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# To what **Extent** does **Economic Growth** Guarantee Economic Development?

*Marwan Mikdadi, Head of Economics & Politics, St Paul's School and a Principal Examiner, considers how increased output does not guarantee an improvement in living standards in poor countries.*



Exam Board	AS	Unit	A2	Unit
AQA				
Edexcel			✓	5B
OCR			✓	2886 (5.6.1)
WEJC			✓	6(D)
CCEA			✓	5(3.5)
Int. Bacc.		Standard 5.1		

## Economic growth

**E**conomic growth can be defined as a percentage increase in the per capita real gross national product (GNP). This has been seen in the past as the only way to improve living standards and develop an economy. Economic growth should result in an increase in employment and an increase in tax revenue for the government. This combined effect should result in a shift in spending priorities away from social security provision toward health and education spending. The increased government revenue can offer a less economically developed country (LEDC) an opportunity to escape poverty and embark on a period of sustained economic development, through improvements in infrastructure, education and health care.

It has been assumed that increases in GNP will naturally result in an improvement in living standards through a 'trickle down' effect. However, GNP per capita measures increases in output but fails to take account of income distribution and therefore poverty levels.

## What is economic development?

Until the 1970s economic development was seen as almost entirely an economic phenomenon. Economists felt that rapid gains in GNP per capita would eventually 'trickle down' to the entire population in the form of job opportunities, which would result in a wider distribution of the benefits of growth. The main priority was therefore to raise economic growth.

However, although during the 1950s and 1960s many developing countries managed to achieve and sustain high levels of economic growth, few had witnessed a significant improvement in the standard of living of their population. It was the failure of economic growth to improve the standard of living of the general population which resulted in a greater direct focus on reducing absolute poverty, unemployment and improving income distribution. Dudley Seers summed up the basic debate on the difference between economic development and economic growth in 1969 as follows:

*The challenge of development... is to improve the quality of life.*



**The questions to ask about a country's development are therefore: What has been happening to poverty? What has been happening to unemployment? What has been happening to inequality? If all three of these have declined from high levels, then beyond doubt this has been a period of development for the country concerned. If one or two of these central problems have been growing worse, especially if all three have, it would be strange to call the result 'development' even if per capita income doubled.<sup>1</sup>**

the developing world have witnessed negative economic growth and subsequently, faced with mounting debt problems, increased pressure to reduce already limited economic and social programs.

The 1991 *World Development Report* suggested that:

**The challenge of development... is to improve the quality of life. Especially in the world's poor countries, a better quality of life generally calls for higher incomes – but it involves much more. It encompasses as ends in themselves better education, higher standards of health and nutrition, less poverty, a cleaner environment, more equality of opportunity, greater individual freedom, and a richer cultural life.<sup>2</sup>**

The situation has not improved in the 1980s and 1990s. Economic growth in the developed world has continued to increase, but at the same time many in

1. Quoted in M. Todaro & S. Smith, *Economic Development* (8th Ed), Pearson Education Limited, 2003, p.16.

2. World Bank, *World Development Report 1991: The Challenge of Development*, p.4.

## How to achieve economic development?

Development economists often identify countries with poor levels of educational attainment and healthcare but with high levels of economic growth as experiencing 'growth without development'.

Development must involve changes in social structure, popular attitudes and national institutions, as well as an increase in economic growth. It is therefore important to realise that whilst economic growth can create the platform for economic development *it is not the only condition necessary to achieve these goals.*

Todaro and Smith have suggested that in order to achieve economic development it is necessary for governments, non-governmental organisations and international financial institutions (IMF & World Bank) to work together to achieve the changes necessary. So what does constitute economic development? Todaro and Smith view economic development as consisting of three core values:<sup>3</sup>

- The ability to meet basic needs or sustenance
- Achieving self-esteem
- Ensuring freedom to choose.

### ► Meeting basic needs

A basic function of economic development is to provide as many people with the opportunity to overcome the problems which arise from a lack of food, shelter, health and protection. It is therefore necessary to have economic growth and a reduction in poverty but it is not sufficient to just have economic growth.

### ► Achieving self-esteem

Every person seeks some form of self-esteem, in other words a level of self-respect. As economists this can be quite hard to measure, however, in the developed world self-esteem has increasingly been measured by access to material goods. Therefore access to material wealth and self-esteem can be seen to go hand in hand with economic development.

### ► Ensuring freedom to choose

Freedom involves expanding the range of choices for societies. Economists see the role of economic growth as expanding the range of human choices.



*The ability to meet basic needs, is a core value of economic development.*

These may include freedom of expression, the rule of law and political participation. However, there is an interesting **trade-off** evident in some developing countries between economic growth and freedom. Many of the success stories of the 1990s and 2000s (China, Russia, Venezuela, Saudi Arabia and Indonesia) are not known for their political freedoms. Although naturally it is not the case that political freedom and economic growth cannot go hand in hand.

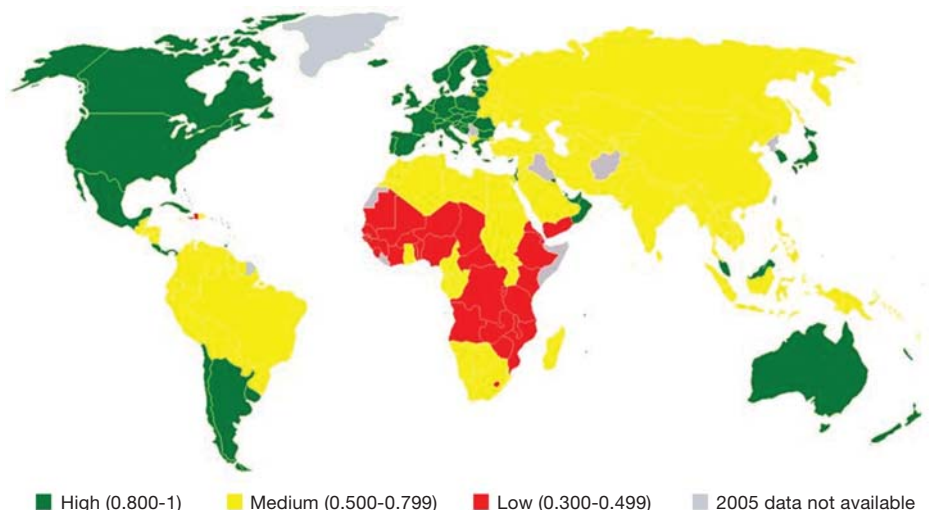
## Alternative measures of economic development

In addition to GNP per capita growth, the United Nations, amongst others, has developed a number of alternatives to measure economic development more accurately.

### ► Human Development Index

The Human Development Index (HDI) is a measure of life expectancy at birth, adult literacy and combined enrolment

Figure 1: Global HDI



■ High (0.800-1) ■ Medium (0.500-0.799) ■ Low (0.300-0.499) ■ 2005 data not available

Source: UNDP, Human Development Report, Oxford University Press.

3. M. Todaro & S. Smith, *Economic Development* (8th Ed), Pearson Education Limited, 2003, pp.21-22.

rates and standard of living as measured by GDP per capita. By looking at these indicators economists can measure economic well-being with particular reference to child welfare. It has been used to determine whether a country is developed, developing or under-developed. In an earlier issue of this magazine the HDI was considered in some detail.<sup>4</sup>

#### ► Human Poverty Index

The Human Poverty Index (HPI) is very similar to the HDI, but unlike the HDI the HPI will consider negatives. HPI is divided into two parts, HPI-1 for developing countries and HPI-2 for industrialised nations. HPI-1 uses the probability of not surviving to 40, adult illiteracy rates, an average of the population that is lacking in clean water and a percentage of babies born under-weight. HPI-2 on the other hand will measure the probability of not surviving to age 60, the percentage of adults that are functionally illiterate, the percentage of the population that are relatively poor (below 50% of median income in this case) and the long-term unemployment rate. HPI-1 and HPI-2 cannot be directly compared.

#### ► Happy Planet Index

The New Economics Foundation developed the Happy Planet Index in July 2006 as an alternative to the Human Development Index and Human Poverty Index.<sup>5</sup> In particular it counters the assumption made by advocates of GDP per capita that development and happiness are achieved by material wealth. This index tries to measure the sustainability of economic development through a measure of life expectancy and the impact this has on future generations through natural resource exploitation. In 2006 Vanuatu came top in this measure and the USA was ranked 150th. Obviously this measure comes in for a lot of criticism, particularly as it can be very difficult to measure life satisfaction (by definition a normative concept) and sustainability.

However, the fact that there is an on-going debate surrounding alternative measures to GDP/GNP per capita as a measure of economic development suggests that economic development cannot solely be determined by increases in output.

4. A. Hodge, 'How well does the Human Development Index measure the Level of Development?', *Economics Today*, Vol.12, No.3, January 2005, pp. 16-19.

5. <http://www.neweconomics.org/gen/>

## Conclusion

It is clear that there is more to economic development than economic growth alone can measure. Economic growth plays a crucial part in achieving economic development but it is not the only factor to consider, economic development involves more than just an increase in income. Standard of living improvements can only be achieved through improvements in the levels of employment, income distribution, healthcare and education which provide the necessary backdrop to achieve the goals of satisfying basic wants, self-esteem and freedom.

## Questions for discussion

1. To what extent does trying to measure economic development take one into normative issues?
2. To what extent is the attempt to define economic development a task that goes beyond the interests of economists?
3. Do the Millennium Development Goals provide an approach to specifying what is meant by economic development?
4. "The link between economic prosperity and human development is neither automatic nor obvious." Discuss this statement.

## Summary of key points

- An improvement in living standards for the majority of the population in developing countries cannot simply rely on economic growth to bring about this objective.
- An improvement in human welfare requires not only more material goods but greater self-esteem and greater human choice.
- There are several indices which aim to measure the wider concept of economic development than the narrow concept of the rate of increase in the production of goods and services.



with Chief Examiner,  
**Robert Nutter**

1. Investigate the contents of the 2007/08 Human Development Report.  
<http://hdr.undp.org>
  2. The Human Suffering Index is compiled by an organisation called Target Earth. Investigate how the index is compiled for each country.  
[www.africamissions.org/africa/humansuf.htm](http://www.africamissions.org/africa/humansuf.htm)
- The Gender Related development index is used in the United Nations Development Report. Research the significance of this index.  
<http://en.wikipedia.org>
3. Does political democracy enhance human development in Developing Countries? A cross-national analysis by Ming-Chang Tsai in the *American Journal of Economics and Sociology*, April 2006.  
<http://findarticles.com>
  4. Investigate progress towards meeting the eight United Nations Millennium Goals by 2015.  
[www.un.org/millenniumgoals](http://www.un.org/millenniumgoals)
  5. Investigate the role of the United Nations Development Programme (UNDP).  
[www.undp.org](http://www.undp.org)

# Is Touting Really a Problem?

**T**icket touting (or 'scalping' as it is known in the US) is the resale of tickets for one-off events by unofficial vendors, usually for a much higher price than the face value (the price printed on the ticket). Touting appears to have become much more common over recent years for sports fixtures and live music events, and there is a growing backlash by the sporting and music industries who are trying to find increasingly novel ways of preventing tickets for their events from being touted. However, economists would not necessarily agree with these industries that touting should be prevented.

## Touting at the 2007 Rugby World Cup

The 2007 Rugby World Cup final teams of England and South Africa were not the teams that most rugby fans had predicted to make it through to the final; Australia and New Zealand had been the two finalists most likely to contest winning the Webb Ellis trophy. When things did not go to plan for the Australian and New Zealand fans however, they became suppliers of tickets to the thousands of desperate and demanding England fans, thus creating a resale market. BBC Sport's correspondent Tom Fordyce summarised the scene in Paris just hours before kick-off:

**Frantic scenes in Paris as thousands of Kiwis attempt to offload tickets and thousands of Brits work out whether they can bung a month's salary on 80 minutes of nervous tension. Prices are see-sawing like the Dow-Jones and it's all a question of whether you buy at the right time or get your tactics spectacularly wrong.<sup>1</sup>**

Following the final, experts analysed the impact that touts had had on the market for tickets throughout the World Cup.<sup>2</sup> On average, tickets that were sold on unofficial websites cost 55% more than the face value of the ticket. As the World Cup progressed, and tickets became more desirable, the mark-up increased, with tickets for the final to see England play South Africa at the Stade de France on September 14th costing on average £965.67, despite having a face value of just £42!

Touts selling tickets for the Rugby World Cup actually risked prosecution in the UK, as the government banned the unofficial sale of any tickets via online auction sites such as ebay. The terms and conditions printed on the tickets stated that the 'sale or exchange of any tickets is strictly prohibited'. Theoretically, if the details of the ticket holder trying to access the stadium did not match the details of the originally ticket purchaser, then the ticket holder would be refused access to the stadium. Quite clearly, these preventive measures were rather ineffective, and, more to the point, were anti-competitive by interfering with the forces of demand and supply.

*Ruth Tarrant, of Tormead School, Guildford, discusses the issue of reselling tickets for a profit.*

Exam Board	AS	Unit	A2	Unit
AQA	✓	1(10.2)		
Edexcel	✓	1		
OCR	✓	2881 (5.1.2)		
WEJC	✓	1(B)		
CCEA	✓	1		
Int. Bacc.		Standard 2.1		

**Table 1: Top 5 matches with biggest mark-up**

Match	Face value on ticket	Cost of ticket on auction site	% mark-up
England v South Africa	£42	£350	733%
England v Samoa	£21	£102	386%
New Zealand v Italy	£42	£150	257%
Ireland v France	£186	£575	209%
Scotland v New Zealand	£38	£115	203%

Source: G4S Security Services (UK)

## Touting at live music events

Touts at the January 2007 Kylie concerts were selling tickets for around six times the face value of the ticket. The Police, selling tickets for their first tour in 23 years, found that all of their 120,000 tickets sold out within one hour of being on sale, and were being resold on sites such as ebay within minutes for prices way above the face value. Even for concerts that don't sell out straightaway, most touts can at least recover the face value of the tickets, as happened for the June 2007 Aerosmith concert in Hyde Park.

The Concert Promoters Association (CPA) and music artists are trying to find ways of clamping down on what it considers to be 'unfair' practice. The Arctic Monkeys recently used a ballot system, where fans had to register on the Arctic Monkeys website before being entered into a lottery to get their concert ticket. However, ebay reported that several hundred tickets were then sold by their members for prices above the face value of £24; indeed, one pair of tickets were sold for £266.99, leading to a healthy profit for the vendor of nearly £220! In an attempt to prevent ticket touting, tickets for the 2007 Glastonbury Festival could only be purchased by people willing to send in a passport photo of themselves, to be imprinted on their ticket. Despite all 137,500 tickets being sold within 1h45, none of them subsequently appeared on ebay.

However, should economists praise these efforts of the Glastonbury organisers or condemn them as being irrational?

## The incorrect pricing of tickets

Buying at a low price combined with the ability to resell extremely quickly without the need to add any value is a low risk way of ensuring a healthy profit. Indeed, this is one of the key principles supporting the operation of stock markets. As any A-level economics student knows, free market economies are only able to function as a result of the profit motive. From an economist's perspective, the seeking of profit is a rational activity since it is the reward for entrepreneurship (just as wages are the reward for labour, rent the reward for land, and interest the reward for capital); without the lure of profit, we would have no entrepreneurs.

Figure 1: The market for concert tickets

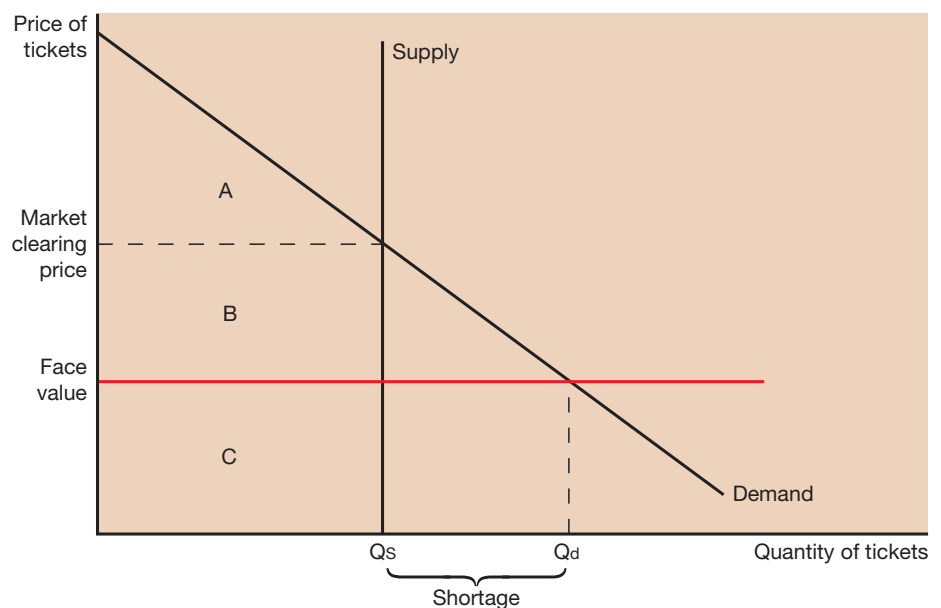


Figure 1 shows a basic market diagram for event tickets. The supply curve is perfectly price inelastic (and therefore vertical) as sport and music events have a limited capacity. The demand curve is also relatively price inelastic (and therefore steeply sloped) since most fans are extremely loyal – there are few substitutes. The fact that tickets sell out within minutes of going on sale suggests that demand is considerably greater than supply, and that therefore the face value of the ticket is a much lower price than the true market clearing price should be. Thus, there is a shortage of tickets – this is shown by the distance between  $Q_d$  and  $Q_s$ .

The existence of a shortage means that the market has failed and the outcome is inefficient. Basic market economics tells us that when a shortage exists, the way to get rid of this market failure is to allow the price to be bid upwards. This is exactly what happens in the transaction between ticket touts and fans. The 'invisible hand' of the collective action of the touts is guiding the market towards its equilibrium and efficient point.

The fact that the mark-up on tickets for the Rugby World Cup matches increased as the competition progressed suggests that the gap between demand and supply also increased. This makes sense since as the competition progressed towards the final, then demand for tickets should increase as attendance at the matches became more desirable. Thus, the demand curve moves outwards, raising the market

clearing price, and therefore the touts' mark-up.

The extent to which concert ticket markets are currently failing has been highlighted by Professor Alan Krueger of Imperial College in a recent interview with the BBC in which he stated that up to 1 in 4 people at concerts will have gained entry through a touted ticket, and that in this secondary market for tickets, the price of a touted ticket is roughly 50% more than the face value of the ticket.<sup>3</sup> This suggests, therefore, that if the music industry wants to stamp out touting then prices of tickets must be raised by about 50%.

## Redistribution of welfare

When the face value is set too low, this affects the distribution of **consumer** and **producer surplus**. Remember, consumer surplus is the difference between the going price and the price that the consumer is able and willing to pay; producer surplus is the difference between the going price and the price that the producer would be willing to accept.

If touting is banned effectively, then consumer surplus will be equal to area A plus area B, whilst producer surplus will be equal to area C. When the touts do their job and the market clearing price is reached, then consumer surplus will be equal to area A, and producer surplus will still be represented by area C. The main difference is that area B now represents the profit or surplus accruing to the touts, who bought the tickets at the face value and are reselling them for a higher price. It is this redistribution, or appropriation, of consumer surplus that

1. [http://news.bbc.co.uk/sport1/hi/rugby\\_union/7052160.stm](http://news.bbc.co.uk/sport1/hi/rugby_union/7052160.stm)

2. [http://www.g4s.com/print/home/home-news\\_and\\_media/home-news\\_and\\_media-pr-all\\_news.htm?id=42375](http://www.g4s.com/print/home/home-news_and_media/home-news_and_media-pr-all_news.htm?id=42375)

3. <http://news.bbc.co.uk/1/hi/entertainment/6477325.stm>

the government and event industries wish to prevent through banning touting. However, since this is a normative issue i.e. one requiring a judgement of opinion, economic analysis cannot really help us to come to a conclusion.

### Is the response by events providers economically sound?

The music industry has, thus far, decided to adopt alternative methods for preventing touting rather than raising ticket prices for concerts even further. One reason that the industry is reluctant to raise the face value price of tickets is that they believe loyal fans have already faced price hikes over recent years. Since the mid-1990s, the sales of CDs have fallen quite drastically. Figures for CD sales in 2007 suggest that sales of 'physical music' (CDs) will be down by 10%, with a growth of 40% in digital music.<sup>4</sup> With music piracy growing as a result of developments in technology, revenues for music artists have been in decline. To compensate for this loss of revenue, the prices of concert tickets have increased 8.9% a year on average from 1996;<sup>5</sup> many economists believe these price rises are a step in the right direction.

Economists would generally agree that further regulation of touting activities may result in government failure, as the cost of tackling touting is likely to be high. One can only imagine a room full of civil servants scouring the internet for resale tickets, and then trying to trace the perpetrators, who in many cases will be people who have bought tickets with the genuine intention of attending the event, but for whatever reason find that they cannot do so at a later date. Surely it is more efficient for them to resell their ticket and recoup their costs, than keep hold of a ticket that will not then be used?

### Conclusion

The speed with which event tickets sell out, and the proliferation of touting via the internet, suggests that the face value of tickets is currently much lower than their free market clearing price. The music industry is finding it difficult to find and implement effective (and low cost) non-market methods of reducing touting caused by ticket shortages. They have been reluctant so far to raise ticket prices further, as they do not want loyal fans to be disappointed.

Many people argue, however, that this trade off, between ensuring fan loyalty and the prevention of touting, must be

tackled. Consequently, the Concert Promoters Association and Ticketmaster are now thinking about introducing auctioning for a portion of tickets sold, in order to beat touts at their own game; this should help them to establish what the true market price for the tickets should be. Given that the demand for concert tickets is likely to be strongly price inelastic, they shouldn't worry about raising the price of tickets – economics suggests that very few fans will take their loyalty elsewhere.

The article on the economics of ebay by Peter Cramp elsewhere in this issue

of *Economics Today* will be found of interest in the light of this present discussion of ticket touts.

