way' economics. Through the success of monetary policy households and firms' price expectations have fallen. This feeds through directly to wage demands. Likewise firms are more willing to invest because they do not expect sudden changes to interest rates and households are more willing to consume. The UK has therefore experienced the phenomenon of low-inflationary growth.
- Other external factors may also work in an economy to keep inflation down as an economy approaches full employment e.g. technological change and the impact of globalisation (forcing economies to be as price competitive as possible).

Conclusion

In summary as an economy nears full employment traditional economic theory suggests inflation will increase. The reality of strongly performing economies such as the UK shows this proposition is not at present the case. The UK economy under a new Prime Minister is an interesting one to observe as to how long the strong performance in both inflation and unemployment can continue.

Questions for discussion

1. What are some alternative economic definitions of Full Employment?
2. How can the concept of stagflation be explained?
3. Why have aspects such as transparency, accountability and credibility played such an important role in monetary policy in the UK since 1997.
4. What do you think has happened to NRU in the UK since 1999? What economic policies do you think have caused this?

Table 1: OECD Estimates of Natural Rate

Country	NRU 1995	NRU 1999
UK	6.9%	7.0%
US	5.3%	5.3%
Japan	2.9%	4.0%
Australia	7.1%	6.8%

Source: OECD – http://www.oecd.org/dataoecd/27/46/18464874.pdf

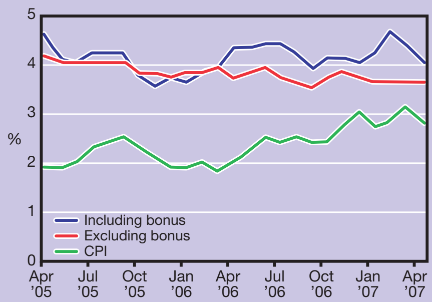
Summary of key points

- **Full employment is when the labour market is in equilibrium and everyone who wants to work is working. Only a level of voluntary employment exists.**
- **Traditional economic theory, as demonstrated by the Phillips Curve, would suggest that as unemployment fell in an economy inflation will rise.**
- **The breakdown of this model, in the 1970s, led to its adaptation by the monetarists and the creation of the Expectations Augmented Phillips Curve and the concept of the Natural Rate of Unemployment (NRU).**
- **Inflation is not always the inevitable outcome of falling unemployment. Governments can take steps to reduce its likelihood, e.g. reducing NRU and price expectations within an economy.**

TAKING IT FURTHER

with Chief Examiner,
Robert Nutter

1. The Bank of England Monetary Policy Committee (MPC) believes that average earnings growth in the UK should not rise above 4.5% otherwise it will threaten the inflation target of 2% using the consumer price index (CPI).

   The graph shows the % average earnings growth in the UK in recent years both including and excluding bonuses. Investigate the reasons why the MPC believes that earnings growth should be kept below 4.5%.

   http://news.bbc.co.uk www.bankofengland.co.uk

2. Although in recent years both UK unemployment and inflation have been low (contradicting the Phillips Curve), many economists believe that the official Labour Force Survey figures underestimate the numbers unemployed. It has been argued that many of the people 'economically inactive' (those of working age who are either not working nor actively seeking work) are in reality unemployed.

   (a) Who are the economically inactive?

   (b) Why do they not compete in the labour market?

   www.statistics.gov.uk

   www.telegraph.co.uk (How 8m people dropped out of the labour market 14/06/07)

   www.cesi.org.uk (Who are the economically inactive?)

The Market for Broadband

*In this new regular feature **Peter Cramp** of Nottingham High School reviews the nature of competition between internet service providers.*

Access to the internet has changed beyond recognition in recent years. Most users still connect to the internet using their telephone line, but rather than doing so through a relatively slow 'dial-up' modem which causes the line to be engaged when the internet is being used (unless there is a dedicated second phoneline), they increasingly do so through a broadband connection. Broadband 'splits' the telephone line so that both voice and data can be transmitted along one line and enables data to be transmitted at rapid speed. This makes it possible to download huge files in seconds, a great advantage to those who wish to access music and video from the internet. Broadband connections have the additional advantage that they are 'always on'. If the computer is turned on, the user is connected to the internet.

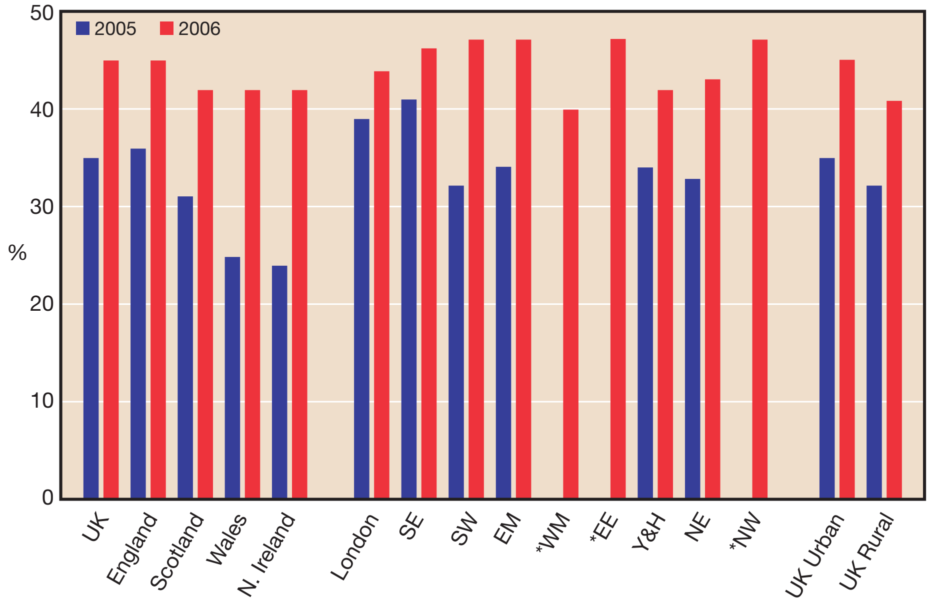
The UK market for broadband is growing rapidly, and Figure 1 shows big increases in all parts of the UK in the take-up of broadband in 2006. In the first quarter of 2007, the market grew by a staggering 6.4%. This implies an annual growth rate of 25% plus. In Ireland first quarter growth was 15%! At the end of March 2007, there were 14 million broadband subscribers in the UK.

Market structure

The 'big two' broadband providers in the UK are BT and Virgin Media. In the first quarter of 2007, BT gained 440,000 customers to regain its position as market leader. This gave it 3.7 million broadband subscribers and a market share of 26%. Virgin Media had 3.4 million subscribers at this time. The combined market share of the two firms (the two-firm concentration ratio) stood at around 50%.

There are a number of other firms with significant market shares (Figure 2 shows the UK's top ten broadband providers in June 2007) and a large number of smaller players. In total there are at least 70 internet service providers

Figure 1: The increased market for broadband in 2006



Source: ofcom, *The Communications Market 2007: Nations & Regions*

Figure 2: Top ten UK broadband providers in June 2007

1. BT	6. Tiscali
2. Virgin Media	7. Eclipse
3. PlusNet	8. Orange
4. TalkTalk	9. Be
5. AOL	10. Sky

Source: www.top10-broadband.co.uk

(ISPs) competing in the broadband market.

So the market for broadband is concentrated but with a large number of smaller firms on the fringes. In concentrated markets, firms are interdependent. The best strategy for any one firm to follow is not uniquely defined, but instead depends partly on the actions and reactions of its rivals, especially those of the biggest players in the market.

Price competition

A relevant distinction can be drawn between collusive and competitive oligopoly. Under conditions of collusive oligopoly, the uncertainty generated by interdependence and the wish to avoid the damaging effects of price wars lead firms to cooperate in price setting. The outcome of the market tends towards that of a monopoly. In contrast, the broadband market is best characterised as a competitive oligopoly, with firms seeking to win market share from their rivals by offering lower prices to customers. Adverts such as that shown in Figure 3 are common.

Relatively intense price competition is a feature that the broadband market shares with those of a number of other household utility markets such as those for gas, electricity and telecoms. Price competition is the likely outcome of interdependence when there are a large number of players in the market (making collusive activity difficult to organise), where the chief factor influencing the customer's choice of supplier is the price of the product and where the customer is willing to switch suppliers in search of a lower price. These conditions all prevail in the market for broadband. In particular, the following points underpin price competition in the market:

- *Homogeneity*. The service of one broadband provider is generally a very good substitute for another, resulting in a high cross-price elasticity of demand between the services of different ISPs. This is despite attempts by providers to differentiate their services from each other (see the following section on non-price competition),
- *Fast and trouble-free switching*. From February 2007, OFCOM have insisted that ISPs must provide any customer wishing to switch providers with a Migrations Authority Code (MAC). The customer then simply quotes the MAC to his new provider. The main difference the customer notices are that his bills for internet services now come from a different company. Beyond quoting the MAC, the only thing the customer has to do to start using broadband with his new provider is to turn on his computer! There is no break in service leaving the customer temporarily without an internet connection.
- *Improved customer information*. The bewildering array of pricing structures from different ISPs might be expected to deter customers from switching. However, price comparisons are made easy by dedicated websites such as Uswitch which find the cheapest deals for customers.

Price competition may intensify further once the market is saturated. At current rapid growth rates, it will not be long before there are few homes left who wish to have a broadband connection installed. The only way that a broadband provider can then grow is by taking market share from its rivals.

This analysis presents a picture of a market which in general functions efficiently and in the interests of the consumer, but it remains true that some customers remain with their current broadband provider for no other reason than inertia. Uswitch estimates that users could make a collective saving of £13 million a year by switching to cheaper providers who would offer

Figure 3: TalkTalk engages in price competition

comparable or improved service in terms of factors such as connection speeds.

It is also true that some customers suffer as a result of opting for what appears to be the cheapest deals. It is common for the lowest prices to be accompanied by restrictions on usage, such as the amount of data that can be downloaded each month. Heavy users, such as those who download complete movies, may find themselves incurring hefty charges for any usage beyond the limit. Restrictions on usage are often only specified in the 'small print' of a company's promotional materials. Lack of customer information then becomes a likely source of market failure in the provision of broadband services.

Figure 4: A top of the range 'bundle'

Become a Virgin Media VIP

Lord it up with the very best of TV, broadband, phone and mobile

With Virgin Media's Very Impressive Package you get the absolute cream of TV, broadband, phone and mobile – making your home the digital palace it should be.

We're talking TV that starts and stops when you say so; a V+ box that lets you pause and rewind live telly; 20MB broadband without any boring download limits; a flashy new mobile with 500 minutes and a phone tariff that lets you talk until the cows come home.

So roll out the red carpet, cue the drum roll and get ready to welcome digital royalty into your home.

Non-price competition

It is an important part of the strategy of the bigger players in the broadband market to create customer loyalty. This reduces, but does not remove, the need to respond to price cuts from other ISPs and serves to lower price and cross-price elasticity of demand for the firm's services. Examples of such non-price competition include:

- Unlimited usage on services at the top of the price range, with no restrictions on downloading of data, even at peak times.
- High specification equipment, such as BT's 'home hub' which wirelessly connects up to 10 devices around the home.
- Connection speeds. Virgin Media claim that "our top broadband connection speed is four times faster then BT's".
- Technical support for customers. For example, BT boasts "a 24/7 helpline and free on-line technical support to all our customers".
- 'Bundling of services'. This refers to offering customers packages of services covering two or more from broadband, fixed line telephone, mobile telephone and digital television. In 2007, Virgin Media became the first provider to offer 'Quadplay', the nickname for packages covering all four services. There are obvious advantages of convenience to the customer in taking multiple services from the same firm and bundling is a key reason for the position of BT and Virgin as the two largest firms in the broadband market. Bundling also offers the consumer value for money as the price of the bundle is lower than that of purchasing each service separately.

Conclusion

This brief review of the broadband market shows that:

- The market for broadband is growing rapidly.
- This market is a competitive oligopoly.
- Firms compete mainly on price because of the high degree of substitutability of their services.
- This results in a market that generally functions well, with consumer interests also well served by non-price competition.
- Despite this, the market may still sometimes fail. A lack of customer information, for example about usage restrictions, is one potential source of market failure.

Can the bigger broadband players create customer loyalty?

What is Opportunity Cost?

Paul Hoang *of Sha Tin College, Hong Kong, discusses a number of illustrations of the first concept introduced to a new student of economics.*

Exam Board	AS	Unit	A2	Unit
AQA	✓	1(10.1)		
Edexcel	✓	1		
OCR	✓	2881 (5.1.1)		
WEJC	✓	1(A)		
CCEA	✓	1		
Int. Bacc.	Standard 1			

> **The idea that buying a house is the biggest investment most people are likely to make does not take into account the investment Australian parents make in raising their children.**

> **All you need is love …and around AUS$450,000 *(that's over £191,000!)***

Source: AMP (www.amp.com.au), an Australian financial institution

These quotes refer to the economic costs of raising children in today's society. But before we consider this example of opportunity cost we need to define this concept. *Opportunity cost* is defined as the best alternative that is foregone when making a decision. Due to unlimited resources, such as time and money, we are confronted with choices. The study of economics assumes that people are *rational decision makers*, i.e. they choose the option that gives them the most benefit. Opportunity cost differs from 'accounting costs' in that accounting costs do not look at the cost (or value) of foregone choices. For example, if a student decided to go into higher education, the accounting cost would include the tuition fees and other costs associated with studying at university. However, opportunity cost also considers the foregone income that could have been earned had the person chosen to work (the best alternative choice) instead of studying. Of course, the student would hope that by studying for a degree that he or she would earn a higher salary in the future to offset both the accounting and opportunity costs associated with studying. Hence, the concept of opportunity cost is useful when assessing the true costs and benefits of competing choices.

We now look at various applications of opportunity cost.

The economics of children…

Children represent an economic cost. This not only refers to the cost of having and raising children but also the opportunity cost of having children, i.e. what else parents could have done with the money had they chosen the next best alternative. Instead, parents have chosen to spend their time and money on children. Such decisions benefit businesses that are involved in toys, clothing, computer games and accessories, stationery, education and sports. There is a huge market to be exploited and companies such as Toys R Us and Mattel have become major global businesses as a result.

The opportunity costs of children have become more apparent as can be observed through demographic changes. One demographic change that can be observed in most developed countries is the decline in birth rates. This is largely due to the growing number of women who are choosing to have children at a later age due to their career aspirations. However, the other major reason is to do with the opportunity cost of having and raising children. Some of the expenses that parents might need to fund include a combination of the items in Box 1.

The concept of opportunity cost applies to high income earners as well as those with low incomes. In fact, those with high incomes may have fewer children because of the high opportunity cost of a working parent spending time on a young child's upbringing. There is a larger opportunity cost to the person (such as famous sports women and female celebrities) as they could have earned a lot of money in their profession.

The opportunity cost of time

The phrase 'Time is money' is of absolute relevance in the business world. For example, there can be a huge opportunity cost of being late for a job interview, delays caused by traffic

Box 1: The economic costs of having children

- Hospital fees – a private maternal ward at the Matilda Hospital in Hong Kong costs HK$56,000 for three days (that's over £1,300 per day!). In Portland Hospital, London, the cost is between £7,000 and £10,000 depending on the level of service required.
- Groceries – from baby nappies and milk powder to lunchboxes for school.
- Hobbies – many sporting and leisure activities can prove very expensive for participants (and their parents).
- Private tuition – such as private music lessons or academic tuition for exams.
- Compulsory Education: kindergarten, primary and secondary. Costs might include: uniforms, stationery and textbooks. According to MoneyCentral.com, the cost of education accounts for 7-11% of the average American household income. Private sector education, in boarding schools say, will obviously inflate the costs for parents. British media sources reported that private schooling costs an average of £71,050 for a day student (who returns home at the end of the school day) and an extra £130,450 for a boarding student (who stays on campus).
- Tertiary education: University fees and maintenance costs, such as rent. In November 2006, *The Independent* reported that *"steep rises in university fees have pushed the average cost of bringing up a child to more than £180,000."* University tuition fees were also reported to have increased three times more than the rate of inflation.
- Deposit for a car/home.
- Gap year expenses.
- Holidays – additional cost of flights, accommodation and entertainment. Most airlines will charge for children aged 2 and above for a 'seat ticket'.
- Health services – a visit to a private doctor costs HK$350 (approx. £25) for a general consultation that might last no more than 2-3 minutes.
- Wedding – the average cost of a wedding is AU$36,234 (£15,400) in Australia (Source: *Bride to be* magazine, Cost of Love Survey 2004) and US$19,000 (£9,600), excluding the honeymoon, in the USA (Source: *Brides* magazine).

Those who buy stand-by tickets are valuing cost savings more than convenience.

congestion or missing payment deadlines to a bank. Businesses realise that customers do not like to wait. Minimising waiting time is not always feasible, such as queues at a doctor's clinic. Nevertheless, there are plenty of examples of how businesses put the concept of opportunity cost into practice.

- Mirrors have long been used in places with lifts (elevators), such as in hotels and department stores. Customers do not necessarily notice the waiting time – and hence refrain from being annoyed at the business – as they stare at themselves in the mirror! The same reasoning applies when customers enter the lift – there are mirrors inside too.
- Music and entertainment is a major feature at many theme parks. The Disneyland Company tries to reduce time-conscious customers by providing music, live entertainment and use of large movie screens to distract customers whilst they wait in line for thrill rides and other attractions. This all helps to provide a better overall experience for their customers.
- Whilst waiting at the checkouts at any supermarket, you may notice the 'bins' next to the counter. These are a last minute attempt by the supermarkets to lure customers to buy miscellaneous items (hence the term 'bins') such as confectionery and batteries. The other purpose is, again, to distract people waiting in the queue.
- In many countries, the multinational Pizza Hut offers their customers free pizza if their order is not delivered within 30 minutes. This practice may give Pizza Hut a competitive advantage over its rivals, initially, but rivals simply copy the idea. Nevertheless, the principle of opportunity cost is again at the centre of this business decision.

Table 1: Interest rates for *Halifax Stepped Income Reserve* savings accounts, from 1st June 2007

Year 1	4.95%
Year 2	5.20%
Year 3	5.45%
Year 4	5.70%
Year 5	8.00%

Source: http://www.halifax.co.uk/savings/personalrates

- Airline companies often overbook the number of seats of a flight. This is because, statistically, flights are rarely booked at full capacity. However, as a result of the policy, sometimes airlines face the problem of overbooking and will need to 'bump' customers, i.e. to offer them compensation for having to wait for the next available flight. To the person who values time less conscientiously, they may purchase a stand-by ticket which is cheaper but more inconvenient.
- Public transport has also been targeted by the business world. Television advertising is now quite common on buses and trains. This not only helps the transport companies, such as Virgin Trains, to receive advertising revenue, but may also distract travellers from 'counting the minutes' on a journey, thereby making the experience a little more enjoyable.
- Women's clothes retailing is a massive business. However, women are often accompanied by their husbands and boyfriends who tend to have less patience in a shopping mall – look out for this trend next time you are out shopping! Marketers have noticed this fact and have responded. Many retail outlets now provide newspapers and male-orientated publications (such as motor vehicle or male fashion magazines) so that the girlfriend or wife can shop in peace! The retail outlets, of course, hope that this strategy will then allow the customers to spend much longer in their shops, thereby increasing the chance of more sales.
- Banks make their money mainly by lending the deposits from their savers. Hence, they will reward the savers that can 'lend' the bank money for a longer period of time. Savings accounts that are instant access (savers can take their money out without any notice) attract a lower interest than deposits made in a long-term savings account. At the time of writing, a HK$1,000,000 deposit (approx. £70,000) at HSBC in Hong Kong will give a return of 2.75% whereas the same deposit for two years gives the saver 3.55% per annum. So, time really is money in the business world. Similarly, Table 1 shows the various rates of interest for savings with Halifax plc (one of the UK's largest mortgage providers). As can be seen, the longer someone

saves their money, the greater the return on their money.

