



BANK OF ENGLAND

Speech

Inflation and the Supply Side of the UK Economy

Speech given by

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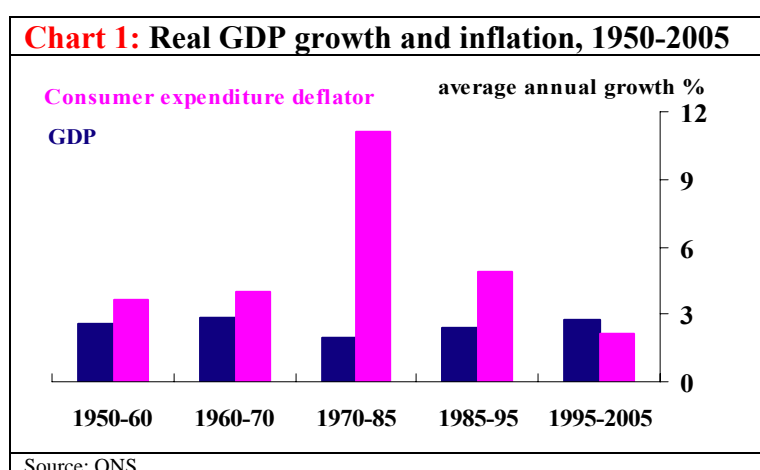
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When I joined the Monetary Policy Committee (MPC) in October, I decided to give myself three months before making a major speech – to allow time to become more familiar with the Committee and the issues it faces. Well, that probationary period has now elapsed. I am now in my fourth month as a member of the MPC, and I would like to thank Bloomberg for hosting this occasion, and providing the venue and opportunity to break my self-imposed vow of silence.

At various points over the past few months, I have been asked for my thoughts on this new challenge that I have taken on. I am delighted to have joined a team with an excellent track record of success in economic management to date. While the MPC has been in charge of monetary policy, the UK economy has built on and consolidated the period of low inflation and sustained growth which began in the mid-1990s. As a result, the UK has achieved a degree of price stability and a record of economic growth not seen since the Bretton Woods era of the 1950s and the 1960s, as Chart 1 shows.¹



Inflation has also been kept very close to its target rate. From June 1997 to December 2003, annual RPIX inflation averaged 2.4% compared with a target level of 2.5%; and since January 2004, CPI inflation has averaged 1.9% compared with a 2.0% target.² When the MPC was established in 1997, you would have got very long odds on its ability to keep inflation so closely in line with the government's target over such a long period.

¹ CPI is not available for long-term comparisons such as those shown in Charts 1 and 2. The consumer expenditure deflator is used as it has a reasonably close correlation with CPI over the period when both series are available.

² RPIX - the retail prices index excluding mortgage interest payments – was the target measure of inflation until December 2003 when the target measure was changed to the current target measure, the consumer prices index (CPI), which is calculated in line with a methodology agreed with other European Union members.

On the one hand, therefore, all that is very positive. But I would not be a true economist if there was not a balancing “on the other hand” statement! And I do approach my current responsibilities on the MPC with a certain amount of trepidation. Institutions which build up a track record of success also create expectations for the future. Economic history over the past forty years provides many examples of how things can go wrong for those in charge of UK monetary policy.

The challenge and responsibility facing the current committee is to avoid these pitfalls and sustain the record of the past decade into the future. We know we are likely to have to conduct monetary policy in the face of many actual and potential shocks to inflation and economic growth, particularly arising from the global economy. As today’s inflation figures highlight, the current challenge is to ensure inflation returns to target after its recent pick-up, associated with high energy prices and strengthening demand.

The conduct of monetary policy

Our ability to navigate successfully through these periods of turbulence hinges on having the right procedures and processes in place and on the way policy is conducted within them. While the Bank of England Act lays down the framework within which the MPC operates, and some of its processes, the conduct of monetary policy is shaped by the judgement and the decisions of the committee itself. In my view, there are three key ingredients to the successful conduct of monetary policy – which provide a reference point in my capacity as a member of the MPC.

First, our actions and statements should reinforce expectations of low inflation, consistent with the inflation target set by the government. Inflation expectations can be very powerful in maintaining monetary stability if they are well anchored, as they have been in recent years. They are very dangerous if they become unhinged, which is what happened in the UK between the mid-1960s and the mid-1970s. It took us two decades, three recessions, and a prolonged period of high unemployment, before expectations of low inflation were properly re-established in the mid-1990s.

One of the benefits of the current inflation target framework is that it sets a clear benchmark to guide expectations. But this will only be effective if the MPC also acts in a manner consistent with this benchmark – continually reinforcing its credibility.

Second, the growth of demand needs to be kept in a range consistent with supply potential and the inflation target. The key instrument available to the MPC to influence demand conditions is the short-term interest rate, though in setting rates we also need to take into account lags in the monetary transmission mechanism.