### Questions for discussion

1. Is the use of auctions to allocate tickets fairer than the current situation with ticket touts?
2. To what extent would there be government failure if the level of regulation surrounding ticket sales increased?
3. How would you advise events providers to set the face value of their tickets?

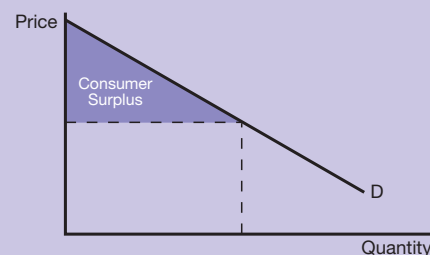
## Summary of key points

- ▶ Touting (the resale of tickets through the black market) has increased as online auction sites such as ebay have become more prevalent.
- ▶ Touts are able to operate because the face value of tickets is much lower than their free market price, thus creating a shortage as demand outstrips supply.
- ▶ Touting allows the 'invisible hand' to operate to restore the market price and the activity of touts redistributes some consumer surplus into profit for themselves.
- ▶ Providers of sporting and other events are reluctant to raise prices in order to prevent touting as they believe this is unfair for loyal fans.
- ▶ Regulation is therefore the main alternative, but is often associated with government failure.



with Chief Examiner,  
**Robert Nutter**

1. Investigate first degree price discrimination and its relevance to ticket touting.



2. Many football clubs outside the Premier League do not fill their stadiums. Investigate how these clubs have used price discrimination to boost attendances and revenue.
3. Read Samuel Brittan's article from the *Financial Times* 'Ticket touts are good for spectators' (29th August 2003).  
[www.samuelbrittan.co.uk](http://www.samuelbrittan.co.uk) (use the search engine on the site with the key words 'ticket touts').
4. Read Tim Harford's article 'Schoolboy Error' in the *Financial Times* (14th July 2006).  
[www.ft.com](http://www.ft.com) and <http://timharford.com>

4. [http://business.timesonline.co.uk/tol/business/industry\\_sectors/media/article1350160.ece](http://business.timesonline.co.uk/tol/business/industry_sectors/media/article1350160.ece)  
5. <http://news.bbc.co.uk/1/hi/entertainment/6477325.stm>

# The Economics of



***Peter Cramp**, of Nottingham High School, considers the implications of how this auction market operates.*

**T**he ebay online auction site was founded in September 1995 by Pierre Omidyar. It is reported that the very first item sold on ebay was a broken laser pointer for \$14.83. Astonished, Omidyar contacted the winning bidder and asked if he understood that the laser pointer was broken. In his responding email, the buyer explained: "I'm a collector of broken laser pointers."

## **Bringing buyers and sellers together**

The story of the broken laser pointer makes an important point about the reason for the success of ebay, which today has grown to the point where millions of auctions take place every day: ebay is a highly efficient means of undertaking person-to-person trading. Such trading would previously have occurred through means such as adverts placed in local newspapers and through garage and car boot sales. It would take a significant coincidence to find someone who wished to buy a broken laser pointer in this way, but the very large numbers of internet and ebay users worldwide make a sale more probable.

Putting buyers and sellers in touch in this way serves a valuable economic function. Economists assume that both parties to a trade are better off as a result because they undertook trading voluntarily. If they were not better off, then they would not have chosen to enter into the bargain. The laser pointer had no value to its existing owner, so he was \$14.83 better off as a result of selling it. Suppose the buyer would, in theory, have been willing to pay \$20 for

the laser pointer if the bidding had gone that far. The buyer is also then better off as a result of his purchase, to the tune of \$5.17 (known as **consumer surplus**). This represents an uncontroversial improvement in comparison to the alternative of the original owner simply throwing away the broken pointer.

There are some qualifications that one might wish to make. If the cost of transporting the broken laser pointer to its new owner outweighed the collective gain of the buyer and the seller, then the trade would not be worthwhile. Also, for some unwanted household items sold on ebay, the alternative is not to throw them away. Many of these items would, for example, have been donated to charity had online auctioning not been available. It is possible that charities such as Oxfam have seen a sizeable reduction in their income since online auctions became popular and we might wish to set such costs against the benefits gained by the buyer and seller in an online trade. This said, ebay offers an opportunity for Oxfam itself to sell the items which are donated to it and it is possible for any ebay seller to nominate a charity to receive the proceeds of a





On a single day there were over a thousand auctions for Spice Girls tickets.

sale. Ebay guarantees to pass the money from the sale direct to the charity. In this way, the charity benefits rather than the person who initiated the auction.

It seems that online auctions can be an example of the market economy working well, especially if we factor in positive externalities enjoyed by courier businesses and the Post Office. In addition to person-to-person sales, many businesses use ebay as their main or exclusive outlet for sales. It can be argued that ebay helps to lower entry barriers to markets. On the other hand, ebay itself is a dominant force in the online auction market, in comparison to smaller players such as QXL. Economic theory suggests that monopoly is a source of market failure and operates to the detriment of consumers. It is an interesting question as to whether ebay's monopoly serves consumers well. Because of its popularity, ebay may be able to charge a higher price to initiate an auction than if the market were more competitive. We may set against this the value to the seller of knowing that most of those who make purchases through online auctions do so through one site.

1. C. Heal, 'The flip side of selling on line', *The Sunday Express*, 6 May, 2007.

## Flipping

An increasingly popular way to make money through ebay is the practice known as 'flipping'. Flippers were defined by Clare Heal as...

...a new breed of entrepreneurs who don't make or produce anything themselves and who offer no service apart from selling you something at a higher price than it was originally available for.<sup>1</sup>

At Christmas 2005, £209 Xbox 360 games consoles were changing hands on ebay for up to £1000.

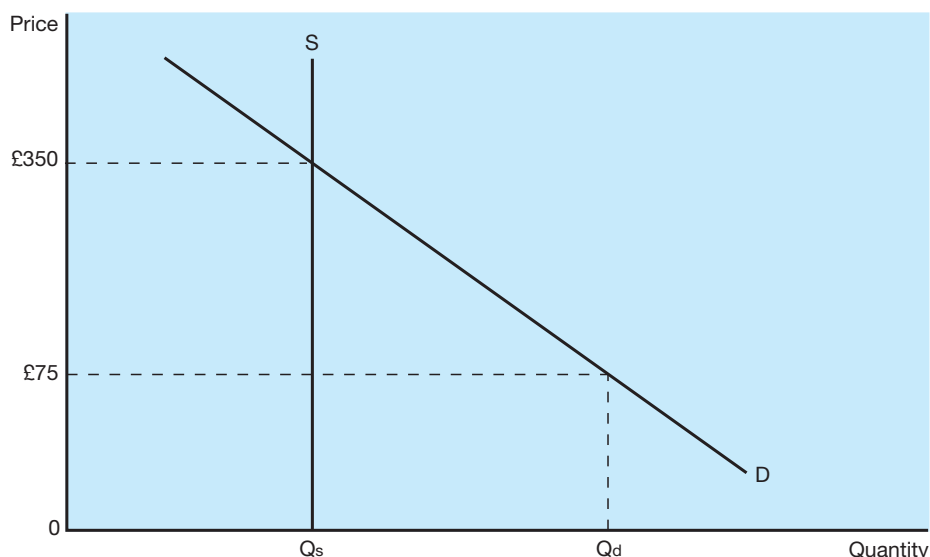
In fact, flipping is not new, although it has certainly been given impetus by online auction sites. One of the biggest areas for flipping is the resale of tickets for sell out sports events and pop concerts, and ticket touts have existed as long as there has been an excess demand for such events. An ebay search for 'Spice Girls tickets' on the morning of 30 October 2007, found 1,039 relevant auctions. Two front row seats for a sell out concert were available for as much as £350 in comparison to a face value of £75.

Figure 1 represents the market for front row Spice Girls tickets. Because there are a fixed number of front row seats in the arena, so the supply curve is totally inelastic. The price has been set below the market clearing price in the interests of making tickets affordable to fans (and perhaps as a means of avoiding unfavourable publicity if the price were set at market equilibrium!). The excess demand ( $Q_d - Q_s$ ) this has created makes **black market activity** virtually inevitable.

Economists are likely to ask whether black market sales are desirable and many would answer that they are. Market forces usually cause the price to rise when there is excess demand in a market. This rations the available supply such as those who are willing to pay higher prices are the ones who receive the goods. In the example of Spice Girls tickets, the rationing function of prices has been suppressed (look up maximum price schemes in a textbook for more details).

In the first instance, rather than rationing the tickets by price, the promoters of the concert will have found some other way to ration, such as 'first-come-first-served', limiting the number

**Figure 1: Market for pairs of front row tickets to see the Spice Girls at the O2 arena on 16th January 2008**



of tickets per customer or 'seller's preference' (selling to particular customers such as fan club members). The fact that tickets are then sold on at higher prices could be seen simply as a

case of the market reasserting itself and ensuring that the tickets are ultimately held by those who place the highest value on them. Remember from the previous section, that any trading

entered into by two parties voluntarily (even on the black market) can be understood as an uncontroversial improvement.

There are other examples of flipping which could be looked on in a similar light. Suppose a particular product is available only from a shop in London for £20. A flipper purchases the product and auctions it through ebay for £35, the buyer coming from Glasgow. The £15 premium paid by the buyer is in effect a fee paid for the service provided by the flipper. The cost in money and time of travelling from Glasgow to London to make the purchase himself would have been much greater than £15 and would probably not have been viable. Without the flipper, the shop would not have made the sale.

There are times, however, when flipping is associated with market failures. In many instances, the profit made by the flipper depends on a lack of knowledge on the part of the buyer. Suppose now that the buyer in the previous example made his £35 purchase in ignorance of the fact that the product could be freely purchased in Glasgow for £20. His lack of knowledge has then caused him to transfer £15 of his consumer surplus to the flipper. It is also possible that at a price of £20, he may have purchased more than one of the product, so that the availability of accurate information would have led to more trades taking place.

A further controversial aspect of flipping is that those who buy goods to sell on for a profit are, in effect, operating a business and are therefore liable to pay tax on their earnings. Many flippers fail to do so, either intentionally evading tax or because they are unaware of their duty to pay. HM Revenue & Customs have launched a crackdown and have warned that those guilty will be liable not just for the unpaid tax, but the interest on it together with a £100 fine.

## Conclusion

This article has raised a number of issues relevant to the question of whether the net effect of online auction sites such as ebay is positive. The analysis it contains points towards a cautious yes to this question: Ebay facilitates many trades that otherwise would not have taken place. Even the practice of flipping, while ethically questionable, can be argued to serve useful economic purposes in some (but not all) cases.



# Can Fiscal Policy still be used for Demand Management?

**Robert Nutter**, Watford Girls' Grammar School and a Chief Examiner, discusses how Keynesian policy has seen a dramatic change in its role to control the economy.

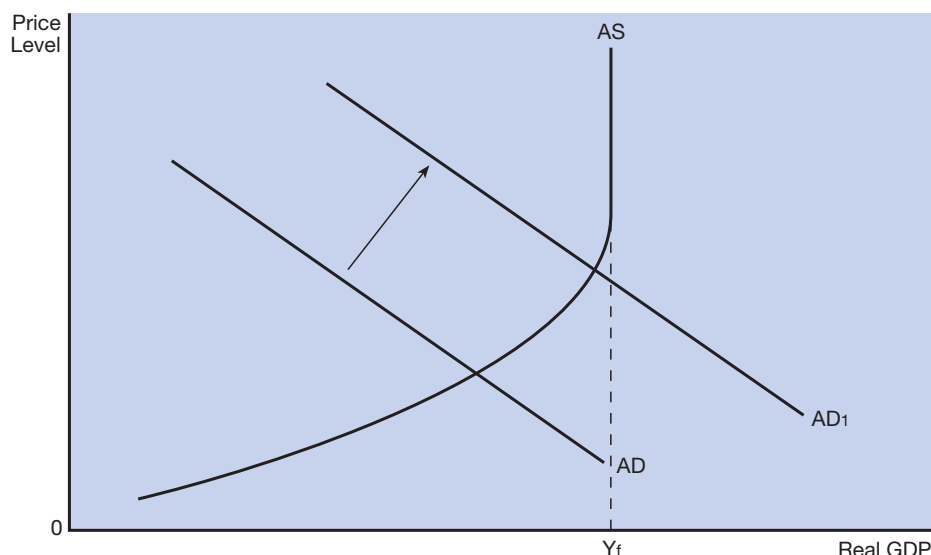
Exam Board	AS	Unit	A2	Unit
AQA	✓	2(11.3)	✓	6(15.4)
Edexcel	✓	3	✓	6
OCR	✓	2883 (5.3.3)	✓	2887 (5.7.2)
WEJC	✓	3(B)	✓	5(C)
CCEA	✓	2(3.2)	✓	6
Int. Bacc.		Standard 3.4		

**F**iscal policy is the use of taxation and government expenditure to affect the level of economic activity. 'A' level Economics students study fiscal policy as an instrument of demand management when changes in tax rates and government expenditure will, via the multiplier process, affect the level of real GDP. By using the upward sloping Aggregate Supply curve the level of Aggregate Demand ( $C + I + G + X - M$ ) can in theory be manipulated using fiscal policy to ensure that Aggregate Demand (AD) intersects Aggregate Supply (AS) as close to full employment as is possible without excessive inflationary pressure (demand-pull inflation).

In Figure 1 a cut in taxation and a rise in government spending would shift the AD curve to the right and hence closer to full employment ( $Y_f$ ). This is called a policy of reflation and would lead to a rise in real GDP and a fall in **demand-deficient or cyclical unemployment**. Similarly in an economy which is overheating with the AD curve positioned high on the vertical section of the AS curve the government could use higher taxes and lower government expenditure to reduce AD; this is called a policy of deflation.

These policies, often used in conjunction with monetary policy, were called Keynesian demand management after John Maynard Keynes promoted them in the 1930s when the UK and other industrialised countries were in a severe depression. Using fiscal policy to affect economic activity in this way was often called counter-cyclical policy because it was designed to counter the effects of the trade cycle. An extreme type of Keynesian reflation advocated in the 1930s was for the government to spend money paying unemployed workers to dig a hole in the ground and then paying another group of unemployed workers to fill it in. The multiplier effect of workers spending their wages would ensure that more workers might find employment in shops and the wider economy. One person's spending becomes another person's income. Remember that in the circular flow of income as income is spent it becomes the income of firms.

However, in the 1930s government sympathies were with Classical economic theory which was largely a policy of non-intervention in the face of mass unemployment. Classical theory believed that an economy could only be in equilibrium at full employment and that there was no need for governments



**Figure 1: Reflationary fiscal policy**

to intervene on the demand side to achieve it. Keynesian theory said that an economy could be in equilibrium at any level of GDP and hence fiscal and monetary policies were needed to bring the economy to full employment via demand management.

The unemployment of the 1930s depression was seen by Keynesians as an economy in underemployment equilibrium which needed a dose of reflation while Classical theorists believed that the economy would return to full employment via the price mechanism as wages and prices adjusted. Keynesians did not agree that wages and prices were flexible enough downwards to bring about the necessary adjustments. The famous Keynesian phrase, "wages are very sticky downwards", related to the unpopularity of forcing organised labour to accept wage cuts when unemployment was high. According to Classical economic theory if the price of labour fell its demand would rise and hence unemployment would fall.

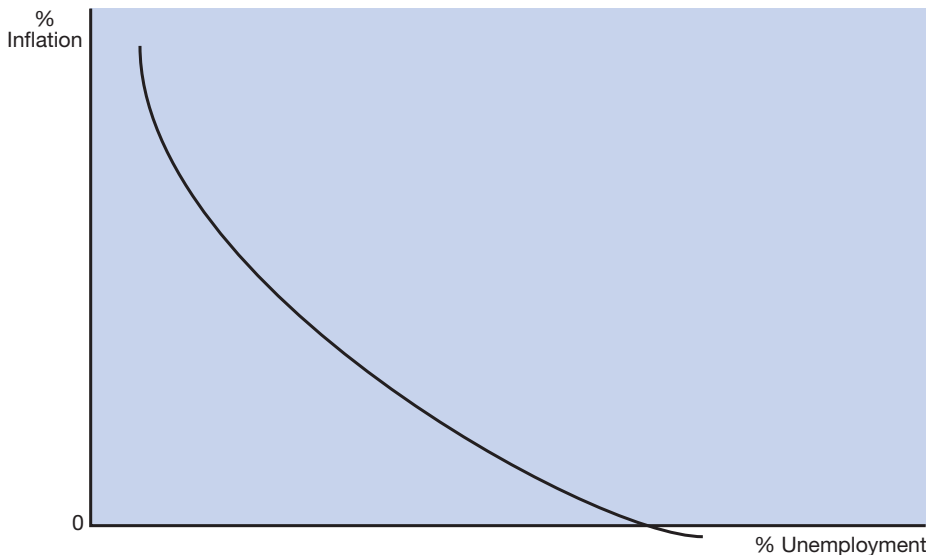
### The era of Keynesian policy

Although Keynes's views were not widely supported in the UK before World War II (1939-45) it was after his death in 1946 that Keynesian demand management became accepted as integral to macroeconomic policy. What had changed? Many people had observed the success of the New Deal in the USA where Franklin Roosevelt used high government spending on infrastructure projects to reduce the high unemployment resulting from the 1930s depression. Additionally Government involvement in the running of the economy with rearmament just before

the war and during the conflict was a sign of changing times in macroeconomic management. After the war Britain had elected a Labour government that would be much more involved in the economic management of the economy than its pre-War predecessors. Shortages of basic necessities meant that rationing would last for some years and the new government was pledged to nationalise many key industries such as steel, electricity, gas and railways. Keynesian demand management integrated more comfortably with an interventionist government than the more free market approach of pre-War governments.

Hence for the next 25 years Keynesian demand management using fiscal policy was accepted as a way of fine tuning the economy to achieve low unemployment and steady economic growth. After initial austerity in the years after the War (rationing did not end until 1954) from the mid-1950s Britain had close to full employment for several years and steady if unspectacular economic growth. Chancellors of the Exchequer steered the economy using the fiscal and monetary 'levers' available to them. If the economy grew too fast the government put the brakes on with higher taxes and if the economy needed a boost taxes were lowered and the economy reflated. This was often called 'stop-go' policy because government fiscal intervention was needed to either slow the economy down or alternatively give it a boost. Usually the threat of inflation and a balance of payments crisis forced Chancellors to put the fiscal brakes on. However, as living standards rose in the late 1950s few people were complaining, and Harold MacMillan, the

**Figure 2: The Phillips Curve**



Prime Minister, was famously misquoted in 1957 when he apparently never said; “you’ve never had it so good”. What he actually said was:

**Indeed let us be frank about it – most of our people have never had it so good. Go around the country, go to the industrial towns, go to the farms and you will see a state of prosperity such as we have never had in my lifetime – nor indeed in the history of this country.**

Keynesian demand management was accepted as central to economic policy. It had triumphed for the time being over Classical economic theory which relied on the workings of free markets to bring about full employment and economic growth. There appeared to be a clear long run trade-off between unemployment and inflation and the publication of the Phillips Curve in 1958 seemed to confirm the view that a government using fiscal policy to manage aggregate demand could manipulate its economy to whatever position it wanted on the Phillips Curve (see Figure 2). The Phillips Curve and the upward sloping AS curve, as in Figure 1, seemed to complement each other, both were showing a similar long run trade-off. However, many economists have always doubted the claims that deficit spending by governments in the 1950s and 1960s brought about the long period of economic growth in that period. The UK’s budget was in fact rarely in deficit during these years. Instead they put the strong economic conditions down to a

buoyant global economic environment resulting from post-war reconstruction and also the early economic success of the European Union, then called the Common Market. It was claimed by some that UK exports and thus the economy possibly benefited more from these factors than any fiscal stimulus from the government.

### **The demise of fiscal policy**

However, as the 1960s became the 1970s it became clear that the UK

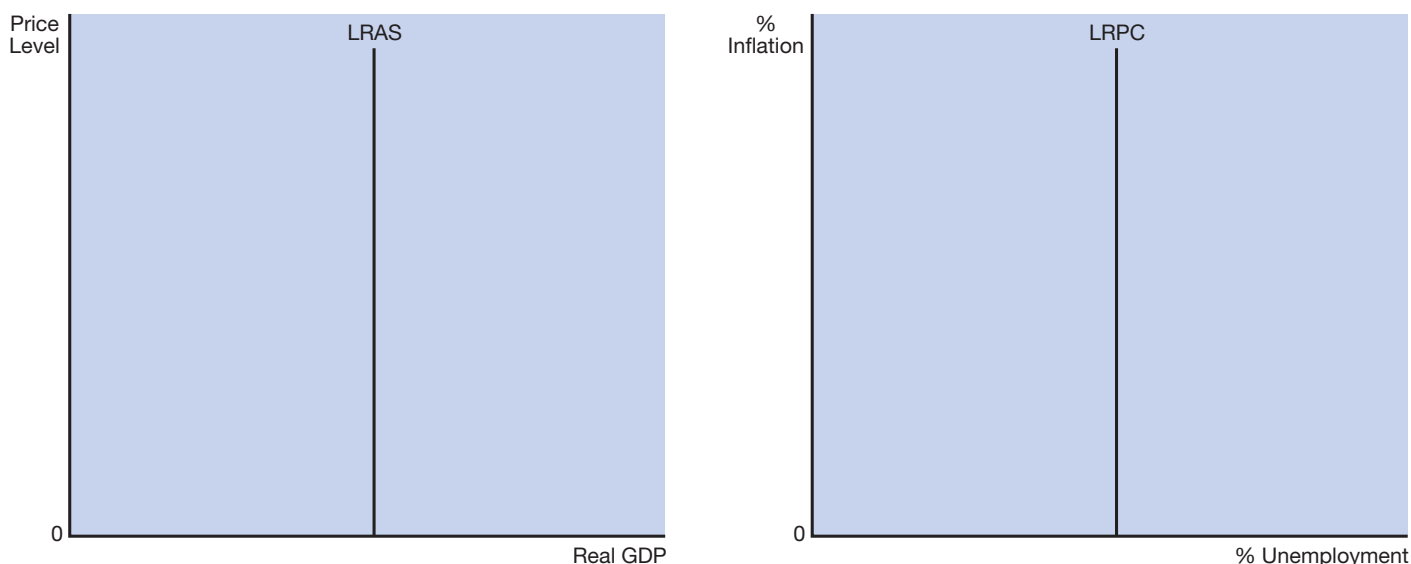
economy could no longer rely on demand management via fiscal policy. In the late 1960s inflationary pressures particularly via wages were becoming a problem which was linked to the increasing power of trade unions who often used strike action. Unemployment was also rising, reaching over 1 million in 1971. In his 1972 Budget Chancellor Anthony Barber gave the economy a significant fiscal stimulus with lower taxes and higher government spending and borrowing. This was to be the last attempt to boost aggregate demand using a Keynesian fiscal stimulus. However, this ‘dash for growth’ policy was left in tatters as inflation reached 24% in 1975 (also substantially due to the oil shock) and the country endured huge increases in costs from rising oil and commodity prices. Coupled to this wage demands from trade unions and a plunging exchange rate were pushing up costs further and the UK economy was heading towards economic chaos. Unemployment continued to rise as a result of the global deflationary effects of the 1973 oil crisis.

