electrical consumer goods. Since the 1970s it has been the development of information and communication technology (ICT) and biotechnology.

These waves of innovation produce characteristic cycles. Take the micro-chip revolution. In the 1970s and early 1980s, microchips began to make an impact on products and output. Initially, some new products came onto the market (like calculators). But the biggest impact was on existing products. Costs were cut by incorporating micro-chips into existing machines. This led to a shake out of employment because the new machines could produce more output with less labour.

The world economy moved to slump both in the mid- 1970s following an oil price shock, and again in the early 1980s. On both occasions, unemployment rose substantially and remained at very high levels historically. By the mid-1990s, however, the USA economy was beginning to grow at historically high rates with falling unemployment. The 1980s and the 1990s were decades of high unemployment. The long wave cycle hypothesis would suggest that the new products appearing on the market - ranging from integrated home entertainment equipment providing digital television, internet capability with CD and games facilities, to new biotechnological drugs to cars running on non-oil based fuels - would lead to an upturn in the world economy early in the 21st century. The USA, the world's technological leader, had already begun to enjoy the benefits of the long term upswing in the second half of the 1990s, with other countries following later. By 2010 to 2020, the boom will begin to falter as exciting new products will be more difficult to invent. So economic growth rates will begin to fall. The economy will then be in its recession phase. By 2020-30, the economy will be again approaching a slump which should occur in the 2030s. Once again new technologies will emerge, but they will only help lift the world economy from recession by the 2040s.

A monetarist explanation

Milton Friedman has suggested that trade cycles are essentially monetary phenomena, caused by changes in the **money supply**. In their important book *A Monetary History of the United States, 1867-1960*, Milton Friedman and Anna Schwartz argued that US business cycles were preceded by changes in the money supply.

The argument put forward is that changes in the money supply lead to changes in real variables, such as unemployment and national income, before finally leading to an increase in prices. The path to an increased price level is not a smooth one but is cyclical. The oscillations in the cycle become more and more damped as time goes on. Of course they can become more amplified again if there is another excessive increase in the money supply.

The link between changes in the money supply and changes in income is known as the **monetary transmission mechanism.** Assume that there is a once and for all increase in the money supply when the economy is in long run equilibrium. The money supply is now greater than the **demand for money.** Economic agents, such as banks, firms and consumers, will adjust their portfolio of assets. Some of the excess supply will be used to buy physical assets - goods and services. The rest will be saved, reducing interest rates and thus encouraging the borrowing of money again to buy physical assets. The increase in consumption and investment will result in an increase in income. The economy is now in boom. Prices will begin to rise. This, together with increased real spending, will increase the demand for money. It is most unlikely that the economy will return to equilibrium with the demand and supply for money being equal. What will happen is that the demand for money will carry on increasing so that the demand for money exceeds the supply of money. Once this happens, economic agents will start to adjust their portfolios in the opposite direction. They will cut back on purchases of physical and financial assets. Interest rates will rise. Investment and consumption will begin to fall. The economy is now in recession with falling income. This reduces the demand for money, bringing it back past the equilibrium point to the bottom of the cycle where once again supply is greater than demand for money. There will be a further bout of portfolio adjustment and aggregate demand will start to rise, bringing the economy into the recovery phase of the cycle. This will carry on, although Friedman argues that without further shocks the oscillations will become smaller and smaller over time.

Question 5

Monetarists argue that the business cycle can be explained by changes in the money supply. For instance, Friedman and Schwartz (1963) argue that the Great Depression of the 1930s in the USA was caused by a drastic fall in the supply of money. They write: 'An initial mild decline in the money stock from 1929 to 1930, accompanying a decline in Federal Reserve credit outstanding, was converted into a sharp decline by a wave of bank failures beginning in late 1930.' Those failures produced (i) widespread attempts by the public to convert deposits into currency and hence a decline in the deposit-currency ratio, and (ii) a scramble for liquidity by the banks and hence a decline in the deposit-reserve ratio.

(a) How and why, according to Friedman and Schwartz, did the US money supply contract from 1929?
(b) Suggest how this contraction in the money supply then led to depression.