There are a wide range of indicators available to the MPC to monitor demand conditions, and we make use of business surveys and the reports from the Bank’s regional Agents around the country as well as official statistics. However, a good summary indicator of demand conditions is provided by the growth of nominal domestic demand – total money spending on goods and services by UK consumers, firms and government. It is not a perfect indicator. Domestic spending growth also needs to be assessed alongside external demand pressures, from the global economy and the exchange rate, as about a fifth of the expenditure on UK goods and services comes from overseas.³ Domestic demand is also based on national accounts data which can be subject to some measurement error.

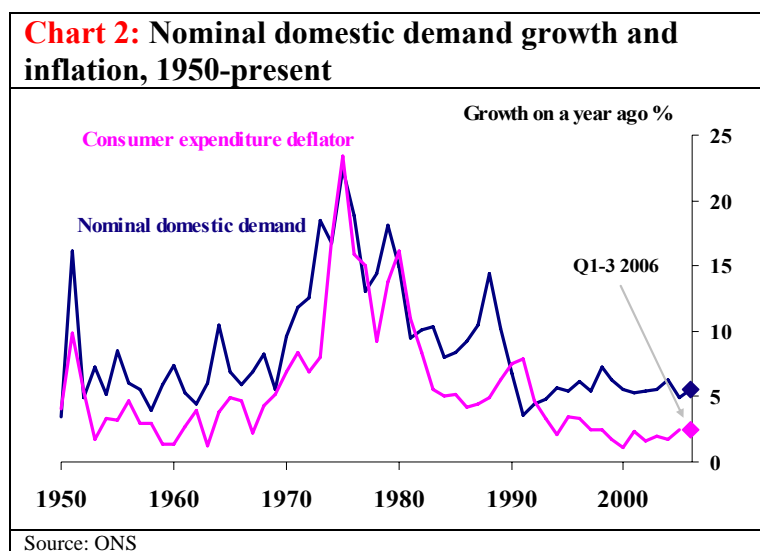


Chart 2 shows the association between low and steady nominal domestic demand growth and the period of low inflation since the mid-1990s. The previous sustained period of low inflation – in the 1950s and 1960s – was also a period of relatively low nominal domestic

³ The percentage is higher in tradable sectors such as manufacturing, but the average for the UK economy as a whole (exports as % of total final expenditure) is 22% in the year ending Q3 2006.

demand growth – though not as stable then as recently. By contrast, the 1970s and the late 1980s, when the inflation genie escaped from the bottle, saw high and volatile increases in money domestic demand.

Over the past year, domestic demand has picked up following a period of relative weakness in 2005, and this has been accompanied by strong growth in the world economy. The need to keep the growth of demand in check - and hence restrain wage and price increases - has been an important factor in recent interest rate decisions by the MPC

The third element which is important for the conduct of monetary policy is a good understanding of how the performance of the supply side of the economy is evolving and how it is being affected by external factors – such as globalisation, or the major change in energy prices we have seen recently.

In simple terms, inflation is sometimes described as “too much money chasing too few goods”. In addition to understanding demand conditions – ie whether there is too much money – we also need to understand the factors affecting the production of goods and services, and how changes in these supply factors are affecting the outlook for economic growth and inflation.

Medium-term growth potential

There are a number of aspects of the supply-side performance of the economy which are of particular interest to monetary policy-makers. One of the key issues is the growth of the output potential of the economy, against which we need to assess whether the rate of increase in demand remains compatible with low inflation. This is an important benchmark for policy-setting, though the relationship between demand and inflation is much more complex than a simple “output gap” model would suggest.

The supply-side potential of the economy will tend to increase over the medium term for two main reasons. First, employment is able to increase as the labour force expands. Second, the workforce becomes more productive over time, as the result of a combination of technical progress and investment in human and physical capital. In the UK and most other major

economies, increased labour productivity has been the dominant force underpinning economic growth over the medium term.

However, the proportion of the labour force which can be productively employed may also change over time. We have seen significant shifts in the unemployment rate in the UK and many other economies in the past few decades. While short-term variations in unemployment can be viewed as cyclical, since the 1960s there have clearly also been major structural shifts in the equilibrium unemployment rate consistent with low or stable inflation – normally described as the “natural rate” of unemployment or the NAIRU.⁴

Though we cannot measure it exactly, between the late 1960s and the mid-1980s, the economy’s equilibrium rate of unemployment appeared to increase – due to the interaction of the shocks hitting the economy over that period and relatively inflexible labour market structures and behaviour. Since the 1980s, changes in industrial relations, greater labour market flexibility and the development of more pro-active government labour market interventions have helped to reverse this trend.⁵