Inflation and unemployment were now occurring at the same time (**stagflation**) and Keynesian demand management seemed unable to reconcile full employment and price stability. Price



*The dash for growth coupled with the oil price shock led to inflation of 24% in 1975.*

Figure 3a and 3b: The Long Run



and wage controls, tried several times in the last 1960s and early 1970s, were increasingly ineffective. By 1976 the new Labour Prime Minister Jim Callaghan looking nervously at the help Britain needed from the IMF formally ended the idea that the economy could rely on Keynesian demand management via fiscal policy.

**We used to think that you could just spend your way out of a recession and increase employment by cutting taxes and boosting government spending. I tell you in all candour, that option no longer exists, and that in so far as it ever did exist, it worked by injecting inflation into the economy. And each time that happened the average level of unemployment has risen. Higher inflation was followed by higher unemployment. That is the history of the last twenty years.<sup>1</sup>**

Fast forward three decades and the management of aggregate demand is not a fiscal policy responsibility. Aggregate demand is controlled via the Monetary Policy Committee (MPC) of the Bank of England by adjusting interest rates to meet an inflation target.

How and why has policy changed? The demise of fiscal policy as a tool of demand management was partly the result of the re-emergence of Classical economics in the guise of Monetarism heavily promoted by economists such as Milton Friedman and Friedrich Von

Hayek. They argued that running large fiscal/budget deficits to reflate the economy could lead to several problems: higher long term interest rates, crowding out of resources and the capital markets, and possibly a rise in the money supply leading to inflation. Excessive government borrowing can increase the money supply if debt is sold to the banking sector and, according to the Quantity Theory of Money ( $MV = PT$ ), cause inflation. Friedman and Phelps also contended that there was no long run trade-off between inflation and unemployment only a short run one. The conclusion from the Friedman-Phelps expectations augmented-Phillips Curve is that a fiscal reflation will lead to no long run fall in unemployment and only higher inflation.

Economic policy now had to deal with natural unemployment which is associated with equilibrium in the labour market and not responsive to a fiscal reflation. It is a statement of fact that unemployment cannot be reduced below the natural rate in the long run but it is possible to reduce the natural rate of unemployment itself. In simple terms an economy with just natural unemployment is at full employment and a general fiscal stimulus will just cause inflation. Natural unemployment had thus to be tackled by supply-side policies which in the labour market meant removing barriers to employment and creating incentives to work. The long run aggregate supply curve and long run Phillips Curve were now seen to be vertical not upward sloping (see Figures 3a and 3b). Arguably the level of natural unemployment was much lower in the 1950s, but by the 1980s the complex tax and benefit

system, deindustrialisation, as well as skill shortages had increased it significantly. During the UK's last recession in 1991, although the fiscal deficit rose as happens naturally in a recession, there was no attempt to deliberately reflate the economy by raising government spending and lowering tax rates. The policy emphasis was much more focused on training and business investment to increase employment.

The end of the use of fiscal policy for demand management is also linked to the weakness today of the national multiplier compared to the 1950s and 1960s. The UK is now a much more open economy compared to 50 years ago and the multiplier effects of a Keynesian reflation would probably not be as significant except possibly the problem of a soaring trade deficit as consumers increased spending on imports. The UK's high marginal propensity to import has always been a problem. Fiscal policy to manage aggregate demand has very long time lags compared to monetary policy, and governments have become very conscious of high levels of public debt. The UK government has its 'golden rules' on public sector debt as does the European Union for single currency members. In the 21st century the use of interest rates is far more important in the management of aggregate demand. In addition the UK economy is much more sensitive to changes in interest rates compared to the 1950s partly because more people are home owners with variable mortgage interest rates and also there is much more consumer and business debt. As a result changes in interest rates can be relied upon to influence aggregate demand more

1. Speech by the Prime Minister Jim Callaghan to the Labour Party Conference in September 1976.



effectively than changes in taxes and government spending. Nowadays interest rates are set to meet an inflation target and the MPC would seek to meet this target by allowing aggregate demand to rise no faster than the rate of growth of productive capacity (Aggregate Supply), as in Figure 4.

## Conclusion

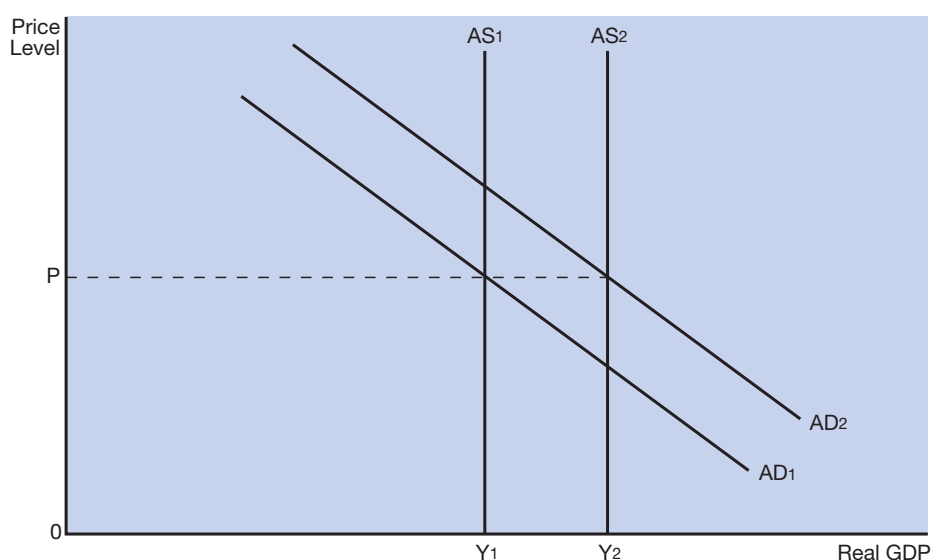
So what is the role for fiscal policy in the 21st century? Increasingly the role of fiscal policy is to improve the supply-side of the economy and to correct market failure. Tax changes are now often directed at increasing incentives for individuals to work and for businesses to invest or to control external costs such as pollution. Examples of the latter being

the Climate Change Levy and more dubiously Airline Passenger Duty. Government spending focuses on improving the provision of public goods and merit goods (education, health, training, roads etc). The direction of this policy is to improve the economy's competitiveness and to increase the trend growth rate, thereby shifting the long run AS curve to the right. Government borrowing and thus spending and taxation is in a fiscal framework which is to balance the budget over the length of a business cycle and only borrow to pay for capital spending (the golden rule). Total public sector debt (the National Debt) should never rise above 40% of GDP (the sustainable investment rule). These rules

recognised that government spending and tax revenues would automatically change during higher and lower rates of economic growth acting as automatic stabilisers. However, discretionary changes in government spending and taxes to reflate or deflate the economy are now a thing of the past. Fiscal Policy is now much more likely to be directed at the micro management of the economy rather than its macro management.

In the era of Keynesian demand management if you were unemployed it was the government's fault but by the end of the century if you were unemployed it was increasingly seen as your fault if you did not take advantage of education and training opportunities. Economic policy had almost come full cycle since the 1930s. The era of fiscal policy to regulate demand had ended over 30 years ago in the economic chaos of the 1970s, an era of turbulence both in the world economy and in how economies should be managed.

Figure 4



## Questions for discussion

1. Why might the government spending multiplier be bigger than the tax multiplier?
2. With reference to the pre-Budget Report from the autumn of 2007 how is the government using fiscal policy?
3. Since the year 2000 is there evidence that there is a long run trade-off between inflation and unemployment?

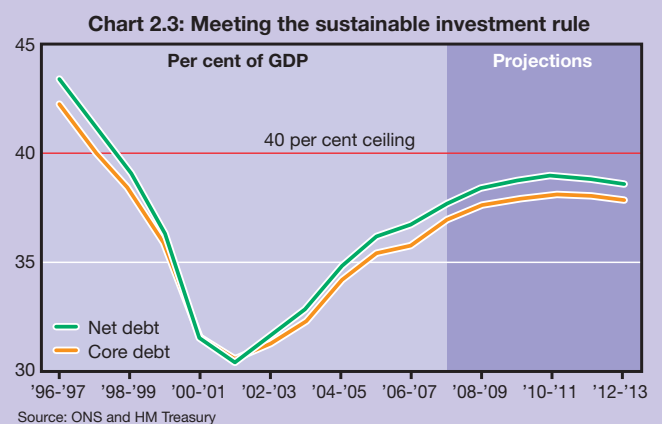
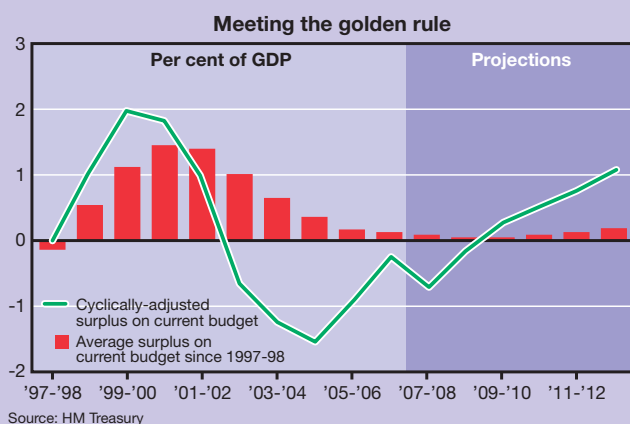
## Summary of key points

- ▶ Keynesian economics believes that the economy can be in equilibrium below full employment and fiscal policy can be used to manage the economy to full employment.
- ▶ Keynesian demand management using fiscal and monetary policy was a feature of macroeconomic management during the 1950s and 1960s.
- ▶ The stagflation of the 1970s led to the abandonment of Keynesian demand management and the application of Monetarist theory in the 1980s.
- ▶ In recent years economic policy has been geared towards using interest rates as an instrument of demand management so as to meet an inflation target.
- ▶ Fiscal policy is now used to improve the supply side of the economy and to correct market failure.

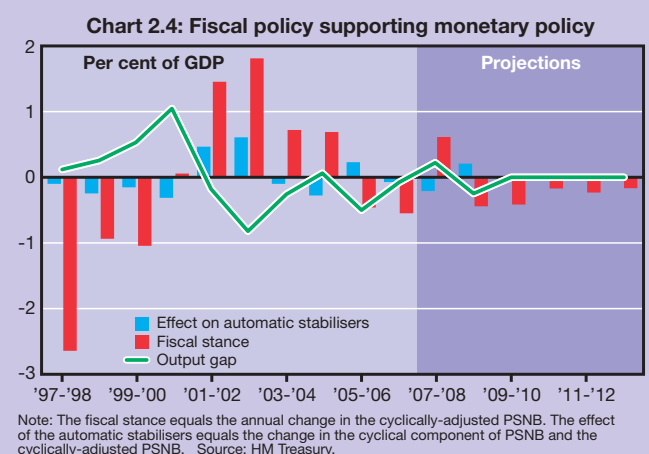


with  
**Simon Harrison**, D'Overbroeck's College

1. Visit the Treasury's pre-budget report micro-site at <http://pbrcsr07.treasury.gov.uk/>. Identify the different features of the report which will impact on both the supply side and demand side of the economy.
2. Using the two figures below (from the full pre-budget report: [http://www.hm-treasury.gov.uk/pbr\\_csr/report/pbr\\_csr07\\_repindex.cfm](http://www.hm-treasury.gov.uk/pbr_csr/report/pbr_csr07_repindex.cfm) chapter 2) explain whether or not the Government has achieved its 'Golden Rule' and 'Sustainable Investment Rule'. How realistic do you think the forecasts forward to 2012 are?



3. Using the figure opposite (same source) explain how Fiscal policy has been used to support the Bank of England in attempting to close the output gap. What does this imply about the role of Fiscal Policy in the 21st Century?



4. The linked article discusses policy shifts in Australia in terms of a Monetarist/Keynesian perspective. To what extent does the Australian experience mirror that of the UK?

<http://www.ballarat.edu.au/ard/business/resources/2005-03.pdf>



# UK Pension Crisis...

## What Crisis?

**Danny Gabay**, Director of Fathom Consulting, examines the recent impact of the economy on pension funds.

### Introduction

**T**he financial press is often full of alarming headlines about pensions crises and black holes. Is a crisis inevitable or is it just a case of bad news selling newspapers? In this article we take a look at the UK's Defined Benefit (DB) pensions industry. These pension arrangements are also known as final salary schemes, since the member's pension is a direct (and defined) function of their final salary.

We consider the pressures such schemes have been under since the start of this decade and the efforts that they have made to overcome them.

During the 1980s and 1990s the objective of most pension funds seemed to be one of return maximisation, hence the typical UK DB scheme had a significant reliance on publicly traded equities. Equity prices had risen more or less continuously since the late 1970s, and rose particularly fast during the second half of the 1990s prompting a number of schemes to take payment 'holidays'. However, at the beginning of this century a series of unfortunate events combined to create what has been referred to as a 'perfect storm' for the UK's DB pensions industry, forcing it to change the focus of its funding strategy.

### Start of the crisis

The initial source of the crisis was the collapse in global equity markets. Having risen by a staggering 544% between 1980 and 2000, the FTSE 100, the UK's main equity market index, lost more than 40% of its value between the start of 2000 and the summer of 2003. Since equities comprised the greater part of most pension fund portfolios, the market value of scheme assets plummeted and widespread surpluses turned into widespread deficits.

Then came the bad news. During 2003, financial market participants convinced themselves that the US economy was heading for a re-run of the 1930s, that is mass unemployment and deflation. Bond prices, which act inversely to the interest rate earned by a given bond, consequently soared as investors bet on ever lower interest rates. We may not have seen a depression, but interest rates did fall very sharply. In the US they fell to 1% and in the UK they fell to 3.5%; in both cases these were multi-decade lows. In the old days this would have had a beneficial impact on scheme funding. That is because the rise in the value of the bond portfolios held by pension funds would have helped to offset the losses on their equity portfolios. But those days are long gone. The accounting profession

had by 2003 come to the view that the value of scheme liabilities should be calculated by discounting future pension payments by using the prevailing yield on corporate bonds – that is bonds issued by private companies of a certain credit rating. Hence, even though the value of pension fund bond portfolios was rising, the value of scheme liabilities was rising much, much faster. Other things equal, for a typical DB pension scheme, holding an asset portfolio with a 60/40 equity/bond split, a 1% fall in bond market yields would cause scheme liabilities to rise by as much as 17%.

The other problem facing pension schemes is that the corporate bonds typically held had average ‘Macaulay duration’ – the weighted-average term to maturity of the cash flows from a bond – of around 7 to 8 years. In contrast, the Macaulay duration of typical scheme liabilities is often well in excess of twenty years. This duration mismatch meant that the rate of increase of the present value of scheme liabilities was much faster than the rise in the value of bond holdings. Some schemes tried to remedy the duration mismatch by buying much longer dated bonds – both corporate and UK government bonds – but these bonds were, and still are in relatively short supply, and the increase in demand for them pushed prices higher and yields lower, thus causing liability values to rise further still, in what became a largely self-defeating exercise.

### Living too long

And then came the body blow. It became clear that the assumptions made by the actuarial profession about how long people were likely to live, were unduly pessimistic. Put simply, people were taking far longer to die than the actuaries had assumed they would. Normally, this would be good news, but not for the pensions industry – the longer you live, the longer they have to keep paying out. Revising these longevity assumptions upward had the effect of extending the industry’s liabilities further into the future, increasing their duration and also their present discounted value.

According to a survey conducted by the UK’s Pensions Regulator of 5,800 DB schemes (reckoned to be around half the total number in existence) 83% of the schemes were in deficit in March 2006. The same survey showed that 58% of these schemes were reported to be closed to new members, with around 1,150 of these schemes closing between

2001 and 2003. The closure of a scheme of course exacerbates the funding issue since, by definition, the scheme will mature more rapidly than if it were to remain open to new, younger employees.

### Recent improvements

We can illustrate the combined impact of these developments by considering the funding position of a typical UK pension scheme over the course of this year. We use data based on a representative model of a UK scheme that we have developed over the last few years at Fathom. This can be seen in Figure 1. We assume that this representative scheme started the year with combined assets worth only 90% of the present value of its liabilities. We also assume that it had a relatively conventional and conservative asset portfolio at the start of the year, comprising 60% UK equities, 20% gilts and 20% sterling corporate bonds.

The first six months of this year were very good to our representative scheme. By the end of June its funding position had improved to such a degree that its deficit had almost disappeared. Their were two drivers here. First, the impressive performance of the equity markets – the FTSE 100 has risen by 65% from its low in mid-2003 – and second the rise in bond yields. Although the rise in yields clearly led to capital losses on pension fund bond holdings, the same increase led to a more than offsetting fall in the discounted value of scheme liabilities. Unfortunately the unfolding credit crisis sparked by problems in the US mortgage market this summer has taken its toll on our representative pension scheme [as the

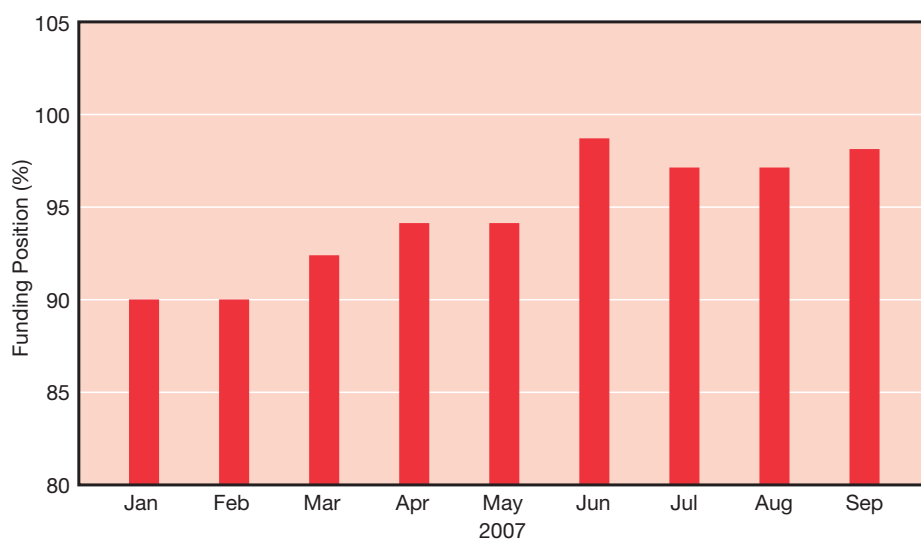
final three bars in the chart show.] The fall in equity prices and the related fall in long-dated discount rates used to value scheme liabilities, combined to increase the value of scheme liabilities over the summer of 2007. But, there is finally some good news, the rise in the value of liabilities was not matched by the rise in the value of the scheme’s assets. By the end of the quarter the finances of the representative scheme had returned to pre-summer levels.

### Challenges ahead

The past few years have presented the pension industry with some serious challenges, and lessons have clearly been learned. Unsurprisingly, today the focus of most funds is on return maximisation, with the added goal of risk minimisation. This approach is often referred to as Liability Driven Investment (LDI), and involves careful consideration of the nature of scheme liabilities along with an equally careful consideration of the sort of asset classes that might best meet the pension needs of scheme members, with the lowest probability that these promises will not be met.

Pension fund trustees can be forgiven for breathing a sigh of relief – the summer has taken its toll on pension fund finances, but has not eliminated all of the gains made earlier this year. But their position remains precarious. If the credit crisis does eventually lead to a slow-down, or even a recession in the US next year, then without careful risk management many UK pension schemes could find themselves back at square one, firmly facing the sorts of deficits that first appeared the last time the US economy slowed down sharply.

**Figure 1: Recent changes in a typical pension scheme**



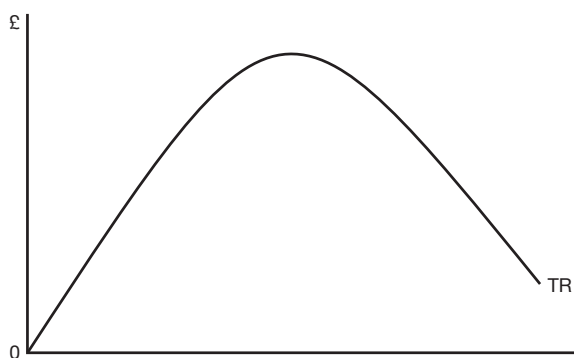
Source: Fathom Consulting



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

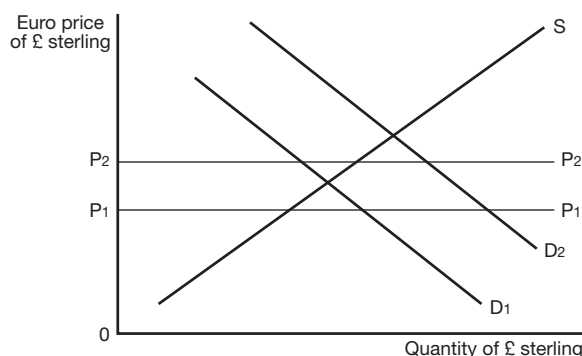
- Which one of the following is a positive statement?
  - The government should abolish Inheritance Tax.
  - There ought to be an immediate cut in interest rates.
  - The National Minimum Wage is £5.52 per hour.
  - The top rate of income tax in the UK is too low.
- The increase in the minimum age people can buy cigarettes in the UK from 16 to 18, which came into force in October 2007, will have the effect of shifting the
  - demand curve for cigarettes to the right.
  - supply curve for cigarettes to the left.
  - demand curve for cigarettes to the left.
  - supply curve for cigarettes to the right.
- $C = \text{Consumption}$ ,  $I = \text{Investment}$ ,  $X = \text{exports}$ ,  $M = \text{imports}$ ,  $G = \text{government spending}$  and  $Y = \text{national income}$ . If  $C = 10 + 0.8Y$ ,  $I = 70$ ,  $G = 100$ ,  $X = 120$ ,  $M = 100$ , what will be the equilibrium level of  $Y$ ?
  - 100.
  - 300.
  - 500.
  - 1,000.
- The diagram below shows a firm's total revenue as the level of output increases.



