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Table of contents

Executive summary 8

Assessment and recommendations 11

Chapter 1. **Key challenges: translating a resilient macroeconomic performance into faster growth in living standards** 23
Introduction 24
Recent macroeconomic performance and outlook 26
Fiscal policy 29
Impressive macroeconomic performance also reflects flexibility in labour and product markets 34
The major challenge is to close the productivity gap 36
Reducing large numbers on disability-related benefits is the key to raise labour utilisation 39
Notes 40
Bibliography 40
Annex 1.A1. Differences between the OECD and 2005 budget projections 42

Chapter 2. **Housing: raising responsiveness of supply** 45
Assessing the risk in the current cycle 46
Policy measures to increase supply 48
Policy measures acting on demand 51
Notes 53
Bibliography 53

Chapter 3. **Public services and infrastructure: tracking the improvements** 55
Spending on health and education can still be made more efficient 56
Transport infrastructure 63
Notes 72
Bibliography 73

Chapter 4. **Pensions: options for reform** 75
The current system 76
Options for reform 79
Notes 82
Bibliography 83

Chapter 5. **Could more childcare increase labour supply?** 85
Incentives to take up work 89
Maternity leave and family-friendly working conditions 92
Flexible childcare: ensuring cost-consciousness while stimulating innovation . . . 94
Conclusions 95

Notes . . . 96
Bibliography . . . 97

Chapter 6. **From incapacity to rehabilitation and employment** . . . 99
The current system and reform proposals . . . 100
From back pain to mental health problems . . . 105
Conclusions . . . 106
Notes . . . 107
Bibliography . . . 107

Chapter 7. **Raising innovation performance** . . . 109
UK innovation performance: is it really mediocre? . . . 110
Do composition effects explain why R&D performance has been weak? . . . 113
What should policy do about innovation? . . . 118
Summary and conclusions . . . 131
Notes . . . 134
Bibliography . . . 135

Chapter 8. **Raising the level of skills** . . . 137
Diagnosis of the skill shortage and its causes . . . 138
Dealing with the skills shortage . . . 145
Summary and conclusions . . . 149
Notes . . . 150
Bibliography . . . 151

Annex A. Progress on structural reforms . . . 153

Acronyms . . . 157

Boxes

1.1. The fiscal and monetary policy framework . . . 25
2.1. Is there room for more housing? . . . 50
2.2. Recommendations to improve the responsiveness of housing supply . . . 52
3.1. The Atkinson review of national account measures of government output and productivity . . . 60
3.2. The London congestion charge . . . 67
3.3. Model predictions of the gains from national road pricing . . . 68
3.4. Recommendations for public services and infrastructure . . . 71
4.1. Mortgage equity release . . . 81
4.2. Pensions: policy recommendations . . . 81
5.1. The government's 10-year childcare strategy: *Choice for parents, the best start for children* . . . 88
5.2. Tax credits, benefits and childcare costs . . . 91
5.3. Recommendations on childcare . . . 96
6.1. Disability-related benefits . . . 103
6.2. Recommendations for bringing inactive incapacity benefit recipients into employment . . . 107
7.1. The creative industries . . . 113
7.2. Objectives of the Science and Innovation Framework, 2004-14 . . . 122
7.3. Schemes providing direct funding for R&D . . . 124
7.4. Main recommendations of the Lambert review of business-university linkages . . . 127
7.5. The world's top universities . . . 130

7.6. Summary of recommendations to strengthen innovation 133
8.1. Studies of economic returns to vocational qualifications in the United Kingdom 141
8.2. Upgrading and expanding vocationally-oriented programmes for the 14-19-year-olds 145
8.3. Recommendations for skills to promote innovation and growth 150

Tables

Impressive macroeconomic stability but structural performance can be further improved 8
1.1. Recent macroeconomic performance and projections 29
1.2. Official accounting for errors in past budget projections 33
1.3. Productivity growth 37
1.A1.1. Difference between OECD and budget 2005 fiscal projections 43
4.1. Pension net replacement rates 76
5.1. Public spending, enrolment and staff ratios in childcare and pre-primary education 89
5.2. Net income and effective tax rates when taking childcare costs into account 90
5.3. Calculation of taxes, benefits and childcare costs 92
7.1. R&D intensity by performing sector and by funding 114
7.2. The industrial structure and cross-country differences in R&D intensity 116
7.3. Alternative rankings of top world universities 130
8.1. Formal qualifications, earnings and labour market status 140
8.2. A wide earnings distribution is counteracted by high marginal effective tax rates 142

Figures

1.1. Key indicators in long-term and international perspective 27
1.2. Headline CPI inflation has picked up 28
1.3. House prices relative to conventional benchmarks 30
1.4. OECD projections of general government finances 31
1.5. Successive budget forecasts of the cyclically-adjusted current budget surplus . . . 32
1.6. Public expenditure shares 33
1.7. Changes in unemployment and manufacturing employment 35
1.8. Growth in knowledge intensive services 35
1.9. Command GDP adjustment to annual average GDP growth rate 36
1.10. The sources of income differences 37
1.11. Unemployment and inactivity rates 39
2.1. Monetary tightening usually precedes house price falls 46
2.2. Household debt servicing burden 47
2.3. The correlation between consumption and house prices 48
2.4. Projected growth in households and current housing completions 49
3.1. Public spending is still growing fast but should tail off after 2007 56
3.2. Spending and outcomes in health and education 58
3.3. The Atkinson review's effect on macroeconomic aggregates 61
3.4. General government gross fixed investment 64
3.5. Public expenditure on strategic roads and construction output of road infrastructure 65
3.6. Road traffic continues to rise 66
3.7. Government support for railways and investment in railways 70

3.8. Most intensively used train operating companies serving London are least subsidised 70
4.1. The growing importance of the pension credit 77
4.2. The fiscal cost of subsidising private pensions 78
5.1. Female employment rates vary by number of children 86
5.2. Changes in work patterns and family structure 87
6.1. Inactivity because of illness or disability 101
6.2. Coverage and generosity of disability benefits *versus* number of recipients. . . . 102
6.3. Close to half of Britons receiving benefits do not classify themselves as disabled . 104
6.4. "Pathways to work" increases the off-flow from incapacity benefit 104
6.5. Medical conditions of persons receiving disability benefits 105
7.1. R&D intensity 110
7.2. Patent indicators 111
7.3. European Community trademark applications 112
7.4. Technology intensive industries 115
7.5. Real R&D expenditure in services 117
7.6. The role of science policies and framework conditions in explaining BERD intensity across countries. 118
7.7. The role of science policies and framework conditions in changing BERD intensity 119
7.8. Government funding of BERD. 123
7.9. Government R&D funding is concentrated on larger firms 125
7.10. Tax treatment of R&D 125
7.11. PhD graduates and researchers 129
8.1. Educational attainment of the adult population 138

This Survey is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.

The economic situation and policies of the United Kingdom were reviewed by the Committee on 20 September 2005. The draft report was then revised in the light of the discussions and given final approval as the agreed report of the whole Committee on 30 September 2005.

The Secretariat's draft report was prepared for the Committee by Dave Turner and Jens Lundsgaard under the supervision of Peter Hoeller.

The previous Survey of the United Kingdom was issued in January 2004.

BASIC STATISTICS OF THE UNITED KINGDOM (2004)

THE LAND

Area (2003, 1 000 km^2):		Major cities (2003, thousand inhabitants):	
Total	243	Greater London	7 388
Agricultural	184	Birmingham	992
		Leeds	715
		Glasgow (local government district)	577

THE PEOPLE

Thousands:		Total labour force (thousands)	29 882
Population	59 778	Civilian employment (% of total):	
Net increase (annual average 2001-03)	220	Agriculture, forestry and fishing	1.3
Number of inhabitants per km^2	246	Industry and construction	22.3
		Services	76.2

PRODUCTION

Gross domestic product:		Gross fixed capital investment:	
In £ billion	1 164	In % of GDP	16.3
Per head ($)	35 683	Per head ($)	5 827

THE GOVERNMENT

Public consumption (% of GDP)	21.1	Composition of House of Commons (seats):	
General government (% of GDP):		Labour	353
Current and capital expenditure	43.5	Conservatives	196
Current revenue	40.3	Liberal Democrat	62
Net debt	36.9	Other	34
Last general elections: 5 May 2005		Total	645

FOREIGN TRADE

Exports of goods and services (% of GDP)	25.0	Imports of goods and services (% of GDP)	28.4
Main commodity exports (% of total):		Main commodity imports (% of total):	
Manufactured goods and articles	24.8	Manufactured goods and articles	28.9
Chemicals	16.8	Electrical machinery	17.8
Electrical machinery	15.0	Road vehicles	12.3
Mechanical machinery	12.5	Machinery and other transport equipment	11.1

THE CURRENCY

Monetary unit: Pound sterling		September 2005, monthly average of spot rate:	
		£ per $	0.553
		£ per €	0.677

Executive summary

The stability and resilience of the economy has been impressive and labour and product markets are among the most flexible in the OECD, but structural economic performance judged against a range of indicators can be further improved.

Impressive macroeconomic stability but structural performance can be further improved

	Period	Ranking among	
		G7 countries	All 30 OECD countries
Macroeconomic performance			
Smallest absolute output gap	Average 1998-2004	1st	1st
Lowest variance of CPI inflation	Average 1998-2004	1st	1st
Structural performance			
Liberal product market regulation	2003	1st	2nd
GDP per capita	2003	3rd	14th
Productivity per hour	2003	5th	15th (out of 27)
Skills, % of adults having more than low skills	2003	5th	17th
R&D intensity	Average 2000-03	6th	14th
Infrastructure, *Global Competitiveness Report*	2004	6th	17th

This in turn explains why in terms of GDP per capita the United Kingdom still only ranks just above the median across all OECD countries. Policies to address the apparent relative underperformance have been in place for some time and are already showing results in some areas. To further improve this situation, policy-makers should address the following key challenges:

- ***Raise the general skill level of the workforce.*** *Effective policies will help the economy to absorb innovations and adapt work processes to take advantage of new technologies and so boost productivity.*
- ***Address the apparently mediocre innovation performance.*** *Careful consideration needs to be given to how far it can be improved by policy and how much is explained by imperfect indicators and the structure of the economy.*
- ***Improve transport infrastructure.*** *The consequence of decades of under-investment has been congested roads and an unreliable rail system, which may be holding back productivity.*
- ***Increase labour utilisation by helping those claiming incapacity benefit into work.*** *An innovative approach providing more customised help and enhanced incentives to work has been piloted with considerable success. It is important that this is rolled out nationally, although this may require some change in health care priorities.*
- ***Ensure that public money is spent efficiently to contain the tax burden.*** *Increased expenditure on health and education has been accompanied by reforms aiming to ensure that resources are better used, but further improvements can be made. In expanding childcare the framework needs*

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to be carefully considered to avoid a future escalation in costs. Reforms to the pension system should aim to simplify the system as well as enhance incentives to work and save.

Despite a recent slowdown in growth, output remains close to capacity and inflation close to target, leaving the Bank of England well placed to respond flexibly to future developments. It would appear that major instability from the housing market has so far been avoided. Nevertheless, reforms to the housing market, especially with respect to property tax and planning restrictions, should focus on enhancing stability and increasing the responsiveness of housing supply. Fiscal policy has been strongly supportive since the global downturn in 2000, but the fiscal deficit is now around 3% of GDP and if it does not begin to fall in line with official projections then further measures will be required.

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Assessment and recommendations

A strong macroeconomic performance to build upon but some important challenges to address

Over the last decade, macroeconomic performance has been impressive: GDP growth has been robust and cyclical fluctuations in output have proved smaller than for almost any other OECD country, while inflation has remained close to target. This performance is a testament to the strength of the institutional arrangements for setting monetary and fiscal policy as well as to the flexibility of labour and product markets. But fiscal easing, while supporting demand since the global downturn in 2000, has led to a deficit of around 3% of GDP. However, the main challenges relate to long-run structural performance, given that the United Kingdom still only ranks just above the median in terms of GDP per capita among OECD countries and has made little progress in closing the income gap with the best performing countries. Particular priorities, where the Government is already taking action, in this respect are:

- Boosting productivity by addressing weaknesses in innovation, skills and infrastructure investment.
- Raising labour utilisation through reforms that help people claiming incapacity benefit back into work.
- Ensuring public money is spent efficiently.

Growth has slowed sharply but any easing of monetary policy should be modest

Output growth has moderated since mid-2004 from rates clearly above potential growth to rates clearly below it; growth in the year to the second quarter of 2005 was 1.7% compared to potential growth estimates of about 2½ per cent. Some moderation of growth is perhaps not unwelcome given that OECD estimates, as well as survey-based evidence, suggest the economy has been operating at, or slightly above, capacity. Inflation, as measured by the consumer price index (CPI), has picked up from a trough of just over 1% in autumn 2004 to 2.4% in August, above the 2% target. The unemployment rate has remained below 5%, but private sector wage inflation remains consistent with the inflation target. Substantial net immigration, boosted recently by immigration from the new EU countries, has probably been helpful in providing additional labour market flexibility. Responding to the subdued growth in output in the first half of the year, the Monetary Policy Committee (MPC) of the Bank of England voted to cut the repo rate by ¼ of a percentage point in August, following a year in which it had been left unchanged. This move provides some insurance against the downside risks – especially from prolonged weakness in Europe and higher oil prices as well as, domestically, from the housing market – that cloud the short-term growth outlook. However, given that the level of output is currently close to capacity, that inflation has been

increasing and is now above target and short-term indicators suggest growth may return to trend, there is not a compelling case for further rate cuts.

The risk of an abrupt housing market correction is diminishing, but policy measures should focus on reducing such a risk in the future

The marked slowdown in consumption suggests that the housing market continues to have a strong influence on aggregate consumption. The possibility of a much sharper retrenchment in consumption, brought about by a pronounced drop in house prices, remains a risk, although one that has diminished. If a relatively "soft landing" in the housing market has indeed been achieved it owes much to the strategy of gradual pre-emptive monetary tightening, in marked contrast to previous episodes when an abrupt correction in house prices was triggered by sharp interest rate rises. Nevertheless, reforms are needed to make housing supply more elastic to damp future housing market cycles. As highlighted by the *Barker review*, relaxing planning restrictions to make housing supply more responsive is likely to help and the Government is taking steps in this direction.

- Following legislation which has recently been passed, it is important to monitor closely the speed and efficiency of the planning system and progress towards the government's regional housing targets. In response to the recommendations of the Barker review, the Government should reform the planning system to increase its responsiveness to housing demand as well as providing greater incentives for local authorities to meet housing growth targets. The latter could be achieved, for example, by disregarding, for a period, council tax receipts generated by new housing from the calculation of the local authorities grant allocation from central government.
- A reform of the council tax, a tax levied on residential property, to make it more proportional to property values and based on more frequent and up-to-date valuations might also help to dampen future house price cycles.
- The extent of implicit subsidies provided in the Government's new scheme to help first-time buyers should be monitored, including any effect on house prices. However, given the scale of the scheme at present, the impact on house prices would be very marginal.

A rise in the government's revenue share in GDP is needed to meet the fiscal rules

The fiscal easing since the global downturn in 2000 has been second only to the United States among all OECD countries. This has pushed the government deficit to around 3% of GDP. The public sector has accounted for about half of all new jobs since 2000. Whether the Government has met its "golden rule", that over the course of the cycle the public sector should only borrow to invest, depends on judgements regarding the timing of the cycle. The Government's recently revised judgement that the current cycle began two years earlier than they had previously thought will help to meet the golden rule over the current cycle. But given that the margin by which it will, or will not, be met during this cycle is likely to be small, using this criterion to judge whether fiscal policy has been a "success" or "failure" is inappropriate. Clearly, the new fiscal framework has been helpful in restoring credibility to fiscal policy and the economic consequences of slightly missing

the golden rule over the current cycle should be regarded as negligible, particularly in the context of relatively low net government debt. A common feature of both official and OECD projections is that under current spending plans an increase in the tax ratio will be required to meet the fiscal rules and significantly reduce the deficit over the coming cycle. In the case of official projections this comes about through a rise in the tax-GDP ratio, reflecting fiscal drag, improved tax compliance and an improvement in corporate profitability, whereas on OECD projections additional measures would be needed.

- If fiscal developments were disappointing beyond what could be explained by weaker-than-expected growth, so that the deficit in cyclically-adjusted terms was worse than projected, then the Government would need to take measures to keep fiscal policy on track.

To make welfare programmes sustainable, continued reform is needed

Taxes and public spending have outpaced economic growth so that the public spending-to-GDP ratio reached 44% in 2004 compared with 40% in the late 1990s. Publicly-funded provision of healthcare and education has risen considerably. But flexible product and labour markets have been maintained while benefits and the overall tax pressure have been kept at levels that do not blunt incentives to look for work, helping people and families to support themselves. Maintaining this balance is crucial to ensure the sustainability of the expansion in welfare programmes.

- Efforts need to continue to increase efficiency. While outcomes in health and education have improved recently, improvements are slow to come and much slower than the expansion of inputs. Building on *payment by results*, incentives faced by providers could be further improved, for example by the introduction of incentive pay for hospital doctors, and further involvement of private sector providers may be desirable to ensure contestability.
- Where possible, users should contribute to the costs of service provision. Reinvigorating higher education based on increased fees from 2006, which students can defer and repay as income-contingent contributions once they have graduated, is a good example. But also here policy could be fine-tuned as the planned zero real interest rate implies a subsidy which is not warranted on exclusively economic grounds. Applying instead an interest rate close to government borrowing costs would free substantial government resources.

Weaknesses in infrastructure need to be addressed, but improvements in transport may equally depend on congestion charging

For decades under-investment in public infrastructure was an easy option for constraining public outlays. The government's first fiscal rule, the so called "golden rule", distinguishes between capital and current spending, and has helped to avoid such short-term expediency. Indeed, the share of government investment in GDP has risen, and there are plans for it to rise further. Nevertheless, even after it rises to just under 2½ per cent of GDP next year, it still remains relatively modest compared with many other OECD countries and

may be inadequate to correct years of neglect. The United Kingdom ranks poorly in international comparison both on survey-based measures regarding the quality of transport infrastructure and on measures of congestion, although there have been recent improvements in rail performance. Additional road building will not by itself permanently relieve these pressures, rather it needs to be combined with congestion charging. The success of the London Congestion Charge suggests that there might be growing public acceptance of the principle and growing interest in a nation-wide congestion charging scheme, although this would be costly and not feasible for some years. Nevertheless, it is important in the meantime that all tiers of Government undertake research and experimentation on smaller scale projects that build on the experience of the M6 toll road and the London Congestion Charge.

- Investment in transport infrastructure should be maintained to at least levels envisaged in current spending plans over the long term and the reasons for any persistent undershoot relative to plans should be examined with a view to taking remedial action. The case for further raising expenditure on strategic roads should be considered given that on current plans such outlays in real terms remain well below levels in the first half of the 1990s.
- The Government should monitor incentives for local authorities to pursue local congestion charging schemes. This might be done by making funds from the *Transport Innovation Fund* available sooner. Additionally, future planned increases in funding for local transport could be made contingent on local plans to tackle congestion.
- In assessing the appropriate level of public investment and subsidy for public transport, account should be taken of the criteria used to assess the national road pricing scheme, in particular giving weight to time savings resulting from less road congestion. On this basis, it seems likely that more subsidy should be directed at those railway lines which have greatest potential for relieving road congestion.
- Further measures for closer integration of investment decisions between railway infrastructure and train operations need to be found. The success of recent changes to integrate planning around Network Rail's regional offices need to be monitored.

Reform of the public pension system should focus on reducing its complexity, which could be achieved by eliminating means-testing

Current pension arrangements combine one of the lowest state pensions in the OECD with one of the most developed systems of voluntary privately-funded pensions. The main objective of the state system has been the prevention of poverty rather than providing a particular replacement income relative to pre-retirement earnings. Unlike the situation in many OECD countries, future fiscal costs are not projected to rise significantly as the population ages. Instead concerns focus on the declining average public pension relative to the income of those in work; recent estimates suggest that state spending per pensioner is likely to fall by almost one-quarter relative to average earnings over the next four decades if the current indexation conventions are followed. In addition, the level of private pension provision has been declining. The Pensions Commission, set up by the Government to review the adequacy of private pensions saving and due to report in November 2005, estimated that 9 million people are currently making inadequate provision for retirement.

A related weakness of the current system is that the number of pensioners who will be subject to means-testing is likely to grow substantially which, while keeping fiscal costs down and targeting resources at those with the lowest incomes, will also increase the number of pensioners who will be subject to disincentives to private saving. By 2050 over 60% of all pensioners could face a marginal tax rate of at least 40% on additional savings income. The complexity of the current state system may further reduce incentives to save because it is difficult to understand what the state will provide.

- A considerable simplification could be achieved by reducing excessive reliance on means-testing, particularly its projected growth in the future. This could be achieved by raising the basic state pension and indexing it to future earnings rather than prices. The fiscal costs could be partially covered by gradually raising the state pension age in line with increasing life expectancy, as well as by introducing a cap on tax subsidies to pension savings to better target tax-relief at low and middle-income earners where under-saving is most pronounced.
- Reducing means-testing would also facilitate reforms to promote other sources of income during retirement, such as through mortgage equity release products. There is a large potential for "house rich, cash poor" pensioners to make use of such products, although currently only around 1% do so.
- At a later stage, if there is no significant increase in saving for retirement, imposing some form of mandatory savings could be considered. This would be justified to the extent that individuals are myopic, although it might also force some individuals to save whose circumstances did not warrant it. It is also likely that there would be some offsetting fall in voluntary savings. Finally such a step could not be taken if current means-testing arrangements remained in place because it would clearly disadvantage those on low-incomes. In the meantime, a change which would stop short of higher compulsory saving would be to change employee participation in company pension schemes so that the default is that they are contracted in, unless they deliberately take a decision to opt out. Evidence from the United States suggests this should raise employee participation in company pension schemes.

Developing childcare is warranted to help parents work

Changes in family structures and attitudes with more women wanting to pursue a career make availability of flexible and affordable childcare essential for reconciling work and family life. Male and female employment rates have reached 79% and 70% respectively, but many women work part-time. At the same time, a more polarised family structure has emerged with many jobless households, which reinforces the risk of social deprivation being passed on from one generation to the next. Only a third of lone mothers with children under 5 are employed. Access to childcare is an important element in any package of measures to address this problem, in particular for lone parents. Raising public subsidies for childcare and out-of-school-hours care is warranted because earnings potential often declines when having been out of work for a while, so that low-cost child care can be crucial for making work pay. Universal free pre-school also helps children by stimulating their emotional, social and cognitive development. On this basis the government's ambitions as laid down in a "ten-year strategy" are laudable. However, as witnessed in

Scandinavian countries, leave and childcare can become a heavy burden on public finances making it important to encourage cost-conscious behaviour.

- Developing support for childcare and nursery education should have priority over extending paid maternity leave. Policies can help to promote family-friendly work-place practices and already today mothers have a right to 12 months job-protected leave with 6 months being paid, rising to 9 months in 2007. Spending time at home is already favoured by the fact that income from work and consumption is taxed, while for natural reasons leisure is not. Prolonged absence from work leads to lower lifetime earnings for mothers and hence foregone tax revenue; the precise implications of slightly longer paid maternity leave are however not clear and there is a pay-off resulting from close contact between the mother and the young child. A prudent approach would be to focus on increasing the choice for parents on how leave is taken including on a part-time and perhaps shared basis, and to evaluate the effects of the 9 months paid leave before committing to the extension of paid leave to a full year.
- The quality and flexibility of the supply of childcare services should be developed including by allowing innovation and seamless integration of public and private services. Administrative systems underpinning the childcare element of the working tax credit should be strengthened, and alternative formulas considered. For example, shifting from reimbursement of 80% of costs to a combination of a fixed-value voucher and a 60% coverage of costs above the voucher value would give parents incentives to buy quality care but ensure cost consciousness about spending going beyond the voucher value. The government's intention to extend free pre-school provision is welcome. In doing so, it will be important to integrate it with other care provisions so as to avoid complex logistical problems for families and to maintain a level playing field for public and private providers so that contestability drives innovation in how childcare is provided.

More are inactive and claim incapacity benefit but many would like to work

While the unemployment rate is very low, the working age inactivity rate has remained stubbornly above 21% since the early 1990s recession. As many as 7% of 25-54-year-old men are inactive, compared with 1% three decades ago when the unemployment rate was at a similar level as now. This is partly a symptom of the general lack of skills, as inactivity has risen most for the least skilled. Yet, many end up claiming disability-related benefits, where the number of recipients, particularly prime-age men, has grown faster than in most other countries, with most of this growth occurring in the 1980s and early 1990s. They have recently started to decline. It is encouraging that many of the 2.6 million receiving incapacity benefits do not consider themselves as disabled, and many say they would like to work. At the same time, many people with disabilities are in work, not claiming benefits. This suggests that there is significant scope for helping people on incapacity benefits to return to work.

The Government has taken a number of policy initiatives to address these problems. Under the *Pathways to Work* scheme, being piloted in 10% of the country at the beginning of 2005, most new incapacity benefit claimants are required to attend six, monthly, work-focused interviews soon after their move to incapacity benefit. This provides the potential for developing customised support to overcome the range of barriers which different

individuals face in returning to work. New claimants are offered specialist employment advice, new programmes to help manage their conditions, access to a range of tailored support, plus £40 per week as a return to work credit. The pilots have been successful, showing a large increase in participation in reintegration programmes and a marked increase in exits from incapacity benefit. Building on this, the Government intends to require all except the most severely disabled to participate in activities that support a return to work and to restructure the incapacity benefit into a basic rate plus a supplement conditional on this activity. This represents a welcome change from the current situation whereby incapacity benefit is paid at a higher rate if received for more than a year, rewarding those remaining on benefit.

- The *Pathways to Work* programme will be extended to a larger part of the country from October 2005 to cover approximately a third of recipients by October 2006. The programme should continue to be rolled out nationally. The compulsory interviews have also recently been extended to some existing claimants with more manageable conditions in addition to new claimants. When there is sufficient capacity, it should be extended to a wider range of existing claimants.
- An issue of concern is the almost automatic transfer to incapacity benefit when statutory sick pay ends or when an individual becomes sick or disabled while claiming another benefit. General practitioners are the initial gatekeepers, with a more rigorous personal capability assessment taking place later on. Experience from other OECD countries indicates that leaving the decision to an "anonymous" team rather than general practitioners results in more rational decisions. It could therefore be considered to involve specialised occupational health teams earlier in the process of eligibility assessment and so make the transfer to incapacity benefit less automatic.
- The growing number of incapacity benefit recipients suffering from mental and behavioural disorders, which are now the largest group by medical condition, raises the question as to whether the recent rapid expansion of health care has been appropriately prioritised. Today, patients still have to wait for six to nine months to access psychotherapy while conditions often become more entrenched. With adequate treatment and rehabilitation many of those with mental health conditions may be able to get back to work, and providing some meaningful activity may further help such conditions. Shifting health care resources towards mental health would help both labour market performance and human happiness.

Conventional indicators probably under-state innovation performance

Across a range of conventional indicators, innovation performance is mediocre in comparison with the best performing OECD countries. Nevertheless, strengths in services, where innovation is less likely to be picked up by such indicators, probably mean that they under-state aggregate performance. For example: much of the R&D intensity gap with many of the top performing countries can be explained by industry mix effects; while patenting performance is mediocre there has been extremely rapid growth in other forms of intellectual property protection, such as the use of trademarks that are more prevalent in services; finally, while the share of researchers in total employment is unexceptional, this is not because of a shortage in PhD graduates in science and technology subjects.

These considerations suggest a degree of caution is warranted in pursuing the Government's targets specified in its recently announced "10-year Plan for Science and Innovation". At the same time the cross-country evidence linking innovation with aggregate growth performance implies that this should be a policy area under constant review, and there is a growing body of evidence which, while far from conclusive, is at least suggestive regarding which policies are most helpful in promoting innovation.

But there is still scope for improving innovation policy

Recent OECD empirical work has confirmed that innovation performance depends both on framework conditions and specific policies regarding science and innovation. The study found the United Kingdom close to best practice in terms of framework conditions, but suggested scope for improving specific policies directed at science and innovation.

- The recent shift in emphasis away from grants towards tax incentives is likely to be beneficial in boosting R&D spending, although it is too early to judge the results. Given this lack of results, there is not yet a clear case for further extending the generosity of R&D tax incentives. Tax incentives should continue to be market based, and it is important to ensure that they are well understood by businesses and provide certainty that they will be maintained at existing levels.
- Despite a recent streamlining of fiscal measures to support R&D, there is still potential overlap between R&D tax incentives and remaining grant schemes. There is a need for improved evaluation of fiscal measures to support R&D as officially acknowledged. Future evaluations of all fiscal measures should also address the extent of overlap between different policy instruments, whether there are barriers to take-up in the services sector; whether measures encourage firms to become innovative (rather than increasing the extent of innovation already taking place within a firm). In addition, the balance of direct funding for R&D between SMEs and larger companies who receive most current support might need to be reconsidered.
- There is scope to exploit the strength of the science base through further promoting university-business collaboration. The emphasis of current university funding on research excellence will help to foster elite universities which should attract increasingly mobile multinational companies. However, to compete with the best universities worldwide further changes will be required, including a streamlining of university governance procedures and clearer guidelines concerning intellectual property rights. Eventually, a higher cap on university fees may also be required to provide additional financial resources to attract and retain the best academic talent. In line with the recommendations of the *Lambert review*, consideration should also be given to increasing the funding for those universities that have shown a track record of successful collaboration with businesses, which are not always the same universities that appear at the top of the academic rankings determining the bulk of university funding.

A lack of skills holds back innovation and growth

Recent OECD empirical work highlighted "absorptive capacity" as a particular weakness compared with other countries and the *Roberts review* has drawn attention to falling

numbers of graduates in science, engineering and technology (SET) subjects. Where the Government has a direct responsibility, for example in the provision of science and mathematics teaching at secondary level or in the level of stipends paid to PhD researchers, it has responded to weaknesses identified in the Roberts review. But given the relatively high number of SET graduates and success in some science-based industries, such as pharmaceuticals, it is difficult to argue that a shortage of researchers is a binding constraint.

To raise absorptive capacity policy should continue to focus on raising the low *general* skill level of the labour force. A relative lack of intermediate and vocational skills appears to be an important impediment to the economy's capacity to absorb innovations, explaining the comparatively low proportion of UK firms engaged in successful innovations. Indeed, while the number of persons having university and advanced research degrees (PhDs) is not much different from that in comparable countries, the United Kingdom has a large share of pupils leaving school before completion of the upper secondary level and without an education giving specific competence in a professional field. The Government's broad aim that all young people continue in learning until at least the age of 18 and its more specific target for educational participation at age 17 to rise from the current 75% to 90% over the next ten years are therefore welcome.

- Although schools have improved a lot during the 1990s, more could still be done to improve basic literacy and numeracy, thus providing a stronger foundation for continued learning. Tackling school truancy and raising the aspirations of children from a less advantaged background is equally important.
- Continuously improving the relevance and quality of vocational programmes is as important as it is to expand their provision. A key factor determining the success of such an expansion will be that the vocational route gains esteem *vis-à-vis* academically-oriented secondary education – something that appears to be lacking more in the United Kingdom than elsewhere. The Government's initiative to establish city academies in disadvantaged neighbourhoods with intensive involvement of businesses should help in this respect, but teething problems have to be resolved.
- Unifying the current array of vocational programmes and diplomas into a limited number is important to make them more attractive for students as well as employers. Although the government's white paper on the educational offer for 14-19-year-olds did not take the full step recommended by the *Tomlinson review* to unify all vocationally and academically-oriented programmes into one type of diploma, it does imply a significant step towards simpler and more up-to-date vocational diplomas giving students better pathways later on. It is now essential to work with universities to ensure that the new diplomas give sufficient pathways to continued education including with foundation degrees.
- For adults, workplace-based training should be expanded nationally as planned from 2006-07 following a pilot introduced in 2002. The programme is focused on the least skilled with public funding of the full cost of brokers and training. In return, employers offer time off for participating employees, although about half of all training hours have been covered by publicly funded wage compensation during the pilot phase, with small and medium-sized enterprises typically receiving complete wage compensation. When implementing the programme from 2006-07, wage compensation

should be used only sparingly as an "ice breaker" to create a culture of learning within the hardest-to-reach firms.

The effects of taxes and benefits on incentives to acquire skills at the intermediate level could become an issue

Whether efforts to expand and improve the offer of education and training will be fully effective, may also depend on financial incentives to acquire human capital. While in-work tax credits help to boost labour force participation, their means-tested withdrawal leads to high marginal effective tax rates which reach 70% for families with children at below-average income. This attenuates market signals for intermediate skills, because even though *gross* earnings are considerably higher for people with intermediate skills than for the low-skilled, *net* earnings are not very different for households with children. However, for those adults who are functionally illiterate and for school-tired teenagers with problems of truancy, incentives related to future earnings are *not* likely to matter much since more fundamental factors keep them from acquiring intermediate skills. But for others it may be an impediment. While the tax credit reforms over recent years have successfully reduced child poverty while maintaining incentives to work and removing the worst peaks of high marginal effective tax rates, the effect for the average person in a couple with children has been to push up marginal effective tax rates by 5 percentage points. It would therefore be useful to better understand how much taxation of subsequent earnings matters for the propensity of teenagers and adults to make use of the improved education and training on offer. There are also specific issues relating to the short-term incentives for young persons. Paying teenagers who continue in education such as with the Education Maintenance Allowance pilots appears to boost engagement in continued learning. An alternative or additional option is to increase the very light taxation faced by teenagers taking a job at 16 rather than continuing in education.

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Chapter 1

Key challenges: translating a resilient macroeconomic performance into faster growth in living standards

Macroeconomic performance has been amongst the most resilient in the OECD over the last decade, but policy-makers currently face a slowdown in growth, in part caused by an overdue cooling of the housing market, as well as the need to reduce the government deficit. The former raises the issue of the risk of a more pronounced housing market correction as well the need to take measures to improve housing supply. The latter raises issues of how to raise efficiency in priority areas of public service provision more rapidly, particularly in health and education, as well as longer-term issues regarding pensions. However, the most important challenges relate to improving productivity performance, where international benchmarking suggests that priority areas for attention should be the general level of skills, innovation performance and transport infrastructure. While labour utilisation is generally high, there may be scope for further improvement by helping many of those currently claiming disability-related benefits to find work.

Introduction

Macroeconomic performance over the last decade has been a paragon of stability: GDP growth has remained closer to potential than for almost any other OECD country; the unemployment rate has fallen to its lowest level and has been the least volatile since the 1970s; and inflation has remained stable and close to the official target. Perhaps most surprisingly, in the period since the current monetary and fiscal framework has been in place, not only has the effective exchange rate been more stable than at any time since the Bretton Woods period, but it is also among the most stable in the OECD and more stable than for the major euro area countries.[1] This performance is testament to the strength of the institutional arrangements for setting monetary and fiscal policy (Box 1.1) as well as to the flexibility of labour and product markets. One area where macroeconomic policy does, however, require attention is fiscal policy. While it has played an important role in supporting demand since the global downturn in 2000, the government deficit is now running at over 3% of GDP, despite the closing of the output gap, and according to OECD projections is not likely to fall under current fiscal plans.

International benchmarking suggests there is scope for improvements in growth per capita performance. While the United Kingdom has moved from last to third position among the G7 in terms of GDP per capita, this has much to do with the lacklustre performance of the major continental European countries and Japan rather than significant catch up with the very strongest performers. Among all OECD countries the United Kingdom still only ranks just above the median in terms of GDP per capita. The main policy challenge is thus to build on the resilient macroeconomic performance and close the gap in living standards with the best performing OECD countries, particularly by raising productivity which international benchmarking suggests is the main weakness. A second challenge is to raise labour force participation rates further especially by addressing the high number on disability-related benefits, an issue faced by many other OECD countries, but one which stands out clearly for the United Kingdom in the context of an otherwise strong labour market performance. A third major challenge is to continue to ensure that public money is spent efficiently to meet increasing aspirations for public services.

The remainder of this chapter briefly reviews recent macroeconomic performance and prospects. This provides the context for considering whether the housing market could become a major source of macroeconomic instability and also for framing some of the longer-term challenges regarding fiscal policy. The role of flexible labour and product markets in underpinning the recent strong macroeconomic performance is then briefly reviewed. Finally, the main structural policy challenges relating to closing the productivity gap and raising labour utilisation are considered.

Box 1.1. **The fiscal and monetary policy framework**

The framework governing monetary and fiscal policy has played a key role in improving macroeconomic stability relative both to the past and to other OECD countries. The United Kingdom is a leader in the quality of its monetary and fiscal policy frameworks among OECD countries and the principles and features of its frameworks have been scrutinised by other countries with a view to implementation in a different institutional context. The macroeconomic framework is based on the principles of transparency, responsibility and accountability. The monetary policy framework seeks to ensure low and stable inflation, while fiscal policy is underpinned by clear objectives and two strict rules that ensure sound public finances over the medium term while allowing fiscal policy to support monetary policy over the economic cycle.

Monetary policy

Within this framework, monetary policy is conducted according to four key principles:

- **Clear and precise objectives**. The primary objective of monetary policy is to deliver price stability. A single symmetrical inflation target ensures that outcomes below target are treated as seriously as those above, so that monetary policy also supports the government's objectives of high and stable levels of growth and employment.
- **Full operational independence for the Bank of England's Monetary Policy Committee (MPC)** in setting interest rates to meet the government's inflation target since May 1997.
- **Openness, transparency and accountability**. For example, through the publication of MPC members' voting records, prompt publication of the minutes of monthly MPC meetings, and publication of the Bank of England's quarterly *Inflation Report*.
- **Credibility and flexibility**. The MPC has discretion to decide how and when to react to events, within the constraints of the inflation target and the open letter system. If inflation deviates by more than one percentage point above or below target, the Governor of the Bank of England must explain in an open letter to the Chancellor the reasons for the deviation, the action the MPC proposes to take, the expected duration of the deviation and how the proposed action meets the remit of the MPC.

Fiscal policy

The government's fiscal policy framework is based on the five key principles set out in the *Code for fiscal stability* – transparency, stability, responsibility, fairness and efficiency. The Code requires the Government to state both its objectives and the rules through which fiscal policy will be operated. The government's fiscal policy objectives are:

- over the medium term, to ensure sound public finances and that spending and taxation impact fairly within and between generations; and
- over the short term, to support monetary policy and, in particular, to allow the automatic stabilisers to help smooth the path of the economy.

These objectives are implemented through two strict fiscal rules, against which the performance of fiscal policy can be judged:

- The golden rule, that over the economic cycle, the Government will borrow only to invest and not to fund current spending.
- The sustainable investment rule, that public sector net debt as a proportion of GDP will be held over the economic cycle at a stable and prudent level. Other things being equal, net debt will be maintained below 40% of GDP over the economic cycle.

The definition and dating of the economic cycle are important practical concerns for the implementation of these rules, although this inevitably involves a degree of judgment. The Treasury uses a variety of evidence, not just national accounts data but including also survey evidence, to determine "on-trend" points (HM Treasury, 2005a).

