

Productivity in the UK 7: Securing long-term prosperity

November 2007



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Enterprise & Regulatory Reform



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ISBN 978-1-84532-377-6

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EXECUTIVE SUMMARY

A.1 The Government's central economic objective is to achieve high and stable rates of economic growth and employment. Productivity growth is the key determinant of long-run growth, and together with employment growth leads to higher prosperity.

A.2 This paper outlines the Government's overarching framework for increasing the productivity growth rate and narrowing the overall gap with comparator countries. It sets out five levers that Government can use to make the most difference to the UK's productivity performance and effectively respond to the long-term challenges and opportunities faced.

The forward productivity challenge

A.3 The UK has made progress over the last decade on raising the rate of productivity growth and narrowing the productivity gap with comparator countries. Since 1997 the UK has narrowed the output per hour gap with Germany by almost half, with France by more than a third and made progress in narrowing the gap with the US.

A.4 While a number of factors are likely to have contributed to this, including the UK's policy of openness to trade and investment and a stable economy, improved performance has coincided with significant reform structured around the Government's five drivers of productivity.

A.5 Reform of the macroeconomic and fiscal frameworks has contributed to increased macroeconomic stability. This has encouraged investment and provided a platform for further reforms. There have been significant changes to the competition regime to promote competition and improvements in access to finance and policies to encourage enterprise. To support innovation and increase skills, the Government has increased science spending, introduced tax credits for Research and Development (R&D), and increased expenditure on education and skills.

A.6 The UK faces a number of new challenges and opportunities, including an ageing population, globalisation, and climate and technological change. An ageing population underlines the importance of increasing future productivity growth, ensuring barriers to participation in the workplace are low, and an effective migration regime is in place.

A.7 Increasing globalisation and technological change, alongside evidence of the importance of some of the service sectors to the UK's productivity gap, underlines the importance of innovation and skills accumulation, and of making the UK an attractive location to do business. The UK must also continue as an effective leader internationally in tackling climate change, while realising the opportunities it presents.

The Government's priorities

A.8 The UK is well placed to meet these challenges and opportunities, but there is no room for complacency. The Government's framework for increasing productivity growth has been based on two objectives:

- maintaining macroeconomic stability to ensure businesses and individuals have the certainty needed to make long term investment decisions; and
- using the Government's levers to undertake microeconomic reforms to tackle market failures around the drivers of productivity.

A.9 To implement this strategy effectively requires a clear understanding of the priorities going forward, informed by both evidence and dialogue with business and

others, and secondly an understanding of the levers Government has to effect change. These levers are deployed within a policy framework that has been reinforced by the renewal of the productivity Public Service Agreement (PSA), the regional productivity PSA and the introduction of supporting PSAs consistent with the Government's levers for promoting productivity. Strengthened organisational capability through the new Departments for Business, Enterprise and Regulatory Reform, and Innovation, Universities and Skills will sharpen focus on the challenges ahead. Within this framework, the Government is:

- **investing in the workforce and in skills:** with an implementation plan for taking forward the recommendations of the Leitch Review of Skills, a commitment to increasing investment in the public science base in line with the trend rate of growth in the economy and real terms increases in skills funding;
- **investing in infrastructure:** with annual real increases in expenditure for transport infrastructure, extending the long term funding guideline for transport expenditure out to 2018-19, and bringing forward legislation creating a new planning regime for major infrastructure projects;
- **simplifying taxes and regulation:** launching a significant programme of tax simplification, continuing to take a leading global role towards establishing a modern, risk-based approach to regulation, and reducing administrative burdens significantly;
- **strengthening competition and market frameworks:** championing free trade and open markets, consulting on measures to further improve the competition regime, and simplifying the range of business support on offer; and
- **improving public sector efficiency:** with the Government on track to meet its ambition of over £20 billion worth of efficiencies by the end of 2007-08, further steps in the 2007 Comprehensive Spending Review to embed value for money across Government and setting an ambitious new agenda to improve procurement.

Meeting the productivity challenge A.10 These levers can work together to help the UK raise productivity performance. For example, to take advantage of rapid technological change, Government trains people in skills and contributes to infrastructure needed for research and innovation. Strong market frameworks encourage competition and protect intellectual property, ensuring firms have incentives to innovate. The tax system can play a role in helping the UK to remain competitive, fostering R&D, innovation and enterprise and attracting businesses to the key high growth areas of the future. Regulation and procurement need to be designed in a way that encourages, not hinders, innovation.

Ensuring the UK is prepared for future challenges A.11 Further to the policies to raise productivity outlined above, in order to build the UK's strengths in innovation and respond to the challenges and opportunities of future technological change, the Government will produce a new innovation strategy to set out what more can be done to create the best possible conditions for innovation across the economy. The strategy will be published in Spring 2008 and build upon the Sainsbury Review recommendations, which the Government accepted in full and is implementing.

A.12 An enterprise strategy to build a new enterprise framework to help businesses to grow and reach their full potential will be published in Spring 2008. The framework will

be informed by the views of the business community and others. To support competition, building on recent reforms to the legal framework and cases brought under it, the Office of Fair Trading (OFT) will set out next year its strategy for how considerations of the long-term productivity impact of competition will inform its portfolio of projects.

A long-term strategy A.13 This is a long-term strategy for productivity growth and the success of the UK economy. It builds on the substantial programme of reform carried out over the past decade, ensuring policy evolves to address the key challenges and make the most of the opportunities presented. This is, however, not something Government can do in isolation. Firms of all types have a crucial role to play in meeting the productivity challenge: seizing opportunities and making the most of favourable and competitive market conditions; working with Government to identify and develop the future reform priorities; and helping to ensure implementation of existing policies and reforms is as effective as possible.

A.14 This document is structured in four chapters. The first outlines the importance of productivity to UK living standards in the long run, and summarises the UK's performance to date. The second outlines the reforms made over the past decade, designed to improve UK productivity. Chapter 3 sets out the productivity challenge going forward in light of the longer term challenges facing the UK, and the nature of the UK's productivity gap today. The final chapter describes the Government's overarching framework for improving UK productivity and the steps it is taking to make further progress towards meeting the productivity challenge.

THE UK'S PRODUCTIVITY PERFORMANCE

INTRODUCTION

1.1 This is the seventh paper in the Government's 'Productivity in the UK' series. The first document¹ analysed the UK's productivity gap and described the Government's strategy for raising productivity. The second paper in the series² developed these themes into key productivity drivers as a framework for the Government's response. Later papers in the series analysed productivity from a regional and then local perspective. The fifth³ and sixth⁴ papers outlined a set of productivity indicators to monitor progress and evidence supporting the drivers of productivity growth.

1.2 This paper outlines the Government's overarching framework for increasing the productivity growth rate and narrowing the overall gap with comparator countries. It sets out five levers through which the Government can use to make the most difference to the UK's productivity performance and effectively respond to the long-term challenges faced.

1.3 The first section of this chapter explains why sustained productivity growth is crucial to the UK's long-run prosperity. The second section discusses briefly how productivity is measured and why labour productivity is used as the Government's key measure. The final section outlines the UK's productivity performance to date.

THE IMPORTANCE OF PRODUCTIVITY

1.4 The Government's central objectives are to achieve high and stable levels of growth and employment. Productivity and employment are the key determinants of growth and therefore of living standards and quality of life.

1.5 The UK enjoys a high standard of living as measured by Gross Domestic Product (GDP) per capita. UK GDP per capita was bottom of the G7 in every one of the ten years before 1997; it is now second in the G7, over taking European competitors of Germany and France.

1.6 It should be noted that GDP is a measure of economic activity and so while it is the appropriate measure of output in productivity analysis, it is not a perfect measure of wider welfare. Metz, Riley and Weale (2004) show that between 1997 and 2002 the real GDP of both France and the UK grew at 2.7 per cent per annum. However, real income, which they argue is a better measure of welfare as it relates more directly to resources available for current and future consumption, grew at 3.2 per cent per annum in the UK compared to just 2.5 per cent in France. More recently Sefton and Weale (2006) have proposed a measure of aggregate real income that they argue is more closely linked to welfare than GDP. The Government continues to monitor developments in this area.

¹ *Productivity in the UK: The evidence and the Government's approach*, HM Treasury, November 2000.

² *Productivity in the UK: Progress towards a productive economy*, HM Treasury, March 2001.

³ *Productivity in the UK: Benchmarking UK productivity performance*, HM Treasury & DTI, March 2004.

⁴ *Productivity in the UK 6: Progress and new evidence*, HM Treasury & DTI, March 2006.

The determinants of economic growth

1.7 Economic output can be raised by:

- increasing the labour input in an economy;⁵ or
- increasing the output of each unit of labour input.

Increasing labour input

1.8 In terms of labour input, increases in the number of hours worked can be achieved by increasing the population, increasing the proportion of the population in work, or increasing the hours which people work. However, there is a constraint to the contribution of labour to long-run economic growth as there are obvious limits to the number of people of working age available to work, and to the hours that can physically be worked. In addition, working longer hours involves a trade-off with leisure time, and people may choose to enjoy more leisure time by working fewer hours as they become better off.

Increasing the productivity of workers

1.9 Alternatively, growth can be achieved through raising the average amount produced for each hour worked or the amount produced per worker. Such increases in labour productivity can be achieved, for example, through:

- improving the quality of labour – for example, by hiring more skilled workers, improving the skills of existing workers, or providing incentives for workers to work more efficiently;
- increasing the intensity with which labour uses capital – likely to occur through increasing the quantity or quality of capital, for example installing a new IT system to allow workers to undertake tasks more quickly;
- new technology – adopting or inventing a new technology that allows workers to produce more output per unit of labour or to produce a new product, for example through the introduction of faster microprocessors; and
- innovative work practices – finding more efficient ways of combining capital and labour in production, for example working more flexibly.

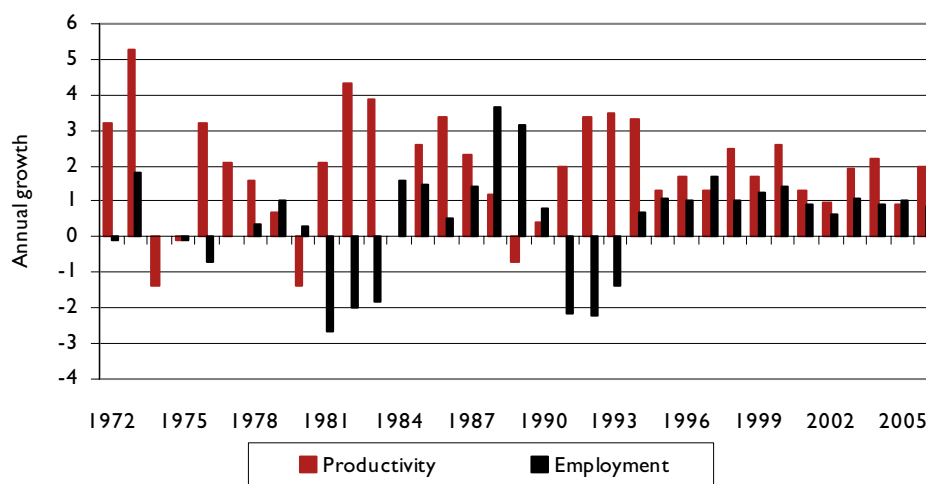
1.10 These mechanisms for increasing output are not limited in the way that employment and hours worked are, although individually they may be subject to diminishing returns. Therefore, in the long run economic theory suggests that only increases in labour productivity can produce ongoing increases in living standards. This is reflected by actual experience – since the beginning of the previous economic cycle in 1986 labour productivity growth has accounted for around 80 per cent of total economic growth, with the other 20 per cent being driven by growth in total hours worked.

Productivity and employment growth

1.11 Economies with strong periods of employment growth may experience relatively low productivity growth because new workers can be less productive while they gain new skills. By contrast, as shown in Chart 1.1, in the UK since the mid-1990s there have been significant increases in both employment and productivity.

⁵ Either by increasing total employment or by increasing the hours worked by the current labour force.

Chart 1.1: Employment and Productivity Growth



Source: ONS

MEASURING PRODUCTIVITY PERFORMANCE

1.12 This section sets out in more detail the different ways of measuring the productivity of an economy and the advantages and disadvantages of each. There are three main measures:

- output per worker;
- output per hour worked; and
- Total Factor Productivity (TFP).

Labour productivity **1.13** Output per worker and output per hour worked are the central labour productivity definitions used by the Government. As explained earlier, they are measures of the amount produced for a certain amount of labour input; are closely related to a measure of living standards; and can be reliably measured, including internationally.

1.14 Output per hour worked is generally the preferred measure, as it takes account of variations in hours worked. However, hours worked are not identically measured across countries. It is only recently that international comparisons of productivity series based on output per hour worked have been classified as official statistics (and not experimental).

Total factor productivity **1.15** However, numerous other factors contribute to the production of output, such as the levels and quality of capital investment, land used, the availability of infrastructure, innovations and new technology, and improved skills of workers. Labour productivity improvements do not indicate which of these factors is driving that improvement.

1.16 Total Factor Productivity (TFP) – also known as Multi-Factor Productivity (MFP) – is the rate of productivity controlling for both labour and capital inputs and seeks to isolate the factors described above. Growth in TFP can only be achieved through improvements in how the inputs to the production process are used, particularly the

efficiency with which they are combined together. The advantage of using TFP is that it reflects how effectively several factors of production are combined. This can capture a range of influences such as economies of scale, the quality of labour, competition, organisation and developments in technology.

1.17 However, TFP has two disadvantages: firstly, international comparisons of TFP are very difficult due to data availability and measurement issues; and secondly, while it is a measure of how effectively inputs are being used it is conceptually more difficult to relate to overall prosperity.

1.18 In 2007 the Office for National Statistics (ONS) began publishing experimental MFP estimates which apportion growth in output to growth in the factor inputs of capital, (quality adjusted) labour, and growth in a residual representing disembodied technical change – advances in technology not embodied in capital.⁶ The MFP residual includes factors such as investment in R&D, software and intangible assets such as brand equity and organisational capital, economies of scale, omitted inputs, adjustment costs, cyclical effects, inefficiencies and measurement error. The data suggests that MFP contributed to around one quarter of overall output growth between 1997 and 2005.

Public sector productivity

1.19 Whole economy productivity measures include measures of public sector productivity: the ratio of public sector outputs (e.g. health improvements directly attributable to NHS care or increased educational attainment directly due to schools) to total inputs and the volume of expenditure on those services after allowance for wage and price changes. So raising public sector productivity is important in ensuring that resources and capacity are effectively utilised to deliver high quality public services and to contribute to overall productivity and efficiency. Historically, all countries including the UK measured aggregate public sector productivity by using measures of inputs (i.e. total spending on the public sector, wages, goods and services) as an approximation for public sector outputs. Such measures, by definition, imply zero productivity growth and are therefore misleading. Box 1.1 describes progress on improving measures of public sector productivity.

⁶ ONS *Productivity handbook*, Office for National Statistics, 2007.

Box I.1: Progress on measuring Public Sector Productivity

Following the Atkinson Review,^a the UK Centre for the Measurement of Government Activity (UKCeMGA) was set up by the National Statistician as a specialist unit within the ONS. Its purpose is to take forward work needed to respond to the challenges the review had identified and to strengthen the capability of ONS to publish in the UK National Accounts authoritative and coherent measures of the output and productivity of government-provided services. The focus is on the four main spending areas; health, education, public order and safety and social protection.

Following publication of articles on each of these areas proposing better measures of output and productivity in health, education, social care and social security administration the UKCeMGA held a consultation on the general principles to be employed.^b

The conclusions drawn following this consultation were incorporated in the overall strategy for measurement of public service output published in July 2007.^c

^a *Measurement of Government Output and Productivity for the National Accounts*, Sir Tony Atkinson, January 2005.

^b *Establishing the Principles*, UKCeMGA, September 2006.

^c *Measuring Quality as Part of Public Service Output*, UKCeMGA, July 2007.