Key terms

Hysteresis - the process whereby a variable does not return to its former value when changed. In terms of the business cycle, it is used to describe the phenomenon of an economy failing to return to its former long term trend rate of growth after a severe recession.
Inventory cycle - fluctuations in national income caused by changes in the level of inventories or stocks in the economy.
Kondratiev cycles - long 50 year trade cycles caused by the 'lumpiness' of technological change.
Multiplier-accelerator model - a model which describes how the workings of the multiplier theory and the accelerator theory lead to changes in national income.

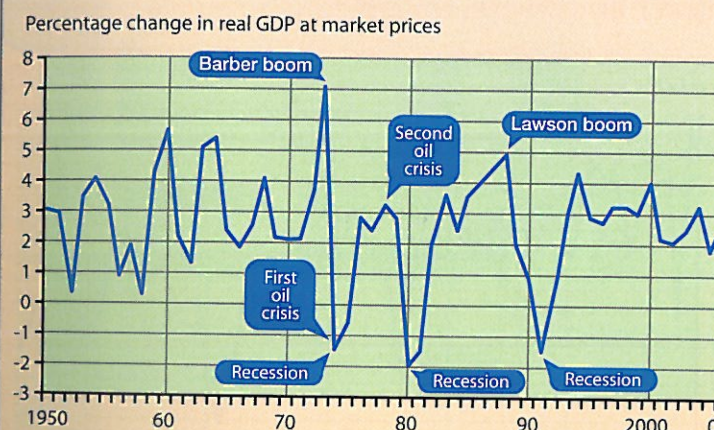
Applied economics

The UK business cycle in the post-war period

Duration and amplitude

The duration of the business cycle in the UK in the post-war era has averaged 4 to 5 years from peak to peak. As Figure 6 shows, during the 1950s and 1960s booms and recessions were very mild. Recessions meant declines in the rate of growth of output rather than falls in output. However, the 1970s and 1980s saw much greater swings, and the recession of 1980-82 was the severest since the Great Depression of the 1930s, whilst the recession of 1990-92 was the longest.

Figure 6 Economic growth



Source: adapted from *Monthly Digest of Statistics*, Office for National Statistics.

Figure 7 Unemployment claimant count

Source: adapted from *Monthly Digest of Statistics*, Office for National Statistics.

The 1950s, 1960s and early 1970s

In the 1950s, 1960s and early 1970s, booms in the economy (1954-5, 1959-60, 1964, 1968 and 1973) were associated with low unemployment, high inflation and a current account deficit on the balance of payments. It is noticeable from Figure 7 that unemployment shifted upwards in the late 1960s. The fall in unemployment that could have been expected in the boom of 1968 did not take place. This represented an upward shift in the **natural rate** of unemployment in the economy. It is an example of **hysteresis**, where an economic variable changes but does not bounce back to its original position when economic circumstances change.

1974-1979

The recession of 1974-75 was unusual in that it coincided with a severe supply side shock to the economy. The quadrupling of oil prices pushed the current account on the balance of payments into record deficit, whilst it led to an increase in the inflation rate. This produced the phenomenon of **stagflation** in 1974. There was rising inflation, a worsening balance of payments, rising unemployment and a fall in output. Within a couple of years, however, more traditional patterns reasserted themselves. The boom of 1978-79 saw faster growth, falling unemployment coupled with rising inflation and a deteriorating current account.

The recession of 1980-81

The recession of 1980-81 was even more severe than that of 1974-75 and again there was stagflation. Unemployment more than doubled and output fell by 4.2 per cent. Manufacturing industry was very badly affected, experiencing a 14.6 per cent fall in output from peak to trough. At the same time, inflation increased from 13.4 per cent in 1979 to 18.0 per cent in 1980 before falling back to 11.9 per cent in 1981. The balance of payments current account moved strongly into surplus. The recession of 1980-81 was untypical when compared to recessions of the 1950s and 1960s in many ways. The second oil crisis of 1978-79 fuelled inflation and created a downturn in the international economy which fed through to lower demand for UK exports. At the same time, North Sea oil was beginning to have a major impact on the balance of payments and led to a rise in the exchange rate, again dampening demand for UK non-oil exports. The government also, for the first time in the post-war era, reduced aggregate demand as the economy went into recession, first by increasing domestic interest rates and second by cutting public spending and raising taxes.