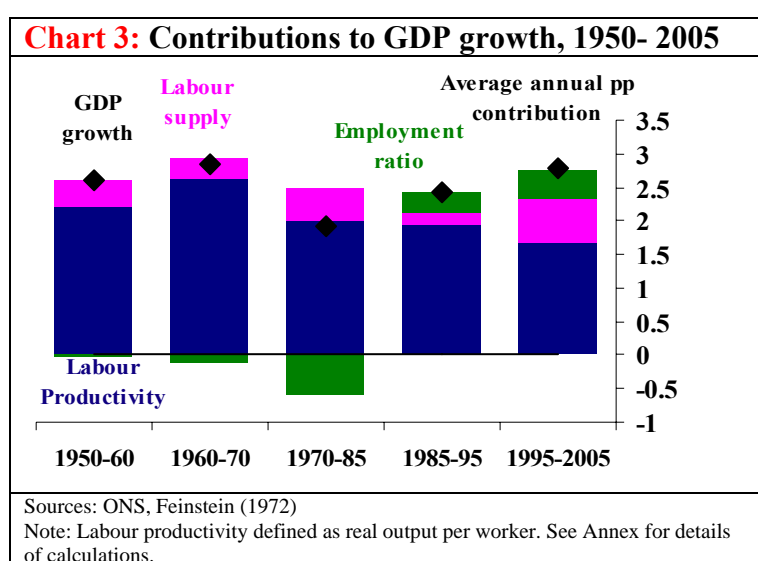


Chart 3 presents a simple breakdown of UK economic growth in previous decades into these three factors: labour productivity, measured in terms of output per person employed; labour supply growth – reflecting population growth and increased labour force participation; and

⁴ Non-accelerating inflation rate of unemployment. See Layard, Nickell and Jackman (1994) for an analysis of changes in the NAIRU in the UK and other economies.

⁵ Nickell (2001) provides an analysis of changes in the equilibrium rate of unemployment since the 1960s, consistent with the views in this speech.

changes in the employment ratio – the mirror image of the unemployment rate.⁶ The periods used aim to reflect the likely underlying growth trend, by taking mid-cycle years for the start and finish dates of the periods used for analysis, and also avoiding years of high inflation.

Contributions to growth since the mid-1990s

The past decade is of particular interest, for a number of reasons. It mainly reflects the period during which the MPC was steering monetary policy and is also the most obvious benchmark when we look forward to the years ahead. It is also the strongest sustained period of GDP growth since the 1960s, which reflects the particularly strong contribution of the labour market factors - higher employment and increased labour supply - to economic activity over this period.

This strong growth may have come as a surprise to some people, but not to me. When I was heading the Centre for Economic Forecasting at the London Business School (LBS) in the mid-1990s, I published a forward-looking assessment of growth prospects for the decade ahead in the LBS Economic Outlook.⁷ My conclusion then was:

“...the UK economy has the potential to exceed the performance of the last decade. Though productivity growth is not expected to be spectacular, the analysis of recent labour market developments suggests that we should be able to run the economy with a much lower level of unemployment over the medium term. If, in addition, more optimistic projections of productivity growth turn out to be correct, the UK economy has the prospect of a new “golden age” of growth, matching the average performance of the 1950s and 1960s”

| Chart 4: 1995-2005 Performance in context | | | |
|--|-------------|--------------------------------|----------------------------|
| | 1960 - 1995 | 1995 - 2005 latest estimate | 1994 - 2004 (projected) |
| average annual growth (%) | | | |
| GDP | 2.3 | 2.8 | 2.4 - 2.9 |
| o/w (percentage point contribution): | | | |
| Population of working age | 0.3 | 0.5 | 0.3 |
| Participation rate | 0.0 | 0.1 | 0.2 |
| Employment ratio | -0.2 | 0.4 | 0.3 - 0.5 |
| Labour productivity | 2.2 | 1.7 | 1.5 - 2.0 |
| Sources: ONS, Feinstein (1972), Sentance (1995) | | | |
| Note: Labour productivity defined as real output per worker. | | | |

⁶ The employment ratio is defined for this paper as unity (100%) minus the unemployment rate. See Annex for further explanation of this analysis and data sources.

⁷ Sentance (1995)

Chart 4 shows a table comparing my projections from that article in November 1995 to the actual performance of the economy over the period 1995-2005, and the performance over the preceding three-and-a-half decades. The growth of GDP in the UK economy over this period was close to the top of the 2.4-2.9% range I predicted, averaging 2.8% per annum.⁸ It was also half a percentage point stronger growth than the average growth over the previous three and a half decades might have suggested.

This positive outcome did not reflect particularly strong productivity growth. Over the past decade, output per worker in the UK increased by an average of 1.7% per annum - in the middle of the 1.5-2.0% range I had suggested in my 1995 article.⁹ Rather, this pick-up in growth reflected a much bigger contribution to growth from employment than previous decades.