- 7-Eleven stores, the Japanese-owned multinational company, charges higher prices than supermarkets for the same products. The surcharge is 'justified' as most of their stores are open 24-7 and so customers are expected to pay for this convenience and the opportunity cost of having to pay higher wages to staff who work unsociable hours. Customers are also likely to be willing to pay more for their own convenience of being able to purchase items from 7-Eleven when other retail outlets are closed.
- Opportunity cost also extends to the health care industry. There are huge waiting lists in the National Health Service, which is funded by taxpayers and provided by the public sector. However, if a patient chooses to 'go private' then he or she may even be seen right away by a doctor. This, of course, comes at a price but again the example shows that the concept of opportunity cost is at play.
- London congestion charging came into effect in February 2003. This meant that drivers entering the controlled zone at peak times in London were charged £5 per day. Within a few months, traffic had fallen by around 20%. The charge (or tax) has since been raised to £8 per day. Motorists, as a result, have to ask themselves whether the congestion charge is a price worth paying. The opportunity cost may be that the £8 could have been better spent on something else, such as a meal – in which case the rational motorist would choose not to drive into Central London. However, if the opportunity cost was delivering valuable stocks to an important client, then the £8 charge may be minuscule.
- Supermarkets in the UK realised the opportunity cost of being 'closed' on Sundays. It was not until the mid-1990s that supermarkets went against government advice and began to trade on Sundays. They were fined for such actions, as licensing to trade on Sundays had not been enacted, but the fine was so insignificant compared to the revenues that they were earning by opening on Sundays that the supermarkets continued with this practice. Banks in Hong Kong are currently contemplating opening on Sundays.
- Even governments are waking up to the opportunity cost of neglecting the environment. In February 2006, *The Daily Telegraph* discussed whether parents who use reusable nappies for their babies should receive cash benefits. This could give parents an incentive to switch away from disposable nappies which are not biodegradable. The Republic of Ireland has used a 'plastic carrier bag' tax since 2002. The opportunity cost of not bringing your own bag (i.e. not recycling carrier bags) is the tax paid on each bag issued by a retailer. The BBC reported that this act has led to millions of euros in tax revenues and a 95% fall in the use of plastic carrier bags.

Questions for discussion

1. What is meant by the concept of opportunity cost?
2. Why do children present an opportunity cost to their parents?
3. If opportunity cost cannot be accurately measured, does this mean it has limited use?
4. Why do banks tend to offer higher rates of interest for customers who cannot have instant access to their savings?
5. To what extent does an understanding and awareness of opportunity cost help to reduce environmental damage?

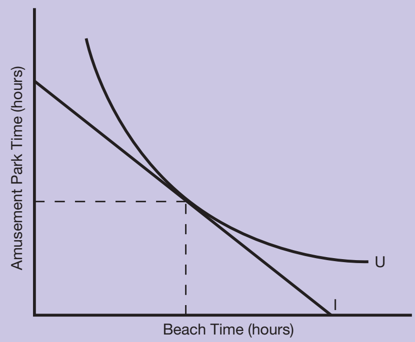
Summary of key points

- **Opportunity cost is the cost measured in terms of the next best option that is foregone when making a decision.**
- **Opportunity cost is at the heart of decision making, whether there is a conscious or subconscious awareness of the concept.**
- **Due to scarce resources, including time and finance, competing decisions need to be made and any decision that involves a choice between options will incur an opportunity cost.**
- **Children are big business in today's modern society. Parents are more than willing to make sacrifices for their children. These sacrifices represent the opportunity cost of choosing to have children; the money that could have been spent on the best alternative if parents did not have children.**
- **Knowledge of opportunity cost, even if it cannot be calculated precisely, allows decision makers to gain better insight into the *real* costs of their choices and not just their monetary costs.**

Taking it further

with Chief Examiner,
Robert Nutter

1. Investigate the importance of indifference curves and budget lines in consumer preference theory, and relate them to opportunity cost.



2. The Office of Health Economics has a schools website entitled: The Economics of Health Care (www.oheschools.org). Using the site research the importance of opportunity cost in health care and how quality adjusted life years (QALYs) can be used by health professionals to make decisions on treatment.

__Tom Allen__, of Eton College, discusses market failure, government intervention and government failure, all of which form an integral part of any A/S Microeconomics course.

Should Smokers be made to Pay Extra for Using the National Health Service?

Exam Board	AS	Unit	A2	Unit
AQA	✓	1(10.5)		
Edexcel	✓	2		
OCR	✓	2882 (5.2.2)		
WEJC	✓	1(C)		
CCEA	✓	1		
Int. Bacc.	Standard 2.4			

Economic efficiency

Many economists argue that their role is to ensure the maximisation of economic efficiency within their particular sphere of influence. All economies are blessed with a factor endowment comprising land, labour, capital and enterprise, and the role of the economist is to ensure that these resources are used as efficiently as possible. The 2 main forms of efficiency studied at A/S Level are *productive efficiency*, which will occur when firms produce using a minimum amount of factor inputs per unit of output, and *allocative efficiency*, which arises when the output that is produced is that which is desired by citizens.

Market failure

A *free market* or *market* economy (one where government intervention is restricted to the maintenance of law, order and property rights) may result in various economic **in**efficiencies. The examples that are typically studied are:

- Underconsumption (and hence under-provision) of merit goods
- Overconsumption (and hence over-provision) of de-merit goods
- Excessive externalities in production
- Non-provision of public goods
- Abuse of monopoly power
- Imperfect information for economic agents
- Inequitable (unfair) distribution of income and wealth.

All of the above may result in an inefficient allocation of resources. This question concerns health care (a merit good) and smoking (cigarettes are a de-merit good) and possible ways in which government can minimise the respective market failures.

Healthcare as a merit good

A merit good can be defined as a good that:

(i) is desirable for the welfare of citizens;

(ii) confers a positive externality (or 'marginal external benefit') onto others;

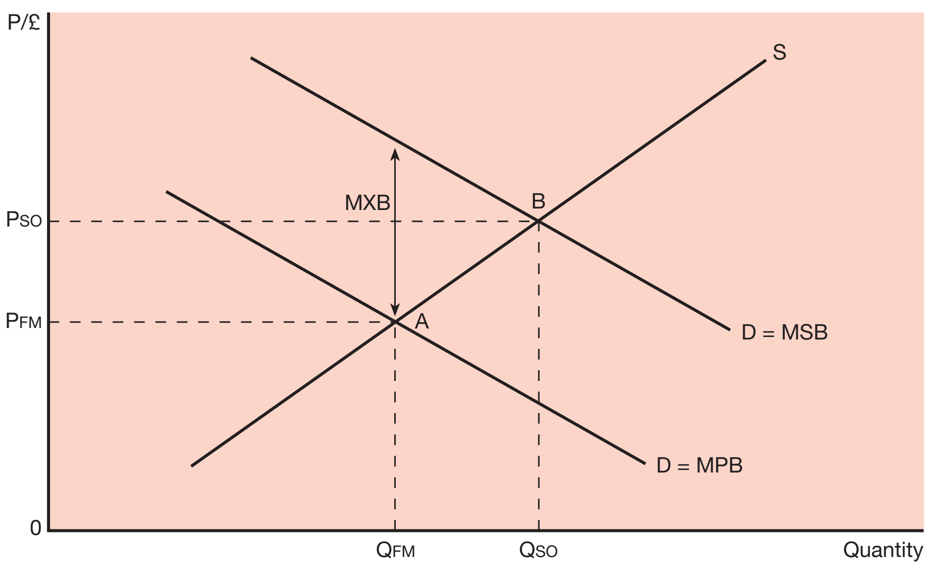
(iii) is underprovided in the free market.

Healthcare meets all three of these requirements. Suppose you fell ill and were unable to work. By consuming the healthcare, i.e. by going to your medical practitioner, firstly you clearly hope to gain a benefit known as your 'marginal private benefit', and secondly, third parties may also gain an external benefit, such as your hastened presence back at work (or a reduced risk of infection if your illness was contagious). The third point is a little trickier and is shown by Figure 1.

The demand curve for healthcare in a free market reflects the benefit that the consumer believes s/he will gain from consumption; i.e. the marginal private benefit, MPB. It is downward sloping since more will be consumed at a lower price. Supply of healthcare by medical practitioners is upward sloping, showing that more will be provided at higher prices. The *free market* (FM) equilibrium is therefore at point A, showing that QFM healthcare is consumed in a free market at a price of PFM. However, this free market equilibrium fails to take into account the *positive externality* (also known as *marginal external benefit*, MXB) received by third parties resulting from the bought healthcare. An economist would describe the free market equilibrium of point A as a market failure. A far better equilibrium known as the *social optimum* (SO) would be one that takes into account not only the private benefits of an economic action, but also any external benefits. These two benefits added together are depicted by the higher demand curve D = MSB, where MSB = marginal social benefit = marginal private benefit + marginal external benefit. Thus QSO healthcare *should* be provided and a higher price of PSO would better reflect the total value to society of consuming that healthcare.

The free market *underprovision* of healthcare by (QSO-QFM) represents a misallocation of resources, since too few resources are being devoted to the good in the free market. In addition, consumers might well suffer from *imperfect information* and under-estimate their MPB from seeking medical advice (how often do we see people fail to consult their GP when they have potentially dangerous conditions?). If consumers underestimate their MPB then this will be reflected in reduced demand, which will be even further left than the D = MPB curve depicted in Figure 1, thus heightening the market failure. A final, but no less important, point is that in the free market each person is compelled to pay PFM for healthcare. This may prevent poor income groups from consuming the product, which is both inequitable and disadvantageous to the rich, whose own interests would be better served if the poor were treated.

Figure 1: Healthcare – merit good



Government intervention

Governments around the world are aware of these market failures and so most have intervened to a greater or lesser extent in the markets for healthcare. In the UK the National Health Service, NHS (founded in 1948), is a public service that is government provided, funded largely by taxation, that seeks to deliver the majority of healthcare free at the point of use. Charges do exist for prescriptions, eye and dental check-ups, although low-income groups can receive these free as 'benefits-in-kind' (indeed, over 80% of prescriptions are exempt from user charge). Our demand and supply analysis can again be of use when attempting to evaluate the outcome of this approach.

Figure 2 is a modified version of

Figure 2: Healthcare – merit good

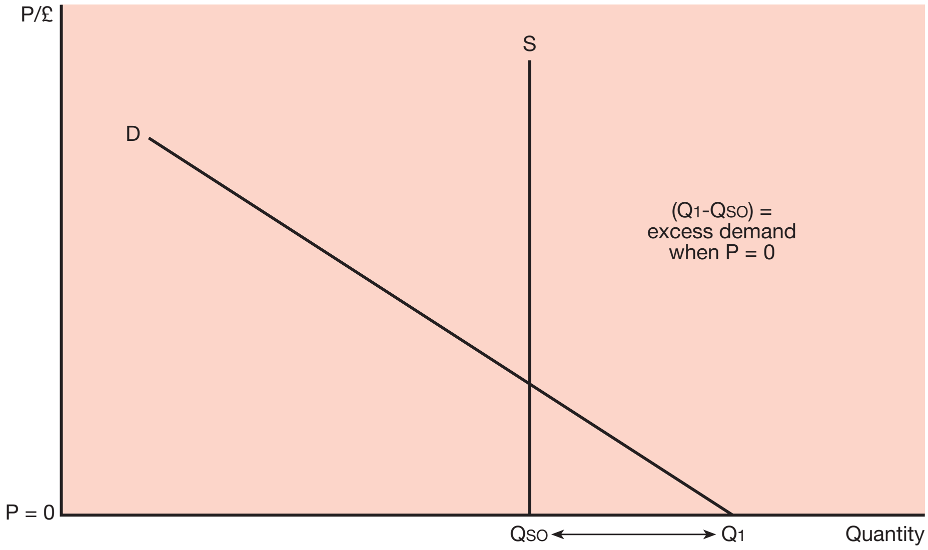


Figure 1. It shows government supply of healthcare as being fixed at Q_{SO}, which corresponds to the social optimum as portrayed in Figure 1. This expensive provision of healthcare (projected £104bn for the tax year 2007-8, representing 8% of UK GDP) is an attempt to resolve the underprovision and inequity that one would see in a free market. Unfortunately, it would appear as though governments can *never* supply enough healthcare, especially when it is free (P = 0). A growing and ageing population, improvements in drug treatment for a variety of previously untreatable conditions, the decline of the extended family and heavily raised expectations of healthiness by even the oldest of citizens result in an insatiable demand for healthcare. Demand invariably exceeds supply, as shown by the excess demand of (Q_1-Q_{SO}) in Figure 2. There is no financial incentive for patients to ration their own demand.

Government failure?

The government now has a different problem on its hands. How is it to *ration* this scarce (Q_{SO}) amount of healthcare between the various consumers? A variety of solutions exists, all of which may result in *government failure*, to a greater or lesser degree.

- *First come, first served.* This method appeals to the traditional sense of fair play: you are placed on a waiting list and await your turn. But an economist would regard this as economically inefficient as it takes no account of the patient's age, earning capacity (should a high earner be treated early so that s/he can return to work to continue contributing to the nation's wealth?), or propensity to require further treatment, for example by continuing to smoke. The UK government's 'Hospital Waiting List Statistics' show that approximately 24% of patients have been waiting 3 months or more for admission for hospital treatment.
- *'Postcode lottery'.* England is covered by 152 Primary Care Trusts (PCT), each of which is allocated money from the central Department of Health. They control around 80% of the total

The need to ration healthcare may result in government failure.

NHS budget. 2006 research by the think tank, The King's Fund, has recently found "stark differences" in the level of spending across PCTs. In consequence, a patient's chances of receiving treatment may very well depend upon which PCT funds their treatment; i.e. a postcode lottery. Prior to 2006 the availability of the drug Herceptin for the early treatment of breast cancer ranged from 10% of patients in some areas to 90% in others (the drug is now available to all). Critics described this as being an inequitable way of rationing healthcare.

- *Discrimination*. Here treatment is to be decided on the grounds of a factor such as severity of condition or age of patient. This is a contentious area. Should doctors have the right to prioritise patients, knowing that some may not survive sufficiently long to receive treatment, especially in the case of organ transplants or heart operations?
- *Charging*. This takes us back towards the free market equilibrium but the charge to the patient can be means-tested, i.e. based upon either the consumer's ability to pay, or dependent upon the extent to which they have contributed to their own condition. Smoking-related diseases would fall under this latter category.

Cigarettes as a de-merit good

A de-merit good can be defined as a good that:

(i) is undesirable for the welfare of citizens;
(ii) confers a negative externality (or 'external cost') onto others;
(iii) is overprovided in the free market.

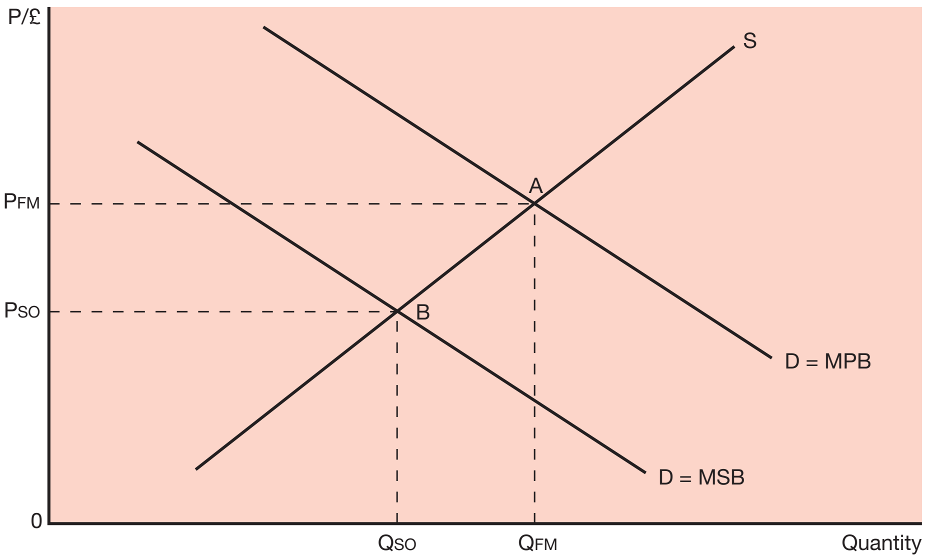
Figure 3 shows the overprovision of cigarettes in a free market.

Again, the consumer derives a *marginal private benefit*, MPB, from smoking: s/he may well enjoy the experience or the social cachet that is derived from smoking with friends. As such, the free market equilibrium occurs at point A, where supply intersects with the D = MPB curve, resulting in QFM cigarettes being consumed at a price of PFM.

But this market equilibrium ignores two factors: firstly, the smoker may be inflicting onto third parties *negative externalities* such as passive smoking, resultant healthcare costs and increased fire risks; secondly, consumers (smokers) may also suffer from failure of information and hence over-estimate their MPB. This problem is especially likely to occur with young smokers, who might be unaware of the long-term health implications of their habit. Both of these factors result in the MPB of smoking exceeding the MSB, with a resultant *overprovision* of cigarettes in the free market by (QFM-QSO), again representing a misallocation of resources.

The UK government is aware of this market failure and adopts a variety of measures to reduce the equilibrium output towards the social optimum. On the supply side, it imposes both VAT and excise duties onto the producer, thus shifting the supply curve vertically upwards by the amount of the unit tax. HM Revenue and Customs also limits the amount of the good that private consumers are allowed to import into the UK. On the demand side, legislation imposes a minimum legal age for smoking (rising from 16 to 18 from October 2007). Smoking in public places was outlawed in England from July 2007, having been banned in Scotland since Spring 2006. The advertising of cigarettes has been banned in the European Union since 2005 on radio, television, internet or printed publications, and health awareness campaigns attempt to encourage smokers to give up and dissuade non-smokers from starting.

Figure 3: Cigarettes – de-merit good



Should smokers pay for their treatment?

The number of UK smokers has declined steadily over the years and the government has set a target for a further reduction in the number of smokers from 26% of the population in 2002 to 21% by 2010. This would relieve some of the pressure on the NHS. A 'user charge' for smoking-related healthcare would presumably act as a deterrent to smokers and hence reduce demand. Why has such a charge not been introduced? We can identify at least six reasons to explain the absence of a user charge:

- A charge contradicts the original NHS ethos of free healthcare "from the cradle to the grave". Voters have shown that they are very protective towards the notion of the NHS in its current form.
- A charge would be *regressive*: smoking rates have declined fastest among higher income households.
- Such healthcare can be very expensive – cancer treatment can be protracted and involves chemotherapy, radiotherapy and drug treatment.
- Some consumers suffer from economic *myopia* (short-sightedness): they may enjoy the pleasures of cigarette consumption today and put less weight on future implications such as paying for their eventual treatment.
- The money that the government saves on reduced pension payments for those who die early added to the tax on cigarettes may exceed the money spent on treating smokers.
- Where would one draw the line? Should charges also be levied for obesity-related illnesses, cirrhosis of the liver and mountaineers' broken limbs?

The initial logic suggests that the policy might kill two birds with one stone (reducing the demand for both tobacco and healthcare) but the above points show that the outcome is fraught with danger and uncertainties. Perhaps we should look to other countries for examples?

An alternative

No policy is perfect, but lessons can be learnt from abroad. A large number of Western countries, including France, Germany and USA have a system of *health insurance* to pay for healthcare. Households and employers pay premiums to insurance companies, who will then meet the cost (the majority of the cost in France's case) of the healthcare. In France the insurance take-up is 85% of the population and in the USA it is 84%. Those too poor to pay the insurance premiums will still receive treatment in the USA via Medicare (for the elderly) or Medicaid (for the poor), and in France by the Couverture Maladies Universelle. The insurance premiums can be made higher for those more likely to require healthcare, based on parameters such as age, gender, past medical history, family history and whether the consumer smokes, drinks or is overweight. After all, a UK motorist readily accepts that he will pay a higher motor premium if he is young, male and drives a fast car. There is no reason why such a system cannot be extended to UK healthcare. Those consumers who lie to lower their premiums (for example by claiming that they do not smoke) could be refused the insurance payout to cover their healthcare if they were subsequently found to have been untruthful. There would now be a realistic financial incentive not to smoke and the very poorest would still be covered by the state.

Questions for discussion

1. Define 'market failure', 'government intervention' and 'government failure'.
2. The price elasticity of demand for tobacco is estimated at around –0.7. What does this mean?
3. Why has the UK government not prohibited smoking, as it has done for other narcotics?
4. Do *you* think that the government should charge smokers for their healthcare?

If government can cut the number of smokers it should reduce pressure on the NHS.

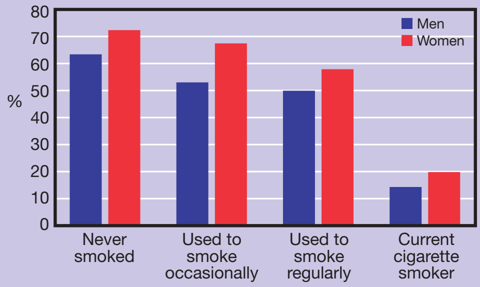
Summary of key points

- **The demand for healthcare exceeds supply at zero price and so some form of rationing is therefore required.**
- **A possible solution would be to charge smokers for their healthcare, but this is fraught with difficulties.**
- **An alternative solution is to introduce healthcare insurance, thus providing a financial incentive to reduce risk-increasing behaviour.**

Taking it further

with Chief Examiner,
Robert Nutter

1. Access the web site of Action on Smoking and Health (www.ash.org.uk). Using their fact sheet number 16 investigate the economics of tobacco.
2. The pressure group 'Forest' supports the rights of smokers (www.forestonline.org). From their 'key issues' link look at such topics as tobacco taxation and advertising comparing their views with those of ASH.
3. Using the Office of Health Economics web site schools section download 'The Economics of Health Care'. Investigate the terms 'moral hazard' and 'adverse selection' in relation to private health insurance.
www.ohe.org/page/knowledge/schools.cfm)



Source: The Scottish Executive on smoking rates in Scotland.