Recent macroeconomic performance and outlook

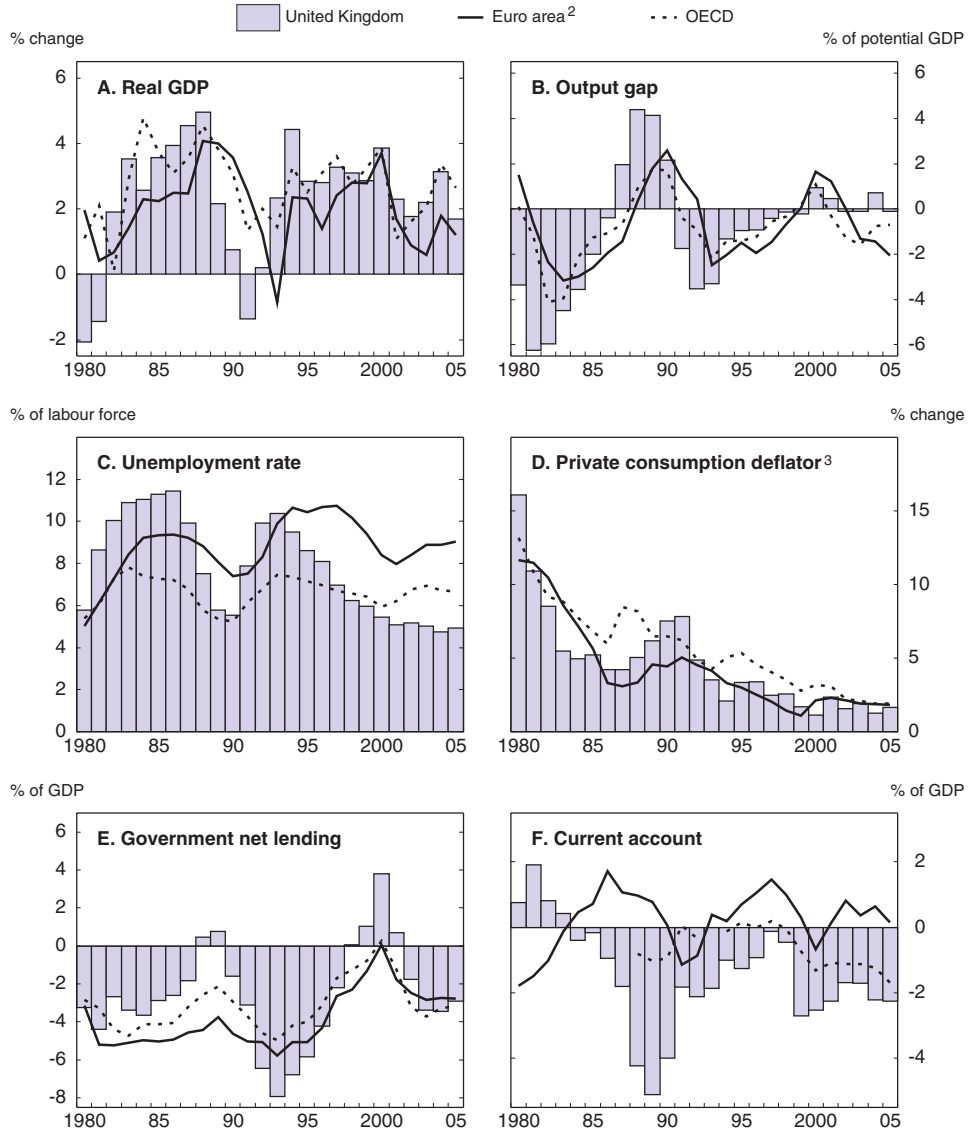
Some slowdown in growth is welcome to contain inflationary pressures

Annual growth in 2004 was 3¼ per cent, but a sharp slowdown took place at mid-year, from rates that were clearly above potential growth (estimated to be about 2½ per cent) to rates clearly below it; growth declined from 3.7% in the four quarters to mid-2004, to 1.5% over the subsequent four quarters. The most immediate cause of the slowdown has been a deceleration in consumers' expenditure, which coincided with a cooling of the housing market as reflected in a levelling off of house prices, falling housing turnover and a sharp decline in the number of mortgage approvals.

Some slowdown is, however, to be welcomed, given signs of capacity constraints. OECD measures of the output gap, as well as those based on survey evidence, suggest the economy is operating at, or slightly above, capacity (Figure 1.1); however, the government's view is that the economy retains some slack. There has been a pick-up in inflation, as measured by the consumer price index (CPI), from 1.1% in September 2004 to 2.4% in August 2005, just above the target, although core measures that exclude energy remain just below 2% (Figure 1.2). However, median and trimmed mean measures of inflation, which recent OECD work suggests have some predictive power for the headline rate (OECD, 2005a), have been falling over several months after rising sharply at the end of last year. One interpretation is that generalised demand pressures were mainly responsible for the pick-up in CPI inflation at the end of 2004 (explaining the pick-up in median measures of inflation as price increases were generalised across most items). However, since the beginning of 2005 the rise in oil prices has altered the distribution of inflation rates for individual consumer items with oil-intensive products rising at a faster rate, pushing the headline rate up with less effect on median measures. The unemployment rate has remained close to 4¾ per cent since the beginning of 2004, its lowest level since the 1970s and ½ per cent below the OECD estimate of the structural rate. Nevertheless, given underlying productivity growth, wage inflation remains consistent with the 2% inflation target. A factor which may have been important in containing inflationary tensions in the labour market is high net immigration, which has increased as a result of large inflows from the new EU countries. On the other hand, import prices have not played a restraining influence recently; having declined on average by 1¾ per cent per annum from the end of 2000 to the beginning of 2004, import prices (for total goods and services) have increased over the last year by 3½ per cent, with the further oil price hike since early 2005 by $20 per barrel playing an important role.

The Bank of England was one of the first central banks in the OECD to begin raising its policy rate in the current cycle; from November 2003 the Monetary Policy Committee (MPC) steadily raised the repo rate from 3½ per cent to 4¾ per cent in August 2004. Following a year in which it was left unchanged, the MPC voted to cut the repo rate by ¼ of a percentage point in August 2005, citing the subdued growth in output over the first half of the year. This move provides some insurance against the downside risks – especially from prolonged weakness in Europe and higher oil prices as well as, domestically, from the housing market – that cloud the short-term outlook. However, given that the level of output is currently close to capacity, that inflation is now above target and short-term indicators suggest growth may return to trend, there is not yet a compelling case for further rate cuts.

Figure 1.1. **Key indicators in long-term and international perspective**[1]



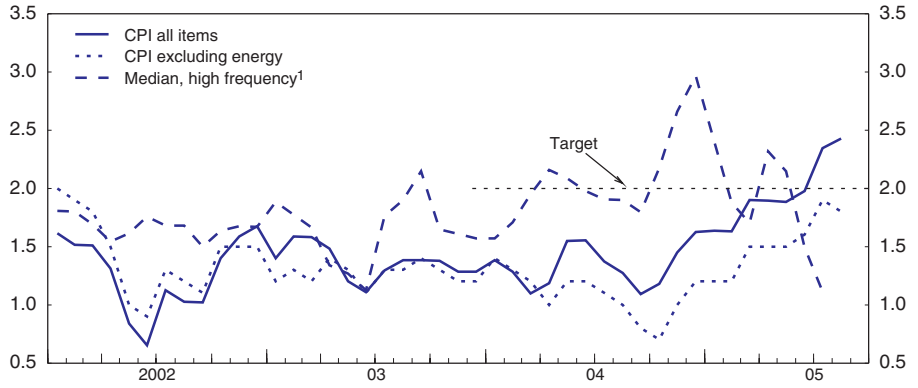
1. Estimated data for 2005.
2. Break in series in 1991: western Germany up to 1990, total Germany thereafter.
3. OECD excludes high inflation countries.

Source: OECD Economic Outlook 77 database and ONS (2005), "Quarterly National Accounts: 2nd quarter 2005", *First Release*, September.

The strong link between the housing market and consumer spending suggests that, even without any marked fall in the level of house prices, consumption growth is likely to remain modest, with some rise in the saving ratio.[2] Nevertheless, following the adjustment from a period when house prices were growing rapidly to a period of relative stability in house prices, the prospect is for some recovery in consumption relative to the low growth rates experienced in the first half of 2005. The government's fiscal plans imply a moderation from previously strong growth in government spending. Export volumes have been erratic and have lost market share over recent years. However, export volumes in the

Figure 1.2. **Headline CPI inflation has picked up**

Percentage change year-on-year



1. Three-month annualised percentage change, with mean adjusted to correspond to the mean of the headline inflation rate since 1996. For further discussion see Catte, P. and T. Slok (2005), "The Uses of Measures of Core Inflation for Monetary Policy Purposes", *Economics Department Working Papers*, OECD, Paris, forthcoming.

Source: OECD, *Main Economic Indicators* and Office for National Statistics.

second quarter of 2005 were 6% higher than the average for 2004 with the increase concentrated outside the European Union, although a further pick-up may be delayed into 2006 by near-term weakness in European export markets. Business investment has been surprisingly weak, with only modest increases over 2003 and 2004, while survey evidence of investment intentions has recently weakened. Nevertheless indicators of corporate sector financial conditions remain favourable and would support higher investment if demand picks up. The OECD's short-term indicator model suggests a return to just below trend growth over the second half of 2005 similar to the projections for the second half of the year in the June *Economic Outlook*. This would be consistent with GDP remaining close to potential and core CPI inflation close to the 2% target (Table 1.1), although given the slowdown in growth from the second half of 2004 the implied annual rate of growth for 2005 would be only 1.7%.

Risks are mainly to the downside

Despite recent upward surprises on inflation the main risks to this central projection are on the downside for demand, particularly stemming from a delayed recovery in export demand, especially from the rest of Europe. Since the OECD *Economic Outlook* was published in May 2005 there has been further news of short-term weakness in the euro area. Between May and August this has led to the consensus forecast[3] for imports coming from outside the euro area being revised down by 2 percentage points for 2005. Higher oil prices also pose a downside risk to export demand; the assumption underlying the *Economic Outlook* projections was for (Brent crude) oil prices of around $50 per barrel, whereas in August they have exceeded $60 per barrel. Because imports and exports of oil are roughly equal the United Kingdom would not experience terms of trade losses as a consequence of higher oil prices, but might well experience a loss in export demand from the rest of the OECD. According to the OECD's Interlink model the combined effect of these changes (*i.e.* oil prices up by $10 per barrel and euro area import growth down 2 percentage points), assuming unchanged nominal interest rates, could translate into a reduction in UK exports of ½ per cent and a fall in GDP growth over a full year of about ¼ of a percentage point. If

Table 1.1. **Recent macroeconomic performance and projections**[1]

Percentage change

	Outcomes			Projections	
	2002	2003	2004	2005	2006
GDP in constant prices	**2.0**	**2.5**	**3.2**	**1.7**	**2.4**
Private consumption	3.5	2.6	3.6	1.8	1.9
Government consumption	4.4	4.5	3.1	1.7	2.7
Gross fixed investment	3.0	0.0	4.9	2.8	4.3
Final domestic demand	3.6	2.5	3.7	1.9	2.4
Stockbuilding[2]	–0.3	0.1	0.1	–0.1	0.0
Total domestic demand	**3.2**	**2.7**	**3.7**	**1.6**	**2.3**
Goods and services					
Exports	0.2	1.2	3.4	5.5	8.4
Imports	4.5	1.8	5.4	4.7	7.0
Net exports[2]	–1.2	–0.2	–0.7	0.0	0.1
GDP deflator	3.1	2.9	2.0	2.4	2.2
Memorandum items					
Output for the whole economy					
Potential output	2.6	2.5	2.4	2.6	2.4
Output gap (% of potential GDP)	–0.1	–0.1	0.7	–0.1	–0.1
Price indices					
Consumer	1.3	1.4	1.3	2.1	2.1
Underlying	1.5	1.2	1.0	1.7	2.0
Other indicators					
Unemployment rate (% of labour force)	5.2	5.0	4.7	4.9	5.2
Current account balance (% of GDP)	–1.7	–1.7	–2.3	–2.3	–2.4
Net lending (% of GDP)	–1.7	–3.3	–3.2	–2.9	–3.0

1. Given significant revisions to national accounts data the historical data and projections are not consistent with those published in the June *Economic Outlook* (No. 77). Instead historical data incorporate most recent revisions to 2005 Q2 and the projections are constructed by splicing the growth rates of national account expenditure components from 2005 Q3 from *Economic Outlook* No. 77 on to actual data to 2005 Q2.
2. Contribution to GDP growth.

Source: OECD (2005), *Economic Outlook*, No. 77 and ONS (2005), "Quarterly National Accounts: 2nd Quarter 2005", *First Release*, September.

the short-term outlook for the euro area remains weak or worsens further, and/or the higher oil prices are sustained or increase further, this would be likely to bring UK output clearly below potential and warrant a loosening of monetary policy.

The possibility of a significant fall in nominal house prices represents another downside risk, although the likelihood appears to be diminishing. Nominal house prices have broadly levelled off since mid-2004, following a rise of more than 150% over the previous eight years. In relation to conventional benchmarks, such as average earnings or rents, this leaves them close to historical peaks, which in turn were at least 15% above the previous peaks reached in the early 1990s just prior to the last house price crash (Figure 1.3). The extent of this risk and the appropriate policy response is discussed in Chapter 2.

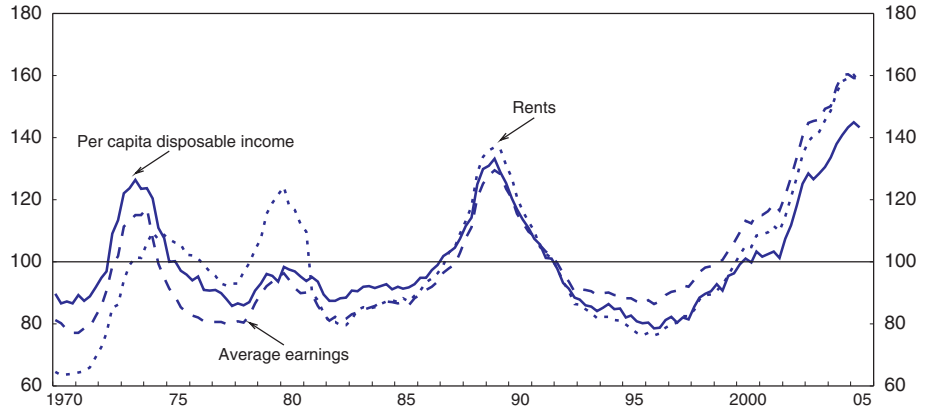
Fiscal policy

Fiscal policy has been important in supporting demand

An expansionary fiscal policy has been an important factor supporting demand since the global downturn; between 2000 and 2004 the cyclically-adjusted balance declined by

Figure 1.3. **House prices relative to conventional benchmarks**[1]

1970-2005 = 100



1. House prices are those provided by the Office of the Deputy Prime Minister; rents are the rent component of the retail price index.

Source: Office of the Deputy Prime Minister, Office for National Statistics and OECD, Economic Outlook 77 database.

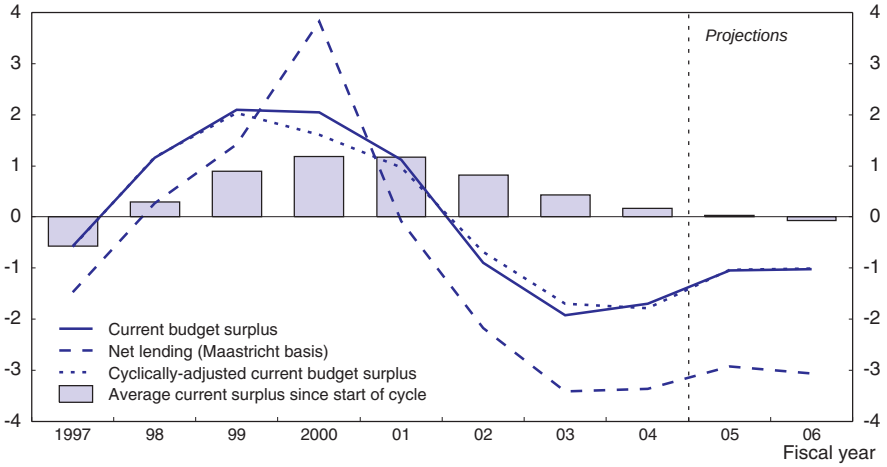
4½ per cent of GDP, which was only exceeded by the United States. Over the same period over half of new jobs have been created in the public sector, which has experienced average employment growth of 2% per annum (about six times the growth rate in private sector employment).[4] It is because the UK has achieved low debt levels and a sound long-term position, that it is able to run this counter-cyclical fiscal policy without threatening the sustainability of the UK's public finances. This expansionary fiscal stance has, however, also led to a general government deficit (on a Maastricht basis) currently running at just over 3% of GDP, from a surplus of 3¾ per cent of GDP in 2000 (although the 2000 government surplus is boosted by 2¼ per cent of GDP due to the booking of revenues for UMTS licences). There was a marginal tightening in the fiscal stance as a consequence of the 2005 Budget with new policy initiatives largely covered by further measures to reduce tax avoidance and the bringing forward of corporate tax payments by oil companies. OECD projections (Table 1.1) suggest that the deficit is likely to remain close to 3% of GDP in contrast with the UK Government's projections of a declining deficit, which implies a broadly neutral fiscal stance over the coming two years.

... but keeping to the fiscal rules may require adjustments to current plans

If the deficit were not to improve in line with the official forecast, then adjustments to current plans may be needed to ensure that the Government meets its own fiscal rules. Meeting the government's "golden rule" – that over the course of the cycle the public sector should only borrow to invest – depends on the timing of the cycle. Following substantial revisions to national accounts data the Treasury recently revised its judgment regarding the beginning of the current economic cycle; it now judges that the cycle began in the first half of 1997 rather than in mid-1999 (HM Treasury, 2005a). Combining fiscal years 1997 and 1998 the government current budget was in surplus by the equivalent of 1% of GDP. If the cycle is judged to finish at the end of 2005 as assumed by the Treasury, then on OECD projections the average current balance over the cycle will be close to zero by the end of fiscal year 2005 (Figure 1.4).[5] On the other hand, if the current cycle has already finished (as suggested by OECD calculations) then the golden rule has already been met.

Figure 1.4. **OECD projections of general government finances**

In per cent of GDP



Source: OECD (2005), *Economic Outlook*, No. 77.

Given that the margin by which the golden rule will be achieved (or not) over the past cycle is likely to be small, a binary "success" or "failure" judgement seems inappropriate. A more important implication of the OECD projections is that the persistence of a deficit on the current balance of around 1% of GDP suggests that action will be needed to avoid substantially missing the golden rule over the next cycle, as well as to significantly reduce the overall government deficit below 3% of GDP.

The 2005 budget projections differ from those of the OECD. The current balance is no longer in deficit by fiscal year 2006/07 (the first full fiscal year of the next cycle) and moves into increasing surplus over the following years. There is a corresponding improvement in the general government deficit which falls to 2.2% of GDP in fiscal year 2006/07. These differences are mainly due to differences in projected revenues. According to the budget projections the aggregate tax-GDP ratio rises by 1.6 percentage points in the two years from 2004/05 (and by a further 0.6 percentage points over the following two years), despite the absence of any explicit increase in tax rates. There is less buoyancy in the tax-GDP ratio according to the OECD projections. The main differences between these projections are (see Annex 1.A1 for further detail):

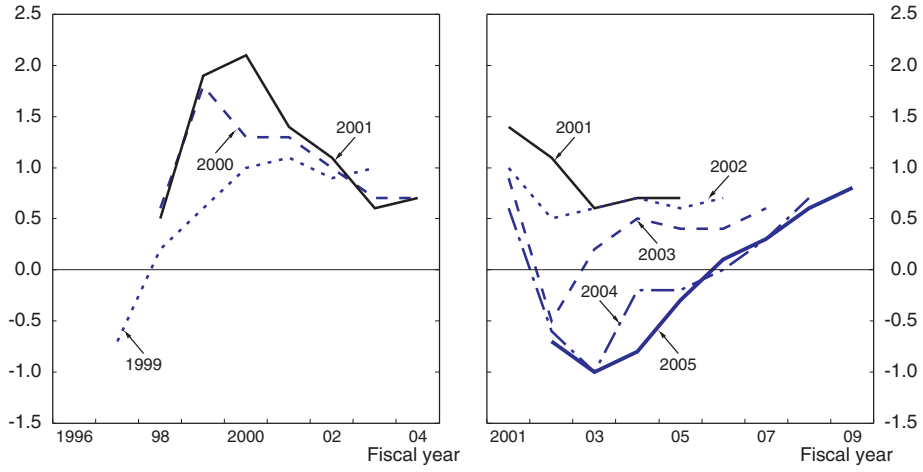
- The cycle contributes to the improvement in government finances according to the budget projections. The budget projections assume some cyclical slack in fiscal year 2004/05, whereas on OECD calculations the output gap was already closed. Thus according to the Budget projections there is a *cyclical contribution* of 0.6 percentage points of GDP to the deficit in 2004/05 which is eliminated as the output gap is closing. Recent macroeconomic developments suggest that it is unlikely that the 2005 budget forecast of 3-3½ per cent GDP growth for calendar year 2005 will be realised.[6] This in turn suggests there will be little contribution from greater cyclical buoyancy of revenues in the short term.
- *Corporate tax revenues* rise by 0.8% of GDP over the two years following 2004/05 in the budget projection, double the rise in the OECD projection. While this is partly explained by cyclical differences, the Treasury is also attributing larger effects from financial sector profits related to the recovery in equity markets and other financial market activity as

well as a positive effect on revenues from tightening up on tax avoidance. Although OECD econometric analysis does find that the non-oil corporate tax revenues are sensitive to equity market developments, under the assumption that stock market capitalisation rises in line with nominal GDP, this only contributes to a modest improvement in corporate tax revenues.

Many of the factors accounting for differences in revenue buoyancy, especially those relating to corporate taxes are particularly difficult to assess.[7] Since the introduction of the new macroeconomic framework in 1997, the outturn for public sector net borrowing has, on average, been lower than the year-ahead forecast made by the Treasury (HM Treasury, 2004a). On the other hand, more recent Budget projections of the cyclically-adjusted current surplus have been systematically too high; in each of the previous four budgets, on average by the equivalent of 1% of GDP for the year-ahead projection and by nearly 1½ per cent of GDP for the two-year ahead projection (Figure 1.5).[8] The Treasury's regular "post-mortem" exercises on previous budget forecasts (HM Treasury, 2003 and 2004a) show that the largest errors have been on the revenue side. Moreover, more than half of the revenue shortfall is ascribed to "fiscal differences" – in other words for given tax parameters and a given tax base the amount of tax receipts has been consistently disappointing relative to projections, and this has been mainly for income and corporate tax revenues where future buoyancy is projected (Table 1.2).

Figure 1.5. **Successive budget forecasts of the cyclically-adjusted current budget surplus**

In per cent of GDP



Source: HM Treasury, Budget Reports.

The magnitude of the deficit should, however, be seen in the context of a relatively low net government debt, at 37% of GDP in 2004 (according to the definition used by the OECD), the second lowest among the G7 with gross debt on a Maastricht basis at 41% of GDP, which is among the lowest in the European Union. Moreover, the government's second fiscal rule, the sustainable investment rule – that net public debt should not exceed 40% of GDP – is comfortably met at present. With net public sector debt (a different definition to the more internationally comparable definition used by the OECD) at 34½ per cent of GDP in 2004/05 projected to rise to only 36¼ per cent of GDP in 2006/07 in the 2005 Budget, even an

Table 1.2. **Official accounting for errors in past budget projections**

In per cent of GDP

	2001 budget forecast for 2001/02	2002 budget forecast for 2002/03	2003 budget forecast for 2003/04
Current budget surplus shortfall [1]	0.7	1.6	1.1
Shortfall in current receipts [2]	0.8	1.3	0.8
of which:			
Due to "fiscal forecasting" differences[1] [3]	0.5	0.8	0.5
Income tax revenues	0.2	0.4	0.2
Corporate tax revenues	0.2	0.1	0.2
[3] in % of [2]	55	58	60

1. "Fiscal forecasting" differences are errors not explained by errors in forecasting the tax base (or tax parameters).

Source: HM Treasury (2003 and 2004), *End of Year Fiscal Reports*, Pre-Budget Report associated documents, The Stationary Office, London.

overshoot on the deficit should not see the second fiscal rule becoming a binding constraint.

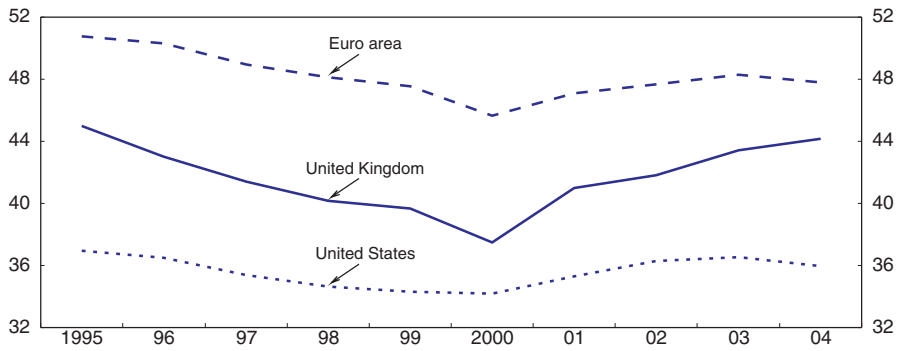
The low level of debt reduces the urgency with which the deficit needs to be reined back. A common feature of both official and OECD projections is that under current spending plans an increase in the tax-GDP ratio will be required to meet the fiscal rules and significantly reduce the deficit over the coming cycle. In the case of official projections this comes about through a spontaneous rise in the tax-GDP ratio, reflecting fiscal drag, improved tax compliance and an improvement in corporate profitability, whereas on OECD projections additional measures would be needed. If fiscal developments were disappointing beyond what could be explained by weaker-than-expected growth, so that the deficit in cyclically-adjusted terms was worse than projected, then the Government would need to take measures to raise tax rates to keep fiscal policy on track.

The long-term fiscal challenges

In recent years there has been a clear upward shift in public expenditure as a share of GDP (Figure 1.6). This rise has been mainly driven by increases in health, education and infrastructure outlays. Official projections imply that total public spending will remain a constant share of GDP after fiscal year 2007, suggesting that it will be more difficult to

Figure 1.6. **Public expenditure shares**

In per cent of GDP



Source: OECD, Economic Outlook 77 database.

accommodate substantial spending increases in priority areas in the future. Moreover, while there have been some improvements in outcomes in these priority areas, they appear to fall short of the aspirations of the general public (in health) or the government's targets (in education and transport). The challenge is to achieve more rapid efficiency gains in spending in these areas to ensure that improvements in outcomes are realised without reliance on continued large real increases in expenditure, as discussed in Chapter 3.

Perhaps the biggest uncertainty concerning future public expenditure relates to pensions. One of the main reasons why fiscal projections to the middle of the century appear more financially sustainable than for most other European countries, is that, despite an ageing population, the cost of public pension provision does not grow much as a proportion of GDP (HM Treasury, 2004b). However, this implies that the average level of public spending per pensioner declines relative to average earnings and also a substantial growth in the extent of means-testing. Public debate, fostered by the creation of a Pensions Commission which is due to present its recommendations shortly, casts doubt on the political sustainability of present arrangements and reforms could have substantial fiscal costs. The options for reform, including some proposals to limit the overall budgetary costs, are discussed in Chapter 4.

The Government has recently begun to expand childcare provision. Whilst the level of expenditure on childcare is currently modest, experience from other OECD countries suggests it can easily snowball beyond a point where there is a clear economic rationale, and be subsequently difficult to rein back. This underlines the importance of giving early consideration as to what the limit of state provision should be as well as putting in place a framework that will encourage cost containment in the future, as discussed in Chapter 5.

Impressive macroeconomic performance also reflects flexibility in labour and product markets

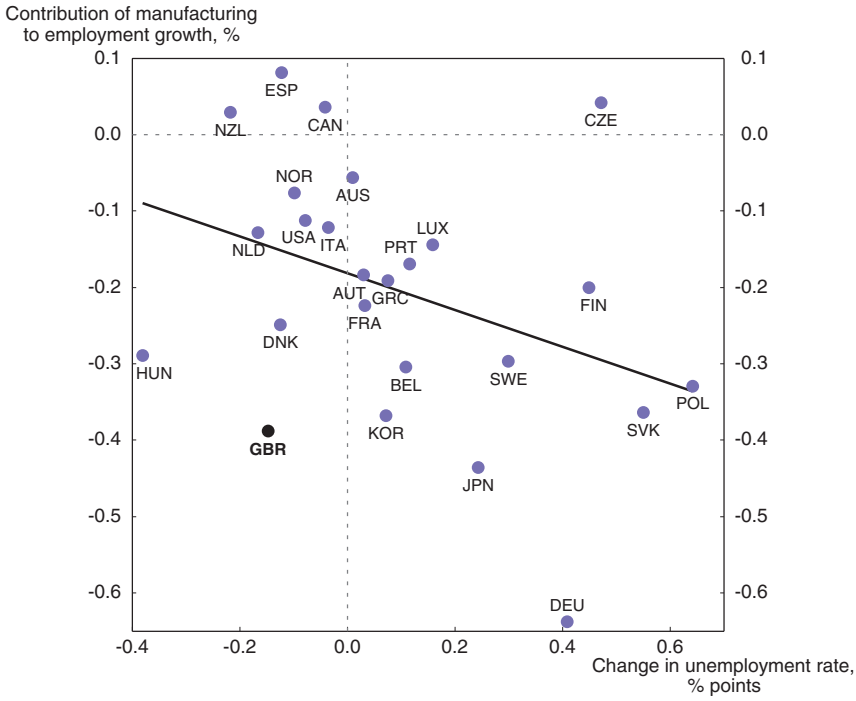
Flexible labour and product markets have underpinned the recent impressive macroeconomic performance. Moreover, sectoral policies have not attempted to foster "national champions". The United Kingdom is among the leading countries in the OECD in terms of liberal product market regulation (OECD, 2005b) and ranks highly in most aspects of labour market flexibility. Recent OECD work which constructed a composite policy indicator of flexibility ranked the United Kingdom the highest among all OECD countries. It also found cross-country evidence that this flexibility is important in facilitating growth in the service sector (Kongsrud and Wanner, 2005). It is also striking that, among OECD countries that have experienced a large fall in manufacturing employment since the early 1990s, the United Kingdom is unusual in not having experienced an increase in unemployment (Figure 1.7).

An important reason for the fairly strong growth performance over the last decade is a higher share of value-added produced in high growth sectors, especially the knowledge-intensive services, and performance within these sectors has also been particularly strong (Figure 1.8). Low product market regulation, especially low barriers to foreign investment, as well as labour market flexibility help to explain why foreign direct investment is high as compared to the other major European countries. Compared to other developed countries foreign direct investment is disproportionately directed at services (Saunders, 2005).

The importance of knowledge-intensive services is under-stated by examining volume-based growth because it is also these sectors where relative prices are increasing,

Figure 1.7. **Changes in unemployment and manufacturing employment**

Annual averages, 1990-2003[1]



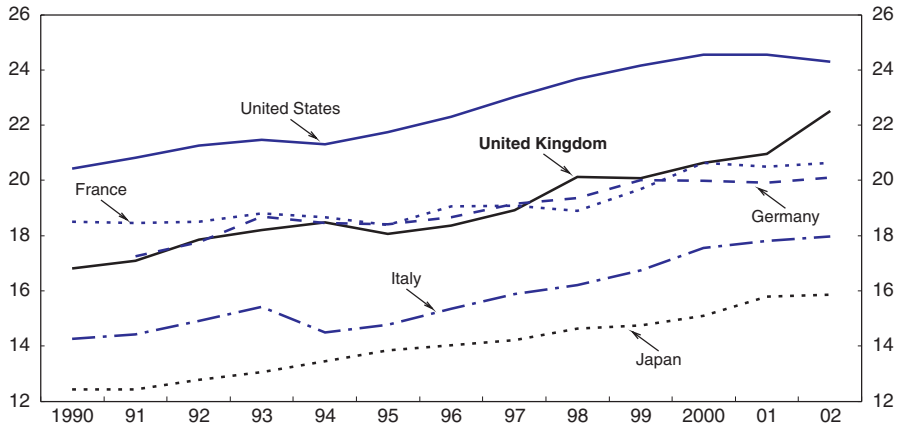
1. Or earliest and latest year of data available.

Source: OECD, STAN and MEI databases, August 2005.

especially in relation to manufactured products. At the aggregate level this shows up most clearly in terms of trade gains, which are mostly explained by gains on services, and which raise measures of "command GDP" which adjust conventional measures of GDP to reflect consumption possibilities (Figure 1.9).[9] Indeed, the command GDP adjustment adds about 0.3 percentage point per annum to growth over the last decade, which is only exceeded by

Figure 1.8. **Growth in knowledge intensive services**[1]

In per cent of gross value added

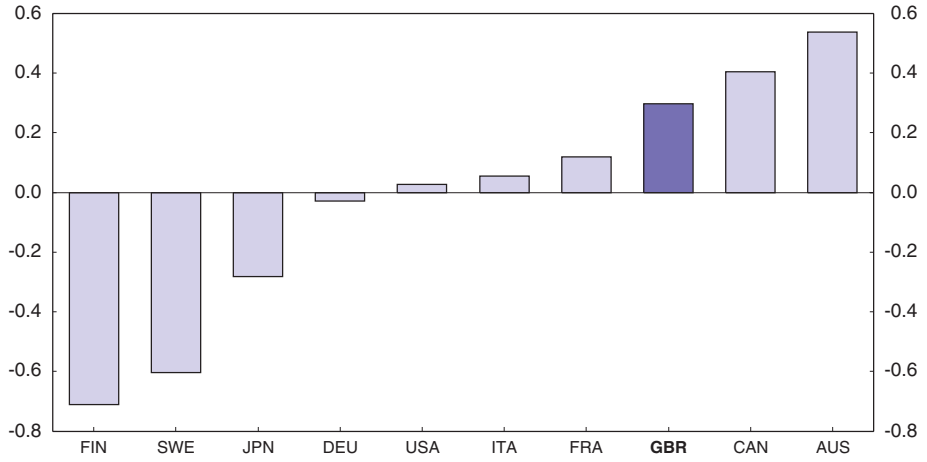


1. Finance and insurance; business activities excluding real estate; post and telecommunications.

Source: OECD (2005), *Science, Technology and Industry Scoreboard*.

Figure 1.9. **Command GDP adjustment to annual average GDP growth rate**

1995-2004, per cent per annum



Source: OECD, Economic Outlook 77 database.

a few OECD countries, most of which are major net exporters of commodities (Australia, Canada and Norway).

A factor which has been of increasing importance recently in coping with labour market pressures is the scale of immigration, especially from the new EU countries. The rate of net inward immigration had already risen markedly in recent years, averaging 160 000 per annum over the period 1999-2003 (about ¼ per cent of the population), double that over the previous four years, but has experienced a further step increase with the accession of the new EU countries.

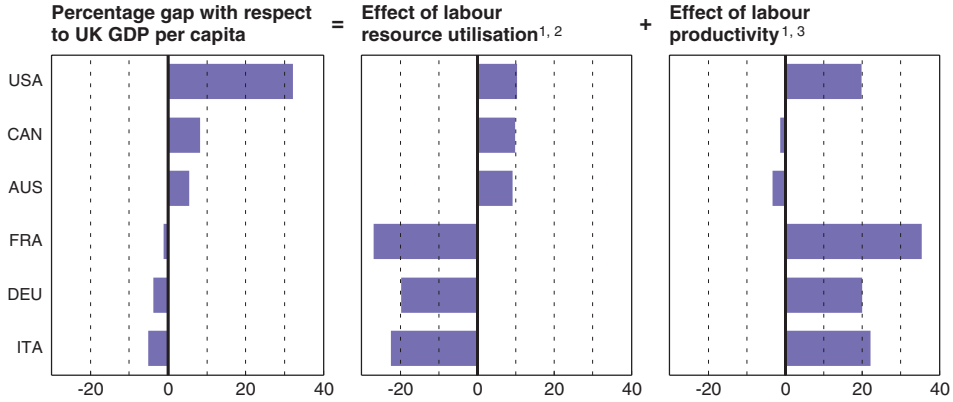
The United Kingdom was one of only three EU15 countries (the others being Ireland and Sweden) that allowed immediate free movement of workers from the new countries, only requiring those who take up employment to register with the *Worker Registration Scheme*. Between May 2004 and March 2005 over 160 000 people from the new EU countries were registered, with the gross inflow levelling off in the first quarter of 2005 at a rate of about 14 000 per month, although it is not possible to gauge the net inflow from the information provided by the *Worker Registration Scheme*. Most of these new workers are relatively young and the majority are relatively low paid (80% have wages in the range of £4.50 to £6 per hour, just above the minimum wage). While employment was initially concentrated in London and the South-East employment has become increasingly dispersed.[10] There is evidence to suggest that it has had a positive effect on total output and employment with minimal impact on native workers (Portes and French, 2005). The most significant effects have been in the agriculture and fishing sector where there is also some evidence that nominal wages have declined relative to the rest of the economy. The magnitude of the longer-term effects are difficult to assess, particularly as other EU countries will relax restrictions, although potential growth could increase by up to 0.1-0.2 percentage points if the recent rates of net immigration were to be maintained.

The major challenge is to close the productivity gap

Too close the gap in living standards with the best performing OECD countries the main challenge is to close the productivity gap (Figure 1.10). Moreover, despite the recent

Figure 1.10. **The sources of income differences**

2003, in 2000 PPP terms



1. Percentage gap with respect to the United Kingdom level.
2. Labour resource utilisation is measured as total number of hours worked divided by total employment.
3. Labour productivity is measured as GDP per hour worked.

Source: OECD, *National Accounts* and Labour Force Statistics database, August 2005.

macroeconomic performance and flexible labour and product markets, there is not yet clear and unambiguous evidence of any recent pick-up in long-term trend productivity growth (Table 1.3). Average labour productivity growth, measured in terms of GDP per hour worked, was about 2% per annum in the decade to 2003 which is close to the median across all OECD countries (OECD, 2005b).

Table 1.3. **Productivity growth**

Annual average percentage growth

	1970s[1]	1980s[1]	1990-96	1996-2001	2001-04
GDP per head	2.3	1.5	2.9	1.7	1.7
GDP per hour					
Total	3.1	1.7	3.2	2.1	2.2
Business sector	3.9	2.0	3.2	2.2	2.6
Business sector multi-factor	2.0	1.7	1.5	1.5	1.5

1. The end points to calculate the decade averages have been chosen to correspond to quarters when the output gap is close to zero to minimise distortions from the economic cycle.

Source: Office for National Statistics and OECD, Quarterly National Accounts database, August 2005.

Across OECD countries there is a clear negative correlation between lower labour utilisation and higher productivity. This may occur because the low-skilled may be crowded out of a job in countries with a low labour utilisation, and there may also be diminishing returns to hours worked as fatigue sets in. This might suggest that part of the gap with some continental European countries may be explained by higher labour utilisation in the United Kingdom. Estimates which attempt to adjust for labour utilisation, by utilising cross-country econometric evidence, can explain roughly half of the gap with the three major continental European countries (Cette, 2004). Nevertheless, this leaves the rest of the gap to be explained by other factors, and, if anything, tends to widen the productivity gap with the United States. In this *Survey* four factors contributing to the productivity gap are examined, three of which have already been identified as priorities for

structural reform in previous OECD cross-country analysis (OECD, 2005b) that developed a benchmarking system based on a consistent set of cross-country structural indicators.[11]

... by improving skills

A long-standing weakness which contributes to low productivity is the low level of general skills of the workforce. Compared with most other OECD countries a relatively large proportion of the workforce only has the equivalent of upper secondary education. Moreover, the situation is only likely to improve gradually as the enrolment rate in post-compulsory education is among the lowest in the OECD. Calculations based on the *OECD Growth Study* suggest that human capital can explain up to 10 percentage points of the productivity gap with Germany and around 5 percentage points with the United Sates and Canada (OECD, 2004). The low level of skills may hamper productivity growth by reducing the capacity to absorb new ideas (Griffith *et al*., 2003) and might also explain why, despite a similar pick-up in ICT investment as in the United States, the United Kingdom has yet to experience a similar pick-up in multi-factor productivity (Table 1.3 and Basu *et al*., 2003). The current policy approach to raising the general level of skills is evaluated in Chapter 8.

... by raising innovation performance

Across a range of conventional indicators – including R&D intensity, patenting and the employment of scientists and researchers – innovation performance appears mediocre in comparison with the best performing OECD countries. A number of cross-country empirical studies, including the *OECD Growth Study*, have found an empirical link between various measures of innovation and growth or productivity performance. However, there is no straightforward link between policy levers, innovation indicators and broader economic performance. Moreover, some differences in innovation indicators may be explained by factors such as industry structure, which suggest a cautious approach to targeting higher R&D intensity. The United Kingdom's poor apparent innovation performance is examined in the light of such factors in Chapter 7.