The middle three rows on this table show the various components which make up the employment contribution to economic growth – changes in the population of working age, labour force participation and the unemployment rate. Combined, these factors contributed around 1% per annum to GDP growth between 1995 and 2005, close to 40% of the increase in GDP over that decade. Compared with earlier decades, labour supply factors provided a slightly stronger boost to growth potential, but the most significant factor was the sustained fall in the unemployment rate.

The central thesis in my 1995 article, that employment would make a much stronger contribution to economic growth than in previous decades, therefore turned out to be correct. But while you might find it reassuring that my credibility as a forecaster remains intact, the more significant point for monetary policy is how the various components which contribute to medium-term growth potential are likely to perform in the years ahead.

⁸ Sentance (1995) uses 1994-2004 as the forecast period, compared with 1995-2005 shown here, consistent with other data in this speech. However, this makes virtually no difference to the comparisons shown.

⁹ A reduction in hours worked per employee acted as a slight drag on the labour productivity growth rate over the decade 1995-2005; measured in terms of output per hour worked, productivity growth has been roughly stable at about 2% per annum over the last two decades.

Labour productivity growth

Labour productivity is the most important of these components. As Paul Krugman has commented: “Productivity isn’t everything but in the long run it is almost everything. A country’s ability to improve its standard of living depends on its ability to raise its output per worker.”¹⁰ The main factors influencing labour productivity are the accumulation of physical and human capital and the process of innovation and technical progress.

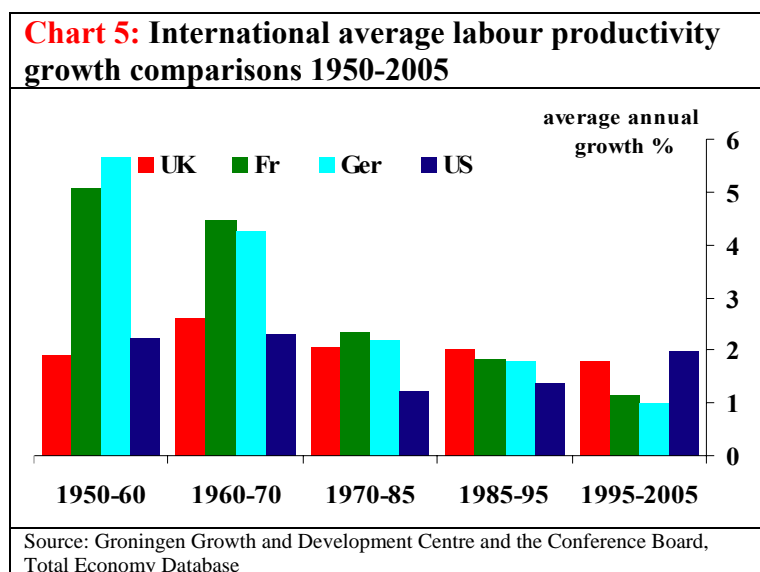


Chart 5 compares the UK labour productivity growth experience with a peer group of countries across the post-war period. Until the 1970s, the prevailing story was that UK productivity growth was disappointing relative to other countries. In the 1970s and early 1980s, the UK moved up into the middle of the productivity growth league, mainly because our rate of increase held up better in the context of a broader productivity slowdown.

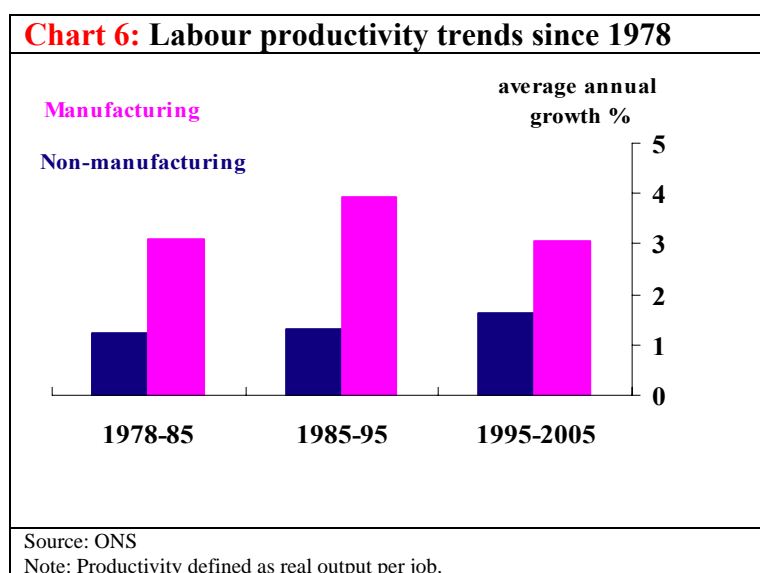
Since the mid-1980s, the UK has been a leading performer on labour productivity growth relative to our peer group. Averaged across the two decades since the mid-1980s, measured in terms of output per worker, the UK has had a stronger productivity growth rate than the US and the other leading European economies.