VIEW FROM the CITY

Is the Global Economy Heading for a Fall?

Neil MacKinnon *is Chief Economist at The ECU Group, a currency hedge fund in the City.*

The global economy looks in remarkably good shape. Economic growth rates have been maintained around levels that are amongst the highest seen in the post-WW2 era. In spite of higher oil and commodity prices, inflation rates generally remain quite low allowing short term interest rates (both nominal and real) to remain at subdued levels. America's huge trade deficit has not triggered a crash in the US dollar and foreign investors have been very willing to finance the deficit by buying US bonds. If anything, exchange rate volatility has declined to very low levels and investor risk appetite is very high.

Is everything in the garden rosy?

Does all this sound too good to be true? Perhaps. There is no doubt that economic liberalisation and deregulation in the last twenty years or so has contributed to supply-side improvements and an increase in productive potential. Clearly, in some cases (like the eurozone) there is more work to be done in terms of structural reform in terms of taxation and removing labour market rigidities. Likewise, protectionist tendencies from wherever they arise should be resisted. In addition, the trend towards globalisation has expanded trade. The opening up of China and the expansion in economies like Brazil, India and Russia has generally been a boon for the world economy. Consumers are benefiting from lower cost manufactured goods in those countries and lower prices have, so far, contained global inflation. Also, the macro policy framework in the major economies with its emphasis on inflation targeting and 'sound' fiscal policy has also played its part in generating low volatility in both output and inflation.

A major cause for concern

Behind all of this though is a big worry in my opinion. In recent years, we have witnessed much more in the way of financial market volatility and what seem to be pervasive asset price bubbles. I think you can trace this to the collapse of the 'dotcom' bubble in 2000 which then caused the Federal Reserve (America's equivalent of the Bank of England) to pursue an ultra-expansionary monetary policy in order to avoid recession and deflation. American official short term interest rates dropped to 1.0%. The medicine worked. America avoided deflation and recession but at a cost. Cheap money resulted in soaring asset prices whether it be real estate, commodities, equities or art. In the US, house prices soared and canny householders unlocked equity (called mortgage equity withdrawal) and spent it on cars and holidays contributing to a sharp rise in consumer spending. This in turn resulted in America's trade deficit reaching record levels as consumption fed its way into higher imports. For the rest of the world, the rising trade gap meant more liquidity for the global economy. In addition, because many Asian economies had pegged their currencies to the US dollar, they found that higher trade surpluses on their part resulted in the acquisition of massive foreign exchange reserves. China and Japan now each have reserves amounting to $1 trillion and they have interestingly recycled those reserves back into America through purchases of US bonds. Indeed, China and Japan are the largest holders of US Treasuries. What this means is that China and Japan are America's key creditors and have helped keep interest rates in America lower than they otherwise would be. Some commentators have characterised the current international monetary system as 'Bretton Woods 2' and what might be described as an 'unstable equilibrium' partly explains why the dollar avoided a crash.

As the bubbles burst, will recession follow?

Nevertheless, this huge build-up in global liquidity has created a series of bubbles with investors accessing cheap credit and leveraging this credit through an ever-increasing variety of financially sophisticated instruments. The problem arises when asset prices fail to keep on rising or when there are financial market shocks in various parts of the global financial markets. Greed then turns to fear and leveraged investors are forced to rush to the exits in order to repay borrowings and avoid investment losses from spiralling out of control. One of the major bubbles – the US housing market – has already burst and the real estate sector is in recession. Falling house prices is resulting in debt default as borrowers fail to make mortgage repayments. In addition, lenders who 'over-lent' to poor credit quality borrowers (the 'subprime market') are in trouble. The spillover effects from the housing recession in America could turn out to be considerable and the bubbles arising from cheap money are now popping. This invites the prospect of financial market turbulence which could see declines in equity prices, higher bond yields and a collapse in high yielding currencies. Rising risk aversion on the part of investors will almost certainly put an end to the 'mis-pricing' of risky assets which appears to have been a key feature of the financial market landscape in recent years. It also means that global liquidity will inevitably be tightened resulting in less appetite for borrowing and a more circumspect attitude to investment risk. Not a bad thing but let's hope the bursting of global bubbles does not pull the rug on the global economy and raise the spectre of recession.

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

1. Given constant technology, if a country invests in insufficient capital goods to replace worn out capital equipment then its production possibility will

A. shift to the right

B. become convex to the origin

C. shift to the left

D. become a straight line

2. Which one of the following is a normative statement?

A. The UK government's spending has grown too quickly in recent years.

B. Slovenia joined the Euro in January 2007.

C. The national minimum wage in the UK is £5.35 per hour.

D. The pound reached its highest rate against the dollar in 2007 since the early 1980s.

3.

Elasticity estimates of match day ticket prices	Premiership Club (Man. Utd.)	Coca Cola League 2 Club (Barnet)
Price elasticity of demand	–0.4	–1.4

The above date shows the price elasticity of demand for match day tickets at two professional football clubs in different divisions. If both clubs raised their prices by 10% what would happen to their revenue from match day ticket sales?

	Premiership Club	League 2 Club
A.	Rise	Rise
B.	Fall	Rise
C.	Fall	Fall
D.	Rise	Fall

In Q5, what resulted from the failed Daimler-Benz merger with Chrysler?

4. A piano player gives regular daily lessons to children for £20 per hour. One day she helps out for three hours at a concert at a local theatre and is paid £300. If it is assumed that she has no costs in her activities which one of the following is true?

A. Economic profit is £300.

B. Accounting profit is £240.

C. Economic profit is £240.

D. Accounting profit is £360.

E. Economic profit is greater than Accounting profit.

5. In 1998 Daimler-Benz paid $36 billion for Chrysler. However, in 2007 Daimler sold Chrysler to a private equity group stating that the clash of management cultures and organisational difficulties had been a major reason for the failure of the merger of the two car manufacturers. From this information it can be deduced that the merger was an example of

A. horizontal integration which resulted in diminishing returns.

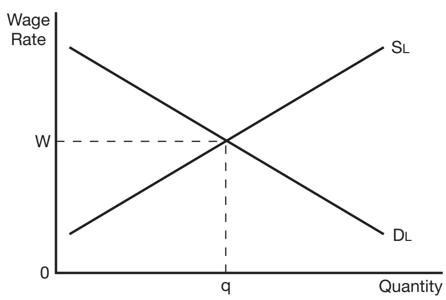
B. conglomerate integration which resulted in diseconomies of scale.

C. vertical integration which resulted in diseconomies of scale.

D. horizontal integration which resulted in diseconomies of scale.

E. conglomerate integration which resulted in diminishing returns.

6.



The above diagram shows the labour market for fruit pickers in equilibrium at w and q. Which one of the following will cause the demand curve for labour to shift to the right?

A. A fall in the price of fruit.

B. A rise in the productivity of fruit pickers.

C. A change in the wages of other comparable occupations.

D. Increased inward migration of fruit pickers.

E. A rise in the national minimum wage.

Answers

1. Capital goods are machines, vehicles, computers etc., which are used to produce consumer goods. Over time capital goods depreciate due to age, wear and tear etc., and need replacing otherwise the productive capacity of the economy will shrink. Hence if new capital goods fail to replace those that are no longer serviceable the economy will have a reduced productive potential as witnessed by a shift to the left of the production possibility frontier. The answer is C.

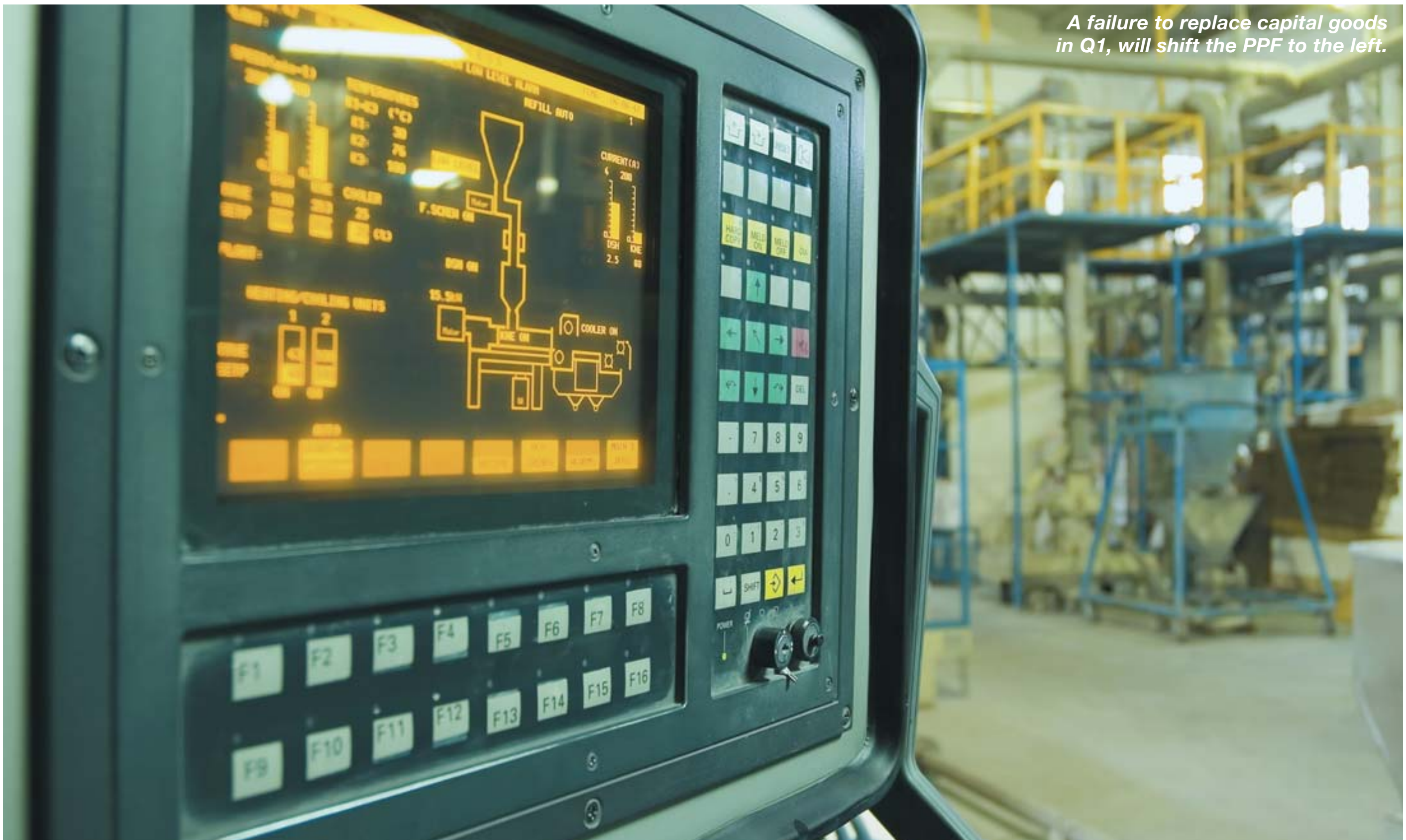
2. A normative statement expresses an opinion on an issue. It is essentially a value judgement which cannot be proved right or wrong by an appeal of facts. A positive statement can be shown to be right or wrong by looking at facts (options B, C and D). Whether the government should spend more or less is largely a matter of opinion and thus the answer is A.

3. Price elasticity of demand for tickets is inelastic at Manchester United as it is less than 1. Hence a rise in prices of say 10% will only reduce demand by 4% meaning that such a price rise would lead to an increase in the club's revenue. For Barnet a similar rise in ticket prices would reduce demand by 14% and lead to a fall in revenue. For them the increase in revenue from each ticket sale is outweighed by the bigger drop in spectators at their games. The answer is thus D.

4. When calculating profit accountants in the business world will always subtract costs from revenue. Economists consider the opportunity cost of resources as a cost, i.e. what the resources could earn in their next best alternative employment. In the above example the woman could have earned £60 from piano lessons while she was being paid to help at the concert. This would be added to other costs by an economist meaning that her economic profit would be £240 (£300 – £60 = £240). The answer is thus C.

5. As Daimler-Chrysler was the result of the merger of two car manufacturers this was the result of horizontal integration (two companies making the same product). The failure of the merger was the result of managerial diseconomies of scale. The two companies' managements did not work together successfully and the gains expected from the increased company size did not materialise. If a larger company cannot create a management structure to minimise costs and rationalise product lines then efficiency gains may be more likely with two smaller companies. The answer is thus D.

6. The demand curve for labour also represents marginal revenue product (MRP). MRP is calculated by multiplying the marginal physical product (the extra output produced by an additional worker) by the price the product is sold for. A rise in productivity (output per head) will raise the MRP and shift the demand curve for labour to the right. A fall in the price of fruit will reduce the MRP shifting it to the left. Options C and D shift the supply curve for labour while the national minimum wage does not directly shift either curve. The answer is thus B.



A failure to replace capital goods in Q1, will shift the PPF to the left.

Is the Indian Restaurant Market an example of Monopolistic Competition?

***Nigel Watson** of St Catherine's School, Guildford, considers the nature of competition in a market within the service sector of the economy.*

Exam Board	AS	Unit	A2	Unit
AQA				
Edexcel			✓	4
OCR			✓	2884 (5.4.2)
WEJC			✓	4(D)
CCEA			✓	3
Int. Bacc.	Standard 2.1 / Higher 2.3			

Monopolistic competition is a market structure made up of a very large number of small firms. Competition is imperfect because each firm within the market attempts to sell a differentiated product. One firm's product is not a perfect substitute for another's. This means that firms operating in monopolistically competitive markets are not price takers. Firms that sell popular differentiated products can charge slightly higher prices than their competitors. Any abnormal profit made in the short-run tends to be competed away in the long-run by new entrants. In a monopolistically competitive market there are few barriers to entry and exit.

The UK Indian restaurant market is surprisingly older than one might think. Indian food has been consumed in Britain for over three centuries. The first Indian restaurant was opened in London in 1773. The Hindostanee Coffee House offered its customers "Indian dishes of the highest perfection" and, rather surprisingly, the opportunity to smoke "Hookha with real Chilm tobacco"![1] For the next two hundred years the market growth was consistently slow. At the beginning of the 1960's Indian food was a niche market business as there were only 500 Indian restaurants in the whole of the UK. As Table 1 illustrates, in the two decades that followed the UK Indian restaurant market grew at spectacular rate. In more recent times the market has continued to grow, however the rate of growth has declined. Today, the Indian restaurant market is firmly established. The industry is one of Britain's largest, employing over 60,000 people.[2]

It could be argued that the Indian restaurant market is monopolistically competitive. To judge whether this is the case we will need to review the characteristics of this type of market structure.

Table 1: The number of Indian restaurants in the UK

Year	Number of restaurants	Market growth rate since previous year
1960	500	–
1970	1200	140%
1980	3000	150%
1990	5100	70%
2000	7940	56%
2004	8750	10%

Source: http://www.menu2menu.com/indfact.html

Many buyers and sellers

During the 1960's, as Table 1 shows, there was a rapid increase in the number of Indian restaurants in Britain. The single most important reason for this change was the arrival of Asian immigrants into Britain. Many of these new comers encountered discrimination, especially within the jobs market. One way of earning a living was to become a self-employed restaurateur. Most of these new restaurants were concentrated around the Greater London area because that is where most of the new immigrants chose to live. Gradually, over time the Indian restaurant concept has spread all over Britain, even though the chefs cooking the food were usually not Indian at all. In fact over three quarters of 'Indian' restaurants in Britain are owned by people who are of Bangladeshi or Pakistani origin! In the early days the menus were fairly simple offering diners a limited choice. In an attempt to keep start up costs down the food was often served in basic surroundings.

A monopolistically competitive market is made up of hundreds of consumers that are supplied by hundreds of relatively small businesses. The Indian restaurant market is extremely decentralised. The market is made up of thousands of small independent operators. In most British high streets there are several Indian restaurants that compete aggressively against each other. Indian food is very popular; over 23 million portions of Indian food are sold in restaurants each year. The level of market concentration is very low. In terms of the number of buyers and sellers it could be argued that the UK Indian restaurant market is monopolistically competitive.

Product differentiation

Product differentiation is the degree to which consumers perceive that a product is unique, and in some way superior to products of a similar type offered by the competition. Firms that operate in perfectly competitive markets sell an identical product. This is not the case in monopolistic competition. Firms operating in monopolistically competitive markets try to produce differentiated products that are not perfect substitutes for each other. As a result the demand curve facing each firm in monopolistic competition is not perfectly elastic like it is in perfect competition. Firms in monopolistic markets produce *differentiated products*. Firms operating in monopolistic competition can raise their prices without losing all their customers. This is why the average revenue curve in monopolistic competition is downward sloping.

In the 1960s and 1970s, the growing affluence and cosmopolitan nature of the British public boosted takings at most Indian restaurants. Indian restaurateurs began to enjoy rising profitability. Most owners chose to use some of the profit made to upgrade their facilities. Gradually the Indian restaurant scene became more sophisticated e.g. luxurious looking tables, chairs and table cloths, piped Indian music, air conditioning, dinner-jacketed waiters and flock wallpaper. Thirty years ago Indian restaurants tended to look the same. Most had fairly similar menus too. As a result Indian restaurants were forced into competing against each other on price. Unfortunately, intense price competition led to falling profit margins. According to textbook theory firms operating in monopolistically competitive markets can make abnormal profit in the short run by differentiating their products. Indian restaurateurs began to realise the importance of product differentiation as a competitive weapon. According to Peter and Colleen Grove, in their book: *Curry, spice and all things nice*, the first real attempt to create differentiation occurred in the early 1960's when a few forward-looking Indian restaurants, such as the Gaylord in Mortimer Street in London, imported Tandoors. A Tandoor is a special type of oven made from clay that gives the food cooked inside the oven a distinctive taste. Restaurants using Tandoor ovens found that they could charge slightly higher prices without emptying their restaurants. As Figure 1 shows restaurants with

1. http://www.menumagazine.co.uk/book/restauranthistory.html
2. http://www.menu2menu.com/indfact.html

Figure 1: Monopolistic competition – the short run

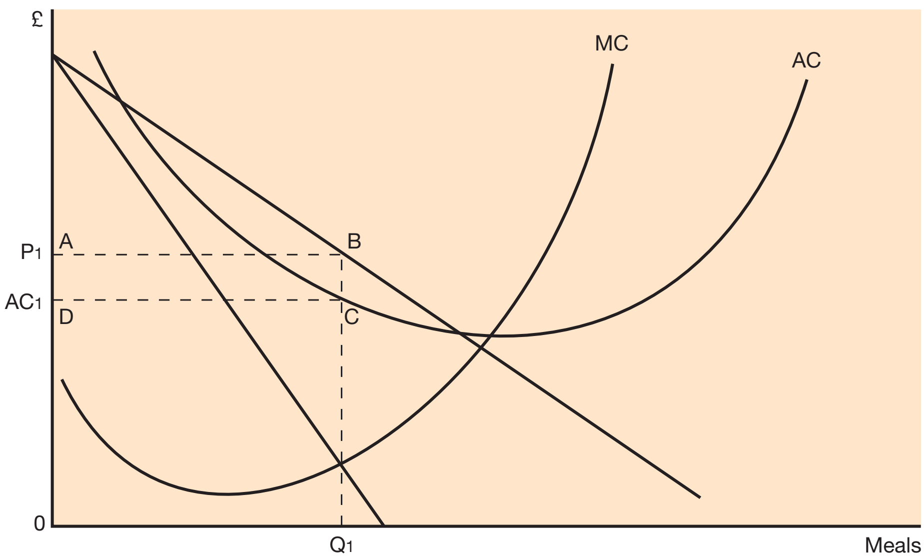
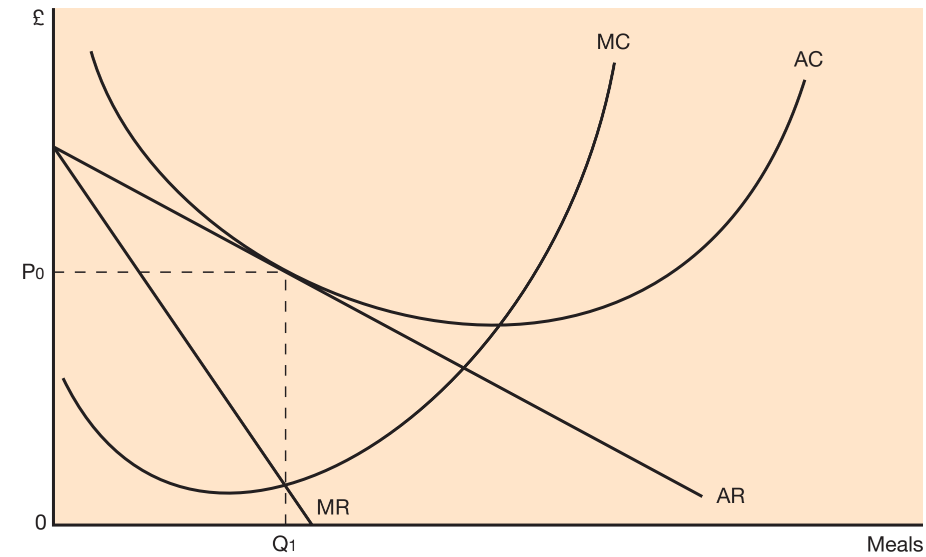


Figure 2: Monopolistic competition – the long run



Tandoori ovens were able to make abnormal profits.