Adjusting for economic cycles

1.20 Increasing productivity is a long-term goal and some policies and economic changes may take many years to have their full effect. Furthermore, productivity performance can vary within the economic cycle as capacity utilisation rises or falls. Productivity is likely to grow more rapidly when output is growing rapidly and grow more slowly when output is growing slowly.

Chart 1.2: Productivity and the output growth (per cent)

Source: ONS (productivity), HMT (Output gap)

1.21 As Chart 1.2 shows, labour productivity measured on a per hour basis and a per worker basis fluctuates significantly within particular phases of the economic cycle and both measures have largely followed a cyclical pattern since the start of the economic

cycle (1997H1).⁷ Given the substantial cyclical fluctuations in productivity, to assess whether a country is making progress towards achieving a sustained increase in the rate of productivity growth it is important to abstract from these fluctuations and measure underlying trend productivity growth.

International comparisons of productivity

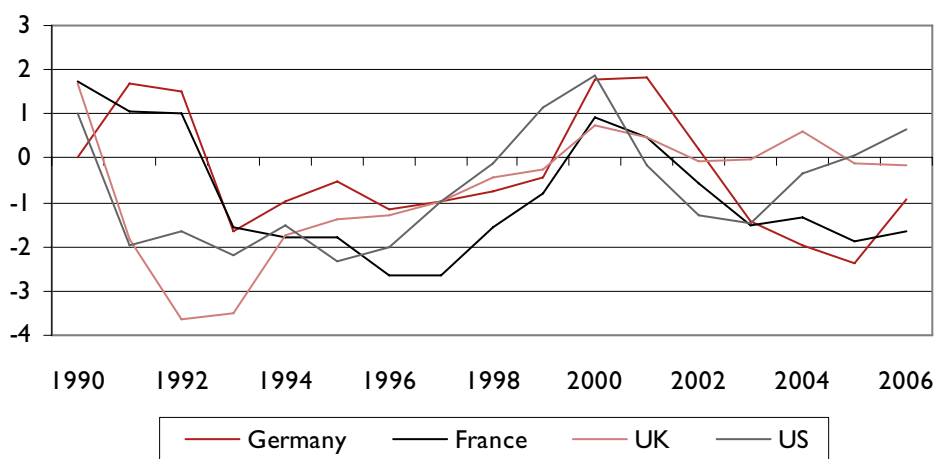
1.22 An alternative way of assessing progress is to benchmark performance against appropriate comparator countries. There is a range of measurement issues that need to be considered to ensure such comparisons are valid, including the points of countries in their economic cycles and the use of Purchasing Power Parities (PPPs).

Comparing economic cycles

1.23 As discussed in the previous section, productivity performance is generally affected by cyclical factors and to make meaningful comparisons of international productivity these cyclical distortions need to be stripped away. Given data constraints, it makes sense to compare countries when they are at similar points in their economic cycles. This is the approach the Government currently takes.

1.24 The Government uses OECD output gap estimates to determine in which years comparator countries are at similar points in their cycles. When the most recent published assessment was made the most appropriate years for international comparisons appeared to be 1995, 2000, and 2002 - years when the UK, Germany, France and US seemed to be at the most similar points in their cycles. However, since these dates were set data revisions mean that more appropriate dates might now be 1997 and 2000. Chart 1.3 shows the OECD's most recent output gap estimates for the comparison countries.

Chart 1.3: International output gaps (percentages)



Source ; OECD Economic Outlook No. 81

⁷ HM Treasury's approach to dating the economic cycle is set out in more detail in the Treasury papers *Trend Growth: New evidence and prospect* (December 2006); *Evidence on the UK economic cycle* (July 2005); *Technical note on cyclical indicators* (December 2005) and *Trend Growth: Recent Developments and Prospects* (April 2002). HM Treasury's assessment that the last economic cycle ended in 1997H1 was audited by the NAO at the time of the 2005 Pre-Budget Report , who concluded that this judgement was reasonable.

Using Purchasing Power Parities

1.25 International productivity comparisons use productivity measures based on GDP, which is measured in each country's domestic currency. To compare levels of productivity between countries requires converting output into a common unit, which is generally done using PPPs. PPPs are relative price levels, based on a country's representative basket of goods and services to convert output into a common currency and eliminate differences in price levels between countries.

1.26 When making international comparisons of productivity performance, either constant or current PPPs can be used depending on whether comparisons of productivity growth or levels are desired (see Box 1.2 for further details). Following public consultation⁸ in 2004, the Government announced its intention to continue using current PPPs as an indicator of relative productivity levels between countries. However, the Government takes a cautious approach to this and only defines changes in international productivity gaps of five or more percentage points relative to the UK level as significant.

Box 1.2: International comparisons of productivity using constant price purchasing power parities

In October 2007 the ONS published for the first time international comparisons of productivity using constant PPPs.

The ONS's productivity comparisons have in the past only used current PPPs, which allow the productivity gap to be measured for any particular year. Current PPPs are the best indication of the most recent and relevant price structure and can therefore be used to provide snapshots for specific years. These give the best estimate of the productivity gap between the UK and other G7 countries for any chosen year.

However, comparisons using current PPPs cannot be used to provide time series because year-on-year comparisons also pick up changes in the price structure. Constant PPPs need to be used instead as this means that only volume changes in output are captured. However, over longer periods these constant PPPs will fail to reflect changes in the price structure.^a

The new data using constant PPPs shows that the UK has experienced faster productivity growth since 1991 than all other G7 countries on both the output per worker and output per hour measures. The Government will continue to monitor the trends in these data closely alongside the current PPP data used for assessing the Productivity Public Service Agreement.

a Further details on the methodology and the recommended uses of both these approaches can be found at www.statistics.gov.uk/cci/article.asp?id=1844.

THE UK'S PRODUCTIVITY PERFORMANCE

1.27 The 2004 Spending Review announced a Public Service Agreement (PSA) to demonstrate progress by 2008 in raising UK productivity growth over the economic cycle, improving competitiveness and narrowing the productivity gap with the US, France and Germany.⁹ The remainder of this chapter considers the UK's performance to date against these measures.

⁸ *Productivity in the UK 5: Benchmarking UK productivity performance*, HM Treasury & DTI, October 2004.

⁹ *2004 Spending Review: New Public Spending Plans 2005-2008*, HM Treasury, July 2004.

Performance over the economic cycle

1.28 As discussed above, in order to assess productivity performance over time it is important to control for cyclical factors, since productivity growth varies with the economic cycle. To make an assessment of underlying performance the Government measures productivity growth between 'on-trend' points over each half of an economic cycle to compare current performance to performance with previous cycles.

1.29 Table 1.1 shows that both the core measure of output per hour and output per worker have increased progressively over each of the last two and a half economic cycles, and this increase is particularly pronounced over the first half of the most recent cycle.¹⁰ Output per hour productivity growth in the first half of the current economic cycle was 2.70 per cent, compared to 1.95 per cent over the previous cycle, and 1.86 per cent over the cycle before that.

Table 1.1: Trend Output Per Hour Worked¹

	Underlying ²	Actual
1978Q1-1986Q2	1.55	1.86
1986Q2-1997H1	2.13	1.95
1997H1-2001Q3	2.89	2.70
2001Q3-2006Q4 ³	2.33	2.33

¹ The decomposition of HM Treasury's trend growth estimates and projections into labour input make allowances for employment and hours worked logging output as explained in Table A2 of the '2007 Pre-Budget Report and Comprehensive Spending Review'.

² Underlying productivity refers to the productivity rate adjusted for employment rate growth. New workers are estimated to be 50 per cent as productive as average workers, an assumption informed by econometric evidence and LFS data on entry wages.

³ Estimates based on the assumption that the economy passed upwards through trend in 2006Q4.

1.30 The 2007 Pre-Budget Report and Comprehensive Spending Review estimated that trend output per hour productivity has grown at 2.3 per cent since 2001. This estimate is based on the period 2001 Q3 to 2006 Q4, on the assumption that the economy passed up through trend in the final quarter of 2006, although it is too early to assess whether this marks the end of the economic cycle.

1.31 Recent ONS data have also shown strong output per hour growth measured on an annual and a quarterly basis. After slowing in 2005 to 0.8 per cent, the annual growth rate increased to 2.4 per cent in 2006 and maintained this rate into 2007 – with four-quarter growth of 2.9 per cent in the first quarter and 2.3 per cent in the second. As discussed above, such data can only be used meaningfully to assess overall productivity performance when looked at over the cycle.

¹⁰ HM Treasury's latest assessment of the economic cycle is set out in the 2007 Pre Budget Report and Comprehensive Spending Review.

International performance

Historical international performance

1.32 The UK has had a long-standing and well-documented productivity gap with the US, France and Germany. Crafts (1997) suggests that while the UK had one of the highest GDP per hour worked levels in the world at the turn of the 20th century, by 1950, it was ranked 5th (behind both the US and Australia). By 1973, the UK had slipped to 11th, falling behind most European countries.

1.33 In the late 18th century Britain became the first country to experience an industrial revolution with very substantial growth in productivity.¹¹ However, the US caught up with and then surpassed the UK in productivity performance during the 1890s and the US productivity advantage over European countries peaked around 1950. Some commentators have suggested that the initial US productivity surge was the result of abundant natural resources and US-specific technological advances.¹² In the 20th century US investment in education and skills set alongside innovations such as mass production are likely to have driven further productivity growth.¹³

1.34 Following the Second World War, the UK and key European economies enjoyed a degree of catch-up in productivity growth with the US as they imitated US innovation and technology. This catch-up process was slower for the UK than it was for France and Germany, and so the UK slipped down the overall productivity rankings. This slower catch-up may have been due to the UK's relatively low investment in research and development and human capital, with a decline in vocational training, and weak firm level competition.¹⁴

1.35 The oil shocks of the mid-1970s led to macroeconomic instability and a significant slowing in productivity growth in both the US and Europe. Towards the end of the period the UK began to deregulate product and labour markets. This increased labour market flexibility in the UK and assisted productivity growth¹⁵ but some of this potential may have been offset by reduced UK Government spending on infrastructure and education. Much of the increase in the gap during the post-war period is traditionally attributed to policy error and institutional failure, in particular weak competition policy, lack of investment in skills, powerful but decentralised unions and macroeconomic instability.¹⁶

1.36 The US appeared to experience a structural break in the early 1990s, almost doubling its productivity performance. Investment in Information and Communication Technologies (ICTs) was an important driver of this productivity surge but European countries seemed unable to match this growth.¹⁷ In particular, productivity in the US ICT using sectors grew at around 5 per cent per year, while the same sectors in Europe were growing at 2 per cent a year. Recent ONS revisions to ICT software investment now suggest that the UK enjoyed similar levels of ICT software investment to the US over this period. However, research suggests that due to slower adjustment processes in

¹¹ *Monitoring the World Economy, 1820-1992*, Maddison, 1995; *Forging Ahead and Falling Behind: The Rise and Relative Decline of the First Industrial Nation*, Crafts, 1998.

¹² *Forging Ahead and Falling Behind: The Rise and Relative Decline of the First Industrial Nation*, Crafts, 1998.

¹³ *Britain's Productivity Gap with the United States and Europe: A Historical Perspective*, Broadberry and O'Mahoney, 2004.

¹⁴ *Country Studies: The United Kingdom. In Technological Innovation and Economic Performance*, Nickell and Van Reenen, 2002; *British Economic Growth Since 1945: Relative Economic Decline...and Renaissance?*, Bean and Crafts, 1996.

¹⁵ See for example *British Unions: Resurgence or Perdition?* Metcalf, 2004.

¹⁶ *Some Dimensions of the 'Quality of Life' During the British Industrial Revolution*, Crafts, 1997.

¹⁷ *Information Technology and Productivity: Where Are We Now and Where Are We Going?* Oliner and Sichel, 2002.

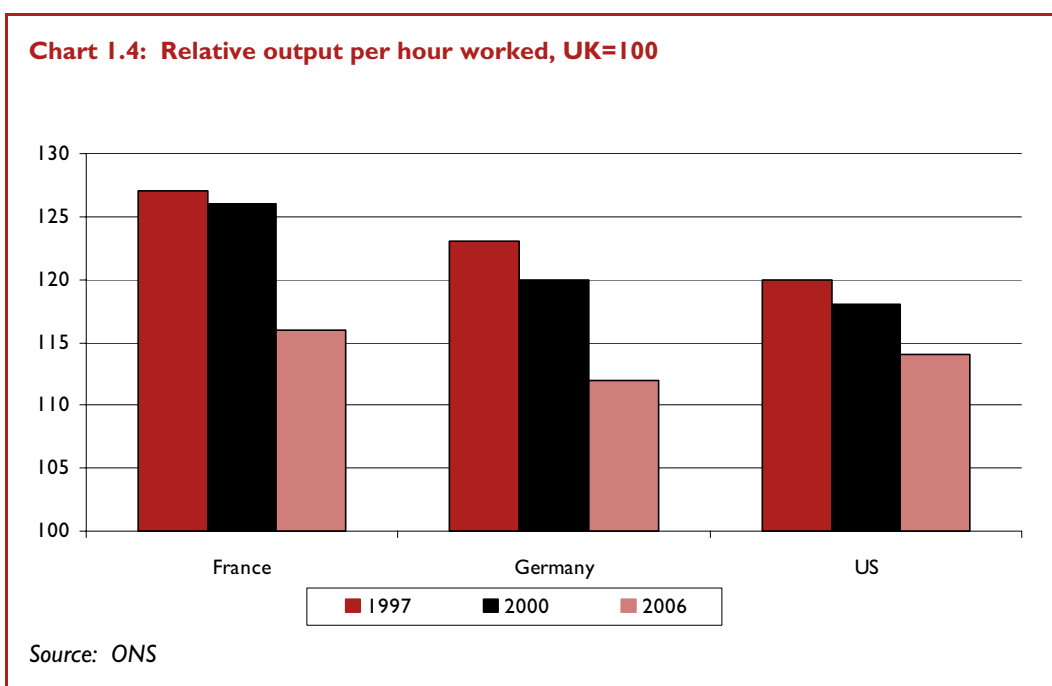
organisations, European firms were not able to translate ICT advancements into productivity gains as quickly as their US counterparts.¹⁸

Recent international performance

I.37 As discussed above, comparisons of international productivity performance will be distorted if countries are at different points in the economic cycle. Key comparator countries were assessed to be at similar points in the cycle in 1997 and 2000.

I.38 Chart 1.4 sets out international comparisons of output per hour worked. Since 1997 the UK has:

- narrowed the gap with France by more than a third (from 27 index points to 16);
- narrowed the gap with Germany substantially (from 23 index points to 12); and
- narrowed the gap with the US (from 20 index points to 14).



I.39 Productivity performance has been similarly marked on an output per worker basis. On this measure the UK is now on a comparable level with Germany, the gap with France has halved since 1997 (from 21 to 9 index points), and the UK has kept pace with the US's impressive performance (with the gap narrowing slightly from 27 to 23 index points since 1997). The OECD recently completed its 2007 Economic Survey of the United Kingdom. Its findings are summarised in Box 1.3.

¹⁸ *Technology, Productivity and Public Policy*, Griffith, 2007.