In the past decade, however, we have been pipped to the post in the productivity growth league by a strong pick-up in the United States – widely attributed to the boost from heavy investment in information technology in the 1990s. In 1987, Robert Solow famously quipped:

¹⁰ Krugman (1997)

"You can see the computer age everywhere but in the productivity statistics."¹¹ Now – at last – it may be showing up, with annual productivity growth in the United States picking up to about 2% over the past decade, compared with 1.4% in the ten years before that and 1.2% in the 1970s and early 1980s.

Could something similar happen in the UK? Research carried out at the Bank of England shows that investment in ICT (information and communications technology) is already a significant contributor to productivity growth, accounting for nearly half of market sector productivity increases in the late 1990s.¹² So perhaps we should be wary about expecting a further boost to productivity from this direction. In addition, we need to recognise offsetting influences to any further boost information technology might provide.

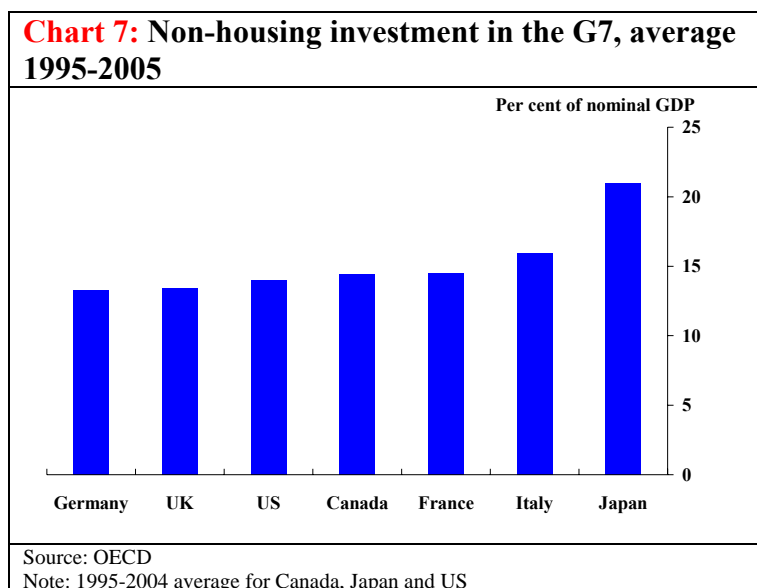


First, the composition of output and employment is shifting away from manufacturing towards services. With manufacturing employment now down to about 11% of total employment, non-manufacturing sectors – mainly services - will dominate the prospects for productivity going forward. As Chart 6 shows, this is a shift away from a sector which has historically delivered stronger productivity growth towards activities with a weaker productivity track record – though there is also considerable variation in productivity performance within the services sector. (For example, transport and distribution and business and financial services have experienced reasonably strong productivity growth, while public

¹¹ Solow (1987)

¹² Oulton and Srinivasan (2005)

services and sectors providing personal services tend to be below average.) Chart 6 also shows an improvement in non-manufacturing productivity in recent years, though the drag exerted by output and employment shifting from manufacturing to services has offset the benefit to whole economy output per head from this improving trend.¹³



Second, the UK has a modest record of investment in physical and human capital compared to other G7 countries, as Chart 7 shows in respect of fixed capital investment. Business investment was relatively weak in the first half of this decade and, while it is now picking up, the contribution of capital input to growth is likely to be relatively modest in the years ahead. There are also concerns about the rate at which we are investing in human capital too. For example, the recent Leitch Report published by the Treasury argued that the UK's skills base was "mediocre" by international standards, and pointed to the fact that the US and South Korea were investing in higher education at about two-and-a-half times the rate of the UK.¹⁴ The contribution of physical and human capital may not therefore be as supportive of productivity growth as in some competitor countries.

In my November 1995 article, I concluded that UK trend productivity growth, measured in output per person employed, was likely to be in the range 1.5-2.0%. In the event it has been around the middle of that range. Looking ahead, it would seem reasonable to expect labour

¹³ Historically, this drag has also reflected the shift in resources away from manufacturing where productivity levels are higher than services. However, looking forward this "batting average" effect will be less significant due to the small percentage of employment now accounted for by manufacturing industry.