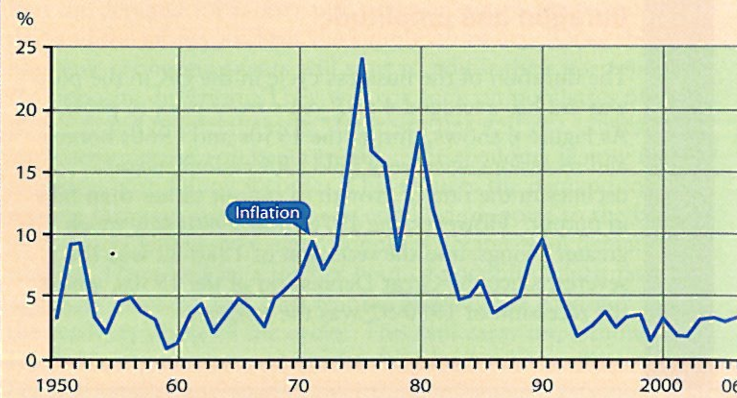
The 1980s and the Lawson boom

Perhaps not surprisingly, the economy took some time to recover. There was a faltering in the economy in 1984, but no major recession as the experience of the previous 30 years would have suggested. However, there was a boom in the economy in 1987-89, approximately ten years after the last major boom of 1977-79. The boom had many of the characteristics of two previous booms, in 1963-64 and 1972-74. All, in different ways, were fuelled by government policy changes. The Barber boom of 1972-74 was fuelled by a disastrous loosening of monetary policy combined with a large fiscal expansion driven by tax cuts and increases in government spending. The Lawson boom of 1987-89 too saw a failure to control growth in the money supply at an early enough point in the boom. Whilst overall fiscal policy remained broadly neutral, major income tax cuts in 1987 further boosted already strong consumer confidence which fed through into higher consumption, spending and borrowing. Increasing house prices at the time were both a symptom of inflation and a cause of rising demand and rising prices. Fast increases in house prices increase the wealth of households and encourage them to borrow and spend more. Over the three year period 1963-65, house prices rose by 20 per cent, higher than the average for the 1950s and 1960s. Over the three year period 1972-74, house prices rose 90 per cent, whilst over the four years of 1986-89 they increased 72 per cent. Certainly, the house price boom of the mid to late 1980s was encouraged by the government through generous tax concessions on mortgages and a political climate which equated home ownership with success. In all three booms, the current account on the balance of payments went into substantial deficit - 1.2 per cent of GDP in 1964, 4.2 per cent of GDP in 1974 (although this was partly caused by the oil supply side shock) and a record 5.1 per cent of GDP in 1989. This was because these booms sucked in imports as British industry failed to meet domestic demand.

The recession of 1990-92

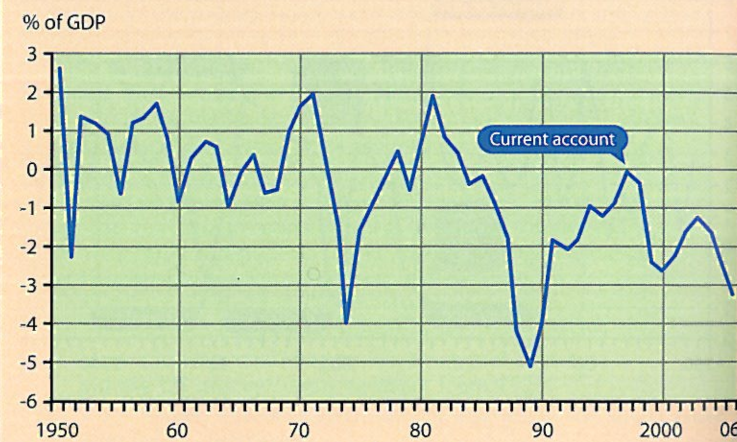
The Lawson boom was followed by a prolonged recession. It was caused by a considerable tightening of monetary policy. Interest rates were doubled in 1988-89 from 7.5 per cent to 15 per cent in a bid by the government to stem a small rise in inflation. In 1990, the UK joined the ERM at too high a rate of the pound against other European currencies. The result was that the government was forced to maintain high interest rates to defend a weak pound throughout 1991 and 1992, long after the inflationary threat had passed. As a consequence, the recession was the longest since the 1930s. It was only when the UK was forced to leave the ERM, and the government quickly cut interest rates, so that the economy came out of recession.