Box 1.3: OECD Economic Survey of the UK

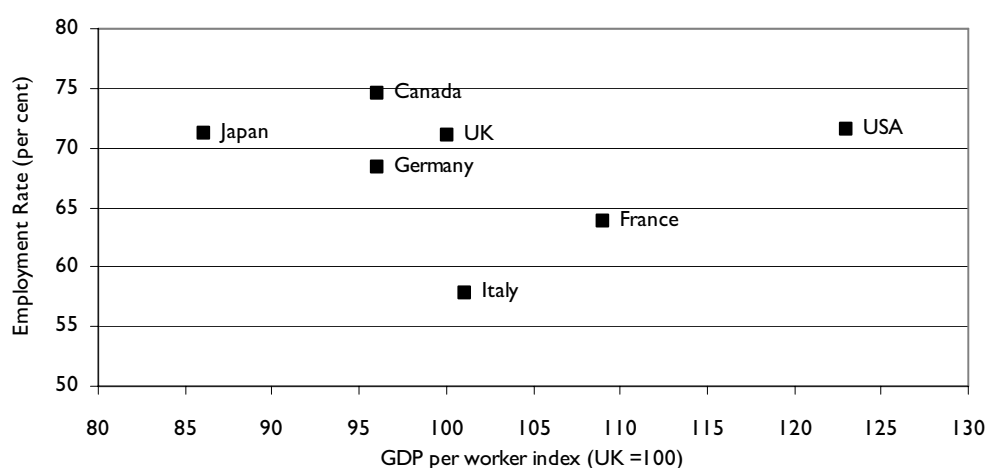
The OECD published an *Economic Survey of the UK* in September 2007. The survey recognised the UK's strong productivity growth over the past decade and the narrowing of the productivity gap with continental European countries. It also noted that the UK's rate of productivity growth needs to increase to make progress in narrowing the gap with the US.

The UK's relatively free product and labour markets were seen as putting the UK in a good position to respond to the opportunities offered by globalisation. However, a number of areas were identified where reform could bring further benefits:

- planning and land-use regulations could be providing barriers to new firms entering markets;
- regulatory burdens and tax complexities could raise the costs of doing business; and
- past underinvestment in research and development, transport infrastructure and skills provisions could prevent the UK from moving up the value chain in product development.

The survey recognised that progress was being made in all of these areas. Chapter 4 of this document outlines the key measures in place to improve the UK's productivity performance.

Comparative productivity and employment performance **1.40** International comparisons of productivity performance should also include employment performance for the reasons discussed above – both productivity and employment determine living standards and economies with strong periods of employment growth often see relatively low productivity growth because new workers can be less productive as they gain new skills. Chart 1.5 shows a comparison of productivity and employment in the G7 in 2006.

Chart 1.5: Comparisons of Productivity and Employment in the G7

Source : OECD and HMT

2

A DECADE OF REFORM

THE GOVERNMENT'S APPROACH TO REFORM

2.1 The previous chapter showed that productivity growth is essential for the UK's long-term prosperity, and that progress is being made to narrow the gap with comparator countries. This progress has coincided with substantial reform in a number of areas, determined by the Government's productivity framework.

2.2 The Government's framework for tackling the productivity challenge has been based on two objectives:

- maintaining macroeconomic stability to ensure businesses and individuals have the certainty needed to make long-term investment decisions; and
- microeconomic reforms to tackle market failures around the drivers of productivity.

2.3 The framework itself identified five drivers that underlie long-term productivity – competition, innovation, skills, investment and enterprise. The impact of these drivers on productivity and the interaction between them was set out in detail in Chapter 4 of *Productivity in the UK 6: Progress and new evidence*. This chapter considers the key reforms the Government has made since 1997, and the progress to date under each driver.

COMPETITION

2.4 Competition drives productivity through a range of channels. In a competitive market, customers are able to choose from whom and what they purchase. To stay ahead of their competitors firms need to compete on quality and price, and to look for new markets to generate profits.

2.5 In the process of improving and developing new products and services, firms increase their productivity. They innovate to improve quality and access new – sometimes international – markets, and they develop the skills of their workforces to improve both the quality and quantity of their outputs. A competitive market, with low barriers to entry, also gives entrepreneurs the opportunity to enter and succeed. In that market, the firms with the highest productivity, and therefore the highest profits are able to increase market share; those who are least productive leave the market. These mechanisms increase the productivity of individual firms and the UK as a whole.

Reforms to the competition regime

Strong competition in every market

2.6 The Government's overall strategy is to ensure there is strong competition in every market in the UK. This means ensuring that the UK's competition enforcement authorities are world class and consumers are protected against potential abuse of monopoly powers in sectors such as utilities, where there can be significant barriers to entry. It also means remaining open to trade and investment flows. The UK has been one of the most open developed economies during this recent period of globalisation, which is likely to have contributed to higher productivity.

1998 Competition Act **2.7** The 1998 Competition Act made fundamental reforms to the competition regime. It introduced prohibitions of anti-competitive behaviour and abuse of dominant position, aligning UK competition law more effectively with that of the EU regime. It introduced tough new powers for the OFT to penalise infringements, including fines of up to 10 per cent of turnover for up to three years for firms participating in anti-competitive agreements.

2002 Enterprise Act **2.8** The Enterprise Act 2002 built on these reforms by increasing the independence of the competition authorities and removing ministerial intervention from almost all merger and market cases, except those raising public interest concerns. It gave the Office of Fair Trading (OFT) new and wider powers to promote consumer interests, including the power to conduct ‘market studies’ where there is evidence that a particular market is not working well for consumers. The Act also went further in terms of sanctions, introducing criminal penalties for firms and individuals engaged in cartel or price fixing activities.

2.9 The Government has also reformed the independent economic regulators who protect consumers against potential abuse of monopoly power in sectors, such as the utilities, where there are very significant barriers to entry. Independent economic regulators in the utilities sectors protect consumers against potential abuse of monopoly power, promoting competition where possible and regulating prices where necessary.

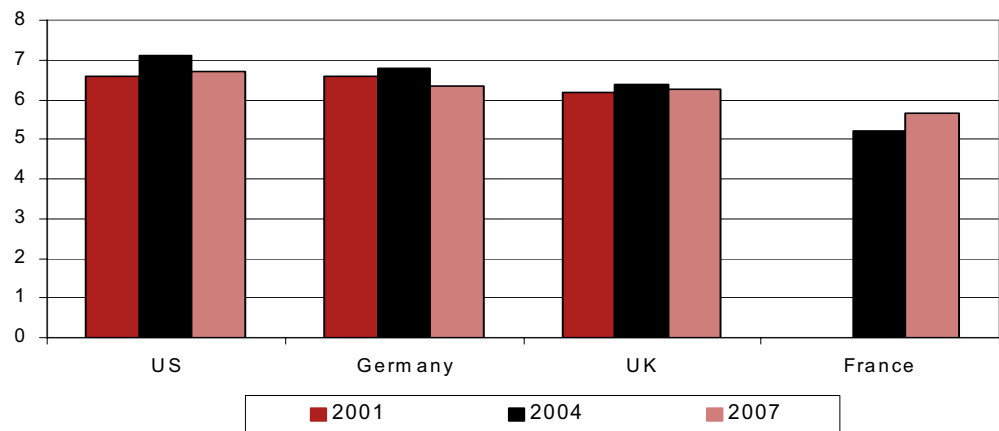
Evidence of progress

2.10 Between 2000 and 2006-07, the competition authorities generated direct consumer savings of at least £870 million. Recent work commissioned by the OFT suggests that competition enforcement action also has a significant deterrent effect, producing additional benefits to consumers that may be at least a further £600 million per year.¹ The UK’s competition regime is generally considered to be among the best in the world. KPMG’s latest peer review of the perceived effectiveness of the UK’s competition regime (Chart 2.1) shows the UK’s competition regime ranked third overall and explains that relative to the last review (in 2004), the UK has narrowed the gap with the US and Germany but has dropped slightly relative to a strongly performing EU regime.

¹ *The deterrent effect of competition enforcement by the OFT: Discussion document*, Office of Fair Trading, November 2007, For the research report, see *The deterrent effect of competition enforcement by the OFT: A report prepared for the OFT by Deloitte*, Office of Fair Trading, November 2007.

Chart 2.1: Ranking of competition regime – peer review 2001, 2004 and 2007

Index (scale 0 – 10) – EU result is equal to six in each year



Source: PricewaterhouseCoopers, 2001; KPMG 2004, KPMG 2007. Note: Sample size for France in 2001 was too small for reliable results to be produced

2.11 The latest Global Competition Review of individual competition enforcement agencies continues to rank the Competition Commission and the OFT very highly. The Competition Commission is ranked joint first (‘elite’) for 2006 alongside the European Commission’s DG Competition and the US Federal Trade Commission and OFT is ranked in the top 10 (‘very good’).

Open markets and competition

2.12 Openness to international trade and investment flows can help make the UK’s business environment more competitive, as openness to international product and capital markets implies exposure to competitive pressure from abroad. The UK has a relatively open economy with exports and imports of goods and services in 2006 representing around 58 per cent of GDP. This is more than double the percentage seen in the US (25 per cent) and at a similar level to France (55 per cent). However, it is significantly lower than Germany (84 per cent), where trade and investment flows have increased rapidly in recent years.

INNOVATION

Innovation spillovers

2.13 Innovation – the transformation of an idea into a new or improved product or process – has a direct and significant effect on productivity growth. Not only does successful innovation benefit those firms undertaking it, but it also tends to have ‘spillover’ effects that create wider benefits to the overall economy. These spillovers can increase the productivity of all firms as new processes and ideas are emulated – as happened, for example, following the introduction of assembly lines which drove large-scale productivity improvements in manufacturing. New technologies, such as mobile communications, can have similarly significant effects creating new products and markets. Some new innovations are generated directly by firms. Others, particularly in completely new fields, have their roots in research undertaken in universities and institutes. The commercial development of such research is another powerful example of a spillover effect.

Historic performance **2.14** The UK is often thought to have lagged behind other countries in terms of innovation, although robust evidence over a long historical period is scarce. Crafts (1997) suggests that the UK's relative economic decline between the 1950s and 1970s was in part due to a 'relatively weak capacity for innovation and for making effective use of technological change'. Furthermore, throughout the 1980s and early 1990s, the UK suffered from declining public expenditure on Research & Development (R&D) in real terms and flat business expenditure.

Reforms to increase innovation

Increased public investment in science **2.15** The Government's strategy has been to reverse the long-term under-investment in the UK's science base, support knowledge transfer between higher education institutions and firms, and address market failures in business investment in R&D. This was set out in the *Science & innovation investment framework 2004-2014* and major reforms have been backed by substantial new investment. The total science and engineering base budget has increased in real terms from £2.7 billion in 1997-98 to £4.2 billion in 2004-05.

2.16 This has resulted in increased funding for the UK science base to support excellence, investment in the research infrastructure to create world-class facilities in universities and research institutes, support for emerging technologies through the business-led Technology Strategy Board, and funding for knowledge transfer activities between universities and firms through the Higher Education Innovation Fund (HEIF).

R&D tax credits **2.17** To stimulate business investment in R&D, which can generate spillover benefits, the Government has introduced an R&D tax credit, first for Small and Medium Enterprises (SMEs) and later for large firms and has increased their generosity over time.

Evidence of progress

2.18 The UK has made strong progress in a number of areas:

- knowledge transfer activity from universities has increased dramatically – for example, between 2000-2001 and 2005-06 university income from businesses increased by more than 100 per cent and income from licensing increased by more than 200 per cent;
- the UK leads the US, France and Germany on both the number of academic papers produced per head and the number of citations of academic papers per head. With just 1 per cent of the world's population, the UK undertakes 5 per cent of the world's research, publishes over 12 per cent of all cited papers and almost 13 per cent of papers with the highest impact.² UK scientists claim around 10 per cent of internationally recognised scientific prizes every year; and
- up to 2004-05 there had been nearly 20,000 claims for R&D tax credits, representing nearly £1.5 billion in support.

2.19 Overall, the UK's performance on innovation to date appears to be mixed. Despite having a strong science base, the UK appears to have low levels of R&D and patenting, although these can be partly explained by UK-specific factors such as

² PSA target metrics for the UK research base, Office of Science and Technology, 2004.

industrial structure. Further reforms to improve the UK's innovation performance are outlined in Chapter 4 of this document.

INVESTMENT

2.20 Physical investment is closely correlated with productivity performance, as it directly influences how much a unit of labour can produce. Increased investment will generally increase labour productivity by increasing the capital each worker can utilise. Evidence suggests around half of the productivity gap with the US and two thirds of the gap with France is explained by lower capital per worker.³ Historically the UK has been prone to significant economic instability – suffering from high and volatile inflation. Higher uncertainty about the macroeconomic environment is likely to have deterred investment in physical capital.

Investing in infrastructure **2.21** Infrastructure is a necessary pre-condition to economic activity, through provision of basic utility services. More widely, transport and communication infrastructure can directly improve productivity by facilitating trade and competition in goods and services, allowing physical or electronic access to clusters of economic and social activity and influencing the location decisions of business.

Reforms to remove barriers to investment

Macroeconomic stability **2.22** The Government's strategy has been to provide a stable macroeconomic environment in which firms can invest. The Government's macroeconomic framework has helped to deliver an unprecedented decade of growth and stability for the UK economy. Since 1997, GDP growth has averaged 2.9 per cent while inflation has averaged 1.6 per cent, compared with GDP growth of 2.3 per cent in the previous decade and average inflation of 4.1 per cent. Further details can be found in Chapter 2 of the 2007 Pre-Budget Report and Comprehensive Spending Review.

2.23 The fiscal framework is designed to remove the bias against capital spending by making a distinction between capital and current spending. This was combined with a commitment in the 1998 Comprehensive Spending Review, subsequently renewed, to reverse historically low levels of public investment. Since then there has been a substantial increase from just 0.6 per cent of GDP in 1997 to 2.1 per cent in 2006-07.

Planning reform **2.24** Reform to the wider planning system is also continuing to ensure it is more simple, responsive and efficient. The Barker Review of Land Use Planning⁴ and the Eddington Transport Study,⁵ brought forward recommendations for improving the planning system and the Government has published a Planning White Paper, *Planning for a Sustainable Future* (May 2007). Chapter 4 sets out the key reforms made in these areas.

Transport **2.25** The Eddington Study also examined the importance of a comprehensive and high performing transport system for sustained economic growth. It found that the economic case for targeted new infrastructure is strong and offers very high returns – the best schemes offer returns in the region of £5-£10 for each pound invested. The Government recognised this and the 2004 Spending Review announced a Long Term

³ *Cross-Country Productivity Performance at sector level: The UK compared with the US, France and Germany*, National Institute of Economic and Social Research, September 2007.

⁴ *Barker Review of Land Use Planning, Final Report – Recommendations*, Kate Barker, December 2006.

⁵ *The Eddington Transport Study*, HM Treasury, December 2006.

Funding Guideline (LTFG), with a 2¼ annual real increase in the Department for Transport's programme budget.

Tax and investment **2.26** Recently the tax system has been reformed to encourage businesses to invest. Budget 2007 announced a major package of reforms, including a reduction in the main rate of CT from 30 per cent to 28 per cent and the introduction of an Annual Investment Allowance giving an annual 100 per cent allowance for the first £50,000 of investment in plant and machinery to all businesses regardless of size and legal form. The Government has been consulting with businesses on the detailed operation of this allowance.

2.27 Finally, the tax system has been reformed to enhance international competitiveness, increase investment, encourage innovation and maintain fairness. Budget 2007 announced a major package of reforms, including a reduction in the main rate of CT from 30 per cent to 28 per cent and reforms to the capital allowances system to reduce distortions to investment decision-making by business. The Government also refocused the incentives in the tax system for small businesses on the activity of investment by introducing a new Annual Investment Allowance of £50,000 of investment in plant and machinery, enabling 95% of business to write off all of their investment in the year in which it is made, whilst increasing the Small Companies' rate of CT to 22%. The Government has been consulting with businesses on the detail of the reforms to capital allowances.