... by improving infrastructure

For decades under-investment in public infrastructure has been an easy option for constraining public expenditure. The government's fiscal rules have helped to avoid such short-term expediency and government investment has risen as a share of GDP. But it still appears low compared with many other OECD countries and may be inadequate to correct years of neglect. While empirical evidence on the links between public infrastructure and productivity does not appear to be robust, the most likely area where past under-investment may have held back productivity and added to business costs is on transport infrastructure. The United Kingdom ranks poorly in international comparison both on survey-based measures regarding the quality of transport infrastructure and on measures of congestion. Lowering congestion will directly contribute to sustainable development goals, and may do so indirectly by reducing harmful vehicle emissions. The government's plans to increase investment in transport as well as the growing interest in congestion charging are examined in Chapter 3.

... and by liberalising planning laws

In comparisons with the United States, a large part of the productivity gap is explained by the service sector, particularly retailing. Moreover, a large part of the acceleration in

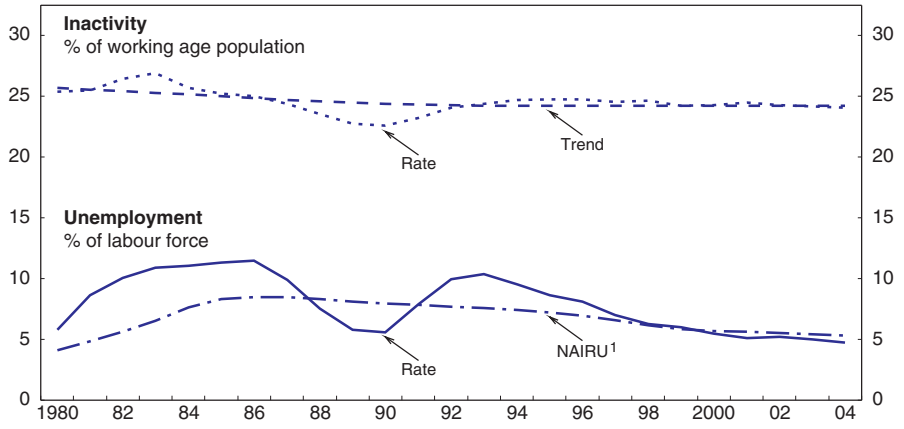
US productivity growth during the late 1990s took place in this sector. One factor which may hold back productivity growth in retailing is stricter planning regulations, either by forcing stores to operate below a minimum efficient scale and/or by hindering the opening of new stores and the closure of old ones. Indeed, there is evidence to suggest that the average size of UK supermarkets, while larger than those in much of continental Europe, is well below that in the United States and below the minimum scale required to achieve the highest level of productivity. There is also evidence suggesting that the share of productivity growth in the retailing sector accounted for by entry and exit of new firms is much larger in the United States (Griffith *et al.*, 2003). The extent of competition in the retailing sector was discussed in the previous *Survey* which reached a similar conclusion about the likely adverse effect of planning restriction on productivity. While this sector is not discussed in the current *Survey* the planning laws are discussed as a factor which has restricted housing supply in Chapter 2.

Reducing large numbers on disability-related benefits is the key to raise labour utilisation

In international comparison labour utilisation rates are high, with activity rates only clearly exceeded by a small number of Nordic countries where female participation is particularly high. However, while the unemployment rate has fallen to its lowest level in three decades and by nearly 7 percentage points from a peak in the mid-1980s, there has been little fall in the inactivity rate (Figure 1.11). Indeed, while the activity rate of women has risen substantially, the male inactivity rate has shown a consistent upward trend accompanied by a similar rise in men reporting long-term sickness or disability as the main reason for inactivity. In 1980 the number claiming disability-related benefits was less than the number claiming unemployment benefit, whereas currently the former are three-and-half times as great. While increasing numbers on disability-related benefits is common in many OECD countries, the United Kingdom stands out as having a relatively high concentration of disability among prime-age males.

Figure 1.11. **Unemployment and inactivity rates**

Per cent



1. Non-accelerating inflation rate of unemployment.

Source: OECD, Economic Outlook 77 database.

The Government has recognised the importance of tackling this issue and has piloted *Pathways to Work* for helping those on incapacity benefit back into work. This new policy is described and evaluated in Chapter 6 which also considers what further issues need to be faced as the coverage of the programme is extended. The Government has also set out plans for further reforms, including changes to the structure of the benefits.

Notes

1. Considering the period 1998-2004 (when the new monetary framework has been in operation) the volatility of the effective exchange rate (as measured by the quarterly standard deviation) has been the lowest among all OECD countries with the exception of Austria, Luxembourg, Portugal and Spain.
2. The links between consumption and housing are discussed in the previous *Survey* and in Chapter 2.
3. Comparing the May and August editions of "Consensus Forecasts", see *www.consensuseconomics.com*.
4. Change in employment is taken over the period 2000 Q2 to 2004 Q1 from "Public Sector Employment", March 2005, Office for National Statistics, *www.statistics.gov.uk/articles/nojournal/PSE_final.pdf*.
5. The OECD only projects general government finances and not public sector (including public corporations) finances against which the government's fiscal rules are judged. The difference is typically small (of the order of 0.1% of GDP on the current balance), although in present circumstances even a small difference could mean the difference between the golden rule being "hit" or "missed".
6. In the absence of revisions it would require growth of 2% on a quarter-on quarter basis over the remaining two quarters to achieve year-on-year growth in 2005 of over 3%.
7. Both the OECD and 2005 Budget projections may under-estimate tax revenues from North Sea oil as they were based on an oil price assumption of $50 and $40 per barrel (for Brent crude), respectively, whereas the price in August has risen to over $60 per barrel. OECD calculations suggest a $10 barrel increase in the oil price would be expected to raise *ex ante* oil tax revenues by roughly 0.2% of GDP. However, the overall impact on public finances will be limited by a number of offsetting factors, including a reduction in fuel duty, an increased inflation rate feeding through into indexed benefits and tax allowances, and the effect on the wider economy and non-North Sea company profitability.
8. This evaluates the 2001, 2002, 2003 and 2004 budget projections of the cyclically-adjusted current surplus, against the outturns (and estimated outturns) reported in the 2005 Budget.
9. Command GDP is calculated by adjusting standard measures of GDP in a manner which, arguably, provides a better reflection of consumption possibilities. It is similar to the standard measure of GDP except export volumes are included by deflating nominal exports by the import deflator (on the argument that the purpose of exports is to provide for imports).
10. In the second quarter of 2004 23% of those registered to work in the North, Midlands, Scotland, Wales or Northern Ireland, but by the first quarter of 2005 this proportion had risen to 40%.
11. Innovation was excluded from consideration (for all countries) in the first exercise identifying priorities for structural reform across OECD countries (OECD, 2005b), although it will be explicitly considered in the update to be published in 2006.

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ANNEX 1.A1

Differences between the OECD and 2005 budget projections

OECD projections in *Economic Outlook* No. 77 are for the general government deficit (on a Maastricht basis) to stabilise at around 3% of GDP over the next two years. In contrast, the 2005 Budget projects the general government deficit to fall to 2.2% of GDP in fiscal year 2006. The main reasons behind these differences over the next two years are as follows:

- The budget projections assume that output was (on average) 0.7 percentage point below potential in fiscal year 2004/05, whereas on OECD calculations the gap was already closed. Thus according to the budget projections there is a *cyclical contribution* of about 0.6% of GDP to the deficit which will be eliminated as the output gap is closed (Table 1.A1.1).
- *Corporate taxes* are likely to rise as a share of GDP because of the effect of the higher oil price on oil company profits. Non-oil corporate taxes are likely to rise as a consequence of lagged effects from improvements in corporate profitability, especially from a recovery in financial sector profits related to the recovery in the equity market. There may also be a positive effect on revenues from tightening up on tax avoidance. Whilst account of most of these effects (with the exception of anti-avoidance measures) has been taken in the OECD projection (see Annex 3.A.1 of the previous *Survey*, for details of the equation used), the projected rise in tax revenues equals 0.4% of GDP between fiscal years 2004/05 and 2006/07. It is less than half that in the budget projections which have a rise of 0.8% of GDP between fiscal years 2004 and 2006.
- Fiscal drag effects, as income tax allowances are usually indexed on prices rather than earnings, given trend growth in real earnings might be expected to push up *income tax* revenues by around 0.1 percentage point of GDP per annum (HM Treasury, 2004), which is similar to that built into the OECD projection. However, the budget projections imply a rise in income tax revenues as a share of GDP by 0.5 percentage points over the two fiscal years from 2004/05. The additional buoyancy relies partly on a further recovery in bonus payments, particularly in the financial sector, as well as the success of anti-avoidance measures.
- The OECD projections are based on the budget planned increase in nominal public expenditure of about 13% between 2004 and 2006, which is equivalent to 0.8% of GDP on the budget projections, but slightly more on the OECD projection given the weaker GDP

profile. However, this is partially offset by an assumption that there will be some under-spending on investment (in line with past experience).

Table 1.A1.1. **Difference between OECD and budget 2005 fiscal projections**
Changes between fiscal years 2004/05 and 2006/07, in per cent of GDP

	Budget 2005 [1]	OECD Economic Outlook No. 77[2]	Difference [3] = [1] – [2]
Receipts			
Income tax revenues	0.5	0.3	0.2
Non-North Sea corporation tax	0.8	n.a.	n.a.
North Sea revenues	0.1	n.a.	n.a.
Total corporate tax revenues	0.9	0.4	0.5
Current receipts	1.6	0.9	0.7
Expenditure			
Current expenditure	0.2	0.2	0.0
Gross fixed investment	0.6	0.4	0.2
Balances			
Maastricht deficit	0.7	0.3	0.4
Maastricht deficit – cyclically adjusted	0.1	0.4	–0.3
Current balance	1.4	0.7	0.7
Current balance – cyclically adjusted	0.9	0.8	0.1
Memorandum item			
Output gap	0.7	–0.2	0.9

Source: OECD (2005), *Economic Outlook*, No. 77 and HM Treasury, Budget 2005.

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Chapter 2

Housing: raising responsiveness of supply

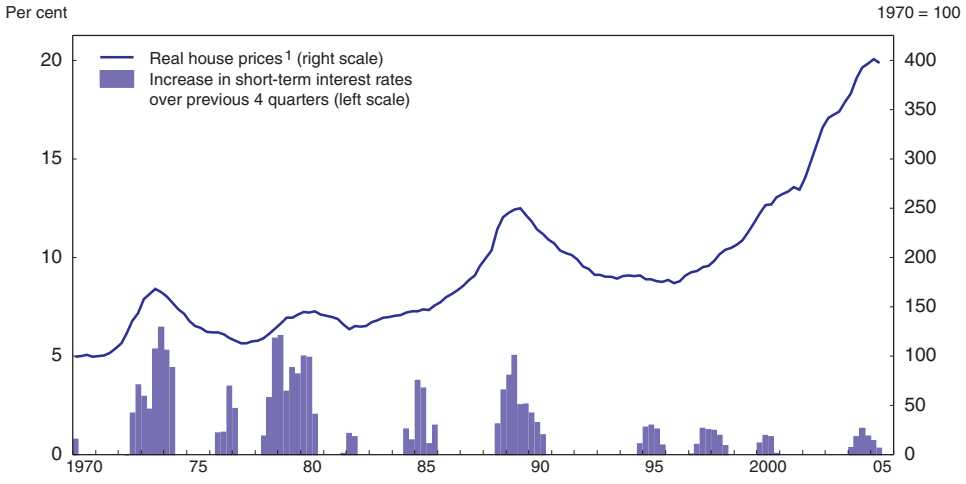
Pronounced cycles in house prices have been a major cause of macroeconomic instability in the past. Following up on a chapter on housing in the previous Survey this chapter begins by updating the assessment of the risk to macroeconomic stability from the housing market in the current conjuncture. It then considers measures to improve housing supply in the light of the recent Barker review as well as other recent policy initiatives and proposals affecting the demand side. While there have been recent changes to planning laws which might help to improve housing supply, it is essential that progress is monitored and if necessary additional incentives provided to local authorities to ensure regional housing targets are met. Reform of property taxation, in particular bringing assessed property values closer to market valuation and ensuring that they are regularly updated, could also help to reduce volatility in house prices.

Assessing the risk in the current cycle

House prices in relation to conventional benchmarks, such as average earnings or rents, have only moderated slightly from historical peaks in 2004, which in turn were at least 15% above the previous peaks reached in the late 1980s, just prior to the last house price crash. Model simulations of the OECD's Interlink model reported in the previous *Survey* suggest that the consequences of a sharp downturn in house prices would be extremely difficult to offset through a loosening of monetary policy, at least over the first year. However, the risk of such a sharp downturn appears to be receding. Although a smooth adjustment in real house prices from previous peaks has rarely been gradual, previous downturns have been preceded by sharp increases in short-term interest rates of a magnitude – typically of the order of around 400 to 500 basis points over the previous year – which is inconceivable now (Figure 2.1).

While household debt has increased in relation to income, the risk that this poses should not be over-stated. Nominal interest rates are low by historical standards so that household interest payments are currently low and relatively stable as a proportion of disposable income at around 8-9% – well below the peaks of about 15% of household income that they were prior to the house price crash at the beginning of the early 1990s. At the same time, broader definitions of household debt service, including repayment of mortgage principal as well as unsecured debt repayments, have increased substantially and, according to unofficial estimates, are approaching the peaks reached during the early 1990s (Figure 2.2). However, these broader measures of debt service are probably less appropriate measures of potential financial distress than the narrower definition. This is

Figure 2.1. **Monetary tightening usually precedes house price falls**

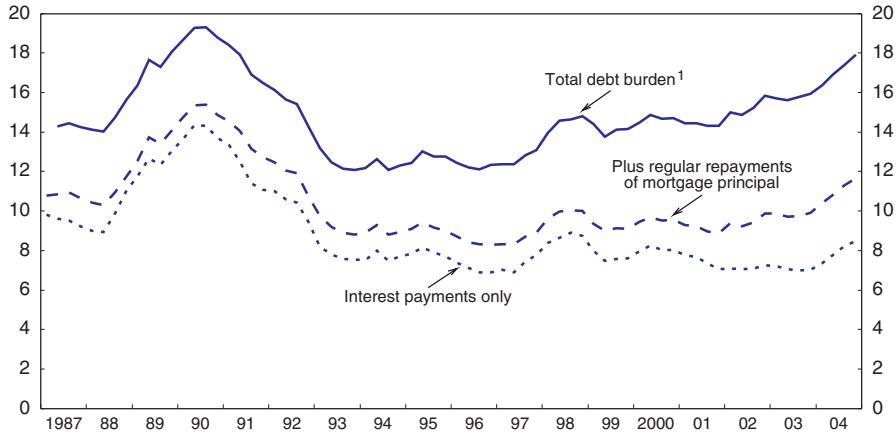


1. Relative to consumers' expenditure deflator (index 1970 = 100).

Source: Office of the Deputy Prime Minister, Housing Statistics, September 2005 and OECD Economic Outlook 77 database.

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Figure 2.2. **Household debt servicing burden**
In per cent of disposable income



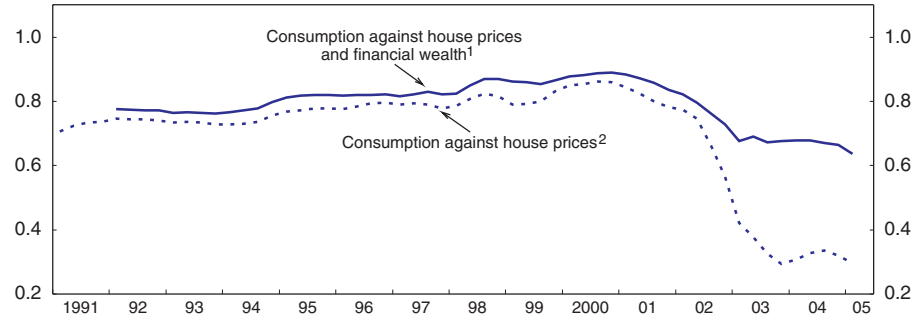
1. Plus minimum payment (3%) on credit card balances plus other unsecured debt repaid in three years.
Source: OECD estimates based on data from Bank of England and Office for National Statistics.

because repayments of debt principal have been willingly undertaken by households and are less liable to large unexpected increases as interest payments (following a large unexpected rise in interest rates) and mortgage lenders are more likely to be willing to postpone repayment of principal than interest in cases of financial distress.

Similarly, the scale of housing transactions does not suggest an impending house price crash. Transactions in the first half of 2005 are down about a fifth on the first half of 2004, but this is still close to the average over the previous decade. Thus there is little evidence to support the view that, in aggregate, sellers are postponing sales "in denial" of weaker housing market conditions.

The risk from the housing market may further be reduced if the link between the housing market and consumption has become weaker. In particular, the Bank of England has pointed out in a recent *Inflation Report*[1] that the previously strong 10-year rolling correlation between changes in consumption and house prices has become dramatically weaker since about 2000 (Figure 2.3). An alternative explanation is that the effect of strong growth in house prices on consumption has been obscured by the stock market crash in 2000. Estimated consumption equations typically suggest that changes in housing wealth have a much larger and more rapid effect on consumption than financial wealth, but that financial wealth is nevertheless important with the long-run effect of housing wealth and financial wealth typically the same (OECD, 2004). Reflecting such econometric findings a proxy for short-run wealth effects has been constructed by taking a weighted average change in financial wealth, with house prices receiving a weight of 75% and financial wealth only 25%. The correlation between changes in consumption and this proxy variable for short-term wealth effects is higher than for just house prices alone, and, although there is a decline in the estimated correlation coefficient after 2000, it is much less marked than with just house prices alone (Figure 2.3).[2] The strong short-term effects from housing also reflect liquidity effects arising from mortgage equity withdrawal. This suggests that much of the observed decline in the simple correlation between consumption and house prices can be explained by the fall in the stock market, which in turn suggests that the economy does remain vulnerable to swings in the housing market.

Figure 2.3. **The correlation between consumption and house prices**
10 year rolling correlation



1. Four-quarter percentage change in real consumption against a weighted average of four-quarter percentage change in real house prices plus eight-quarter percentage change in household financial wealth, where the relative weights given to house prices and financial wealth are 75% and 25%, respectively.
2. Four-quarter percentage change in real consumption against a four-quarter percentage change in real house prices.

Source: OECD, Quarterly National Accounts database, August 2005; Office for National Statistics and Nationwide.

A tentative conclusion is that, barring a major unforeseen shock which would lead to financial stress from either higher unemployment and/or much higher interest rates, the risk of an imminent crash in nominal house prices appears to be receding. A more likely outcome is that ratios of nominal house prices to rents and earnings are gradually declining as house prices remain relatively flat and average earnings and rents gradually catch up. On the other hand, evidence that the housing market now has a much weaker effect than before on consumption is unconvincing. On the contrary, the sharp slowdown in consumption following the recent flattening of house prices provides further confirmation of the strong links. This underlines the importance of policy measures to reduce the extent of house price cycles in the future.

Policy measures to increase supply

A major factor contributing to pronounced house price cycles has been an inelastic housing supply, as discussed in the previous *Survey,* which has meant that the trend increase in real house prices has been among the strongest in the OECD (Girouard and Blondal, 2001) with periods of rising real house prices sometimes gathering momentum and leading to speculative bubbles. New housing completions were close to post-war lows during the recent boom in house prices, although they have picked up recently. This weak supply response may in turn be partly explained by the previous house price slump in the early 1990s which led to bankruptcies of house builders and firm closures in the building supply industry (Barker, 2003).[3] The government-commissioned *Barker review* into housing supply (Barker, 2004) suggested using targets of market affordability at both a national and regional level to provide guidance in setting targets for future house building. It estimates that to reduce the trend rate of growth in real house prices from 2.7% per annum (the average over the last 20 years) to 1.8% per annum (which should be sufficient to prevent house prices rising relative to average earnings) would require a sustained increase in private sector house building of 70 000 per annum, an increase of more than 50% on current levels.

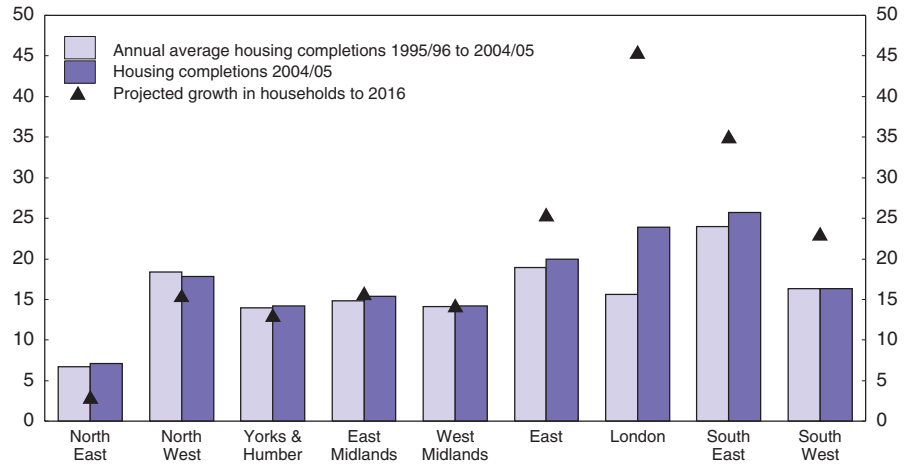
Pressures have been, and are likely to continue to be, concentrated in the South and East where economic growth is most rapid. Housing completions in London and, to a much lesser extent, in the South-East have increased recently to just under 50 000 in 2004-05, but the projected increase in household numbers for the region is 80 000 per annum to 2021 (Figure 2.4). Conversely, in other areas of the country, particularly the North and Midlands, new housing completions are in line with, or exceed, the projected increase in households. The Government has commissioned further research to provide a basis for new regional housing targets, but already has plans to increase house building in four regions in the "wider South East" and London where it has an ambitious target to deliver 200 000 new houses (on top of existing plans) over the next decade. Concerns that this region is already over-populated appear to be exaggerated (Box 2.1). In these key areas of significant planned growth the Government is setting up Urban Development Corporations that are explicitly accountable for delivery and that have strong planning powers enabling them to effectively bypass the normal planning processes for a clearly defined area.

To achieve a step increase in housing supply the Barker review made a number of recommendations, foremost among them the need to reform the planning system to give greater weight to economic considerations. Legislation to reform the planning system was passed in 2004 although much of it has only recently come into force. The objectives of the new legislation are laudable in attempting to provide a faster, simpler and more transparent planning process. The Government will also be tracking progress in a series of indicators designed to measure the efficiency and quality of the planning process and is consulting more widely before considering further planning reforms in response to the Barker review (ODPM, 2005a).[4]

As documented in the Barker review, local authorities often have strong incentives to oppose development: costs of development are considerable, the financial benefits may be slow to materialise and established residents are likely to have a much stronger political voice than those in need of new housing. Moreover, currently local authorities face few sanctions if they fail to meet their housing targets. In order to address these weaknesses, the Barker review made two broad recommendations for improving the incentives for local

Figure 2.4. **Projected growth in households and current housing completions**

Thousands per annum



Source: Office of the Deputy Prime Minister, Housing Statistics, September 2005.

Box 2.1. **Is there room for more housing?**

Population density statistics

The population density of the United Kingdom is about 242 people per km^2, which is slightly higher than in Germany. For England the population density is higher at 345 people per km^2, with the Netherlands being the only EU country with a higher density (390 people per km^2).

The South East is the most densely populated region (excluding London) in the country at 419 per km^2. Greater London has a population density of 4 486 people per km^2, which is higher than all other major European cities, except Brussels and Paris (counting only the area within the periphery).

The South East

While the housing shortage is most acute in the wider South East, concerns have been raised that even existing government housing plans will require "vast swathes of rural England to vanish under endless suburbia" (*Daily Express*, 2005). There does, however, appear to be ample undeveloped land which is neither designated greenbelt nor an area of conservation.

The total area of the Rest of the South East (ROSE) (the South East region plus the counties of Essex, Hertfordshire and Bedfordshire) is about 2.5 million hectares, of which: 11% is urbanised; 22% is greenbelt; and 37% is in areas of outstanding natural beauty or other designated conservation or protected areas. There are thus about 0.75 million hectares of land that is potentially available for development. Barker (2003) estimates that current government targets (including the additional 200 000 additional homes in the four growth areas) for the next decade would require only 1½ per cent of the undeveloped land in the region.

Source: This box draws heavily on Box 8.2 in Barker (2003).

authorities to deliver housing growth; that central government funding settlements should be made more forward-looking; and that Government should consider ways of providing greater incentives to local authorities to meet housing growth targets. The Government has recently introduced changes which go in this direction:

- The maximum limit on the annual percentage increase in the grant received by any local authority has been raised, with the result that fast-growing areas will benefit through increased grants of more than 10%.
- A "Planning Delivery Grant" (PDG), totalling £170 million in 2005/06, which is designed to reward local authorities for quick and efficient planning performance. However, existing incentives through PDG appear small in relation to the potential planning gain involved in many large development projects.[5]

If these measures prove inadequate then another specific proposal of the Barker review should be considered, namely to disregard for a period of up to three years council tax receipts generated by new housing from the calculation of the local authorities grant allocation from central government.

A further impediment to the operation of the planning system is the delays that result from negotiations under Section 106 of the 1990 Town and Country Planning Act, by which local authorities can negotiate with the developer for a proportion of the planning gain to be provided to the local authority in the form of social housing, schools, roads or other

infrastructure. The Government has recently issued new guidelines with the aim of increasing transparency, predictability, accountability and speed in the negotiation of section 106 agreements (ODPM, 2005b). If the use of formulas and standard charges suggested in these guidelines is not widely taken up, then consideration should be given to making them mandatory.

There are also tax-based mechanisms that could be used to capture a portion of the land value uplift (the economic rent derived from increased land values) accruing to property going through the planning system. In her review of housing supply, Kate Barker recommended a planning-gain supplement (PGS) to levy a portion of this windfall gain in order to finance housing, infrastructure and so increase local incentives for approving housing. Currently, the Government is considering the workability and effectiveness of the proposed PGS as part of its further work on the Barker recommendations.

A more radical alternative would be to consider a tax on land values (or on the economic rent derived from land values) as part of the local tax revenue base (Maclean, 2004). Local tax revenue would thus be enhanced by land developments which would allow other local taxes incurred by local voters, such as the council tax, to be reduced so that the latter would face a choice between less development and higher local taxes. From an economic perspective a traditional argument in favour of a land tax is that it has a minimal effect on distorting incentives (Kay and King, 1990). There would, however, be difficult problems to solve in distinguishing the value of land from the value of structures sited on the land (which would not be subject to tax). Land tax also has a long history of courting political controversy as documented in the Barker review.

Policy measures acting on demand

New supply only accounts for about 1% of the housing stock so consideration also needs to be given to policy measures that improve utilisation of the existing stock by addressing the demand side. Reducing volatility in the housing sector can be achieved through tax instruments. In its EMU study on "Fiscal Stabilisation and EMU" (HM Treasury, 2003) highlighted that a number of property taxes across the world exhibited stabilising characteristics. One way this could be attempted in the United Kingdom would be through reform of the council tax The council tax is a tax on the capital value of property (with some exemptions) which raises the equivalent of about 1½ per cent of GDP in revenues and accounts for about one-quarter of all local authority revenue. However, the tax is currently based on 1991 housing valuations. Reform of the council tax, along the lines of property taxes in Denmark and the Netherlands to make its incidence at least proportional to capital values as well as ensuring that revaluations are regular (at least once every two or three years with regional house price indices being used to up-rate it in between revaluations) could make an important contribution to reducing house price volatility. Two distinct effects of reform can be distinguished. Firstly, during an upswing in house prices the automatic stabiliser effect from the increased tax burden as well as expectations of higher taxes should help to counteract expectations of future capital gains which otherwise can accentuate the upswing in house prices (Muellbauer, 2005). Secondly, taxes on property linked to market values should provide stronger incentives to avoid keeping property vacant and under-occupied. Denmark has a property tax of about 1% linked to market value and a progressive element so that there is a higher marginal rate for more expensive properties. Despite a strong macroeconomic performance and a relatively liberal mortgage market Denmark has experienced relatively modest increases in real house

prices which Muellbauer (2005) attributes partly to the system of property taxation.[6] One problem that would arise from reforming the council tax in this way is that revenue would become more cyclical which is a particular problem given that it is a major source of income for local government. The Government has commissioned an independent inquiry chaired by Sir Michael Lyons into reform of the local government finance system, including the council tax. This inquiry will be able to consider the case for reforms along these lines as well as the strengths and weaknesses of other taxes at the local level, including a land value tax and the system of business rates.

The Government has been assisting certain key public sector workers and social housing tenants into home ownership for a number of years, in order to address recruitment and retention difficulties or to free up social housing tenancies. The Government recently announced its intention to consolidate and expand existing schemes for first-time buyers into a new "Homebuy" scheme (HM Treasury and Office of the Deputy Prime Minister, 2005a). Under this scheme a first-time buyer would be able to buy a home for 50% to 75% of its value, the rest being owned by the Government, or equally by the Government and the lender, with the buyer paying rent equal to 3% of the equity they do not own. Support of this nature could become capitalised into higher house prices if housing supply did not increase, with little or no effect on affordability over the longer-run. In practice, the macroeconomic effects of the scheme are likely to be very small given the relatively modest ambition to assist only 110 000 first-time buyers over the next five years,[7] although this also raises questions as to how eligibility for the scheme is determined. Assistance is being targeted primarily at key public sector workers, existing tenants in social housing, though Regional Housing Boards will have some discretion to assist "other first time buyers".[8] If the intention is to make the scheme generally available then it raises questions concerning how priorities will be decided.

Box 2.2. **Recommendations to improve the responsiveness of housing supply**

- Following the introduction of new planning laws, monitor closely the speed and efficiency of the planning system and above all progress towards the government's regional targets for new housing. As part of its response at the end of 2005 to the recommendations of the Barker review, the Government should deliver reforms to the planning system to increase its responsiveness to housing demand. The Government should also respond to Kate Barker's recommendation for greater incentives for local authorities to meet housing growth targets. For example, by disregarding, for a period, council tax receipts generated by new housing from the calculation of the local authorities grant allocation from central government.
- If the current voluntary approach to simplifying and standardising procedures under which local authorities negotiate part of the planning gain with developers (under Section 106 of the Town and Country Planning Act) is not widely adopted, then such a simplification should be imposed in order to speed up the planning process.
- Council tax could be reformed to be proportional to property values with regular property revaluations so that it would act as an automatic stabiliser during an upswing in house prices both because of the increased tax burden as well as by generating expectations of higher taxes to counteract expectations of future capital gains.
- The Government should monitor its "Homebuy" subsidy scheme to support first-time buyers, including any effect on house prices.

Notes

1. See the box on pages 12-13 of the Bank of England's November 2004 *Inflation Report*.
2. Similarly, econometric tests on consumption equations having the same specification as that reported in the previous *Survey*, which includes both housing and financial wealth, show little evidence of a structural break after 2000.
3. There is an apparent contradiction between relatively flat data on housing completions and a pick-up in real residential housing investment which has averaged nearly 6% per annum between 2002 and 2004, after remaining flat over the previous five years. This difference may be partly explained by increased expenditure on housing maintenance and improvements, but it may also suggest there may be some pick-up in housing completions in the near future.
4. An overview of the government's approach to housing policy, including an update on progress in implementing the recommendations of the Barker review, is provided by HM Treasury and Office of the Deputy Prime Minister (2005b). In July 2005 the government published a consultation document, ODPM (2005a), on a new policy approach for delivering a better supply of housing through the planning system. Key elements include: taking into account housing market information in determining the level and distribution of housing provision; extending the local authority planning horizon from 10 years to 15 years; requiring that local authorities ensure the first 5 years of this land supply is allocated and developable; requiring local authorities to roll forward this 5 years supply as land is developed and as market conditions change; and introducing housing land availability assessments to require local authorities to work with developers to identify suitable land for development. These changes aim to make appropriate land available more swiftly for new house building.
5. For example, a single London Borough, Greenwich, has recently won promises of up to £100 million funding by means of Section 106 Agreements on a single development project.
6. The Danish government introduced a nominal ceiling on the tax on property values from 2002 which is likely to reduce the effectiveness of the tax in dampening house price cycles. Subsequent OECD *Surveys* of Denmark have recommended that the property tax payments be adjusted in line with inflation while gradually reducing the high marginal taxes on earned income instead.
7. This might be compared to housing transactions (in England and Wales) which have averaged about 1½ million per annum over the last decade.
8. Three variants of the *Homebuy* scheme are described in HM Treasury and Office of the Deputy Prime Minister (2005a). For two of these variants eligibility is described as being open to "key workers, existing social tenants and those on the housing register and other first time buyers".

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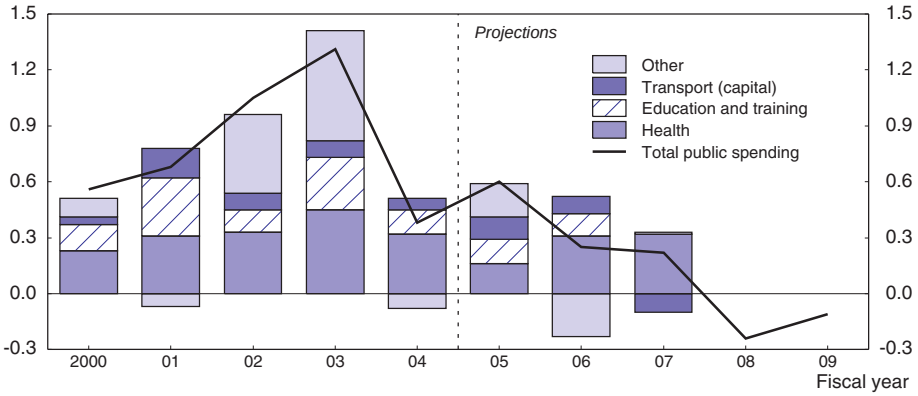
Chapter 3

Public services and infrastructure: tracking the improvements

On current government plans there will have been a rise in the public expenditure to GDP ratio by 5½ percentage points in the eight years to 2007/08, with much of the increase targeted on health, education and transport infrastructure. This chapter updates the previous Survey to document progress in improving outcomes, especially in health and education. It also reports on progress to improve national accounts measures of public spending outputs following the Atkinson review. Further improvements in outcomes, particularly once the ratio of public expenditure to GDP stops rising beyond 2007/08, will require efficiency gains across all public programmes. Planned increases in activity-based funding should further improve health care efficiency, but more could be done. Improving outcomes in transportation will require a combination of sustained higher investment and road pricing, as well as ensuring that local authorities have both incentives and resources to implement such changes.

Public services and in particular health, education and transport infrastructure are benefiting from substantial public spending increases making up for many years of under-spending. In health care, real public spending went up 48% during the five years to 2004/05, and the 2004 Spending Review confirmed a further increase by 23% from 2004/05 to 2007/08.[1] This implies a step change for total health care spending from 7 to 9½ per cent of GDP (Figure 3.1), bringing it to the level of continental Europe.[2] In education, real public spending went up 39% during the five years to 2004/05, but is set to grow only modestly towards 2007/08. Total capital spending on transport has increased as a share of GDP in every year since a low point of 0.2% of GDP in 1999/2000 to 0.6% of GDP in 2004/05, with plans for a further increase of 0.2 percentage points of GDP over the next two years. There are no explicit spending commitments beyond 2007/08, but the government's medium-term budget projection suggests that spending as a share of GDP will decline slightly. This raises the question as to what improvements in outcomes have been achieved by the increased spending and whether improvements can be sustained as spending slows.

Figure 3.1. **Public spending is still growing fast but should tail off after 2007**
Change in GDP share from previous year, in percentage points[1]



1. Total local authority and central government current and capital spending for the different categories. The total public sector includes public corporations. The projected allocation of local authority spending across categories from 2005/06 assumes they all grow proportionately in line with total spending of local government.

Source: OECD calculations based on HM Treasury, *Budget 2005*, The Stationary Office, London.

Spending on health and education can still be made more efficient

The exceptional spending increases on health and education are now starting to pay off in some areas, but outcomes are not yet improving at a pace that is comparable to the spending increases (Figure 3.2). Some delay should be expected: it takes time to change systems, delivery chains and culture. Nonetheless, there have been achievements. The reduction in waiting times is perhaps the clearest achievement. Since 2003 nobody is waiting more than a year for in-patient hospital treatment and the number of persons

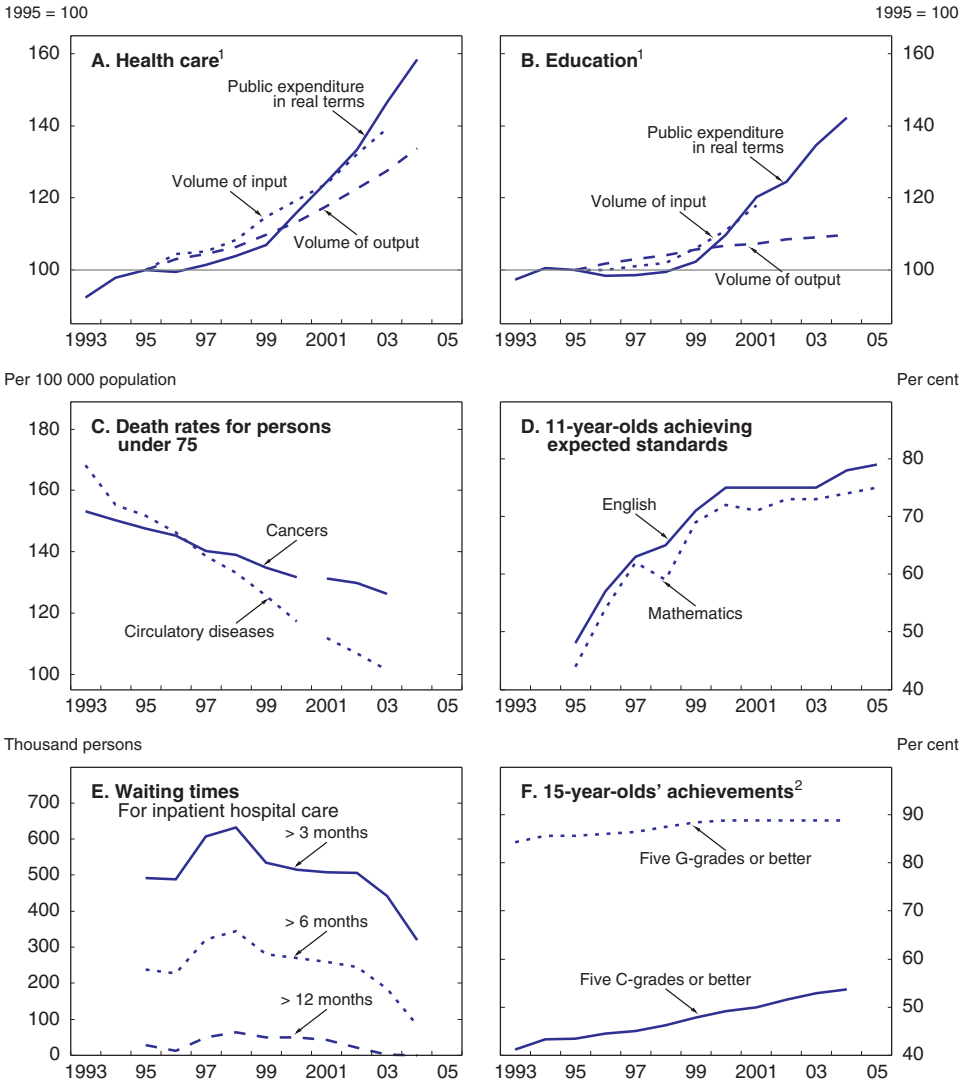
having waited for three months or more has almost halved compared with the situation prevailing between 1999 and 2002. From 1997/98 to 2003/04 there was a 70% rise in cataract operations, 67% rise in heart operations and a 95% rise in knee replacements. Yet on some outcomes, the effect of higher spending is less clear: premature cancer deaths and heart/circulatory diseases have continued to decline, but not faster than during the 1990s.

In education, while performance has continued to improve the gains have not been entirely consistent across the board, although one might expect some lag between increases in expenditure and improvements in outputs. For example performance at age 11 has increased significantly between 1999 and 2005, with 79% of pupils now reaching the expected level in literacy compared with 71% in 1999; and 75% in numeracy compared with 69% in 1999; but progress at age 11 was faster before the spending increases began. For pupils aged 14 and 16 progress has been on a more consistent upward trend from 1999, as a result of which the percentage of pupils attaining the expected level in English at age 14 has risen from 64% in 1999 to 74% in 2005; and in maths from 62% to 74%. The measures of GCSE performance at age 16 also show a year on year rise (Figure 3.2).