Figure 8 Inflation (annual % change in RPI)



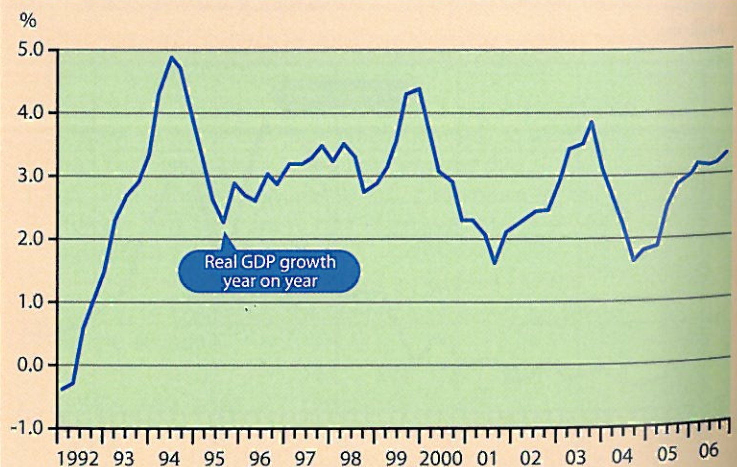
Source: adapted from *Monthly Digest of Statistics*, Office for National Statistics.

Figure 9 Current account as % of GDP



Source: adapted from *Pink Book*, Office for National Statistics.

Figure 10 GDP, annual percentage growth



Source: adapted from *Monthly Digest of Statistics*, Office for National Statistics.

The period since 1992 has seen historically high economic growth combined with low inflation despite several negative supply side shocks.

Since 1992

Between 1992 and 2006, the economy reverted to the pattern of the 1950s and 1960s with a prolonged period of positive economic growth. However, within this, the sort of minor boom and recession seen in the immediate post-war period can be detected.

The post-war period would suggest that UK economic cycles last about 5 years. With a prolonged recession between 1990 and 1991, there were indeed low points in economic growth rates in 1996, 2001-2002 and 2005 as Figure 10 shows. Equally, the high points of GDP growth occurred in 1994, 2000 and 2004. However, looking at evidence from the other associated variables, it is difficult to detect this cyclical pattern. Inflation throughout the period was so low that factors other than the trade cycle were probably more important in determining the change in prices on a year by year basis. Equally, unemployment tended to fall over the whole period.

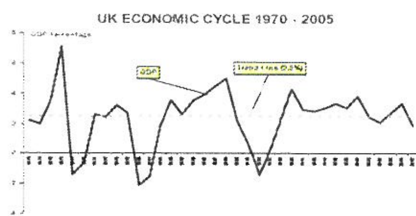
The mildness of trade cycles during this period can be attributed to two factors. First, the economic shocks experienced by the economy were relatively mild. In 1997-98, the 'Asian crisis' saw a number of countries in Asia, including South Korea, experiencing financial crises. This caused a downturn in their economies and hence a fall in demand for UK exports. In 2001, the destruction of the Twin Towers in New York by terrorists deepened a downturn in the US economy which also affected UK exports. In 2004-05, there were significant increases in oil prices which saw them returning in real terms to their late 1970s value. But all of these shocks only led to a fall in UK economic growth of at most 0.5 per cent.