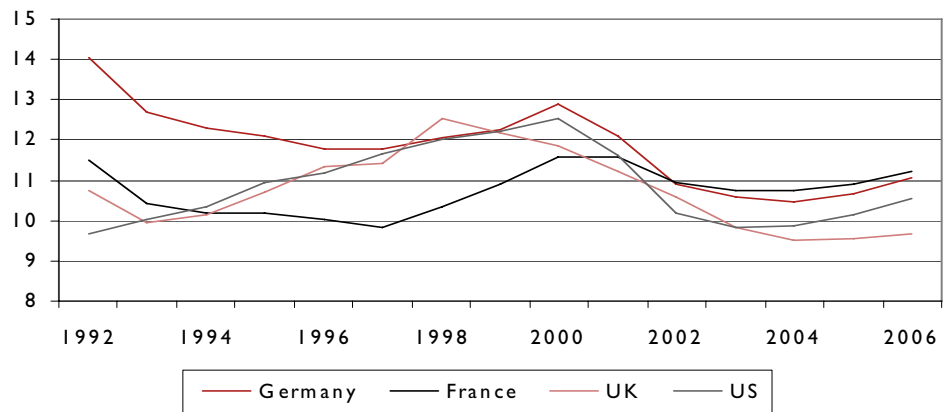
Evidence of progress

2.28 Over the past decade, the UK has enjoyed more stability in terms of GDP growth and inflation rates than in any decade since the Second World War. The UK is the only G7 economy to have avoided any quarters of contraction in output over the past decade, continuously expanding through periods of global uncertainty, including global financial market disruptions in 1998 and 2001.

2.29 This has provided the stable macroeconomic environment in which firms can invest and business investment has grown by 50 per cent since 1997. The average annual rate of business investment growth between 1997 and 2006 was 5.2 per cent, compared with 3.5 per cent over the period 1979 to 1996.

2.30 Chart 2.2 shows that since 2000 UK business investment as a proportion of GDP has on average been slightly lower than in France and Germany. This ratio has fallen for all countries in this period partly reflecting the falling price of investment goods relative to the general price level in the economy.

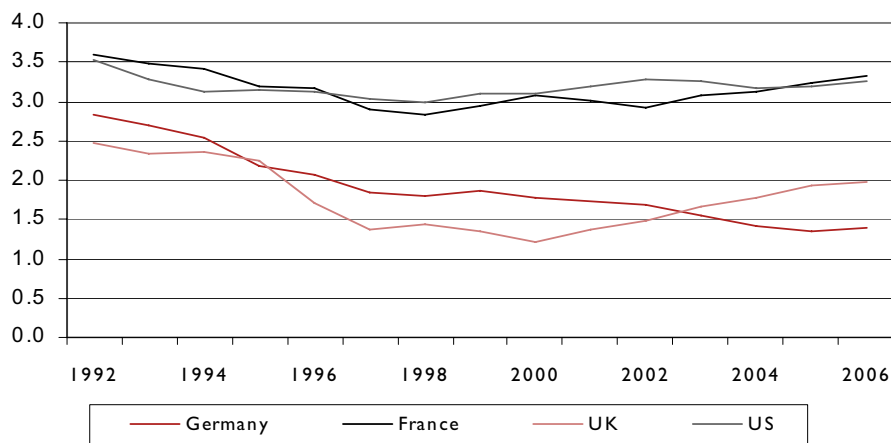
Chart 2.2: Business Investment (percentage of GDP in current prices), 1992-2006



Source: OECD

2.31 Chart 2.3 shows that UK government investment as a proportion of GDP has been growing since 2000, and is no longer the lowest of the four countries, having overtaken Germany in 2003. Government investment covers a number of different contributions to the economy’s capital stock, in particular infrastructure, such as transport networks and the provisions of public services that would otherwise be underprovided by the market. The rate of growth of government investment in the UK has also been rising faster than the other three countries.

Chart 2.3: Government Investment (percentage of GDP in current prices) 1992-2006



Source: OECD

Foreign Direct Investment

2.32 The UK has had high levels of inward Foreign Direct Investment (FDI) as a percentage of GDP compared to comparator countries and emerging economies such as China and India through the 1980s to 2004. Between 1997 and 2006 the UK saw \$796.6 billion of inward investment flows meaning that its stock of FDI stood at \$1,135 billion by 2006.⁶ As a percentage of GDP, this is the largest stock of any G7 country. Indeed, US companies have made more cumulative investments in the UK than in any

⁶ World Investment Report, UNCTAD, 2007.

other country in the world. Furthermore, evidence suggests Chinese and Indian companies are more likely to invest in the UK than any other European country⁷.

2.33 In summary, the UK performs well in terms of FDI but capital stock levels and government investment are still lower than in comparator countries. However, the continuing macroeconomic stability experienced in the UK over the last decade has ensured that the investment climate is attractive and Chapter 4 of this document summarises the plans set out in the 2007 Pre-Budget Report and Comprehensive Spending Review for further public investment, for example in transport and housing infrastructure.

SKILLS

2.34 The overall level of education and skills in the workforce can have a critical impact on productivity growth, particularly in more developed economies. Improved levels of skills contribute directly to improved productivity but can also have wider impacts helping to generate new innovations, technologies and ideas that benefit the whole economy. The effects of globalisation including greater international competition, accelerating technological change and changing patterns of consumer demand are likely to increase the demand for higher-level skills and greater adaptability on the part of individuals.

Historic low skills

2.35 The UK's skills performance has been historically poor in comparison with the other major industrialised economies. In particular the UK has suffered from having a relatively large proportion of the adult population with low skills, including large numbers with poor literacy and numeracy. Performance in higher-level skills has generally been more impressive but, until recently, only a relatively small proportion of the population entered higher education.

Reforms to improve skills

2.36 To tackle this historic weakness, the Government has combined investment with reform and:

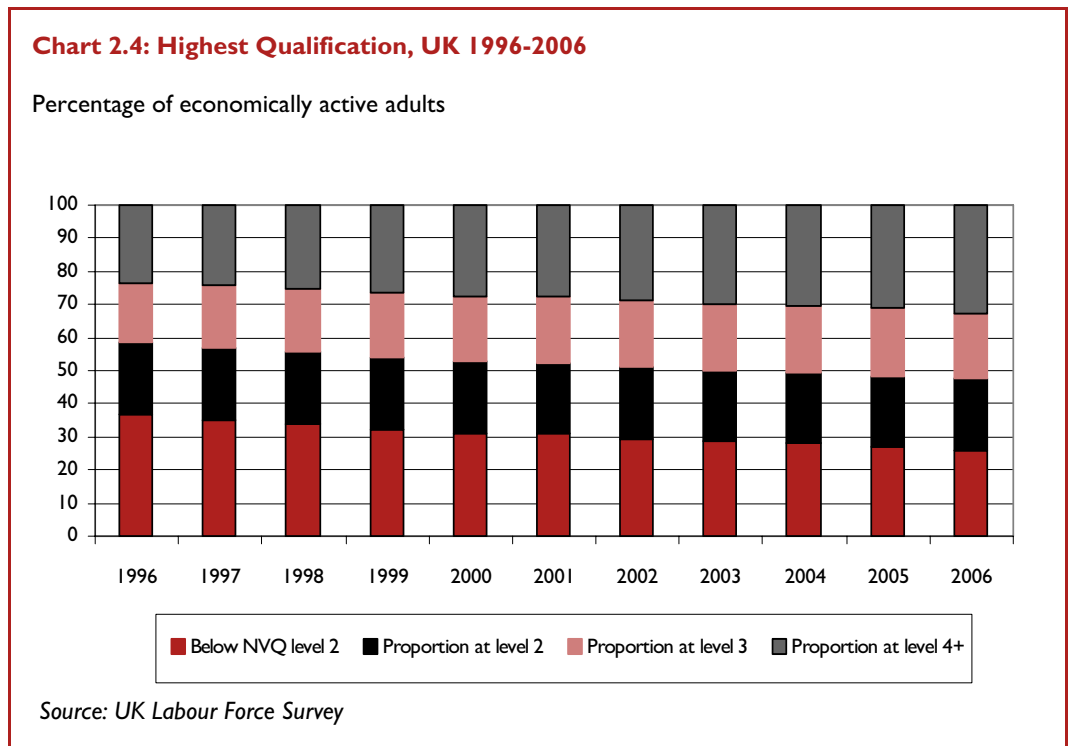
- increased UK education spending from 4.7 per cent of GDP in 1996-97 to 5.6 per cent in 2007-08, from one of the lowest in the industrial world to one of the highest. Per pupil funding including capital will rise to £6,600 by 2010-11, from under £2,500 in 1997;
- strengthened routes into Higher Education which has increased the participation rate in Higher Education to 43 per cent of 18-30 year olds, with a target to increase participation towards 50 per cent by 2010;
- reformed and expanded the Apprenticeship programme, with the numbers of young people on Apprenticeships growing from 75,000 in 1997 to 250,000 in 2006-07, with completion rates up from 24 per cent in 2001-02 to 63 per cent in 2006-07. Apprenticeships are undertaken by around a quarter of 14-19 year olds as part of their transition from school to work;
- set stretching PSA targets to reduce the stock of low skills in the workforce, alongside entitlements to free training for any adult lacking a first, full Level 2 qualification or with literacy and numeracy needs; and

⁷ *European Investment Monitor*, Ernst & Young, 2005.

- introduced the Highly Skilled Migrant Programme for migrants who can demonstrate they have the skills and experience to help the UK compete in the global economy. Between 2002 and the end of 2005, around 30,000 migrants successfully applied to this scheme.

Evidence of progress

2.37 The skills profile of the UK has been gradually improving over the last decade. Chart 2.4 shows that the percentage of the UK’s adult population in work (or actively seeking it) who have skills lower than Level 2 standard has declined to 26 per cent from approximately 37 per cent in 1996. The proportion of the population at levels 2 and 3 appears to have been relatively stable over recent years, at around 21 per cent and 20 per cent respectively. There has been progress in improving the proportion of the population at Level 4 and above, with the proportion rising to almost 33 per cent from approximately 24 per cent ten years ago.



International comparisons of skills

2.38 Although the UK’s skills profile does appear to be improving, international comparisons suggest that further progress is still required to improve the relative position, particularly with respect to the US and Germany. OECD analysis of levels of educational attainment show that the UK has a higher than average proportion of people with degrees, (including in science, engineering and technology), although this proportion is still behind that seen in the US and slightly behind Germany. The UK has a relatively low proportion of its population qualified at the intermediate level, below all three comparator countries, and a relatively high proportion with low-level skills. In terms of low skills, the UK is on a par with France, but has more than twice the proportion seen in Germany and the US.

2.39 To take a long-term view of the UK’s skills position and the likely challenges the Government commissioned Lord Leitch to undertake an independent review in 2005. Chapter 4 sets out the implementation plan for the Leitch Review of Skills and the

Government's future plans for focusing on skills as a lever to promote further productivity improvement.

ENTERPRISE

2.40 Enterprise – the creation and growth of firms – increases ideas, knowledge and skills and provides incentives for others to innovate through raising competition. Entrepreneurship can be viewed as dynamic competition or what is sometimes called creative destruction. This occurs when new firms or entrepreneurs enter the market with new technology or work practices and compete with existing firms, which tend to have more mature technology or work practices. If these new firms are more productive then productivity levels will rise as more mature firms also adopt these innovations or are replaced. Therefore enterprise can raise TFP through both increasing competition and innovation.

2.41 The Government is encouraging the creation and growth of new firms and ensuring that anybody with the potential to succeed in business should have the opportunity to do so. In practice, this means focusing on a range of factors that can influence entrepreneurial activity including the availability of capital for small firms, the regulatory environment where it might have particular burdens on new or growing firms, and new entrants and intangible 'cultural factors' that may affect the willingness of some groups in society to start a business.

Encouraging firm creation and growth

2.42 Since 1997, the Government has:

- supported the Small Firms Loan Guarantee (SFLG) targeted at firms with viable business propositions who are unable to obtain debt finance due to lack of collateral or track record. During 2006-07, over 2,700 businesses were able to borrow over £210 million through SFLG;
- introduced Enterprise Capital Funds which invest in potentially high-growth small firms who are affected by the equity gap, with over £141 million in funding agreed to date, and continued to support Regional Venture Capital Funds;
- improved the Enterprise Investment Scheme (EIS) and Venture Capital Trusts (VCTs) to target the schemes better and encourage investment in smaller, higher-risk unquoted companies. The EIS has raised over £6 billion, invested in over 14,000 smaller, higher-risk companies, while VCTs have invested over £3.2 billion in over 1,400 smaller, higher-risk companies;
- introduced the Enterprise Management Incentives (EMI) share option scheme, enabling small and medium-sized companies to recruit and retain the staff they need to develop and grow the business. EMI is the most popular tax-advantaged share scheme, used by over 7,000 companies since its introduction;
- introduced Community Investment Tax Relief (CITR) to stimulate private investment in disadvantaged communities by providing a tax incentive to individuals and companies that provide funds for Community Development Finance Institutions investing in not-for-profit and profit-seeking enterprises in or serving those communities;

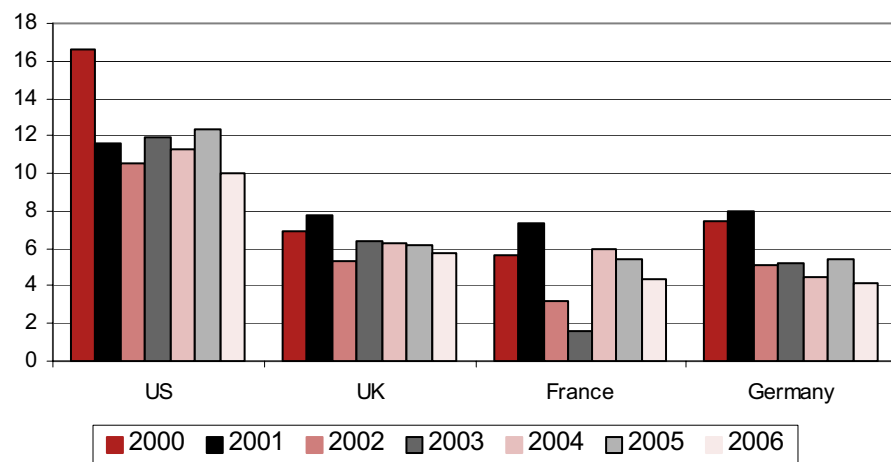
- simplified the tax system, saving business more than £300 million per year;
- established the nine Regional Development Agencies (RDAs) to take leadership in formulating regional economic strategies, supported by a single funding pot. These strategies cover economic development and regeneration, promotion of business efficiency, innovation, investment and competitiveness, promotion of employment, and enhancing of skills relevant to employment; and
- commissioned the Hampton Report to identify ways to reduce the administrative burden of regulations on business.

Evidence of progress

2.43 In comparison with France and Germany, the UK performs reasonably well on the enterprise driver. The UK still lags behind the US and more can be done in terms of improving attitudes and lowering barriers to enterprise. Chart 2.5 shows that the number of business start-ups has fallen recently in the US, UK, France and Germany, but that the fall the UK has been considerably smaller than in the other countries.

Chart 2.5 Business start-ups -2000-2006

Per cent of the labour force either (i) actively involved in starting a new business or (ii) owner or manager of a business that is less than 42 months old



Source: Global Entrepreneurship Monitor

2.44 The costs and time associated with starting a business are indicators of the administrative burdens faced by start-up firms. The cost to start a business as a proportion of per capita income is 0.8 per cent in the UK – slightly more than the US (0.7 per cent), but less than in France (1.1 per cent) and Germany (5.7 per cent). The World Bank *Doing Business 2008* report found that the UK performs less well on the time to start up a business, taking 13 days compared with six in the US and seven in France. However, this includes the time taken to register for VAT, which businesses are not required to do – and many do not – when they first set up.

PUBLIC SECTOR PRODUCTIVITY

2.45 As well as increasing productivity in the private sector, the Government is committed to improving the productivity and efficiency of the public sector. These goals are inter-dependent. The public sector has a key role to play in supporting productivity growth through provision of public services such as education, infrastructure and the public science base. If these services do not receive adequate investment or are delivered ineffectively then they can lower the growth potential of the whole economy. The Government's objective has therefore been to deliver world class public services by linking additional investment in key public services to their reform.