The apparent difficulties in rapidly turning a lot of money into better services stem partly from labour market constraints and limits to how fast organisations can absorb extra staff and other inputs in an efficient manner. Public sector employment has expanded by more than 100 000 a year during the two years to March 2004, rising faster than in the preceding years (ONS, 2005). This shift in employment growth towards the public sector has been achieved without overheating, as on aggregate, public and private sector earnings are growing at a similar pace – illustrating the flexibility of the UK economy supported by increased net immigration. But for doctors, hourly earnings still grow faster than for other occupations with a differential of 2% in 2004, and the cumulative differential since 1998 has reached 15 percentage points. In 2004, two-thirds of newly-registered doctors, and more than 40% of nurses, came from abroad. This large inflow from developing countries and, more recently, new EU member countries, has enabled the National Health Service to increase the number of doctors by 25% during the five years to 2004. But this is only half the speed of spending growth. As a result, when health spending reaches 9½ per cent of GDP in 2007/08, there will only be about 2.4 practising physicians per 1 000 population (up from 1.9 in 1999), compared with currently 3.1 to 4.1 in Belgium, Italy, Netherlands and Sweden, which have a comparable spending level and 3.4 in Germany and France, which spend slightly more. However, there are structural differences in health care systems that need to be taken into account in such comparisons. The 59% expansion in student admissions to medical schools during the five years to 2004/05 will help, but only after a number of years. Moreover, raising the number of doctors is not the whole story; there has also been considerable expansion in other key health inputs. These include the completion of 54 new hospital schemes, the recruitment of over 30 000 qualified scientific, therapeutic and technical staff as well as the procurement of vital equipment and new drugs.[3] Nevertheless, there is a clear wedge between spending and input volume growth in health care.[4]

Looking ahead to the 2007 comprehensive spending review, it remains an open question whether the healthcare system is able to absorb continued rapid spending growth in an efficient manner. The independent *Wanless review* from 2002 envisaged 4½-5½ per cent real annual growth in public spending on health care during the five years following 2007/08 (HM Treasury, 2002). If accepted by the Government in the 2007 Spending Review, then this would mean average annual real growth rates of 6-6½ per cent during the

Figure 3.2. **Spending and outcomes in health and education**



1. "Public expenditure in real terms" refers to nominal central government and local authority spending deflated using the GDP deflator which can be interpreted as the volume of alternative consumption foregone. For health care, input and output volume indices follow the post-Atkinson methods as described in A. Pritchard (2004), "Measuring Government Health Services Output in the UK National Accounts", *Economic Trends*, No. 613, ONS. For education, only volume indices following the pre-Atkinson method are so far available, as based on A. Pritchard (2003), "Understanding Government Output and Productivity", *Economic Trends*, No. 596, ONS.
2. GCSE and equivalents for 2004 which includes new qualifications approved for under 16-year-olds.

Source: ONS (2005), *United Kingdom National Accounts: The Blue Book*; HM Treasury; Department of Health and Department for Education and Skills.

15 years to 2012/13. Public spending growth of this magnitude over such a prolonged period would be unprecedented in the OECD countries where complete population coverage for public health insurance has already been established. And over the last decade, real public health care spending growth only exceeded 4% annually in the United States among the G7 countries. In light of the problems, in particular regarding recruitment of doctors, it might therefore be considered to let health spending grow less fast after 2007/08 when the promise by the Government to lift health care spending to levels comparable with

continental Europe is fulfilled. A real annual growth rate of 2½ per cent thereafter would be comparable to what Canada, France, Germany and Italy have had over the recent decade. It would improve the fiscal balance by 0.1-0.2% of GDP each year relative to the spending path envisaged in the Wanless review and it would give the health service time to improve the efficiency with which it uses the many extra resources. More resources *are* needed in health care including for developing mental health care as discussed in Chapter 6. But the 2007 comprehensive spending review should carefully examine if continuing at 4½-5½ per cent real annual growth after the level shift currently taking place is more than the system can absorb, and consider moving to more modest increases in real spending.

Following the *Atkinson review*, improved measures of government output and productivity are now gradually being introduced in the national accounts, making the United Kingdom an international leader in this domain (Box 3.1). But even on the improved metrics, public service productivity is declining, although it will be some years before there are reliable statistics to be sure of trends in public sector productivity. It is understandable that it takes time for larger output and improved outcomes to materialise, but the numbers clearly show that there is no automatic link between more resources and better services. Efforts to ensure value for money *via* reforms to service delivery now need to catch up with the rapid build up of resources.

The focus is now on administrative efficiency and contestability

The approach to ensuring efficient public services has evolved towards less emphasis on the hundreds of detailed operational targets for public services introduced in 1998 – a change advocated in the previous *Survey* not least because many targets appeared to distort rather than help performance (OECD, 2004).[5] The top-level national targets specified in the Public Service Agreements for each department remain in place, but are now focused primarily on the government's key priorities (HM Treasury, 2004a). While targets have provided transparency about political priorities, many have proven difficult to attain in practice. For example, the 1998 Public Service Agreement for 80% of 11-year olds to achieve the expected level 4 in English by 2002 was still not attained in 2004, not to mention the 85% by 2004 to which the target was raised in the 2002 Public Service Agreement – though improvements have been achieved. The 2004 Public Service Agreement postponed the 85% target to 2006 and from there it should remain unchanged till 2008. Of course, in any system where genuinely challenging targets are agreed, it is reasonable to expect a number of targets not to be met. Overall, however 85% of the Public Service Agreement targets set in 1998 were met or partly met. Many of the targets agreed subsequently have yet to run their full course, though the Government still expects to meet the majority of its targets. The Government is focused on having national targets where it makes sense to do so. In practice, this means taking into account the other reforms and performance management vehicles that are in place in any given area. This includes consideration about the extent to which improved performance can be driven by locally published performance information.

Policy now emphasises centrally orchestrated efforts to identify the many small things that can simplify administrative procedures and reap operational efficiencies to free resources for the expansion of front-line services. Following the *Gershon review* (HM Treasury, 2004b), targets for efficiency savings of at least 2.5% a year were agreed for all government departments to deliver over £20 billion a year by 2008 with a gross reduction of 84 000 posts. Characteristic examples include smarter logistics, getting better deals in procurement, merging back-office functions into larger units, paying benefits and pensions

Box 3.1. **The Atkinson review of national account measures of government output and productivity**

The Atkinson review was commissioned in December 2003 after increases in public spending had generated an increased interest in the way the government sector was portrayed in the national accounts. Based on a few crude physical measures of government activity, the national accounts indicated that the extra resources devoted to health and education had gone into cost inflation rather than improved services. The final report published in January 2005 has established a set of principles to apply within the internationally accepted national accounting frameworks departing from the convention of government output being equal to the inputs which is still used in many countries (ONS, 2004 and 2005).

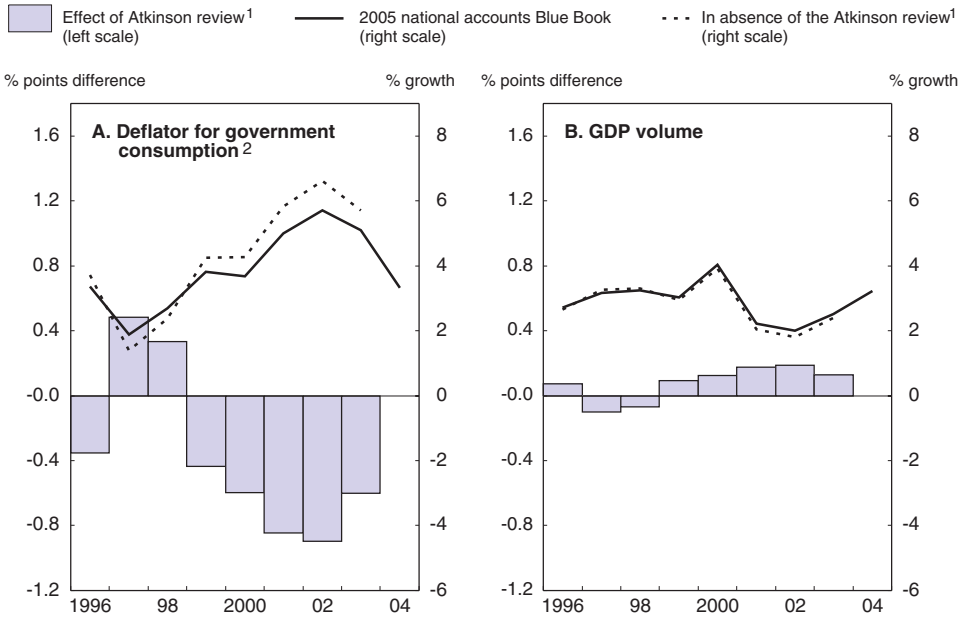
- Measurement of government non-market output should, as far as possible, follow a procedure parallel to that adopted for private-sector market output.
- Output measures should be adjusted for quality, including the contribution that particular services make to wider outcomes (lower crime rates, for example).
- Independent corroborative evidence on government productivity, should be used as part of a "triangulation" process which reconciles productivity, input and output series.

Based on these principles, improved measures are being introduced into the national accounts once they have been quality assured. The annual national accounts publication (*Blue Book*) published in summer 2004 incorporated the first wave of data revisions. It will continue gradually, since a lot of process improvements are also needed to improve the coverage, quality and timeliness of the data sources used. An interesting finding of the review is that the largest challenges are not only about measuring quality of "soft" health and education services, but just as much about measuring inputs. Accounting for capital services and the quality of wage and input price deflators will need to be improved and be sufficiently disaggregated to take account of changes in input mix.

The United Kingdom is thus leading the way towards better metrics of government non-market activity in the national accounts. A 2002 EU decision requires that *direct* measures of output be introduced for individual government services like health care and education with the 2006 national accounts. The traditional method of setting output equal to inputs by convention is thereby no longer valid outside collective government services such as defence. Some other OECD countries (Australia, Canada, Italy, the Netherlands and New Zealand) have to some extent incorporated direct output measures already, and others plan to do so soon, but none have yet gone as far as the United Kingdom where now two-thirds of general government final consumption is covered by direct output measures.

These methodological changes are large enough to "visibly" affect macroeconomic aggregates. As the Atkinson review pointed out, annual real GDP grew at a rate of 2¾ per cent between 1995 and 2003. If public sector output had been measured by reference to the inputs, as still in most other countries, the measured growth rate would have been 3% a year. The new improved methods of measuring output volumes, introduced with the annual national accounts *Blue Books* published in summer 2004 and 2005, in consequence of the Atkinson review have partially reversed this downward effect. The annual price increases for general government final consumption in 1999-2003 were ½-1 percentage point lower than what they would have been following the old methods used in *Blue Book* 2003 (Figure 3.3). Consequently, annual GDP volume growth for the economy as a whole is now recorded as being 0.1-0.2 percentage points stronger in those years than what they would have been in absence of the Atkinson review. Changes concerning health care introduced with the *Blue Book* 2004 explain most of the upward revisions, whereas the combined effect of the Atkinson-related changes introduced with the *Blue Book* 2005 for health care, education, personal social services, social security administration and fire protection was mainly to shift volume growth across years, revising it a bit down in 1997 and 1998 and revising it a bit up in 1999, 2001, 2002 and 2003.

Figure 3.3. **The Atkinson review's effect on macroeconomic aggregates**



1. Estimates are based on the total effect of changes introduced with *Blue Book* 2004 for health care and *Blue Book* 2005 for health care, education, personal social services, social security administration and fire protection.
2. Implied by the revisions in the volume measure of general government final consumption expenditure.

Source: ONS, *United Kingdom National Accounts: The Blue Book, 2005 Edition*; and OECD calculations based on ONS, "Improvements in the methodology for measuring government output", May 2005 and A. Pritchard (2004), "Measuring Government Health Services Output in the UK National Accounts", *Economic Trends*, No. 613, ONS.

directly into the bank accounts of claimants and changing work organisation to increase the productive time of professionals working in schools, hospitals and other frontline public services.

Related to this, the *Lyons review* has laid the ground for relocating public sector activities from the South East of England to other parts of the United Kingdom (HM Treasury, 2004c), and with the 2004 *Spending Review*, plans to move 20 000 posts by 2010 have been confirmed. Over time, relocations are expected to result in savings reflecting lower costs outside London, with benefits for less-developed regional economies being seen as an additional advantage. The focus of both these reviews is right; now the challenge is for Government to deliver. The proposed introduction of identity cards will no doubt help to raise administrative efficiency *via* a more integrated use of information technology (IT). It should also help reduce errors and fraud in benefit administration, which the Department for Work and Pensions (DWP) estimates at £3 billion a year, leading the National Audit Office to qualify its opinion on DWP accounts when reporting to Parliament (NAO, 2005). For incapacity benefit, the department was unable to find back-up documents for one in seven of the cases where the NAO sought to examine that eligibility conditions were met and accurate payments had been made.

At the same time, contestability is promoted *via* choice and increased involvement of private sector providers. Outsourcing of blue-collar activities (cleaning, catering, garbage collection) grew in the 1980s and 1990s, but has remained broadly stable since then. What has grown is the private finance initiative for construction and facilities maintenance, IT and business process outsourcing. Private and voluntary sector provision of publicly-funded social services, prisons, education, welfare-to-work programmes and treatment

centres outsourced by the National Health Service has also become more common. One estimate suggests that the purchase of goods and services from private firms and non-profit entities could grow substantially, by 25-80% over the three years to 2006/07, reaching a share of 12-18% of total central and local government consumption and investment.[6]

A stated objective of policy is to make public services more user-oriented with provision of greater choice among different providers of publicly-funded services.[7] In many public services such a change in emphasis is natural given a greater focus on outcomes rather than inputs because individuals are effectively co-producers of services, as for example students' own behaviour is of crucial importance for learning outcomes (HM Treasury, 2005). Choice is being expanded most clearly in health care, where from December 2005 all patients needing hospital care will be offered a choice of four to five providers at the point of referral by their general practitioner and the opportunity to book their appointment at a time of their convenience (DoH, 2005a and 2005b). That the private-sector involvement helps to create a culture of contestability was vividly illustrated in May 2005 when the prison officers' union agreed to a programme of performance testing and improvement covering *all* state prisons in return for the postponement of market testing plans for just three prisons.[8] What is equally important is that funding arrangements for public agencies provide appropriate efficiency incentives. Activity-based funding is now being rolled out for hospitals under *payment by results*. Building on this, incentives faced by providers could be further improved, for example by the introduction of incentive pay for hospital doctors, as recommended in the previous *Survey*. Further involvement of private sector providers may also be desirable to ensure contestability.

Graduate contributions for universities

The graduate contributions to be introduced from 2006 provide an excellent example of how additional resources can be made available without relying solely on public funding. From 2006 universities are to charge annual tuition fees in the range from zero to £3 000. Unlike today's uniform £1 150 fee, the new fees will not be paid up-front while studying, as all students can defer payment as an income-contingent graduate contribution once they have left university and start to earn an income. It helps students from all backgrounds to overcome credit constraints and it gives insurance as the speed of repayment depends on the graduate's income, and on these grounds the introduction of graduate contributions was recommended in the previous *Survey* (OECD, 2004). However, the fiscal costs could be reduced by reconsidering the implicit government subsidy associated with the zero real interest rate planned for these loans. The fiscal costs of these subsidies are substantial, and have been as high as one-third of the value of loans to UK students under the current maintenance loans aimed at covering students' living costs. The issue is exacerbated by a possible incentive to arbitrage for those students who do not need the money, as they can take out student loans while investing the money elsewhere to make a profit. One proposal is to apply instead an interest rate close to the government's cost of borrowing (Barr, 2004; Barr and Crawford 2005). To avoid a situation where persons getting behind with repayments end up with unmanageable debt, a zero real interest rate could be applied in years when the graduate earns less than the repayment threshold (equal to 75% of the average production worker's earnings) thereby freezing the real level of debt. Avoiding excessive fiscal costs from interest rate subsidies becomes all the more important if the £3 000 cap on annual tuition fees is raised as recommended in Chapter 7. An independent commission is to be established to review during 2009 the first three years of the operation

of variable fees and will make recommendations about the £3000 cap. The Commission could usefully also look at the question of the costs of interest rate subsidies.

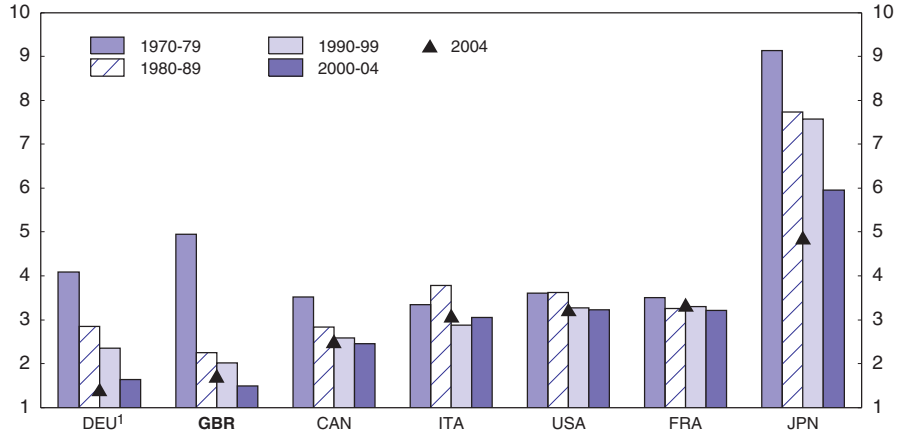
Transport infrastructure

Under-investment has led to poor quality transport infrastructure

The United Kingdom scores poorly on survey-based measures of transport infrastructure quality; according to the 2004 *Global Competitiveness Report* it ranked sixth in the G7 and seventeenth in the OECD; and the poor quality of the transport infrastructure is also regularly highlighted in surveys of UK businesses (CBI, 2003). It is more reliant on roads for passenger and freight traffic than most other EU countries, and congestion on the roads is the worst in the EU15; nearly one-quarter of all trunk roads are congested for more than an hour a day, compared to 15% in the Netherlands (which has a similar population density), less than 10% in Germany and Italy, and less than 5% in France. Partly because of congestion, commuters spend more time travelling (20% above the EU15 average) than any other country in the EU15 (Commission for Integrated Transport, 2001). The proportion of passenger travel accounted for by rail is well below most other EU15 countries (European Commission, 2004), although over-crowding of trains is a problem on the most intensively used London commuter trains (Strategic Rail Authority, 2005). With the Channel tunnel rail link complete the United Kingdom has less than 100 kilometres of high speed lines (capable of at least 225 km/hour), compared to France, Spain and Germany which will all have more than 1 000 kilometres once current construction projects are complete (Rail Passengers Council, 2002a). There has, however, been a major increase in investment in the railways since 2000 involving extensive replacement of track and rolling stock (with 40% of all rolling stock being replaced by 2005). This has been reflected in faster growth in rail passenger travel, with the percentage increase in total distance travelled up by about twice the percentage increase in road traffic since 2000.

The poor state of the transport infrastructure is in large part a consequence of inadequate investment over previous decades when general government investment was treated as an easy option for constraining public expenditure because long lead times meant the effects of reductions took time to be felt. While reductions in government investment have been common across many OECD countries during periods of fiscal consolidation, particularly in EU countries during the mid-1990s (European Commission, 2003), cutbacks have been particularly severe in the United Kingdom. Overall, between the first half of the 1970s and the 1980s general government investment fell from about 5% of GDP to around 2%, and over the second half of the 1990s to just over 1%, a more marked decline than for any other major OECD country (Figure 3.4). Expenditure on transport has been particularly prone to such cuts; for example, during a period of severe fiscal tightening between 1994 and 1998 public spending on transport (both current and capital) nearly halved as a share of GDP. Annual real public expenditure on roads fell by one half over the course of the 1990s, with many road schemes, for which cost-benefit analysis suggested there was a clear gain, not being undertaken (Glaister, 2002). These are projects that also pass stringent environmental reviews and the United Kingdom has been at the forefront of developing economic and environmental appraisal techniques for transport projects (ECMT, 2004). The railways have also suffered from decades of under-investment, particularly in comparison with most other EU15 countries (Rail Passengers Council, 2002). Privatisation in the early 1990s did not

Figure 3.4. **General government gross fixed investment**
Period averages, in per cent of GDP



1. 1991-99 instead of 1990-99 and West Germany only prior to 1990.

Source: OECD Economic Outlook 77 database.

improve the situation because the structure put in place did not provide clear responsibility for decisions concerning long-term investment (Department for Transport, 2004a and OECD, 2004).

Cross-country evidence regarding the effects of infrastructure investment on productivity is mixed. The OECD *Growth Study* found some tentative evidence that government investment had a positive effect on GDP per capita. A survey of recent macroeconomic studies by the European Commission concluded that the majority of existing work found a positive impact of public infrastructure investment on output or productivity, although in most studies the effect was not strong (European Commission, 2003). Another survey focussing more specifically on transport infrastructure (ECMT, 2001) similarly found generally positive results, but with specific estimates varying over a wide range. It also highlighted a number of methodological issues that are likely to weaken results in aggregate studies as well leading to problems in interpreting results.[9] A particular problem with aggregate studies is that they do not take into account the consistent finding of microeconomic studies that the effect of infrastructure investments on economic performance varies by transport mode, industry and by region. In summary, it is difficult to quantify the effect of poor transport infrastructure on economic performance from aggregate studies. Nevertheless, poor transport infrastructure by increasing transportation costs and time as well as undermining reliability, of importance in reaping the benefit of just-in-time production methods, can potentially add to business costs. Reflecting the importance of infrastructure in supporting economic growth, the Government announced, in March 2005, that it had asked Rod Eddington, outgoing Chief Executive of British Airways PLC, to advise on the long-term impact of transport decisions on the UK's productivity, stability and growth. The work is at an early stage, and he will report to Ministers in mid 2006.

Capital spending on transport is being increased

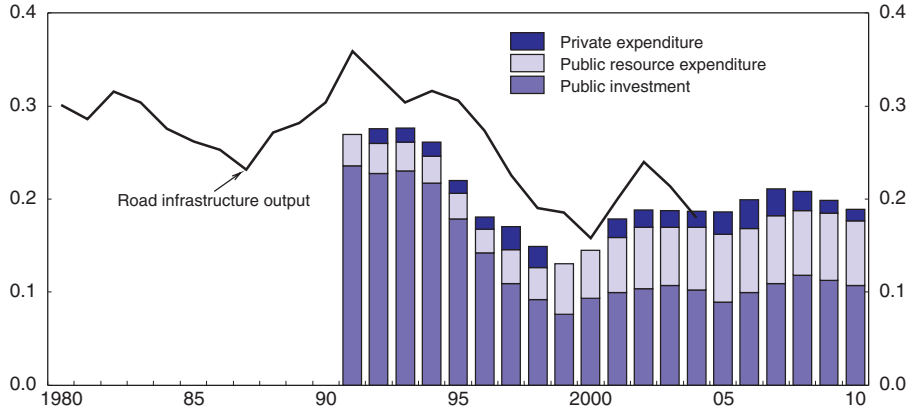
The government's fiscal rules should help to avoid short-term expediency in the future by distinguishing clearly between current and capital spending. In particular, cutting back on capital expenditure will not help to meet the government's "golden rule", namely that over

the course of the cycle the public sector should only borrow to invest. Net public sector investment has risen from a post-war low of 0.5% of GDP in fiscal year 1999/2000 to an estimated 1.6% in 2004/05 and is projected to rise by a further 0.7 percentage point over the next two years. However, total general government investment will still be modest compared with most other G7 countries, raising the question as to whether it will be sufficient to correct for years of neglect.[10] Moreover, the Government has consistently failed to increase investment in line with its aspirations; over the last five budgets the average under-spend on public sector net investment during the current fiscal year has averaged 0.2% of GDP and relative to the one-year-ahead projection the under-spend has averaged 0.3%.

The publication of the government's *Ten Year Plan* for transport in 2000 represented a turning point for public spending on transport (Department for Transport, 2000). Total public capital spending has increased as a share of GDP in every year since a low point of 0.2% of GDP in 1999/2000 to 0.6% of GDP in 2004/05, with plans for a further increase of 0.2% of GDP over the next two years (Figure 3.1).[11] In 2004 it was announced that spending on transport will exceed the *Ten Year Plan* profile with additional one-off expenditure of £1.7 billion (0.14% of GDP) to meet immediate pressures and a sustained £0.5 billion annual uplift (0.04% of GDP) from 2006/07 onwards. Transport spending as a percentage of GDP will average around 1.6% of GDP over this period compared to 0.9% of GDP in 2000/01. Since 1999/2000 there has been increased expenditure on roads targeting additional capacity to accommodate traffic growth where congestion is worst. Nevertheless, the planned increase in total expenditure (both current and capital) on "strategic roads"[12] is modest when normalised on GDP, and will remain well below levels experienced in the early 1990s (Figure 3.5). Moreover, while construction output on all road infrastructure picked up sharply in the two years following the publication of the plan, it has since fallen back and expressed as a share of GDP it is close to the low point reached in 2000/01. Even with a sustained high level of infrastructure investment, congestion on the roads is likely to continue to worsen, given that traffic has tended to rise over time, albeit less rapidly than GDP over the last decade (Figure 3.6). The recent White Paper *The Future of Transport: A Network for 2030* (Department for Transport,

Figure 3.5. **Public expenditure on strategic roads and construction output of road infrastructure**[1]

In per cent of GDP

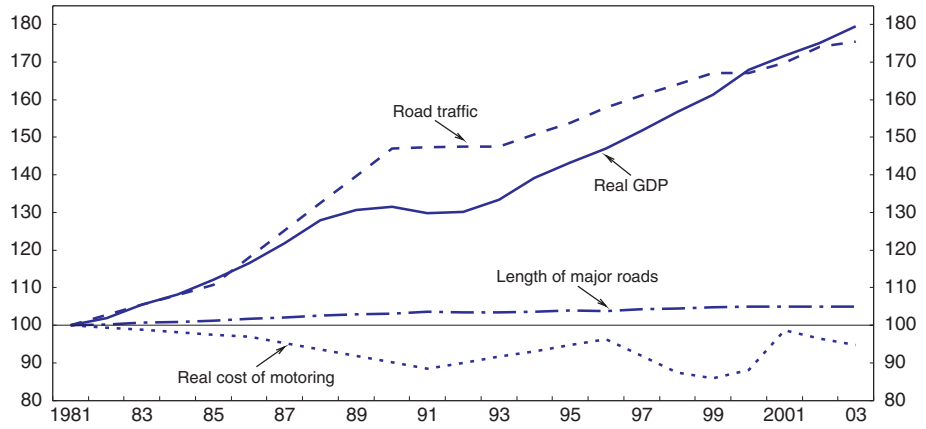


1. Investment and expenditure series are on a fiscal year basis. The projections beyond fiscal year 2000/01 are taken from the government's 2000 "Transport Ten Year Plan".

Source: Department for Transport.

Figure 3.6. **Road traffic continues to rise**[1]

Index 1981 = 100



1. Data on road lengths, traffic and costs is interpolated for some earlier periods.

Source: Office of the Deputy Prime Minister and ONS (2004), *Social Trends*, No. 34.

2004b), projects an increase in road traffic from 2000 levels of 25% by 2010 and by 40% in 2025, which is described as "unacceptable" and instead advocates "new ways of paying for road use".

Congestion charging will be part of the solution

There is much evidence to suggest that road use is sensitive to pricing, and although the real cost of fuel has risen, the average cost of motoring has remained fairly stable in relation to overall retail prices over the last two decades due to the falling relative price of new cars (Glaister, 2002). Moreover, according to official projections the cost of motoring is expected to fall in the future (Department for Transport, 2004b). However, while increases in taxes, such as higher fuel or vehicle excise duty, might be successful in reducing traffic they are blunt instruments for tackling congestion because they would penalise all motor vehicle users rather than just targeting those that contribute to congestion. The success of the London congestion charge (Box 3.2) has raised interest in the use of a national road pricing scheme. A recent government commissioned report (Department for Transport, 2004c) concluded that a key to a national road pricing scheme is a technology that can charge by time, distance and place, which could lead to substantial economic benefits in terms of reduced congestion (Box 3.3). The Government has stated that the introduction of a national road pricing scheme is at least ten years away.[13] In the meantime it will be important to carry on with more limited forms of road charging that are feasible to relieve current congestion problems, improve knowledge about the practicalities and effects of road pricing and increase public awareness and acceptance for such charging.[14]

... but local authorities tend to resist its introduction

While the London congestion charge appears to be a success there is only one other city (Durham) in the United Kingdom that operates congestion charging on even a limited basis, and a referendum to introduce a limited form of congestion charging in Edinburgh was rejected in February 2005. Central government has no powers to initiate local charging schemes itself. Local authorities may have less interest in congestion charging than might be warranted from a national perspective given that it is likely to be less popular with residents/

Box 3.2. **The London congestion charge**

Congestion charging was introduced into an area of Central London covering 22 km^2 in February 2003. The congestion charge is an £8 daily charge (increased from £5 in July 2005) for driving or parking a vehicle on public roads within the charging zone between 7 am and 6.30 pm, Monday to Friday. There are substantial reductions available for residents living inside the charging zone.

The scheme does not use either toll booths or barriers, but rather relies on Automatic Number Plate Recognition (ANPR) equipment placed at the edge of, and within, the boundary of the charging zone. The equipment captures images of licence plates in the zone that are compared with a database of the registrations of users who have paid.

Congestion has been reduced by 30% inside the charging zone. Congestion is measured as the time delay relative to the travel time during the night.

Costs of operation are currently running at about £90 million per annum, about half the £190 million revenue raised in 2004/05 from the £5 charge, although with an £8 charge revenue is expected to rise by a further £40 million per annum. The high costs in part reflect the wide variety of different payment forms that are available.

Boundary area impacts are largely neutral, contrary to initial concerns that charging would significantly raise congestion in the area immediately outside the zone.

Air quality has not shown any significant improvement given the dominance of external influences on air quality in Central London, although vehicle emissions of nitrogen oxide and particulate matter have dropped by 12%.

Accidents have fallen by 9%, although they also fell in the rest of London over the same period by 7%.

Usage of other transportation. The reliability of buses operating in and around the zone has improved and excess waiting times fell considerably. There has been a 40% increase in bus passengers, although this also reflects increased capacity that was in place at the beginning of the scheme. Surprisingly, the number of passengers using the Underground to enter Central London declined, partly explained by prolonged closure of one line, transfer to the buses and a long-term decline in the use of the wider network unrelated to congestion charging. There was also no increase in passengers entering Central London by national rail.

Source: Central London Congestion Charging Scheme, Impacts Monitoring, Summary Review, January 2005, Transport for London.

voters in the immediate charging zone than those travelling into or through the zone. Moreover, increased funding for local transport under the 10-year plan may have reduced local authority interest in congestion charging by reducing their need for additional revenues. Resistance from the local population is likely to be greater if there is no visible improvement in other forms of transport to coincide with congestion charging (increased bus capacity was available from the start of the London scheme).

Congestion charging is only one approach to addressing problems of congestion and the Government is pursuing a range of other policy options. This is reflected in the creation of a *Transport Innovation Fund* that will provide financial support to local authorities that want to introduce a package of measures to encourage a shift away from private car use alongside demand management measures such as road pricing, and better bus services. The initial level of funding is small, at £290 million in 2008/09 (less than 2% of total public spending on transport), rising to about £2 billion per annum, but only by 2013/14. Expressions of interest

Box 3.3. **Model predictions of the gains from national road pricing**

A recently published government-sponsored study, *The Feasibility Study of Road Pricing in the UK*, examined how a new system of charging for road use could make better use of road capacity. The study included results from using the Department for Transport's National Transport Model to evaluate a variety of road pricing options.

Under the most ambitious national scheme, marginal social cost pricing has the potential to reduce urban congestion by about one half, and congestion on all roads by about 40% through a reduction in urban traffic levels by only 4% with no fall in average traffic levels on all roads. The maximum charge would be around 80 pence per kilometre, although this would only be paid by about ½ per cent of all traffic. The average charge in inner conurbations would be about 13 pence per km, in urban areas between 2 and 5 pence per km, with little or no charge in rural areas.

A substantial increase in car-sharing is predicted with about 80% of those who stop driving switching to become car passengers. On the other hand, only a modest rise in the use of other modes of transport is predicted, with an increase in bus trips and rail passenger kilometres of up to 5%.

A national road pricing scheme would incur considerable running costs, with a tentative estimate of £3 billion per annum (¼ per cent of GDP), with the biggest cost likely to be that of the position-fixing on-board technology. But this is more than offset by the potential for £12 billion (over 1% of GDP) worth in time saving and reliability a year. For illustrative purposes, an alternative scenario was considered whereby fuel duty was raised to generate the same revenues as marginal social cost pricing. Higher fuel duty has a larger effect on reducing traffic, but the impact on reducing congestion is less than one-fifth – illustrating that fuel duty is a blunt instrument for dealing with congestion.

Source: Department for Transport (2004c).

in the scheme have been received from 81 of the 87 English local transport authorities, either on their own or in combination with neighbours. An alternative means by which local authorities could obtain additional finance to improve the local transport infrastructure would be to allow them to issue revenue bonds, subject to approval by the Treasury and perhaps subject to local referendum, in anticipation of congestion charging revenues (Glaister *et al*., 2000). However, there are practical problems with such borrowing schemes, in particular relating to the uncertainty of the future revenue stream from congestion charging. A simpler approach would be to link existing funding for local transport to efforts to reduce congestion. The Government recently announced a target for reducing local congestion for the Department for Transport, namely that by 2010-11 the ten largest urban areas should meet the congestion targets relating to movement on main roads into city centres as set out in their Local Transport Plans. This development is significant given that if congestion is a part of a Local Public Service Agreement then funding can be directly linked to achievement of the target. In any case, the Government should continue to provide key services, such as administrative support, to help with the set-up and management of local congestion charging schemes.

... and further growth in public transport is needed

To relieve congestion on the roads the Government recognised in its original 10-year plan that it would be important to encourage growth in other forms of transport, especially

public transport. Use of public transport is among the lowest while fares are the third highest in the EU15 (after Denmark and Sweden) (Commission for Integrated Transport, 2001). While the cost of motoring has broadly remained in line with other prices, rail, bus and coach fares have increased by substantially more; since 1990 rail fares have increased by 22% more than the retail price index and bus and coach fares by 29% more. Most other European countries have higher levels of investment and more subsidies, whereas the UK approach has focussed on liberalisation and privatisation. While rail usage (measured by passenger kilometres) in 2004-05 has increased by 11% since 2000, this is well below the increase consistent with the original target in the ten-year plan for an increase of 50% relative to 2000 levels. The target has now been abandoned and replaced with a new rail target to improve punctuality and reliability, which slumped following speed restrictions imposed after the Hatfield crash, but has not yet fully recovered. Around three-quarters of rail passengers surveyed in 2004-05 were satisfied with their journey, with a modest improvement on this criteria across most lines since 2000, although the level of satisfaction of passengers in London and the South East has remained consistently below the national average. On the other hand, the original target for an increase in bus usage (in England) of 10% by 2010 is on track, although almost entirely due to increased bus usage in London.

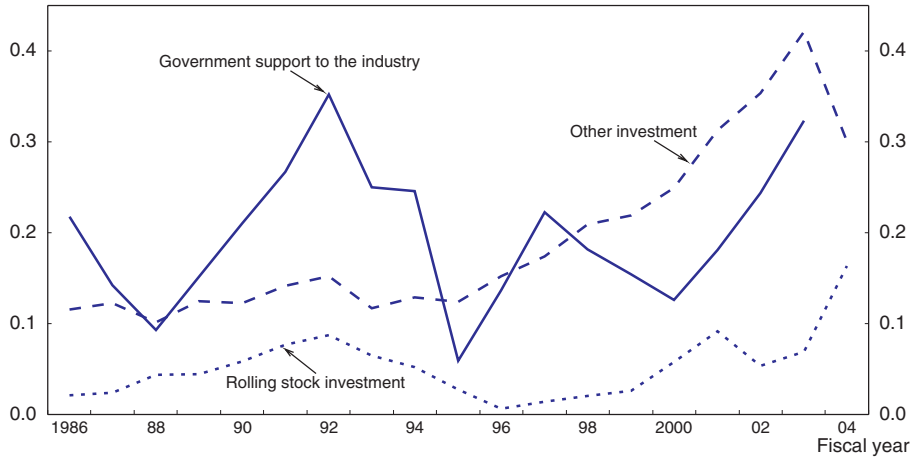
The organisational structure of the railways, despite being the most open to competition for passenger rail services in the OECD since privatisation in the early 1990s, has contributed to under-investment particularly because its complexity has led to a lack of any clear responsibility for long-term investment, as discussed in the previous *Survey* (OECD, 2004). Recently announced changes, whereby the Government takes overall responsibility for strategy and long-term investment (with the winding up of the Strategic Rail Authority) and Network Rail is given clearer responsibility for operating the network and its performance should help in this respect. The fragmentation of the system has also meant that major investment plans involve a large number of parties, which can lead to delays and cost overruns, as in the case of the renewal of the West Coast Main Line where costs have overrun by a factor of 3.5. Closer integration of investment decisions between infrastructure and train operations needs to be sought with joint planning between train operators and the infrastructure manager to underpin contracts between them. Network Rail's regional centres increasingly take the lead in bringing together interested parties in planning investments and this may improve the situation. Moreover, following the implementation of the 2004 Rail Review, the Government, the regulator, Network Rail and the train operator companies have clearer responsibilities that require them to work together with the aim of ensuring investment decisions are made in a more coherent way.

There has been a substantial increase in government support to the rail industry which has doubled as a share of GDP between 1999/2000 and 2003/04, and is now running at levels higher than in the decade prior to privatisation (Figure 3.7). This was driven by the emergency programme of maintenance in response to the Hatfield accident in 2000 where a broken rail derailed an express train. The costs of this programme have been inflated by inefficiencies and fragmentation in the management of the infrastructure. Over the same period total (public and private) investment in the rail industry has doubled in real terms.[15]

This raises issues concerning the level and distribution of subsidies that is appropriate for the railways.[16] In making such an assessment there is a case for incorporating criteria which have been used to evaluate the merits of a national road pricing scheme, namely the possible savings to congestion on the roads. While it is unclear what the outcome might be with respect to the overall level of the subsidy it would almost certainly suggest a different

Figure 3.7. **Government support for railways and investment in railways**

In per cent of GDP

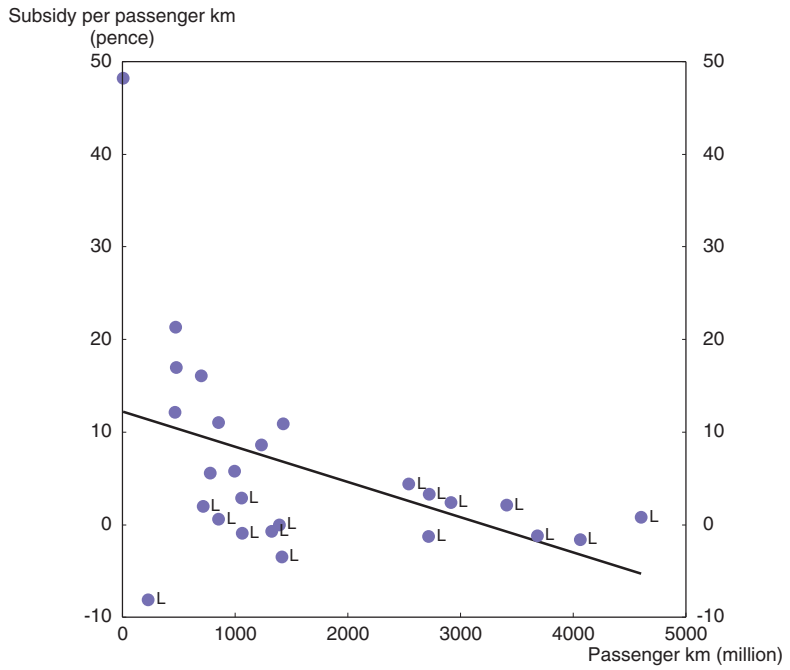


Source: Strategic Rail Authority (2005), *National Rail Trends: Yearbook 2004-2005*.

distribution across lines. Subsidies across train operating companies are currently heavily skewed towards those lines which are *least* intensively used (Figure 3.8), rather than being focussed on lines where it might do most to relieve congestion on the roads; 80% of the subsidy goes to train operating companies accounting for less than 20% of passenger miles, which do not serve London. A higher level of subsidy for commuter trains serving London

Figure 3.8. **Most intensively used train operating companies serving London are least subsidised**[1]

2004-05



1. Each point represents a different train operating company, those serving London are marked with an "L".

Source: Strategic Rail Authority (2005), *National Rail Trends: Yearbook 2004-2005*.

and the South-East might, through a combination of lower fares or reduced over-crowding encourage a switch from private cars to trains and so reduce road congestion. It is also important that the regulatory system continues to evolve to provide incentives for optimising use of the network to reduce over-crowding of trains and disruption of services. For this it is important for the marginal costs of scarcity to be fully reflected in track access charges and for any penalty system in respect of the delays that one operator causes for others to avoid simply encouraging train operators to run fewer trains at peak times of demand.