The second factor which led to relative economic stability was government policy. In the 1970s and 1980s, it might be suggested that UK governments mishandled the economy at various points. Since 1992, economic policy has tended to stabilise macroeconomic variables. It can be argued that recent governments have not had to deal with the sort of economic problems that occurred in the 1970s and 1980s. Equally, though, there has been a much better understanding of how to control the economy and, arguably, mistakes have not been made.

The UK Economic Picture over the Past 15 Years

Mar 23rd 2007
From The Economist print edition

After an exceptional decade, the economic prospects look less bright



SINCE emerging from the recession of the early 1990s, Britain has thrived. An economy that used to suffer from wild swings in economic growth has become "a paragon of stability" according to the OECD. Between 1995 and 2004, the growth in GDP per person was both stronger and less variable than that of other rich countries in the G7, according to the IMF.

Gone, is the shame of Britain's relative economic decline compared with the rest of Europe that caused such alarm and despondency for a generation of post-war politicians. Steady growth at home, together with woeful underperformance across the Channel, has enabled Britain to overtake France, Germany and Italy in prosperity, measured as GDP per person.

For most of the economy's long and uninterrupted expansion, Labour has been in office. Gordon Brown, the Chancellor of the Exchequer, who presented his tenth budget on March 22nd, likes to cast himself as the man who has made it all happen. The public applauded him at the polls last year: his success in managing the economy was an essential element in Labour's third consecutive general-election victory.

In fact, the turning point in Britain's economic fortunes occurred not in May 1997, when Mr Brown took office, but in September 1992, when the pound was slung out of the European exchange-rate mechanism. After the debacle of that episode, the Conservative government adopted a policy of inflation-targeting. It had already begun to prove its worth before Labour won power. As important, Margaret Thatcher's unpopular reforms in the 1980s to curtail union power and make the labour market more flexible were paying off by the mid-1990s.

Mr Brown's main achievement when he took office was not to mess up the regenerated economy that he inherited. In particular, he deserves to take a bow for his first, best and boldest reform. The decision in May 1997 to make the Bank of England independent in setting interest rates has entrenched and improved the new inflation-targeting regime. The bank has adroitly guided the economy over the past nine years, succeeding beyond initial expectations in keeping inflation close to the target rate—currently 2% a year for consumer prices—set by the chancellor.

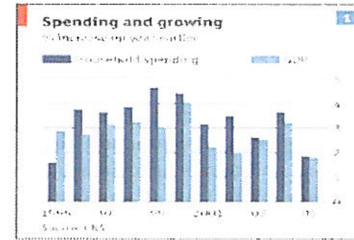
Too good to last?

But over the past year or so things have started to go amiss. The economy's formidable performance faltered as GDP growth decelerated from 3.2% in 2004 to 1.8% in 2005, the lowest since 1992. Unlike the slowdown in 2002, which could be blamed on a sharp downturn in world trade after the dotcom crash, the setback in 2005 was mainly home-grown, occurring at a time when the world economy was swinging upward.

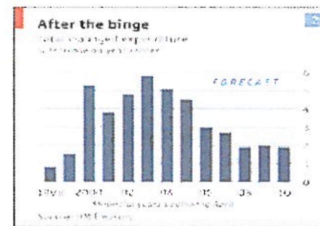
The economic reverse has cast a lengthening shadow over the labour market. In the year to February, the number claiming unemployment benefit has risen by 102,000. Last month's increase in the claimant total of 14,600 was the biggest since December 1992, when the economy was clambering out of recession.

Mr Brown puts a brave face on the setback. The chancellor argues that the economy has been hit by two shocks, the jump in oil prices and a slowing housing market. In the past these would have been knock-out blows causing recession but on this occasion they have merely winded the economy. Such resilience should enable growth to pick up over the next three years. In his budget, Mr Brown forecasts that GDP will increase this year by around 2.25%—below the post-war trend rate of 2.5%—but then bounce back to above-trend rates of around 3.0% a year in 2007 and 2008.