A pioneering restaurant equipped with a Tandoori oven in the early 1980s would, according to economic theory, choose to profit maximise at the output level where marginal cost equals marginal revenue. On the diagram the profit maximising number of meals supplied is OQ_1. The product differentiation created by the Tandoori oven restaurant meant that it was possible to charge a price of P_1 for each meal sold. The average cost of selling each meal is AC_1, resulting in an abnormal profit of ABCD.

Freedom of entry and exit

A third characteristic of monopolistic competition is that there are few, if any barriers to entry and exit. Does the Indian restaurant market conform to this feature of monopolistic competition? There are three potential barriers to entry to the Indian restaurant market. The first is the availability of authentic ingredients. In the 19th Century ingredients had to be transported slowly from the Indian sub-continent by ship. At that time the availability and price of ingredients needed to cook a decent curry was undoubtedly a significant barrier to entry to the Indian restaurant. The second potential barrier to entry is the availability of skilled labour. The UK government has adopted a relatively liberal approach towards immigration for many years. Today, entrepreneurs that want to enter the industry find it relatively easy to find the talent needed to do so. A further potential barrier to entry is the cost of setting up. If set-up costs are prohibitively high new entrants to an industry are likely to be discouraged. Set-up costs in the Indian restaurant market are relatively low. Premises need not be bought, they can be leased instead. There is also a healthy second-hand market for the fixtures and fittings required to open up an Indian restaurant, keeping entry and exit costs down. A five minute trawl on the internet revealed that it is possible to buy an established Indian restaurant operating from a leasehold property in South London lock stock and barrel for the modest sum of £89,500.[3] In conclusion, it could be argued that the absence of significant barriers to entry and exit to the Indian restaurant market does conform to the monopolistically competitive model.

Only normal profit is possible in the long-run

Over time more and more Indian restaurants switched to Tandoori cooking in an attempt to boost profit. Firms that made abnormal profits through product differentiation find it difficult to hold onto these profits in the long-term. Figure 2 shows a firm in monopolistic competition that makes only normal profit. New entrants to the market and existing incumbent restaurants that decided to switch to Tandoori cooking pushed prices down to P_0.

In an attempt to create more abnormal profit in the short run restaurateurs have been forced to find new innovations and sources of product differentiation to stay ahead of their rivals.

New attempts to achieve product differentiation

Examples of new innovations that can enable Indian restaurants to try to charge premium prices include:

- Décor and design. In recent times several now famous London-based Indian restaurants such as 'The Cinnamon Club', opened in 2001[4] at a cost of £2.6m[5] in the Old West-minster Library, ditched the old style traditional Indian restaurant décor (including the flock wallpaper!) in favour of a more up-market looking modern minimalistic interior design style. This change inspired many other Indian restaurants up and down the land to upgrade their fixtures and fittings in the hope that they too could charge Cinnamon Club style premium prices e.g. Smoked rack of lamb with Rajasthani corn sauce and pilau rice for £22.

3. http://www.daltonsbusiness.com/business.asp?businessID=93848&BTASource=77&ID=713
4. http://www.timesonline.co.uk/article/0,,1147-1866130,00.html
5, http://observer.guardian.co.uk/life/story/0,,489885,00.html

- Exotic-sounding premium-priced menu items such as Seabass Kaylilan prepared with fenugreek and tamarind.
- Other restaurants have adopted a different approach. For example, The Khyber in Croydon has tried to win customers by stressing their authenticity. The restaurant's website informs the reader that The Khyber won the Carlton TV London Indian Restaurant award in 1997 and that "Our success is based on more traditional recipes". The slogan "It's just how Mum would cook it back home" also features prominently on their internet menu.
- Balti cooking including the super-sized big-as-your-table Naan breads!
- A prestigious imported German lager on draught or a selection of fine wines
- Flying in celebrated Curry chefs from the Indian Subcontinent for a limited period to cook up special food for a Curry Festival – the equivalent of a nightclub flying in a celebrity DJ.

Conclusions

The Indian restaurant market is in a constant state of flux. Abnormal profits created by product and service differentiation tend to be only temporary because it is relatively easy for incumbents to copy successful ideas. However, this highly competitive and dynamic competitive market creates significant benefits for consumers. Firstly, the products offered by firms in the industry are varied. There is plenty of choice for the consumer. Secondly, Indian restaurants have to be innovative if they are to make abnormal profits, ensuring that there is always something new for the consumer to sample.

Monopolistic competition is a very common market structure. In addition to Indian food it can be argued that the markets for hairdressing, newspaper shops and pubs share many of the characteristics of monopolistic competition. However, it could also be argued that in some parts of the country the market for Indian restaurant food might not conform to the monopolistically competitive model. The author's local Indian restaurant in Bramley, Surrey is a good example. It is the only one for miles around. A lack of competition locally enables this restaurant to charge very high prices. These high prices almost certainly create an abnormal profit for the owner of the restaurant. Here this particular restaurant enjoys a local monopoly.

Over time more and more Indian restaurants switched to Tandoori cooking.

Questions for discussion

1. How does the market for hairdressing also illustrate the characteristics of monopolistic competition?
2. Is it true that many examples of monopolistic competition are service industries whose economies of scale barely exist?
3. To what extent is product differentiation a unique feature of monopolistic competition?
4. What distinguishes monopolistic competition from oligopolistic markets?
5. Is there any tension between assuming the existence of product differentiation and at the same time assuming ease of entry?

Summary of key points

- **The Indian restaurant market appears to meet the requirements to be called a monopolistically competitive market.**
- **This market is generally characterised by many suppliers (due to ease of entry) who try to differentiate their product offering.**
- **In some particular parts of the UK local Indian restaurants may be close to the market structure of a monopoly supplier.**

TAKING IT FURTHER

with Chief Examiner,
Robert Nutter

In the early years of the twentieth century economists began to develop theory which explained the structure of major industries better than perfect competition and monopoly. Monopolistic competition and oligopoly were the market structures that emerged as being more relevant to developed economies such as the UK and the USA. The theory of monopolistic competition was developed by Edward Chamberlin and Joan Robinson in the 1930s.

Research the work of both Edward Chamberlin and Joan Robinson in relation to their 1930s work on imperfect competition, especially monopolistic competition.

Current Topics in ECONOMICS

What are the Implications of American Ownership of Premiership Football Clubs?

***Stephen Romer** discusses why foreign investors have become interested in buying some of England's leading football clubs.*

The scene: Passport Control. A trans-Atlantic Jumbo Jet has just landed.

Customs Officer: Good morning, Sir. Welcome to Heathrow.

Arriving passenger: Why, good morning, y'all. Howdy doody.

CO: Could I look at your passport please, Sir?

Why, you surely can. I'm a Good Ol' Boy from Dallas, Texas, the home of the Dallas Cowboys. Name's J.R. Sanders, folks call me the Colonel.

CO: And what seems to be the purpose of your visit to the UK, Colonel Sanders? Opening another Kentucky Fried Chicken emporium?

Colonel Sanders: No, I'm over here for sacker.

CO: Sacker?

CS: Why, yes. It's what y'all call 'football' over here. I'm interested in your Limey football.

CO: If you are interested in football, Sir, can you tell me who won the Cup in 1970?

CS: The Cup?

CO: Yes, Sir. The FA Cup. It's rather like your World Series of Basketball.

CS: Baseball. The World Series? Why, that's as American as Mom's apple pie.

CO: In 1970, Sir, Chelsea beat Leeds 2-1 in a replay. I will never forget it.

CS: A replay? Didn't they have field goals in overtime?

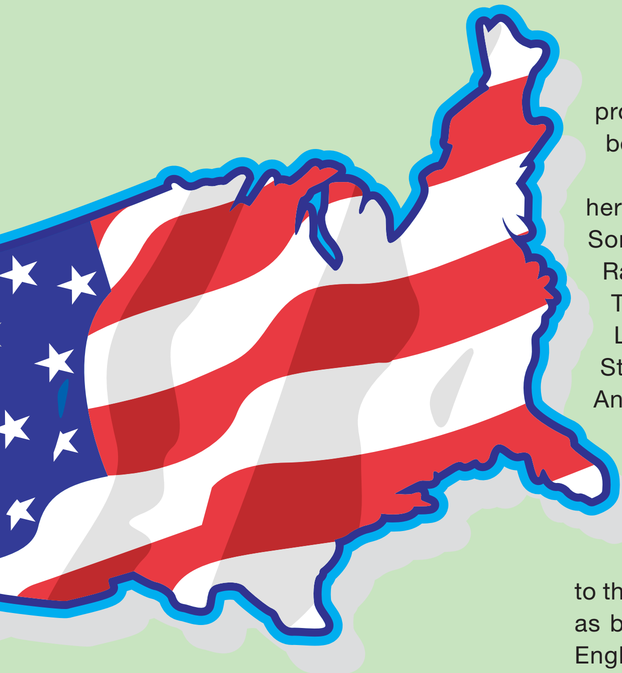
CO: (singing) Blue is the colour, football is the game…

CS: (interrupting) Chelsea? That darned Russki, Roman Abramovich, got in before me. You mention Leeds. Could I buy Leeds? D'you think there's a Buck in it?

CO: I'm afraid Leeds is in Administration, Sir.

CS: Administration?

CO: Yes, Sir, Administration. Or Chapter 11 Bankruptcy, as you Yankee carpetbaggers would call it.



programmes, hot dogs and weak beer.

But why *are* the US billionaires over here? What has brought Glazer and Sons to Manchester United? Why is Randy Lerner at Aston Villa? What do Tom Hicks and George Gillett see in Liverpool? Is there an explanation for Stan Kroenke's interest in Arsenal? And why has the co-founder of Microsoft, Paul Allen, the world's 19th richest man, emerged as the Saint with £50 million to rescue Southampton?

It would seem that the answer to these questions is remarkably simple: as businesses, major football clubs in England are undervalued and thus represent an excellent investment opportunity.

We won't come back 'till it's over over-there

Let me ask you a question: what is the difference between Liverpool Football Club and Weetabix? The answer, according to Tom Hicks, is nothing. There is no real distinction to be made from an investment point of view between the five times European Cup winners from Anfield and the well-known breakfast cereal. In a remarkably frank interview on the eve of Liverpool's 7th European Cup Final appearance (against AC Milan in Athens), the Texan billionaire said: "When I was in the leveraged buyout business, we bought Weetabix and we leveraged it to make our return. You could say that anyone who was eating Weetabix was paying for our purchase of Weetabix. It was just business. It is the same for Liverpool; revenues come in from whatever source and go out to whatever source, and, if there's money left over, it is profit" (*The Guardian*, 22 May 2007).

The term 'leverage' refers to debt, and the idea of a leveraged buyout of a company is that the acquisition is financed by borrowing the necessary funds. After the takeover, the resulting debt is a liability of the acquired company. And what is interesting is that the current wave of football acquisitions by Americans began in 2005 when Manchester United was bought by Malcolm Glazer using debt to facilitate the takeover.

The total cost of Glazer's purchase of Man U was reportedly £830 million, comprised of £790 million for the shares plus a further £40 million in associated fees. The acquisition was controversial chiefly because it depended on borrowings of £559 million. In turn, this debt would have to be serviced by the football club to the tune of approximately £60 million per annum. And eventually the principal would also have to be repaid.

In a takeover of this kind, the victim is essentially paying for the privilege of being taken over. And in the Glazer-Man U case, the loans raised to pay for the acquisition came at a particularly high price: according to reports, the average cost of capital was 14% – although this was subsequently reduced by refinancing in 2006. So it is not particularly surprising that the Glazer takeover stirred much opposition among the fans. For the man in the street in Dorking and Tunbridge Wells and other hotbeds of Man U support, Mr Glazer's takeover was unwelcome. The feeling was that although the Tampa Bay Buccaneers may have won the American Superbowl – gridiron football – under Malcolm Glazer's ownership, an American corporate raider would have absolutely nothing whatsoever to contribute to the kind of football you play with a round ball and without the use of cheerleaders, time outs, crash helmets and the whole nine yards.

The fans fought an ultimately futile campaign to oppose Glazer. Their argument was that Glazer's is the kind of takeover in which it is not the purchaser who pays. On the contrary, the debt is placed onto the balance sheet of the football club, implying that the latter suddenly finds itself in a potentially precarious financial situation in which its very survival depends on its ability to handle the servicing of the debt with which it has been saddled. You only have to look at the plight of Leeds United in 2007 (in administration and relegated to football's third tier) to see that debt can eventually all but destroy a major football club.

However, we can be reasonably safe in predicting that Man U will survive in spite of the new debt burden. Frequently referred to as the richest football club in the world, Man U was ranked 4th in the Deloitte Football Money League Table, a listing of clubs' annual turnover published in 2007. Real Madrid was top of this particular championship with a turnover in season 2005-6 of €292.2 million. But Man U's total sales revenue (€242.6 million) is a reminder of the sheer size of the club, its 76,000 gate for home matches, vast worldwide fan

Show me the money

Chelsea 1 Manchester United 0

In May 2007, another excellent chapter was written in the long, distinguished history of the FA Cup, football's oldest and most prestigious knock-out competition. Following apparently interminable delays, a rebuilt Wembley Stadium was at last ready. And what a remarkable reopening it was, one which broke all the records in the book. Not only could you queue for longer to get into the stadium than anyone had ever queued for admission to a football ground before, but there was also the opportunity to spend record sums on match programmes (£10) and 'rip-off' price refreshments.

But easily the most impressive record set by the new national football stadium is its number of toilets: there are two thousand, six hundred and eighteen toilets at Wembley Stadium. For the American sports fan, this is a truly impressive statistic. It means that Wembley has more rest rooms than Shea Stadium and the Meadowlands (home grounds of the Mets and the Jets) combined; more comfort stations than Fenway and Comiskey Park (the Red Socks and the White Socks) put together; more bathrooms than Arlington and Jacobs Ball Park (the Cowboys and the Indians) aggregated.

But I am afraid it is not simply a quest for a surfeit of euphemisms which has stimulated the sudden new interest in English sacker on the part of the American sports entrepreneurs. And nor, we can safely assume, is it a wish to join the fans behind the goal chanting obscenities at the referee on a Saturday afternoon, let alone a desire to pay staggeringly high prices for football

The purchases of Weetabix and Liverpool were both down to business and profit according to Tom Hicks.

base and associated merchandising income, and its ability to raise revenue through sponsorship by major multinationals (Vodafone, AIG).

Over-leveraged, over-indebted and over here

Everybody knows that Man U is exceptional in terms of financial scale. But what if the leveraged acquisition of clubs were to become the norm in the Premiership? Critics argue that you cannot assume that the average top flight football club could survive the new debt burden such a development would imply. And even for Man U, there are real costs of the Glazer takeover.

The thousands of supporters who remain hostile are keen to point out that the *opportunity cost* of every £1 million spent on paying interest (or making debt repayments) is £1 million which could have been spent in the transfer market: what the fans want to see is each and every £1 million spent on improving the strength of the squad, and not squandered on interest payments to banks.

And what about ticket prices? I would hate you to accuse me of being a Monday morning quarterback (as they say in the US), but I remember remarking quite clearly and at a relatively early stage that the consequences of a Glazer-type takeover would almost certainly include significant increases in the price of match tickets. I don't want to say I told you so, but I am afraid that this is the unfortunate reality. Summer 2007 was a point at which Blackburn Rovers, among other Premiership clubs, was planning reduced admission prices, but it was a time when Man U's supporters were expressing very real feelings of outrage about excessive price increases announced for the 2007-8 season.

Of Old Trafford's 76,000 seats, 57,000 were sold to season ticket holders in the 2006-7 season. Hoping to renew for 2007-8, fans were angry to discover that their season tickets would cost up to 14% more. As a matter of fact, the price increase is effectively rather more than 14% because, under new conditions, fans buying a season ticket covering Premiership matches will now be obliged to book for all home cup matches as well, an imposition necessitating several hundred pounds in additional expenditure.

Is this new tie-in sale an illegal anti-competitive practice under the laws upon which UK competition policy is founded? It is difficult to say, but what we do know is that there was a furious fan response as season ticket renewal forms dropped through the letter boxes of Manchester United's legions of supporters in all four corners of the Home Counties. The fans were apoplectic, protesting that these outrageous prices and conditions were necessitated purely and simply to enable the football club to service the £660 million debt.

I'm a Yankee Doodle Dandy

Like the Glazer takeover of Manchester United, Tom Hicks and George Gillett's £178 million acquisition of Liverpool was financed by borrowing, and the intention is that the profits of Liverpool will be used to pay the interest – amounting to £21 million per annum. But the remarkable thing about the Liverpool takeover was that it did not seem to be greeted with hostility by the club's fans. Where an American's leveraged buy-out of a football club stirred up opposition in Manchester, a mere 38 miles away in Liverpool a similar acquisition was apparently given a warm welcome.

Hicks and Gillett had the advantage of learning from the Glazer-Man U situation, effectively a case study of how not to win friends and influence people when you take control of a football club. Above all, there were important lessons in public relations, and it can be no coincidence that no sooner had Liverpool's new owners arrived than announcements were being made about investment of £200 million in the football-related activities of the club. This is investment which will help to pay for a new stadium and to enlarge the transfer budget, both necessary steps on the road to winning the first Championship in 18 years, say the fans. More gate money from a larger stadium will give Rafael Benitez the financial clout in the transfer market to compete with Chelsea and bring the *galacticos* to the Mersey.

Chelsea is owned by a Russian, Manchester United and Liverpool by Americans. And in mid-2007, it was looking as if the ownership of Arsenal, the other member of the Premiership's Big Four, would also soon fall into foreign hands. Yet another American billionaire, Stan Kroenke, emerged in April 2007 as purchaser of 9.9% of Arsenal's shares. The seller was ITV which, like Sky and NTL, had acquired a 9.9% shareholding in a number of leading football clubs in the late 1990s, a period in which it was thought by TV companies that such share ownership would reinforce bargaining power as regards the acquisition of television football rights.

The ITV share sale was widely assumed to be the first stage in what

would eventually be an outright American takeover of Arsenal. Like Liverpool's American acquirers, Mr Kroenke is an experienced sports owner in the US. Tom Hicks owns the Dallas Stars Ice Hockey team (winners of the Stanley Cup) and the Texas Rangers Baseball Club, purchased in 1998 from a consortium led by the then Governor of Texas, George Dubya Bush. Arsenal's suitor, Stan Kroenke, is the proprietor of a number of US sports teams, including the Colorado Rapids (American football) and the Denver Nuggets (basketball).

"Take me out to the ball game," croons Bing Crosby at Yankee Stadium and Camden Yards, Wrigley Field and Candlestick Park, and baseball stadiums throughout America during the 'seventh inning stretch' (vaguely similar to half time in football). But how can one account for the Americans' sudden interest in being taken out to the ball game at Old Trafford, Anfield or Ashburton Grove? Why are the American sports entrepreneurs over here? What do Hicks, Gillett, Kroenke and the Glazers hope to get out of Premiership football? What's in it for them? Why is an experienced owner of sports franchises like Stan Kroenke prepared to pay a 50% premium price for the ITV Arsenal shares? Why are 7 of the 20 Premiership clubs foreign-owned, a number which may soon be increased with foreigners taking over Arsenal and Manchester City?

We know that the ownership of a Premier League club can be profitable from the example of Sir Alan Sugar who paid £8 million for a 42% stake in Tottenham Hotspur in 1991. Selling his remaining holdings (14.6% for £25 million) in 2007, the Amstrad entrepreneur reportedly showed a profit of about £40 million overall. This is serious money, and we cannot be surprised that the attention of international sports businessmen has been increasingly directed towards the English Premiership.