Delivering world-class public services

2.46 To deliver world-class public services the Government has:

- established clear fiscal rules ensuring that spending is sustainable over the long term;
- within these fiscal rules set out prudent long-term spending plans targeted towards priority public services, such as education, health and transport with the dividend from lower debt interest and social security payments re-invested in key services;
- linked these spending increases to reforms to increase the effectiveness of public services in achieving better outcomes by setting clear goals and establishing national standards, increasing accountability, giving the front-line greater operational autonomy and support and providing services that are personalised to users' needs;
- supported front-line professionals to allow them to spend more time on their core activities, for example through the recruitment of almost 90,000 teaching assistants since 1997 – allowing teachers to focus on teaching;
- implemented a radical efficiency programme – the Gershon review – to focus resources on the front line. This is already generating savings through better procurement and a reduction in back office posts of over 40,000, and will achieve £20 billion in savings by 2008; and
- reformed the public sector capital system, underpinned by the design of the fiscal framework, to remove the historic bias against investment. This delivered a doubling of net public sector investment to address decades of under-investment in the infrastructure that supports both the private and public sectors. Transport investment will be 60 per cent higher in real terms by 2008. Capital investment in schools will have increased from £600m per annum to over £6 billion.

Evidence of progress

2.47 This investment, linked to reform, has delivered real improvements in public services which in turn support prosperity in the wider economy. For example:

- the skill level of young people joining the workforce is improving with 71.4 per cent of 19 year olds gaining at least a Level 2 qualification (achieving 5 GCSEs at grades A* to C) in 2006 compared with 66.3 per cent in 2004 and more young people than ever before participating in Higher Education. The

number of young people participating in apprenticeships is at a record level with more than 250,000 now in learning – up from 75,000 in 1997;

- waits of over six months on the NHS have been virtually eliminated. There are 90 per cent more heart and cataract operations and over twice as many knee replacements compared with 1997. There has also been a 14 per cent reduction in the number of deaths from cancer and 31 per cent from heart disease – in total over 200,000 lives have been saved since 1996 as a result of reductions to mortality rates from cancer and circulatory diseases among people aged under 75; and
- the Office of Government Commerce has been established, playing a key role in delivering over £8 billion of efficiency savings from public procurement.

3

THE PRODUCTIVITY CHALLENGE

INTRODUCTION

3.1 The previous two chapters set out the UK's productivity performance over the past decade and the major reforms that have contributed to this improved performance. However, despite this progress, a gap still remains. This is likely to be for a combination of reasons:

- the **structure of the UK economy** may tend towards a different distribution of economic activity, which may explain some of the productivity gap;
- limitations in **comparability and coverage of data** means that UK productivity performance may be under-measured – particularly around the areas of the public sector, certain service industries and measurement of investment;¹
- there might be **specific market and regulatory failures** that result in the UK having a lower level of productivity than other countries. For example planning regulations might distort business location decisions; and
- structural reform, by its very nature, **takes time to feed through** to aggregate productivity.

3.2 The productivity debate is a dynamic one, and while the UK's productivity performance has been improving, the nature of the productivity challenge has also been evolving. This chapter summarises the key long-term challenges influencing the productivity agenda, then considers how the nature of the productivity challenge might have evolved over the past decade – first by breaking down the productivity gap into its core components, second by assessing the contribution of different sectors of the economy to the productivity gap, and finally by looking at developments in the drivers of productivity.

PRODUCTIVITY AND THE LONG-TERM CHALLENGES

3.3 The UK faces a number of long-term challenges and opportunities, discussed in the 2007 Pre Budget Report and Comprehensive Spending Review, that are influencing the productivity challenge in different ways going forward, including:

- demographic and socio-economic change, with an increasing old age dependency ratio;
- intensification of cross border economic competition, with new opportunities for growth, as the balance of international economic activity shifts towards emerging markets;
- increasing pressures on natural resources and the global climate, requiring action by governments, business and individuals to maintain prosperity and improve environmental care; and

¹ A significant work programme is underway in all of these areas – for example the work of the Atkinson review of public sector productivity measurement, ONS work on productivity measurement and ongoing work on intangible investment.

- the rapid pace of innovation and technological diffusion, which will continue to transform the way people live and open up new ways of delivering public services.

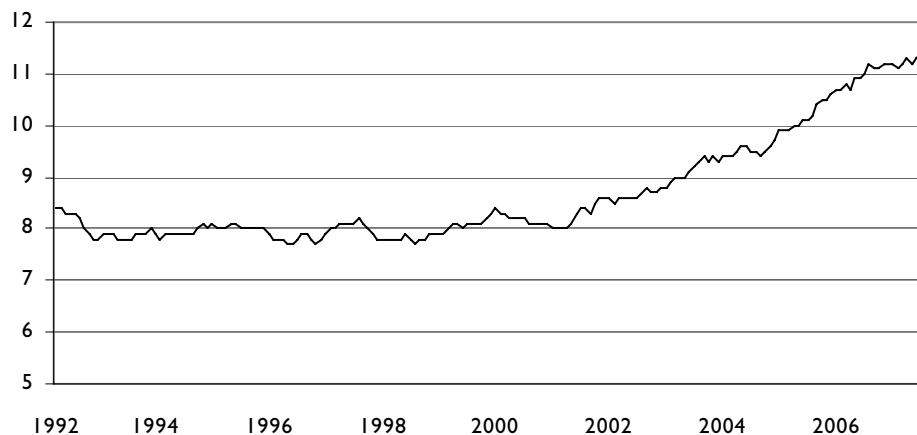
Demographic change

Ageing populations

3.4 Ageing populations will lead to an increase in the old-age dependency ratio. UN projections of the old-age dependency ratio show that the UK's is projected to rise, but to still be lower than Germany's or France's by 2015. However, all three countries are projected to have a significantly higher ratio than the US. The increase in the old-age dependency ratio means that relatively fewer people of working age will have to support relatively more people above state pension age – faster productivity growth, alongside reforms to increase the state pension age between 2024 and 2046 will make meeting this challenge easier.

3.5 In addition to faster productivity growth, increased labour market participation could help to deal with the fiscal challenges arising from an ageing population. Higher labour market participation rates would help to dampen the increases in the economic dependency ratio. Chart 3.1 shows that the labour market participation rate of those above state pension age has steadily increased in recent years.

Chart 3.1: Participation rate of those of state pension age



Source: ONS

Migration 3.6 Over a limited time horizon, increased net migration can also help to reduce the economic dependency ratio as most migrants are of working age and quickly find employment. While not necessarily impacting on productivity, Riley and Weale (2006) have estimated that around one sixth of economic growth in 2004 and 2005 is attributable to immigration.

Globalisation

3.7 The global economy is undergoing a major transformation. Economic integration is increasing as governments pursue policies that reduce barriers to trade and investment, and as technological advances erode the boundaries between what can and cannot be traded.

3.8 Increasing international trade and investment can bring dynamic benefits from enhanced competition, innovation, and skill transfer, in addition to the traditional gains from trade. Greater integration creates economies of scale, provides access to new technology and increases efficiency in global investment, producing benefits that are felt throughout the economy.

3.9 The UK is already benefiting from the recent period of globalisation:

- 1,431 Foreign Direct Investment (FDI) projects were recorded in the UK during 2006-07 creating over 36,000 new jobs and safeguarding a further 4,000;²
- R&D effects are not localised: the UK has benefited from US Research & Development (R&D) growth through inventions in US-based British firms. Estimates have indicated that UK manufacturing productivity would have been 5 per cent lower without US R&D growth in the 1990s;³ and
- the UK is a significant recipient of global outsourcing,⁴ countries often associated with offshoring are themselves becoming important markets for UK services. For example, between 1995 and 2003, growth in imports of business services in India was approximately twice the rate of the UK.⁵

3.10 Globalisation will continue to bring new opportunities and challenges for the UK. As production can be relocated increasingly easily, and as new sources of competition develop, it is important for businesses and governments to respond openly and flexibly. At an individual level too, the transition to a more open global economy can result in short-term insecurity and adjustment costs. Strong productivity growth is essential if UK companies are to be competitive and make the most of opportunities from globalisation – through emerging markets and attracting FDI. It will also help pay for the adjustment costs as globalisation intensifies economic structural change. It is for these reasons that flexibility is important – the ability of individuals to respond efficiently and quickly to change, by adapting and re-skilling.

Firm clusters 3.11 In some parts of the economy, firms are locating into clusters.⁶ This occurs when firms can make productivity gains as the size of the industrial cluster in which they are based increases. Clusters generate external economies of scale for firms through various mechanisms. First, they provide access to a pool of skilled labour, and provide incentives for workers to acquire specialised skills. They also provide a deeper labour market for specialised work forces. Second, they allow the exchange of ‘tacit’ knowledge between firms and between individuals. Third, clusters give firms the ability to draw from specialised suppliers. This can include specialist business services such as venture capital or patent lawyers, which would not be sustainable outside of a cluster. The success of the City of London as a global financial centre is in large part due to these factors.

3.12 The UK has a number of strengths which make it an attractive location for business, including its tradition of open and competitive markets; strengths in science;

² *UK Inward investment 2006/07: A report by UK Trade & Investment.*

³ *Foreign Ownership and productivity: new evidence from the service sector and the R&D lab*, Griffith, Redding & Simpson 2004.

⁴ Using exports of business and computing services as a proxy for the level of outsourcing to the UK.

⁵ *The share of employment potentially affected by offshoring – an empirical investigation*, OECD Report to the working party on the information economy, 2006.

⁶ *Globalisation and the UK: Strength and opportunity to meet the challenge*, HM Treasury, 2005.

a transparent and well-respected regulatory regime; world-class universities; a sophisticated credit market; and the use of English as the international language of business. The benefits are underpinned by the UK's high quality institutions, such as an open and transparent legal system for contesting commercial disputes and for the protection of property rights. The challenge for the UK is to remain ahead in the value chain.

Climate change

3.13 The quality of the environment is also important to productivity growth. The *Stern Review on the Economics of Climate Change* concluded that the costs of stabilising the climate are significant but manageable, whereas delay could be costly and dangerous to growth. The Review estimated that temperature increases associated with current business as usual trends could lead to damages equivalent to as much as 5-20 per cent of global GDP. But if the world takes action now, and with the right framework in place, stabilisation of greenhouse gas concentrations at a level that avoids the most dangerous impacts of climate change could cost around 1 per cent of global GDP.

3.14 Faster transition to a lower carbon economy raises significant opportunities. The environmental industry is strong and well established, with an estimated annual turnover of £25 billion in 2005, and projections suggest that the UK environmental goods and services market will grow to £46 billion by 2015.⁷ The Commission on Environmental Markets and Economic Performance, published in November 2007, advised Government on how the UK could make the most of the potential economic benefits of the transition to a low carbon, sustainable economy. However, the transition also raises challenges and so climate change policies need to be designed to complement wider government objectives, including the UK's economic and social aims. These include energy security of supply and international development, as well as productivity and competitiveness.

3.15 Action on climate change which imposes unnecessary costs, or which makes it difficult for businesses to respond positively, is likely to reduce the UK's effectiveness in arguing internationally for further and more rapid cuts in emissions of greenhouse gases. As the Stern Review sets out, early and co-ordinated multilateral action is key if the costs of tackling climate change are to be minimised. For example, working with others in Europe to create a carbon price through trading under the EU Emissions Trading Scheme (EU ETS) allows emissions reductions to be delivered at least cost.

3.16 The Government is determined to show international leadership in tackling climate change, and to demonstrate that ambitious action to reduce emissions is achievable, affordable, and consistent with high and sustained economic growth. This includes requiring careful attention to better regulation principles. The Government has set out its approach to developing cost effective policies and better regulation, to ensure that the UK is achieving its commitments to reduce greenhouse gases without placing an unnecessary burden on business, in *The Government's response to the Better Regulation Commission's Report: Regulating to mitigate climate change a response to the Stern review*.

⁷ *Study of emerging markets in the environmental industries sector*, DTI, November 2006.

Technological change

3.17 Rapid advances in technology bring changes to the nature of economic and social relationships. Innovation and technological change is a strong driver of globalisation by driving down communication costs, helping to facilitate the globalisation of the supply chain and giving rise to new, more tradable services. This means that the ability of countries and firms fully to maximise the benefits of innovation and technological change will be a crucial factor in improving productivity.

3.18 Over the last decade, innovations have occurred in many areas of science and technology including energy, manufacturing, nanotechnology and medical knowledge. Arguably the changes that have affected the organisation and activity of business most profoundly have been in Information and Communications Technology (ICT). Investment in ICT has the potential to raise the productivity and competitiveness of firms, not only by putting more technology at the disposal of any individual worker, but also by transforming firms' internal production and communication processes and the way firms interact with customers and suppliers.

3.19 Rapid technological change will continue to act as a key underlying driver of productivity and living standards. Countries which foster R&D and innovation will attract businesses in the key high growth areas of the future and skills biased technological change will contribute to increasing returns to skills. The *Sainsbury Review of Science and Innovation* argues that the UK's long-term competitive advantage in the global economy lies in high-value goods, and that continued success in this area depends upon creating the right environment to foster world-class science, innovation and skills.

THE UK'S PRODUCTIVITY GAP A DECADE ON

3.20 As highlighted in Chapter 1, the UK's productivity gap has narrowed significantly over the past decade on both an output per hour and per worker basis when compared with France and Germany. The UK has broadly kept pace with the US's impressive performance over the period. However, in terms of assessing the UK's future productivity challenge, aggregate productivity figures alone may conceal variations in productivity at the industry level or when broken down into its core components: capital, skills and Total Factor Productivity (TFP).

3.21 The Department for Business, Enterprise and Regulatory Reform (BERR) commissioned a detailed study into the breakdown of the UK's productivity gap⁸ with the US, France and Germany to increase the understanding of the structure of the UK's productivity gap. The study first looks at the UK's overall market sector productivity gap (excluding the public sector) between 1995 and 2004. It is important to note that the analysis in the study is not directly comparable with evidence from other studies or that shown in Chapter 1 due to differences in both coverage⁹ and deflation methods.¹⁰ Therefore trends and conclusions should be interpreted with a degree of caution. The study breaks the UK's productivity gap down into production inputs – capital, skills and

⁸ *Cross country productivity performance at the sector level: the UK compared with the US, France and Germany* Mason, O'Leary, O'Mahony & Robinson 2007.

⁹ Due to difficulties in measuring productivity in the public sector, the study considers only the market sectors of the economy, thus measures of the aggregate productivity gap are not comparable with ONS data.

¹⁰ The study uses sector level PPPs to deflate output. This should in theory make comparisons across sectors more accurate than using an economy wide PPP (although this will crucially depend on the quality and relevance of the price data informing those comparisons).

TFP. Finally it looks at a detailed disaggregation of productivity differentials at the industry level.

Dividing the gap into core components

3.22 One way to decompose the productivity gap is to divide it into its various production inputs – human capital, physical capital and TFP using growth accounting techniques. Analysis in *Productivity in the UK: the evidence and the Government's Approach* published in 2000, suggested that the productivity gap in 1999 with the US was around one quarter physical capital and three quarters total factor productivity, while skills and physical capital were responsible for the majority of the productivity gap with France and Germany.

3.23 While acknowledging the difficulties of undertaking decompositions of this kind, the breakdowns are instructive. Most significantly, they indicate that different factors account for the productivity gap with different countries. Capital, for example, looks more significant in explaining the gap with Germany and France, while TFP appears highly significant in accounting for the productivity gap with the US.

3.24 The study provides a time series that allows comparisons to be made between 1997 and 2004 (Table 3.1). It shows that the slight increase in the productivity gap with the US has primarily been driven by faster TFP growth in the US. However, it should be noted that this increase in the productivity gap is smaller than that required to be significant under the Government's cautious approach to assessing improvements in productivity. Compared with Germany and France, the narrowing has been more broad based, with the UK closing the gaps with both Germany and France by 5 percentage points or more and making gains in relation to capital intensity and TFP. Compared with Germany, the UK has also made gains in relation to skills.