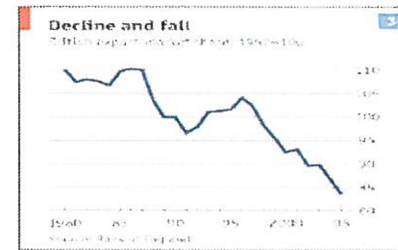
Despite the expansion over the past ten years, the UK economy has not been as securely grounded as Mr Brown would have us believe. The exceptional decade has been exceptional in other less virtuous ways. Three distortions have developed in the pattern of demand, which will cause economic pain as they are corrected.



First and most important, the consumer has never had it so good for so long (see chart 1). Since 1995 consumer spending has increased by 3.5% a year, well ahead of the economy, which has itself expanded at an above-trend annual rate of 2.8%. Growth in household consumption has outstripped that of GDP for ten years. That includes 2005, albeit by a slim margin. The sustained strength of consumer spending is unsurpassed in post-war history. It has lasted much longer than the consumer boom of the 1980s and it also puts the 1950s in the shade.



Second, another sustained surge, this time in government spending, is also breaking long-distance track records (see chart 2). Since 1999, real government expenditure has risen at an average rate of 4.9% a year, well ahead of GDP growth over the same period. Although public-spending growth is now decelerating, it will still outstrip the economy's expansion in 2006-07, the fiscal year starting in April.



Third, Britain's external trading position in goods and services has got worse and worse (see chart 3). Net trade—exports less imports—last contributed to GDP growth in 1995. Since then it has been a drag on growth for a record ten years as the trade balance has moved heavily into deficit.

The party's over

None of these trends can continue. Since household spending accounts for over 60% of GDP, the prospects for the consumer are crucial. The main reason why consumption growth has outstripped GDP growth is that people have been saving less. Between 1995 and 2004, the household saving ratio fell from 10% of post-tax income to 4.4%. That decline has been made possible by a bright housing market: between mid-1996 and mid-2004, house prices rose by over 180%. With that windfall, homeowners felt richer and spent more than they earned.

The foundations of the long consumer boom were thus undermined when the housing market abruptly slowed in the second half of 2004. On cue, consumption growth slowed from 3.6% in 2004 to 1.9% in 2005, the lowest increase since 1995, when the housing market was still depressed after the crash at the start of the 1990s.

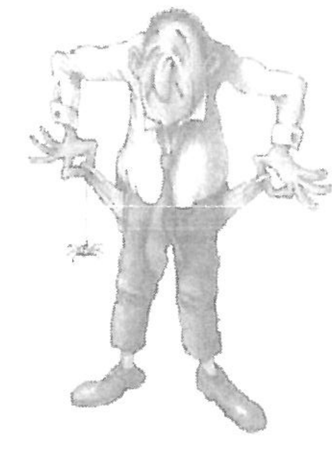
On this occasion, national house prices have stagnated. Indeed, there have been recent stirrings of recovery, with a rise in home-purchase mortgage approvals and an uptick in prices. But this is likely to prove a false dawn while prices remain so very high in relation to rents or income. The OECD estimated at the end of last year that British property was among the most overvalued in the rich world.

In any case, there are other forces bearing down on consumers. Since 2000, household debt has jumped from 110% of disposable income to 150%. With so much more principal to repay, debt servicing now gobbles up a much bigger portion of household budgets even when interest rates are quite low.

Already, the household saving ratio has jumped from 4.1% of disposable income in the final quarter of 2004 to 5.5% in the autumn of 2005. Yet it still remains below its historical average of 8%. Worries about pensions and growing feelings of insecurity about jobs are further reasons to expect a rise.

Even if the saving ratio does not increase further, there are two other powerful curbs on consumers. First, higher energy prices are, in effect, a tax on household budgets. Second, a tax grab by Mr Brown has been holding back the growth of real disposable income, which averaged less than 1% a year for typical households in the two fiscal years ending March 2005, according to the Institute for Fiscal Studies. The squeeze is likely to persist, since a further rise of almost one percentage point in income tax and national insurance as a share of GDP by 2010-11 is forecast in this week's budget.