What will happen to marginal revenue and average revenue as output rises?

- | Marginal Revenue  | Average Revenue |
|-------------------|-----------------|
| A. Falls          | Falls.          |
| B. Stays constant | Rises.          |
| C. Rises          | Stays constant. |
| D. Rises          | Rises.          |
| E. Stays constant | Falls.          |
- Suppose an economy only produces 100 units of an identical product each year and that each unit sells for £10. If the quantity of money in the economy is £40, all of which is in £1 coins, what is the velocity of money?
    - 15.
    - 20.
    - 25.
    - 30.

- Suppose in preparation for Euro membership the UK monetary authorities are committed to maintaining the exchange rate of the pound sterling against the Euro between  $P_1$  and  $P_2$  in the diagram below.



What might they do if the demand for sterling changes from  $D_1$  to  $D_2$ ?

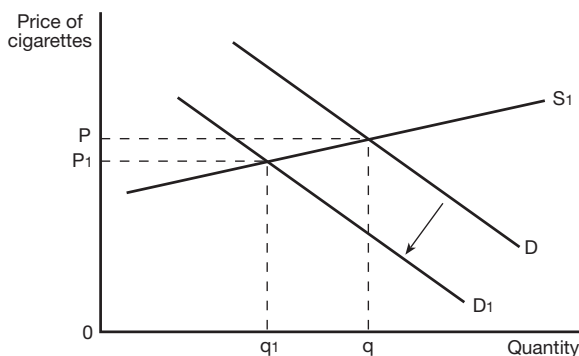
- Subsidise UK exports.
- Increase UK interest rates.
- Sell Euros from the foreign exchange reserves.
- Sell pounds on the foreign exchange markets.
- Sell some of the UK's gold reserves in the Bank of England.



What would happen in Q6 if the demand for sterling changes?

1. A positive statement is descriptive and makes a claim about the world as it is. A positive statement can be confirmed or refuted by looking at the evidence. A normative statement is an opinion which expresses views about how the world ought to be. If a statement has the words 'ought to' or 'should' in it then it is normative because it concerns how a person feels about an issue and cannot be checked as right or wrong by scientific analysis of evidence. The statement about the minimum wage is a positive statement as it can be checked by an appeal to facts and the answer is thus C.

2. An increase in the minimum age for buying cigarettes will reduce the numbers of smokers and potential smokers who can buy them. This will reduce the demand for cigarettes at all prices shifting the demand curve to the left. In theory this should reduce cigarette prices but as the long run supply curve is very elastic the price will almost stay the same and only the quantity sold will fall. The answer is C.

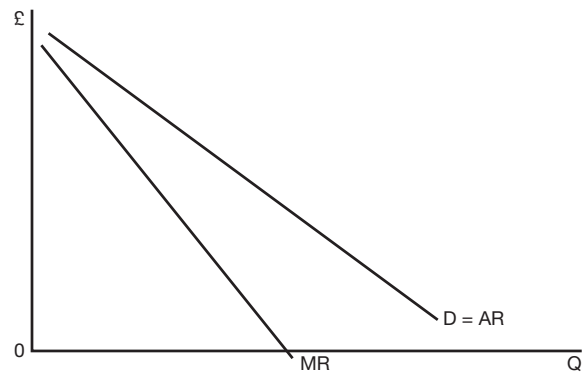


3. In the UK GDP includes spending on domestically-produced goods and services. To understand the composition of GDP it is divided into the four components and set out as an identity, GDP (denoted as  $Y$ ) equals  $C + I + G + X - M$ . By substituting the given values in the question  $Y = 10 + 0.8Y + 70 + 100 + 120 - 100$  which sums to  $0.2Y = 200$ . This means that  $Y = 5 \times 200$  and thus 1,000. The answer is thus D.



*Demand for cigarettes will fall in Q2.*

4. When total revenue rises and then falls as output/sales increase this is an indication that AR, the demand curve, is downward sloping with marginal revenue also downward sloping but with a gradient twice as steep. In the upper section of the demand curve price elasticity of demand is elastic and thus whilst price (AR) falls total revenue rises. A rise in revenue indicates a positive but falling MR line. At the mid-point on the demand curve price elasticity of demand is unit elastic and total revenue is maximised and  $MR = 0$ . As price falls further demand becomes progressively more price inelastic and hence revenue falls with MR now negative. Thus as output rises both MR and AR fall and the answer is A.



5. The quantity theory of money equation states that the quantity of money in an economy ( $M$ ) times the velocity of circulation of money ( $V$ ) equals the price of output ( $P$ ) times the amount of output ( $Y$ ). Hence  $MV = PY$  which shows that an increase in the quantity of money in an economy must be reflected in a change in one of the other three variables. From the above data  $V = PY/M$  which means  $\text{£}10 \times 100/40 = 25$ . This means that in a given time period each £1 coin is spent 25 times and the answer is C.

6. In the diagram the pound has risen against the Euro above the upper limit permitted. To bring the pound down against the Euro the monetary authorities need to increase the supply of pounds which will shift the supply of pounds to the right. If the authorities sell pounds in the foreign exchange markets and buy Euros the effect is to increase the supply of pounds (and to increase the demand for Euros). The increased supply of pounds on the markets will push the value of the pound down hopefully to within its permitted limits. The monetary authorities' action has had the same effect as a rise in imports into the UK. If the UK did join the Euro at any time in the future it would have to join a system similar to the one shown above. The answer is D.



# Should Governments Intervene in the Car Market to Prevent Environmental Damage?

**Andrew Ireson**, Head of Economics, Oundle School, examines the case for government intervention to influence how motorists drive their motor vehicles.

**W**ith more and more large 4x4s, the so-called 'Chelsea tractors', on our roads each year, it is perhaps surprising to learn that the Government has made several attempts to persuade motorists to scale down the size of the vehicle they drive. In this article we will look at the nature of the environmental damage caused by vehicles, why a government might wish to intervene, the nature of such intervention in the UK, the results of such intervention and also other options that could be used.

## The pollution problem

First let us consider the damage done to the environment when we take a journey in a car. When we travel by car there are actually four major pollutants that are produced:

- ▶ Hydrocarbons – which can lead to eye irritation, coughing, wheezing and shortness of breath;
- ▶ Nitrogen oxides – which help contribute to ground level smog and the formation of acid rain;
- ▶ Carbon monoxide – which reduces the flow of oxygen in the bloodstream;

and the one that is targeted most in the UK

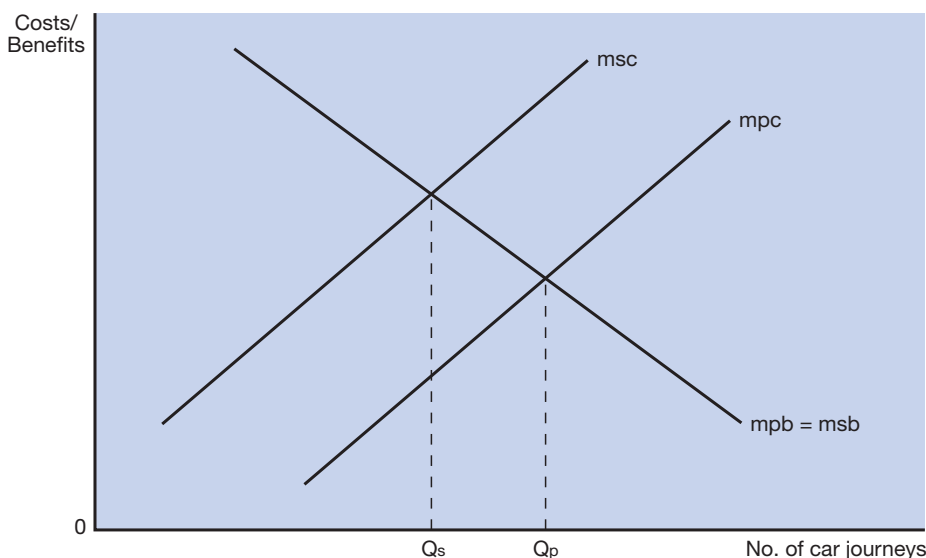
- ▶ Carbon dioxide (CO<sub>2</sub>) – a so-called greenhouse gas that has the potential to trap in the earth's heat and cause global warming.

The problem is that the market mechanism that we study in economics does not take into account the damage caused by cars, as such damage is known as an **externality**. In effect there is 'a missing market' and hence there is the need for **government intervention**. If economics agents act rationally, then they will attempt to equate the **marginal private cost** (mpc) with the **marginal private benefit** (mpb). However, for society we want the **marginal social cost** (msc) to equate with the **marginal social benefit** (msb).

Whenever externalities exist, there is a divergence between private and social – whether it be costs or benefits. Figure 1 gives the standard diagram to show how the presence of a negative externality causes the market determined equi-

Exam Board	AS	Unit	A2	Unit
AQA	✓	1(10.6)		
Edexcel	✓	2		
OCR	✓	2882 (5.2.2)	✓	2885 (5.5.3)
WEJC	✓	1(C)		
CCEA	✓	1	✓	5
Int. Bacc.		Standard 2.4		

Figure 1: The case of a negative externality



librium output ( $Q_p$ ) to be greater than the socially desirable output ( $Q_s$ ). The vertical distance between the  $msc$  and  $mpc$  curves represents the level of the externality.

With the car market the issue is slightly more complex than might at first appear to be the case because it is not as simple as just trying to reduce the number of journeys that are undertaken. What we are looking for is a reduction in the number of journeys made in cars which cause the most pollution. There are two ways in which the UK government influences the type of cars that we drive; one direct way and one indirect way. The indirect way is through the imposition of fuel tax, currently levied at a rate of 50.35p per litre. Given that VAT is also charged at 17.5% on the tax, the total tax paid on a litre of both petrol and diesel is over 59p per litre. Clearly drivers of larger vehicles that use more fuel will end up paying more tax.

The direct way in which the government influences the car market is through having different levels of Vehicle Excise Duty (VED) depending upon the amount of CO<sub>2</sub> emissions produced by the car, although the tax is also dependent upon the age of the car as well.

Table 1 shows the current annual levels of VED that are in operation for cars registered post 1st March 2001

It is clear that the government is trying to charge a higher tax on the vehicles which cause the most environmental damage. This is an attempt to try to 'internalise the externality' and is based on the so-called 'polluter pays principle'. It is interesting to see that vehicles that produce less than 100g of CO<sub>2</sub> per km now have a £0 VED,

however it should also be noted that it is very difficult to find a car that meets this requirement. Indeed the official Vehicle Certification Agency (VCA) website lists just one car that falls into this category. On the other hand there are many cars that fall into the recently introduced Band G and the Government has already announced that the charge for this band will go up to £400 p.a. in the tax year 2008/2009.

Technology is certainly having a significant effect with the Department of Transport website claiming that it now takes 50 new cars to produce the same emissions as a vehicle made in 1970!

### The relevance of price elasticities

There are two issues that need to be discussed here. First, what is the hoped for response to the graduated levels of VED and second, what has the reality of the situation been so far. Well clearly we

can make the assumption that the government has been trying to reduce the number of high polluting cars on the road, or has it? In some ways it is a similar argument to that concerning the taxation of cigarettes and alcohol. Since the **own-price elasticity of demand** for these goods is so low, the actual reduction in quantity is relatively negligible. Let us consider own-price elasticity of demand in a bit more detail. Two of the major determinants are the number of substitutes that exist and also the percentage of one's income that has to be spent on the 'good'. As far as substitutes go, to most drivers of 4x4s, a small, energy efficient hatch-back is not a viable alternative; hence there are few, if any, more environmentally friendly substitutes around. Second, as far as the percentage of income is concerned, the highest VED is currently less than £1 per day. For someone who has bought a large car in recent years – remember that the bands for VED only apply to cars registered after March 2001 and for the top band post March 2006 – this amount of money is unlikely to make any difference whatsoever to their decision as to whether to buy the car or not. Fuel consumption and fuel tax might be more significant but not a slightly higher VED. Therefore we can see that the own-price elasticity of demand for 4x4s will be relatively low. On a related theme, if we were asked about the **cross-price elasticity of demand** between small hatch-backs and 4x4s, we could say that the value would be small and positive; they are weak substitutes. Remember that own-price elasticity of demand refers to movements along a demand curve due to a change in the price of a good – i.e. a change in quantity demanded – whereas the cross-price elasticity of demand refers to the shift in the entire demand curve for a good,

Table 1: Vehicle excise duty

Per Year VED Band	CO <sub>2</sub> (g/km)	Petrol Cars	Diesel Cars	Alternative Fuel Cars
A	100 and below	£0	£0	£0
B	101 to 120	£35	£35	£15
C	121 to 150	£115	£115	£95
D	151 to 165	£140	£140	£120
E	166 to 185	£165	£165	£145
F	186 to 225	£205	£205	£190
G*	226 and above	£300	£300	£285

Source: Driver and Vehicle Licensing Agency.

\*Band G only exists for new cars registered after 23 March 2006. For cars registered before 1st March 2001, VED is based purely on engine size rather than on CO<sub>2</sub> emissions with the annual rates being £115 for engines of size 1549cc and below and £180 for larger sized engines.



*Hydrogen fuel cell cars will have zero CO<sub>2</sub> emissions.*

following a change in the price of another good – i.e. a change in demand.

Given that the graduated VED rates have so far not had the desired effect, why else might they have been introduced? Well there is certainly the possibility that they might encourage R & D from motor manufacturers to reduce the level of CO<sub>2</sub> emissions. Indeed just recently Honda have announced that they are ready to launch a hydrogen fuel cell car which will have zero CO<sub>2</sub> emissions. The only drawback is that whilst the car will have a VED of £0, it will initially set you back a staggering £50,000! The current top seller in the low emissions bracket is the Toyota Prius, but that too comes at a starting price of over £17,000. However, technology is certainly having a significant effect with the Department of Transport website claiming that it now takes 50 new cars to produce the same

emissions as a vehicle made in 1970! The only drawback to this is that as the government introduces more bands for new cars, there will be more incentive to hang on to older, less efficient vehicles. This is an example of the 'law of unintended consequences' and might well be an example of **government failure**, where the situation is made worse by government intervention.

Perhaps if the government were really serious about reducing the number of high pollutants on the roads, they could impose an initial tax equal to £100 times the number of grams of CO<sub>2</sub> emitted per kilometre. A tax of £20,000 would really make both customers and manufacturers alike sit up and think! Again, as with so many transport issues, government intervention could come indirectly in the form of improved public transport. If more people travelled to work by bus,

then the amount of emissions could be dramatically reduced. There is also another form of government intervention that should probably be used more; namely providing greater information. For example, emissions of CO<sub>2</sub> can be significantly reduced if the following steps were taken by motorists:

- ▶ When appropriate, travel at moderate, steady speeds (ideally between 35 and 45 miles per hour).
- ▶ Keep your vehicle in good running condition.
- ▶ Make sure that the tyre pressure is correct.
- ▶ Remove unnecessary bulky items from the vehicle.

### Conclusion

In conclusion, we have seen that the market mechanism does not provide an answer for the environmental damage

caused by cars. We have looked at some of the ways in which the UK government intervenes in the car market, and discussed why great success may not so far have been forthcoming and we have considered a couple of alternatives that might have more effect.

So should the government intervene? Well, in-so-far as the market mechanism will not provide the socially optimal result, there is certainly a case for such intervention, but *it is only worthwhile if it is effective and improves the situation*. Knowing whether this will be the case is hard to assess. One of the main problems is that it is almost impossible to calculate an accurate value for the amount of damage caused by an individual car, and hence it is very difficult to know how much intervention there should be. To illustrate the complexities of the situation, here are a couple of sobering facts found by this author whilst trawling the internet, when researching for this article:

- ▶ If we accept the assumption that a 'gas guzzling' Hummer will last three times as long as an environmentally friendly Toyota Prius; due to the environmental damage caused in the production process, and particularly because the Prius has two batteries, one of which contains nickel, it can be argued that it is more environmentally friendly to drive a Hummer!
- ▶ The environmentalist, Chris Goddall, has calculated that the average three mile journey to a supermarket by car produces 0.9kg of CO<sub>2</sub>. To walk such a distance will use up about 180 calories. To replace these calories, given the environmentally damaging way in which we currently produce food will cause 3.6kg of CO<sub>2</sub> if the calories are replaced by eating 100g of beef and 1.2kg of CO<sub>2</sub> if one were to drink 3/4 pint of milk. Therefore if we want to help the environment, stop walking and drive everywhere – especially if we have several passengers in the car with us!

### Questions for discussion

1. Why is the average size of car in the USA so much bigger than in the UK?
2. What other methods of intervention are open to the UK government?
3. Do the issues of environmental damage and congestion need to be addressed by different solutions or could road pricing be a 'one-size fits all' solution?

## Summary of key points

- ▶ Car travel results in pollution and this raises the issue of whether state intervention is appropriate.
- ▶ Vehicle excise duty and fuel tax affect how motorists use their vehicles.
- ▶ Thus far these fiscal measures appear to have had little impact on how motorists have reacted in using their vehicle.



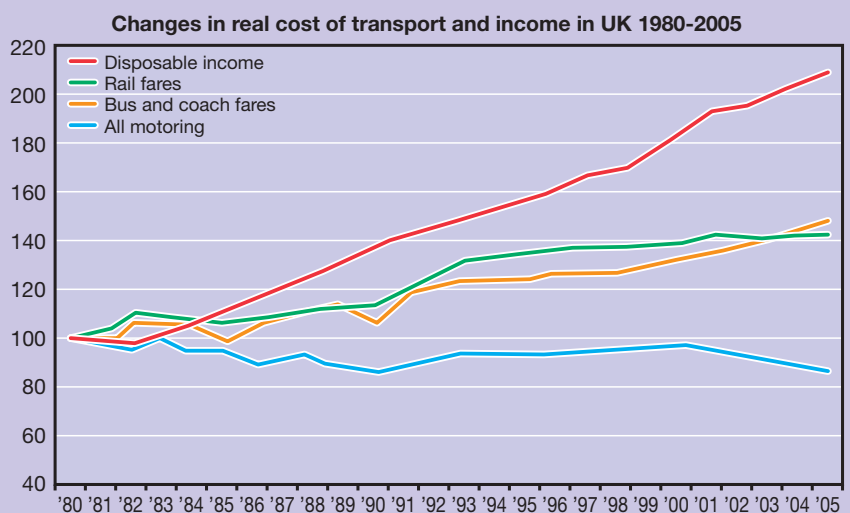
with Chief Examiner,  
**Robert Nutter**

1. The European Union undertook a commitment to cut CO<sub>2</sub> emissions by 8% over the period 2008-12 under the Kyoto protocol. The European Council in March 2007 agreed to a further reduction of 20% of CO<sub>2</sub> emissions by 2020, with the reduction to be increased to 30% if other industrial states also undertake to cut their emissions significantly. Transport is responsible for about 21% of CO<sub>2</sub> emissions in the EU, with passenger transport accounting for more than half of these transport-related emissions and 12% of total CO<sub>2</sub> emissions in the EU. An independent study, commissioned by the Greens/European Free Alliance group in the European Parliament earlier this year, assessed how an overall 30% emissions reduction could be achieved in the European Union by 2020 by looking at the different relevant sectors. It established that the transport sector needed to make the second highest contribution, after the energy sector, in order to achieve the CO<sub>2</sub> target. By 2030, a decline of 20% in traffic-related CO<sub>2</sub> was assumed, with more efficient cars contributing significantly to achieving this goal.

Look for the article 'Putting the Brakes on Climate Change' (CO<sub>2</sub> Limit Values for Cars). [www.greens-efa.org](http://www.greens-efa.org) Go to 'Documents' then 'Environment' then the article 'Climate Change and Cars' (25.04.07).

2. Due to the relative fall in the cost of motoring shown below investigate whether it may soon be technically possible to set the level of road tolls according to each car's emissions.

[www.bbc.co.uk](http://www.bbc.co.uk) [www.dft.gov.uk](http://www.dft.gov.uk) search road pricing



3. Research the 'law on unintended consequences'.  
[www.econoclass.com](http://www.econoclass.com) then follow the 'Activities' link.



# The Rising Price of Wheat

**Quintin Brewer**, a Chief Examiner and teacher at North London Collegiate School, considers how to handle a question on the market for wheat.

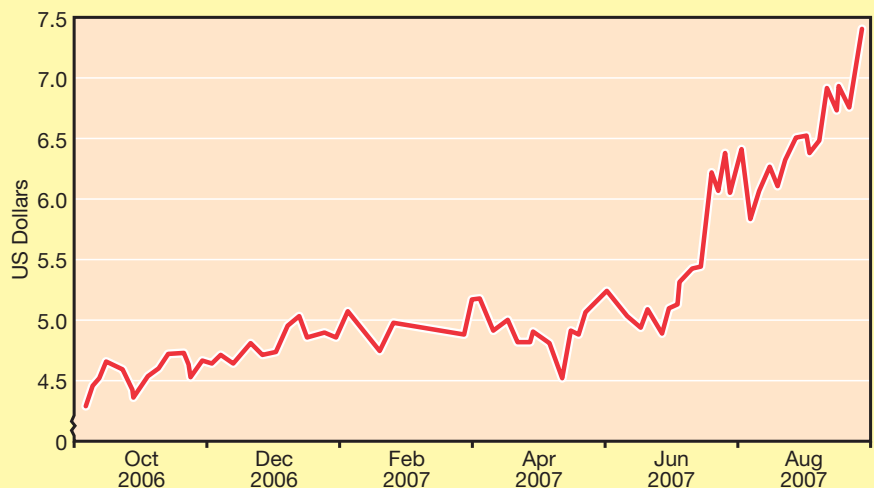
**I**n your first term of studying economics most of you will have considered the determination of market prices and the factors which might cause prices to change. If you have read the newspapers or seen the news, you will be aware that the prices of many commodities have risen recently. One such commodity is wheat which has experienced a substantial price increase with consequent implica-

tions for the prices of many related goods.