Box 3.4. **Recommendations for public services and infrastructure**

- Incentives for healthcare providers should be refined by rolling out activity-based funding mechanisms as planned with the "payments by results" initiatives.
- Extend payment by results; for example pilot and introduce incentive pay for hospital doctors.
- Pursue the efficiency savings identified by the *Gershon review*, freeing almost 2% of GDP annually for the front line of public services.
- Consider whether the interest rate applied under the graduate contribution scheme and the current maintenance loans should be raised from zero real to a rate closer to government borrowing costs, in order to reduce the fiscal costs associated with the implicit interest rate subsidy. The independent commission which is to evaluate and report to Parliament about the first years of experience with variable tuition fees, could usefully consider this issue. It should also examine the benefits of lifting the £3 000 cap on university fees.
- Investment in transport infrastructure should be maintained at least at levels envisaged in current spending plans over the long term and the reasons for any persistent under-shoot relative to plans should be examined with a view to taking remedial action. The case for further raising the level of expenditure on strategic roads should be considered.
- The Government should continue with preparations for a national road pricing scheme in about 10-15 years. In the meantime the Government should monitor the incentives for local authorities to pursue local congestion charging schemes as well as the success of other policies to tackle congestion. It should also consider making funds from the Transport Innovation Fund available sooner or by linking existing central government funding for local transport to efforts to reduce congestion. The Government should also provide administrative services to help with the set-up and management of local congestion charging schemes.
- Investment in public transport and the level of subsidy should be evaluated using similar criteria to that used to assess the feasibility of a national road pricing scheme, in particular giving weight to time savings resulting form less road congestion. On this basis, more subsidies should be directed at those railway lines which have greatest potential for relieving road congestion.
- Further measures for closer integration of investment decisions between railway infrastructure and train operations need to be sought. The success of recent changes to integrate planning around Network Rail's regional offices need to be carefully monitored.

Notes

1. Real public spending is here calculated by deflating nominal public spending by the GDP deflator.
2. Public health care spending will increase from 5½ to 8% of GDP, adding 2½ percentage points to total health care spending if private health care spending continues to grow in line with GDP as it did during the five years to 2002, and a bit less if private spending recedes as waiting times for NHS treatment fall. At 9½ per cent of GDP, total health care spending is at par with Australia and Canada as well as continental European countries like Belgium, Netherlands and Sweden. It is well above Finland, Ireland, Italy and Spain spending 7½-8½ per cent of GDP, although below France and Germany where spending climbed to 10 and 11% of GDP in 2003 partly owing to subdued GDP growth (OECD, 2005).
3. This includes 109 linear accelerators, 209 CT Scanners, 115 MRI scanners and over 730 items of breast screening equipment all since April 2000. There has also been a considerable increase in the availability of new drugs as illustrated by the 2.5 million people who are now prescribed statins which help to lower their cholesterol levels and has saved many lives every year.
4. It should be noted, that the public expenditure series shown in Figure 3.2 include capital spending, but for health this accounts for less than a tenth of the spending increase from 1999 to 2004. As construction of new hospitals has frequently been undertaken as private finance deals meaning that the costs do not appear as capital spending on the government accounts, but rather as current spending spread over a longer period once the facilities are taken into use.
5. Some problems remain, however, as in March 2005, the British Medical Association released a survey claiming that 16% of accident and emergency departments, were still "fiddling the figures" to show they were hitting a target of a maximum 4-hour wait.
6. Estimate by Kable, the information technology and outsourcing analyst, reported in the *Financial Times* on 17 April 2005.
7. As expressed in a speech by the Prime Minister on 23 June 2004: "We are proposing to put an entirely different dynamic in place to drive our public services: one where the service will be driven not by the managers but by the user – the patient, the parent, the pupil, and law abiding citizen." This line was confirmed in the Labour Party's election manifesto in spring 2005 and during the election campaign when the Prime Minister indicated that the government envisages buying up to 15% of NHS operations from external providers by 2008, up from 5% currently (*Financial Times*, 9 March 2005).
8. The three prisons, Elmley, Standford Hill and Swaleside, had been earmarked in March 2005 for inviting private companies to compete with the public sector to run them. About 10% of the prison population in England and Wales of 76 035 are held in private prisons, meaning that the United Kingdom has the most privatised prison system in Europe. Of the 139 prisons, nine have been built and are being run by private companies under PFI contracts. According to the *Financial Times* of 30 May 2005, home office minister Baroness Scotland insisted the government remained "firmly of the view" that market testing and the involvement of the private and voluntary sector could help to "drive up standards and encourage innovation" in managing offenders both in custody and in the community.
9. A problem with aggregate time series studies and cross-section analyses is the difficulty of being confident which way causation runs between economic performance and infrastructure. Aschauer (1989) found a strong connection between transport investment and growth across US states, arguing that causation ran from the former to the latter, but other analysts suggested his results could be interpreted in the opposite direction, as reported in ECMT (2001). Easterly and Rebelo (1993) found that the share of public investment in transport and communication is "robustly correlated with growth". However, they used a panel of countries which includes developing countries where the link is likely to be much stronger.
10. It is, however, likely that the extent of government investment relative to other OECD countries is comparatively lower because of the greater extent to which the government contracts out to the private sector to purchase services for the building and maintenance of public infrastructure under the *Private Finance Initiative* (PFI). The average annual capital value of PFI projects signed over the last decade has been about 0.4% of GDP, with about half of this amount relating to transport projects, of which the most important has been spending on the London Underground.
11. Figures for the projected capital spending on transport assume local authority capital spending on transport rises in line with projections of their total planned capital expenditure.
12. "Strategic roads" are the major highways including most motorways and some A roads. They account for only 2% of total road length but over 30% of all traffic.

13. The government had planned to introduce a lorry road charging scheme in 2007/08 which would have anticipated many features of a more general road pricing scheme. However, a decision has recently been taken to delay the introduction to 2015 so that it can be integrated with a more general road user charge.

14. The UK's first toll motorway, near Birmingham, opened in December 2003 and on a preliminary assessment has been successful in reducing congestion (House of Commons Select Committee on Transport, 2005).

15. Much of the additional railway investment was accounted for by the Channel tunnel rail link and improvements to the West Coast main line, rather than being more widely spread across the network.

16. A similar issue concerns the level of subsidy received by the buses. Revenue support for the buses in 1997 was lowest among 11 EU15 countries for which comparable data are available; the degree of subsidisation was less than 20% in the United Kingdom, whereas for all other countries (except Spain) the level of subsidy was between 40% and 70%.

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Chapter 4

Pensions: options for reform

Unlike the situation in many OECD countries, future fiscal costs from public pension provision are not projected to rise significantly as the population ages. Instead concerns focus on the declining average public pension relative to the income of those in work and the projected increase in the extent of means-testing. With the level of private pension provision also declining this has also led to concerns that many are not saving enough for retirement. Reforms should focus on reducing the complexity of the pension system and reducing reliance of means-testing. The fiscal costs of such reforms could be partly met by raising the state pension age in line with increasing life expectancy and focussing tax relief for pension contributions on low- and middle-income earners.

The current system

The current pension system is complex and combines one of the lowest state pensions in the OECD with one of the most developed systems of voluntary privately-funded pensions.[1, 2] The state system has two tiers: a flat rate basic pension that is tax financed and an earnings-related additional pension that is financed by employer and employee contributions. Most employees "contract out" of the latter to invest the equivalent contributions in private pensions. Compared with most other countries this compulsory earnings-related tier is quite limited. It has a strongly redistributive rate structure, and is likely to become even more so, with provision increasingly flat-rate, should the current indexation approach continue.[3] The Government has recently introduced a means-tested benefit (the "pension credit" replacing the former "minimum income guarantee"), that channels additional resources to low income pensioners. Overall, the primary aim of the state system is to prevent poverty in old age, rather than to maintain income close to pre-retirement levels. Thus the net replacement rate from the mandatory state pension system for someone retiring on half average earnings is not far below the OECD average, but for someone retiring on or above average earnings the replacement rate is well below the OECD average (Table 4.1). About 60% of employees are estimated to have an occupational pension (provided by the employer) and/or a personal pension plan, which typically brings the net replacement rate for someone with average earnings up to 70%.

Table 4.1. **Pension net replacement rates**[1]

	Individual earnings, multiple of average		
	0.5	1	2
Mandatory pension programmes			
United Kingdom	78.4	47.6	29.8
United States	61.4	51.0	39.0
OECD average	84.9	69.1	61.4
EU15 average	90.0	75.0	72.0
With voluntary schemes			
United Kingdom	90.3	70.1	57.5
United States	105.7	91.9	84.2

1. Individual pension entitlement net of taxes and contributions as a percentage of individual pre-retirement earnings net of taxes and contributions.

Source: OECD (2005), *Pensions at a Glance: Public Policies Across OECD Countries*.

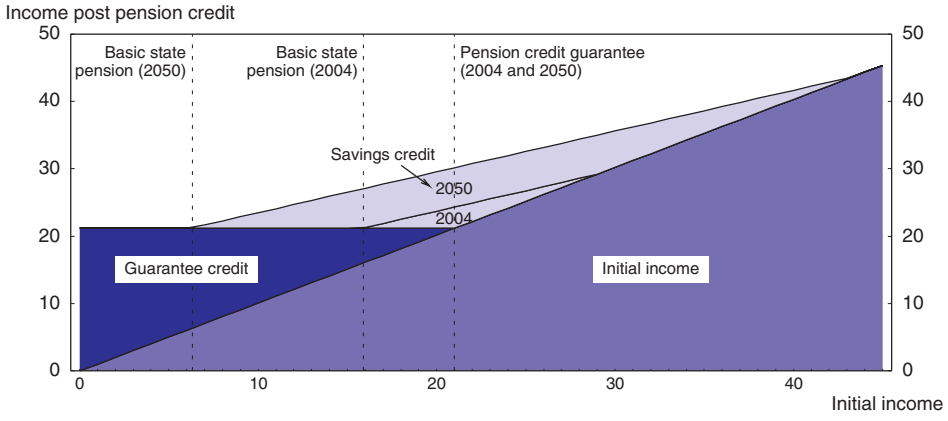
Unlike the situation in most OECD countries, future fiscal costs of the state pension system are *not* projected to rise significantly as the population ages.[4] This is partly due to more favourable demographic developments than in many OECD countries,[5] but also because the average state pension will decline relative to the income of those in work; if current indexation rules are followed then relative to average earnings state spending per pensioner is likely to fall by almost one-quarter over the next four decades (Pensions

Commission, 2004), mainly because there is only a commitment to index the basic state pension against prices rather than wages. If the value of the pension credit guarantee is kept in relation to earnings it will not be those on the lowest earnings who will experience the largest decline in the replacement rate (nor those on the highest incomes who more typically rely on private pensions), but rather those on middle incomes. At the same time the private pension system does not appear to be expanding to fill the gap left by the state sector; the proportion of the workforce covered is not rising and the average level of provision is declining.[6] The Pensions Commission has recently estimated that about 9 million people are currently making inadequate provision for retirement.[7]

A related feature of the current system is that the number of pensioners who will be subject to means-testing will grow substantially in the future, which, while keeping fiscal costs down by targeting resources at those with the lowest incomes, will also increase the number of pensioners who will be subject to disincentives to private saving. This arises because under current indexation rules, although the basic state pension is only expected to rise in line with prices, the (higher) means-tested level of income guaranteed by the pension credit is expected to rise in line with average earnings.[8] Mechanically extrapolating such indexation arrangements would suggest that the basic state pension would fall from about 16% of average earnings currently to about 6% of average earnings in 2050. The range of income which would then be subject to means-testing and a marginal effective tax rate of at least 40%[9] would rise from 16%-27% of average earnings currently to 6%-42% of average earnings by 2050 (Figure 4.1). Indeed the incentive effects could affect an even greater number of individuals since it may influence the savings behaviour of those with incomes just above this range. Also many individuals who are not initially eligible for pension credit when they first retire may later become eligible as the basic state pension falls in relation to the target minimum guarantee (Disney and Emmerson, 2005). By 2050 over 60% of all pensioners could face a marginal tax rate of at least 40% on additional income derived from previous savings or imputed income from financial assets above a certain threshold[10] (Pensions Commission, 2004). A further disadvantage of means-testing is that take-up is unlikely to be complete. A recent estimate is that only 74-86% of

Figure 4.1. **The growing importance of the pension credit**

In per cent of average earnings, 2004-50[1]



1. Calculations assume that the basic state pension is indexed in line with prices, the pension credit is indexed in line with average earnings and real average earnings grow by 2% per annum. All income is related to male average full-time earnings of £496 per week.

Source: OECD calculations based on national data.

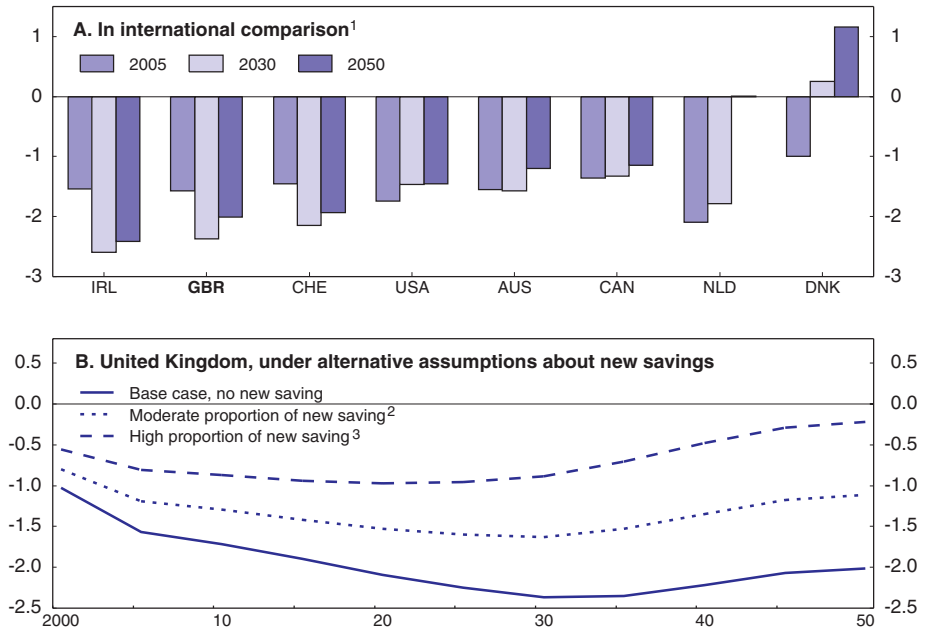
pensioner entitlements to means-tested benefits are claimed (Clarke, 2002), although the Government is making efforts to make it easier to apply for the pension credit, in particular by reducing the frequency with which applications need to be made.

While long-term official fiscal projections are based on assumptions that the pension credit is indexed on earnings and the basic state pension is indexed on prices, the Government has no long-term commitment to any particular indexation approach. In practice the projected growth in means-testing could be reduced if the Government used its discretion (as it has done on several occasions in recent years) to up-rate the basic state pension in line with earnings. This would, of course, increase public expenditure. But it also highlights the uncertainty of the present system, which when combined with its complexity may reduce incentives to save because it is difficult to understand or predict what the state will provide. It may also make financial advisers reluctant to recommend increased savings to those who may be means-tested in retirement for fear of being accused of mis-selling financial products.

In assessing the cost of pension provision account should also be taken of the fiscal costs of providing tax incentives to encourage private pensions (in the form of tax exemption of private pension contributions and investment income). OECD estimates, based on comparing the tax treatment of private pension schemes with those of alternative forms of savings, suggest that the implicit subsidy is among the highest in the OECD at about 30% per unit of contribution (Yoo and de Serres, 2004). The extent to which

Figure 4.2. **The fiscal cost of subsidising private pensions**

In per cent of GDP



1. Base case, no new saving. Only OECD countries with substantial assets in tax-favoured retirement plans are shown.
2. Moderate case assumes that 25% of contributions to pension are new saving.
3. High case assumes that 50% of contributions to pension are new saving.

Source: P. Antolin *et al.* (2004), "Long-Term Budgetary Implications of Tax-Favoured Retirement Plans", *Economics Department Working Papers*, No. 393, OECD, Paris.

such tax incentives raise rather than divert savings is ambiguous in theory and unresolved empirically, although recent studies suggest a stronger effect on low- and middle-income earners. However, as in other countries where participation is largely voluntary, participation in private pension schemes is disproportionately by upper-income individuals – the average income of those contributing to private pension schemes exceeding that of total employees by about one-third.[11] OECD estimates suggest that, on the admittedly extreme assumption that private pensions savings generate no new savings in aggregate, the net fiscal costs of subsidising private pension contributions amount to about 1¼ per cent of GDP currently and could increase to between 2 and 2½ per cent of GDP between 2020 and 2050, which would be among the most costly in the OECD (Figure 4.2) (Antolin *et al.*, 2004).[12]

Options for reform

The previous *Survey* (OECD, 2004a) emphasised the importance of improving confidence in occupational pension schemes (as well as closing down the use of disability-related benefits as a pathway to early retirement). But it was reticent about recommending further reforms of the state pension system. This was mainly because the frequency of past changes has inevitably generated further uncertainty that is detrimental to individuals' long-term retirement planning. On the other hand, there now appears to be growing consensus of the need for a major re-think of the pension system, in part stimulated by the work of the Pensions Commission which is due to present its final recommendations shortly. The Pensions Commission was given the remit to review the adequacy of private pension saving and advise on appropriate policy changes, including on whether there is a need to "move beyond the voluntary approach". While its remit might suggest a narrow focus on private pensions, it is clear, as recognised in its interim report, that the state pension system has a major impact on decisions to save in private pensions. The interim report also concluded that "the do nothing option is not an attractive one". Indeed the "do nothing" option would probably mean that, with the continuing fall in the value of average state pension provision relative to average earnings as well as increased means-testing, state pension provision would become an increasingly politicised issue. This would entail the risk that a future Government is compelled to raise the generosity of pension provision in an *ad hoc* way.

A fundamental objective of any new reform should be to simplify the current system, rather than, as in the past, implementing a series of marginal changes, each of which addresses particular weaknesses, but which adds to the overall system's complexity. There would also be considerable advantage if any new reform could command widespread consensus, increasing confidence and certainty about future provision and thus providing a surer basis for long-term savings decisions.[13] In this respect, the United Kingdom is in a relatively favourable position in having time to build a consensus because, unlike the situation in many other OECD countries, the existing pension system is fiscally sustainable so that delaying reform does not entail increasing future fiscal costs.

A major first step should be to place clear limits on the extent of future means-testing of the state pension. One option would be to provide a higher universal (*i.e.* non-contributory) basic state pension at the level of income currently guaranteed by means-testing, as recommended by OECD (2004b), which would lead to considerable simplification by eliminating the need for means-testing. The basic state pension could then be indexed to future earnings rather than prices, or perhaps a mixture of both. Such a reform would

retain the primary objective of the current public system of preventing poverty in old age, while the elimination of means-testing would clarify the role of private pensions in providing a higher level of replacement income. Shifting to a non-contributory basis for the basic state pension would also solve the problem that many of those with a patchy employment record – particularly women and long-term carers – would be covered. The Pensions Commission estimates that such a reform would cost an additional 3.8% of GDP by 2043 relative to current projections (or 2.5% of GDP if the state second pension was abolished).

This should be at least partly financed by increases in the state pension age in line with life expectancy as recommended by OECD (2004b). The Pensions Commission estimates that the state pension age would have to rise from 65 currently to 74 to completely finance the change (or 72 if the state second pension was abolished), which appears extreme. However, raising the state pension age in line with increased life expectancy might be expected to finance half of the cost, given that for those aged over 65, life expectancy has been increasing by about one year per decade since 1960.[14] The Government has expressed some reluctance to do so, arguing that it is unfair given that life expectancy in some parts of the country is only 68-69 years and that low life expectancy is more prevalent among low-income groups (DWP, 2002). On the other hand differences in life expectancy might be expected to fall with the declining importance of mining and heavy manual industries. Moreover, differences in life expectancy among low-income groups due to the greater prevalence of smoking, drinking or obesity are issues better tackled more directly through public health policy. In addition to raising the retirement age for public sector workers from 60 to 65, which is currently being phased in, the Government could also provide a lead to the private sector by committing to further increase the retirement age for public sector workers in line with rising life expectancy.

Another option to recoup fiscal costs in any reform package would be to reduce tax relief to private pension contributions, which, according to recent OECD empirical work under a range of assumptions, is otherwise projected to rise to be among the highest in the OECD (Antolin *et al.*, 2004). This could be achieved by providing tax relief in the form of a tax credit and/or imposing a ceiling on tax relief, which would better target tax-relief at low and middle-income earners where under-saving is most pronounced. At present tax relief is provided up to a given proportion (which varies with age) of earnings. From April 2006 tax rules regarding pension contributions will be simplified and new allowances introduced; however, the new allowances are extremely generous and only the very highest earners are likely to be caught by them.[15]

A further reform aiming at increasing the savings of low- and middle-income earners, but which stops short of imposing mandatory savings, would be to change employee participation in company pension schemes so that the default was that they were contracted in, unless they deliberately took a decision to opt out (rather than the reverse situation at present). Evidence from the United States suggests that this difference can have a very substantial effect on participation in company pension schemes.

Reducing or eliminating means-testing would facilitate reforms to promote other sources of income during retirement, such as through mortgage equity release products which enable people to remain in occupation of their house while borrowing against its value (Box 4.1). There is a large potential for "house rich, cash poor" pensioners to make use of such financial products. Average housing wealth of those aged over 65 is estimated

Box 4.1. **Mortgage equity release**

Equity release products enable people to remain in occupation of their house while borrowing against its value, although the scale of current schemes is small with only around 1% of pensioner households making use of them. There are two general forms of such schemes:

- *Lifetime mortgages* whereby all or part of the capital value of the home is mortgaged, but no repayments of capital are required, and the interest is added to the original loan amount and repaid when the property is sold.
- *Home Reversions* whereby all or part of a house is sold to a company and on death the provider receives the full value of the property sold.

Typical interest rates are higher than for a standard mortgage reflecting the limited development of this market and the risk of lending when the final maturity is unknown.

to be around £120 000 at the end of 2004, and although this wealth is clearly skewed towards those who have least need, an estimated 45% of the current retired population (4.3 million people) are homeowners but have inadequate income. However, currently only around 1% of pensioner households make use of mortgage equity release products. There is a role for Government in promoting such products, not least because the means-testing of benefits in retirement may currently act as an obstacle to the take-up of such products (Actuarial Profession, 2005), and one that will grow over time without reform. A further possibility to promote such products would be for the Government to provide insurance,

Box 4.2. **Pensions: policy recommendations**

- Pension reform should focus on reducing the complexity of the current system. There would be considerable advantage if reforms would benefit from widespread consensus which would increase certainty about the sustainability of the pension system.
- Reduce reliance on means-testing, particularly its projected growth in the future. This could be achieved by raising the basic state pension, remove the link to contributions and indexing it to future earnings rather than prices.
- Introduce a lower cap on tax subsidies to pension savings to better target tax-relief at low and middle-income earners where under-saving is most pronounced.
- Increase the state pension age at least in line with rising life expectancy.
- Take measures to promote mortgage equity release products as a means to provide income in retirement. In particular the Government could provide insurance, against borrowers of at least state pension age and up to a certain limited value, for lenders against the risk associated with incurring negative equity.
- Change the default option so that employees automatically contribute to company pension schemes, unless they specifically opt out.
- Contingent on eliminating, or at least constraining the extent of future means-testing of state pensions, and if other steps to encourage private saving by low- and middle-income earners were judged to be unsuccessful, consider introducing mandatory savings in a second reform stage. This could be collected by the state but administered by the private sector. This should be accompanied by a reduction in the fiscal subsidy to such savings for higher income earners.

against borrowers of at least state pension age and up to a certain limited value, for lenders against the risk associated with incurring negative equity.

If an objective of public policy is not only to avoid poverty in old age, but also to facilitate a reasonable replacement income in relation to pre-retirement earnings then in a second stage of reform additional mandatory saving, over and above that implied by the state second pension, could be introduced. To keep costs low there would be an advantage if contributions were collected by the state with employees having a limited choice of funds, which were administered by the private sector. Mandatory savings would be justified to the extent that individuals are myopic and comprehensive coverage would avoid some biases which tend to occur when schemes are voluntary. One objective of such a reform would be to aim for a participation in private pension schemes that is less skewed towards high income individuals and ensures, in particular, that those in middle income brackets save more. If savings were to be made mandatory then there would also be a strong case for reducing the current subsidies for private pensions, which could contribute towards the fiscal costs of up-rating the basic state pension.[16] However, mandatory saving would also clearly disadvantage those on low-incomes if current means-teasing arrangements remained in place, suggesting that a pre-requisite would be a reform which either abolishes, or provides a clear limit to the extent of future means-testing.

Notes

1. See OECD (2004b and 2005) for further details and discussion of the current pension system.
2. Private sector pension fund assets were over 80% of GDP in 2000, which is among the highest in the OECD, although they probably fell to about 65% of GDP in 2002 following the decline in equity prices (Davis, 2004).
3. Employees contribute on their earnings between two thresholds, currently set at about 20% and 130% of average earnings. Current long-term fiscal projections assume these earnings limits are only up-rated in line with prices so that those on higher incomes (as well as eventually those on average earnings) would increasingly pay less in and get less out.
4. OECD (2004b) reports a *decline* in projected old age pension spending over the period 2000 to 2050 of 0.7% of GDP, one of the few OECD countries for which this is the case. More recent official long-term projections suggest an increase in expenditure on pensions (defined as the basic state pension, the state second pension, minimum income guarantee and pension credit, Winter Fuel Payment, over 75 TV licences and Christmas bonus) of 0.8% of GDP between financial years 2003/04 and 2053/54, with an additional increase of 0.8% of GDP in public services pensions (HM Treasury, 2004).
5. The old age dependency ratio (calculated as the ratio of the population aged 65 and over to the population aged 15 to 64) is projected to rise by 16 percentage points between 2000 and 2050, compared to an (unweighted) OECD average of 26 percentage points (Burniaux *et al.*, 2003).
6. In the private pension system there continues to be a major switch from defined benefit to defined contribution schemes, and at the same time the total level of employer contributions to pension schemes is falling significantly and is not being offset by an increase in contributions to individual (*i.e.* non-company sponsored) personal pensions (Pensions Commission, 2004).
7. The calculation of the number of individuals making inadequate savings is based on a benchmark gross replacement rate of two-thirds for someone on median earnings, but rises to 80% for someone on very low earnings and falls to 50% for those on high earnings.
8. The pension credit has two components: the "guarantee credit" and the "savings credit". The guarantee credit tops up income to the target minimum (£105 per week in 2004/05). The savings credit then provides an additional 60% of the difference between the initial income (prior to the payment of the guarantee credit) and a lower limit which is taken to be that of the basic state pension (£80 per week in 2004/05, implying a maximum savings credit of £15 = 0.60 × [£105 – £80]). For those with incomes above the target minimum income this maximum savings credit (currently £15) is reduced by 40% of the difference between initial income and the target minimum. Thus the

upper limit for total income per week from non-means tested sources for an individual to be eligible for either component of the pensions credit is (allowing for rounding errors) £144 = £104 + £15/0.4.

9. Marginal effective tax rates could be very much higher than 40% for those claiming other means-tested benefits such as housing benefit or council tax rebate.

10. In calculating the pension savings credit, financial assets up to a threshold (equal to £6 000 in 2004/05) are ignored, but above the threshold a weekly income is imputed to the value of assets (calculated by dividing the excess by £500 in 2004/05).

11. If 55% of all employees contribute to private pensions, then this would imply that the average income of those employees that contribute to private pensions is more than double that of those that do not contribute.

12. Net fiscal revenues are calculated as taxes collected on withdrawals less revenues forgone due to the non-taxation of both contributions and investment income (Antolin *et al*., 2004). Alternative estimates in which there is some modest increase in aggregate savings (with one-quarter of total pension contributions financed by new savings) still suggest that the fiscal cost of the implicit subsidy will amount to between 1 and 1½ per cent of GDP per annum to 2050.

13. For example, it has been suggested that a cross-party standing body be created to provide consensus on pension issues (Besley and Prat, 2005). This would attempt to draw up principles governing pension policy over which all major political parties would agree to abide by over, say, the next 20 years. While such a body would have no formal power it might, nevertheless, be useful in providing greater certainty for making long-term savings plans.

14. It is difficult to know whether increased life expectancy translates into healthy ageing. However, in recent decades, across a majority of OECD countries there has either been a similar increase in disability-free life expectancy and life expectancy, or the former has progressed more quickly (Oliveira Martins *et al*., 2005).

15. Under changes to be introduced in April 2006 there will be a lifetime allowance on tax-advantaged saving of £1.5 million and an annual allowance of up to 100% of earnings up to a maximum of £215 000.

16. Illustrative OECD calculations suggest that a flat tax on accrued investment income in private pension plans, even at a low rate (5%) could reduce net fiscal costs of supporting private pensions by ¾ per cent of GDP per annum in coming decades (Antolin *et al*., 2004).

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Chapter 5

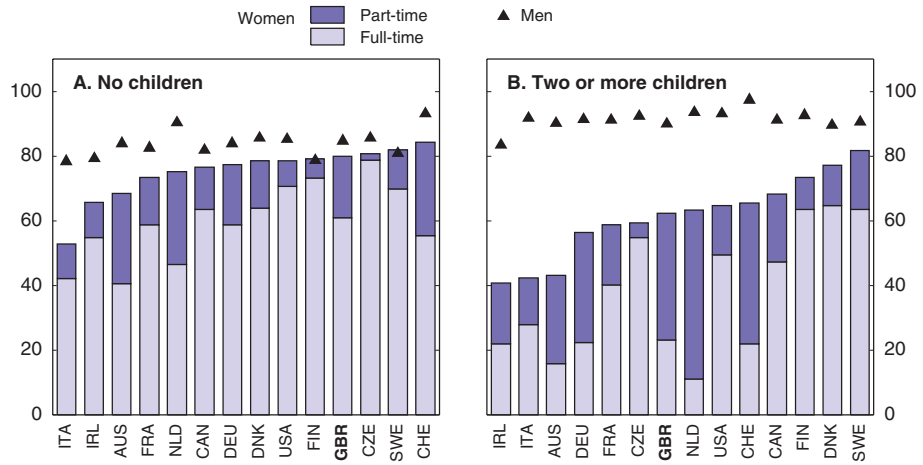
Could more childcare increase labour supply?

The female employment rate has risen from 56% in 1971 to 70% in 2004. Among mothers with two or more children under 15 years, 24% work full-time and 40% part-time. Improved childcare might bring more mothers into work. In particular it should make work more attractive for sole parents, because with one in two being out of work, joblessness and poverty is much more concentrated among sole parent families than in other OECD countries. This chapter reviews the government's ten-year childcare strategy. It considers prioritisation between longer paid leave and better childcare, and suggests adjustments to how childcare is supported via the working tax credit.

The government's ambitions to expand childcare and reduce child poverty must be seen in the context of how parents and in particular mothers fare on the labour market. Aggregate male and female employment rates converged until the early 1990s from 92% and 56% respectively in 1971, to 75% and 66% in 1993. Thereafter the difference has remained constant while both male and female employment rates have risen to 79% and 70% respectively in 2004. The overall female employment rate now matches or surpasses that in other OECD countries, apart from the Nordic countries. However, the employment pattern of 25-54-year-old women depends very much on having children or not. Among British women without children, four in five are employed and this is higher than in any other G7 country (Figure 5.1). But women with two or more children are less frequently employed than in Canada, the United States and several smaller countries. Moreover, many British mothers work part-time, and this has been so for decades as the female part-time and full-time employment rates have grown in parallel. Unlike in some OECD countries, low fertility is not a policy issue, and the completed fertility rate is just below two children per woman.[1]

Figure 5.1. **Female employment rates vary by number of children**[1]

Persons aged 25 to 54 years, 2000



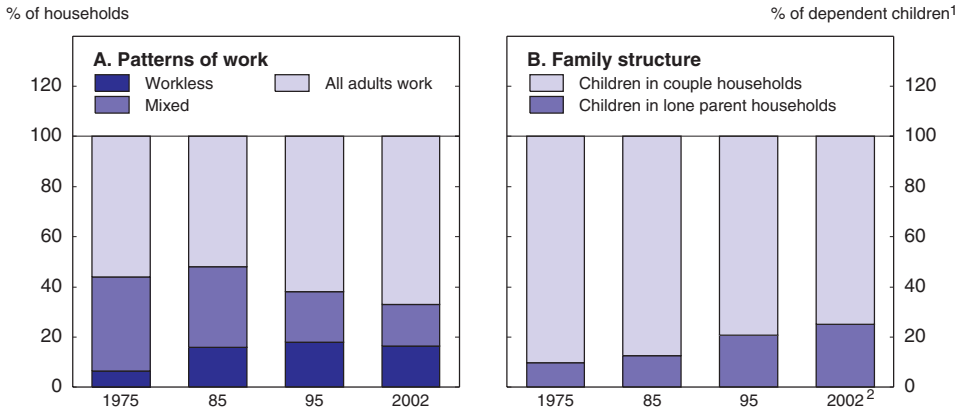
1. Aged under 15 (16 for Sweden).

Source: OECD (2002), *Employment Outlook*.

How parents fare on the labour market has become more important because of changing family structures. The long-term decline in male employment rates has contributed to a more polarised family situation with the number of workless households growing until the mid-1990s (Figure 5.2). This is also a result of divorce. Sole parent families are more common today and single mothers are less frequently employed than couple mothers. Among those having children younger than five years, only 33% of single mothers are employed, compared with 58% of couple mothers. Provision of care and learning for children have therefore become more important because the traditional family type with

one "breadwinner" working and the other parent taking care of the children is less common, and because more families have become detached from the labour market implying a risk that children grow up under deprived conditions. With its Child Poverty Review (HM Treasury, 2004a) the Government has confirmed its target to halve child poverty by 2010, and eradicate it by 2020. Poverty does not arise due to a lack of redistribution, since taxes and benefits now have a *larger* effect on reducing poverty rates than in the OECD on average, but the share of British households with *gross* earnings below a relative poverty line (half the median earnings) is larger. Indeed, with one in two sole parents being out of work, joblessness is much more concentrated among sole parents than in other countries. In Canada, one in four sole parents is jobless, in Finland one in five and in Sweden only one in eight, despite the overall employment rate being comparable with that of the United Kingdom (Förster and Mira d'Ercole, 2005; OECD, 2005). The employment rate of sole parents has gone up steadily from 42% in 1992 to 54% in 2004, and continuing this trend by encouraging and helping sole parents into work is one of the most promising ways to fight child poverty.[2] Childcare is obviously crucial in this regard.

Figure 5.2. **Changes in work patterns and family structure**



1. Dependent children are persons aged under 16, or aged 16-18 and in full-time education, in the family unit and living in the household.
2. Break in series. Weighted data from 1998 onwards.

Source: HM Treasury (2004), *Choice for Parents, the Best Start for Children: A Ten Year Strategy* and ONS (2004), *Living in Britain: Results from the 2002 General Household Survey*.

The Government has laid out its intentions in a 10-year strategy to expand childcare provision (Box 5.1). This follows on from an already marked increase in public spending on under-5's from 0.2% of GDP in 1998/99 to 0.4% in 2003/04, where one-third of expenditure is tax credits for childcare costs of low-income families and two-thirds is direct spending on nursery schools for 3 and mostly 4-year-olds. On the assumption that tax credits continue to account for one-third of the total, then total spending on under-5's will rise to 0.6% of GDP in 2005/06.

Developing childcare provision is warranted, but the initiatives announced with the government's strategy raise some concerns about wider economic costs and priorities. Any childcare strategy should take account of the following three criteria.

- Make work financially attractive for parents and avoid making parents unattractive to employers. Having work is important for the income and welfare of families and consequently children.

Box 5.1. **The government's 10-year childcare strategy: *Choice for parents, the best start for children***

The government's stated objective is to ensure that every child gets the best start in life and to give parents more choice about balancing work and family life, by enhancing the availability and quality of childcare while also making it more affordable. The following initiatives were announced in late 2004 and are to take effect gradually during the current parliament ending at the latest in spring 2010:

- Extension of paid maternity leave from six to nine months by April 2007. The government's goal is to extend paid maternity leave further to 12 months before the current parliament ends. This continues the policy direction followed over recent years. The length of paid maternity leave was extended from four to six months in April 2003, and the flat rate statutory maternity pay has gradually been raised from a uniform £65 a week in 2000 to £106 per week in 2005, or 90% of the person's earnings if they earn less than the flat rate (both numbers in 2005 prices).
- Allow mothers to transfer part of paid maternity leave to the father. Fathers have had a right to two weeks paid paternity leave since April 2003, paid at the same flat rate.
- Proposals also include extending employees' rights to request flexible working arrangements to look after older children and sick and disabled adults. Existing legislation already gives parents an entitlement to three months *unpaid* leave to be taken before the child's fifth birthday with a maximum of one month taken each year. In addition, all working parents have the right to a "reasonable" amount of time off to deal with unexpected circumstances or emergencies relating to dependants.
- Extension of free nursery education for all 3-4-year olds from currently 12½ hours a week for eight months a year to 15 hours a week for nine months by 2010 and ultimately 20 hours a week for nine months a year.
- "Wrap-around care" with breakfast clubs and after-school provisions for all 3-14-year olds from 8 am to 6 pm each weekday by 2010. Offers will be centred around schools, building on the trust parents have in schools, but private sector and voluntary groups are to have a lead role in providing services. Parents will be expected to contribute towards the cost of these extended services.
- Easy access to information, health, family support, and childcare *via* 3 500 local Children's Centres in place by 2010. Higher quality care *via* professional leadership of all full day-care settings, a new qualification and career structure for the childcare workforce and reformed inspection to give parents better information.
- Larger coverage of childcare costs for families eligible for the Working Tax Credit (see Box 5.2).

In consultations during spring 2005, parents have been generally supportive of these initiatives. Employer responses have been more mixed and particularly sceptical about extending leave.

Source: HM Treasury (2004b and 2005a), DTI (2005).

- Stimulate the emotional, social and cognitive development during early childhood. This will also help social mobility by supporting the children whose parents may not be in a position to do so.
- Public funding and support should be allocated in a way that gives parents incentives to be cost-conscious when choosing care arrangements.

After-school-hours care and the larger tax credit for childcare costs clearly help to reconcile work and family life, and other adjustments of taxes and benefits could be considered. But the longer maternity leave could possibly make it more difficult for women to find employment, and more generally the structure of subsidies and user charging could be reformed to encourage cost consciousness. These issues are discussed below. Experience from the Nordic countries illustrates that while childcare has no doubt been key to the achievement of high female employment rates, there is not an automatic one-to-one connection between childcare availability and female employment rates. In Sweden, for example, the increase in female labour market participation *preceded* the expansion of childcare, and while the employment rate of 25-54-year-old females has been roughly stable around 80% since 1993, the share of below-6-year-old Swedes in childcare continued to grow from 54% in 1993 to 68% in 2003 (OECD, 2005). And the 2.1% of GDP public spending in Denmark shows that childcare can turn out to weigh heavily in public budgets if costly practices develop, such as having few children per staff (Table 5.1). However, in the United Kingdom income-related childcare support is only available to working families which mitigates the fiscal risks. As the government's ten-year strategy evolves, some elements may therefore need to be reconsidered to avoid excessive fiscal and wider economic costs.