The American Dream

A number of Premiership clubs have become global brand names with all of the potential for increased profitability that this implies. As a matter of fact, Premier League football has come to be regarded as the wealthiest and most profitable football in the World. According to the Deloitte rankings, the Premiership has eight of the top twenty clubs valued by turnover. In contrast, Italy has four, Germany three, Spain two and Scotland, France and Portugal only one each.

For investors, this alone might be sufficient to give rise to thoughts of making a takeover bid. But, as if to reinforce the general assumption that the share prices of many football clubs understate value from an investment point of view, Premiership soccer stood in the Spring of 2007 on the eve of yet another remarkable financial windfall: the new television contract. For the three seasons starting in 2007-8, BSkyB and Setanta will be paying an astonishing £1.7 billion for live coverage of Premier League matches, a hefty increase on the previous £1.1 billion contract. And there is a further sum in excess of £600 million coming in from the sale of overseas television rights.

New owners are attracted by the Premiership's ever-expanding financial boom. It is a boom in which the television billions are playing a fundamental role, a role which should be emphasised. Investors see Premiership clubs as undervalued in the light of the TV revenues and the wide range of opportunities which exist for the growth of profits. Revenue streams can be opened by building new stadiums with their potential for increased gate money and corporate hospitality, not to mention the proceeds from the sale of stadium naming rights. The latter is standard practice in the US where stadiums named after sponsors range from the exotic Tropicana Field (home of the Tampa Bay Devil Rays) to the prosaic US Cellular Field (new venue for the Chicago White Sox) to the embarrassing Enron Field (the Houston Astros).

And investors assume that revenue can be vastly expanded by exploiting the growing global Premiership fan base in China and the US, potentially vast markets in which interest in soccer is increasing. This suggests almost limitless growth opportunities for merchandising revenue and broadcasting rights for the big 'brand name' Premiership clubs. And when it comes to new revenue streams for football clubs, we must not overlook the current expansion of gambling in the UK. It is fairly safe to assume that various forms of gambling including casinos, otherwise known as a licence to print money, will increasingly become associated with the growth of football clubs.

Are football clubs crucial institutions playing an indispensable role in social cohesion in the towns and cities of the UK, embodying the collective hopes and aspirations of their local communities? Or are they profit-maximising business companies providing investment opportunities for footloose global sports entrepreneurs? Where once upon a time they were the former, today the latter is increasingly the reality.

Questions for discussion

1. What is a leveraged buy-out?
2. Identify, explain and discuss the consequences for a football club of being subject to a leveraged buy-out.
3. Compare the Glazer takeover of Manchester United with the Hicks/Gillett acquisition of Liverpool.
4. Under what circumstances is it profitable to own a football club?
5. Outline the factors attracting foreign sports owners to the Premiership takeover market.
6. Which team do you support? Under what circumstances would you like your team to be acquired by an outside investor?

Summary of key points

- **In two years from May 2005, five Premiership clubs were acquired by foreign owners, of which three are American.**
- **The Manchester United and Liverpool acquisitions depended on large scale borrowing.**
- **The new owner of Liverpool feels there is no essential difference from a business point of view between the acquisition of a football club and any other leveraged buy-out.**
- **Fans of Manchester United complain that higher ticket prices are a direct consequence of Glazer's takeover.**
- **The new TV contract from 2007-8 has increased the appeal of Premiership clubs as attractive investment vehicles.**
- **Investors see much potential for the growth of profitability of Premiership clubs.**

DATA Question and Answer

Rising Tortilla Prices in Mexico

***Tony Emery**, Principal Examiner for UK and International Exams, discusses the implications of a rise in the price of a basic foodstuff in Mexico.*

In January 2007 newspapers in the United States reported on the rising price of tortillas in Mexico. This prompted newspapers in the UK to mention this situation.

Tortillas are an important staple of the diet of Mexico's poor and provide 40% of their protein needs. They fulfil a similar role to that of rice and noodles in low income economies of Asia. An average urban Mexican consumes 250 grams of tortillas each day, while a rural Mexican's daily consumption can be much higher – up to a kilo. The national minimum wage in early 2007 was $4.50 per day, with many families having income of less than twice the national minimum wage. Between 2006 and 2007 the average price of tortillas per kilo rose from 63 cents to between $1.36 and $1.82 and was expected to continue rising.

The President of Mexico responded to the price rise by arranging with business leaders a voluntary price cap of 78 cents per kilo and allowing duty free imports from the US of 800,000 tons of corn, which is the main ingredient of tortillas.

The majority of Mexicans blamed the price rise on the increased demand in the US for corn to make ethanol for fuel. This followed US legislation increasing the proportion of ethanol to be included in petrol. This legislation was intended to reduce the demand for ever more expensive crude oil and to help with the future sustainability of fuel supplies. Other commentators drew attention to the actions of Grupa Gruma which controls over 70% of the Mexican tortilla market and the possibility of speculative buying by corn dealers.

Following an earlier tortilla price crisis in the 1990s one economist investigated the nature of the demand for tortillas in Mexico and concluded that there was evidence that tortillas were an inferior good but not a Giffen good.

(a) Why might rising tortilla prices have been a cause for concern in Mexico in 2007? *(5 marks)*

(b) Using demand and supply diagrams, analyse what might be expected if it is assumed there is a **fall** in the demand for petrol in the US on the market for tortillas in Mexico. *(10 marks)*

(c) Comment on the President of Mexico's actions to counter the tortilla price rise. *(5 marks)*

(d) Explain the meaning of the conclusion that 'tortillas are an inferior good'. *(2 marks)*

(e) Discuss the view that this case helps to prove the argument against globalisation. *(8 marks)*

Suggested approaches to this question

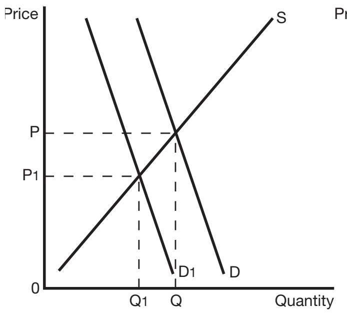
(a) Why might rising tortilla prices have been a cause for concern in Mexico in 2007? *(5 marks)*

The standard of living of Mexico's poor would have been reduced. This might have implications for their health and productivity. It might be seen as undesirable in terms of equity. Falling demand for tortillas would affect producers and sellers and might lead to higher levels of unemployment. As an important element of the national diet expenditure on tortillas could be expected to have a significant weighting in the consumer price index of Mexico and contribute to a rise in the rate of inflation.

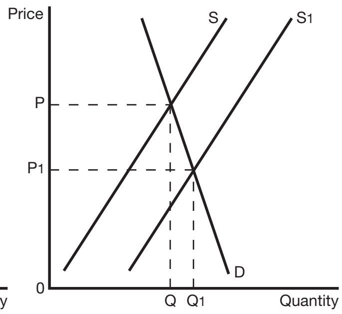
Try to go beyond the most obvious effect of the price rise.

(b) Using demand and supply diagrams, analyse the link between a fall in the demand for petrol in the US and the market for tortillas in Mexico. *(10 marks)*

A fall in demand for petrol would lead to a fall in its price (OP-OP$_1$) and quantity traded (OQ-OQ$_1$). This would result from a leftward shift in the demand curve (D-D$_1$) in the US petrol market. This would lead to a fall in the demand for ethanol and so a fall in the demand for corn for making ethanol. A diagram with the same change applies to petrol, ethanol and corn. A leftward demand shift would occur in the market for corn, meaning a lower price for corn. Suppliers of tortillas would now face lower production costs leading to a rightward shift in the supply curve of tortillas in the Mexican market (S-S$_1$). A fall in demand for petrol could thus be expected to lead to a lower price for tortillas (OP-OP$_1$) with a greater quantity traded (OQ-OQ$_1$). This analysis makes the usual ceteris paribus assumption.



Petrol / Corn



Tortillas

Be sure to offer a commentary which matches the changes shown in the diagrams.

(c) Comment on the President of Mexico's actions to counter the tortilla price rise. *(5 marks)*

A voluntary agreement has some problems. Since it is voluntary there is no legal backing to enforce it so it may not be effective. This seems to be backed up by the statement that prices were predicted to continue rising. Secondly, if effective, a price below the market price operates like a maximum price. This might be expected to create a shortage (demand > supply). Black markets may develop which work to the advantage of the better off who are able and willing to pay higher prices. This would undermine efforts to help poorer groups. The increase in corn imports would only help in the short run and have implications for Mexico's balance of payments.

Although not asked for a diagram, illustrating the shortage would help to clarify the reasoning.

(d) Explain the meaning of the conclusion that "tortillas are an inferior good". *(2 marks)*

An inferior good is one with a negative income elasticity of demand. This means that the quantity demanded decreases as the consumer's income increases. This is not unusual for basic goods which can be replaced by more desirable goods when they become affordable. Normal goods have positive income elasticity of demand.

Learn central definitions precisely.

(e) Discuss the view that this case helps to prove the argument against globalisation. *(8 marks)*

Globalisation refers to the process by which the world economy has experienced increasing integration and interdependence. This has involved improved transport and communication, greater international trade and movement of capital and increased importance of multinational companies. The case against globalisation is that there are losers as well as winners and the losers include many of the poorest countries. Even the governments of relatively developed countries have found that they have less ability to control the course of their economy when faced by forces on a global scale.

This case study shows how a decision by the government of the world's most powerful economy had a harmful knock-on effect in a neighbouring poorer country, which is a fellow member of a trade bloc (NAFTA). The desire to reduce oil consumption and imports and the use of finite resources in the US influenced the living standards of the poorest groups in Mexico.

This reasoning overlooks any potential benefits that have arisen from globalisation. In the case of the two countries Mexico has probably benefited in terms of employment and living standards from its increasing links and trade with the US. A decision about the overall benefit or harm would need to consider a far wider range of issues. In terms of the assertion it is more correct to say that the example supports the case against globalisation but it does not prove it.

Keep up to date with economic trends by reading economic commentaries.

Additional tasks

1. With reference to the text, explain the other possible influences on the tortilla price rise.
2. Use the 'Mexico at a glance' and the 'Mexico country data profile' on the World Bank website to study recent economic events in Mexico.
3. Look up the law of unintended consequences in Wikipedia and apply it to this case.
4. Identify the data needed to judge the nature of demand for a product by viewing the research at http://economicsbulletin.vanderbilt.edu/2002/volume15/EB-01O10003A.pdf
5. Establish the meaning and history of the idea of the Giffen good.

What are the Effects on the Market of Taxes and Subsidies?

***Rachel Cole** of Cheltenham Ladies' College, and an Edexcel principal examiner,*
outlines the impact of government intervention to alter market prices.

Governments intervene in markets in many ways: sometimes they want to discourage production or consumption, in which case they raise a tax; and sometimes they want to encourage production or consumption and might choose to offer a subsidy. There are many other ways in which governments can try to alter our levels of production and consumption, but in this *Back to Basics* we will look specifically at taxes and subsidies, illustrating them with simple diagrams, analyse who is paying the tax or receiving the benefit of the subsidy (incidence), and discuss the contexts in which they are likely to be most effective. Finally we will evaluate them by asking whether they are the best measures to achieve government objectives.

Taxes

Taxes are a requirement by law to pay money to government. There are two main types. Most of this article focuses on indirect taxes, but we take a quick look at direct taxes first:

Direct taxes are taxes on income, such as income tax, which are taken directly or straight out of incomes. Rather perversely, direct taxes can have an indirect impact on market prices. For example, when income tax falls to 20p per pound in April 2008, then I'm sure I won't be the only person feeling a little bit better off at the end of the month, and planning to increase demand for luxury products. This will affect prices if enough of us do that. So a cut in taxes is likely to put upward pressure on some prices. Similarly the cut in corporation tax to 20% (a proportion of a firm's profits) might allow firms to cut prices. So while it is true that direct taxes can have very significant effects on prices, the issue is not likely to come up on an Economics paper trying to apply the tax system to the way in which markets work.

Indirect taxes are taxes on expenditure, such as value added tax (VAT). They are paid by any firm which sells anything, unless it's a small firm or a charity. When the government wants to alter production and consumption patterns the main way to do this is by indirect tax rather than direct tax, as this will affect prices. The reason that it is called indirect tax is that the consumer does not pay the money directly to the government, but the firms which sold the goods or services must pay. The consumers do end up paying at least part of these taxes, as the cost of the tax is passed onto the consumer.

Indirect taxes come in two versions too: *specific* taxes, which are a fixed sum per unit sold, and *ad valorem* taxes, which are added on as a percentage of the price. The specific tax on wine in the UK currently depends on the amount of alcohol, not the price at which it sells. This is shown in Table 1.

Table 1: The specific taxes per litre of wine since the March 2007 Budget

Wine (not sparkling):	Exceeding 5.5% – not exceeding 15% alcohol by volume	**£1.77**
Wine (not sparkling):	Exceeding 15% – not exceeding 22% alcohol by volume	**£2.37**

Source: www.hmrc.gov.uk

It doesn't matter whether you buy *vin de grotsville* or *chateaux de poshville*, the tax is the same per volume and strength. A specific tax is one which varies not with the price but with another factor, such as alcohol strength.

The second type of indirect tax is the ad valorem tax. Ad valorem is the Latin for *corresponding to the value*. The more something costs the higher the tax rate. VAT is the most well known example. If I buy anything which might be seen as a luxury then I'm likely to have 17.5% tax hidden in the price.

The main difference between a specific and ad valorem tax is that the specific tax is not trying to gain more revenue from people who are prepared to pay more. It is a tax which is not targeting redistribution of spending power in the economy but instead trying to target something else, such as drinking. The ad valorem tax by contrast is a good money earner for the government, in that it taxes the people who are prepared to spend more. An ad valorem tax is redistributive – but this makes a critical assumption that it is the higher income groups who spend more and thus are taxed more. In fact as a percentage of income it is often the case that the poor pay much more in terms of indirect taxes, relative to the higher income groups, and for this reason we say that most indirect taxes are *regressive* – that is, taxing lower income groups more in proportionate terms.

The tax on cigarettes is a mix between the two – 22% of the retail price plus £109 per 1000 cigarettes (2007 Budget). Then there is VAT. £4.10 of the £5.50 cost of a packet of cigarettes goes to the government. So if you smoke a lot and smoke expensive brands you are paying a lot of both types of tax.

Subsidies

A subsidy is a grant given to producers (or consumers). There are two main reasons that a government might offer a subsidy to affect market prices:

- It may be that the government thinks that the market price is *too low* for firms, and may want to support the firms' incomes to stop the firms shutting down. This will encourage production, which not only keeps firms in business, but can mean that supplies of services are guaranteed, especially in the case of some foodstuffs which are considered essential. Another advantage is that jobs are not lost in the industry. For example the government subsidises agriculture production via the EU's Common Agricultural Policy.
- By contrast it may be that the government thinks that the market price is *too high* for consumers, and that if prices were lower people would consume an amount which more accurately reflects the value they will gain from consumption. This is a situation where there are positive externalities. For example the government subsidises train operating companies heavily (which may surprise you considering some fares), helping to ensure unprofitable routes are kept running. That is, there is a social benefit.

The effect of subsidies is to lower prices but the cost to the government of doing this is high, as is shown in the following diagrams. The consumer might feel better off because of lower prices but there may be an opportunity cost to be paid through taxes. These can destroy incentives in an economy such as the desire to work long hours, and the effects of the subsidy can be seen as worse than if the government hadn't got involved in the market at all. The amount paid and the amount that benefits the consumer and the producer is shown neatly with a diagram showing the *incidence* of taxation.

Figure 1 shows the difference between an indirect tax and a subsidy. The indirect tax is the vertical distance between the supply curves, and pushes prices and costs upwards. The subsidy is again the vertical distance between the supply curves but instead pushes the costs or prices downwards. When calculating the total tax revenue the government receives as a result of a tax, you need to multiply the tax per unit by the number of units sold.

Figure 2 shows the *incidence* of a specific tax. Consumers pay the amount of tax per unit equal to the change from the old price to the new price. We draw a vertical line at the new equilibrium point. Producers pay the amount of tax per unit which is the difference between the amount they now receive after tax and the amount they would have received at that output. So in this case

Figure 1: An indirect tax and a subsidy

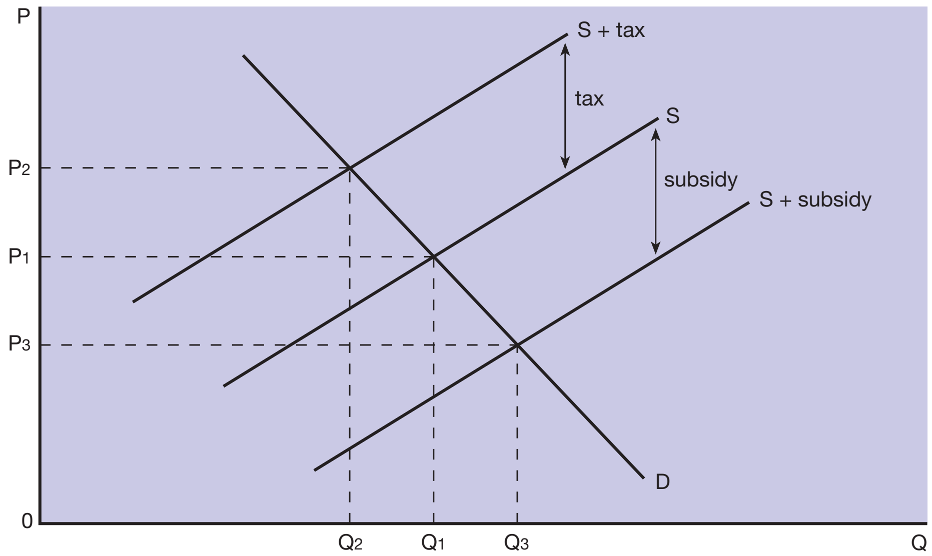
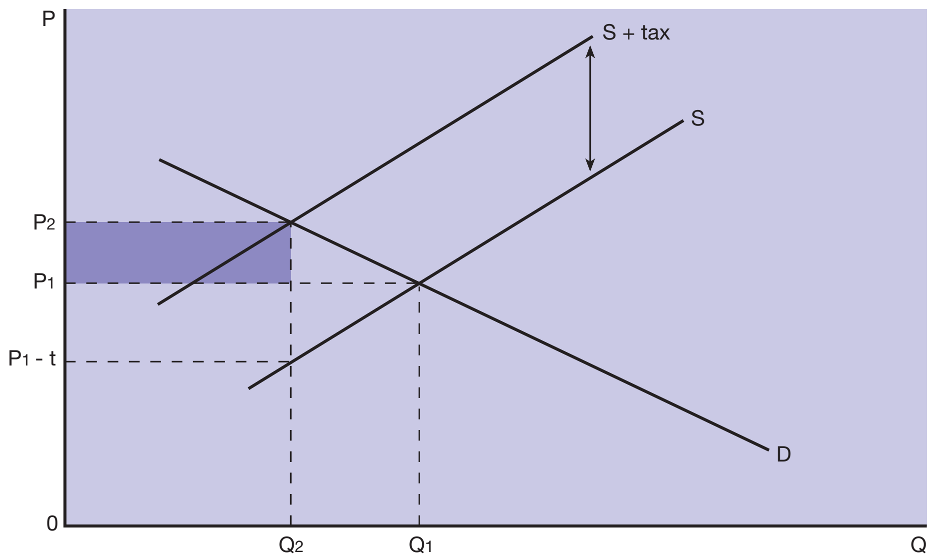


Figure 2



consumers pay P_1P_2 whereas producers pay a larger proportion of the tax. There is a greater vertical distance between $P_1 - t$ and P_1 than between P_1 and P_2.

The dynamics of the diagram work in just the same way for the ad valorem tax (except for the steeper slope for the new supply curve). In Figure 2 the demand is drawn quite flat, implying that it is fairly price elastic – this means that if prices change a little then demand changes proportionately more. So when taxes put these prices up, the quantity reduces significantly, and the producer ends up paying most of the tax.

Contexts in which indirect taxes are likely to be most effective

Before you can say whether a tax is effective you must first decide what you want to achieve. Are you considering the amount that consumption or production changes, or are you thinking in terms of government revenue? If the government wants to raise a lot of money, it should tax a product which has a low price elasticity of demand – such as cigarettes or fuel. But in taxing cigarettes there is also a social objective. Research by Ash, the anti smoking lobby, estimates that taxing cigarettes is the only method which has any effect on the amount smoked – education does not seem to work to change demand at all.[1] The tax raises £9.3bn a year – more than four times the cost of treating smoking-related diseases.