Before considering this question here are some general guidelines:

- ▶ Define terms and concepts precisely.
- ▶ Refer to the information provided when answering the questions.
- ▶ Use diagrams where appropriate and refer to them in your written analysis.
- ▶ Include evaluation where it is required by the command word.

**Figure 1: The price of wheat (price per bushel)**



Source: Chicago Board of Trade

A combination of poor weather, low stocks and higher demand is sending the price of wheat rising to record levels on global commodity markets. Canada warned that its wheat crop might be 20% lower than in 2006 because the crop had been damaged by the weather as was also the case in Europe and Australia. Meanwhile Chinese production is expected to be 10% lower because of floods and droughts.

Consumption is rising in Asia as prosperity increases and diets change from vegetables to meat. It is hardly surprising that in countries such as India, where climate change could have a severe impact on food production, there are urgent calls to stockpile grain ahead of the next harvest. Overall, it is expected that the 2007-08 wheat crop will be 607m tonnes while demand would reach 614m tonnes resulting in a further fall in stocks.

The rising price of wheat is expected to cause not only an increase in the price of bread but also of meat, poultry and dairy products as farmers try to pass on the rising cost of animal feed. However, the sudden price increase in recent months is good news for farmers and will stimulate more planting in the future.

Source: Adapted from: <http://business.timesonline.co.uk>

- (a) Estimate the percentage increase in the price of wheat during the period shown. (2 marks)
- (b) Illustrating your answer with a supply and demand diagram, analyse the factors causing the increase in the price of wheat. (6 marks)
- (c) Outline two other factors which might affect the demand for wheat. (4 marks)
- (d) With reference to the passage, comment on the price elasticity of demand for wheat. (6 marks)
- (e) What might be inferred about the price elasticity of supply of wheat? Justify your answer. (4 marks)
- (f) Illustrating your answer with a supply and demand diagram, evaluate the effects of the increase in price of wheat on the prices of bread, meat, poultry and dairy products. (8 marks)

### Suggested approach to the questions

#### (a) Estimate the percentage increase in the price of wheat during the period shown. (2 marks)

Make sure that you can do simple calculations: for calculating percentage changes remember the following simple formula:

the change divided by the original multiplied by 100

It is important to show your calculations because you might be awarded a mark for the method even if an arithmetic error results in an incorrect answer. The following response makes it clear to the examiner how the percentage change was calculated:

Price at the start of the period: \$4.3  
 Price at the end of the period: \$7.4  
 Difference: \$3.1  
 Therefore, the percentage increase is:  $\frac{3.1}{4.3} \times 100 = 72.1\%$

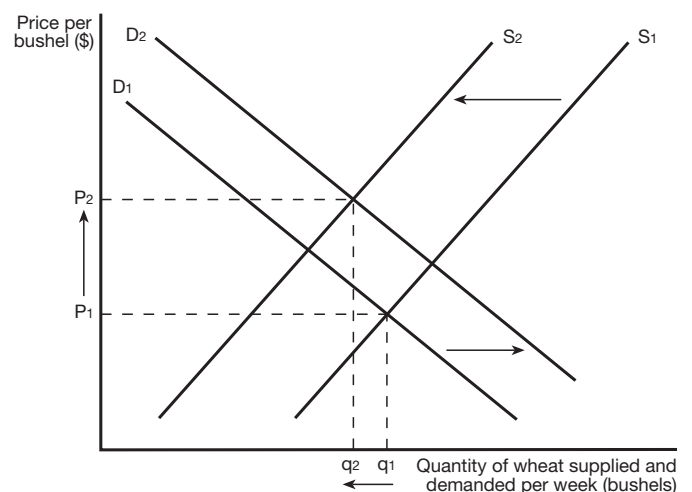
#### (b) Illustrating your answer with a supply and demand diagram, analyse the factors causing the increase in the price of wheat. (6 marks)

One of the major problems with questions like these is that students do not consider all the changes which might explain the price change. In this case there is evidence of a decrease in supply and an increase in demand. Both these changes must be identified, explained and illustrated. Further, there is a need to include some evaluative comments because the command word 'assess' clearly demands some judgement concerning the significance of the factors identified.

The following answer provides a good demonstration of a sound answer:

Weather problems have reduced the wheat harvest in various parts of the world. In particular, the wheat crop in Canada is expected to be 20% less in 2007 than in 2006, 10% less in China while crops in Australia and Europe are also expected to be significantly lower this year than in previous years. At the same time demand for wheat is rising: with higher incomes and changing tastes demand is rising in Asia.

The passage states that... "Overall, it is expected that the 2007-08 wheat crop will be 607m tonnes while demand would reach 614m tonnes resulting in a further fall in stocks." Countries such as India are stockpiling wheat because of the danger that prices will rise further in the future, a factor which has added to the higher demand for wheat. The diagram below shows the combined effect of a decrease in supply and an increase in demand for wheat: overall the price rises from  $P_1$  to  $P_2$ .



**(c) Outline two factors, other than those in the extract, which might affect the demand for wheat. (4 marks)**

This is a relatively straightforward question and to secure maximum marks you should identify two factors and briefly explain why they might affect demand. One approach could be as follows:

Demand for wheat might increase if there is a rise in the world's population. Clearly, with a higher population there will be an increase in demand for food so the demand for wheat is likely to rise also.

Demand for wheat is also increasing because wheat can be used in the production of biofuels. Given the desire to cut greenhouse gas emissions many countries are encouraging companies to produce biofuels as a substitute for petrol.

**(d) With reference to the passage, comment on the price elasticity of demand for wheat. (6 marks)**

This question requires careful interpretation of the passage, a precise definition and some reasons for your deduction. The following response illustrates an example of this approach:

The passage states that "the sudden price increase in recent months is good news for farmers" suggesting that farmers' incomes are rising. The rise in price of wheat will lead to an increase in farmers' incomes if demand is price inelastic i.e. if the rise in price of wheat causes a less than proportionate fall in the quantity demanded. In this case the price rise will cause an increase in the total revenues of farmers.

Demand for wheat is likely to be price inelastic because it is an ingredient of products which are part of the staple diet of many people e.g. bread. It is also used as animal feed for cattle and poultry for which there are few good substitutes.

**(e) What might be inferred about the price elasticity of supply of wheat? Justify your answer. (4 marks)**

Once again, it is good practice to start with a precise definition of the elasticity of supply. Given that the most important factor influencing price elasticity of supply is time, it is worth considering how elasticity of supply might vary over time.

Price elasticity of supply refers to the responsiveness of quantity supplied to a change in price and it is measured as follows:

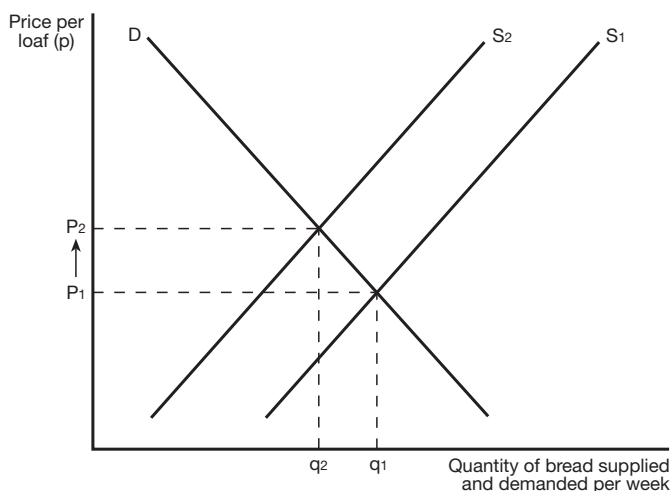
$$PES = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}}$$

In the short run the supply of wheat is likely to be inelastic because there is a fixed amount of land used to grow the crop. However, wheat can be stored so if there are stocks (as indicated in the extract) then supply will not be perfectly inelastic. In the long run more land can be planted with wheat so supply is likely to be more responsive to the rising price and therefore more elastic.

**(f) Evaluate the effects of the increase in price of wheat on the prices of bread, meat, poultry and dairy products. (8 marks)**

This question involves analysis and evaluation of the effect of the increase in wheat prices on the price of other products. Good responses to this question are likely to be characterised by firstly, a clear explanation of the impact of higher wheat prices on the price of bread, secondly, a diagram illustrating the effect on price, and finally, some evaluative comments. The answer below provides an example of this approach.

Wheat is an essential ingredient in the production of bread. Therefore, the costs of producing bread will increase causing a leftward shift in the supply curve and an increase in the price of bread, as shown in the diagram below:



The extent to which the price of bread would rise depends on the proportion of total costs of producing a loaf of bread which is accounted for by the cost of wheat. This will determine the amount by which the supply curve shifts to the left – the greater the leftward shift in the supply curve, the higher will be the increase in price.

Another key factor is the price elasticity of demand for bread. The more price inelastic the demand for bread the greater will be the increase in the price of bread.

### And finally...

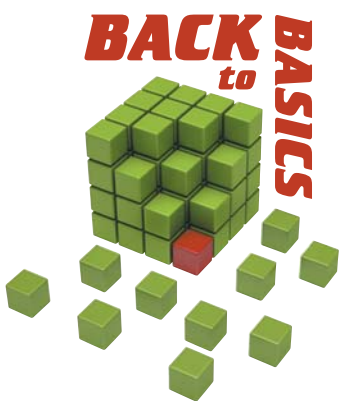
It is worth remembering that examiners use material from newspapers and journals when setting questions so following current economic issues can have a significant impact on your performance in examinations.

**Keep reading!**



# Why Look at the Margin?

*Rachel Cole, teacher at Cheltenham Ladies' College and a Principal Examiner, underlines the crucial relevance of a concept in microeconomics.*



**I**magine that I need to lose some weight. I'm sitting typing this, feeling a little peckish just at the thought of a diet. The last few biscuits in the tin seem to be calling out to be eaten. There is a decision to be made – whether to eat another biscuit and carry on, or whether to switch off the computer and go for a run. How much is just one more biscuit (the variable) going to affect my progress?

This decision is made at the **margin**, that is, what I will do next *disregarding what's happened up till now*. I might have been scoffing food all day or running a marathon, but an economist likes at times to ignore what's been done so far when deciding what to do next. What I've been doing all day does of course matter when I add up my totals for the day, to see how I've done. But if I'm trying to reach a target or trying to make some changes, then what I do *next* should be considered in isolation. And if

every decision along the way is made using the margin, then I will maximise, minimise or whatever my original target was.

► One really useful concept that comes out of considering the margin is **externalities**. Externalities are the spill-over effects, or impact on a third party when an economic transaction takes place. Everyone knows that driving cars causes global warming but it doesn't seem to have much effect on our decision-making when we need a lift into town. It is not a reasonable economic policy to expect people to give up their cars or to stop using fossil fuels to heat their houses. But you can look at whether people might occasionally share lifts or turn the heating down when they could wear a jumper instead. In other words, to change the levels of carbon that we emit, it is more effective to alter behaviour with incremental steps

rather than total bans. If we believe in market forces rather than authoritarian control then changing people's behaviour by means of the price system is the only viable option. The problem of externalities can be addressed if the price system can be used to take account of the *marginal social cost* (or benefits) rather than just the *marginal private costs* (or benefits).

So let's look at the marginal social cost of my driving to work. The car is already taxed and insured, so these costs are not part of the marginal cost. The marginal private cost (this is my personal spending) is the petrol at £2, and any congestion or parking charge that I face. There is then the cost to other people not part of the transaction, in other words, the third party. The people are paying the negative externality – the extra congestion and the increased wait at traffic lights for other motorists, and the risk to pedestrians such as a minute contribution to a person's asthma or the increased risk to someone of being run over. Add this increased externality to the marginal private cost and you get the marginal social cost, the full cost to society of my driving to work. If I then add in the fact that it's actually quicker and better for me on my bike then the costs are outweighed by the benefits, and this explains why in fact I never do drive to work. But I do have my own car – it's just that making the journey to work is not economic for me. By using a road toll or congestion charge the externalities can be **internalised**. The big problem of course is knowing just how much the marginal externality is, and therefore the correct amount for the tax or toll. Knowing how big the margin is becomes a very important question for governments, high on the agenda for any modern democracy.

- ▶ A second economic use of the concept of the margin is diminishing marginal returns. Let's go back to that

packet of biscuits. When I have had four or five biscuits, I begin to find that each extra biscuit gives me less enjoyment or payback. The concept is fundamental to the way in which cost curves are drawn, and from there supply curves. It also explains why a production possibility frontier bows outwards. You can read about these in other *Economics Today* articles; the key thing here is that it is the extra enjoyment that is diminishing, not the enjoyment from eating the biscuits as a whole. When the extra benefit exceeds the costs of buying the next item I'll keep on buying, and so this continues until the cost is the same as the marginal benefit. And where there is more than one item I need to get the marginal benefit relative to price equal on every item to maximise my enjoyment relative to the amount I have to spend.

- ▶ A third place that the margin is used is when looking at how to maximise profits, revenue or sales volume when running a business. Business people often talk about their margins – how much extra profit they'll make if they take a certain course of action. Let's say an owner of a chain of shops is considering setting up another branch. He or she will consider what the sales are likely to be in the new store (marginal revenue), and the costs of setting up and running the new store (marginal cost). As long as the marginal revenue is greater than the marginal cost then profits will increase and the decision is worthwhile. Even if the marginal revenue is just a few pounds over the marginal cost then the store owner is wise to expand. Or even a few pence – after all, as long as marginal costs are not greater than the extra money coming in then the owner will make more profit rather than less. Of course the very last store where marginal revenue equals marginal cost is adding nothing further to profits, but then it's not making a loss either.

Every store up to this one is adding to profits and you might even argue that it's worth running the last store that's not adding anything to the bottom line in that it's increasing market presence. Another way of looking at this is to say that marginal revenue is the gradient of the total revenue curve, and marginal cost is the gradient of the total cost curve, so where these are equal the total revenue and costs are running parallel and therefore this may be the furthest apart they get, that is, maximum profit.

- ▶ A fourth common use of the margin is when considering the concept of **allocative efficiency**, where price equals marginal cost. The problem for many consumers is that they don't pay for every unit, or at least don't see the money going down when they consume each unit. If you had to put money in a meter to keep your television on standby overnight you probably would turn off the TV rather than put in the 20 pence it would cost you. If you have to put coins in a parking meter you're probably really careful about how long you pay for. It might be only 0.2p a litre when you're on a water meter for domestic water use, but in houses where people pay for every litre there's a certain stinginess about water that can have almost unhygienic consequences, although of course as an economics observer I'm pleased to see that the water that is used is because it is valued. Ofwat, the water regulator, has estimated that people use 30% less water when they are on meters.<sup>1</sup> This is the basic meaning of allocative efficiency: we use something up to the point where we are only just prepared to pay for the last unit and no more. If we consume any more then the cost is greater than the amount we value it and we quickly stop consuming. So to achieve allocative efficiency the marginal cost to us will be equal to the amount that we value it, that is the price that we are prepared to pay.

There are other uses of the margin. In your A-level course, you may come across marginal cost pricing, the marginal efficiency of capital, marginal land, marginal physical product, marginal revenue product, marginal productivity of capital,

### Box 1: Marginal analysis

**The rules for the relationship between averages and marginal values.**

**You can replace x with a variable such as cost or revenue.**

If marginal x is less than average x then average x is falling

If marginal x is greater than average x then average x is rising

If marginal x is equal to average x then average x is constant

1. [www.ofwat.gov.uk](http://www.ofwat.gov.uk)

productive efficiency, the marginal propensity to consume, save, tax or import and even possibly the marginal rate of substitution. But I have the feeling that if I were to start telling you all about these here, the law of diminishing returns will set in and you'll be putting down this magazine and running off, with or without those famous biscuits.

### Questions for discussion

1. When people talk about profit margins do you think they are using the concept of margin correctly?
2. Using Box 1, replace the x with cost, revenue, or any other marginal concept that you have come across. Is the rule always true? (Clue – the law of diminishing returns might help.)
3. When marginal cost equals marginal revenue then marginal profit is zero. What does marginal profit mean? Why does it need to be zero in order to maximise profit?
4. If you're driving at 56mph you use 10% less petrol per mile than driving at 70 mph. In the USA the speed limit on interstate highways is 55mph dating back to the oil price hikes in the 1970s. What ways could you suggest where you live to get people to drive to use less petrol per mile – that is, make the

- choice of speed allocatively efficient?
5. There are many price comparison websites. Look up the relative cost

of water per litre or electricity per litre. Would you advise your parents to switch suppliers?

## Key terms

- ▶ **The margin** – the effect per unit of a small change in any variable.
- ▶ **Allocative efficiency** – where resources in an economy are shared out to maximise the benefit for society as a whole. It would not be possible to make anyone better off without someone else being made worse off.
- ▶ **Diminishing marginal returns** – as more of a unit is consumed or produced, the increase in benefit or output will eventually fall.
- ▶ **Externalities** – the effects of an economic decision that are not accounted for by either the buyer or seller, that is outside the private costs and benefits. They are also called the spill-over effects, or impact on a third party when an economic transaction takes place.
- ▶ **Internalising the externalities** – a process of making externalities internal, or *part* of the economic decision made directly by consumers and producers. A clear example of this is an indirect tax.
- ▶ **Marginal private cost** – the cost to the individual or firm when one more unit is consumed or produced.
- ▶ **Marginal private benefit** – the benefit to the individual or firm when one more unit is consumed or produced.
- ▶ **Marginal social cost** – the cost to society as a whole when one more unit is consumed or produced.
- ▶ **Marginal social benefit** – the benefit to society as a whole when one more unit is consumed or produced.
- ▶ **Price system** – where resources are allocated according to the forces of demand and supply, rather than by governmental control.

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# Are We Nearly There Yet?

## The Economics of Childhood

**Stephen Romer**  
reflects on the  
consequences of  
having a family  
in the early  
twenty-first  
century.



**H**ell is other people's children," as Jean-Paul Sartre did not quite say. Imagine yourself on a long haul flight. You are packed into an economy class cabin where, for hour after hour, babies wail incessantly and obese children shout their demands for yet more food. These are children whose parents have totally abandoned any commitment to a disciplinary role. And these are parents who have no interest in (and have probably never heard of) that civilised principle which says that *children should be seen and not heard*. They are parents who decline to impose control even when their delinquent progeny are driving the other passengers round the bend.

But what is particularly interesting about this scenario if you are an economist is the basic idea in economics of the disagreeable external impact on bystanders that private behaviour often has: you may find it difficult to come up with a better example than the above to illustrate the notion of negative externalities of private utility-maximisation.

However, it is not just a matter of external disbenefits, because what is interesting about children to us as economists is the light that childhood can throw on a wider range of propositions in economics. Indeed, one can attempt to employ much of the conceptual framework of microeconomic theory as the basis for the analysis of childhood – an analysis which reveals major insights about difficult questions of social and economic policy.

## Juvenile delinquents

Let us start by assuming that you are considering getting married and wishing to have a family. If so, you would do well to think about recruiting the services of a financial adviser before you go much further. And here is the reason why: the business of raising children has become extremely expensive, a financial black hole into which all of your money can disappear.

As a parent, you are, in a sense, both a producer and a consumer. On the one hand, the family unit is on the supply side of the market, and as it adds more children it could be compared to a firm engaging in long-term investment, expanding its new product strategy. But as a form of corporate growth, child production is an activity in which very high new costs of production are going to have to be faced.

As with any growth-orientated firm, the family will have to raise finance with which to pay for its expansion, simultaneously taking care to minimise its cost of capital. And the variable costs of running the expanding family business – day-to-day household expenditure – must be closely monitored on an on-going basis. Cost rationalisation will be a necessary (but not sufficient) condition for the stability of the firm/family unit.

But parenthood is also a form of consumption. As rational consumers in markets, economic agents maximise their utility from consumption subject to the household budget constraint by allocating spending to that combination of consumer goods and services which appeals to their individual preferences.

If we are assuming that you are considering getting married and having children, the implication is that this is your preferred spending option rather than allocating your budget to pay for, say, a trip round the world or the construction of a tennis court and swimming pool in the back garden. Thus you have made a decision to maximise your utility as a consumer by spending your money on having children. And you are going to have one or two or three... or ten children: what is the utility maximising number of units of consumption?

Now, in economic theory we are accustomed to thinking in terms of perfectly competitive markets and making the assumption that all economic agents are perfectly informed. But are you, the consumer in the parenthood market, well informed about

prices and other key variables in this particular sector of the economy?

It would seem unlikely that most new parents are aware of either the sheer scale of the spending that is going to be imposed on them as their children grow up or the rate at which these costs are likely to increase. Child-raising costs in the UK rose at an estimated 9% in 2006, exactly three times as fast as the overall rate of inflation as measured by the CPI.

Costs are rising at an exponential rate, and these are costs which were already sky-high in the first place: I do not know if you are a subscriber to *Pregnancy and Birth* magazine, but you may have seen its recent report that the average total cost of raising a baby from birth to the age of entering primary school had reached an astonishing £50,000 by 2005.

And another report, a survey issued in 2006 by Liverpool Victoria, an insurance company, estimates that the average total cost of looking after a child from age 0 to 21 comes to a mind-boggling £180,000. So startling is this information that any economist would surely feel obliged to ask whether becoming a parent represented rational consumer decision-making.

Or to put it another way, has the cost of child raising risen to the point where the consequent falling *relative price* of substitute forms of consumption implies that the utility-maximising consumer will consider abandoning parental plans and substituting other forms of consumption? With average total outgoings of £180,000, one is going to have to pay more than £23 per day, every day, day-in-and-day-out for 21 years for each child.

Here is the question rational economic agents must answer about the exorbitant costs of children: at £23 per day, does the price exceed the marginal utility of parenthood?