Table 3.1: Decomposition of cross-country differences in average labour productivity (output per hour worked)

	US		France		Germany	
	1997	2004	1997	2004	1997	2004
Relative productivity	132	136	125	120	117	107
<i>Estimated percentage point contributions to the gap:</i>						
Capital	17	18	18	14	28	22
Skills	2	2	2	2	4	2
TFP	12	16	5	4	-15	-17

Source: NIESR

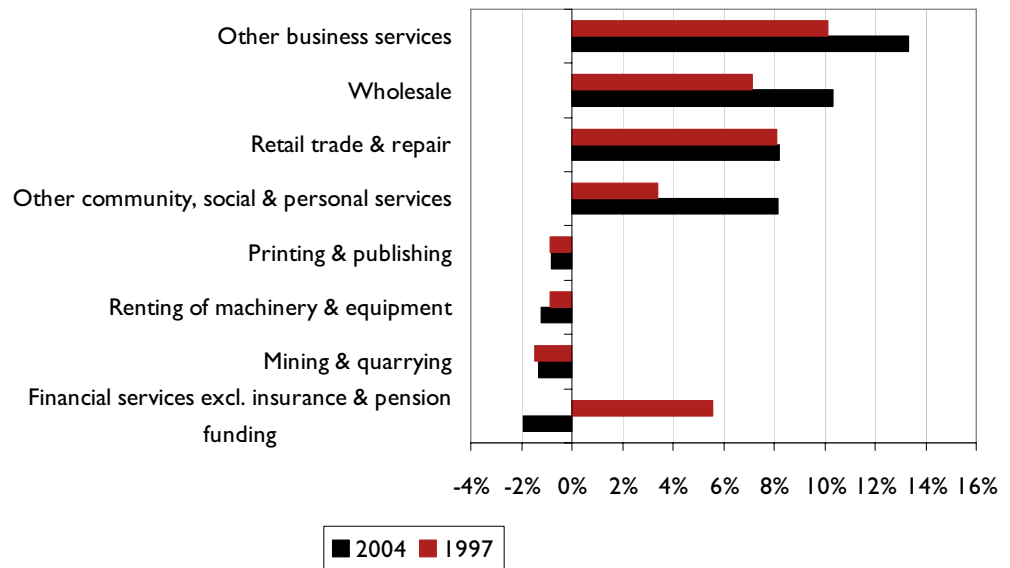
The role of sectors

3.25 It is important to establish whether the productivity gap is the result of industrial composition, or actually reflects lower productive capacity throughout the economy. However, data and definitional comparisons make international comparisons of industry level productivity difficult. *Productivity in the UK 6: Progress and new evidence* discussed the most recent evidence on the industrial composition of the gap available at the time. It found that three sectors accounted for the majority of the UK-US gap in 2001: wholesale and retail, financial intermediation and machinery and equipment.

3.26 The detailed data provided in the study now allow for a better assessment of trends in the contributions sectors make to the productivity gap with each country. The contribution is a combination of sector size and differences in productivity, and so the contribution due to the UK's different industrial structure is also shown and follows the methodology outlined in Griffith et al (2003). Data and definitional differences mean that the estimates of the sector productivity gaps have a margin of measurement error. However, the estimated gaps are informative in a relative sense.

3.27 Chart 3.2 shows the industry contributions to the gap of the top and bottom four sectors with the US. Nearly a third of the gap is explained by lower productivity in just three sectors – other business services, wholesale and retail. The contribution of these sectors to the gap has increased since 1997, with the remainder of the gap explained by all other sectors, this suggests the productivity gap with the US is fairly broad based.

Chart 3.2: Contributions to the UK-US productivity gap, 1997 and 2004, largest and smallest four sectors

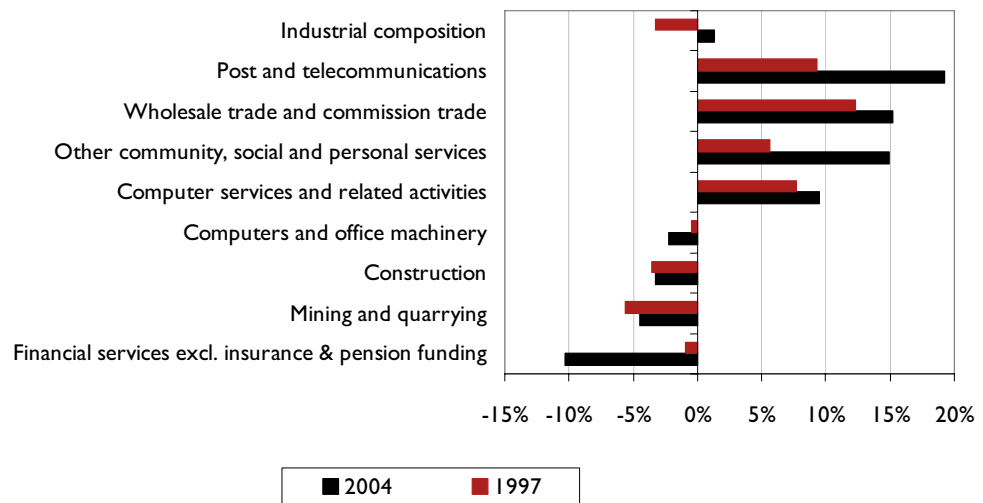


Source: NIESR and HMT calculations

3.28 The UK leads the US in a number of sectors. One notable example is in financial services – the UK has turned from lagging the US in 1997 to leading it in 2004.

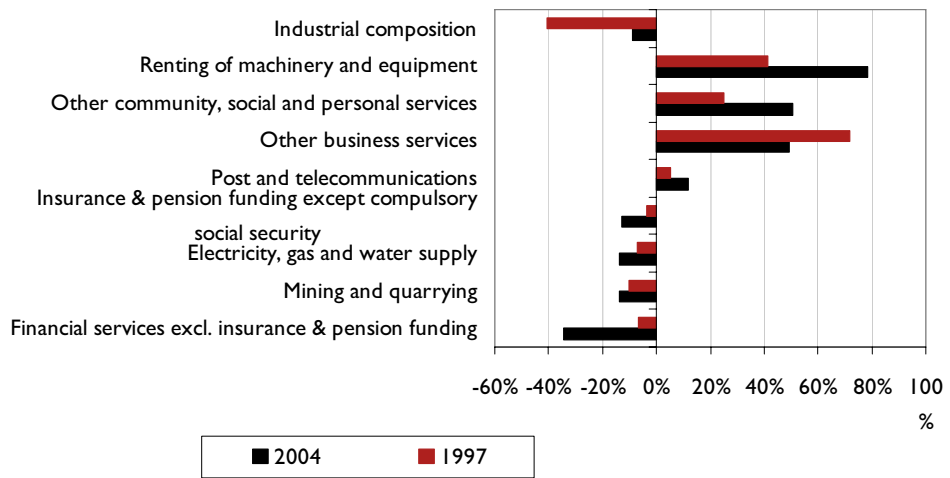
3.29 The UK's productivity gap with France and Germany is also concentrated in fewer sectors. In France, just two sectors, post and telecommunications, and wholesale trade account for nearly half the gap. The picture in Germany is more mixed, as the UK leads Germany in more than a third of sectors at this level of disaggregation; however, 'other business services' contribute to about half the remaining gap.

Chart 3.3: Contributions to the UK-France productivity gap, 1997 and 2004, largest and smallest four sectors



Source: NIESR and HMT calculations

Chart 3.4: Contributions to the UK-Germany productivity gap, 1997 and 2004, largest and smallest four sectors



Source: NIESR and HMT calculations

3.30 The service sectors identified above (in particular other business services) occupy a significant proportion of the economy, and many of these sectors contribute disproportionately to the overall productivity gap (i.e. greater than their share of economic output). For example the computer services sector contributes to around 8 per cent of the overall productivity gap with the US, while only 3 per cent of overall hours worked in the UK in 2004. However, it should also be noted that the service sectors are those in which productivity is typically the most difficult to measure and compare.

DEVELOPMENTS IN THE DRIVERS OF PRODUCTIVITY

The five driver framework

3.31 The drivers of productivity, drawn from an analysis of the underlying components of economic growth, have been successful in helping to direct and prioritise the reforms discussed in Chapter 2. However, the world is in the midst of rapid change and our knowledge and understanding of the drivers is constantly evolving. The remainder of this section sets out a selection of developments in the drivers over the past decade, in particular:

- more varied forms of business innovation, such as open and organisational innovation;
- evidence around the importance of human capital to overall economic performance, and the growing importance of management skills;
- the growing importance of intangible investment in things such as innovation, firm specific training and software, and the importance of infrastructure to growth; and
- the importance of the regulatory environment to competition and enterprise.

3.32 Much of the evidence in this section draws on analysis from the BERR Economics Paper, *BERR's role in raising productivity: new evidence*,¹¹ which explores the evidence base underpinning BERR's policies in a number of key areas.

Innovation

3.33 *Productivity in the UK 6: progress and new evidence* outlined recent evidence supporting innovation as a driver of productivity. It highlighted how innovation can raise productivity growth, for example through benefits to the firm from selling improved products or efficiency gains from improved processes, and from the spillover of new technologies and techniques between firms. The rapid pace of technological innovation, coupled with the evidence that a significant proportion of the productivity gap with the US is accounted for by TFP, which partly reflects differences in innovation performance, suggests the importance of innovation to the productivity challenge has been increasing. The remainder of this section will discuss two areas becoming increasingly important to overall innovation and economic performance: non-technological innovation and open innovation.

Non technological innovation

3.34 Investment in Research and Development (R&D) is one measure of innovation performance. Studies have found a positive relationship between R&D expenditure and productivity. However, innovation also encompasses areas such as process innovation and organisational change that are unlikely to be reflected in the R&D statistics. This type of innovation can be more difficult to define and quantify, but is of increasing importance to all firms (particularly in the service sector). The first in a new series of Treasury Economic Working Papers attempts to estimate business investment in non-scientific innovation and organisational structure and shows that such spending is of growing importance in the UK.¹² A recent occasional paper¹³ published by BERR also gives a detailed overview of some the issues highlighted here.

3.35 The UK innovation survey provides some insight into the importance of non-technological innovation. Figures from *DTI Occasional Paper 6, Innovation in the UK: indicators and insights* suggest that around a third of innovation spending is on R&D, while more than a fifth is spent on training and marketing combined. It also highlights that half of all 'innovation active' firms combine it with wider innovation (corporate strategy, management, organisational structure and marketing). Giorgio Marrano, Haskel and Wallis (2007) show that in 2004 over £24 billion was spent by businesses on organisational structure and that spending on non-scientific R&D stood at over £21 billion.

3.36 Organisational change could potentially be very important to unlocking productivity growth in UK business. Over half of the firms from the most recent UK innovation survey undertaking wider innovation were involved in organisational change. Lynch (2007) describes organisational innovation as a combination of:

- workforce training: to improve a firm's use of knowledge and new technology;
- employee voice: the firm's ability to tap into the knowledge of non-managerial workers to input into decisions on production processes and how to complete their work; and

¹¹ Forthcoming, BERR, 2007.

¹² *Intangible investment and Britain's productivity* Giorgio Marrano, Haskel & Wallis, 2007,

¹³ *DTI Occasional Paper 9: Innovation in Services*, BERR, 2007,

- work design: maintaining flexibility over the level of centralisation and the allocation of labour in the firm, for example by changing the number of layers of management within the firm.

3.37 Lynch finds that skills (in particular communication skills and literacy), age of enterprise, number of establishments, physical investment (including ICT) and R&D are highly correlated with organisational innovation.

Open innovation 3.38 A second recent area of development in innovation thinking is that of open innovation. Traditionally, innovation has been seen as an activity internal to the firm, focussing on internal R&D. Such R&D is a valuable strategic asset and often a difficult barrier to overcome for potential new entrants. To compete effectively new companies must invest significant funds in their own R&D activities. This was known as the ‘closed innovation’ model, where the company retains control over development, manufacture, marketing and distribution.

3.39 However, this model has been increasingly called into question, both theoretically and empirically. Competing firms appear to be making continually better use of external sources of knowledge. This ‘open innovation’ approach i.e. the exploitation of ideas generated outside the traditional enterprise unit, takes advantage of a number of different knowledge sources, which complement internally generated ideas. These ‘external’ knowledge centres include universities, other companies, suppliers, government research centres and customers.

3.40 Firms require a well-developed external interface in order to assimilate sources of external knowledge. A growing proportion of enterprises are recognising the potential benefits of utilising knowledge from clients and customers. According to the UK Innovation Survey, around 70 per cent of the enterprises sampled used knowledge from clients or customers in 2005 compared with approximately 54 per cent in 2001.

3.41 The evidence above suggests that some firms appear to have already adopted techniques for assimilating greater customer input into their innovative processes. Therefore, it is important to gain a greater understanding of this process and to ensure that there is better measurement of this type of activity. Better measurement would also allow international comparisons to be made so that relative performance can be measured and assessments of the effect of different policy decisions can be made.

3.42 In both cases, it is important for Government to reduce barriers to this type of activity taking place. The Government also has an important role as a consumer of innovations through public procurement and as a supplier of public services, and should ensure that there are sufficient skills and knowledge to make use of these opportunities.

Skills

3.43 *Productivity in the UK 6: Progress and new evidence* outlined recent evidence supporting skills as a driver of productivity. It highlighted the channels through which skills can raise TFP: increasing the complexity of tasks workers can carry out, increasing the returns to investing in innovation and technology, increasing the flexibility of the workforce and spillovers in learning from worker to worker. It also discussed the evidence linking skills accumulation to productivity growth.

3.44 The Leitch Review of Skills (2006) identified skills as a major challenge for future UK productivity performance, and that achieving a world-class skills base could deliver significant benefits to the UK economy through higher productivity and employment. It

concluded that there are likely to be a number of market failures in the wider market for skills, that the benefits from investing in skills significantly outweighed the costs, and that investment in basic skills delivers the biggest returns. The review also concluded that helping people with low skills could contribute to reduced income inequality and child poverty.

3.45 The review noted that, even under challenging projections, by 2020 the UK would be ranked 15th out of 30 OECD countries in those aged 25-64 with low skills, 13th in terms of intermediate skills, and 13th in terms of high qualifications. This would imply that while the UK would have moved up the international rankings, it would still remain average by OECD standards. Chapter 4 of this paper summarises the Government's plans for implementing the recommendations of the Leitch Review.

Management skills

3.46 Management skills are an important influence over how firms react to competition, new innovations and how physical investments and human capital are employed. Robust quantitative measures are difficult to obtain, partly because there is no precise definition of what constitutes a management skill that can be consistently applied across individuals, jobs and industries. This is in contrast to literacy and numeracy skills that are tested directly. Certified qualifications are often used as a proxy for skills and are easier to measure. But for management skills, which are often argued to be developed through experience, the use of formal qualifications as a measure becomes less suitable.

3.47 The Leadership and Management Advisory Panel defines management as working with others to achieve the effective utilisation and coordination of resources such as capital, plant, materials and labour to achieve defined objectives with maximum efficiency. Leadership is the ability to create a vision, provide direction and align others towards a common aim; to motivate and inspire action and to be accountable for decisions and the actions of others. In practice, management practices are a broad concept that is hard to quantify and define. The Labour Force Survey highlights the importance of managers to the economy, estimating they occupy around one fifth of all jobs, and one third when the definition is extended to include foreman and supervisors.

3.48 While perceptions of weaker management practices in the UK have existed for some time, formal evidence has been limited (largely due to difficulties quantifying and defining management skills). The evidence that does exist continues to highlight the importance of management skills. Griffith, Haskel and Neely (2006) show that differences in management account for around 40 per cent of the difference in within-firm productivity differences. Tamkin et al (2006) concludes that the UK had a lower quality of managers relative to Germany.