Contexts in which subsidies are likely to be most effective

Subsidies are effective in expanding output when the demand is elastic (and also supply, but discussing this goes beyond Basics). If government wants to increase output then it should offer a subsidy where the price elasticity of demand is high. But usually the demand for foodstuffs and other commonly subsidised goods is inelastic so although there is a major subsidy the output doesn't increase much at all. For example the government is trying to encourage the output and use of bio fuels, but because you need a different car to use them demand has not responded quickly to lower prices or more output. Often the subsidy does not increase output at all – it just stops the output from falling. In the 1970s the UK government was keen on subsidising ailing firms such as car producers, and while in the short run some job losses were prevented, in the long run it seems this was money wasted.

What are the problems with indirect taxes and subsidies?

There are three main problems with indirect taxes. Firstly, they make goods and services more expensive. The result is that our cost of living rises – that is our basket of goods as measured by inflation will cost more. Secondly, as a country we may be uncompetitive if indirect taxes abroad are lower – which might lead to illegal smuggling of cigarettes for example. Thirdly, that there is a disincentive for firms to set up or invest in our country – one of the main causes of growth in an economy.

There are three main problems with subsidies. Firstly, they are very expensive to operate, and must be funded out of tax payers' money (for which there is an opportunity cost). Secondly, while they may lower prices for the consumer and guarantee a

Table 1: The incidence and output effects of an indirect tax

	Demand is price elastic	**Demand is price inelastic**
Effect on consumers	Output falls greatly but prices change little	Prices rise greatly but output changes little
Effect on producers	Output and profits fall	Very little change to firms output or profits

1. www.ash.org.uk

EU agricultural subsidies will distort the market and may lead to higher prices.

higher income for producers, the level of that income is not guaranteed – it depends what the market price was before the subsidy was given. If in one year prices fall very low the subsidy might not be enough to maintain incomes; whereas in another year the producer might do a little too well out of the government handout. Thirdly, they distort the market, and the economy fails to enjoy the benefits of comparative advantage. If we can get cheaper foods from outside the EU rather than the subsidised food from within it, trade will be created, and everyone can be made better off without anyone being made worse off. The EU Common External Tariff is one of the key reasons why international trade talks with developing countries break down.

In conclusion, taxes and subsidies can be used to change output and price levels, and the effects depend on the ways in which they are applied and on the elasticities of demand and supply. The side effects of taxes can be to change levels of welfare, equality and international competitiveness. They have a large but often hidden effect on our daily lives, and for that reason are favourite topics for politicians, green activists, but perhaps most important of all, economics examiners.

Questions for discussion

1. Draw a summary table similar to Table 1, but this time for subsidies. What pattern emerges?
2. If you have been studying macro-economics you may have got the impression that subsidies are a *supply side policy*. The reason for saying this is that subsidies encourage firms to produce more and at a lower price. However what is the difference between subsidies and a supply side policy?
3. The price elasticity of demand is of crucial importance when considering the incidence of taxes and subsidies, as discussed above when looking at the shift in supply curves. But is the price elasticity of supply important? Remember that the shift in the supply curve is a vertical movement so if it is very steep it will not move left or right very much.
4. If indirect taxes are the only way to stop people smoking, why not double the tax on cigarettes? Or is the smoking ban (since 1st July 2007) going to have more effect, with fines ranging from £30 to £2500?

Key terms

- **Direct tax** – taxes on income, e.g. income tax, which come directly or straight out of incomes.
- **Indirect tax** – taxes on expenditure, e.g. value added tax (VAT), tax on petrol.
- **Specific tax** – tax based on quantity not value.
- **Ad valorem tax** – tax based on value not quantity.
- **Subsidy** – a grant given to producers.
- **Incidence** – who pays the tax (or receives benefit of the subsidy).
- **Price elasticity** – a measure of response by consumers or firms when prices change.
- **Common External Tariff** – The EU imposes some taxes on outside countries which all member countries impose at the same rate. These vary from 7% (footwear) to 236% (food products).

Making Sense of Economic Data

Ageing Population in the United Kingdom

__Andrew Reeve__, Head of Economics and Business Studies, King's School, Macclesfield, reviews some key implications of a larger proportion of older people in the UK's population.

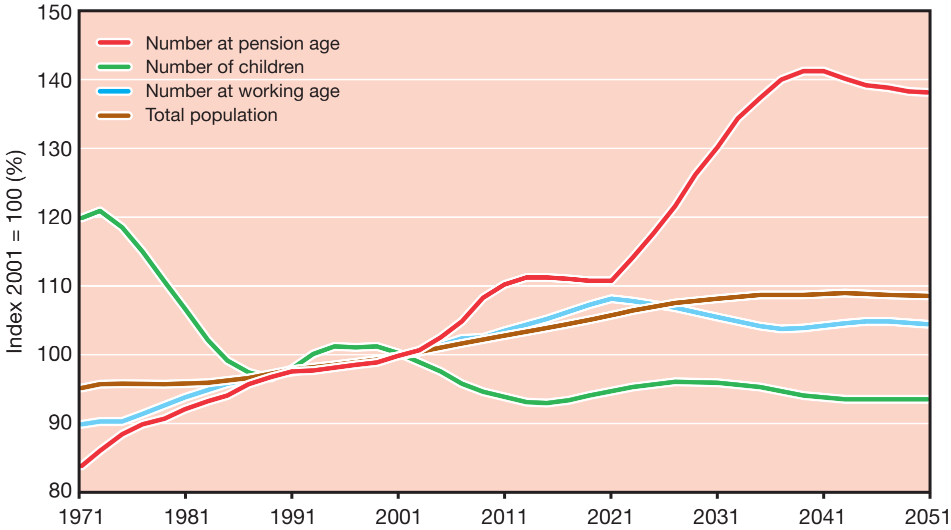
By 2025, more than one third of the United Kingdom's population will be over 55 years old.[1] One of the fundamental developments of the past 150 years has been the increase in the average length of life. In the 1850's, the average life expectancy at birth in England was only 42 years, by 1911 it had risen to 50 years and today it is over 80 years for a male and 84 for a female.[2] The Government's Actuary Department (GAD) estimate that a male retiring at the age of 60 in 2026 will live for a further 24 years and a female will live for 27 years on average. Demographic change and population ageing is a global phenomenon that has attracted considerable attention throughout the world. This article examines the research which has been carried out into how the ageing population will impact on the United Kingdom's economy.

Definitions

Before we examine some of the empirical evidence, it is important to consider some of the indicators of population ageing:

1. **The Dependency Ratio.** This is the number of persons under the age of 15 plus persons aged 65 or older per one hundred persons 15 to 64. It is the sum of the youth dependency ratio and the old-age dependency ratio.
2. **The Youth Dependency Ratio** is the number of persons 0 to 14 per one hundred persons 15 to 64.
3. **The Old-Age Dependency Ratio** is the number of persons 65 years and over per one hundred persons 15 to 64 years.
4. **The Labour Force Participation Rate** consists of the economically active population in a particular age group as a percentage of the total population of that same age group. The active population (or labour force as it is also known) is defined as the number of persons in employment and unemployed persons seeking employment.

Figure 1: Population changes in Great Britain, 1971-2051



Source: House of Lords Select Committee on Economic Affairs, 4th Report – Aspects of the Economics of an Ageing Population, (2003)

What is an ageing population?

The age profile of the United Kingdom has shifted over the last one hundred years. Over time there has been a decline in the size of the average family. Women born in the 1930s had, on average, 2.45 children. However, it is predicted that women who were born in the mid-1970s and therefore are currently of child bearing age, will have on average only 1.74 children. This *fall in fertility* has occurred at the same time as an *increase in longevity*. Together, the two factors cause an upwards shift in the age structure which is termed as an ageing population.

This decline in fertility levels is significant. Across the developed world fertility levels are falling. The United Kingdom's current estimated level of 1.74 children per women is higher, for example, than the average EU15 level of only 1.4 children. It has been estimated that a fertility level of 2.08 children per woman is needed in the United Kingdom to simply maintain the population at its current size. This is known as the replacement level. We can clearly see then that the country's fertility level is substantially below this level and therefore there is a reliance on net migration into the nation to fill the gap.

Old-age dependency

Table 1 shows the trend of a rising dependency of older people on the labour force for all countries shown. Although the United Kingdom is in a more favourable position than a country such as Italy or Japan, we can clearly see that there is predicted to be a significant worsening in the ratio.

However, these figures show only the basic facts. They do not highlight if any of the people within the age range 16-64 are economically inactive. Many people are in full time education, have disabilities which prevent work or are enjoying early retirement. Equally, we should not think that all people aged over 65 years are economically inactive. Many continue to work, especially on a part time basis and a recent BBC report suggested that 35% of those aged 75+ regularly give up some of their free time to help others in a voluntary capacity.[3]

Figure 2 is taken from a research paper by Garry Young of the Bank of England. It clearly illustrates the extent of the predicted demographic change in the United Kingdom in the next 60 years. In his research, Young uses the age range 15-60 rather than 65. He concludes that in 2001, those aged 60+ equated to 33% of the 15-60 age group but by 2030 the 60+ age group is expected to equate to 55%.[4]

> **"In other words, taking 60 as the retirement age, the number of working age people per pensioner is due to fall from around 3 now to 2 in 30 years time."[4]**

The impact on healthcare

Having considered the extent to which the United Kingdom's economy is ageing, we now turn our attention to how this process might impact on health and social care expenditure over the coming years.

Recent figures published in the British Medical Journal suggest that the United

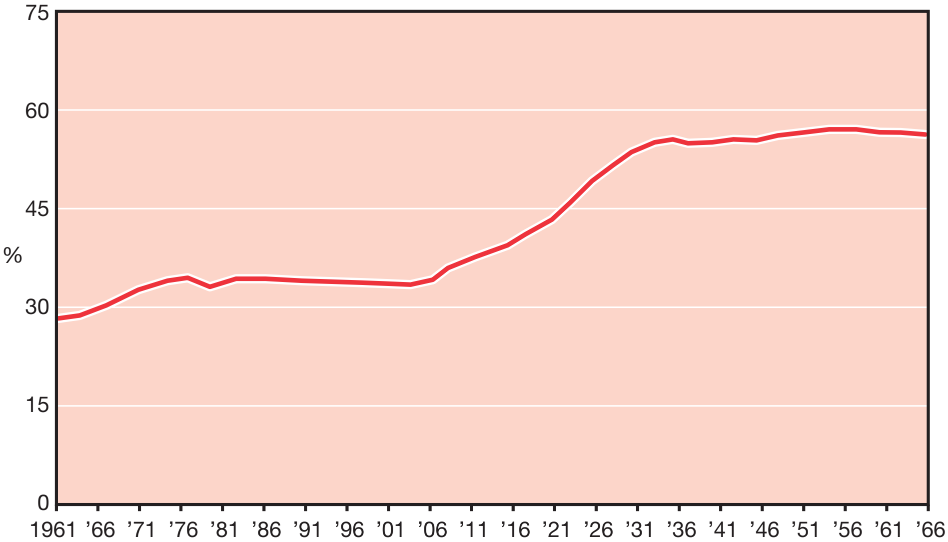
Table 1: Old-age dependency ratios in G7 nations

	2000	2025	2050
Italy	26.7	40.6	68.1
Japan	25.2	49.0	71.3
Germany	24.1	39.0	54.7
France	24.5	36.2	46.7
United Kingdom	24.4	32.8	39.2
EU 15	24.5	37.1	54.7
United States	18.6	29.3	34.9

Source: Department of Work and Pensions, 2004

1. BBC online, www.newsvote.bbc.co.uk, Christine Jeavans, 29 November 2004.
2. Government Actuary's Department, *National Population Projections, 2000 and 2004*.
3. BBC online, 29th November 2004, Christine Jeavans.
4. Garry Young, 'The implications of an ageing population for the UK economy', *Bank of England Working Paper*, 159, July 2002.

Figure 2: Ratio of over-60s to 15-60s in the UK



Source: G. Young, 'The implications of an ageing population for the UK economy', *Bank of England Working Paper*, 159, July 2002

Kingdom's ageing population will impose considerable workload and financial pressures on the NHS. It is expected that by 2031, the number of cases of coronary heart disease will increase by 44%, the number of cases of heart failure will increase by 54%, and the number of cases of atrial fibrillation will increase by 46%. If these predictions materialise, there will be an increase in the provision of statins, which have become the single largest component of the NHS prescribing budget. There will also be a significant increase in the costs of diagnostic tests, surgical procedures and regular monitoring of patients.[5]

However, the correlation between old age and health care expenditure may not be so straightforward as outlined above. In 1999 and again in 2000, two studies (one British and the other Swiss) concluded that the link between an ageing population and an increase in health care expenditure was suspect. The larger of the two studies, that in Switzerland, found that it was not the age of a patient but their proximity to death that was the influential factor. In other words, health care expenditure is concentrated towards the end of life, and that the relationship between age and health expenditure is weak. However, these findings only consider the medical or health care expenditures. They do not examine the cost of social and nursing care, which is expected to rise dramatically as the population undergoes the process of ageing.

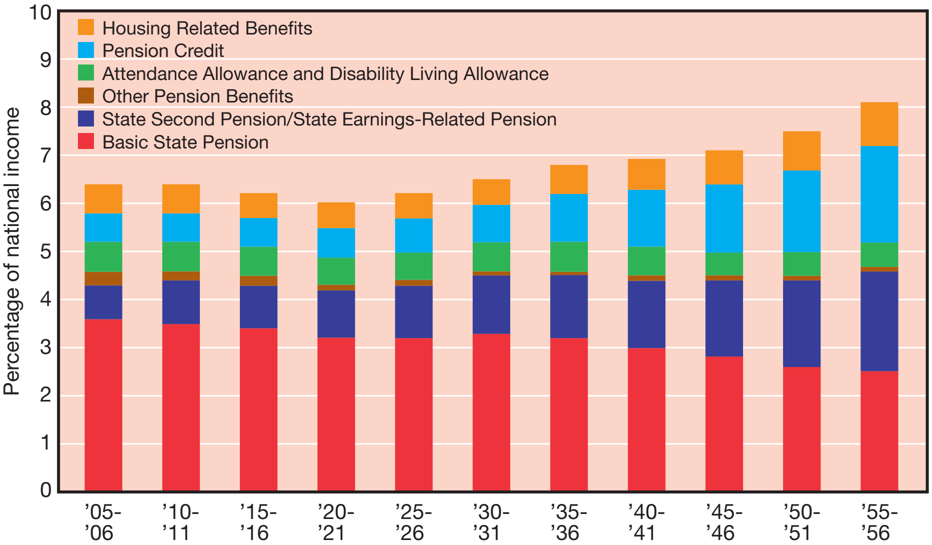
Ageing populations and pension provision

In May 2007, Michelin, the French tyre maker, announced it plans to close its final salary pension scheme to existing and new members in the United Kingdom and transfer their funds to a money purchase scheme. Despite being attacked by unions for their actions, the management of Michelin defended the policy stating "factors outside our control could cause the liabilities to balloon in the future". They were of course referring to the ageing population process. Examining the accounts of the Michelin pension fund, it can be seen that there was a significant deficit of £260 million in 2006, as retired workers live longer and therefore take more pension from the fund.

Michelin are not unique in closing their final salary fund, they join a growing list

5. *British Medical Journal*, 9 December 2005.
6. BBC online, 1 May 2007.

Figure 3: Projections of transfer payments to pensioners in the UK as a percentage of national income by benefit type



Notes: 'Other pension benefits' comprise winter fuel payments, over-75s' TV licences, and Christmas bonus; 'Housing-related benefits' comprise housing benefit, council tax benefit in Great Britain, rate rebate in Northern Ireland and discretionary housing payments. Projections are based on those underlying HM Treasury's Long-Term Public Finance Report, 2005.

Source: Department for Work and Pensions, Benefit Expenditure Tables (http://www.dwp.gov.uk/asd/asd4/long_term.asp

of large companies such as HBOS and WH Smith which have also closed theirs.[6]

Just as private firms are concerned about their pension fund provision, the Government must also consider the consequences of an ageing population on the national accounts. Recently there have been partial reforms of final salary public sector pension schemes which mean that in professions such as teaching, new entrants now have to work until they are 65 rather than 60. There has also been a review of the state pension age, leading to a phased increase from 65 to 68 years old.

However, the concern amongst some economists that the nation will not be able to pay for its retired population is not universally accepted. In a report by the Institute of Fiscal Studies, it was stated that the UK currently transfers 6.3% of national income in transfer payments to state pensioners and this will only rise to 8% of national income by 2056 as shown in Figure 3. This suggests that the payment to each pensioner will only be 80% of the current amounts payable. The reason for this is that reforms of pension provision over the last twenty years has made them less generous, such as shifting state pensions away from an earning index approach to a price index.

Summary

This article has considered one of the major economic issues that this country faces. Like many of the world's developed nations, the UK is undergoing a significant ageing population effect. Clearly, there will be widespread consequences for the economy, including the effect upon health care spending and pension provision. It is hoped that this article has presented a balanced case, in terms of suggesting the detrimental effects but also explaining how news headlines on the topic of ageing populations might paint an overly negative picture.

Many companies are now closing their final salary pension schemes.

STOP PRESS

Inward Migration begins to Slow

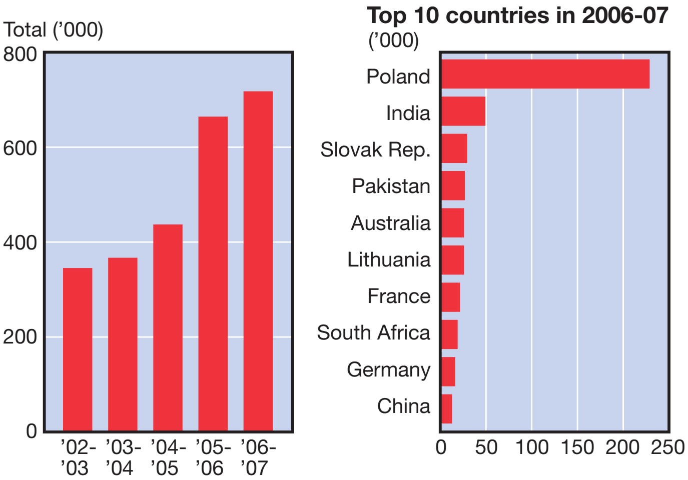
In this occasional feature, Nigel Tree looks at the economic significance of inward migration into the UK.

Inward migration tailing off?

The Department for Work and Pensions tracks the number of overseas nationals that apply for a National Insurance number in the UK. Without this number migrants would be unable to work legally within the UK or claim benefits. According to figures published in July 2007 the number of these registrations in 2006-07 reached 713,000. This was up 51,000 or 7.7% on the previous year. However, this rate of growth was well down on the rise seen in 2005-06, which was 51% up on the previous year.

The recent trends can be seen in Figure 1.

Figure 1: Overseas nationals entering the UK and allocated a national insurance number



Source: Department of Work and Pensions, *Financial Times*, 25 July 2007

Over 30% of all economic migrants are currently from Poland.

As Figure 1 shows, Poland is far and away the major source of new national insurance registrations, followed by India and the Slovak Republic. As a number of the former communist countries of eastern Europe have joined the EU in recent years, there has been an increased flow of migrants seeking work in the UK.

On 1st May 2004 ten countries joined the EU and these were Poland, Czech Republic, Slovakia, Hungary, Slovenia, Latvia, Lithuania, Estonia, Malta and Cyprus. This was followed by Bulgaria and Romania joining on 1st January 2007. There were 321,200 registrations from these accession countries in 2006-07, which made up 45% of all registrations. But the influx from these countries appears to be tailing off.

However, when looking at the total number of economic migrants, we have to take account of those here illegally. A report published by the Institute for Public Policy Research this year argued that half a million illegals in the UK should be allowed to stay, as the cost of deporting them would be £4.7bn and take 30 years, whilst they would be paying £1bn per year to the Treasury if they were allowed to stay. The UK government itself has said that there could be up to 570,000 illegal immigrants in the UK but a pressure group, MigrationWatch UK, estimates that the total could be as high as 870,000.

Only here for the hand outs?

According to the Department of Work and Pensions, of the 562,000 arrivals into the UK in 2005-06, only 16,000 or 3%, were actually claiming any type of out-of-work benefit within six months of registration.

A report by professional services company Harvey Nash in conjunction with the Centre for Economic and Business Research in November 2006, suggested that dispensing with the UK's migrants would cost us approximately £54bn. This is the estimate of the additional value added by migrants to the economy. The report noted that the benefits supplied were not only in terms of plugging skills gaps, but through the multiplier effect of their consumer spending. It was also noted that over 30% of NHS nursing roles are held by recent migrants to the UK.

Also, according to John Philpott, chief economist of The Chartered Institute of Personnel and Development (CIPD): "On balance, the benefits (of immigration) have outweighed the cost, mainly because a bigger pool of foreign labour has helped keep wage inflation in check and enabled a faster rate of economic growth than would otherwise have been achieved. CIPD research shows that a third of UK organisations employ workers from EC accession countries. Many (employers) point to their willingness to work as well as their skill levels as key reasons for hiring them."