## It's just not fair

If you *do* have children, don't panic excessively because there is an element of reassurance when you remember that eventually they will grow up and leave home (and pay for you in old age?). And as for the immediate future, it is worth pointing out that if you feel priced out of the parenthood market, there is a possibility that *average* costs can be reduced by having more than one child. In other words, there may be economies of scale available to the firm/family unit as it expands into the long run.

Take the cost of babysitting, for

example. On the whole, the babysitter tends to charge a fixed fee whether she is spending the evening keeping an eye on one child or several. So it is fairly safe to assume that the average cost of babysitting services is going to fall as the number of units of production increases.

And what about spending on clothes? Children's clothes are invariably expensive, but this is another category of spending which can yield economies: as each child grows, it helps out by wearing the handed-down clothing of its older siblings. A nice little sailor suit for four year old Jimbo costs £30, but if the firm eventually produces, say, six children, the average cost per unit of output falls to a more reasonable £5 as Jimbo's younger brothers and sisters each grow to inherit that sailor suit for a few months.

And here is another way to reduce expenditure: move to a part of the country where you are going to find below average child raising costs. Whereas the national average cost (as noted above) is £180,000, there is significant regional variation around the average. For example, parents in London spend more (£200,000) but the outgoings of those in Wales amount to only about £170,000.

But whether you are in London or Wales, or wherever you are, the largest single drain on family finances would seem to be the expense of childcare – on average (according to the Liverpool Victoria report), parents will have allocated almost £50,000 to this one cost category before they feel the children are old enough to be left home alone when the parents leave the house to go to work. So heavy is the burden of childcare costs that in many families a vicious circle is in operation, an unfortunate state of affairs in which both Daddy and Mummy are obliged to go out to work so that they have enough money to meet the high childcare bill.

On an intuitive basis, this does not seem to make much sense when we assume that most of the second income is allocated to meeting the childcare expenditures, and the parents end up spending most of the time at work and not seeing their toddlers nearly as much as they would like to. As any four year old will tell you, *It's just not fair*.

As a particularly expensive item, childcare is closely followed by the cost of educating the child (at least £46,000) and, in particular, by the cost of the university years. And it is the latter which

have become increasingly more expensive in recent times. Undergraduate life today is a world of tuition fees and student loans. Sadly, the days are now long gone of that legendary campus rock 'n' roll band, 'Grant Cheque and the Students'.

As for expenditure on schooling, the average outlay of the parent of a state-educated child was put at £46,000 in the Liverpool Victoria report. Of course, the average cost rises (to about £70,000) if the child is privately educated – and further still (to a remarkable £130,000) if he or she is a boarder.

Overall, the typical costs of bringing up a child through to the age of 21 consist of the following major categories of expenditure: childcare £49,000; schooling £46,000; university £32,500; food £17,000; clothes £12,000; holidays £8,000; hobbies £9,500; pocket money £5,500.

### I blame the parents

In economics we tend to make a very fundamental assumption about the demand side of any given market: other things being equal, there is an inverse relationship between the price of a good and the quantity demanded. As the price of apples falls, there is an extension in demand for apples; and as the price of oranges rises, the demand for oranges contracts. But can we apply this basic assumption to the demand for children?

Does the typical adult's demand curve for children slope downwards from left to right. The logic would suggest that if the price of raising children has risen significantly, there will be a movement along the demand curve for children, i.e. a contraction in the rational consumer's demand for children.

I daresay there may be an element of truth in this proposition given the extent to which falling birth rates have been recorded. And this assumption is reinforced when we cite a further category of child-raising costs: so far we have not mentioned the *opportunity cost* of having children. This is, of course, very relevant to women interested in maximising career prospects, women for whom the opportunity costs of motherhood are as relevant as the explicit costs noted above.

Demand curves slope downwards from left to right, but what is invariably more interesting about any given demand curve is its *rate of response* to price changes. In other words, what is the price elasticity of demand for children?

Is the price elasticity of demand for

children greater than one? That is, is it demand elastic, suggesting the availability of close substitutes for children? And, if so, what is the cross elasticity of demand between children and other forms of consumption?

But you may feel inclined to argue that demand is inelastic to price, i.e. the rising costs of parenthood do not put people off having children. As a form of consumption, children are an example of a necessity – and there is no close substitute.

When we think about demand curves in this context, it is, perhaps, more interesting to take into consideration another view which says that some parents' demand curves for children do not slope downwards in the first place. On the contrary, there is a *regressive demand curve*, sloping upwards from left to right at high prices.

**As a form of consumption, children are an example of a necessity – and there is no close substitute.**

What this means is that for a particular segment of the consumer population, children are an example of what economists refer to as *Veblen Goods*, that is the kind of commodities where demand *rises* as price rises. In other words, having children can be a form of conspicuous consumption – an opportunity to make a display of one's wealth.

In this segment of the market, the more it costs to have children, the more likely you are to have them. We are familiar with the idea of the middle aged billionaire marrying a glamorous young woman, a 'trophy wife' – a variation on this theme is the Veblen parent maximising utility by raising a *trophy child*.

From the word go, money is lavished on sending the spoilt brat to babies' language classes even before it has learned to walk. As a tiny tot, young Jimbo is registered for infants aerobics before he's fully toilet trained. There are designer clothes for the smallest boys and girls and intense competition among parents to get them registered for the most exclusive nurseries. It's pure ego gratification on the part of the parents.

The private nursery industry in the UK is booming with annual turnover exceeding £3 billion and growing rapidly. It costs more than £200 per week, but we can assume that parents sending little Jimbo to an expensive nursery will argue that it will help to ensure that he

grows up to become a high powered business executive, hedge fund manager or master of the universe.

There is snobbery about which nurseries are currently 'in'. The 'right' nurseries have the 'right' baby classes. There are long waiting lists, so you must get Jimbo's name down the very moment he is born if you want to be sure he will be attending an Ivy League nursery and getting the benefit of going to seminars in semantics at six months, workshops on world affairs at one, tutorials on technology for the terrible twos, and lectures on linguistics for nippers in nappies.

### I want my mummy

*Is our children learning?* asked Presidential candidate George W. Bush on the campaign trail in 2000. As the 'Education President', Mr Bush, himself a graduate of Yale and Harvard, was in no doubt as to the importance of education. And this he reconfirmed in 2007 in a speech encouraging Congress to renew his No Child Left Behind educational policy: *Childrens do learn*, he proclaimed.

But what about childrens in the UK? Do our childrens learn? Is our childrens learning? The answer, according to Ofsted's Chief Inspector of Schools in a report issued in October 2007, is that educational performance varies. Specifically, it varies in relation to socio-economic factors in a child's background.

In the UK a child from a low income household, says Ofsted, is only about half as likely to do well in GCSE examinations as his better-off kinsman. And as for children in care – they have only a 20% chance of performing well at GCSE level. Children placed in so-called Pupil Referral Units (following persistent bad behaviour) unsurprisingly perform poorly in GCSE's, but these children are drawn in disproportionate numbers from economically disadvantaged backgrounds.

These variations in educational attainment are important because, above all, a lack of educational qualifications is, of course, inimical to the life chances and opportunities of lower socioeconomic groups. This raises very serious questions of social policy, questions which seem still more urgent when you realise that, according to a Unicef report issued in February 2007, 16.2% of children in the UK live below the poverty line.

This is a shocking statistic, and, as if to emphasise the extent of the crisis, the report placed the UK at the very bottom of a league table of child poverty among 21 economically advanced countries. The top end of the rankings is dominated by the Scandinavian nations and the Netherlands where child poverty is about 50% lower than in the UK and where the overall average standard of 'child well-being' is at least three times higher than in the UK.

If the family is analogous to a firm (the products of which are children), then is the existence of child poverty evidence that a significant number of 'firms' in the parenthood 'industry' have gone bust? If so, the market forces model would dictate that these bankrupt firms should close down, their resources reallocated to other sectors of the economy.

Alternatively, government micro-economic policy can intervene to subsidise failing firms, keeping them in business in the hope that they will eventually become self-sufficient. What is the appropriate policy? Can you take this analogy any further?

The Conservative Party leader, David Cameron, says that ten years of Blairism has created a social crisis. There is a 'broken society', he says. And you can see what he is getting at when you look at child well-being: the UK is placed last by Unicef in terms of childhood smoking, drinking, drug taking, pregnancy and anti-social behaviour. The domestic crisis is one of child poverty and its complements: poor health, a sense of being unsafe and insecure, psychiatric difficulties, violence, the Asbo syndrome, a lack of educational attainment, low aspirations, and learning and behavioural difficulties. And in adulthood, a consequent likelihood of low pay, welfare dependence and involvement in crime.

*It's Official: the UK is the Worst Place to be a Child*, screamed the headlines. It seems a long time ago (1997) when Tony Blair came to power talking about the elimination of child poverty within a generation. Nevertheless, the government's explicit objective today remains the halving of child poverty by 2010.

### Spare the rod and spoil the child

It is clear that this target is unrealistic when you note that in 2007 the data on the UK income distribution indicated that child poverty was continuing to increase. But as economists we must ask what sort of policy is going to be

effective in alleviating the situation. How should policy measures be shaped if child poverty is to be successfully attacked? What sort of policies do and do not work?

"Welfare mothers make better lovers," sang Neil Young years ago. But do welfare mothers make better-off parents after receiving tax credits under Gordon Brown's flagship poverty-relieving tax credits programme? Are the tax credits sufficiently generous? Is our tax credits working, as President Bush might have put it?

Critics of government policy argue that the tax credits programme is well intentioned but it has been badly administered and less than adequate as a vehicle for the provision of a solution to the child poverty question. During the Blair/Brown years, campaigners have called for the restoration of a more progressive income tax system.

Under progressive tax, the higher your income, the greater the proportion of it you pay in taxes. Noting the increase in child poverty, the increasing inequality in the income distribution and, at the other extreme, the multi-million pound incomes which have become commonplace in the City of London, child poverty campaigners have been calling for an increase in the top rate of income tax.

It is a call for the reintroduction of significantly higher marginal rates of income taxation (e.g. a 50% rate on incomes in excess of £100,000 per annum), the proceeds to be spent on expanded tax credits for low income parents. In the absence of this kind of measure or of a comparable policy initiative it is hard to see how the government is going to fulfill its "halving child poverty by 2010" goal, child poverty campaigners argue.

Another view says that this sort of policy is futile: welfare does not work, and it is wasteful to throw more money

at the UK's social crisis. But if one takes this view, what alternative policies can one propose? A compulsory return to employment for welfare parents? Parenting classes? An expansion of Asbos? A curfew? The restoration of corporal punishment?

The latter for badly behaved children and their parents?

### Questions for discussion

1. What are the costs and benefits of parenthood? Is there an unambiguous net economic benefit?
2. In what ways can microeconomic theory be used to analyse the family?
3. "The UK is the worst place to be a child." Discuss.
4. Identify and evaluate policy options in relation to child poverty in the UK.
5. Analyse the Asbo 'market', exploring the factors influencing both the demand and supply sides of this market.
6. Discuss the findings of the Children's Society (October, 2007) that 51% of parents would be willing to incur the cost of moving house to get their children into a 'good' school, and 14% would be prepared to lie to do so.



### Summary of key points

- ▶ One can attempt to use economic theory to analyse the market for parenthood.
- ▶ Child-raising costs have risen rapidly in recent years.
- ▶ Childcare and educational costs are major items of parental expenditure.
- ▶ For some parents, children are a form of conspicuous consumption.
- ▶ According to Unicef, 16.2% of UK children live below the poverty line.
- ▶ Ofsted claims that children's educational performance is influenced by socio-economic factors.



# Personal Debt in the United Kingdom

**Andrew Reeve**, Head of Economics and Business Studies, King's School, Macclesfield, reviews the topical issue of indebtedness.

**O**n the 24th August 2007, the United Kingdom passed a symbolic milestone. For the first time in history, our 60 million population owed more to banks than the value of the whole country's annual output. According to Grant Thornton, one of the UK's leading debt consultancy firms, £1.35 trillion was outstanding on mortgages, credit cards and personal loans whereas the total value of GDP was £1.33 trillion. The firm attributed this unprecedented level of borrowing to a 'buy now, pay later' culture and warned that rises in interest rates could place a significant burden on families and individuals.<sup>1</sup>

The number of people seeking advice on how to meet their debts has recently hit record levels. A report by [www.moneyexpert.com](http://www.moneyexpert.com) on 24 August 2007 suggested that 2.5 million people were "very concerned" about their personal financial situation. This is backed up by the Citizens Advice Bureau (CAB) who announced on 9 September 2007 that 1.7 million people sought debt counselling last year, a figure which was up by 20% on the previous year. The CAB stated that they dealt with 6,600 debt enquiries a day with 40% of all enquiries relating to the paying of credit cards and unsecured debt.<sup>2</sup> The CAB also reported that there has been a 33% rise in the number of people struggling to pay their energy bills and a 25% rise in enquiries about council tax payments. These figures were summarised by David Harker, chief executive of the CAB who stated:

**These figures are worrying evidence that while many have enjoyed the benefits of the credit boom, a large and growing number of people continue to pay the price.<sup>3</sup>**

At the time of writing this article the latest debt figures released by the Insolvency Service (see the data at [www.insolvency.gov.uk](http://www.insolvency.gov.uk)) was published on 1 November 2007. These statistics show the level of debt and insolvencies in the United Kingdom for the third quarter of 2007. These statistics show that personal debt in the nation had risen to £1.380 trillion, a 10% increase on the previous 12 months.

The financial advisory firm, Grant Thornton, produce a notional payback date for personal debt in the United Kingdom. What is noticeable is that the date has advanced markedly through the calendar during the past 10 years. In 1997 the UK took until 23 August to pay off its debts, but in 2007 the date will be 5 January of 2008.

Mark Allen, a personal insolvency partner from Grant Thornton reported

1. M. Hickman, 'For the first time, Britain's personal debt exceeds Britain's GDP', *The Independent*, 24 August 2007.  
2. [www.bbc.co.uk/news](http://www.bbc.co.uk/news), 10 September 2007.  
3. *Ibid.*  
4. *The Independent*, op.cit.



**2.5 million people are struggling with debt.**

that it is not uncommon to encounter individuals with debts of £50,000 spread across five credit cards on top of a mortgage:

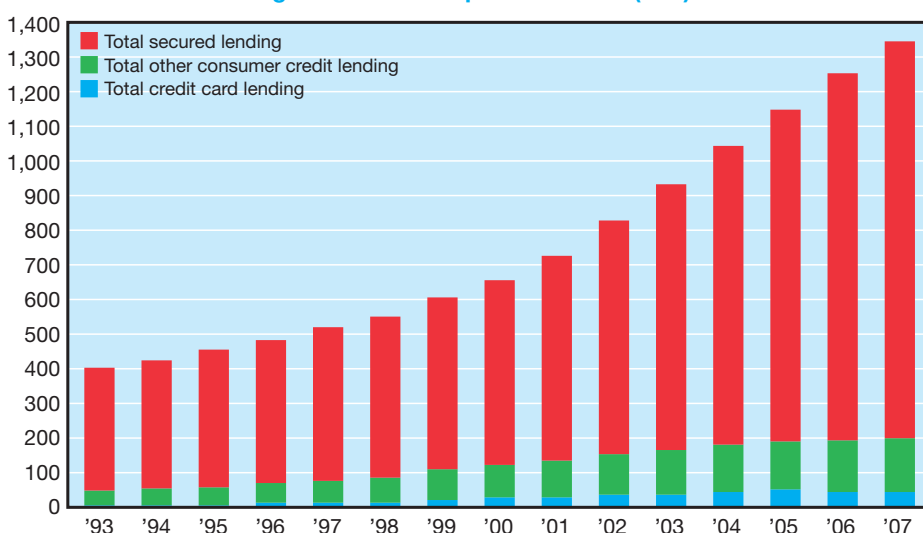
**In our experience these are the sort of people walking a perilous financial tightrope. All it takes is an increase in costs or, as in the present case, a rise in mortgage premiums due to higher interest rates, to force people to default on their repayments – hence the increase in bankruptcies and individual voluntary agreements.<sup>4</sup>**

However, the Bank of England maintains that the problem surrounding debts remains a social problem rather than an economic one.

### Individual Voluntary Agreements

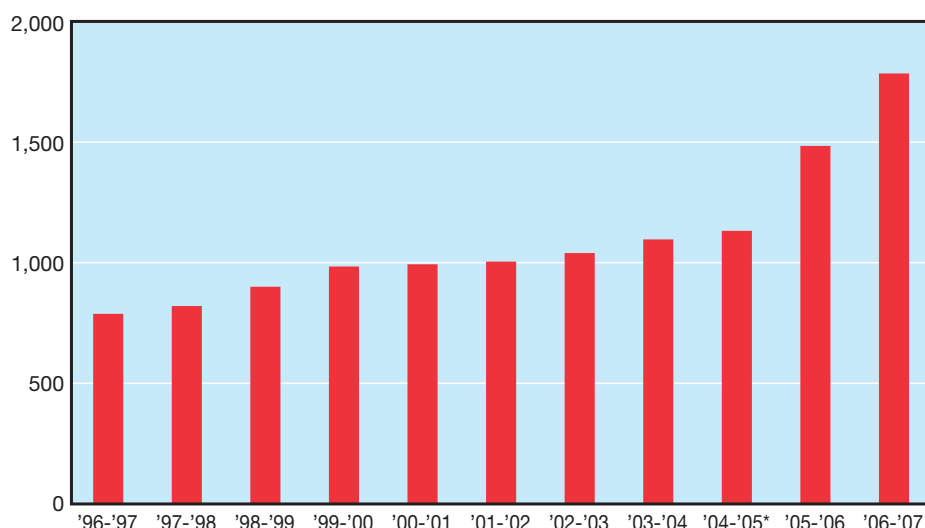
An Individual Voluntary Agreement (IVA) is a formal agreement between an individual and their creditors. The individual agrees to make reduced payments towards the total amount of their debt in order to pay off a percentage of what they owe. As the IVA is a formal contract, it has to be administered by a licensed professional

**Figure 1: Total UK personal debt (£bn)**



Source: Credit Action Report, November 2007. All data as at 31 December for each year.

**Figure 2: People being counselled on debt, 1996-2007 (thousands)**



Source: Citizens Advice Bureau. \*Advice offered on bankruptcy and third party debt collection for first time.

**Table 1: IVA town territory ranking report**

1. Aldershot	11. Washington
2. Andover	12. Tamworth
3. Newbury	13. Salisbury
4. Crawley	14. Telford
5. Windsor	15. Harlow
6. Swindon	16. Chatham
7. Basingstoke	17. Lakeside Retail Park
8. Stevenage	18. Dartford
9. Darlington	19. Fareham
10. Chippenham	20. Widnes

**And the lowest 10 towns for IVA's**

276. Hamilton	282. Livingstone
277. Braehead	283. Kirkcaldy
278. Glasgow – Parkhead	284. Glenrothes
279. East Kilbride	285. Stirling
280. Irvine	286. Falkirk
281. Clydebank	

called an Insolvency Practitioner.

Once an individual has approached the Insolvency Practitioner, a meeting will be organised for all of their creditors. At that meeting a general consensus amongst the creditors will be reached as to whether they are happy to approve the individuals' application to enter into an IVA. If the IVA is approved then they will begin to make regular payments to their creditors, based on their disposable income and thus their ability to pay. On average the IVA will last for around 5 years and the individual will be able to write off up to 65% of their debts. As the IVA is legally binding between the individual and their creditors, once the final repayment has been made the creditors are no longer able to request any of the outstanding debts.<sup>5</sup>

The numbers of IVAs have grown so much in recent years that they are approaching parity with bankruptcies. A bankruptcy is a more traditional way to declare yourself insolvent and begin the process of writing off your debts. When an individual declared themselves insolvent there is a large chance of losing their major assets, such as their home. This risk is diminished somewhat in the case of an IVA. However, we must not think of an IVA as being an easy option. Entering into such an agreement will affect an individual's credit report for up to six years and therefore make it incredibly difficult for them to gain credit in the future.

In the second quarter of 2007, 26,956 people filed for insolvency in the United Kingdom. These individuals either declared themselves bankrupt or entered into an IVA. This was an increase of 4.2% on the same period in 2006.<sup>6</sup> According to [www.ukpersonalloanstore.co.uk](http://www.ukpersonalloanstore.co.uk), it is estimated that there will be a 5% rise in insolvencies in 2007 compared to 2006, with an estimated 112,000 individuals entering a formal state of insolvency. One stark reminder of the extent of this debt is that 12 people an hour in the United Kingdom are now entering into an IVA or declaring themselves bankrupt.

Consulting the maps in Figure 3, we can see that the M4 corridor is a hotspot for IVA's. Consumer groups have suggested targeted advertising of IVA's in that area may be a factor. Consideration of the map showing the location of bankruptcies shows that there is a clear concentration of them in the towns and

5. For a detailed understanding of IVA's consult the website [www.iva.co.uk](http://www.iva.co.uk), the UK's largest online IVA community.