Table 5.1. **Public spending, enrolment and staff ratios in childcare and pre-primary education**

By age of children

	Total public spending (% of GDP)	Enrolment in publicly-provided or subsidised care (%)		Number of children per staff		
		1-2 years	3-5 years	0-2 years	2-3 years	3-6 years
Australia	. .	. .	. .	5	8	10
Denmark	2.1	74	90	——— 3 ———		6
Finland	1.1	22	66	——— 4 ———		7-13
France	1.2	20	99	3-5	8	27
Germany	0.4	5	77	——— 5-7½ ———		10-14
Ireland	0.3	12	74	3	6	10
Italy	0.6	6	71	——— 3 ———		8
Netherlands	0.2	17	71	——— 4-6 ———		
Sweden	1.8	48	82	——— 5½ ———		
United Kingdom	**0.4**	**2**	**77**	**3**	**4**	**8-13**
United States[1]	0.4	6	53	3-4	4	8-15

1. The number of children per staff is for New York.

Incentives to take up work

The government's ambition is to achieve employment opportunity for all and to eradicate child poverty within a generation. In the mid to late 1990s child poverty was higher than in nearly all comparable countries. The Government sees work as the best way out of poverty and tax and benefit reforms have contributed to considerable success. The employment rate is high, as reviewed above, and the ambitious target to reduce the number of children in low-income households by a quarter between 1998-99 and 2004-05 seems likely to be met.

Changes in taxes and benefits have led to increasing support for working families. The introduction of the Child and Working Tax Credits have improved financial incentives to

work and provided targeted financial support for low-income families. A majority of sole parents now have a larger financial incentive to work than in the late 1990s, but incentives to work longer hours have worsened. Government policy aims to support parent's choices to work part-time in order to balance work and family life, particularly when children are young. Econometric studies typically find that this can account for almost half of the increase in sole parent employment observed over the last decade (Brewer and Shephard, 2004). Recently concerns about child poverty have led the Government to increase financial support for all low-income families with children, whether in or out of work. The gradual withdrawal of this support as family income rises has damped incentives to work more hours, in particular for second earners in low-income couples. This raises the question whether the high part-time rate among women with children really reflects a true preference for working less than full-time to balance work and family life or whether it reflects distortions from taxes, benefit withdrawal and childcare costs.

The government's priority to overcome the unemployment trap and deliver decent gains to work for parents means that compared with other countries, the gain in net income from working more hours is small for sole parents as well as for second earners. The generous family tax credit means that net income after taxes, benefits and childcare costs is *higher* than in Canada, Finland and Sweden for a couple with two children where one adult works full-time and the other works a third of full-time, with both having an earnings potential equal to the average production worker (Table 5.2). But if shifting to

Table 5.2. **Net income and effective tax rates when taking childcare costs into account**

Families with two children 1 and 4 years old, all adults have earnings potential equal to the average production worker, based on 2004 rules, per cent

	Canada (Quebec)			Finland			Sweden			United Kingdom[1]		
Couples with one adult working full time, the other working either one third, two thirds or full time												
Gross wage earnings of the household (% of APW)[2]	100 +33	100 +67	100 +100	100 +33	100 +67	100 +100	100 +33	100 +67	100 +100	100 +33	100 +67	100 +100
Net income after taxes, benefits and childcare costs (% of APW)	98	117	135	94	114	133	99	121	141	104	115	126
Marginal effective tax rates on additional earnings[3]												
When entering the labour market	65	54	51	113	76	65	36	36	37	49	58	61
When increasing hours of work from the previous level shown in the table	. .	43	46	. .	40	43	. .	35	38	. .	67	67
Sole parent working either one third, two thirds or full time												
Gross wage earnings of the household (% of APW)[2]	33	67	100	33	67	100	33	67	100	33	67	100
Marginal effective tax rates on additional earnings[3]												
When entering the labour market	63	53	58	131	102	93	85	66	64	62	78	79
When increasing hours of work from the previous level shown in the table	. .	43	68	. .	73	76	. .	47	59	. .	93	83

1. The marginal effective tax rates for the UK sole parent differs slightly from that in Table 5.3 due to differences in the assumptions about the level of childcare costs and housing rent.
2. APW refers to the annual earnings of the "average production worker" in the manufacturing sector. In 2004, these were $34 358 (CAD 41 574) in Canada; $29 966 (€29 779) in Finland; $26 313 (SEK 254 544) in Sweden; and $33 210 (£21 359) in the United Kingdom.
3. Marginal effective tax rates on additional earnings are calculated as the difference between the increase in gross earnings and the increase in net income when the second earner or the sole parent enters the labour market, and when increasing the hours of work and earnings from 33% to 67%, and from 67% to 100% of average earnings, expressed as a proportion of the change in gross earnings.

Source: OECD Tax-benefits Models and OECD (2005), *Babies and Bosses: Reconciling Work and Family Life*, Vol. 4.

working two-thirds or full-time, the British second earner faces a marginal effective tax rate of 67%, compared with around 40% in the other three countries.

A closer look reveals that the incentives to work more hours are even weaker for British families where the adults have below-average earnings potential (Box 5.2). This is because of high marginal effective tax rates resulting from the withdrawal of housing benefit and tax credits as earnings grow. Moreover, the effect of childcare costs is worse for persons with low hourly pay. In a couple family where both have hourly pay at half the average production worker level which is just above the minimum wage, the increase in disposable income will be merely £7 a week if the second earner switches from 25 hours a week to full-time, as 91% of the increase in gross earnings is lost *via* higher taxes, smaller housing benefit and tax credits and higher childcare costs. A sole parent at the minimum wage may even face a marginal effective tax rate of 97% if switching from 25 hours to full-time. However, the effect will be ameliorated somewhat by the £2 500 disregard in the tax credit system for year-on-year income growth.

Box 5.2. **Tax credits, benefits and childcare costs**

This box reviews child- and childcare-related tax credits and benefits, based on the rules in force since April 2005, and illustrates the effects for different family types (Table 5.3). In addition to this, childcare providers receive some financial support directly from Government.

The *Working Tax Credit* has a childcare element which refunds 70% of registered (formal) childcare costs up to a maximum 70% of £175 per week for families with one child and 70% of £300 per week for families with two or more children. It is required that lone parents or both parents in a couple household work at least 16 hours a week. The maximum amounts were raised from £135 and £200 in April 2005 and the rate will be raised to 80% by April 2006.

In addition, there are child payments *not* related to childcare. The *Working Tax Credit*, which is an in-work support for low-paid adults, gives an additional £30 a week for households with children. The *Child Tax Credit* is a general income supplement paid to families with children under 16 regardless of employment status. The weekly payment is £10.5 plus £32.5 per child plus an additional £10.5 for babies not yet one-year-old. These two tax credits are withdrawn at a rate of 37% when family income exceeds £97 weekly (24% of APW earnings). The *Child Benefit* is available for all families and pays £17 a week for one child under 16 (or up to 19 for those continuing in full-time non-advanced education) plus £11 for each additional child. Finally, the *Housing Benefit*, which reimburses the complete housing rent of families with very low income, applies a less strict income test for families with children.

These benefits are not taxed, and all the credits are applied after calculation of taxes, meaning that they are subtracted from what would otherwise have been the tax payment (rather than being deducted from the income liable to taxation). Moreover these tax credits are "non wastable", meaning that even if they exceed tax payments, the balance is paid to the household.

The relative complexity of the wider system of tax credits means that it is, however, necessary to strengthen the administrative systems underpinning them in the light of continued evidence of substantial overpayments as a result of fraud and error (House of Commons Public Accounts Committee, 2005).

Table 5.3. **Calculation of taxes, benefits and childcare costs**[1]

In £ per week, based on rules in force since April 2005

		Sole parent working 25 hours a week			Couple with one working full time the other working 25 hours a week		
Earnings potential of the adults when working full time (% of APW)		50%	67%	100%	50%	67%	100%
Gross earnings from work		128	171	257	334	445	667
National Insurance (NI) contribution		3	8	18	16	28	53
Income tax		4	12	31	22	47	96
Earnings net of NI and income tax		121	150	208	295	370	519
plus	Working Tax Credit, excluding childcare element	51	36	4	0	0	0
	Child Tax Credit	75	75	75	75	75	11
	Child Benefit	28	28	28	28	28	28
	Housing Benefit[2]	77	68	52	36	14	0
	Council Tax Benefit	3	0	0	0	0	0
minus	Childcare costs	88	88	88	88	88	88
plus	Childcare element of Working Tax Credit	61	61	61	49	8	0
Disposable income after deduction of childcare costs		330	332	341	397	409	470
Gain if stepping up to work 40 hours a week		**4**	**10**	**15**	**3**	**5**	**51**
Marginal Effective Tax Rate[3]		**94%**	**91%**	**90%**	**97%**	**95%**	**67%**

1. Two children aged 1 and 4 years. For both family types, full-time childcare costs are assumed to be £140 per week for the two children and for simplicity it is assumed that this would vary proportionately with the number of hours if working less than full time.
2. It is assumed that housing rent is £110 a week for the lone parent and £130 for the couple.
3. Including effect of higher net childcare costs.

Source: OECD calculations based on the description of benefit and tax rules in Department for Work and Pensions, Tax Benefit Model Tables *www.dwp.gov.uk/asd/tbmt.asp*, and HM Treasury *Budget 2005*, The Stationary Office, London.

These very high marginal effective tax rates raise two questions. First, should the public subsidies for childcare costs of low-income families be raised? The answer is probably yes and this was also recommended by an earlier OECD review of work and family life reconciliation (OECD, 2005). Second, have the efforts to reduce child poverty by increasing support for all low-income families including where no parents work reached an upper limit? The more that is paid to families irrespective of whether they work or not, the harder it becomes to craft taxes and benefits in a way that gives incentives to progress once in work. To avoid "poverty traps" it might therefore be more important to develop the availability of quality childcare and its affordability for low-income families than to continue raising the child tax credit or the child benefit.

Maternity leave and family-friendly working conditions

With six months of statutory maternity pay, the duration of maternity and parental leave entitlement is currently significantly longer than in the United States, but shorter than in many European countries. Most mothers make use of a proportion of their leave entitlement. Only 8% have returned three months after child birth, and among those returning within six months, 70% work only part-time in the beginning. Labour market legislation gives entitlement to job protected maternity leave up to a full year, meaning that the last six months has to be financed by family resources, savings and state financial support for children (principally the child benefit). As mentioned earlier, the Government has announced that it will extend paid leave to nine months in 2007. Looking further ahead, the UK policy debate is about whether paid leave should be extended to a full year. The virtues of such proposals should be evaluated on the basis of their consequences for

child development on the one hand, and mothers' employment outcomes and fiscal costs on the other hand.

While studies from the United States point to sometimes substantial adverse effects of an early return to work on child development, findings for the United Kingdom are less stark reflecting the maternity leave rights introduced already in 1979. A recent study found some adverse effects of returning to full-time work less than 18 months after birth while having a friend, relative or neighbour looking after the child (Gregg *et al.*, 2005). But the effect is not large, at around one-tenth of a standard deviation for the child's cognitive development between four and seven years of age. Moreover, if relying on skilled carers such as child minders or centre-based provision, there was no adverse effect. The adverse effect is found only for better-educated mothers, possibly reflecting that the extra income generated when mothers work matters most in families having little to start with, or that maternal care by less-educated parents is less conducive to the child's later cognitive development. The pattern observed currently with more affluent/highly-educated mothers taking longer leave than low-income/less-educated mothers is therefore not likely to be a problem from a child development perspective, provided that childcare is of adequate quality. The government's ten year strategy reviewed evidence from a variety of sources stressing both the benefits of consistent one-to-one care during the early stages of a child's life and the competing benefits from parental employment in terms of increased parental self-esteem, extended social networks, a greater sense of control and improved mental health all resulting in "knock-on" benefits for the child (Annex A in HM Treasury, 2004b). There is clear evidence that very short maternity leave has a negative effect on child development, including via less breast feeding. But there is also clear evidence that from about two years children benefit from exposure to quality pre-school. In between about 6 months and two years, there is no clear general evidence about what the precise implications are for child development of longer or shorter maternity leave, as long as the alternative out-of-home care is of good quality. Seeking to balance the different concerns, the ten year strategy established a goal of twelve months paid maternity leave.

Simple cross-country comparisons show that adequate maternity leave raises female labour market participation and employment, although this is partly a statistical artefact, as mothers on leave are counted as employed, not inactive. A true increase in labour supply net of leave periods can occur if a more family-friendly labour market makes a sufficient number of women choose continuing their career instead of leaving the labour market for an extended period when having children. Very long leaves, however, make it more difficult for women to return to the labour market, other things being equal (Jaumotte, 2003). Relative hourly earnings seem to suffer also after leaves of intermediate duration. This is not necessarily a result of discrimination against women having children, but reflecting the work experience foregone during childcare periods.[3] The earnings effect should not be exaggerated, but with longer leave periods, the effect of foregone experience accumulates. This indicates that alternative arrangements such as flexible work scheduling, part-time work, tele-working from home and keeping some contact with the workplace during maternity leave should be considered. The United Kingdom introduced a right to request flexible work (and a duty on employers to consider that request) in April 2003. Initial evidence suggests that nearly 1 million flexible working arrangements have been agreed since its introduction. Around a quarter of parents with children under age six have requested to work flexibly. On balance, a realistic expectation would be that moving from 9 to 12 months leave will reduce female employment (net of leave periods) and increase

earnings differences between women and men.[4] The ten year strategy also contained the commitment to extend leave to fathers, by transferring a proportion of the new maternity pay. Successful introduction of extended periods of paternity leave would mitigate the effects on women's relative labour market position.

The fiscal implications of extending paid maternity leave depend much on the extent to which it might be taken up by parents. Official estimates suggest that Statutory Maternity Pay and Maternity Allowance payments could rise by £330 million, but that is based on a limited take-up of the additional three months leave. If every mother in employment takes a full year instead of six months maternity leave, the additional fiscal costs could be much higher, something like ¼ per cent of GDP when also considering the tax revenue foregone when mothers do not work.[5]

With living standards rising, it is natural that parents wish to enjoy more time with their families and children. During the last century average working hours halved in many OECD countries. Looking ahead, continued economic growth is likely to mean that leisure will receive greater emphasis. Public policies play an important role in facilitating this, such as by promoting family-friendly work-place practices. However, taxation of consumption and income from work implies strong incentives to work less and take more spare time, long leaves, etc. compared to a situation, where people retain all the extra value created by their work. Even without entitlement for maternity allowance beyond 6 months, taxes and benefits therefore create strong financial incentives to take the full 12 months job-protected maternity leave. That many mothers prefer to return to work after 6 months should therefore not necessarily lead to the conclusion that financial incentives to take not just 6 or 9 but 12 months maternity leave should be further strengthened by paying maternity allowance for the whole year. However, in practice some mothers choose not to take lengthy maternity leave at the level of wage-replacement provided by statutory maternity pay, and return to work before their entitlement is exhausted for financial reasons. Others simply prefer to rejoin the labour market for reasons unconnected with their finances. In turn this is influenced by the evidence about the importance for child development of consistent one-to-one care of a child during the early phases of its life.

Flexible childcare: ensuring cost-consciousness while stimulating innovation

The working tax credit could be adjusted to strengthen support for childcare while giving parents clearer incentives to be cost-conscious. Most working parents do not get any income related subsidies for childcare, so that they have a strong incentive to seek out solutions that meet their practical needs in a flexible way. Conversely, below-average income families eligible for the childcare credit under the working tax credit pay only 30 pence of each pound spent on childcare, and only 20 pence from 2006. This has the advantage of encouraging low-income families to choose high-quality care thereby avoiding social segregation with children from disadvantaged families being in less stimulating environments. It also ensures that most of the extra childcare costs are covered if working longer hours. However, incentives to purchase expensive care can also go too far, and the move to lift the limit on childcare costs covered for one child from £135 to £175 per week since April 2005 illustrates that costs can grow rapidly in the future. However, the childcare tax credit provides income-related support for childcare and the average award is well below these limits at around £50 a week. Indeed the cross-country variation in staff ratios and total public spending shown in Table 5.1 underscores that there is not a natural upper limit to demand. Instead of public coverage of 80% of total childcare

costs, it would therefore probably be better to provide working parents a basic fixed-value childcare voucher and a larger voucher if they work full-time (more than 30 hours a week) while adding to this for example a 60% coverage of childcare costs above the voucher value. Information about whether parents work more than 30 hours a week is already used in the administration of the working tax credit. Such changes would make work financially more attractive while giving parents clearer incentives to be cost-conscious when spending more than the basic level covered by the fixed-value voucher. To safeguard against excessive spending, the maxima of £175 per week for one child and £300 for two or more children might also be differentiated by age to reflect that what is a reasonable cost level for a one-year old is far higher than that for a 4-year-old. However, the available evidence from current management information supports the government's view that families are cost-conscious when choosing childcare arrangements. Indeed the 10 year strategy aims to drive up the quality of childcare to improve child development outcomes. Reducing the contribution for low-income families are a key part of that strategy.

Interaction of public and private providers is essential to spur innovation. Childcare provision currently involves a mixture of types of care found in local communities, private childcare centres and public nursery schools. Now the policy aim is to build a more coherent supply, as local authorities are given a duty to ensure sufficient childcare supply to meet the needs of families by 2008. Whether that will succeed will depend on how well local authorities manage to integrate public and private provision to avoid complicating the logistics for families. One option is to have private providers locate in connection with nursery schools to provide care in those hours of the day not covered by nursery school. Another is to allow private and voluntary entities to provide nursery education. That could also stimulate innovation in how children's cognitive, social and emotional development is best supported – an example of a knowledge-intensive service sector that is likely to grow with opportunities for foreign direct investment as other countries realise the need for improving childcare provision to facilitate higher employment rates.[6]

Conclusions

The government's ambition to develop the provision of childcare with a ten year strategy is warranted. Stimulating development in early childhood for all, independent of family background, and subsidising childcare to make sure that work pays for low-income families is important to break enduring poverty and promote social mobility. With still only 60% of those mothers having two or more children working, it could seem that there is a need to extend paid maternity leave in order to keep younger women in employment as opposed to inactivity when founding a family. However, the experience of the Scandinavian countries indicates that the stronger driver behind changes in female employment rates are the cultural change towards women wanting to have a career, as the rise in the female employment rate came before the rise in childcare provision. Looking ahead, the key challenge is therefore to ensure good-quality childcare and family-friendly work practices, while avoiding incentives that favour leisure in the form of long leave periods too much over work. In particular, because once long paid leave periods are established and seen by wide voter groups as an acquired right, they are very hard to scale back.

Box 5.3. **Recommendations on childcare**

- Development of support for childcare and nursery education should have priority over extending paid maternity leave.
- Evaluate the effects of the extension from 6 to 9 months paid maternity leave to be introduced from 2007 before committing to the extension of paid leave to a full year. Focus also on increasing the choice for parents on how leave is taken including on a part-time basis.
- Develop and strengthen the administrative systems underpinning the childcare element of the working tax credit.
- Consider how the structure of the childcare element of the working tax credit affects parents' choice between alternative care arrangements. For example, shifting from reimbursing 70% of costs (80% from April 2006), to a combination of a fixed-value voucher and 60% coverage of costs above the voucher value would give parents incentives to buy quality care but ensure cost consciousness about spending going beyond the voucher value.
- Continue to ensure a level playing field for public and private providers to ensure contestability and spur innovation.

Notes

1. Women born in 1965 have given birth to 1.9 children on average and although this *completed* fertility rate is lower than the 2.4 for women born three decades earlier, it is still close to the level required for the population to reproduce itself. That *total* fertility is currently down to 1.7 therefore reflects that family formation and child bearing is increasingly deferred. More family-friendly policies may help to increase fertility, but the effect should not be overestimated as countries like Finland and Sweden where public childcare spending is 0.7 and 1.4% of GDP *higher* than in the United Kingdom do not have higher fertility (and fertility may not be seen as a key objective of child care policies in these countries).
2. Sixty-three per cent of the jobless sole parents have less than half of the median income, compared with 21% of working sole parents. These averages, however, cannot be taken as a direct indication of how much a given jobless sole parent would gain from moving into employment since individuals with limited earnings potential are more likely to be jobless.
3. In Denmark, this latter effect seems to explain all of the fall in relative earnings, and later, mother's hourly earnings appear to catch up with that of others making the loss temporary and modest seen over the person's entire career (Gupta and Smith, 2002). Note, however, that this study covers a period when typical Danish maternity leave was 7-8 months (including the weeks before expected birth) making it hard to know if this finding can be generalised to longer leave periods.
4. Another option is to encourage fathers to take part of the leave. In Sweden, the period women are away from their job is a bit shorter in families where the father takes some paternity leave (Pylkkänen and Smith, 2003), but the overall effect may well be longer total leave and thereby larger fiscal costs. Moreover, cultural factors impinge on the inclinations of fathers to take leave, and UK experience does not indicate much interest for this option.
5. With approximately 350 000 women in each one-year cohort having on average two babies, a shift from 6 to 12 months maternity leave for all in employment would increase outlays on maternity allowance by £1 billion as most would get the maximum £105 per week. Foregone tax revenues are boosted by the fact that families with below-average income face a 70% marginal effective tax rate because of withdrawal of child and working tax credits which counteracts the public savings on the childcare element of the working tax credit when a parent is on leave. For above-average income parents, the loss of tax revenue amounts to approximately a third of the decline in earnings, and these parents would in any case carry all childcare costs themselves. With extra maternity allowance and foregone tax revenue of the order of £1 billion and £2 billion respectively, total net costs to public finances would be about ¼ per cent of GDP. Notice that this estimate does

not include the foregone tax revenue from subsequent earnings being reduced as mothers do not accumulate work experience during the longer maternity leave period.

6. There are currently only 20 childcare companies with annual revenue in excess of £1 million. Even the two biggest companies operate only just over 100 nurseries each. The market is dominated by small stand-alone for-profit nurseries, although in practice many of them are not in the business primarily for profit and many operate at the margins of viability. Voluntary organisations exist as well, but play a smaller role (Laing & Buisson, 2005).

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Chapter 6

From incapacity to rehabilitation and employment

Seven per cent of the 25-54-year-old men are now inactive outside the labour market, many more than three decades ago. Solid growth since the late 1990s has brought down unemployment but not inactivity, with 2½ million currently claiming incapacity benefit. This chapter evaluates how these people could be helped back to work via active support from the Pathways to Work programme and encouragement from a restructured incapacity benefit. Better understanding the role played by mental health problems and improving treatment and rehabilitation will be key to success in this area.

The number of people who are inactive outside the labour market because of illness or disability is higher than in many OECD countries. While solid economic growth during the last decade has lifted employment and brought the unemployment rate down to less than 5%, the number of people claiming incapacity benefit has remained above 2½ million. The annual inflow has gone down from 1 million in the mid-1990s to 700 000 recently, but the outflow has moved in parallel so that there has been little change in the overall total – although in the year to February 2005 there was a small but welcome decrease. The share being inactive because of illness or disability is highest for the older age groups, reaching 22% for 60-64 year-old men (although this has decreased from 32% in 1999). But relative to other countries, it is prime-age men that stand out with 5% of those aged 25-49 being inactive because of illness or disability (Figure 6.1). Seen in a longer perspective, total inactivity among prime-age men has risen steadily from 1% in the early 1970s to 7% in recent years. Sickness leave, on the contrary, is close to the OECD average with 1½ weeks lost per employee in 1999.

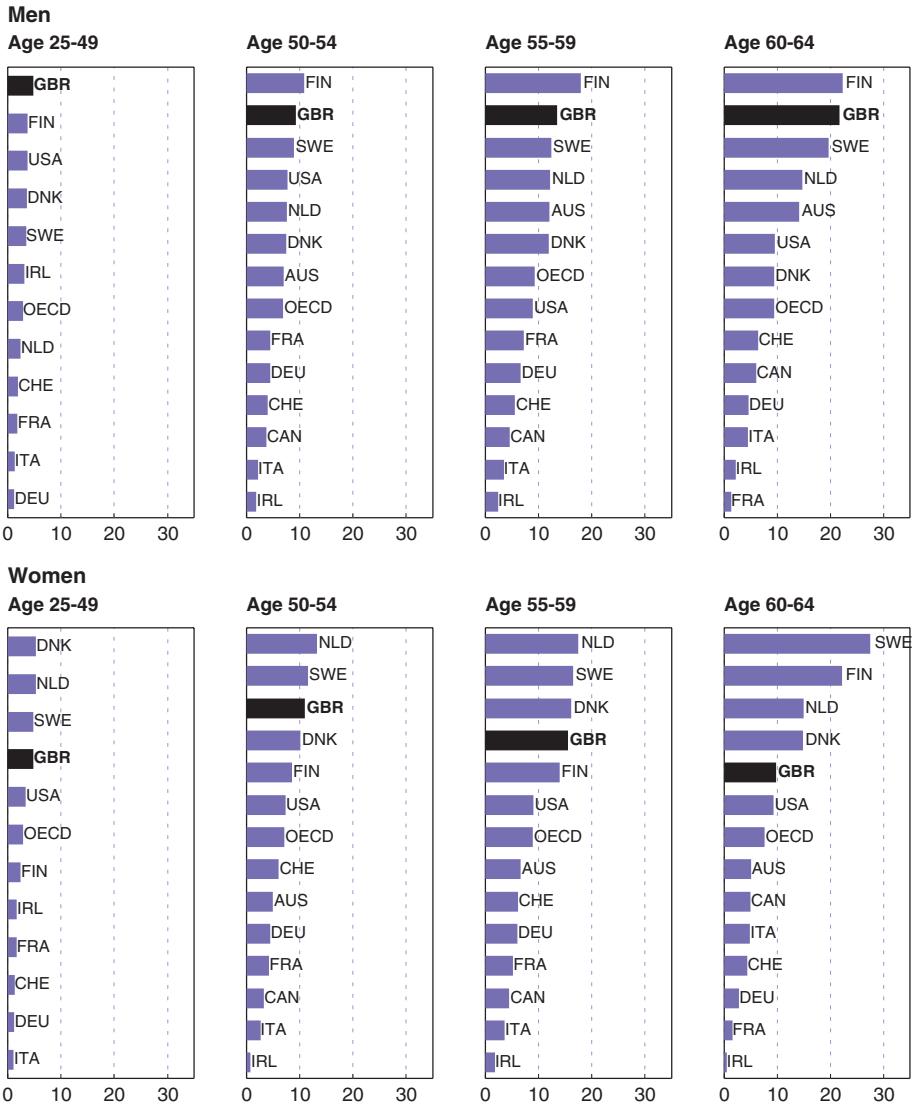
The number of people claiming incapacity benefit is shaped by both the behaviour of external stakeholders such as employers and GPs, policies to reintegrate the inactive into the labour market and financial incentives. There is some evidence that the number of people claiming incapacity benefit responds to changes in the level of benefit paid, in particular for people with little education (Faggio and Nickell, 2005). That would suggest that benefits should not be so generous that they become attractive relative to other income transfers or in-work levels of income thereby encouraging jobless persons to focus on any ailments they have as a way to receive higher benefits. Evidence of a link between benefit coverage/generosity and the number of recipients is also found in cross-country comparisons, but the United Kingdom is an outlier with a higher number of recipients relative to the current coverage and generosity of disability-related benefits (Figure 6.2) although given the long durations on benefit, this has also been affected by coverage and generosity in the past. There are a number of possible explanations of this, such as the relative generosity of incapacity benefits compared with other social benefits, and changes in benefit administration. For example the large number of those aged over 50 registered as inactive because of illness or disability could reflect that for some incapacity benefit is functioning (or has in the past functioned) as an early retirement scheme, a feature it shares with many other OECD countries. Better education and training would likely help as inactivity has risen most for those with least skills. There is also scope for more direct measures for labour-market reintegration of people with illness or disability; a recent study assessing the strength of reintegration policies found the United Kingdom to be about average in the OECD in this respect (OECD, 2003; Pearson and Prinz, 2005).

The current system and reform proposals

Incapacity benefit is the main benefit designed to substitute for earnings from work for people with a significant degree of functional limitation (Box 6.1). Claimants who have exhausted their rights to six months statutory sick pay can move to incapacity benefit in

Figure 6.1. **Inactivity because of illness or disability**

As a percentage of population in each age group, 2003[1]

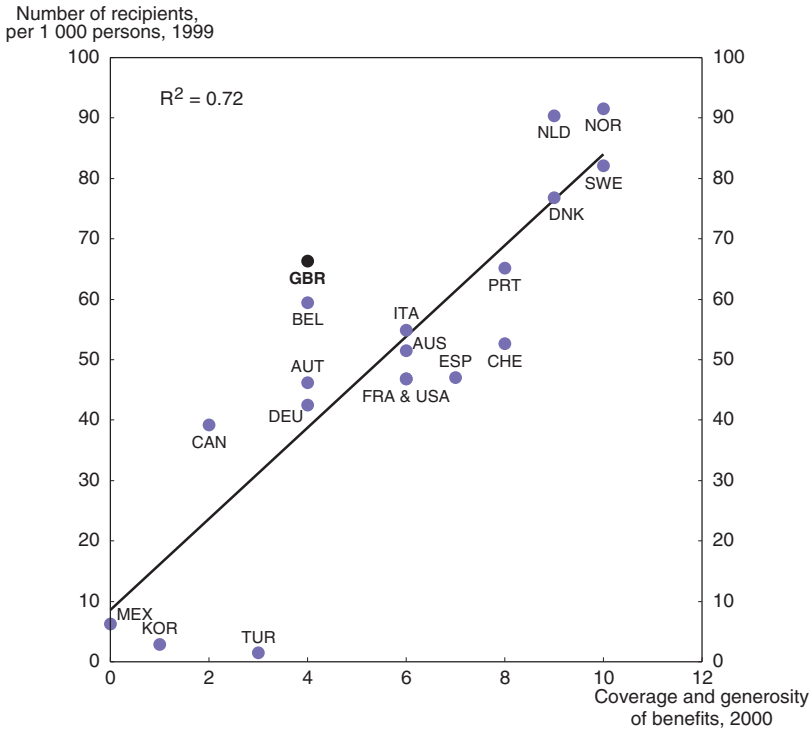


1. 2001 data for age group 25-49. The OECD average is an unweighted average of available data covering 23 countries for age group 25-49 and 25 countries for the other age groups.

Source: OECD estimates using European Labour Force Survey data for European countries, and ILO data for non-European countries, Ageing and Employment Policies Thematic Review.

anticipation of a more thorough eligibility assessment. A larger number of individuals transfer directly from other benefits. Within typically three to six months, claimants then have to undergo a personal capability assessment by a medical team. The criterion for "satisfying" the personal capability assessment and continuing to receive the benefit is to have functional limitations above a certain threshold. It does not necessarily mean that the person is disabled or is incapable of any work, but rather that there are limitations on what kind of work the person can do. Those who have made sufficient national insurance contributions will then receive contributory incapacity benefit; those who have not may receive means-tested income support.

Figure 6.2. **Coverage and generosity of disability benefits *versus* number of recipients**



Source: OECD (2003), *Transforming Disability into Ability*.

The name "incapacity benefit" is somewhat misleading, since three quarters of those claiming the benefit have been diagnosed with common health problems, and most of these would be capable of returning to work if the right support were given. A pattern that is often found in OECD countries is that about a third of those reporting disabilities are not paid any public benefit, whereas a third of those actually receiving a public benefit report that they do not suffer from a disability. In one respect, the mismatch seems to be stronger in the United Kingdom than in most other countries, as over two-fifths of those receiving incapacity benefit do *not* regard themselves as disabled (Figure 6.3). Only a quarter of men receiving incapacity benefit say they cannot do any work at all when asked in surveys (Alcock *et al.*, 2003), and many say they would like to work. And in the early stages of their benefit claim, the vast majority of claimants want and expect to return to work.

A central element in reforming policies would therefore be to change the basic attitude, increasing the emphasis on nurturing the ability of the individuals and removing the disincentives resulting from how the incapacity benefit functions today. For current benefit recipients, returning to work can seem risky as they may fear losing benefit eligibility if having been in work and subsequently losing their job (Stanley and Maxwell, 2004). This is reinforced by the level of benefits being £18 a week higher when received for a year compared with the initial level. It is sometimes thought that moving into a job which might then be lost again would mean starting all over again at the lower initial benefit, although in fact there are linking rules in place which means that this does not necessarily happen.

Box 6.1. **Disability-related benefits**

Incapacity benefit: Is designed to provide income for people who cannot be *required* to work due to a long-term health problem or disability. In 2005, it pays £58 per week for the first six months, then £68 and finally £76 after a year (34% of private consumption per capita). Supplements exist if the impairment arose before age 45, or if there are dependants. Out of 2.5 million people *claiming* incapacity benefit, there are 1.5 million *beneficiaries* actually receiving the benefit, meaning that the rest are *credits only* claimants who are credited with national insurance contributions towards their pension. – although a large proportion of those will claim income support (see below). Total incapacity benefit payments are £7 billion a year (0.6% of GDP) and £12 billion if including related payments of income support. Incapacity benefit was introduced in 1995 replacing the invalidity and sickness benefits existing until then.

Income support: Over 700 000 people claim income support on the grounds of incapacity because their national insurance contributions are insufficient to be eligible for incapacity benefit. Income support has a disability premium. Additionally, some of those in receipt of Incapacity Benefit receive a means-tested top up through income support.

Disability element of the working tax credit: To make work financially attractive despite the additional difficulties faced by disabled people in the labour market, the working tax credit is augmented by £42 a week for persons with disabilities and £60 a week in case of severe disability. The working tax credit is available to people at low income if working at least 16 hours a week.

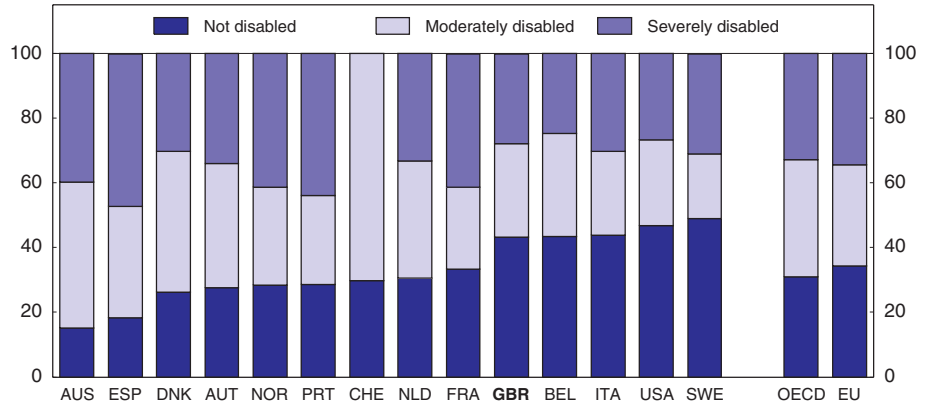
Disability living allowance: It is designed to make a contribution to additional costs such as personal or practical assistance in washing and cooking (£16-£61 per week) or special equipment needed for mobility (£16-£42 per week). It is normally not means tested, and it is available for people both in and out of work on top of incapacity benefit, income support, working tax credit, etc. 2.4 million people claim disability living allowance with total payments of £7 billion a year (0.6% of GDP).

Following the reform proposal launched by Government in early 2005, they will build on the success of *Pathways to Work* by engaging more new claimants. Participation in work-focused interviews and training or activities to help the person better manage their health condition would be mandatory for all except the most severely disabled. New claimants will get an initial holding benefit equal to the Jobseeker's Allowance (£56 per week). But the personal capability assessment would also focus on how each claimant can be helped back to work. Those co-operating would receive an additional £25 allowance reflecting these new requirements, but those refusing to engage in these activities would return to the holding benefit rate. Only claimants with the most severe health conditions would get this higher allowance following the personal capability assessment without obligation to engage in activities preparing for a return to work apart from the work-focused interviews. More details of the government's reform plans will be laid out in a green paper in autumn 2005.

The *Pathways to Work* programme is a significant step forward in addressing the problems of incapacity benefit and helping people back to work. In the past, whilst the employment service had some expertise in overcoming the particular barriers to work that a person with illness or disability faces, programmes have been of relatively small scale. With *Jobcentre Plus* and the *New Deal for Disabled People* this has gradually improved, and a

Figure 6.3. **Close to half of Britons receiving benefits do not classify themselves as disabled**

Disability status of disability benefit recipients, late 1990s, per cent[1]



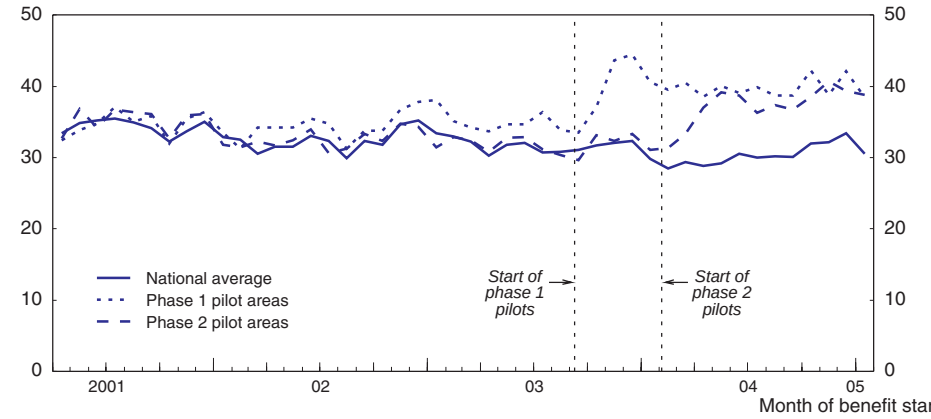
1. For Switzerland, the breakdown between severe and moderate disability is not available. The EU and OECD averages exclude Switzerland and cover only 10 and 14 countries respectively.

Source: OECD (2003), *Transforming Disability into Ability*.

further step is now taken with the *Pathways to Work* pilots. Under *Pathways to Work*, most new incapacity benefit claimants are required to attend six, monthly, work-focused interviews soon after their move to incapacity benefit. They are offered specialist employment advice, new programmes run by the local health services to help manage their conditions, access to a range of tailored support, plus £40 per week as a return to work credit. Covering 9% of the country at the beginning of 2005, the results of the pilots have been very promising, showing a several-fold increase in the number of claimants accessing reintegration programmes and an increase in the likelihood for someone claiming incapacity benefit to leave benefits (Figure 6.4). Moreover, 10% of those taking part are

Figure 6.4. **"Pathways to work" increases the off-flow from incapacity benefit**[1]

Six-month off-flow rate, per cent



1. The off-flow rates presented are produced from the Working Age Statistical Database (WASD). WASD does not include a proportion of short-term incapacity benefit claims, therefore the off-flows presented will be lower than actual rates; however trends over time will be consistent.

Source: Department for Work and Pensions, September 2005.

existing incapacity benefit claimants who do so on an entirely voluntary basis – a sign that the approach is found to be helpful by the persons concerned (DWP, 2005). Initial evaluation results have also been very encouraging, with both claimants and personal advisers welcoming the new approach. The *Pathways to Work* programme will be extended from October 2005 and by October 2006 will cover around a third of the country. The work focused interviews have also been extended on a mandatory basis, from February 2005, to some existing claimants.

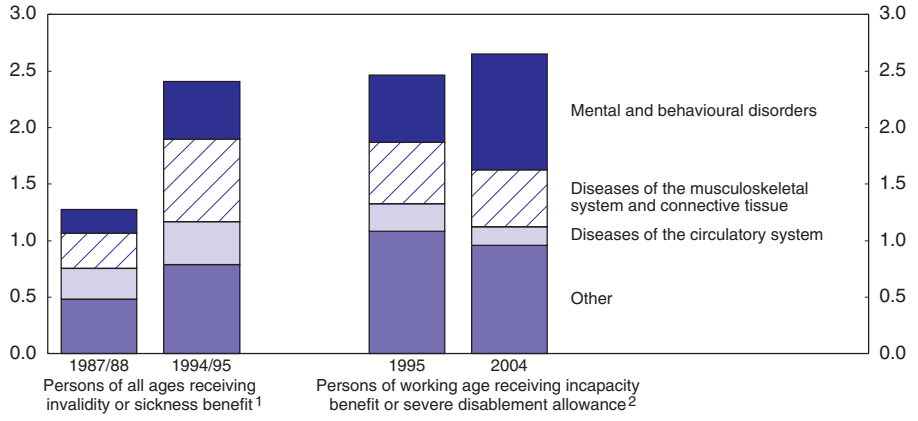
An issue of concern is the almost automatic transfer to incapacity benefit when statutory sick pay ends or when the individual becomes sick or disabled while claiming another benefit. General practitioners are currently the initial gatekeepers determining access to incapacity benefit, although the claimant must subsequently undergo a more rigorous personal capability assessment organised by the Department for Work and Pension's medical services. The policy direction stipulated in recent government reports is to maintain this system while monitoring more closely how doctors manage this task (Prime Minister's Strategy Unit, 2005; DWP, 2005). Experience from other OECD countries indicates that leaving the decision to an "anonymous" team results in more rational decisions, with less people found eligible than if the decision is left to the person's general practitioner. Involving specialised occupational health teams earlier than currently could therefore be considered in connection with making the transfer from sick pay, and from other benefits, to incapacity benefit and the temporary holding benefit less automatic.