3.49 Bloom and Van Reenen (2006) show that managerial practices are strongly linked to firm-level productivity using a dataset of firms from the US, France, Germany and the UK. They find that that poor management practices are more prevalent when product market competition is weak and/or when family-owned firms pass management control down to the eldest sons.

3.50 In perfectly operating markets, firms should be able to choose the optimum level of management to invest in, either through training or direct hiring. However, in reality, market failures may be present which prevent this from happening. For example, there could be externalities involved in the provision of management skills through the mobility of labour, or there might be asymmetric information or short termism involved

in purchasing management training. Finally, low management skills might be a symptom of the wider weakness in UK skills.

3.51 Policies to promote management and leadership are considerably less developed than in other areas of skills development. This partly reflects a lack of evidence and understanding of the role they play in raising productivity, but also the absence of a clear rationale for Government intervention to address a specific market failure. Initiatives that are supported by Government tend to focus on potential informational failures by promoting good practice and raising awareness or addressing the particular barriers that small firms may face in training their managers.

Investment

3.52 *Productivity in the UK 6: progress and new evidence* outlined recent evidence supporting investment as a driver of productivity. It highlighted the channels through which investment can raise productivity: directly through increasing the amount of capital each worker has to utilise (capital intensity) and indirectly through helping labour to gain new skills and become more efficient at using capital. Empirical evidence suggests that levels of the overall capital stock are closely correlated with productivity performance.

Investment in intangibles

3.53 More recently, it has been suggested that traditional measures of investment might not be capturing dynamic changes in the economy that are taking place – in particular the growth of knowledge intensive industries and associated investment in intangibles.

3.54 Dynamic changes in the economy, partly as a result of globalisation, imply the importance of knowledge-based industries is increasing. Evidence from the Sainsbury review of Science and Innovation suggests that the size of the knowledge intensive sector as a proportion of GDP has increased by 5 percentage points over the past decade. With different types of economic production comes different types of investment.

3.55 Recent US and UK work,¹⁴ including recent Treasury Economic Working Paper published alongside the Pre Budget Report, considers a broader definition of investment to include a variety of intangible assets and assesses the impact this would have on measured investment and productivity. The intangible assets covered are scientific R&D, software, design, non-scientific R&D and spending by firms on reputational, human and organisational capital. Traditionally, much of this type of investment has been included in National Accounts data as purchases of intermediate inputs rather than as investment.

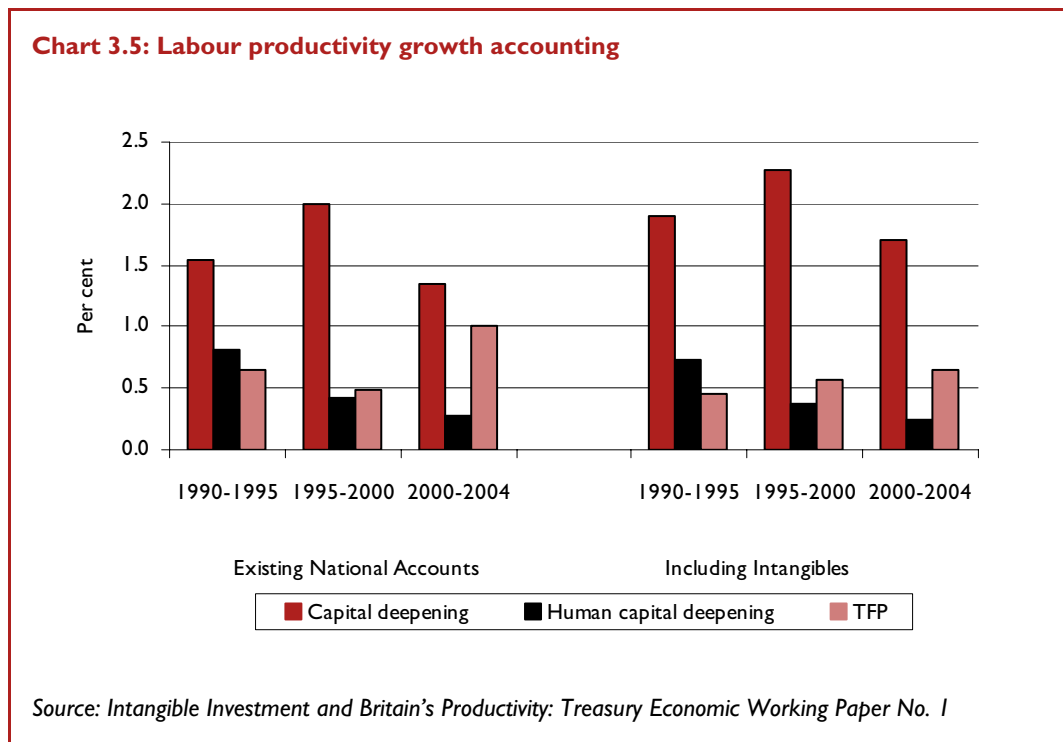
3.56 By assembling investment data on these knowledge assets and adjusting National Accounts macroeconomic variables in the appropriate way, the research finds that treating spending on knowledge as investment would have the following impact in the UK:

- business investment in 2004 would have been about double the traditional measure. Investment in intangibles was £123 billion, compared with tangible investment of £96 billion;

¹⁴ Intangible Capital and Economic Growth, Corrado, Hulten & Sichel 2006; *Intangible investment and Britain's productivity*, Giorgio Marrano, Haskel & Wallis, 2007.

- the value of measured market sector output would have been higher by about 6 per cent in 1970 and 13 per cent in 2004;
- instead of the ratio of nominal business investment to market sector output falling since 1970, it would have been rising;
- growth in labour productivity and capital deepening would have been higher than previously estimated;
- TFP growth would not have slowed down since 1990, as it appears on current measures, but would have been picking up; and
- comparing the results with the US shows that the share of intangible investment in market sector output is similar in both countries.

3.57 This work has the potential to impact upon our understanding of the UK's productivity and investment performance over the recent past. Chart 3.5 highlights the impact on estimates of labour productivity, TFP and capital deepening for the UK market sector.



3.58 It is unclear how the UK's productivity gap with France, Germany and the US would be affected were all countries to treat intangible spending as investment. Of these countries a comparable study only exists for the US and the productivity growth impact of intangibles are of similar magnitude.

Evidence on the role of infrastructure investment

3.59 One area where Government carries out significant investment is in contributing to the provision of essential infrastructure – transport, communications and energy. Overall, studies that have considered the impact of public infrastructure on economic performance have tended to find a positive elasticity of output to public capital. Crafts and Leunig (2005) concluded that transport infrastructure supports agglomeration and therefore can support productivity growth, and that as economic growth raises the demand for transport, a lack of investment can constrain growth. The

recent OECD survey of the UK concluded that good transport links are important for the efficient movement of goods and to support labour market efficiency and flexibility.

3.60 However, there are limitations to empirical work, and so results should be viewed with caution – most studies focus only on broad measures of spending on infrastructure and do not distinguish between different types of investment. There is also the caveat of causality – do countries spend more on infrastructure, as they grow richer? Or does increased investment in infrastructure increase economic performance?

3.61 The Eddington Transport Study: transport's role in the sustaining productivity and competitiveness: the case for action (December 2006) highlighted the vital role that transport plays in supporting the continued economic success of the UK, finding that a comprehensive and high performing transport system is important for sustained economic prosperity. Transport impacts on the economy by increasing business efficiency (through time savings and increased reliability), supporting economies of scale and agglomeration, increasing labour market flexibility and competition by opening up new markets, reducing the costs to trading and attracting inward investment.

3.62 Eddington concluded that it is where there are already clear signs of economic success (economic growth and very high wages and land prices), and where transport demand is starting to outstrip supply (signs of congestion and unreliability), that investment is most likely to offer real economic benefits. However, Eddington also concluded that transport infrastructure is a necessary, not sufficient condition for growth, and indeed provision of transport infrastructure can result in a weakening of performance if it simply results in business transferring to neighbouring regions. The Department for Transport outlined in *Towards a sustainable transport system: supporting economic growth in a low carbon world*, (October, 2007) how it intends to develop its appraisal methodology to better capture both the positive and negative impact of transport as possible, giving each their due weight.

The role of regulation

3.63 Maintaining competitiveness, in the face of intensified global competition is a key objective of policy makers in the UK and other industrialised nations. Regulation is increasingly perceived as a key determinant of competitiveness, impacting on a number of the drivers of productivity, particularly enterprise and competition.

3.64 A number of studies find linkages between regulation and economic performance. In particular, Nicoletti & Scarpetta (2003) find that product market reforms (comparing the state of regulation between the 1980s and the 1990s) are positively correlated with TFP growth, with the strongest correlation for reforming administrative burdens. Loayza et al (2005) find in a sample of 76 countries, a negative and significant association with growth. Gelauff & Lejour (2006) consider the implications of a cut in (solely) administrative burdens finding that a 25 per cent reduction in administrative burdens in the UK would lead to a 0.9 per cent increase in UK GDP by 2025. The UK has committed to reducing administrative burdens by 25 per cent by 2010.

3.65 Despite the evidence seeming to suggest regulation can impact upon growth, the exact channels through which this occurs are not clear. This is perhaps unsurprising, given diversity and the difficulties in quantifying types of regulation. Crafts (2006) separates the impact of regulation into two channels – direct channels, where resources are diverted to compliance and production methods are limited and

indirect channels, where regulations create entry barriers, impose rigidities in the labour market and alter wider incentives to innovate or accumulate human capital. Well-designed regulation can promote productivity where it provides a framework within which to innovate, compete and train workers.

3.66 Understanding the impact of regulation on productivity requires improved quantification of the costs (and benefits) of regulation. As Crafts (2006) notes, it is not possible, at present, to measure the impact of the compliance costs of regulation on productivity in the UK or to develop robust international comparisons. Most studies instead use objective indicators of regulation as a proxy, however these too can be the subject of methodological concerns.

3.67 Independent measures of competitiveness and the regulatory environment point to the UK having a more lightly regulated economy than other countries and being a relatively easy place to do business. The World Bank's 'Doing business' survey for example assesses countries' relative performance on a number of indicators of regulation related to running a business. While these types of surveys should be interpreted with a degree of caution because the indicators used are somewhat subjective, they can help get an idea of the regulatory burden on entrepreneurs in UK. Compared to the US, the UK performs better on 'paying taxes' and 'closing a business' which highlights some of the strengths of its regulatory framework. However, the report also suggests that there may be room for improvement, with the UK performing worse than the US on measures such as 'dealing with licenses'. Across all indicators the two countries perform about equally well in the ranking.

3.68 While the focus recently has been on reducing the burden of regulation and minimising the costs it can impose, in some cases targeted and proportionate regulation and tax incentives can promote both productivity and wider economic welfare. However, the use of regulation should be based on a strong market failure argument (or equity arguments when the market outcomes are not desirable), where regulation is the most appropriate way to guide markets towards producing the economically or socially desirable outcomes. It is important to ensure that the regulatory system is as efficient and effective as possible by removing any burdens that are unnecessary in the delivery of economic or social objectives.

4

MEETING THE PRODUCTIVITY CHALLENGE

INTRODUCTION

4.1 The previous chapter outlined the major trends and challenges facing the UK economy, summarised in the 2007 Pre-Budget Report and Comprehensive Spending Review, and in light of this, looked at the evolving nature of the productivity challenge and of our understanding of the productivity gap, the contribution of industries and the drivers of productivity over the past decade.

4.2 This chapter outlines the approach the Government is taking to meet the productivity challenge – the Government’s overarching framework for increasing the productivity growth rate and narrowing the overall gap with comparator countries. It sets out five levers through which Government can make the most difference to the UK’s productivity performance and effectively respond to the long-term challenges faced.

THE GOVERNMENT’S FRAMEWORK

4.3 Over the past decade, the Government identified five drivers of productivity – competition, enterprise, innovation, skills and investment, and undertook a significant reform programme aimed at correcting market failures in these areas. The major policies initiated under each of these drivers were outlined in Chapter 2 of this paper.

4.4 The UK has made progress over the last decade on raising the rate of productivity growth and narrowing the productivity gap with comparator countries. Since 1997 the UK has narrowed the output per hour gap with Germany by almost half, with France by more than a third and made progress in narrowing the gap with the US.

4.5 While a number of factors are likely to have contributed to this, including the UK’s policy of openness to trade and investment and a stable economy, improved performance has coincided with significant reform structured around the Government’s five drivers of productivity.

4.6 The Government’s first priority is to work to embed gains from the reforms already made, ensuring the UK remains at the cutting edge of policy development. Secondly, to build on these gains, tackling the future challenges where is a clear market failure rationale and appropriate response Government can make.

4.7 The UK faces a number of new challenges and opportunities, including an ageing population, ongoing globalisation, and climate and technological change. An ageing population underlines the importance of increasing future productivity growth, ensuring barriers to participation in the workplace are low, and an effective migration regime is in place. Increasing globalisation and technological change, alongside evidence of the importance of some of the service sectors to the UK’s productivity gap, underlines the importance of innovation and skills accumulation, and of making the UK an attractive location to do business. The UK must also continue as an effective leader internationally in tackling climate change, while realising the opportunities it presents.

4.8 Our understanding of the nature of the UK’s productivity gap and the drivers of growth has also increased. The UK has a specific skills challenge. Innovation in its widest sense is the successful exploitation of new ideas, which includes scientific and technological advances, but also factors such as process innovation, organisational

change and design, all of which are closely linked to skills. Investment is increasingly difficult to measure (as intangible investments increase and the price and quality of investment goods change rapidly), complicating our understanding of productivity performance. Infrastructure investment is also of importance to competitiveness. Quantifying the costs and benefits to regulation (alongside other policies) is important in aiding our understanding of competition and enterprise, and the trade offs with other objectives.

A focus on the priorities

4.9 The UK is well placed to meet these challenges and opportunities, but there is no room for complacency. The Government's framework for increasing productivity growth has been based on two objectives:

- maintaining macroeconomic stability to ensure businesses and individuals have the certainty needed to make long-term investment decisions; and
- using the Government's levers to undertake microeconomic reforms to tackle market failures around the drivers of productivity.

4.10 To implement this strategy effectively requires a clear understanding of the priorities going forward, informed by both evidence and dialogue with business and others, and secondly an understanding of the levers Government has to effect change, including:

- **investment in workforce and skills:** The UK's stock of human capital is important for long-run productivity growth. In many cases education would be underprovided by the market alone, and so requires the Government to play a role as an education provider, including promoting world class science and innovation in the UK, supported by business identifying skills gaps and providing job-specific training. Ensuring adults currently in the workforce have transferable skills and are flexible in the face of rapid global and technological change is crucial. Increased participation and migration that contributes to economic growth are also important in the face of demographic change.
- **infrastructure investment:** The level and quality of infrastructure, such as transport, research, communications and energy can influence the efficiency at which business operates. Government has a role to play through either directly providing and managing critical infrastructure or enabling others to invest in infrastructure;
- **taxes and regulation:** Taxes raise revenue to fund essential public services and can also be used to change behaviour. Regulation can be used to protect consumers and employees and ensure a level playing field for competition is in place. Taxes and regulation overall can impact on incentives to invest, hire and make productivity enhancing organisational changes;
- **competition and market frameworks:** Government has a role in championing free trade and open markets and ensuring market frameworks contribute to the efficient operation of product, capital and labour markets, protect firms' incentives to innovate and prevent excessive market power from being accumulated; and

- **public sector efficiency:** Public sector productivity contributes to whole economy productivity directly and increased public sector productivity increases public service output for a given level of taxation. Furthermore, public procurement can affect both competition and innovation.

4.11 The focus in each of these areas should be to pursue policies to correct market or regulatory failures and ultimately improve the drivers of growth. Ensuring these levers work together to increase productivity growth is paramount in making progress towards meeting the Governments longer-term challenges.