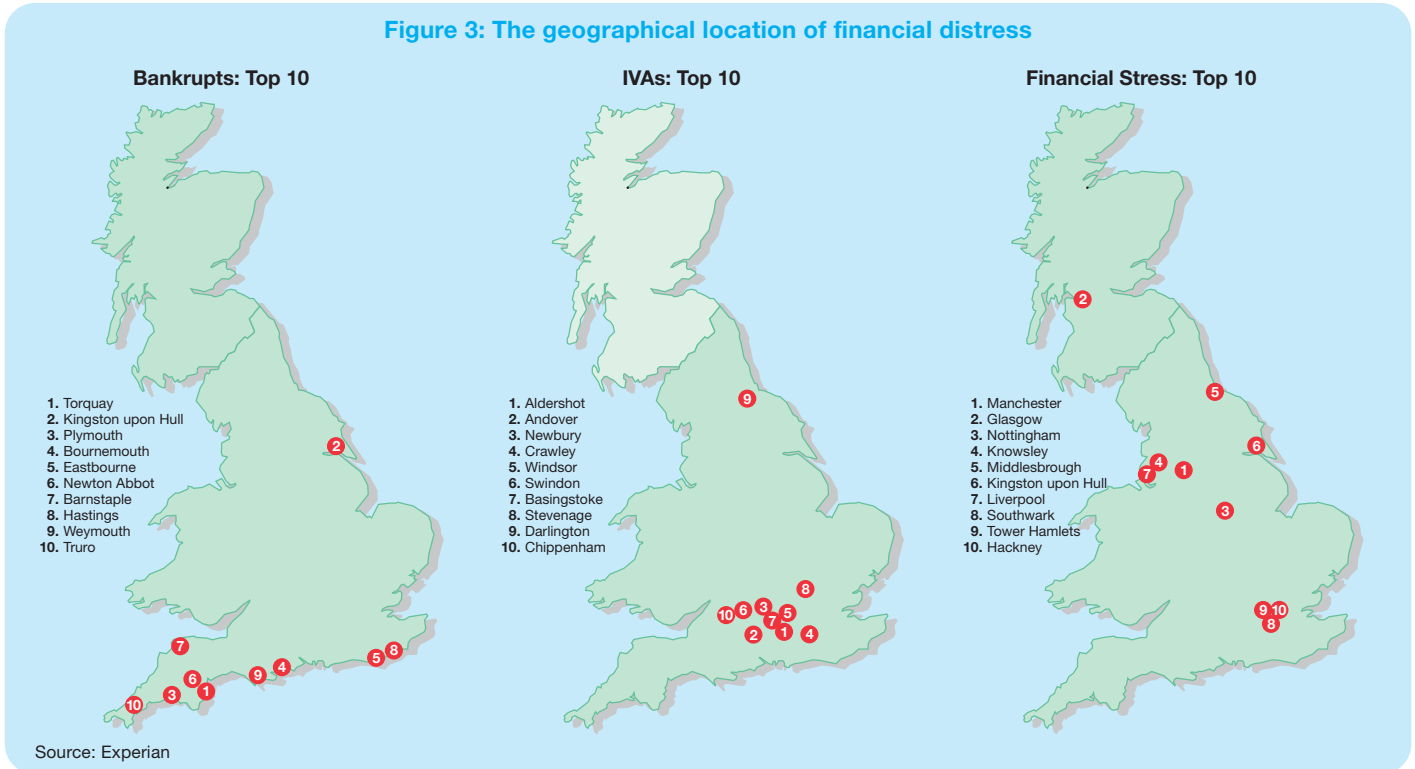
6. Debt Statistics [www.creditaction.org.uk/debtstats.htm](http://www.creditaction.org.uk/debtstats.htm)

## Debt facts – did you know?

- ▶ Money is the biggest concern of their life for 3.4 million Britons.
- ▶ Britain's personal debt is increasing by £1 million every 4 minutes.
- ▶ 14,000 properties were taken into possession in the first 6 months of 2007.
- ▶ The number of mortgages in arrears of three months or more at the end of June 2007 rose to an estimated 125,100, up 4%.
- ▶ Over 2 million Britons cannot quantify how much debt they are in.
- ▶ Over 2.1 million people are permanently overdrawn.
- ▶ There are more credit cards in the UK than people. At the end of 2006 there were 74.4 million cards and 60 million people.
- ▶ Total credit card debt in September 2007 was £54.1 billion.
- ▶ The percentage of credit card holders to repay in full is only 58%.

Source: [www.creditaction.org.uk/debtstats.htm](http://www.creditaction.org.uk/debtstats.htm)

Figure 3: The geographical location of financial distress



cities of the south west of England. There are several explanations of this including the high number of seasonal businesses and sole traders in the region.

### November 2007 – Signs of a continuing improvement?

Despite the general level of personal debt rising, there were positive signs contained within the latest figures. The

number of individual insolvencies for the third quarter of 2007 stood at 26,072, which is a 3.0% decrease on the 2nd quarter and a 5% decrease on the same period a year ago.

*317 people today will be declared insolvent or bankrupt.*

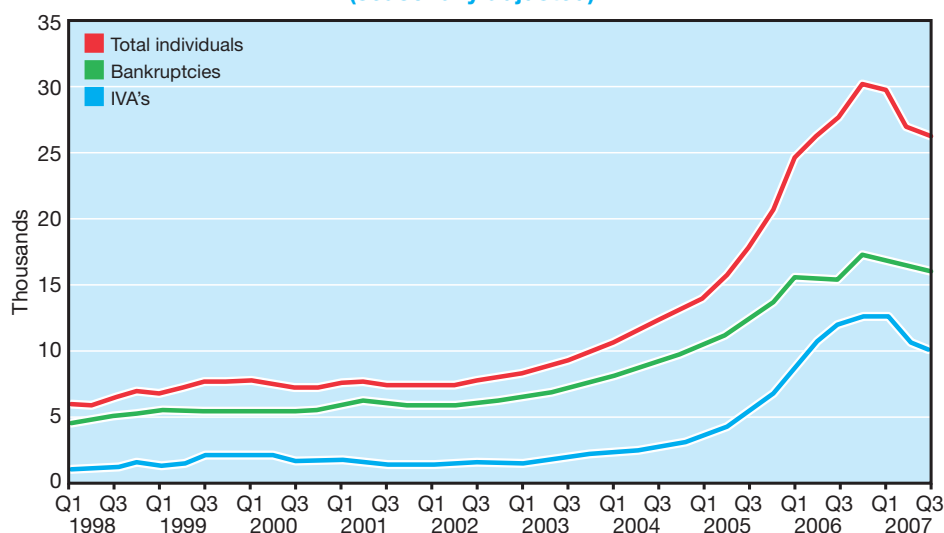


**Table 2: Number of insolvencies in England and Wales  
(seasonally adjusted)**

		2006 Q3	2006 Q4	2007 Q1	2007 Q2r	2007 Q3p	Percentage change Q3 2007 on: Q2 2007      Q3 2006	
<b>Company Liquidations</b>		<b>3,250</b>	<b>3,202</b>	<b>3,096</b>	<b>3,051</b>	<b>3,106</b>	<b>1.8</b>	<b>-4.4</b>
of which:	<b>Compulsory</b>	1,335	1,406	1,382	1,341	1,264	-5.8	-5.4
	<b>Creditors Voluntary</b>	1,915	1,796	1,714	1,710	1,842	7.7	-3.8
<b>Individuals</b>		<b>27,430</b>	<b>29,715</b>	<b>29,339</b>	<b>26,869</b>	<b>26,072</b>	<b>-3.0</b>	<b>-5.0</b>
of which:	<b>Bankruptcies</b>	15,486	17,070	16,742	16,170	15,833	-2.1	2.2
	<b>IVA's</b>	11,944	12,645	12,597	10,699	10,239	-4.3	-14.3

p = provisional, r = revised. A longer series back to 1998 is available from this source.  
Source: The Insolvency Service, 1 November 2007, [www.insolvency.gov.uk](http://www.insolvency.gov.uk)

**Figure 4: Number of individual insolvencies in England and Wales  
(seasonally adjusted)**



Source: The Insolvency Service, [www.insolvency.gov.uk](http://www.insolvency.gov.uk)

This figure of 26,072 was made up of 15,833 bankruptcies, a decrease of 2.1% on the previous quarter and 10,239 IVA's, a decrease of 4.3% on the 2nd quarter.

Table 2 shows clearly that the number of individual insolvencies has now fallen over three quarters. Although bankruptcies are still 2.2% higher than a year ago, IVA's are now 14% lower than in the third quarter of 2006. Pat Boyden from the accountants PricewaterhouseCoopers said that this drop in the overall level of insolvency reflected the fact that borrowing on credit cards has been tailing off.<sup>7</sup>

The situation is less promising in the housing market. Although the number of repossession orders by lenders fell slightly, there has been a warning by the

Council of Mortgage Lenders that repossessions might rise to 45,000 by the end of 2008. The CML also have predicted that 170,000 households will

default on their mortgage repayments by more than 3 months, a rise of 17%. Mark Sands, from the accountancy firm KPMG, said "this will drive up personal insolvency figures".<sup>8</sup>

### Summary

Recent research by Experian, a credit reference and marketing company suggests that there are large numbers of people on the brink of serious financial problems. With the economy showing signs of slowing down during 2008 this level of financial distress will only rise. As David Stubbs, a senior economist at the Royal Institute of Chartered Surveyors has commented:

**As the market slows in 2008 we expect the numbers falling behind on their mortgage repayments to increase and the level of repossessions to rise.<sup>9</sup>**

## Debts facts and figures – in one day...

- ▶ Consumers will borrow an additional £330 million today.
- ▶ 77 properties will be repossessed today.
- ▶ 317 people today will be declared insolvent or bankrupt.
- ▶ 2,750 County Court Judgements (CCJs) issued a day.
- ▶ CAB will deal with 6,600 debt problems today.
- ▶ 24.5 million transactions worth £1.4 billion will be spent on credit cards today.
- ▶ More than 7,716 loan repayments are going unpaid every day.
- ▶ £500m will be withdrawn from cash machines today by 7.5 million people across the United Kingdom

Source: [www.creditaction.org.uk/debtstats.htm](http://www.creditaction.org.uk/debtstats.htm), 1 November 2007.

7. Reported in [www.bbc.co.uk](http://www.bbc.co.uk), 2 November 2007.

8. *Ibid.*

9. Quoted in R. Winnett, *The Daily Telegraph*, 'How Labour could pay the price of a faltering economy', 3 November 2007.



# **Data Supplement 2008**

Nigel Tree



## Understanding Data

Welcome to the 2008 Data Supplement. This annual supplement aims to improve your understanding of data, so as to make you a better economist. Economists handle data continuously. It is, therefore, essential that economists understand both the uses and abuses of economic data.

This supplement is concerned with three main issues: (1) the sources of economic data; (2) interpreting data; and (3) data presentation. In your studies you will need to interpret statistics, looking at trends and the possible different interpretations. This guide is intended to help you.

## Main Economic Indicators

The main economic indicators relating to production, investment, employment (national, industrial and regional), exports, imports and industry level outputs are produced by government annually and often on a more frequent basis. In the UK the main agency which handles this task is the *Office for National Statistics* (ONS). For a good overview of the major statistics, including social ones covering such subjects as law enforcement and marriage and divorce, you should turn to the ONS's *Annual Abstract of Statistics*. Like all major government publications, it is available from the Stationery Office and bookshops and your school library or town library may have a copy, or you can download it and view the 2007 Abstract in PDF format at [www.statistics.gov.uk](http://www.statistics.gov.uk).

## UK Domestic Data

Detailed macro economic data are published annually in the National Income 'Blue Book' – so-called because of the colour of its cover. Its correct title is the *United Kingdom National Accounts*. Here we find national income data relating to the output, income and expenditure estimates of GDP. We also find data on other key macroeconomic variables such as consumer spending, public expenditure, capital formation and international transactions. In addition, the Blue Book publishes financial accounts for the major sectors of the economy. Some of the tables provide data going back ten years or more, which is useful if you wish to search for trends. The latest version of the Blue Book, the 2007 edition, includes data up to and including 2006. You can view this entire document for free at [www.statistics.gov.uk](http://www.statistics.gov.uk) by following the links.

The monthly *Economic Trends* together with *Labour Market Trends* ceased to exist from January 2007 but have been replaced by *Economic and Labour Market Review* which is published monthly, and is available as a download. It publishes key economic statistics as well as in-depth articles. Also, *Financial Statistics*, as its name suggests, is an obvious starting point for data on the financial system.

## UK International Trade and Payments

If you want detailed information about UK trade, balance of payments and international capital flows then you should turn to the 'Pink Book' – again this takes its name from its cover, correctly it is called the *United Kingdom Balance of Payments*. This publication provides data going back over a number of years on the UK balance of payments and UK trade, and can also be viewed for free at the web address given above.

## Other UK Sources

In addition to the ONS sources mentioned already, government departments that deal with economic matters, such as the Department for Business Enterprise and Regulatory Reform, Department for Employment and Learning and the Bank of England, publish both regular and occasional reports containing economic data. The Bank of England publishes the *Bank of England Quarterly Bulletin*, which contains financial data, such as money supply figures and articles on topical economic concerns such as bank lending, inflation and industrial profitability. Main articles from here can be downloaded at [www.bankofengland.co.uk](http://www.bankofengland.co.uk).

**You can obtain a FREE copy of a summary of UK statistics, called *UK in Figures*, from the ONS – also available to download.**

**Government departments and the Bank of England have their own web sites. It is worth surfing them – use an internet browser such as Yahoo.**

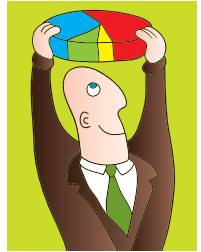
## International Sources

Each country has its own official statistics, just like the UK. The USA, in particular, publishes very detailed statistics, providing an extraordinary amount of information relating to the macroeconomy at state and federal levels. But you should take great care when using data published by some governments. The statistics produced in Central and Eastern Europe, especially under the earlier communist regimes, were often unreliable (they are now much better but, given the unsettled state of some of these economies, far from perfect).

Good reviews of the key data for many countries are available in the following published sources, again they should be available in major city and university libraries. Useful web site addresses are included to assist contacting the organisations for more information.

- *Trade and Development Report 2007* and *World Economic and Social Survey 2007* can be viewed at [www.un.org](http://www.un.org)
- *Yearbook of Labour Statistics*. This is published annually by the International Labour Organisation (ILO) in Geneva. [www.ilo.org](http://www.ilo.org)
- *World Economic Outlook 2007*. This is published annually by the IMF. [www.imf.org](http://www.imf.org) and is available as a free download. This edition covers Globalization and Inequality.
- *Main Economic Indicators*. This is published regularly by the Organisation for Economic Co-operation and Development (OECD) in Paris. The OECD also publishes country reports covering the major economies. [www.oecd.org](http://www.oecd.org)
- *The World Development Report 2008*. Published annually by the World Bank; this source provides useful economic data relating to the developing economies. [www.worldbank.org](http://www.worldbank.org)
- *EU data*. The European Commission publishes, through its statistical office in Luxembourg, Eurostat, a number of regular and ad.hoc. reports on economic matters in the EU including the Eurostat Yearbook 2006-07. [www.europa.eu.int/comm/eurostat](http://www.europa.eu.int/comm/eurostat)
- Another good source for country data and useful short summaries of recent economic trends and future prospects is the *Economist Intelligence Unit*, London. Their reports cover major and many minor economies. Quarterly and annual reports are published, but they are expensive to buy and even your local University library may not stock many of them.
- Newspapers such as the *Financial Times* and the *Sunday Times* and *Observer* regularly publish summaries of the main macroeconomic series, e.g. unemployment, inflation, GDP, balance of payments, exchange rate, etc.
- Lastly, we should not neglect *The Economist* magazine published weekly. At the rear of *The Economist* there is a useful and easily accessible statistical section.

**Countries have their own web sites containing national data. They are easily accessed through a browser.**



## Interpreting Data

When you have got the data you need, you must then interpret – this is the tricky bit! Ideally, sources will have accompanying notes that set out (1) how the data were constructed and (2) their statistical reliability. The description of the data collection may be very sketchy, however, and often, unfortunately, reliability estimates are not supplied. This is worrying since data, including ‘official’ statistics, are normally *estimates* and are therefore subject to *statistical error*. Statistical error can arise when the data are collected. The GDP, for instance, is made up of the value added to production by every business within the country.

Every business is an example of what a statistician calls the ‘population’. It would be too expensive to obtain production figures from every business, so a small number or a ‘sample’ of the population is used. If this sample is a perfect reflection of the entire population then the result will be a completely accurate figure of the GDP. But, of course, it is most unlikely that the sample result will perfectly mirror the result we would have got from the entire population. The difference is what is known as ‘sampling error’. Statisticians have means of allowing for sampling error to obtain an estimate for the entire population. This estimate will have a high probability of being nearly right, but it will not be completely correct. Also, some samples are prone to more error than the statistician may be able to take into account. For example, people may be particularly ‘economical with the truth’ when filling in their tax return! Tax returns provide a basis for some National Income estimates.

How good are the statistics which are produced in the UK? At the moment the government is in the process of relocating the Office for National Statistics from London to Newport in South Wales. Already about 30% of the staff based in London have resigned, retired early or accepted redundancy rather than move out of London. It is also reported that only 40 of the 600 staff have currently accepted the move.

According to the *Financial Times* on 31st May 2007, a number of cuts have been planned in the work done by the ONS. For example, they report that the survey which produces key figures on labour markets will have its sample size cut by 20%, and that there will be 10% cuts in the survey samples that measure earnings, employment and profits and a 5% cut in the inflation survey.

It was also reported in March 2007 that this year’s ‘Blue Book’ would not be published in full, “creating some temporary additional uncertainty about the path of the economy.” The ONS also announced that the annual statement of the UK’s balance of payments would also “include less analysis than usual”.

There seems to be a parallel here with government cuts in the statistical service in the 1980s which famously led to a series of inaccurate figures which in turn led to the Chancellor, Nigel Lawson, underestimating the coming economic boom which inadvertently led to rapid inflationary growth.

In May 2007 the Bank of England expressed concern to the ONS about their publication of average earnings figures. A new data series called Average Weekly Earnings was showing pay growth of 16.4% since the start of 2005, whereas the previous measure, the Average Earnings Index was simultaneously showing a rise of only 12.4%. This led the



monetary policy committee of the Bank to write to the ONS saying that it was “still awaiting a full reconciliation between AWE, the AEI and other earnings measures.”

This lack of resources and the redeployment of staff is likely to cause additional problems in the near future.

In fact, globalisation is making the accuracy of statistics less and less believable. With companies being able to freely operate in many countries and slant their accounting practices in their own best interest, and with labour being more freely mobile across national borders, the credibility of our national statistics is being undermined. Many statisticians accept that there is an increasing need for statistics to be collected globally.

What does this all mean for the student of Economics? It is as well to remember that examination questions are set anything up to two years in advance, and that any figures used may well have been updated since then. It is therefore well worth the effort to keep up to date with the latest statistics and revisions, and perhaps getting a copy of our yearly publication ‘The Year in Review and Revision Guide 2007-2008’ which will be published in March by Anforme Ltd at [www.economics.ac](http://www.economics.ac).

## Common Errors

Errors in statistics can arise through omission, commission and interpretation:

### (1) Errors of Omission

Several examples have been given in the section above on problems involved in collecting and publishing national data. Another example arose in October 2002 when David Metcalf, a professor at the London School of Economics, and a leading expert on the Low Pay Commission, claimed that the ONS had given the Commission the wrong figures to work with when the minimum wage was introduced three years previously. He said that the ONS had advised the Commission that one worker in 12 would see their earnings upgraded when the minimum wage was introduced at its original rate of £3.60 per hour, but in actual fact only one in 20 had actually benefited. So it is possible that national policy may be affected by incorrect or inaccurate statistics.

### (2) Errors of Commission

Governments of all political persuasions will tend to suppress statistics that are embarrassing, while promoting those that support their policies. The British Government (by no means the worst offender) was criticised in the 1980s for ending the publication of certain economic and social data that might have shown up government policy in a bad light.

### (3) Errors in Interpretation

Strictly these arise not because of inaccuracies in the statistics, but because they are interpreted incautiously. This is what you should avoid. You may not be able to do anything about the errors of omission and commission, but you should do your best to ensure that the data you use are interpreted intelligently. This is what the Data Response part of your ‘A’ level examination demands. *Have you interpreted the data provided in a full, intelligent and balanced way?*

Errors in interpretation can also occur when differences in data collection or differences in definition occur, for example if the method by which unemployment is recorded is changed. You must look out for such changes which cause a ‘break’ in the series and mean that the figures before and after the change are not readily comparable. Statistical reports *should* explain such changes in their notes and footnotes.

- **Look to see whether the data in your examination question are part of a continuous series and are complete. If not, then make clear to the examiner that you have spotted this and also explain the implications in terms of interpreting the data.**

Moreover, do not necessarily read into small changes in official figures major implications for the economy. That ‘inflation has risen from 2.5% to 2.6%’ may make a good headline in a newspaper or on TV, but given the size of the possible error surrounding the inflation figure, we should be very cautious about reading any significance into the decimal point change (particularly as it may be revised later).

## Forecasting

Statistics are used to forecast future trends, e.g. in GDP, inflation, balance of payments. The simplest form of forecasting is based on *extrapolation*. Extrapolation involves projecting forward the past trend. But the main forecasting bodies, e.g. HM Treasury, NIESR, use *econometric models* based on systems of equations between major macroeconomic variables (e.g. consumption and GDP) and sometimes microeconomic relationships. These permit more complex forecasting.

Whatever the method, forecasting is hazardous – error tends to be high because the complexity of the economy is impossible to model accurately. For example, economic forecasters have consistently overpredicted inflation and underpredicted economic growth since 1992, according to recent research. This bias may result from under-recognising the changes that have occurred in the ‘supply side’ of the economy, in the form of more ‘flexible’ labour markets and more competitive product markets. Such changes tend to reduce inflationary pressures and increase economic growth.

## Data Presentation

The main ways in which statistical data can be reported are as follows. Note that *there is not one correct way*; each way is legitimate.

- **The one you use should depend upon which presents the data most clearly to the reader.**

### (a) Tables and Accounts

Tables and accounts are lists of figures usually set out according to months or years. Table 1 provides data on prices, earnings, unit labour costs and the sterling exchange rate in the UK between 1995 and 2006. Unit costs are 'unit labour costs' and reflect changes in our cost competitiveness. All figures are index numbers (see below for an explanation of index numbers).

**Table 1:** UK consumer prices, earnings, unit costs and sterling effective exchange rate

	Consumer Prices RPI	Average Earnings Index	Unit Wage Costs	Sterling Effective Exchange Rate
1995	149.1	80.4	81.5	81.4
1996	152.7	83.3	82.4	88.6
1997	157.5	86.8	84.7	98.9
1998	162.9	91.3	88.1	97.5
1999	165.4	95.7	90.4	101.0
2000	170.3	100.0	92.9	100.7
2001	173.3	104.4	96.5	100.0
2002	176.2	108.1	98.2	101.3
2003	181.3	111.7	100.0	97.4
2004	186.7	116.7	101.2	100.3
2005	192.0	121.4	103.8	99.6
2006	198.1	126.4	107.1	103.6

Sources: ONS, Bank of England

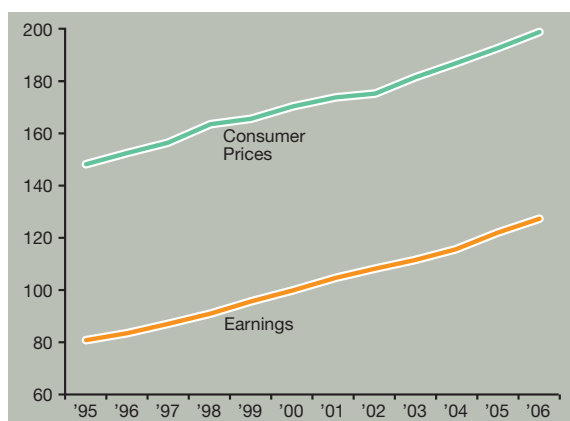
The benefit of a table lies in the detail it provides. But this can be precisely its disadvantage as a means of data presentation. Trends and the relationship between variables may not be readily evident, especially when the table is highly detailed. Look again at Table 1: can you determine easily the relevant trends and possible relationships between the variables?