¹⁴ See Leitch (2006). The UK was placed 17th in a league table of 30 OECD countries on low skills and 20th on intermediate skills. The UK invests 1.1% of GDP in higher education, compared to 2.9% in the US and 2.6% in South Korea.

productivity growth to continue at a similar rate. So if the UK economy is to sustain its trend GDP growth rate from the previous decade, a continued strong contribution is needed from employment growth as well as productivity.

Unemployment performance

In most decades, normal labour supply growth and rising participation have added around 0.3-0.4% a year to the economy's growth rate. However, in the past decade, this has been augmented by a similar addition to growth from a sustained fall in the unemployment rate. In the mid-1990s, the unemployment rate averaged 8.7%¹⁵, according to the Labour Force Survey. A decade later the corresponding figure for the last three years is 5.0%. The fall in unemployment has boosted growth by around 0.4% a year, in line with my 1995 predictions.

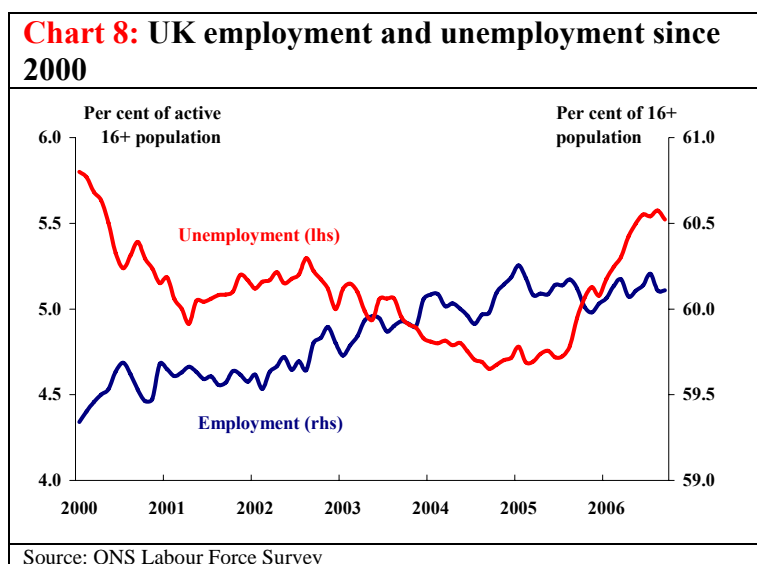
Looking ahead, however, we cannot expect a fall in unemployment of this sort to be repeated. To a large extent, this drop in the jobless total represented an unwinding of the rise in equilibrium unemployment that took place in the late 1970s and early 1980s. It does not seem realistic to return to the levels of unemployment seen in the 1950s and 1960s, which were an exceptional product of the post-war economic boom in Europe. As I argued in 1995, an unemployment rate in the range 4-6% of the labour force seems to be sustainable and consistent with low inflation, as long as we have sensible demand management and labour market policies which promote flexibility.¹⁶

There is also the possibility that some labour market developments may be working to push up the equilibrium rate of unemployment, and therefore limiting future employment growth potential. In particular, the past decade has seen an extension of various forms of labour market regulation and the National Minimum Wage has been increased by 45% since 2001, more than four times the increase in the consumer prices index over the same period and more than double the rate of growth of average earnings.¹⁷ This could have a negative impact on employment prospects and add to wage pressures in some sectors of the economy, exerting some upward pressure on the level of structural unemployment.

¹⁵ 1994-96 average, and 2004-2006 average for comparison, using Labour Force Survey data

¹⁶ Nickell (2001) estimated that the equilibrium unemployment rate was 5.7%.

¹⁷ The National Minimum Wage was raised to £5.35 an hour in October 2006, compared with a rate of £3.70 prior to October 2001 (increased from £3.60 in October 2000). Over the same period, the consumer prices index rose by around 10% and the average earnings index increased by 21%.



Another cause for concern about the outlook for unemployment is the recent behaviour of the jobless total. As Chart 8 shows, unemployment has risen, despite employment growth of close to 1% over the past year. The employment rate recorded by the Labour Force Survey has been broadly stable, suggesting that job growth has kept pace with the rate of increase in the population of working age.

This rise in unemployment has levelled out in recent months, but it remains something of a puzzle. One possible explanation is the supply shocks that the labour market has had to absorb from migration and increased participation of older workers – though this explanation has been challenged by some observers.¹⁸