DELIVERING PRIORITIES

4.12 In line with the Government's framework, as part of the 2007 Comprehensive Spending Review, the Government has agreed a new set of Public Service Agreements (PSAs). The new PSAs set out the highest priority outcomes for the Government for the CSR 07 period. In order to deliver agreed reforms, meet the challenges set out earlier in this chapter and ensure continuity, the Government has renewed the productivity PSA for the period 2008-2011.

4.13 Complementing the overarching productivity PSA is one to support regional growth. Strong regional and sub-regional economies are essential to a strong national economy. In particular, unfulfilled economic potential in every nation, region, city and locality must be released to increase the long-term growth rate of the UK.

4.14 The renewal of the productivity PSAs confirms the Government's commitment to improving the UK's productivity performance. The detailed delivery agreement published sets out the Government's approach to tackling the productivity challenge, and in particular, consistent with the levers outlined above, the PSAs supporting the productivity objective:

- improving the skills of the population on the way to ensuring a world class skills base by 2020;
- ensuring controlled, fair migration that protects the public and contributes to economic growth;
- promote world class science and innovation in the UK;
- deliver reliable and efficient transport networks that support economic growth; and
- deliver the conditions for business success in the UK.

Investing in workforce and skills

Improving skills **4.15** Increasing the skills of the workforce will enable the UK to eradicate the skills gaps and shortages that undermine UK productivity and performance, with the aim that by 2020 the UK is a world leader on skills, in the upper quartile of OECD rankings.

4.16 The Government has already instigated several critical reform programmes and remains committed to ensuring these are successful. These are long-term reforms, and some will take several years to be delivered. In July 2007, the Government published its plans for taking forward the recommendations of the *Leitch Review in World Class Skills: Implementing the Leitch Review of Skills in England*. It set out a programme of reform to place employers at the centre of the skills system. Good progress is being made in establishing a new UK Commission for Employment and Skills, which will be

fully operational by April 2008. Sir Michael Rake, chair of BT Group, has been appointed as chair of the Commission and he is now working with the Government and Devolved Administrations to set up the Commission.

4.17 Train to Gain is a crucial element of the Government's ambitions for a world-class skills base in the UK. It is employer demand-led and delivers flexible training that employers need, with full subsidy for individuals that lack basic skills or a first, full Level 2 qualification. The rollout of the Train to Gain service is continuing. In its first year Train to Gain has engaged 52,000 employers and enrolled more than 240,000 learners on programmes. Over the 2007 Comprehensive Spending Review period, Train to Gain will be expanded significantly to support even more employers and low-skilled individuals to access training – the plan for this has been set out in *Train to Gain – A Plan for Growth, October 2007 – July 2010*.

Ensuring fair and controlled migration

4.18 Ensuring controlled, fair migration that protects the public and contributes to economic growth will play an important role in the UK's future prosperity. Migrants raise economic output through increasing employment and bringing skills that complement those in the existing workforce, and will continue to make a vital contribution to economic growth and to meeting skills gaps in the labour market.

Promoting world-class science and innovation

4.19 Promoting world-class science and innovation in the UK, will be crucial to maintaining the prosperity of the UK in the global knowledge economy. Competitive advantage will rely on the ingenuity and capabilities the workforce and on having an innovation system that takes advantage of the opportunities on offer. Businesses, the research and education sectors, and Government at all levels have roles in delivering a world-class innovation system.

4.20 The Sainsbury review of Government's Science and Innovation policies argues that the UK's long-term competitive advantage in the global economy lies in high-value goods, and that continued success in this area depends upon creating the right environment to foster world-class science, innovation and skills. The Sainsbury Review found that the UK has some significant strengths in research and innovation, and that the UK's industrial R&D is not seriously out of line with other economies, given its industrial structure.¹ Nevertheless, it emphasised that the UK needs to build on this foundation in order to compete in an increasingly knowledge-based global economy, and made recommendations to further improve the UK innovation system in order to secure our continued success in wealth-creation.

Investing in infrastructure

Efficient transport networks

4.21 A key pillar of the Government's overall infrastructure strategy centres on delivering a transport network that supports economic growth. This will require the reliability and capacity of key networks to be targeted through a range of measures including better management and the provision of new capacity. It will see government investment in transport focussed on supporting sustainable economic growth targeted through robust problem definition and appraisal of options. Government will set a clear strategic framework to facilitate private sector investment to deliver the required outcomes and ensure the delivery system is fit to meet future challenges.

¹ The same issues around industrial structure were found in *R&D Intensive Industries in the UK*, DTI Economics Paper No. 11, March 2005.

4.22 The Department for Transport (DfT) recently published their transport strategy² to respond to the advice from the Eddington and Stern reviews. The strategy document also set out policy and investment plans for the period to 2013-14 and a new approach to addressing longer term transport issues. Eddington's advice was that the best economic returns are most likely to be found in growing and congested urban areas, key inter-urban corridors and major international gateways which are showing signs of increasing congestion and unreliability. .

4.23 Continued stability in the public finances allows the Government to invest in infrastructure vital to the UK's competitiveness. The 2007 Comprehensive Spending Review set out the funding package for Crossrail, a major new infrastructure project, designed to provide a rapid transport link between London's main economic centres: the West End, the City and Canary Wharf. The decision to go ahead with the project recognises the importance of Crossrail in supporting the large projected employment growth in London over the coming decades. Crossrail will support London's place as a business location of choice and, by improving East-West transport links across London, will help maintain London's position as the world's leading financial centre. Crossrail is projected to generate transport and economic benefits that are more than double its cost, and to create up to 30,000 high-value jobs.

Effective planning system **4.24** Kate Barker's Review of Land Use Planning and the subsequent Planning White Paper set out how planning is key to meeting the Government's economic objectives. Through reforms proposed in the planning bill on major infrastructure projects, and new policy statements on economic development and town centre policy, the Government is reforming the planning system to help ensure it contributes effectively to the UK's competitiveness. Alongside these reforms the Government is proposing reforms to increase the efficiency of the planning process to help reduce the burden on business and individuals. The Planning White Paper proposed to reduce the number of minor applications planning authorities have to deal with, streamline the information requirements for all applications and improve the speed and efficiency of the appeals process.

Simplifying taxes and regulation

4.25 The 2007 Pre-Budget Report and Comprehensive Spending Review launched a significant programme of tax simplification to enhance UK productivity and competitiveness. The Government committed to three principles of tax simplification, launched three reviews to evaluate with business how a range of tax policies could be simplified, and announced immediate progress with over twenty tax measures that will reduce business's administrative burdens by up to £100m.

4.26 Growing international competition increases the importance of having an efficient business tax system. Reform is designed to achieve three key objectives, while maintaining sound public finances:

- enhancing the international competitiveness of UK based business;
- encouraging growth through investment and innovation; and
- ensuring fairness across the tax system.

² Department for Transport, *Towards a sustainable transport system: supporting economic growth in a low carbon world*, October 2007.

4.27 Budget 2007 announced a major package of reforms to the business tax system designed to meet these three objectives through:

- a reduction in the main CT rate from 30 to 28 per cent;
- a new annual investment allowance of £50,000 for all firms, to replace the existing first year capital allowances. The Government has been consulting with businesses on the detailed operation of this allowance;
- modernising of the capital allowances rules;
- an increase in the value of the R&D tax credits for SMEs to 175 per cent and large companies to 130 per cent from April 2008; and
- an increase in the Small Companies' Rate of CT to 22 per cent from April 2009.

4.28 The 2007 Pre-Budget Report and Comprehensive Spending Review also announced major reform of the capital gains tax regime. From April 2008 the current system of indexation and taper relief will be replaced with a single rate of charge on gains above a generous tax-free annual allowance. This will deliver a more sustainable and straightforward system that remains internationally competitive.

4.29 The Government is also undertaking the most radical and serious systemic reform of Britain's regulatory system in recent history to deliver genuine reductions in the burden upon business while continuing to deliver necessary regulatory outcomes. This includes implementing the recommendations of the Hampton Report (including reducing administrative burdens by 25 per cent by 2010), and the UK is continuing to take a leading global role towards establishing a modern risk based approach to regulation. A new impact assessment process was introduced in May 2007 to improve the quality of new regulations and minimise burdens.

Competition and market frameworks

4.30 Undistorted competition within the UK and wider markets is a central driver for productivity and growth in the economy, and is critical to encouraging efficiency, innovation and flexibility in the economy. The UK has a world-class competition regime, but it can be improved. By the end of the year the Government intends to consult on measures to further enhance the speed and simplicity of the UK merger regime and to reduce the barriers preventing those suffering loss as a result of anti-competitive behaviour from obtaining redress, through the courts where necessary, without encouraging ill-founded claims.

4.31 The Business Support Simplification Programme (BSSP) has been put in place to tackle the proliferation of business support schemes provided by different tiers of Government. The programme will reduce the number of business support schemes from over 3,000 to 100 or fewer by 2010. Following extensive analysis and public consultation, the Government announced at the 2007 Pre-Budget Report and Comprehensive Spending Review the high-level portfolio of products from which business support will be provided in the future. These identify the support that it is most appropriate for government to provide, reflecting the existence of market failures or social equity considerations. Arrangements are being put in place to subject the portfolio to regular review and robust evaluation - with business closely involved in the process - to ensure the products most effectively meet business needs and deliver value for money.

Creating the conditions for business success **4.32** Ensuring an attractive and supportive business environment will rely on the strength of the competition, corporate governance and energy market frameworks, and the use of levers in the tax administration environment and over regulatory burdens. The Department for Business, Enterprise & Regulatory Reform (BERR) will work on the framework for the competitive operation of markets in the UK and internationally and ensure an effective corporate governance regime. The Better Regulation Executive will reduce unnecessary regulatory burdens on the private, public and third sectors, primarily through reducing administrative burdens and improved quantification of the cost-benefit ratio of all new regulations. HMRC will improve the administration of tax regimes that affect business and to reduce the administrative burdens of the tax environment.

Public sector efficiency

Public sector productivity **4.33** Significant improvements have been achieved but more needs to be done to ensure the public services infrastructure provides strong foundations for a prosperous economy and fairness for all. The Government has set out its ambition of achieving over £20 billion worth of efficiencies by the end of 2007-08, in line with the recommendations of the Gershon Review, and is on track to meet them.

4.34 The 2007 Pre-Budget Report and Comprehensive Spending Review outlined the further steps being taken to embed value for money across Government – with savings of at least 3 per cent a year over the CSR07 period, releasing a further £30 billion to re-invest in improvements to key public services.

4.35 The Government set an ambitious new agenda with the publication of *Transforming government procurement* (January 2007) to improve procurement for the benefit of taxpayers, users of public services and business. The Government is committed to transforming public procurement by raising the calibre of procurement professionals, using innovation and sustainability to drive value for money over the lifetime of products, using forward procurement techniques to ask businesses to come up with the innovative solutions to public sector needs and working with the Technology Strategy Board to develop pilots before proceeding with large high tech procurement projects.

STRENGTHENED ORGANISATIONAL CAPABILITY

4.36 To complement the Government's framework and priorities, there have also been a number of changes to the machinery of government, designed to sharpen the focus of central Government on the new and very different challenges that Britain will face in the years ahead.

A new department for business, enterprise and regulatory reform **4.37** To rise to the new global challenges and maximise the potential gains from globalisation, Britain must continue to ensure a world-class business environment to support business success. The policy agenda must continue to support a dynamic, flexible and competitive economy. The new Department for Business, Enterprise and Regulatory Reform (BERR), draw together some of the functions of the former Department for Trade and Industry with the Better Regulation Executive. Its creation will establish a stronger voice for business at the heart of Government.

4.38 This Department will be responsible for the Government's objective to deliver improved productivity. It will achieve this through policies on enterprise and competition, and by promoting better regulation across Government. In addition, through deeper and more effective engagement with business, the Department will lead

the promotion of work across Government and the EU to create the conditions for business success.

A new department for innovation, universities and skills **4.39** To tackle better the challenges of technological change and globalisation, the Department for Innovation, Universities and Skills (DIUS) is responsible for driving forward delivery of the Government's long-term vision to make Britain one of the best places in the world for science, research and innovation, and to deliver the ambition of a world-class skills base. The Department oversees the science budget, which will remain ring-fenced and the dual support system for funding will be retained. The Department also contains the Government Office for Science.

4.40 The Department has responsibility for ensuring that the UK has the skilled workforce it needs to compete in a global economy, and is responsible for the development, funding and performance management of higher education (both teaching and research) and further education, working closely with the Department for Children, Schools and Families. The Department is also responsible for taking forward the Government's wider skills agenda - including the implementation of Leitch's Review of Skills. Bringing together science and skills should place the UK in a strong position to harness the opportunities globalisation presents.

The role of business

4.41 Firms of all types have a major role to play in meeting the productivity challenge: seizing opportunities and making the most of favourable and competitive market conditions; working with Government to identify and develop the future reform priorities; and helping to ensure the implementation of existing policies and reforms is as effective as possible.

4.42 A new body, the Business Council for Britain assists the Government in putting in place the right strategy to promote the long-term health of the UK economy. The Council comprises senior business leaders of UK-based businesses and provides the opportunity to bring highly experienced minds into a new dialogue with government. It advises the Prime Minister on issues that affect enterprise, business and the long-term productivity and competitiveness of the economy and meets regularly, chaired by a senior business person. It will report to the Government and to Parliament.

ENSURING THE UK IS PREPARED FOR FUTURE CHALLENGES

4.43 Increased productivity performance is a long-term goal and as such, in certain cases, requires longer term planning. Investing in the UK's infrastructure is crucial to ensuring the long run success of the UK economy. To achieve this, the 2007 Pre Budget Report and Comprehensive Spending Review confirmed a 2¼ per cent annual real increase in the Department for Transport's (DfT's) programme budget, consistent with the Long Term Funding Guideline for transport announced in the 2004 Spending Review. Furthermore, the Government extended its commitment to the Long Term Funding Guideline to 2018-19. This sustained increase in funding will allow the DfT to meet the challenges set out in the Eddington Transport Study.

4.44 Investment in the UK's science infrastructure is crucial for the UK's future innovation capacity. The 2007 Comprehensive Spending Review confirms that total public investment in the science base will rise from £5.4 billion in 2007-08 to reach £6.3 billion by 2010-11, contributing towards meeting the Government's commitment to increase investment in the public science base at least in line with the trend rate of growth in the economy

A new innovation strategy **4.45** Further to the policies to raise productivity outlined above, in order to build the UK's strengths in innovation and respond to the challenges and opportunities of future technological change, the Government will produce a new innovation strategy to set out what more can be done to create the best possible conditions for innovation across the economy. The strategy will be published in Spring 2008. It will build upon the Sainsbury Review recommendations, which the Government accepted in full, and is implementing.

A new enterprise strategy **4.46** Enterprise is critical to shaping and empowering the UK's response to the challenges and opportunities set out above. It is the entrepreneur who weighs up the balance of opportunity and risk as a business looks to start, innovate, grow or sell to new markets. In smaller businesses it is generally the owner that takes that step. By contrast, in larger businesses it is those that are also able to harness entrepreneurial abilities from within their workforce that succeed.

4.47 An enterprise strategy will be published in Spring 2008 to build a new enterprise framework to help businesses to grow and reach their full potential. The framework will be informed by the views of the business community and others and BERR are engaging with all the main business representative bodies, the Business Council of Britain and across Whitehall.

4.48 Addressing the competition driver remains important, building on recent reforms to the legal framework and cases brought under it. OFT will set out next year its strategy for how considerations of the long-term productivity impact of competition will inform its portfolio of projects.

A long-term strategy

4.49 This is a long-term strategy for productivity growth and the success of the UK economy. It builds on the substantial programme of reform carried out over the past decade, ensuring policy evolves to address the key challenges and make the most of the opportunities presented. This is, however, not something Government can do in isolation. Firms of all types have a crucial role to play in meeting the productivity challenge: seizing opportunities and making the most of favourable and competitive market conditions; working with Government to identify and develop the future reform priorities; and helping to ensure implementation of existing policies and reforms is as effective as possible.

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ISBN 978-1-84532-377-6



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