From back pain to mental health problems

In the 1980s and early 1990s, disability benefit recipients were more likely to have had problems with joints and muscles than to have mental and behavioural disorders. But now people with mental and behavioural disorders dominate, their number having grown to a million incapacity benefit recipients today, five times the number in the mid-1980s (Figure 6.5). This growth has been due to low off-flow rates for this group, rather than increased in-flows. The magnitude of this change raises a large challenge for the health service about how to better help this group with treatment and rehabilitation. It also raises

Figure 6.5. **Medical conditions of persons receiving disability benefits**

Number of recipients, million



1. Based on 1% administrative dataset with annual data.
2. Based on 5% administrative dataset with November quarters.

Source: Department for Work and Pensions.

wider questions about how societies can best prevent mental health problems, where part of the answer may be better balancing work and family life and improving child development (Chapter 5).

According to the World Health Organization, mental illness or addiction causes nearly half of all disability in Europe and North America (WHO, 2002). The most common mental health problem is depression, which in a severe disabling form affects 15% of all people at least once during life. Depression is estimated to account for about a sixth of all disability, almost twice as much as alcohol and drug addiction together.[1] For most mental health problems, episodes of illness last for a limited period of time, but they often recur. Therefore, the current incapacity benefit system's tendency to treat people as either disabled or fully fit for work is at odds with the way mental health problems evolve. Using a combination of medication and cognitive behavioural therapy, most people suffering from depression can be helped to a point where they can work most of the time, and having something meaningful to do is in itself a help. Yet, in Britain only one in five persons suffering from severe depression gets the chance to see a psychiatrist. For some, this is because they themselves do not seek or wish treatment, but in most cases it is because of capacity shortages so that general practitioners are left with the responsibility of treating the person. Patients have to wait for six to nine months to access psychotherapy while conditions often become more entrenched.

In many countries, mental health has traditionally been the "Cinderella" of health care. In 2002/03, mental health care still accounted for only £4.6 billion or 13% of specialised health care spending by the UK National Health Service (DoH, 2005) up from an 11% share in 1995/96 (DoH, 1998).[2] International comparison indicates that this brings the United Kingdom to a middle position with respect to the share of health care spending devoted to mental health.[3] Considering that two-fifths of the incapacity benefit claimants are inactive due to mental and behavioural disorders, the question is whether the large spending increases in health care have been sufficiently targeted at addressing the problems that prevent people from working. A shift in emphasis is advocated in a recent book on happiness and mental health (Layard, 2005a): "Our priorities need a radical change. It is a scandal how little we spend on mental illness compared with, say, poverty. In the fight against misery, psychiatry is in the front line. Along the barricades of the twenty-first century it is a key place where idealists should rally."

Conclusions

As the share of prime age men being inactive due to illness and disability is the highest in the OECD, firm action is needed to help people back to work. While the reform of the incapacity benefit proposed by the Government is welcome and based on the success of the *Pathways to Work* programme, it will be important to ensure that the changes also benefit those currently being inactive. But one important factor lacks broad recognition, namely the shift in composition among those affected by illness and disability from problems with joints and muscles to mental and behavioural disorders. In light of this, priorities in the undergoing swift expansion of health care should be reconsidered with a shift towards treatment and rehabilitation of people with mental health conditions. Doing so in practice can prove challenging as capacity constraints associated with the availability of trained professionals are difficult to change quickly. However, it would help both labour market performance and human happiness.

Box 6.2. **Recommendations for bringing inactive incapacity benefit recipients into employment**

- Restructure the incapacity benefit into a basic rate plus a supplement conditional on participating in activities preparing for a return to work.
- Continue the national roll out of *Pathways to Work* for new claimants with work-focused interviews and "return to work" credits paid during the first year for those taking up work. When there is sufficient capacity, continue extending the scheme on a compulsory basis for those in the existing stock of incapacity benefit claimants with less severe medical conditions.
- Involve specialised occupational health teams in eligibility assessment earlier than currently, and make the transfer from statutory sick pay to incapacity benefit less automatic.
- Reconsider priorities in the swift expansion of health care towards more emphasis on mental health to help the large and growing number of incapacity benefit claimants with mental and behavioural disorders.

Notes

1. This comparison is based on years lost to disability (YLD) counting the number of people who are alive but disabled due to each condition. See also the statistical notes of WHO (2002). These estimates are for the entire population including all ages and irrespective of benefit eligibility.
2. Specialised health care includes hospitals and community services, but not general practitioners and drug prescriptions. Based on the wider programme budgeting concept, National Health Service spending on mental health including general practitioner activities and drug prescriptions amounted to £6 billion in 2002/03.
3. One group of studies estimated that 14.4% of total UK health care spending was associated with mental health care in 1993, above the 8.4%, 10.9% and 11.4% shares in Australia, Germany and Canada, but below the 18.4% and 23.1% shares in Sweden and the Netherlands (Polder and Achterberg, 2004).

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Chapter 7

Raising innovation performance

A wide range of indicators suggests that UK innovation performance has been mediocre in international comparison. An improvement is often viewed as one important means of closing the productivity gap with the best performing countries. This chapter assesses the appropriate policy response in the context of the government's ten-year plan to boost innovation performance. There are reasons to be optimistic given favourable framework conditions, a strong science base and recent changes in innovation policy. At the same time success should not be judged solely against conventional indicators, which often poorly reflect innovation in certain sectors such as knowledge-intensive services, in which the United Kingdom has shown considerable strength.

UK innovation performance: is it really mediocre?

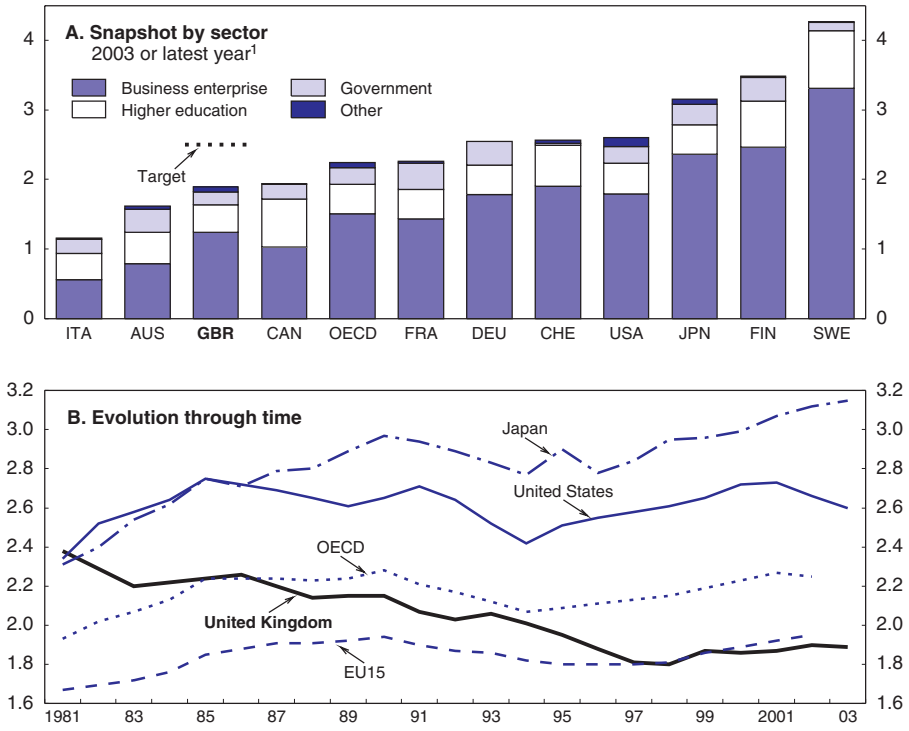
Traditional measures of innovation imply a disappointing performance

Innovation – the successful commercial development and application of new knowledge – involves a number of different stages from research and discovery through development, patenting and commercial implementation. A range of indicators is available for each stage of the innovation process and there is a high correlation in the ranking of countries across these indicators (OECD, 2005a). According to many of these measures the United Kingdom is close to the OECD average, but often ranks poorly among the G7.

The current level of research and development (R&D) intensity (R&D as a percentage of GDP) ranks sixth among the G7 (Figure 7.1, Panel A), despite having ranked second (to Germany) at the beginning of the 1980s. The Government has recently published a 10-year plan for science and innovation (discussed below) which includes a target to raise R&D intensity from the current level of 1.9% to 2.5% of GDP by 2014. While it appears more credible than those set by many other OECD countries,[1] it is an ambitious target which

Figure 7.1. **R&D intensity**

Gross domestic expenditure on R&D in per cent of GDP



1. 2002 for Australia, France, Italy and EU15; 2001 for Sweden and 2000 for Switzerland.

Source: OECD (2005), *Main Science and Technology Indicators*, Vol. 1.

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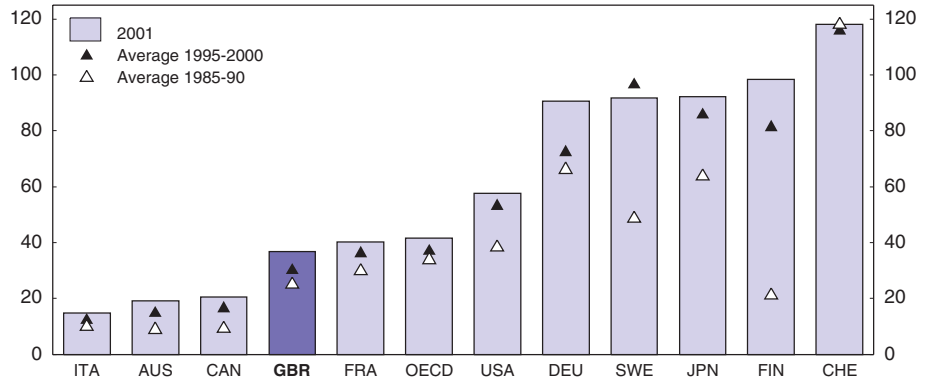
would require the reversal of a trend decline: the UK is the only OECD country for which R&D intensity fell over both the 1980s and 1990s (Figure 7.1, Panel B). Moreover, although R&D intensity has broadly stabilised since the mid-1990s, in many other OECD countries it has picked-up since then. The UK's low country ranking also holds for R&D performed in the business sector, which is usually identified as being the most effective in raising growth performance.[2] R&D intensity outside the business sector is also relatively low, although this is due to low R&D intensity performed in the government sector whereas that performed in the higher education sector is on a par with most other G7 countries.

The number of researchers employed is an important input into the innovation process. Despite a relatively strong academic science base the share of researchers in total employment is relatively low and employers regularly report shortages, particularly in engineering jobs.[3] A different problem concerns the low general skill level of the labour force which may limit the benefits from the adoption of new technologies.

Patent-based indicators provide one measure of R&D output, although individual patents can differ considerably in their usefulness and hence value. Survey evidence generally suggests that UK firms do not place great emphasis on formal methods of intellectual property rights (IPR), preferring informal methods because they are more cost effective. The number of triadic patents per capita is well below that in the United States, Japan, and Germany. This measure of the propensity to patent has barely increased, again in contrast with the experience of most other OECD countries (Figure 7.2). If, however, the number of triadic patents is normalised on business R&D spending, then UK spending appears relatively efficient, ranking close to the United States and well ahead of Japan and Germany (OECD, 2005a).

Alternative measures of innovation outputs are provided by survey evidence, although such indicators are more subjective as judgement regarding innovations is left to the performer. The European Community Innovation Survey (CIS) provides data collected at firm-level, although many of the more detailed survey responses are not available for the United Kingdom on a comparable basis with other countries.[4] According to the latest survey the United Kingdom had one of the lowest shares of successful innovative firms

Figure 7.2. **Patent indicators**
Triadic patent families, per million population[1]



1. According to the residence of the inventors and by priority year (the year of the first international filing of a patent). 2001 figures are estimates. Triadic patent families are defined as patents filed at the European Patent Office (EPO), the US Patent and Trademark Office (USPTO) and the Japanese Patent Office (JPO).

Source: OECD (2005), *Main Science and Technology Indicators*, Vol. 1.

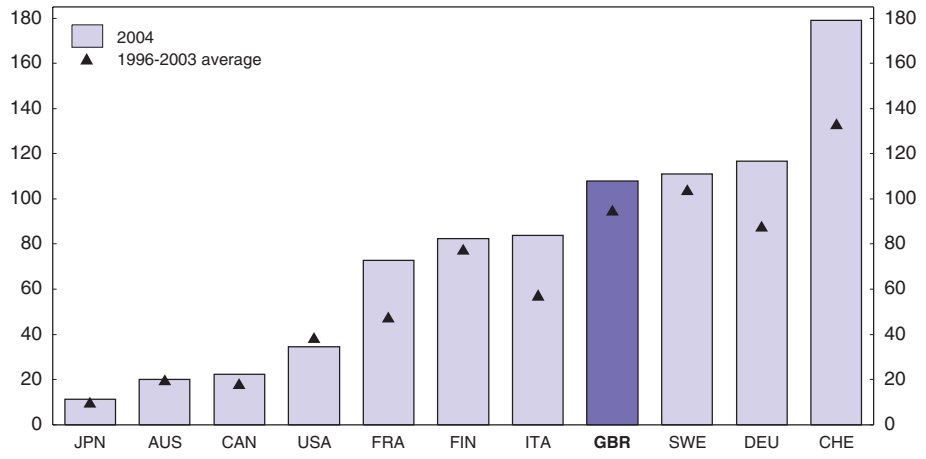
over the period 1998-2000, around 20%, less than half the proportion in Germany. For product innovations, a further distinction can be made between imitations and true innovations, depending on whether the innovation is new to the market or just the firm. On this basis the United Kingdom has the lowest proportion of firms that are true product innovators of any of the 16 countries surveyed, about 10% compared with 28% in the country (Finland) with the highest proportion.

... but this may understate the extent of innovation, particularly in services

While performance judged by many traditional innovation indicators appears poor, "softer" indicators suggest a stronger performance, particularly in the service sector. For example, although according to the CIS the proportion of firms applying for a patent is among the lowest in the European Union, the proportion of firms using some form of protection (whether through a patent, trademark, design registration, copyright, secrecy, complexity or lead-time) for their innovation is the highest in the European Union (OECD, 2005a). Moreover, recent trademark trends, which may be a better measure of non-technical innovation, show a much stronger increase than patents, with applications in the United Kingdom expanding seven-fold between 1993 and 2000 (Greenhalgh *et al.,* 2003). Applications for European Community trade marks on a per capita basis since the mid-1990s are among the highest in the G7 (Figure 7.3). The widespread use of these other forms of protection, as well as strength in many of the creative industries, may help to explain why the UK balance-of-payments surplus on international technology transfers is among the highest in the OECD relative to GDP (0.6% of GDP in 2000).[5, 6]

Traditional measures of innovation may thus understate aggregate performance. The service sector is very heterogeneous. As well as being important users of new technology, certain services are carriers of new technology (consultancies and training services) while others are integral producers of new technology (computer, software and telecommunications services). The United Kingdom has experienced rapid growth in many knowledge-intensive services (Chapter 1) where the scope for innovation is greater than in other services. Even in retailing there have been many innovations in the way shops are

Figure 7.3. **European Community trademark applications**
Per million population



Source: Office for Harmonization in the Internal Market, OHMI Statistics.

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built, organised and run, but these have mainly involved changes in design (the move to bigger store), in processes (supply chain management) or the introduction of information and communication technology (ICT) (for stock control). Their application has, however, not required large R&D investments as conventionally measured.[7] Other examples are the "creative industries" or "cultural services", areas of comparative strength both in terms of employment and export performance (Box 7.1), where commercial exploitation of new ideas is an integral part of the activity, but is not well reflected in conventional measures of innovation.

Box 7.1. **The creative industries**

The creative industries are usually considered to include advertising, architecture, fashion, leisure software, film and video, radio and TV, music and the performing arts, and publishing. In 2002 they accounted for:

- 8% of gross value added, having grown 6% per annum between 1997 and 2002, double the rate for the whole economy. The size of this sector is similar in relation to GDP in the United States, but much larger than in other OECD countries. It is, for example, more than three times the EU average.
- 4¼ per cent of all exports of goods and services, having grown 11% per annum over the period 1997-2002 (compared with 3% for all goods and services). They contributed £11.5 billion (1% of GDP) to the trade balance in 2002.
- 1.9 million jobs (nearly 7% of total employment), comprising 1.1 million in the creative industries and an estimated 0.8 million creative jobs in companies outside the creative industries. Employment grew by 3% per annum over the period 1997-2002, three times faster than the whole economy.

Source: Department for Culture, Media and Sport (2004), "Creative Industries Economic Estimates", *Statistical Bulletin*, August 2004, *www.culture.gov.uk/*. UNESCO (2000), "International Flows of Selected Cultural Goods 1980-98", *www.uis.unesco.org/*.

... and there is further scope to exploit the strong science base

On a range of measures the science base is among the strongest in the world. In 1999 the United Kingdom accounted for nearly 9% of all OECD scientific publications, only exceeded by Japan and the United States (OECD, 2003). A 2004 survey of bibliometric data shows that the UK publishes over 12% of all cited scientific papers and almost 13% of papers with the highest impact (DTI, 2004). On a per capita basis scientific publications are the highest among the G7 and only exceeded by a few smaller countries where both R&D intensity and the employment share of researchers are also the highest in the OECD (Finland, Sweden and Switzerland). The growing importance of industry-science relationships (OECD, 2002b), at the expense of corporate R&D laboratories suggests this is a strength that can be increasingly exploited in the future and all the more so given the increasing mobility of multinational firms and the relative attractiveness of the United Kingdom to foreign direct investment.

Do composition effects explain why R&D performance has been weak?

The current weak R&D intensity could be due to particular characteristics of the economy, such as the industrial mix, rather than representing evidence of weakness that

needs to be addressed by policy. The decline in total R&D intensity over the 1980s to the mid-1990s can be more than accounted for by the decline in government performed R&D and government funding of business R&D (Table 7.1). This ties in with the decline in government budget outlays for defence R&D, which was much steeper than for any other G7 country. Since the mid-1990s total R&D intensity has fallen somewhat, mainly due to a further fall in Government performed R&D. R&D performed in the business sector (BERD) intensity has remained fairly stable since then. There has been a slight further decline in government and industry funding mostly compensated by increased funding from abroad, with the latter currently financing over one-quarter of BERD, a much higher share than in any other G7 country. Nevertheless, the stability in BERD intensity contrasts with developments in most other OECD countries, where there has been a distinct pick-up in BERD intensity since the mid-1990s.

Table 7.1. **R&D intensity by performing sector and by funding**
In per cent of GDP

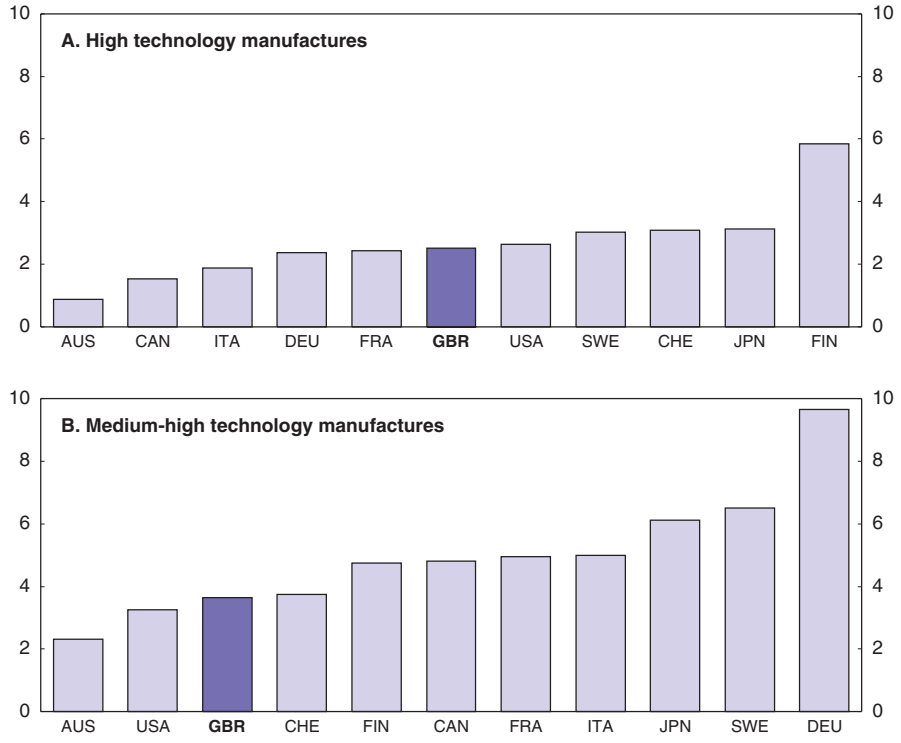
	1981	1990	1995	2003	Change		
					1981-90	1990-95	1995-2003
By performing sector							
Business (BERD)	1.50	1.49	1.27	1.24	–0.01	–0.22	–0.03
Higher education (HERD)	0.32	0.34	0.38	0.40	0.02	0.04	0.02
Government (GOVERD)	0.49	0.28	0.28	0.18	–0.21	0.00	–0.10
Total	2.38	2.15	1.95	1.89	–0.23	–0.20	–0.06
By source of funding							
BERD financed by:							
Industry	0.92	1.01	0.89	0.78	0.09	–0.12	–0.11
Government	0.45	0.25	0.13	0.14	–0.20	–0.12	0.00
Abroad	0.13	0.23	0.24	0.32	0.10	0.01	0.08
HERD financed by:							
Industry	0.01	0.03	0.02	0.02	0.02	0.00	0.00
Government	0.31	0.31	0.36	0.38	0.00	0.04	0.02
GOVERD financed by:							
Industry	0.05	0.03	0.02	0.02	–0.02	–0.01	0.00
Government	0.44	0.25	0.26	0.16	–0.19	0.01	–0.10
Memorandum item							
Defence budget R&D	0.62	0.39	0.29	0.24	–0.23	–0.10	–0.04

Source: OECD (2005), *Main Science and Technology Indicators*, Vol. 1.

A comparison of the industrial composition across countries can shed light on why BERD intensity is relatively low. R&D intensity is typically highest in manufacturing industries that incorporate a high degree of technology. The share of high technology manufactures (including pharmaceuticals and office, computer and communications equipment)[8] in gross value added is not far behind Japan and the United States and ahead of the other G7 countries (Figure 7.4). However, it is the next rung down the technology ladder the United Kingdom is poorly represented, namely in medium-high-technology manufactures (including electrical machinery, motor vehicles and other transport equipment).

For a more detailed industrial analysis the business sector is disaggregated into 11 manufacturing industries where R&D intensities are typically high, plus utilities (electricity, gas and water combined), all services combined, and a residual "other" sector.

Figure 7.4. **Technology intensive industries**
Per cent of total gross value added, 2002[1]



1. 1999 for Australia; 2001 for Canada.

Source: OECD calculations based on the STAN database, July 2005.

The current BERD intensity gap with a comparator country can then be explained by a combination of higher/lower "within-industry" R&D intensities and/or because the industrial composition is more skewed towards industries where R&D intensity is higher/lower. The relative importance of within-industry and mix effects in explaining the R&D intensity gap differs between countries (Table 7.2, with disaggregated details in Turner and Lundsgaard, 2005):[9]

- Between 60% and 80% of the gap with Japan, Germany and France is explained by industry mix effects. Alternative analyses confined just to the manufacturing sector tend to find smaller industry mix effects, but are less pertinent to the issue of explaining differences in measures of R&D intensity commonly used in the policy debate.
- About half of the gap with Finland, but only one-quarter of the gap with Sweden, can be explained by industry mix effects. The larger size of the communications equipment industry in Finland (which includes mobile phone market leader Nokia) accounts for fully 1.0% point of the gap.
- Industry mix effects do not help to explain any of the gap with the United States, although this comparison is subject to much greater uncertainty because of different methods of data collection.[10]

Table 7.2. **The industrial structure and cross-country differences in R&D intensity**
Relative to the United Kingdom, percentage points, 2002[1]

	France	Germany	United States	Japan	Finland	Sweden
R&D intensity gap	**0.20**	**0.53**	**0.63**	**0.88**	**1.36**	**2.08**
Due to "within industry intensity"	0.04	0.14	0.68	0.35	0.61	1.51
Due to "industry mix"	0.16	0.39	–0.05	0.53	0.75	0.57
% of R&D intensity gap accounted for by:						
Within industry effect	20	27	107	39	45	73
Industry mix effect	80	73	–7	61	55	27

1. 2000 for Sweden and 2001 for the United States.

Source: OECD calculations based on the STAN and ANBERD databases, July 2005.

The most important differences in (within) industry R&D intensities are as follows:

- The only industry in which the United Kingdom has a consistently higher level of R&D intensity is pharmaceuticals. Pharmaceuticals alone account for about one-quarter of all UK BERD.
- There is a longer list of manufacturing industries in which R&D intensity is consistently lower, particularly the communications equipment industry, motor vehicles, computing machinery and instruments.
- The services sector R&D intensity reduces the aggregate gap with France, Germany and Japan, but by less than 0.1 percentage point. However, R&D intensity is higher in services in Finland, Sweden and the United States. Indeed, nearly all of the gap in R&D intensity with the United States can apparently be explained by higher within-industry intensity of services. However, in this case, differences in data collection methods matter.

Policy implications

The finding that much of the R&D intensity gap with Germany, France and Japan can be explained by industry mix effects, suggests caution in targeting a similar level of R&D intensity. This is because on other criteria the industrial composition, notably the strong performance of the services sector, has contributed positively to the overall strong macroeconomic performance. Further caution is warranted by the fact that the list of manufacturing industries where R&D intensity is low include many of those – such as motor vehicles, information technology (IT) and electronics – where UK-owned firms have struggled to compete in the past, but output has been kept up by high levels of foreign inward investment. As multinational firms tend to have a home bias in carrying out R&D it is unsurprising that within-industry R&D intensities in these key sectors are often relatively low. Griffith *et al.* (2004) show that across a majority of sectors UK-owned multinationals have a significantly higher R&D intensity than foreign-owned multinationals based in the United Kingdom. However, the same foreign-owned multinationals have at least as high an R&D intensity as, and in many sectors significantly higher than, UK domestic firms (which are not multinationals). Thus, the relative attractiveness of the United Kingdom to inward investment has probably boosted R&D relative to a counter-factual in which the alternative would have been greater production by domestic firms.

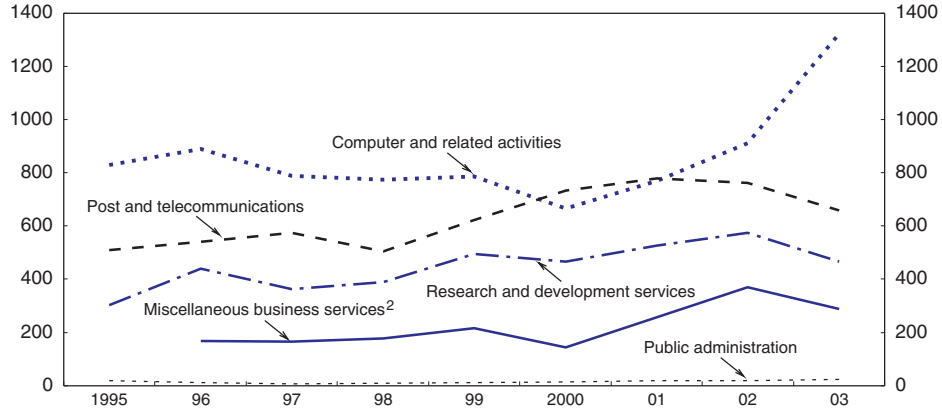
One particularly striking example is that almost all the aggregate R&D intensity gap with Germany can be explained by differences in the motor vehicle industry. Although there is considerable car production in the United Kingdom, all the main volume car

manufacturers are overseas-based multinationals, with much of the R&D performed in the home country. Consequently R&D intensity in the UK car manufacturing industry is low, although the industry is quite successful with seven out of ten vehicles built being exported. Public policy attempts to promote a "national champion" in the motor vehicle industry during the 1960s and 1970s were woefully unsuccessful (Pryke, 1981 and Owen, 2000) and in the light of this experience few would advocate a more active sector-specific industrial policy which attempted to imitate success in Germany. On the contrary, the evidence suggests that the adoption of more sector-neutral policies from the early 1980s has been an important factor in improving the UK's subsequent macroeconomic performance (Owen, 2000).

On the other hand, in comparison with the United States industry mix effects are small and much of the deficit in R&D intensity is apparently in the services sector where the United Kingdom would seem to have considerable strengths. The comparison with the United States would seem all the more appropriate given that it is the most obvious role model among the G7 in terms of providing evidence that higher R&D spending since the mid-1990s has played a part in raising aggregate productivity growth. It is, however, frustrating that issues of data comparability make it difficult to be sure how much of the difference is genuinely due to the service sector or whether (if genuinely comparable data were available) within-industry differences would be more widespread. Even allowing for problems in data comparability, it does, however, seem likely that some of the difference is accounted for by greater R&D undertaken in the service sector in the United States. Curiously, while service sector R&D intensity rose in all six comparator countries between the mid-1990s and 2001, there was no such rise in the United Kingdom. More recent UK data, however, suggest much stronger growth, with most of the growth concentrated in computer services which now account for nearly half of all R&D in the services sector (Figure 7.5). Nevertheless, these comparisons do raise the issue as to whether more could be done to promote R&D in the service sector.

Figure 7.5. **Real R&D expenditure in services**[1]

£ million, 2003 prices



1. No R&D is performed in two service sectors: wholesale and retail trade, transport and storage.
2. Includes technical testing and analysis.

Source: ONS (2005), *Research and Development in UK Businesses*, 2003.

What should policy do about innovation?

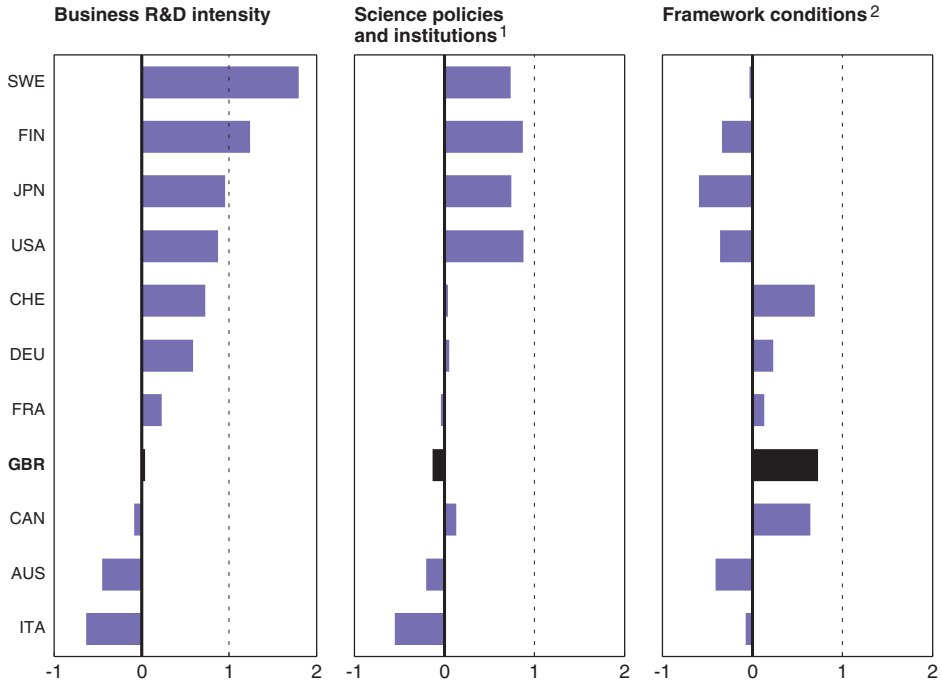
A wide range of policies potentially influence innovation, both those affecting framework conditions as well as policies specifically directed towards promoting science and innovation. These are considered below, in the context of recent OECD empirical work (OECD, 2005a) to explain business R&D, distinguishing the role of these policies in explaining changes in BERD intensity and in explaining differences in BERD intensity relative to the OECD average.

Framework conditions

The OECD *Growth Study* found that framework conditions and policy settings are important for growth and more recent OECD empirical work (OECD, 2005a) also finds that they are important for innovation. Thus factors such as strong output growth, low inflation, well developed financial markets, pro-competitive regulations in labour and product markets and openness to trade all tend to have a positive impact on various stages of innovation. In particular, overall framework conditions in the United Kingdom are estimated to be among the most supportive for R&D in the OECD (Figure 7.6). However, while *changes* in framework conditions are estimated to have had a positive effect on BERD intensity over the 1990s, in most other OECD countries there was an even larger positive

Figure 7.6. **The role of science policies and framework conditions in explaining BERD intensity across countries**

Percentage point deviation of R&D intensity relative to OECD average, 2000



1. Science policies include R&D tax incentives, subsidies for private R&D, business funding of non-business R&D, non-business R&D intensity, intellectual property rights, the share of scientists in total dependent employment and absorptive capacity (capacity to understand and make use of foreign knowledge).
2. Framework conditions include financial factors, real interest rates, real exchange rates, foreign exposure (foreign R&D stock and openness), import penetration and product market regulation.

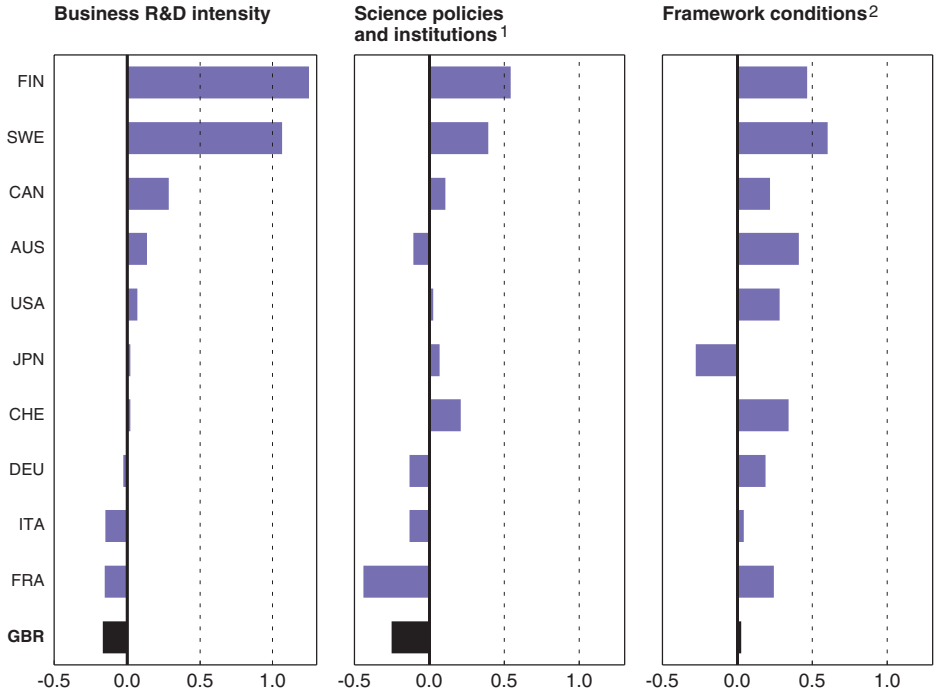
Source: OECD (2005), "Innovation Policies: Innovation in the Business sector", *Economics Department Working Papers*, OECD, Paris, forthcoming.

effect (Figure 7.7). Particular strengths which are identified as being supportive of BERD intensity are:

- *Financial factors*: The availability of internal and external finance boosts innovation outlays, with improved corporate profitability and higher stock market capitalisation both having a positive effect on R&D spending. Stock market capitalisation is found to have a positive effect on patenting in addition to the effects it has through R&D suggesting that equity-based financial systems such as that in the United Kingdom may provide more favourable conditions for firms seeking to raise external finance for innovation. When all financial factors are combined, the United Kingdom and Switzerland are found to have the most favourable financing conditions across the OECD, although many countries have begun to catch up over the course of the 1990s.
- *Product market and labour market regulations*: Although the theoretical links are ambiguous, empirical work finds that less stringent product market regulation helps to raise R&D intensity, while reduced employment protection mainly boosts patenting. With the United Kingdom having among the most flexible product market regulations in the OECD this factor helps to boost R&D intensity by 10% above the OECD average. On the other hand, improvements of a similar, or in many cases greater, degree were made in

Figure 7.7. **The role of science policies and framework conditions in changing BERD intensity**

Percentage point deviation of R&D intensity between 1991 and 2000



1. Science policies include R&D tax incentives, subsidies for private R&D, business funding of non-business R&D, non-business R&D intensity, intellectual property rights and absorptive capacity (capacity to understand and make use of foreign knowledge).
2. Framework conditions include financial factors, real interest rates, real exchange rates, foreign exposure (foreign R&D stock and openness), import penetration, product market regulation, employment protection legislation, human capital and the domestic economy-wide average wage.

Source: OECD (2005), "Innovation Policies: Innovation in the Business sector", *Economics Department Working Papers*, OECD, Paris, forthcoming.

other countries. Thus, while the United Kingdom remains at the frontier in terms of the flexibility of product market regulation, many countries have closed the gap over the course of the 1990s and the implied boost to BERD intensity was smaller for the United Kingdom.

The empirical work also suggests that other changes in framework and general economic conditions might explain why other countries had a stronger R&D performance over the 1990s, including:

- Exposure, measured by trade openness corrected for the size of the country, to the stock of foreign knowledge (as proxied by the stock of foreign R&D) improved less in the United Kingdom than in some other countries, especially the United States, Canada, Australia and Switzerland.
- The fall in real long-term interest rates over the 1990s has boosted BERD intensity across virtually all OECD countries, but real long-term interest rates fell by less than in many other countries.
- The appreciation of the real exchange rate over the second half of the 1990s is estimated to have reduced BERD intensity by 0.1 to 0.2 percentage point. Becker and Pain (2003) find an even stronger effect.[11] Various explanations for this effect are possible. It may be because foreign-owned multinational firms that use the United Kingdom as an export base postpone R&D expenditure when the exchange rate is high or may even relocate such spending if it remains high. Alternatively it may be because the real exchange rate is picking up pressures on corporate profitability, disproportionately affecting R&D intensive manufacturing firms.

The general finding that the United Kingdom is close to best practice in terms of favourable framework conditions, suggests that the emphasis for policy reform to promote innovation lies elsewhere, although there is no doubt further room for improvement. The specific policy implications of the finding that the appreciation of the exchange rate had a negative, and possibly large, effect on BERD intensity over the second half of the 1990s are less clear. It is difficult to score this as a "policy failure", partly because of the difficulty of permanently influencing the exchange rate. Moreover, the higher level of sterling had wider macroeconomic benefits through raising the terms of trade and consumption possibilities and containing inflationary pressures.

Specific policies to promote science and innovation

There are many reasons for public policy intervention to support innovation by correcting "market failures" that would lead to a less than socially desirable level of innovation. In particular, the ability of competitors to benefit from new knowledge means that the social rate of return to new knowledge is likely to exceed the private return. In addition imperfections in financial markets, a lack of skilled researchers or a lack of information or even awareness about research advances in other sectors and countries could lead to a lower level of innovation. At the same time such interventions may not always be successful and could even have a negative impact on innovation if not carefully designed. For example, fiscal measures to raise innovation may have significant deadweight costs and need to be financed.

OECD empirical work based on OECD indicators up to 2000, measuring policies to stimulate R&D and technology based innovation, suggested that there was scope to improve the existing policy environment for R&D in the United Kingdom (Figure 7.6).