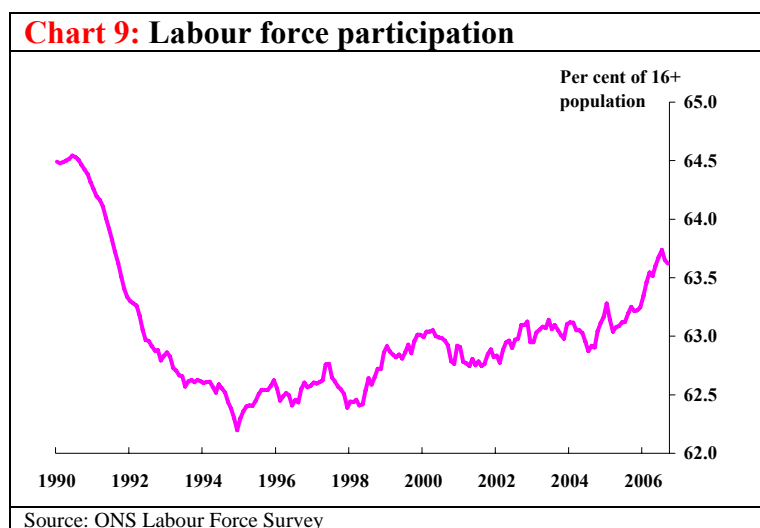
However, unlike a decade ago, the current evidence suggests we are unlikely to get a further significant boost to growth from a sustained fall in the equilibrium rate of unemployment. If medium-term growth is to exceed the rate of growth of labour productivity by a similar margin to the past decade, this will require a much stronger contribution from a rising labour supply.

¹⁸ Blanchflower, Saleheen and Shadforth (2007) discuss some of the evidence, particularly using regional unemployment data. Their conclusion is that the evidence points away from the hypothesis that labour supply shocks from migration or rising participation can account for the recent rise in unemployment.

Labour supply and participation

Historically, population in the 16+ age bracket has increased in the UK by around 0.3% per annum. So if we were relying purely on natural population growth as a source of labour supply increases, this would imply a slowdown in the medium term trend rate of output growth to not much more than 2%.

However, there are two factors which might potentially sustain growth at a much higher rate, in the same way that growth over the past decade was sustained by falling unemployment. The first is higher labour force participation, as people who were previously unavailable for or not seeking work re-enter the workforce.



As Chart 9 shows, labour force participation – particularly in older age ranges – has been rising after a sharp fall in the early 1990s. Changes in the benefit system, uncertainty about future pension provision, and new age discrimination legislation are likely to reinforce this trend, and we have seen some pick-up in the past couple of years.

However, it will take quite a significant and sustained increase in labour force participation to make an impact on the medium-term growth potential of the UK economy. The rising trend shown in Chart 9 was associated with an addition to employment growth of around 0.1% per annum between the mid-1990s and the mid-2000s. The recent experience points to a stronger contribution – around 0.2–0.3% per annum, but it is not at all clear that this can be sustained over the medium term.

The other potential source of extra labour supply is migration. According to official estimates, net migration into the UK has risen fourfold since the mid-1990s, from around 50,000 a year to around 200,000 a year in 2004 and 2005. These figures have been boosted in particular by higher migration from the eight new members which joined the European Union in 2004, though the official figures suggest higher net migration goes back to the late 1990s. If sustained, this pattern of migration could contribute an addition of up to half a percentage point per annum to the growth of labour supply and hence employment.¹⁹

However, there is a great deal of uncertainty about the potential for a future boost to labour supply from migration. One suggestion is that migration is being significantly under-recorded and the boost to labour supply could be even bigger than I am suggesting – both now and in the future. On the other hand, the recent surge in migration associated with the accession of new members to the European Union may ease off over the years ahead. Though the accession process is continuing, with Romania and Bulgaria joining this year, more EU countries are now opening their borders to migrant workers – providing alternative employment opportunities. Also, the UK is now taking a more cautious policy stance towards migrants from the latest entrant countries.

Outlook for potential growth

So to recap the arguments I have made. The UK's medium-term potential growth can be decomposed into the likely rate of productivity growth and the potential for employment to increase without placing an inflationary strain on the economy. Over the past decade, there was a one-off boost to employment growth from a fall in the equilibrium unemployment rate. Rising labour force participation also made a modest contribution to employment growth.

These trends resulted in an exceptional period in the UK's post-war economic history when employment made a much bigger contribution to economic potential than previous decades. Whether this can be sustained into the next decade is a major source of uncertainty around the medium-term outlook. In the absence of an alternative source of labour supply increase, or an

¹⁹ According to Saleheen and Shadforth (2006), about 70% of migrants in the 15-64 age bracket are economically active. Applying this percentage to the 200,000 net migration each year represents an increase of just under 0.5% on a total labour force (employment plus unemployed) of just over 30 millions. This will be an overestimate to the extent that migration includes people outside the 15-64 age bracket, and an underestimate to the extent that migration is under-counted.