### (b) Graphs

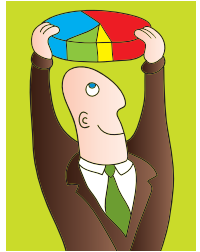
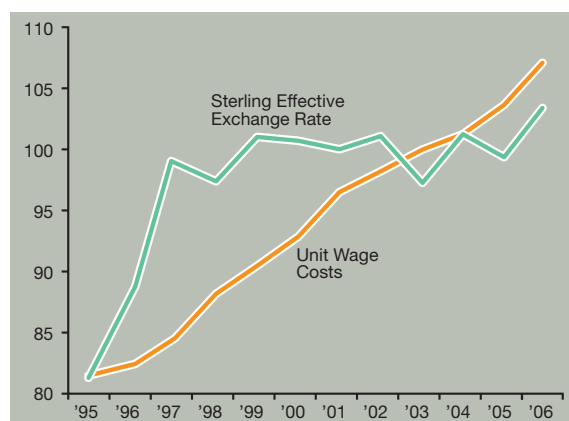
These are constructed from tables of data. Figures 1 and 2 provide information on the UK's consumer prices and earnings and unit costs and exchange rate taken from Table 1, in graph form. I think you will agree that it is easier to see immediately the trends in each of these economic variables than from the data in the table.

It is important, however, to study graphs carefully. They can mislead – intentionally or unintentionally. Look at Figure 3, which graphs the RPI figures from Table 1. At first glance it appears that graph B shows quite a dramatic rise in consumer prices over this twelve year period, whereas graph A shows quite a slow and moderate increase. But, both graphs have been obtained by using exactly the same figures! The difference is due to the scaling on the vertical axis, where one graph starts at zero and the other at 120. Always look carefully at the scales and whether they have been adjusted to make the figures look more dramatic. You will already have drawn the conclusion that the gradient of the graph does not in itself tell you that much information, and can be downright misleading, depending on the way the graph has been presented.

**Figure 1**

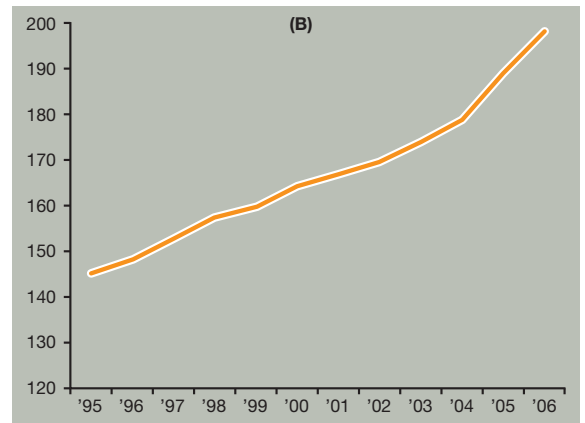
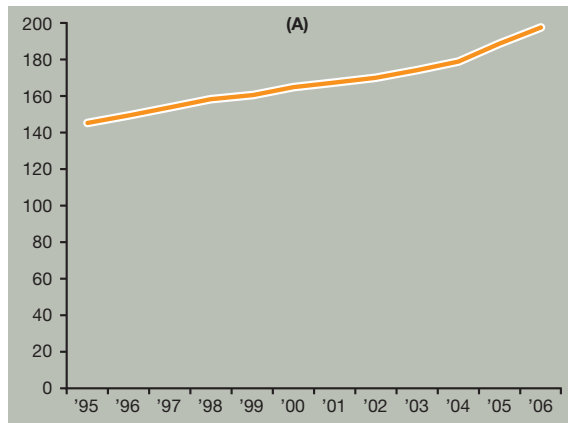


**Figure 2**





**Figure 3: Consumer prices (RPI)**



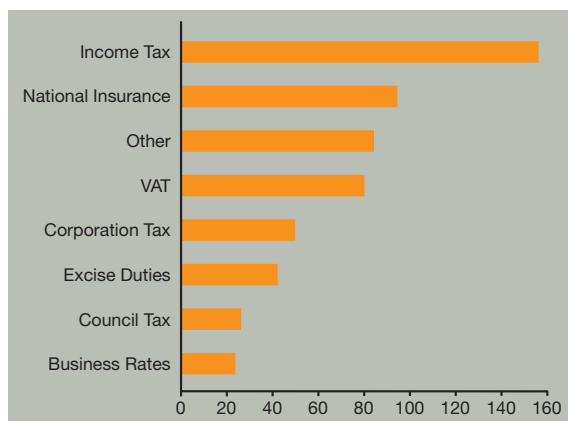
### (c) Bar Charts

Bar charts set out data in columns. The height of the columns and occasionally their width are used to illustrate differences in values or volumes. Consider Figure 4. This shows planned government receipts for 2007-2008. By using a bar chart it is very easy to see how these receipts are divided up with the largest single amount coming from income tax and the smallest amount from business rates. Bar charts are very good at showing static information, but line graphs, such as are shown in Figure 2 are much better for showing trends.

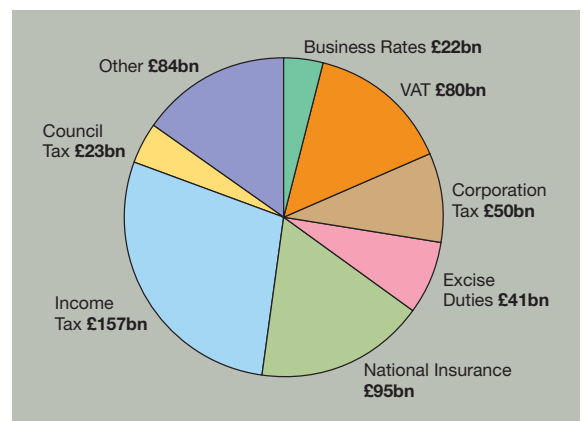
### (d) Pie Charts

Pie charts are useful for illustrating relative sizes or values. Figure 5 provides the same information as the bar chart in Figure 4. But it has the advantage of more clearly showing the relative size of the different categories of tax receipts.

**Figure 4: Planned government receipts, 2007-2008, £bn**



**Figure 5: Where taxes come from**



## Producing Tables, Graphs and Charts

Modern spreadsheet programmes for computers such as *Excel* and *Lotus* produce tables, graphs, bar charts and pie charts from inputted statistical data. Tables, graphs and charts can also be generated and manipulated using dedicated statistical packages on computers, such as *SPSS* and *Minitab*. Your school or college may have a suitable spreadsheet or statistical package.

## Terms You Come Across

This is not the place for a full-blown course on statistical terms. However, a few are worth mentioning. They crop up frequently in statistical reports and, importantly, in economics examinations!

### (i) Value added

This is the amount added to the value of production at a particular stage of production. For example, the value added by a firm is the value of its output less the value of materials and components bought-in. Value added is an important concept in national income accounts. By taking the values added in the economy we avoid 'double-counting' the national income. For example, suppose there are two firms in the economy, one supplying materials to the other. The first firm's output is valued at £20m and the second firm's output at £30m. A Census of Production taking the raw values of output produced would show a GDP of £50m, whereas the true GDP is £30m (£20m produced by firm 1 plus the £10m net production or *value added* by firm 2).

## (ii) Constant Prices

Statistical data can be in volume or value terms, e.g. 6m tons of coffee or £6m worth of coffee. Often values will be reported, especially where different products are being aggregated, such as coal and gold production – money acts as a common denominator. Tonnages could be added together, but a ton of gold is hardly the same thing as a ton of coal!

Values help to overcome problems in aggregation. However, they are not free from difficulty. In particular, values are affected by inflation and deflation of the currency used. Money GDP in 1994-95, for example, was £689.8bn and in 2004-05 it was £1,175.6bn. On the face of it, GDP has increased by 70%. But, to find the effect in real purchasing terms we can use the GDP deflator. You can see details of this at [www.hm-treasury.gov.uk](http://www.hm-treasury.gov.uk). The GDP deflator for 2004-05 was 100 and the figure for 1994-1995 was 77.687. To work out the real effect on GDP we must divide 100 by 77.687 which gives a figure of 1.29. If we then multiply this by the GDP for 1994-95 we obtain a figure of £889.8bn, showing what GDP would have been worth in that year when valued at 2004-05 prices. This then shows that GDP in real terms only rose by 32% which is far lower than the 70% growth measured only in money terms.

## (iii) Index Numbers

Index numbers are frequently used when reporting economic data (as in Table 1 and Figures 1 and 2 above). The principle behind an index number is to take a year called 'the base year' and to express earlier or later years in terms of that year. The value or volume of the base year is set at 100.

Take money GDP which in 2000-01 was £965.0bn and, as we have already seen, £698.8bn in 1994-95 and £1,175.6bn in 2004-05. Expressed as an index and taking 2000-01 as a base year (in principle any of the years could be a base year), the index numbers are:

$$\begin{aligned} 1994-05 &= (689.8/965.0) \times 100 = 71.5 \\ 2000-01 &= 100 \\ 2004-05 &= (1175.6/965.0) \times 100 = 121.8 \end{aligned}$$

Why use index numbers? Well for one thing they aid calculation, especially where different variables are being compared. All of the variables can be commonly based, to 100 (as in Table 1).

## (iv) Statistical Discrepancy and Residual Error

These terms are what they say they are. They are terms used for amounts added or subtracted because of known or measured error in the data. For example, you will confront an entry for 'statistical discrepancy' in UK national income tables. As you learn in your introductory macroeconomics classes: National Income = National Production = National Expenditure. In other words, whether money GDP is calculated using the income, output or expenditure methods it should come to the same amount. When government statisticians estimate the national income figures, however, errors (as discussed earlier) mean that the three methods may not result in the same amounts. The statistical discrepancy represents the difference between the three measures and is, therefore, a balancing item.

## Data and Data Interpretation

We have already seen that great care has to be taken when interpreting data. What is the source of the data? How reliable are the figures? Is the data presented in a manner that might be misleading?

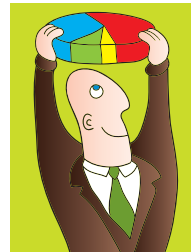
In Supplements 1 and 2 of the September 2007 and November 2007 issues of *Economics Today*, respectively, a large amount of data on the international economy and the domestic economy were provided for use in your 'A' level studies.

You should look at this data again having studied the content of this *Data Supplement*. Remember that at 'A' level, especially in the Data Response part of your examination, high level skills in interpreting data are required if you are to achieve a high mark.

To obtain excellent advice and many examples of data questions you should obtain a copy of *Data Response Techniques: How to get an A Grade in Economics* by Peter Cramp, price £7.95, which can be ordered by credit card at [www.economics.ac](http://www.economics.ac).

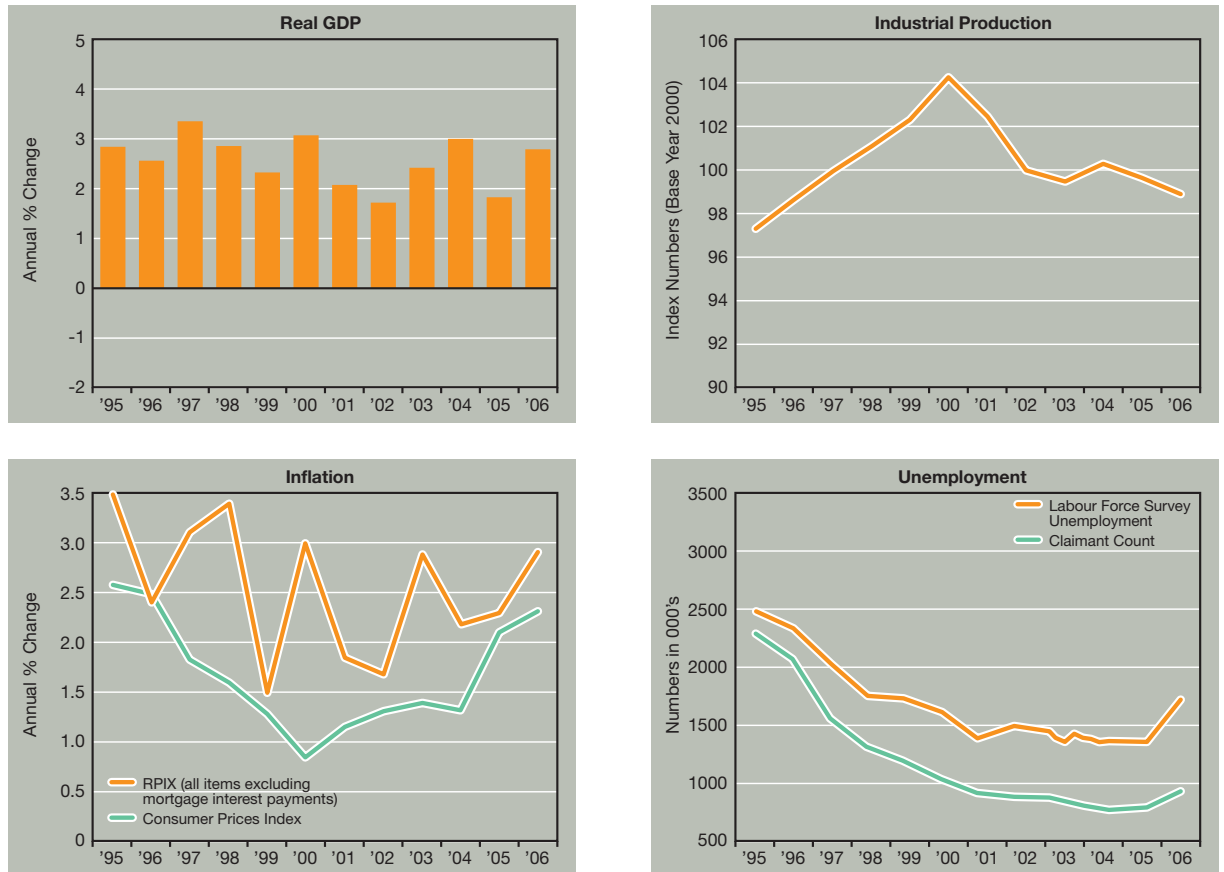


Take great care when interpreting data.





**Figure 6:** Real GDP, industrial production, inflation and unemployment in the UK



Now look at Figure 6: this is a graph showing the details of real GDP, industrial production, inflation and the unemployment rate in the UK between 1995 and the end of 2006. Have a go at interpreting this data. **What is the relationship between inflation and industrial production and the unemployment rate? Why has inflation remained low in recent years? What is the economic relationship between inflation and unemployment? What do the data tell us about economic activity in the UK over the period?**

### Be Methodical

Each issue of *Economics Today* provides a very useful Data Response Question and suggested Answer written by an experienced Chief Examiner.

You should now look back through some of these Questions and Answers in earlier issues of *Economics Today* and in the current issue. Read the question and then jot down your outline answer *before* looking at the examiner's suggested answer. Compare the two and note any major differences. Can you see where you may have gone wrong? If you adopt a systematic approach to tackling Data Response Questions this should help. There is no one 'correct' approach. The following, however, is a logical approach which may often apply:

- explain carefully the data being presented and define any relevant terms.
- look carefully at the time period concerned – what sort of economic period is involved? What do we know about this period? How might the state of the economy have affected the data?
- consider why the data changed – what economic concepts/theories can I usefully apply?
- any other relevant observations (e.g. data reliability)?

If more than one set of data is presented then you would also want to explore possible relationships between the data. For example, if you are presented with data on inflation and unemployment: what does economic theory tell us about the relationship between inflation and unemployment?

The conclusion to this Data Supplement is the same as in previous years. **Provided that you adequately prepare and take care in the exam room there is no reason why you should not achieve maximum marks.**

Put this supplement somewhere safe. I suggest you look at it again as part of your exam revision.

**Best of luck with your examination – and may you get the grade you deserve.**

THE ESSENTIAL MAGAZINE FOR 'A' LEVEL ECONOMICS

ECONOMICS TODAY

# et

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## IN THIS ISSUE:

IS TOUTING REALLY A PROBLEM?

CAN FISCAL POLICY STILL BE USED FOR DEMAND MANAGEMENT?

SHOULD GOVERNMENTS INTERVENE IN THE CAR MARKET TO PREVENT ENVIRONMENTAL DAMAGE?

CURRENT TOPICS IN ECONOMICS:  
*The economics of childhood*

BACK TO BASICS:  
*Why look at the margin?*

▲  
To what extent does economic growth guarantee economic development?

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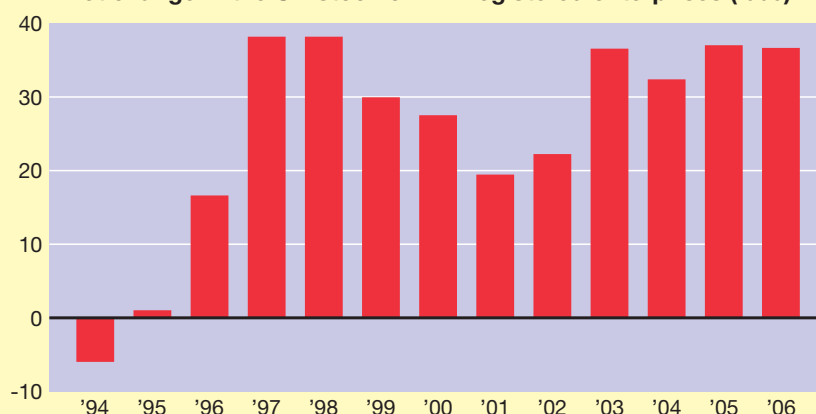
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ECONOMICS TODAY



## Business Start-ups continue to grow

Net change in the UK stock of VAT registered enterprises ('000)



Source: RFRR

There are now 1.96m VAT-registered enterprises in the UK. This was an increase of 39,100 (2%) during 2006. During 2006 there were 182,200 new registrations up 0.3% on the previous year, but at the same time there were 143,100 de-registrations, which was down 0.3% on 2005 levels. This was also the lowest number of de-registrations since this series of statistics began in 1994. In fact, as the graphic above shows, there have been increases in the stock of VAT-registered enterprises in every year since 1995, giving a 21% increase between 1995 and the start of 2007.

In 2006 the Business Services sector saw the largest increase in registrations, with 1,000 more in 2006 than in 2005. On a regional basis, London saw the biggest increase in registrations with 7,300 and Northern Ireland experienced the smallest increase with only 600.

The fastest growing regions for new business were London, East Midlands and the North East which each experienced a 2.4% growth. However, the stock of registered businesses in the North East is the lowest in the country with only 49,400 compared with, say, the North West which has 186,000.

The climate for entrepreneurship in the UK is obviously robust, and there are also 2m smaller businesses which are not VAT registered, being below the necessary threshold for paying VAT. However, there was concern amongst organisations representing business that the future was not quite so rosy. There was concern that the current difficulty in obtaining credit allied to the government's plans to raise capital gains tax in the next Budget might stifle the flow of new business development.

# Prize Competition

for AS Students

For  
AS Students



## Cars and the Environment

Read the article 'Should governments intervene in the car market to prevent environmental damage?' on pages 22 to 25 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 April 2008. The first one out of the hat will win £25 in music tokens.

1. The damage caused by cars is known as an \_\_\_\_\_. (11)
2. In society we want the marginal social cost to equate with this. (8,6,7)
3. The government influences the car market directly by having different levels of this. (7,6,4)
4. If the government puts a higher tax on those cars that cause most environmental damage they are attempting to do this. (11,3,11)
5. 'Own-price elasticity of demand' is dependent on income and the number of \_\_\_\_\_. (11)
6. The cross-price elasticity of demand between small, hatch-backs and 4x4s will be \_\_\_\_\_ and \_\_\_\_\_. (5,8)
7. If people hang on to older, less efficient vehicles as a result of government taxing emissions on new cars, this would be an example of this law. (10,12)
8. If government intervention in a market makes things worse this is known as government \_\_\_\_\_. (7)
9. The presence of a negative externality causes the market determined equilibrium to be \_\_\_\_\_ than the socially desirable output. (7)
10. Which principle is in operation if the government tries to charge a higher tax on those whose vehicles cause most environmental damage? (8,4)

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

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# Prize Competition

for A2 Students



## Fiscal Policy and Demand Management

Read the article 'Can Fiscal Policy still be used for Demand Management?' on pages 12 to 17 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 April 2008. The first one out of the hat will win £25 in music tokens.

1. This is another word for 'cyclical' unemployment. (6-9)
2. Counter-cyclical policy was designed to counter the effects of the \_\_\_\_\_. (5,5)
3. Keynesians did not believe \_\_\_\_\_ and \_\_\_\_\_ were flexible enough downwards to bring a depressed economy back into equilibrium. (5,6)
4. What was the name given to the fiscal policy which switched between raising taxes to slow an economy down and lowering taxes to get it going again? (4-2)
5. What is the name given to unemployment and inflation occurring at the same time? (11)
6. What was the name given to the revival of classical economics put forward by Milton Friedman amongst others? (10)
7. If natural unemployment was not responsive to fiscal reflation, what policies were used to remove labour market barriers and create incentives to work? (6-4)
8. The national multiplier is weaker today than in the 1950s because the UK economy is now more \_\_\_\_\_. (4)
9. The management of \_\_\_\_\_ is now far more important than the management of aggregate demand. (8,5)
10. Increasingly the role of fiscal policy is to improve the supply-side of the economy and to correct \_\_\_\_\_. (6,7)

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

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