Turning off the tap



All this suggests that growth in consumption will be subdued for some years to come. At the same time, the support from government spending, which was especially important in blunting the blow of the dotcom downturn, will also be waning. Over the next two fiscal years, growth in spending will slow to around 3% a year, quite a healthy rate in usual times but sharply down from the 4.9% rate over the past six years. From April 2008, it will be clipped back still further. Mr Brown has pencilled in tough plans for spending to grow by only 1.9% a year—below trend GDP growth—in the three years to 2010-11.

In short, the era of big spending is ending for the government as well as for consumers. If GDP growth is to be sustained, it will have to rely on other sources. Business investment, which has been disappointingly weak over the past five years, will need to pick up. So, too, must net trade, in a further correction to the distortions of the past ten years.

Flush with cash, firms should be stepping up their capital spending. However, the need to deal with big pension-fund deficits is holding back business investment. Firms are less likely to invest if they think that the economy's growth prospects have got worse.

The outlook for exports is also less promising than it should be. Britain does well in exporting services. It compares favourably with other big European economies in the technological intensity of its goods exports, according to the Swiss Institute for Business Cycle Research. That's a big plus, since high-tech trade is growing especially fast. Yet given these advantages, the record of exporters—with a steady decline in Britain's market share—has been disappointing. Exports suffered in the late 1990s because of the strong pound and in the early 2000s when world trade turned down. More troubling, they have failed to benefit as much as they might have from the subsequent global upswing.

If the supply side of the economy were in better shape, a slowdown in demand growth would be only temporary. But there are reasons to believe that the trend growth rate may be falling.

For one favourable supply-side development, look at the workforce. Britain has seen a surge in immigration since it opened its borders to workers from new member states of the European Union. Between May 2004 and December 2005, 330,000 migrants from eastern Europe registered for work. The demographic shock from the rise in the working-age population could raise GDP growth by 0.1 percentage points a year between 2007 and 2009, according to the National Institute of Economic and Social Research.

The trouble is that this demographic boost to growth is likely to be outweighed by the impact of higher oil prices. According to the IMF, the doubling of energy prices between the end of 2003 and the end of 2005 will cause a cumulative output loss of about 1%, spread over the three years to 2008. That would lower annual GDP growth over this period by an average 0.3 percentage points.

Efficiency slowdown

Recent figures for productivity—the fundamental impetus behind the trend growth rate—are also discouraging. Output per hour worked failed to increase at all in the year to the third quarter of 2005. The economic cycle accounts for much of this dismal performance: productivity growth generally falls during a downturn. But there also seems to be structural deterioration. Over the past four years, productivity has risen by 1.7% a year, well below the average 2.1% achieved from early 1992 to late 2005.

This slowdown is a personal setback for Mr Brown, who has made much of his efforts to improve productivity through measures such as a beefed-up competition regime and tax incentives to stimulate more corporate R&D. The chancellor is in fact part of the problem. Business investment—an important source of labour productivity growth—has been weak in part because of the regulatory and tax burdens that he has heaped on companies. Mr Brown has also increased spending in the inefficient public sector.

Productivity in the National Health Service, for example, declined from 1999 to 2004 by between 0.9% and 1.5% a year, based on figures in the national accounts.

A recent survey of the British economy by the OECD highlighted weaknesses that hold back productivity. Persistent deficiencies in education mean that the workforce in Britain includes a much bigger share of low-skilled people than in most other rich countries. Decades of under-investment in transport have caused congestion and delays. And Britain compares poorly with the best-performing countries in innovation, which is especially important nowadays in securing productivity advances among rich countries.

This litany of complaints sounds drearily familiar. The exceptional decade has not transformed the economy, although it has helped it to work rather better than in the past. Mr Brown's reversion to tax-and-spend, together with the ever-rising burden of regulation, is starting to do increasing damage to work incentives and business interests. The price for past excess, both by consumers and by the chancellor, will be future slower growth. As the feel-good factor fades, the politics of plenty will give way to the politics of severity.