Although the UK has put strict limits on migrant entry from the two new EU states of Bulgaria and Romania, it would appear on balance that the UK is continuing to gain from inward migration although future growth in numbers will probably be reduced.

Nigel Tree

In this supplement we look at the major changes in the UK economy over the past year and their likely impact on the UK's economic future.

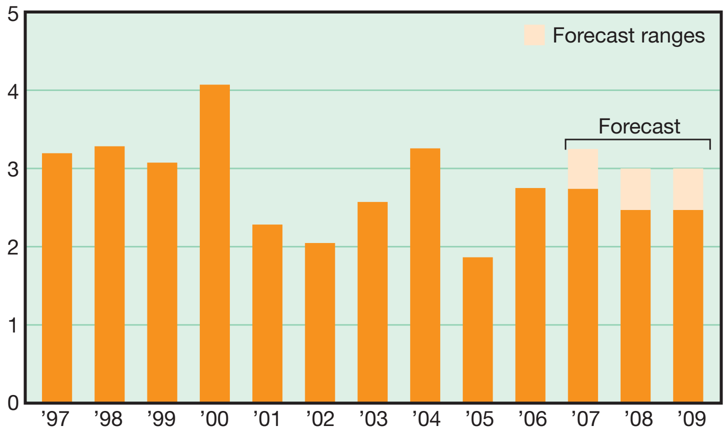
Economic Growth

After three years of increasing growth rates the UK economy slowed to 1.8% in 2005 but then recovered to 2.8% in 2006, as can be seen in Figure 1.

The economy continued to grow in 2007 with growth of 0.7% in the first quarter of 2007 and 0.8% in the second quarter. Compared to the second quarter of 2006 this meant a rise in GDP of 3%. This increase reflected a bounce back in the manufacturing sector with the production industries growing 0.6% in the second quarter. However, the service sector which accounts for 74% of the UK economy and has been the dominant factor behind recent growth, was up 0.8% – although this was slightly down on the previous two quarters. Figure 1 shows that the government is currently forecasting a growth rate for 2007 of between 2.75-3.25%.

One significant fact is that the economy has been growing above its trend rate of growth for six consecutive quarters. The trend rate of growth is a figure calculated by the Treasury which shows the rate at which output can grow, on a sustained basis, without exerting any inflationary pressures. This is based on growth in output per hour, which is a measure of productivity, growth in average hours worked and changes in the employment rate and the size of the working-age population. This figure is calculated by the Treasury to be 2.75%. It had previously been at 2.5% but was revised upwards in 2006 due to increases in productivity and the impact of inward migration.

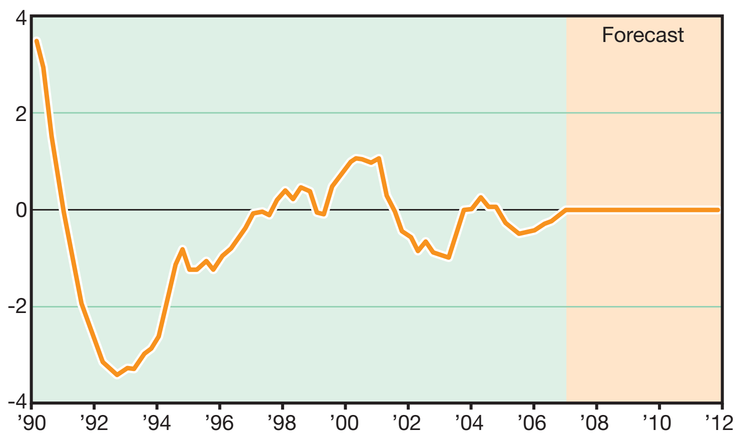
Figure 1: Economic growth: annual change in gross domestic product (%)



Source: ONS

What are the implications of the economy running above its trend figure? A major implication concerns the amount of spare capacity in the economy which can be measured using the output gap. This can be defined as the difference between the actual level of GDP and its estimated level, shown as a percentage of the latter figure. This can be seen in Figure 2.

Figure 2: The output gap (%)



Source: HM Treasury

According to the Treasury there was a small negative output gap running from the first quarter of 2005 to the first quarter of 2007, since when the output gap has been forecast to be zero and to continue at zero. A negative output gap means the economy has spare capacity but a positive gap would show signs of labour shortages, inflation and overheating in the economy. A zero gap shows that the economy has very little latitude and that continued strong growth will build up inflationary pressure.

The Bank of England has responded by raising interest rates five times since August 2006. There is a possibility of at least one more rate rise before the end of the year, but whether this, coupled with the rise in the value of sterling will serve to put a brake on growth and inflation remains to be seen.

Inflation

In 2004 the government changed its primary target for inflation. Prior to that it had targeted a measure called RPIX, which was the Retail Price Index excluding interest payments, which was know as underlying inflation.

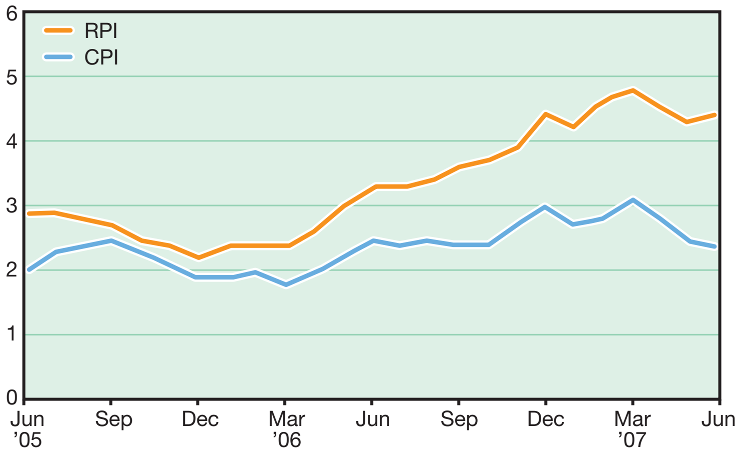
However, in 2004 the Chancellor fell into line with the inflation measure most widely used in the EU and introduced the Consumer Prices Index. In fact, the index used within the EU is known as the Harmonised Index of Consumer Prices (HICP). The Monetary Policy Committee of the Bank of England has been set a target of keeping the CPI within

one percentage point of 2%. How well they have fared can be seen in Figure 3.

It can be seen from Figure 3 that the CPI rose fairly steadily from March 2006, when it was below the 2% target, to December 2006 when it reached 3.0%. This was a rise from 2.7% in November and was the fastest rate at which prices have been rising for 11 years. The main reasons for the rise were rising petrol prices and increased furniture prices which rose by a record 8.7%.

The CPI then fell in January but rose to 2.8% in February and then reached 3.1% in March. Again this was due to a 10% monthly increase in furniture and furnishings and an increase in petrol. However, the major significance was that this breached the one percentage point either side of 2% barrier, and forced the Governor of the Bank of England to write an explanatory letter to the Chancellor. See the section on Monetary Policy and Interest Rates below for more details.

Figure 3: Annual inflation rates, 12 month percentage change

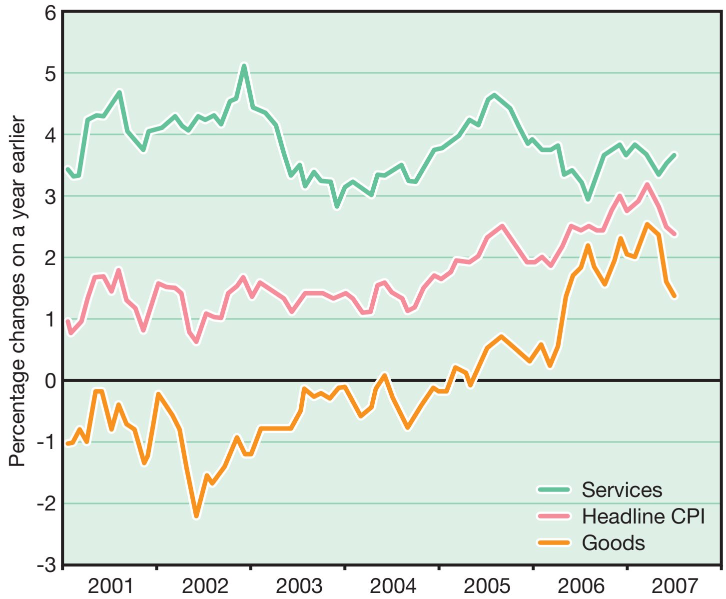


Source: ONS

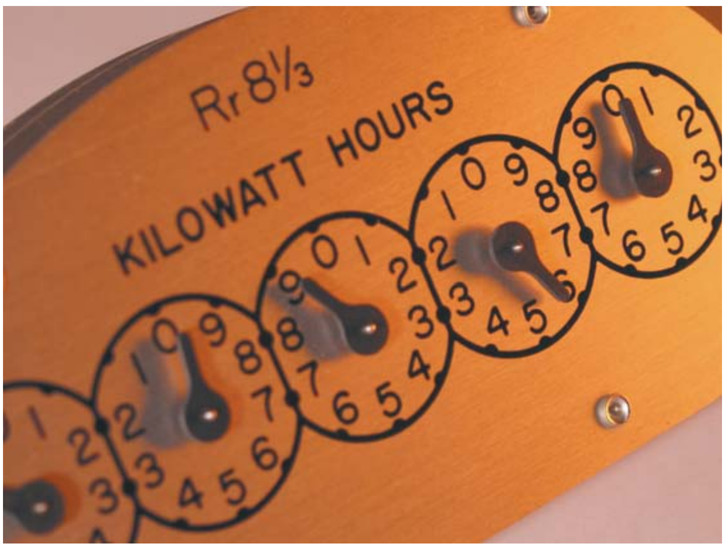
After March prices started to fall steadily, reaching 2.5% in May and 2.4% in June 2007, mainly due to falls in gas and electricity bills. Figure 4 shows the changes in goods and services price inflation compared to the CPI itself. It can be seen that inflation in the service sector is at a much higher level, reaching 3.7% in June 2007, but that increases in goods prices have risen rapidly up to March this year, but fell back over the next three months to reach 1.4% in June.

In a speech in June 2007, Mr King, Governor of the Bank of England, said that he feared inflationary pressures might prove persistent and that the 2% CPI target might be hard to hit, unless there were falls in business and consumer spending and the growth of the money supply.

Figure 4: Inflation in goods and services



Source: Bank of England



Electricity and gas bills have started to fall.

Earnings

In March 2007 it was announced that the national minimum wage would be raised for more than one million workers by 3.2% from October 2007. This would give an increase in the adult minimum wage rate from £5.35 to £5.52 per hour. The chairman of the Low Pay Commission which recommended the rise said that it had decided upon a more 'cautious' approach this year because it was felt that a larger rise would hinder the growth in jobs.

This was the first year since 2002 that the increase in minimum wage lagged behind the growth in average earnings. In fact, since 2002 the minimum wage had increased by 27% compared with a rise of only 17% in average earnings.

Figure 5: National Minimum Wage January 2007

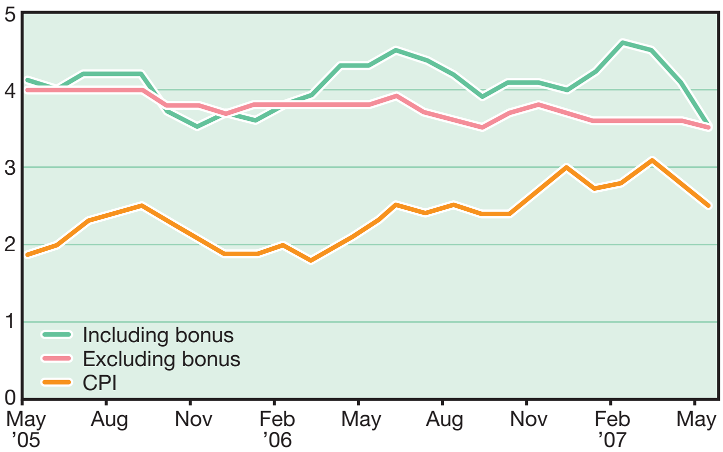
Country	Monthly Rate (€)	% Employees Receiving
Luxembourg	1,570	11.0
Ireland	1,403	3.3
UK	1,361	1.8
Netherlands	1,301	2.2
Belgium	1,259	n/a
France	1,254	16.8
Greece	668	n/a
Spain	666	0.8
Malta	585	1.5
Slovenia	522	2.8

Source: Eurostat

Figures published in June 2007 which can be seen in Figure 5, show that Britain's minimum wage is the third highest out of 20 EU countries. The UK rate is below Luxembourg and Ireland, but is twice the rate in Spain and the US. What is interesting is to see what percentage of the population is covered by these monthly figures. Whilst only 1.8% of UK employees receive the minimum wage, this figure rises to 11% in Luxembourg and 16.8% in France.

In January 2007 pay settlements rose to their highest level for six years, with the median level of settlements rising to 3.5% in the three months to the end of January. Pay settlements had not reached this level since 2001. These settlements have served to raise the level of average earnings far above the level of CPI inflation, and the recent trend can be seen in Figure 6.

Figure 6: Comparison of growth in average earnings and CPI (%)



Source: ONS

The Governor of the Bank of England warned in January that the Bank would act to ensure that "self-defeating" pay rises "did not lead to a persistent rise in inflation." However, the spring pay round was a more modest one with the result that average earnings excluding bonuses, or regular pay, rose by 3.5% in the year to May 2007. This was down on the 3.6% recorded in April.

Private sector pay deals have been running well ahead of settlements in the public sector, with average earnings rising at just below 5% in March 2007, compared with just above 3% in the public sector. The biggest pay rises have been in private sector firms which are heavily unionised, particularly in the electricity and gas sectors, but also for network rail and BT staff.

Average earnings have been rising faster than inflation.

The Bank of England raised interest rates five times in twelve months.

Monetary Policy and Interest Rates

Between August 2006 and July 2007 the Monetary Policy Committee of the Bank of England made five increases in interest rates, raising them in quarter-point increments from 4.5% to 5.75%. Recent changes in interest rates can be seen in Figure 7.

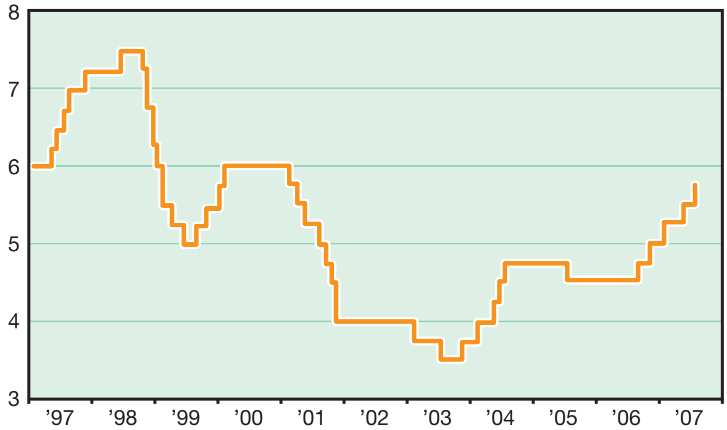
The reasons behind the rises was to counter a persistent surge in inflation which peaked at 3.1% in March 2007, and led to the Governor of the Bank of England, Mervyn King, having to write an explanatory open letter to the Chancellor, explaining why inflation had been allowed to slip from the parameters set down.

The Bank's concern is whether the recent increases in interest rates will be sufficient to slow domestic demand. Whilst there has been a fall in utility prices consumer spending on the high street has been gathering pace. Consumer spending rose by 2.1% in 2006, compared with only 1.5% in 2005, and was growing at 3% in the first three months of 2007. How can this be when household disposable income is at its lowest level for 25 years, as can be seen in Figure 8.

It looks as though consumers are not 'maxing out' their credit cards but are instead running down their savings. In fact, the household saving ratio, defined as the proportion of disposable income not spent by consumers, fell to 2.1% in the first quarter of 2007, which compares with 3.9% in the last quarter of 2006. In fact this latest figure represents the lowest saving ratio since the start of the 1960s.

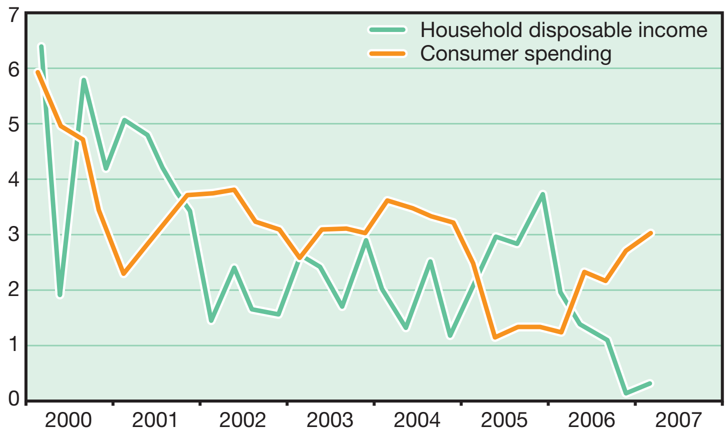
One major concern for the Bank is whether inflationary expectations have settled at a level above the Bank of England's target. As little is known about how such expectations are formed, the Bank is obliged to act quickly before a more prolonged slowdown is required to get inflation down.

Figure 7: Changes in Bank of England Base Rates (%)



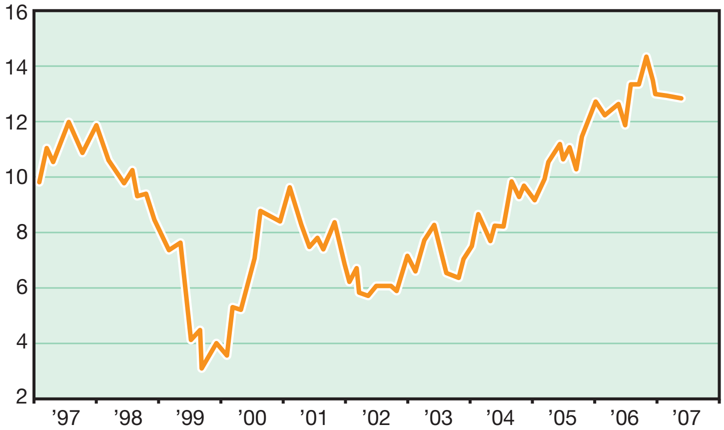
Source: Bank of England

Figure 8: Real household income and expenditure (Annual Percentage Change)



Sources: Thomson Datastream; ONS, from *Financial Times*, 3/8/07

Figure 9: UK money supply growth. Annual % change in M4



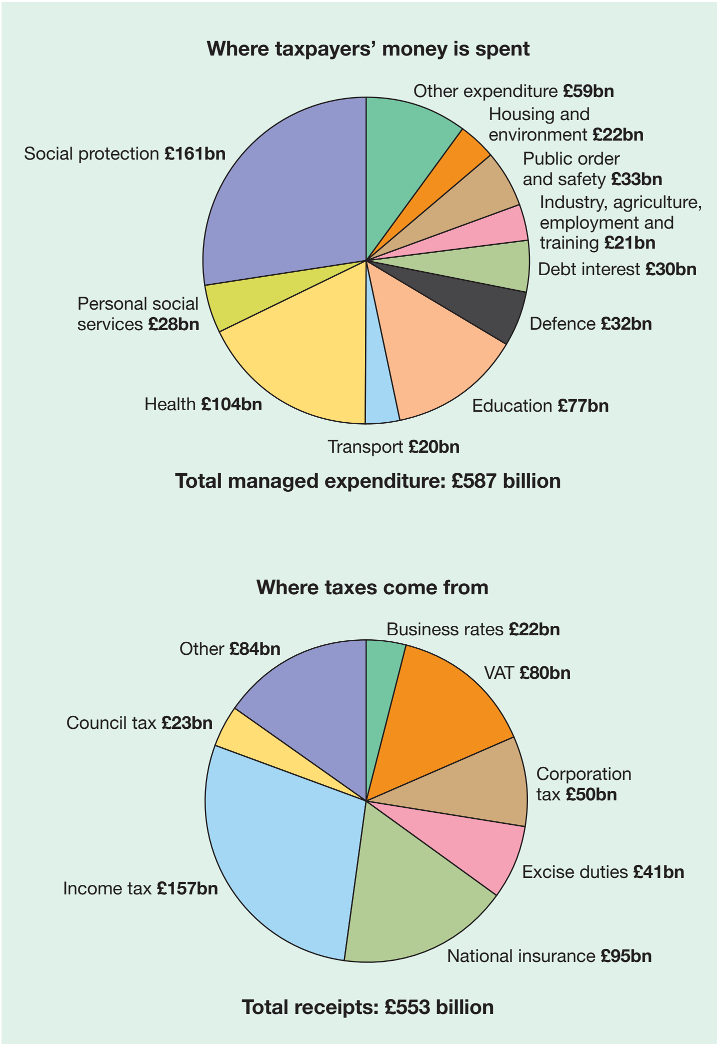
Source: Thomson Datastream

There is also a concern about the current levels of money supply growth. In the year to March 2007, the broad measure of money, M4, grew by 12.8%. This can be seen in Figure 9.