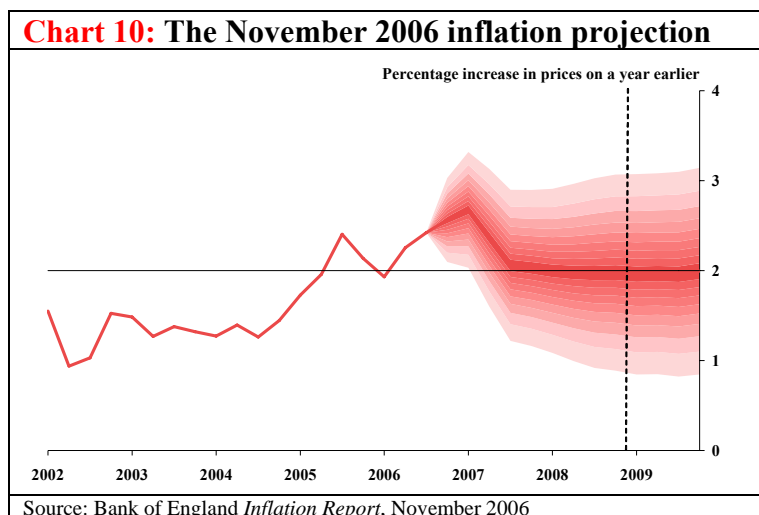
acceleration in productivity growth, there would be a fall in the UK's average GDP growth rate from the 2.8% recorded over the past decade to something closer to 2%.

Recently, migration and rising labour force participation have indeed been supporting the growth of the labour supply and boosting potential output. However, there is a lot of uncertainty around the continuation of both these trends – and hence around the medium-term growth rate of potential supply.

Monetary policy issues

As I come to relate this analysis to current monetary policy issues, I am conscious that the minutes of our latest interest rate decision are not available – and it is not my intention today to pre-empt them. The latest Inflation Report made clear that uncertainty about supply-side issues was contributing to the risks to the inflation outlook, and I hope I have been able to shed some light on those issues today.

The background to recent interest rate decisions has been the rise in CPI and other measures of inflation, and you will have seen the latest news today – with the December CPI inflation rate significantly above its target level. At face value, this news on inflation points to a stronger short-term surge in inflation than our central forecast in November, shown in Chart 10. It has also taken us very close to the level of inflation at which a letter from the Governor to the Chancellor is triggered under the current policy framework – though in 1997 most economic commentators would have been amazed if they could have foreseen that we would be approaching the tenth anniversary of the MPC and such a letter has yet to be written!



If inflation is to be brought back to target and remain there, demand needs to be appropriately restrained and expectations of inflation by wage and price-setters must remain consistent with the 2% CPI target. As the press release accompanying last week's interest rate move made clear, the MPC judged a further interest rate rise was needed to ensure that these conditions would be met and keep inflation on track to meet the target over the medium term.

Next month, the Committee will be revising its inflation forecast in the light of all the available information and issuing an updated Inflation Report, as usual. The Inflation Report is a key element in the framework for UK monetary policy and an important tool for communication from the MPC. However, some people appear to have concluded that the Committee would only adjust interest rates in months when an Inflation Report is published. In my view, we should not be constrained in this way. The monthly meeting cycle provides the MPC with an opportunity to review monetary policy twelve times a year and adjust interest rates in the light of our judgement on all the available information, as we have done this month.

At the start of this talk, I referred to three key ingredients to successful monetary policy in practice – reinforcing expectations of low inflation; keeping a check on demand conditions; and understanding the impact of supply changes and external factors. It is the supply side which I have discussed in most detail today, but the other elements are no less important.

In my short time as a member of the MPC, the need to reinforce expectations of low and stable inflation and to keep demand conditions in check have both pointed to the need to raise interest rates. As a Committee, we will continue to monitor economic conditions at our monthly meetings to ensure we remain on track to meet the 2% CPI target over the medium term.

Annex - Growth accounting calculations

Chart 3 is constructed using the accounting identity:

$$\mathbf{GDP \equiv Output\ per\ worker * Employment\ ratio * Labour\ supply}$$

Where:

$$\mathbf{Employment\ ratio \equiv Employment/Labour\ supply \equiv (1 - unemployment\ rate)}$$

$$\mathbf{Labour\ supply \equiv Employment + Unemployment \equiv Total\ economically\ active\ persons\ over\ 16}$$

In Chart 4, the following identity is used to decompose labour supply further into population growth and labour participation.

$$\mathbf{Participation\ rate \equiv Labour\ supply/Population\ aged\ 16+}$$

Contributions to GDP growth shown in Chart 3 are equivalent to the average annual growth rates of these components over the time periods shown. These average annual growth figures are geometric means calculated using annual data. So for example:

$$\text{Average annual GDP growth 1950-1960} = ((GDP_{1960}/ GDP_{1950})^{1/10} - 1) * 100$$

The calculations use real Gross Value Added at basic prices. Population and labour market data are mid year estimates.

A similar accounting framework was used in Sentance (1995), which provides a more detailed discussion of this approach.

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