Some UK monetarists believe that this could have a significant upward effect on inflation in the next 12-18 months. However, this is something of a chicken and egg situation. It is very difficult to determine whether the rise in the amount of money swishing around the economy is due to demand or supply. Some economists believe that easy access to money is encouraging spending and will therefore be inflationary. Others hold that it is an increased demand for money which is being accommodated by monetary growth. This debate will continue.

Charles Bean, the Bank of England's chief economist, said in a speech in June that on the positive side there are three reasons why a situation where demand was outstripping supply might not lead to increasing inflation. Firstly, globalisation has created intense competition between markets and stopped domestic retailers freely raising prices. Secondly, the competition which is coming from India and China should stop workers pushing for above inflation wage rises, as they will be concerned about losing their jobs overseas. And, finally, the current rate of inward migration is giving firms access to relatively cheap labour which removes the need for them to raise wages to attract workers.

Figure 10: Planned government receipts and expenditure, 2007-2008



Source: HM Treasury

However, Mervyn King has suggested that borrowers should expect even higher rates of interest before the end of 2007 unless business and consumer spending slows and inflationary pressures abate.

Taxation, Expenditure and Government Borrowing

In May 2007 the Chancellor, Gordon Brown, presented his 11th and final Budget, before taking the post of Prime Minister. The Budget was basically a fiscally neutral one. Mr Brown did cut the rate of income tax by 2p to 20p in the Pound which will cost the Treasury £9.6bn by 2009-10, but at the same time abolished the 10p lower rate of tax and increased the upper limit of national insurance contributions, which would claw back £8.6bn. A similar 2p cut in corporation tax from 30p to 28p will cost £2.23bn, but at the same time a change in capital reliefs will bring in an extra £2.31bn.

Total public spending is expected to be around £587bn in 2007-2008 which will be offset by total receipts of £553bn. The £34bn difference will have to be made up by borrowing. Figure 10 shows where tax payers money is coming from and where it will be spent.

The government had forecast in the Budget that net borrowing would be £35bn in 2006-2007, but because of an underspend by government departments the actual figure was only £30.5bn. This can be seen in Figure 11 together with the forecast borrowing requirements for the next five years.

Although the government has reduced corporation tax, the UK is still charging higher rates than most European countries, as can be seen in Figure 12.

According to the Confederation of British Industry the UK's corporate tax system is both complex and unpredictable as to the final tax burden. They claim that it is "damaging the prospects of the UK as a place to do business."

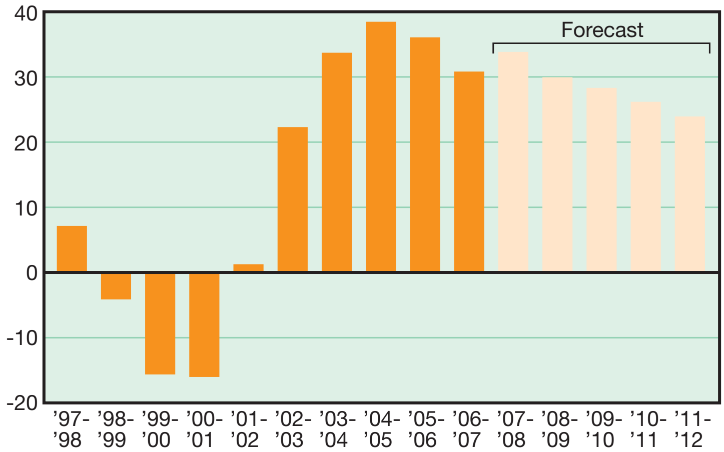
The average EU corporate tax rate is 25% and some UK companies are moving their domicile to lower rate countries. The question is whether globalisation is making it more feasible for multinational companies to gravitate towards countries with the lowest tax rates.

In fact, the UK treasury has seen the amount taken by corporation tax rise from £32bn to £48bn over the past five years, and every percentage cut in the corporation tax rate would only cost the exchequer £1.5bn. Some analysts have suggested that there will be a race to the bottom in Europe, with tax rates falling to around 15%. However, as far as the UK is concerned we are still seeing a large chunk of inward investment coming into the country (see Figure 13) which has not been put off by our higher tax rates. And, it is very expensive for a company to move lock, stock and barrel to another country plus there is a risk of damage to its reputation if it is not in a major financial centre.

Labour Markets

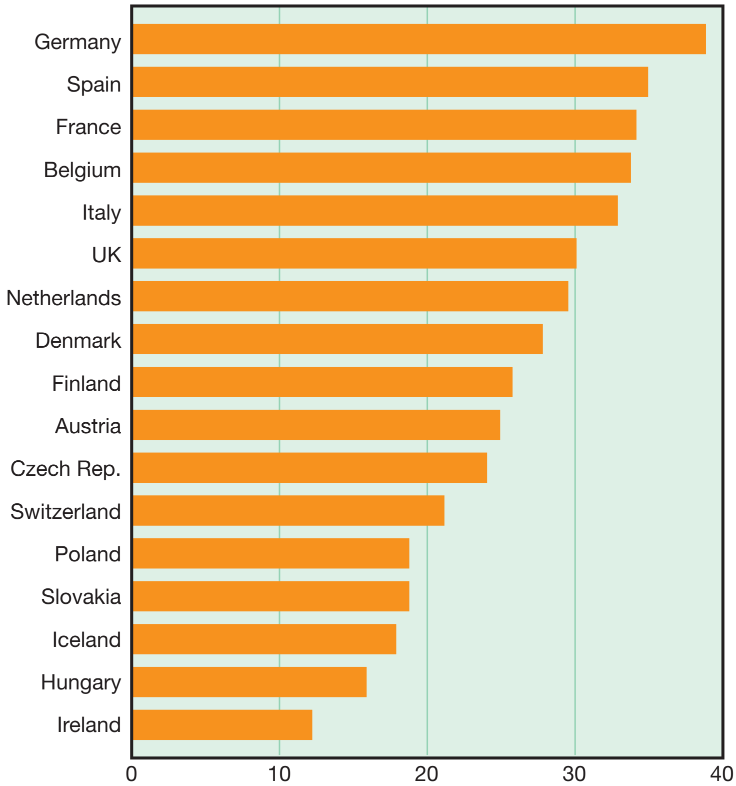
The labour market continues to show signs of tightening, with employment rising, unemployment falling or remaining stable (depending on which measure is used) and the number of vacancies increasing. However, given the fact that average earnings are increasing at only a moderate rate it seems that there is still some slack left in the market.

Figure 11: Public sector net borrowing (£bn)



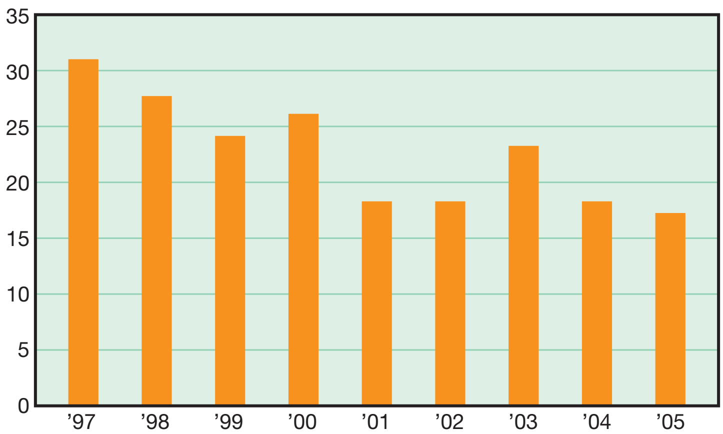
Source: HM Treasury

Figure 12: Combined corporate income tax rate for selected European countries (%)



Source: OECD

Figure 13: UK share of European inward investment (%)



Source: Ernst & Young European Investment Monitor

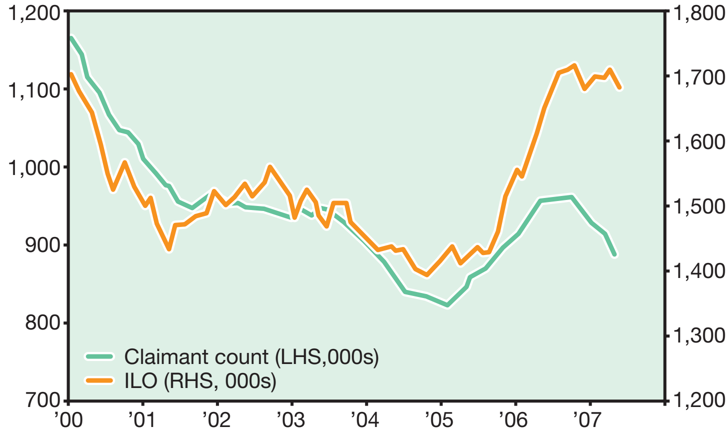
The number of those in employment is up 180,000 over the previous year.

The number of people in employment in the three months to the end of May 2007 was 29.08m. This reflects an increase of 93,000 over the quarter and 180,000 over the previous year. This gives the highest figure for those in employment since records began in 1971, partly fuelled by immigration. The employment rate, as a percentage of the working population, was 74.5% in the three months to the end of May.

There are two measures of unemployment. The Labour Force Survey measure shows an unemployment rate of 5.4% which is unchanged over the year. However, the number of unemployed fell by 35,000 over the quarter ending in May 2007, but increased by 2,000 over the year to reach a total of 1.66m.

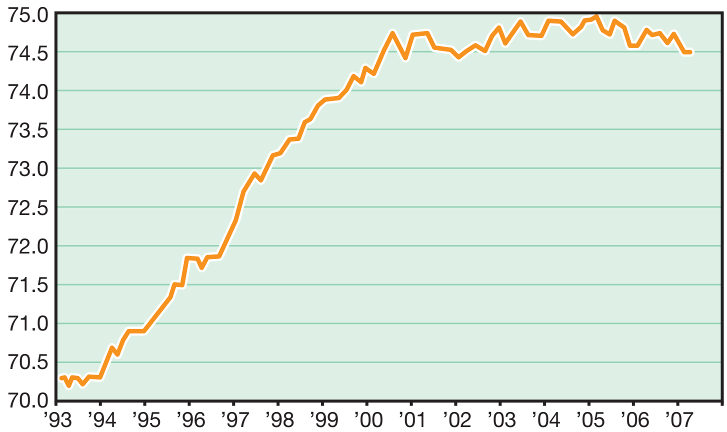
The claimant count measure of unemployment shows a much healthier picture. In June 2007 it measured 864,100, which was a fall of 13,800 over the previous month and 91,100 over the year. This means that the claimant count has fallen for eleven of the previous twelve months. The recent trends in employment and unemployment can be seen in Figures 14 and 15.

Figure 14: Unemployment (000s)



Source: ONS

Figure 15: Employment as a percentage of the working population



Source: ONS

The reason that the claimant count may be falling could be due to the fact that there was a large increase in the demand for part-time workers in 2006 which has now fallen. Many of these workers were not previously in the labour market, and many of them were women or were previously retired, and may be unwilling or unable to claim unemployment benefit.

There is also evidence that the number of people working past the state pension age is now at record levels. Half of the increase in employment in the 12 months to the end of May 2007 was accounted for by men over the age of 65 and women above the age of 60. There are now 1.2m people of pensionable age working in the economy and two-thirds of these are women.

However, according to The Age and Employment Network, many of these workers are taking jobs which are below their qualifications and abilities, which amounts to a waste of resources.

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ECONOMICS TODAY

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As an economy nears full employment will inflation have to increase?

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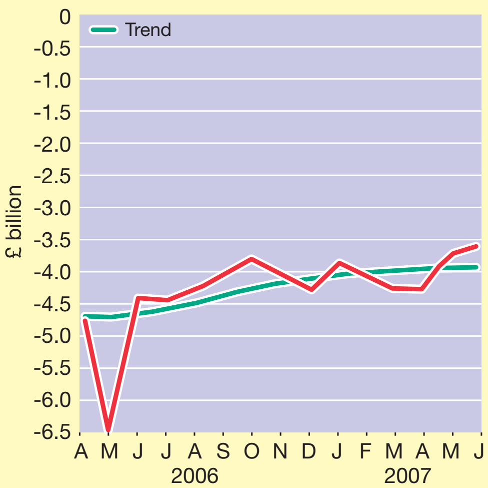
Improvement in the Balance of Trade



	Balance on trade in goods			Balance on trade in services	Total balance
	EU	Non-EU	World		
2007 Jan	-3.0	-3.7	-6.7	2.8	-3.9
Feb	-2.9	-4.1	-7.0	2.8	-4.1
Mar	-3.3	-3.9	-7.2	2.8	-4.3
Apr	-3.3	-3.9	-7.1	2.8	-4.3
May	-2.9	-3.5	-6.4	2.7	-3.7
Jun	-2.9	-3.4	-6.3	2.7	-3.6

Seasonally adjusted, £ billion

Source: ONS

The UK's deficit on trade in goods and services was £3.6bn in June 2007, which was a marginal improvement on the £3.7bn deficit in the previous month, and was the narrowest deficit for 20 months. This deficit was made up of a surplus on trade in services of £2.7bn, and deficit on trade in goods of £6.3bn. There was an increase in exports of £0.9bn in May and rise in imports of £0.7bn.

Although these figures show only marginal changes and are subject to revision the trend line shown in the chart above does emphasise a gradual improvement in the UK trade deficit over the past 15 months. What is particularly pleasing is the improvement in exports even though the value of sterling has continued to rise on foreign exchange markets. There was also a surprising increase in the output of North Sea oil, with the UK recording a surplus on oil in June to the tune of £257m compared with a deficit of £76m in May.

The table above shows that the deficit on trade in goods with the 27 countries of the EU was £2.9bn in June, whilst the deficit with the rest of the world has diminished over the past five months to fall from £4.1bn to £3.4bn.

The deficit on the balance of trade in goods and services was the equivalent of -4.9% of GDP in the second quarter of 2006, but this had improved to -3.7% of GDP in the first quarter of 2007. One thing to look out for is whether global demand for UK exports continues at its current level. If this slows down then it may put a brake on the UK's economic growth.

For AS Students

Prize Competition

for AS Students

Smokers and the NHS

Read the article on 'Should Smokers be made to Pay Extra for Using the National Health Service?' on pages 14 to 18 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 14th December 2007. The first out of the hat will win £25 in music tokens.

1. We will get this when firms produce using a minimum amount of factor inputs per unit of output. *(10,10)*
2. A free market or market economy in which there are economic inefficiencies will suffer from _ _ _ _ _ _ _ _ _ _ _ _ _ . *(6,7)*
3. What type of good is health care? *(5,4)*
4. The demand curve for health care reflects the benefit that the consumer believes they will gain from consumption and is called the _ . *(8,7,7)*
5. The free market equilibrium for health care fails to take into account the _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ which is also known as the marginal external benefit. *(8,11)*
6. An equilibrium which takes into account both the private benefits and the external benefits is known as the _ _ _ _ _ _ _ _ _ _ _ _ _ . *(6,7)*
7. What is it called when smokers inflict these onto third parties through passive smoking? *(8,13)*
8. If the government imposes taxes such as VAT and excise duties onto the producer, how will this shift the supply curve? *(10,7)*
9. Because smoking rates have declined fastest among higher income households, a charge on smokers to use the NHS would be _ _ _ _ _ _ _ _ _ _ . *(10)*
10. A large number of western countries and the USA have a system of _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ to pay for health care. *(6,9)*

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

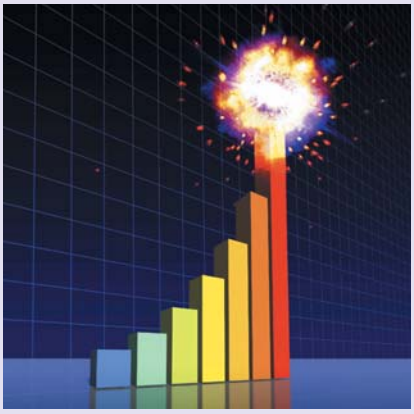
The winners of our two competitions in the January 2007 edition were **Ms E. Wade** of Essex and **Mr A. Gopee** of London. The winners of our two competitions in the March 2007 edition were **Pamela Ei-Leen Yeung** of London and **Natasha Footman** of St Albans.

£25 in music tokens to be won!

For A2 Students

Prize Competition

for A2 Students



Full Employment and Inflation

Read the article on ‘As an Economy nears Full Employment will Inflation have to Increase?’ on pages 2 to 6 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 14th December 2007. The first out of the hat will win £25 in music tokens.

1. If labour supply equals labour demand, what is the only type of unemployment that exists? *(9,12)*
2. What is it called when inflation and unemployment both rise at the same time? *(11)*
3. This exists in the economy if there is an output gap. *(5,8)*
4. A.W. Phillips found a significant relationship between the level of unemployment and this other variable. *(3,4,2,6,2,5,5)*
5. Demand management to reflate the economy means trying to adjust the level of Aggregate Demand nearer to this. *(4,10)*
6. As unemployment falls there is a risk that an economy may suffer from this. *(6,9)*
7. Monetarist economists adapted Phillips’ model after the 1970s to create this. *(12,9,8,5)*
8. Workers will suffer this if nominal wages have risen but real wages have not. *(5,8)*
9. According to monetarist economists the Long Run Phillips Curve will be this at the natural rate of unemployment. *(8)*
10. One reason why accelerating inflation is not inevitable is that if these can be reduced wage demands will fall. *(5,12)*

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

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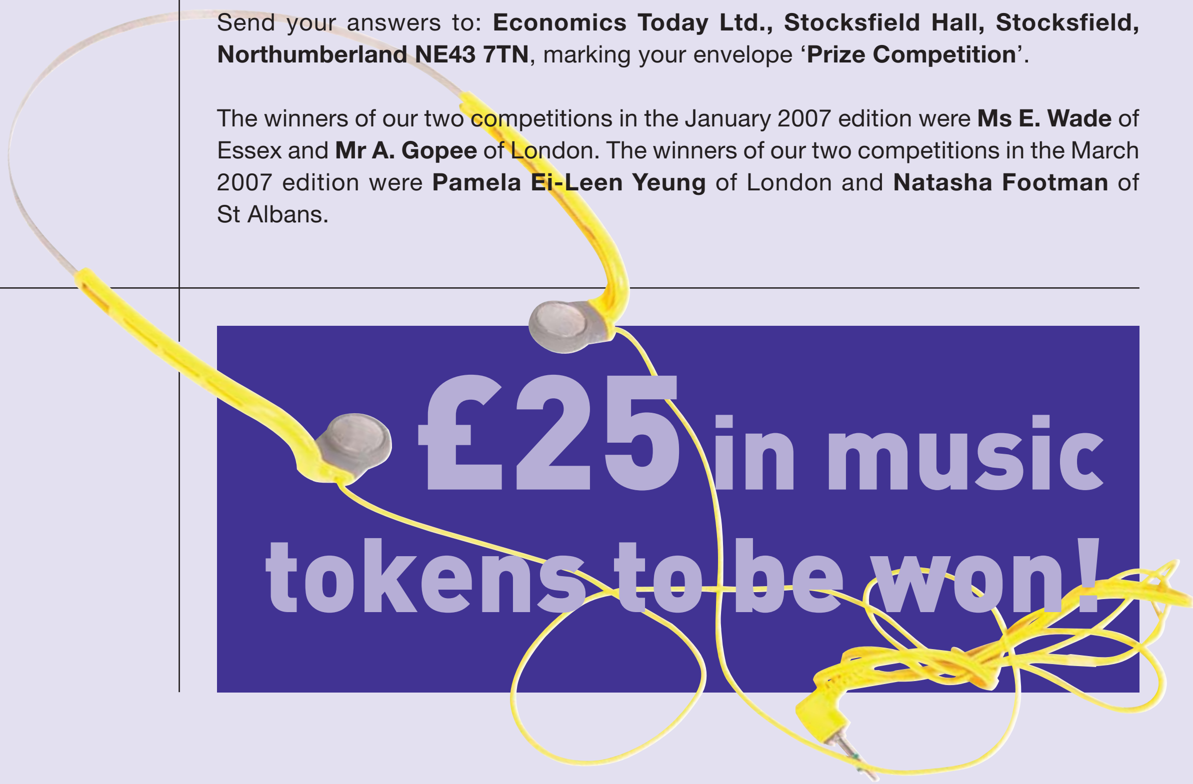

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