Moreover, changes in these policies are estimated to have had a negative effect on BERD intensity over the 1990s, whereas in some other OECD countries, notably the United States, Japan, Finland and Sweden there was a substantial positive effect (Figure 7.7). The results would imply that the major weakness is capacity to absorb knowledge, represented in the empirical work by the product of the stock of foreign R&D and the proportion of researchers in employment. In particular, the proportion of researchers in employment is much lower than in the United States or Japan, as well as the stronger performing smaller countries such as Finland and Sweden. It is also a main factor explaining both the absolute and relative decline in BERD intensity over the 1990s, because the United Kingdom is one of the few countries to have experienced a decline in the share of researchers in employment over this period. However, it is difficult to be sure of the direction of causality in these studies, as discussed further below.

Other factors which help to explain the UK's relatively weak R&D performance are:

- Non-business R&D intensity is relatively low and fell slightly over the 1990s, although the only G7 country for which non-business R&D intensity rose significantly over this period was Japan.
- The empirical work confirms a positive effect of tax incentives on R&D, but these were only introduced in 2000, and given the time lags involved may only now beginning to have an effect. A number of OECD countries introduced R&D tax credits much earlier, which may have boosted their BERD over the 1990s.

Overall, the estimated negative impact of science and innovation policies compared with the large positive impact in some of the other OECD economies suggests that there may have been potential for improving these policies. But it should also be recognised that there has been a shift in government polices since the late 1990s, for example through the introduction of R&D tax incentives in 2000, the publication of a review of science, engineering and technology skills in 2002, and the publication of an Innovation Report and a review of business-university collaboration in 2003. These developments culminated in the government's ten-year Science and Innovation Investment Framework in July 2004 (Box 7.2). This set out a comprehensive set of policies to improve the sustainability of the public science base; stimulate increased business investment in R&D; create incentives for knowledge transfer and university-business collaboration; improve the teaching and learning of science and engineering subjects at all levels; and achieve greater public engagement with science. The Government committed over £1 billion in additional funding for the public science base between 2005-08 to help achieve these objectives, ensuring that the UK science budget will have increased by more than half in real terms between 1997 and 2008, to £3.4 billion (0.29% of GDP). The range of science and innovation policies considered below includes: fiscal measures to promote R&D; polices to promote partnerships between business and tertiary education; and finally policies to promote a fluid labour market for researchers and scientists.

Fiscal measures to promote R&D

Fiscal incentives can take the form of direct funding of private sector R&D or tax incentives to encourage R&D. The former may be more appropriate where particularly high social, as opposed to private, rates of return are suspected, for example for research in defence, space, health and the environment. They may also be more appropriate for young firms that have little taxable income or face borrowing constraints. Tax incentives are

Box 7.2. **Objectives of the Science and Innovation Framework, 2004-14**

Increase business investment in R&D and business engagement in drawing on the UK science base for ideas and talent

- Increase business investment in R&D as a share of GDP from 1¼ per cent towards 1.7% over the decade.
- Narrow the gap in business R&D intensity and business innovation performance between the UK and leading EU and US performance in each sector, reflecting the size distribution of companies in the United Kingdom.

A strong supply of scientists, engineers and technologists by achieving a step change in

- The quality of science teachers and lecturers in every school, college and university, ensuring national targets for teachers' training are met.
- The results for students studying science at GCSE level (to age 16).
- The numbers choosing Science, Engineering and Technology (SET) subjects in post-16 education and in higher education.
- The proportion of better qualified students pursuing R&D careers.
- The proportion of minority ethnic and women participants in higher education.

World class research at the United Kingdom's strongest centres of excellence

- Maintain overall ranking as second to the United States on research excellence, and current lead against the rest of the OECD; close gap with leading two nations where current performance is third or lower; and maintain UK lead in productivity.
- Retain and build sufficient world class centres of research excellence and leading universities, to support growth in its share of internationally mobile R&D investment and highly skilled people.

Raise responsiveness of the publicly-funded research base to the needs of the economy and public services

- Research Councils' programmes to be more strongly influenced by and delivered in partnership with end users of research.
- Continue to improve performance in knowledge transfer and commercialisation from universities and public laboratoires towards world leading benchmarks.

Sustainable and financially robust universities and public laboratories

- Ensure sustainability in research funding accompanied by robust financial management by universities and public laboratories to achieve sustainable levels of research activity and investment.

Confidence and increased awareness across UK society in scientific research and its innovative applications

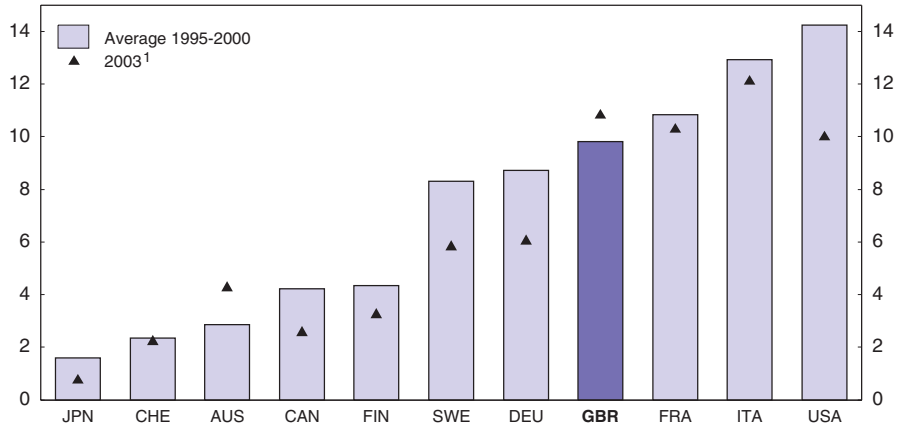
- Demonstrate improvement against a variety of measures, such as trends in public attitudes, public confidence, media coverage, and responsiveness to public concerns by policy-makers and scientists.

Each of these objectives is supported by a range of indicators. Progress will be assessed annually, with a more comprehensive assessment every two years. The first annual assessment was published in July 2005 (HM Treasury *et al.*, 2005).

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likely to broaden the range of market-driven research activities and may be less susceptible to capture, but may also increase the risk of duplication. There has been a marked decline in the proportion of direct funding of BERD across most OECD countries, driven both by declining spending on defence R&D and the needs for fiscal consolidation. This change has been particularly marked in the United Kingdom, with this proportion falling from 30% in the early 1980s to around 10% since the late 1990s (Figure 7.8). At the same time there has been a greater shift towards the use of tax incentives across OECD countries, again mirrored in the United Kingdom where they were introduced in 2000.

Figure 7.8. **Government funding of BERD**
Per cent of total



1. 2000 for Switzerland; 2002 for Australia, France and Italy.

Source: OECD (2005), *Main Science and Technology Indicators*, Vol. 1.

The evidence reviewed in OECD (2005a) suggests there is little consensus regarding the effectiveness of direct funding and specific subsidies for private R&D. In the United Kingdom there are a number of schemes providing subsidies to encourage innovation (Box 7.3). In some cases this may mean that there are a number of schemes with a similar rationale in terms of addressing the same underlying market failure, although a range of interventions were judged necessary to meet the needs of different target audiences and to provide different types of support (grants, expert staff, information). According to the *Lambert review* many businesses found that while individual government schemes to promote knowledge transfer were welcome the number of different schemes often caused confusion. This may, however, reflect a transition period when the number of programmes was being rationalised to the set listed in Box 7.3. Nevertheless, the portfolio of schemes should be kept under periodic review.

A feature of government-financed support for BERD is that it is more than proportionately benefits larger firms, which is a different pattern from the highest R&D performing smaller countries (Figure 7.9). As some of the rationales for intervention (such as informational failures) are probably more acute for SMEs, this raises questions for policy design.[12] The Government recently announced a mandatory target for Government departments and agencies to place 2.5% of their extra-mural R&D contracts with SMEs under the Small Business Research Initiative (SBRI), to provide enhanced support for SME innovation.

Box 7.3. **Schemes providing direct funding for R&D**

The Department for Trade and Industry (DTI) administers or is responsible for a number of programmes to promote *Knowledge Transfer and Innovation* amounting to £350 million in fiscal year 2005/06 (0.03% of GDP). One-quarter of this total is accounted for by remaining commitments to schemes which have been closed to new entrants. The most important elements of the current portfolio of support to businesses and researchers include:

Higher Education Innovation Fund (£91 million, rising to £110 million by 2007/08) supports the commercialisation of university research and fosters industry-academia collaboration.

Public Sector Research Exploitation Fund (£8 million) to stimulate knowledge transfer from the public sector research establishment base.

Technology Strategy (£38 million, rising to £178 million by 2007/08) guided by an independent board with strong business representation aims to identify emerging technologies in which there is research capacity and potential to exploit. It is mainly implemented through two schemes:

- *Collaborative R&D* supports research collaborations between firms and universities. Evaluation evidence from the previous LINK programme found evidence that participation raised business turnover, implying a benefit-to-cost ratio of between 1.1 and 3.8 to 1 (Annex F of DTI, 2003).
- *Knowledge Transfer Networks* (building on the previous *Faraday Partnerships* scheme) provide grants to set up networks to promote the flow of people, technology and innovative business concepts between the science base and industry.

Knowledge Transfer Partnerships (£19 million) support graduates to work on innovative projects in firms, with staff from the company and the research partner jointly supervising the graduate.

Grant for Research and Development (£27 million) (building on the previous SMART/SPUR scheme) provides funding towards the costs of R&D projects in small and medium-sized enterprises (SMEs), and is one of the few grant schemes not requiring collaboration in order to qualify. The rationale for the scheme is that SMEs would otherwise find it difficult to raise relatively small sums due to the cost of due diligence. Evaluation evidence suggests that each £1 million programme expenditure increased turnover by £2.4 million and exports by £1.3 million (Annex F of DTI, 2003).

National Measurement System (£75 million) responsible for funding measurement research and its dissemination to users.

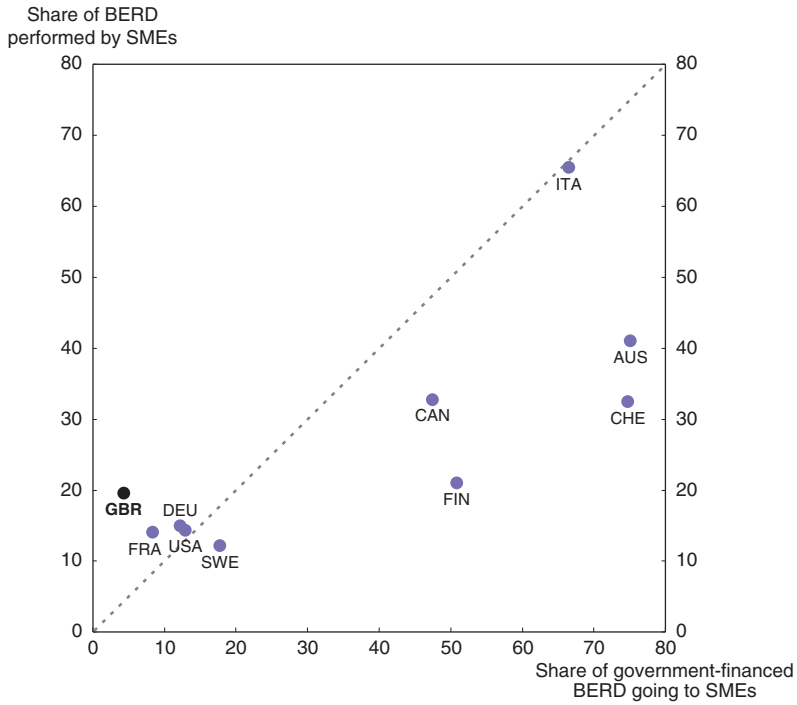
Space (£33 million) mainly contributes to the European Space Agency.

The cost of any individual scheme, listed above, is relatively small either in relation to the estimated support through R&D tax credits of £720 million (0.06% of GDP) or support for the science base, which is mainly in the form of funding science in higher education channelled through the Research Councils, of over £3 billion (0.24% of GDP).

R&D tax incentives. R&D tax incentives have only been introduced in 2000 for SMEs and extended to larger firms in 2002. The tax incentives operate on a volume rather than incremental basis (*i.e.* all R&D is eligible, rather than just new R&D relative to some baseline period), which has the advantage of being simpler to operate and more transparent for firms, although it inevitably means that there is a large deadweight loss from R&D outlays that would have been undertaken anyway but are also subsidised. Using one measure of the generosity of R&D tax incentives across countries, the B-index, the

Figure 7.9. **Government R&D funding is concentrated on larger firms**

Per cent, 2002[1]



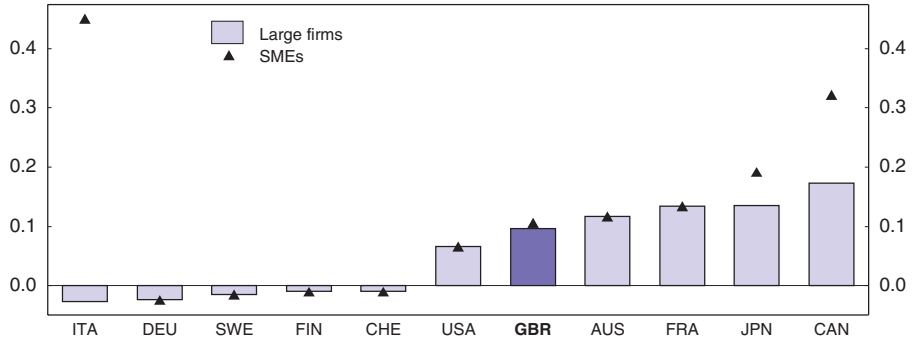
1. 2003 for Finland, Sweden and the United Kingdom; 2000 for Italy and Switzerland; 1999 for Germany.

Source: OECD (2005), *Science, Technology and Industry Scoreboard*.

level of tax incentives for the R&D performed by large firms is at the median among the G7 countries. There are some smaller OECD countries where the tax incentives for large firms are between two and four times more generous (Figure 7.10), although the B-index does not fully reflect the restrictive features of some other countries' schemes that potentially limit relief for large firms. The level of support for SMEs is similar to that

Figure 7.10. **Tax treatment of R&D**

Rate of tax subsidies for $1 of R&D, 2004[1]



1. Tax subsidies are calculated as 1 minus the B-index. The B-index for Australia was adjusted to show the correct weights of the volume-based 125% tax concession and the 175% incremental tax concession for R&D. The B-index in Japan covers only large firms with a ratio of R&D to sales of less than 10% (the B-index is 0.831 for those with a R&D-to-sales ratio above 10% and 0.782 for research conducted in collaboration with universities).

Source: OECD (2004), *OECD Science, Technology and Industry Outlook*.

provided for larger firms in the United Kingdom, but an important difference is that for SMEs the tax credit has a repayable aspect so that SMEs making losses can claim a cash payment equal to 24% of eligible R&D spending.

Bloom *et al.* (2002) find robust cross-country evidence that tax incentives are effective in increasing R&D intensity. They estimate a long-run elasticity with respect to the user cost of about unity, implying that a 10% fall in the user cost raises R&D by 10% in the long run. Recent OECD empirical work (OECD, 2005a) tends to confirm this estimate, although it is an upper bound and sensitive to what other factors are controlled for. This would imply that the recent introduction of tax credits might be expected to eventually raise R&D intensity by up to 0.13 percentage point, equivalent to about one-quarter of the increase required to hit the government's R&D target. There are, however, likely to be long lags: the median lag is about five years according to Bloom *et al.* (2002) and eight to nine years according to the OECD study.[13] These lags may be even longer because the tax incentives have been introduced for the first time.

So far the take-up of R&D tax credits is impressive compared to initial estimates. In any case, both the number of firms involved[14] and the sums being claimed are much larger than for any of the direct funding schemes described in Box 7.3, raising the question of whether there is overlap. For example, the R&D grant for SMEs and R&D tax credits both tackle the same market failures, namely spillovers and the high cost of due diligence in evaluating a project. Moreover, there are arguments for suggesting that R&D tax credits are a more appropriate policy instrument. In particular, the difficulty in evaluating projects also applies to Government when assessing the case of R&D grants and if a principal rationale for intervention is to overcome a financing constraint for small firms then effectively providing subsidised loans through the R&D tax credit would appear more appropriate than R&D grants (Abramovsky *et al.*, 2004).

A series of evaluations of the effectiveness of R&D tax credits are planned from 2005 onwards, although even before these are available the Government has published a consultative document to consider further enhancing R&D tax credits to respond to changes in the pattern of business R&D (HM Treasury *et al.*, 2005). This rules out, at least for the time being, changing the definition of expenditure covered as well as raising the tax credit rate for larger firms. Instead, it highlights the emergence of pockets of new R&D intensity outside the traditionally innovative industries and proposes enhancing R&D tax credits for these firms. However, in the absence of evaluation results, there is not yet a clear case for further extending the generosity of R&D tax incentives. Tax incentives should continue to be market based, and it is also important to ensure that they are well understood by businesses and provide certainty that they will be maintained at existing levels.

Polices to promote partnerships between business and the tertiary education sector

The share of R&D performed in the higher education sector that is financed by business was about 6% in 2002, which is close to the OECD average and little changed from previous years. Given the excellence of the science base as reflected in the high ranking for publications and citations, this does raise the question as to whether there is untapped potential for closer collaboration.

Funding of universities is sometimes blamed as putting an over-emphasis on pure science at the expense of the possibilities for commercial exploitation of research. The

majority of public funding for universities is related to research excellence, which in practice is assessed mainly on academic benchmarks, and distributed *via* Research Councils and Funding Councils with funds increasingly concentrated on a few universities.[15] These also tend to receive the most funding in the form of research grants or contracts from businesses, although there are some notable exceptions (Lambert, 2003). Thus, there are some universities that have a strong track record of collaborating with businesses, despite not being among the highest ranked for the much larger pot of public research funding, leading to a concern that such universities may become increasingly squeezed in the future. This is recognised in so called "third-stream funding" under the *Higher Education Innovation Fund* (HEIF) in England and similar funding streams in other parts of the United Kingdom, which aim to promote the transfer of knowledge from university research to the business sector. The HEIF money builds capacity in universities to enable greater collaboration with business. Indeed, on such measures – the number of staff employed in commercialisation or industry liaison offices, the number of spin-out companies, the number of patent applications by universities – there has been a considerable increase in business-university interaction in response to increases in such funding since 1998 (HM Treasury *et al.*, 2004). The Lambert review, a recent review of university-business collaboration undertaken for Government by Richard Lambert, advocated, among a raft of other proposals, increasing such funding (Box 7.4). In response, the Government made a commitment that HEIF funding would rise to £110 million per year by 2007/08, up by about 10% in real terms from 2004/05. In addition, in line with the

Box 7.4. **Main recommendations of the Lambert review of business-university linkages**

- Additional funding of about £100-200 million should be made available to university departments that can demonstrate a strong demand from business for their research.
- A higher proportion of government funding of BERD should be directed towards SMEs.
- R&D tax credits should be better marketed.
- A number of barriers to commercialising university intellectual property (IP) were identified; in particular, a lack of clarity about ownership of intellectual property, especially when there was part funding by business, as well as lack of sufficient expertise within universities to support such activity. A group has subsequently been set up to draw up a range of model collaborative contracts between universities and businesses and to develop an IP protocol.
- Regional Development Agencies should be given greater responsibility to co-ordinate university-business collaboration.
- Universities should be encouraged to place less emphasis than currently on spin-outs and more on licensing.
- A league table of the world's best research intensive universities should be developed.
- A code of governance for universities should be developed to represent best practice, with voluntary implementation on a "comply or explain" basis.
- Universities that demonstrate that they are well run should be subject to a lighter regulatory regime.

Source: Lambert, R. (2003), *Lambert Review of Business-University Collaboration: Final Report*, HM Treasury, December, *www.lambertreview.org.uk*.

Lambert review recommendations, the Regional Development Agencies were given a greater role in facilitating university-business collaboration, and are investing significantly in science and innovation (£360 million in 2005/06, an increase in real terms of about 40% since 2002/03). Other key Lambert review recommendations that have been taken up include publication of new guidance on university governance by the Committee of University Chairmen, and the launch of a set of model intellectual property agreements (the "Lambert Agreements") for businesses and universities engaged in research collaboration.

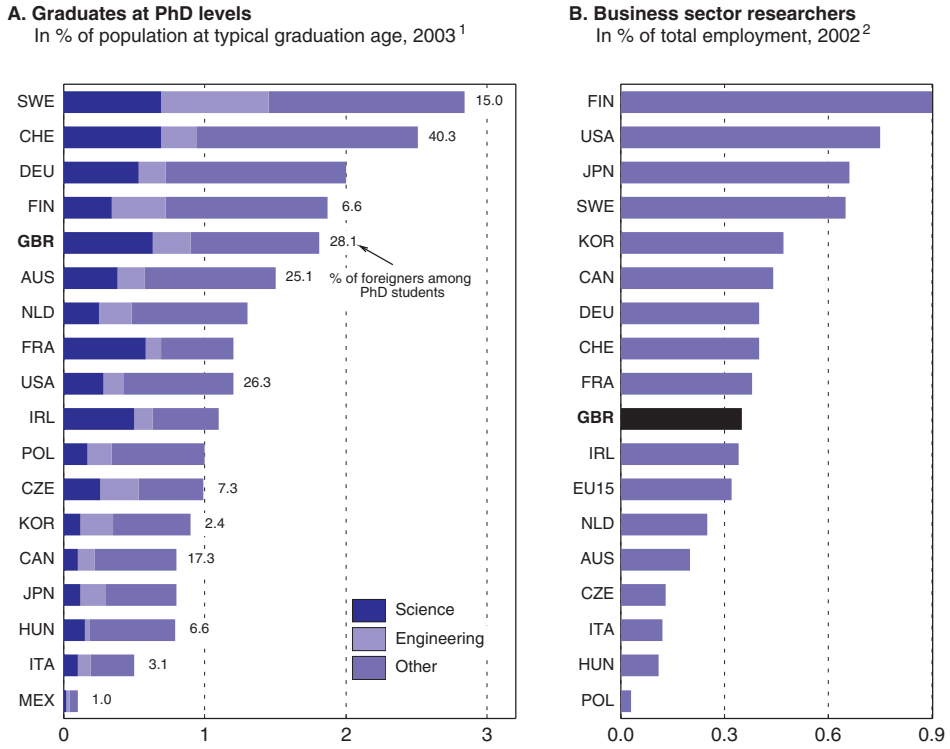
Ensuring a fluid labour market for researchers and scientists

A recent government-commissioned review, the *Robert's review* (HM Treasury, 2002), expressed concern about weaknesses in the teaching of science, engineering and technology (SET) subjects and a "disconnect" between a growing demand for SET graduates and a waning supply (apart from IT and biological sciences for which supply is increasing). To increase the number of graduates in mathematics, engineering and physical sciences, it recommended measures to both stimulate the interest in sciences during school and make academic and R&D careers more attractive. With the 2004 spending review, the Government has committed itself to action along the lines of the review (HM Treasury, *et al.*, 2004). These proposals appear sensible in addressing identified weaknesses for which Government has a direct responsibility – such as shortages of secondary school teachers in mathematics, the course content in secondary schools or the level of stipends paid to persons with PhDs. However, it is unclear whether they will be sufficient to hit the government's objective of a "step change" in students studying science at secondary school and/or SET subjects in higher education, but neither is it clear that such a step change is needed.

In international comparison, there is already a relatively high number of SET graduates in relation to the relevant youth cohort (Figure 7.11, panel A).[16] Despite this relatively abundant *potential* supply the number of *actual* researchers relative to the size of total employment is lower than in many comparable countries (Figure 7.11, panel B).[17] Thus many SET graduates are not attracted to careers in R&D, mostly because employers offer insufficiently competitive remuneration packages (HM Treasury, 2002). In 2003 about half of those with a first degree in science or engineering were not working in either a science and engineering occupation or teaching, with this proportion rising to over 60% for first degrees in physical sciences, technology or engineering. Instead, the financial services sector and the public sector are the largest employers of science and technology graduates.

It is not clear, however, whether further government intervention is needed as skilled labour resources are being attracted to the most successful sectors, such as financial services, where returns are highest. Whilst there is evidence that the labour market for science and engineering occupations is tight it is no more so than for other professional occupations: the relative wages of those in science and engineering occupations show no sign of any trend increase relative to wages in all professional occupations; and whilst the employment rate of those with a first degree in science and engineering is high, it is similar to the employment rate of those with first degrees in other subjects. Moreover, the success of the chemical and pharmaceutical industries are a testament to scarcity of scientists not being a major constraint in science-based industries (Owen, 2000). In summary, there is not a compelling case that the capacity of the economy to absorb new ideas is currently being held back by a shortage of scientists and researchers, although it remains important to

Figure 7.11. **PhD graduates and researchers**



1. 2000 for Canada, 2002 for graduates in Finland and Italy, 2001 for foreign students enrolled in the United States.
2. 2000 for Switzerland and United States, 2003 for Sweden.

Source: OECD (2005), *Main Science and Technology Indicators*, Vol. 1 and calculations based on the OECD Education database, September 2005.

ensure an adequate supply of scientists and researchers to meet future needs. By contrast international benchmarking does suggest that the general level of skills of the adult population is low – for example nearly one-quarter of the adult population lacks basic literacy skills – and this is likely to be a more serious handicap to absorptive capacity (Chapter 8).

Another key issue is to ensure that UK universities operate in framework conditions conducive to developing a top position in the world, challenging the dominant US universities (Box 7.5). This is essential as presumably one of the most important factors attracting talented researchers is to be in an intellectually stimulating environment among world leading academic colleagues. It helps that from 2006 universities will be allowed to set tuition fees of up to £3 000 a year, replacing the current £1 150 tuition fee charged uniformly for all courses. These fees come on top of government per-student funding of £3 500 to £14 000 a year (level depending on type of course), research grants and other revenues. Most universities have announced that they will charge the full £3 000, indicating that the cap preventing universities from charging more – even if students were willing to pay – is a straitjacket. Average per-student spending on tertiary education institutions in the United States equalled 57% of GDP per capita in 2001, but only 30% in the United Kingdom (excluding funding for university R&D). Allowing universities to charge £3 000 instead of the current £1 150 a year will add resources equivalent to 11% of GDP per capita, but does not close the gap *vis-à-vis* the US average – not to mention the gap *vis-à-vis*

Box 7.5. **The world's top universities**

World rankings of the universities are dominated by the United States, although the United Kingdom usually fares better than continental European countries.

A ranking published in November 2004 by the Times Higher Education Supplement was based on surveying academics in 88 countries on the institutions in the fields they had expertise in. It found that Oxford and Cambridge universities are among the world's top ten, and that eight UK universities were among the top fifty.

An alternative ranking by academics at Shanghai Jiao University in China, weighted together several indicators of academic or research performance, including alumni and staff winning Nobel prizes, highly cited researchers, and publication citations. It also placed Oxford and Cambridge in the top 10, with 5 UK universities among the top 50.

Table 7.3. **Alternative rankings of top world universities**

Source	Number in top 10			Number in top 50		
	United States	United Kingdom	Other European Union	United States	United Kingdom	Other European Union
Times Higher Education Supplement	7	2	0	20	8	2
Shanghai Jiao Tong University	8	2	0	35	5	5

Source: Institute of Higher Education, Shanghai Jiao Tong University *http://ed.sjtu.edu.cn/ranking.htm*. The Times Higher Education Supplement *www.thes.co.uk/worldrankings/*.

the top academic institutions in the United States. As part of the legislation paving the way for the introduction of graduate contributions, it has been agreed that an independent review is to be prepared and presented to Parliament in 2009 on all aspects of the new arrangements, based on the first three years' operation of the policy. The Government will consider the report before submitting any recommendation to Parliament on raising the tuition fee cap. In the OECD's view, a removal or at least an increase of the cap would be warranted. A better university governance structure would also seem crucial, and the Lambert review pointed to the need for reforming the often very conservative collegial structures with senates and councils at the older universities to become more dynamic. In response to this recommendation, guidance on university governance was published by the Committee of University Chairmen, and all universities are currently reviewing their governance arrangements.

International mobility

International mobility can have a large impact on the future availability of researchers and scientists. One aspect is the alleged "brain drain", particularly to the United States.[18] The tendency for more educated persons to be over-represented in US-bound migration is shared with continental European countries, but the volume of migration from the United Kingdom is significantly larger (EEAG, 2003),[19] possibly reflecting the absence of language barriers. Outflow of academic staff is part of this, leading the Roberts review to recommend enhanced and more market-related salaries for key academic staff. On the other hand there is a considerable inflow of talented students; 10% of those pursuing higher education come from abroad, with the United Kingdom hosting 12% of the world's

foreign students (only exceeded by the United States). Nearly half of all engineering and technology doctorates are already awarded to non-UK nationals. In order to take advantage of this substantial and growing pool of potential researchers, the Government has announced that overseas science and engineering graduates studying in specific shortage subjects will have the automatic option of working in the United Kingdom for one year following graduation.

Summary and conclusions

Across a range of conventional indicators, innovation performance is mediocre in comparison to the best performing OECD countries. Nevertheless, strengths in knowledge intensive services and creative industries, where innovation is less likely to be picked up in such indicators, probably mean that aggregate performance is under-stated.

- Much of the R&D intensity gap with Germany, France and Japan can be explained by industry mix effects, which suggests targeting a similar level of R&D intensity may be inappropriate. On the other hand, while industry mix effects apparently do not help to explain the gap with the United States, issues of data comparability mean that is difficult to be sure in which industries the main differences are located.
- While patenting performance is only mediocre there has been extremely rapid growth in other forms of intellectual property protection, such as the use of trademarks, and the balance-of-payments surplus on technology transfers is among the highest in the OECD.
- While the share of researchers in total employment is unexceptional, this is not because of a shortage in PhD graduates in science and technology subjects which are relatively numerous by international standards, but who are often attracted to other careers.

All in all, these considerations suggest a degree of caution is warranted in pursuing the government's targets for innovation. At the same time the cross-country evidence linking innovation with aggregate growth performance means that this should be a policy area under constant review, and there is a growing body of evidence which, while far from conclusive, is at least suggestive regarding which policies are most helpful in promoting innovation.

Framework conditions are already among the most favourable for R&D in the OECD. Nonetheless there is room for further improvement. For example, the previous OECD *Survey* found that overly strict planning regulations may have significant economic costs and a recent government-commissioned report recommended streamlining regulatory regimes (Hampton, 2005). Moreover, the tax burden, particularly for the corporate sector, could rise in the near future highlighting difficult choices, discussed further in Chapter 3, regarding how far the United Kingdom wishes to move to a higher level of welfare provision and taxation.

As regards specific policies to support science and innovation, empirical work based on OECD indicators up to 2000 suggests there was some scope for improvement. However, since then the Government has introduced a range of new policy measures to boost science and innovation, culminating in the 2004 *Science and Innovation Investment Framework*, whose impact will not yet be reflected in the indicators currently available. The OECD empirical work highlighted "absorptive capacity" as a particular weakness compared with other countries and the Roberts review has highlighted falling numbers of graduates in SET subjects. Where the Government has a direct responsibility, for example in the provision of science and mathematics teaching at secondary level or in the level of stipends paid to PhD

researchers, it has responded positively to weaknesses identified in the Roberts review. But given the relatively high numbers of SET graduates by international comparison and success in some science-based industries, such as pharmaceuticals, it is difficult to argue that a shortage of researchers is currently a binding constraint.

A much higher priority for raising absorptive capacity to harness the benefits of innovation is raising the low *general* skill level of the labour force, as discussed further in Chapter 8. While the number of persons having university degrees and advanced research degrees (PhDs) is not much different from that in comparable countries, the United Kingdom stands out internationally with a large share leaving school before completion of the upper secondary level and without an education giving specific competence within a professional field. Continuously improving the relevance and quality of vocational programmes is, however, as important as expanding their provision. That is because a key factor determining the success of such an expansion will be that the vocational route gains esteem *vis-à-vis* academically-oriented secondary education – something that appears to be lacking more in the United Kingdom than elsewhere. Unifying the current very mixed array of vocational programmes and diplomas into a limited number will make continued education more attractive for those leaving at age 16 today. And the government's initiative to establish high-quality vocational academies in disadvantaged neighbourhoods with intensive involvement of businesses *via* sponsorships, etc., will help raise the profile and esteem of professionally oriented programmes.

The recent shift in emphasis away from grants towards tax incentives is likely to be beneficial in boosting R&D spending, although it is too early to judge the results. Given this lack of results, there is not yet a clear case for further extending the generosity of R&D tax incentives. Tax incentives should continue to be market based, and it is important to ensure that they are well understood by businesses and provide certainty that they will be maintained at existing levels.

Despite a recent streamlining of fiscal measures to support R&D, there is still potential overlap between R&D tax incentives and remaining grant schemes. There is a need for improved evaluation of fiscal measures to support R&D as officially acknowledged. Future evaluations of all fiscal measures should also address the extent of overlap between different policy instruments, whether there are barriers to take-up in the services sector; whether measures encourage firms to become innovative (rather than increasing the extent of innovation already taking place within a firm). In addition, the balance of direct funding for R&D between SMEs and larger companies who receive most current support might need to be reconsidered.

There is further scope to exploit the strength of the science base through further promoting university-business collaboration. The emphasis of current university funding on research excellence will help to foster elite universities which should attract increasingly mobile multinational companies. However, to compete with the best universities in the United States further changes will be required, including: a streamlining of university governance procedures and clearer guidelines concerning intellectual property rights. These issues are being addressed in line with the recommendations of the Lambert review. Eventually, an upward adjustment on the current cap on university fees is also likely to be required to provide additional financial resources to attract and retain the best academic talent. In line with the recommendations of the Lambert review,

consideration should also be given to the modest increases in funding targeted at those universities which have shown a track record of successful collaboration with businesses, which are not always the same universities that appear at the top of the academic rankings that determine the bulk of university funding.

Box 7.6. **Summary of recommendations to strengthen innovation**

- The target for R&D is ambitious, particularly given the industrial mix, but is also an imperfect measure of innovation input, particularly given strength in sectors such as knowledge intensive services, so there should be no presumption that being off-track should automatically result in further policy actions.
- Continue to strive for improvements in framework conditions, notably by relaxing planning restrictions, reducing business red tape and avoiding further increases in the general level of taxation.
- Keep the portfolio of measures to support R&D under periodic review.
- Consider the balance of direct funding of R&D between SMEs, where market failures concerning the ability to raise finance are more likely, and larger firms where support is focused at present.
- Improve evaluations of fiscal measures to support R&D. Future evaluations of all fiscal measures should also address whether there are barriers to take-up in service sectors and whether measures encourage firms to become innovative (rather than increasing the extent of innovation taking place within a firm).
- It is important to ensure that R&D tax incentives are well understood by businesses and to provide certainty that they will be maintained at existing levels.
- Continue to monitor the numbers studying, and qualifications achieved, in science, engineering and technology subjects, both at secondary and tertiary levels. If further pressures become apparent in areas where Government has a direct responsibility through funding decisions, then further action should be taken. For example, higher salaries should be considered to deal with shortages of math and science teachers at secondary school.
- The highest priority for improving the absorptive capacity of the workforce with respect to innovation is to raise the low general skill level (Chapter 8), particularly by strengthening vocational training options to retain more students in secondary education.
- In line with the recommendations of the Lambert review, consideration should be given to raising the funding of the universities which have shown a track record of successful collaboration with businesses.
- The independent commission should be invited to consider the benefits of allowing additional resources to flow to the most successful universities by relaxing the cap on university fees. Also further reform of universities should be encouraged, in particular through: streamlining of university governance procedures; closer contact with their alumni; providing clearer guidelines concerning intellectual property rights.

Notes

1. The UK target for R&D intensity is less ambitious than the EU-wide target of raising R&D intensity to 3% (from a current level of 2%) set by the Barcelona European Council.
2. Guellec and van Pottelsberghe (2001) find that a 1% rise in the business R&D stock produces a 0.13% rise in the growth of multi-factor productivity and the OECD *Growth Study* (OECD, 2003) finds a positive effect on per capita GDP growth from BERD intensity.
3. In a 1999 survey almost half of engineering employers reported that they could not recruit graduates with the technical skills required (DfEE, 1999).
4. Although the United Kingdom participated in CIS3 for data confidentiality reasons it only provided aggregate data to Eurostat, hence many of the more detailed survey responses are not available for the United Kingdom from EU databases.
5. This consists of money paid or received for the acquisition and use of patents, licences, trademarks, designs, know-how and closely related technical assistance and for industrial R&D carried out abroad.
6. Another example of strong performance in softer innovation indicators in the service sector concerns the introduction of new-to-firm products (rather than new-to-market products). The 2004 European Innovation Scoreboard suggests that whilst the proportion of manufacturing firms introducing new-to-firm products was among the lowest in the EU at 7% (compared with an EU15 average of 21%), the proportion of service sector firms introducing new-to-firm products was the highest at 22% (compared with an EU15 average of 15%).
7. Tesco, the UK retail chain, is often cited as a leading example of innovation in Europe, for example through the use of a clubcard loyalty scheme, a successful online operation and ventures into deregulated areas such as financial services, pharmaceuticals and telecommunications.
8. High technology manufacturing industries are defined as: pharmaceuticals; aircraft and spacecraft; office, accounting and computing machinery; radio, television and communications equipment; and medical, precision and optical instruments. Medium-high technology manufacturing industries are defined as: electrical machinery and apparatus n.e.c.; motor vehicles; chemicals excluding pharmaceuticals; railroad and other transport equipment; machinery and equipment n.e.c.
9. A similar decomposition analysis based on a different data set – namely the Department of Trade and Industry's (DTI) "R&D Scoreboard" which uses data from published company accounts of the top 700 international companies by R&D investment – finds an even greater role for industry mix effects in explaining the gap with major competitors; see Turner and Lundsgaard (2005) for further details.
10. Much of the increase in US service sector R&D has taken place in the wholesale and retail sector, which may be a result of large manufacturing firms relocating production offshore, but leaving behind a residual R&D and sales function in the United States, which for statistical purposes is classified in the retail and wholesale sector. However, in the UK the R&D would still be allocated to manufacturing suggesting that up to one-third of the difference in service sector R&D intensity could be illusory (HM Treasury and DTI, 2005).
11. OECD calculation based on the range of estimated coefficients reported in Becker and Pain (2003).
12. Part of the explanation for this is that much of government direct funding of R&D is directed towards defence where large firms dominate, although this is also true for the United States and France.
13. Based on OECD (2005a), Annex 3 equation (3) of Table A3.1.
14. The number of SMEs claiming R&D tax credits was nearly 4 500 in fiscal year 2002 alone, whereas the total number of firms (mostly SMEs) claiming the R&D grant (previously the SMART scheme) since the launch of the programme in 1986 is about 2 400.
15. Universities are independent institutions with charitable status, although the government provides the majority of support for teaching as well as the two largest streams of research funding, through a dual support system. The largest stream of research funding comes from the Funding Councils and is known as quality-related (QR) funding and is allocated according to a peer review process of past performance measured by the Research Assessment Exercise. The second part comes from Research Councils mostly in the form of project grants allocated to particular researchers in response to proposals to carry out particular pieces of work.

16. In particular this is so for science and engineering PhD graduates who play a central role in business sector R&D. Only Sweden and Switzerland have more PhD graduates in science and engineering relative to the size of the youth cohort.

17. This is quite different from the situation in the early 1980s when only the United States had a larger share of business sector researchers than the United Kingdom. Since then the UK share of business sector researchers has declined by a quarter, while it has grown in all other OECD countries.

18. Among US residents born in the United Kingdom, six in ten have taken tertiary education, compared to three in ten among the UK population. And among recent arrivals, 5% have a PhD, compared to only 1.6% of the UK youth cohort that graduate as PhD.

19. Information based on the 1990 US census.

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Chapter 8

Raising the level of skills

Lack of skills in large parts of the workforce is a key factor holding back the capacity to absorb innovations and adapt work processes to take advantage of new technologies. While the supply of university graduates compares well internationally, there is a lack of intermediate and vocational qualifications even for the current youth cohorts. Following on from the Survey's chapter on innovation, this chapter aims to disentangle the root causes of the shortfall of intermediate skills and examines the options for improving the education of 14-19-year-olds as well as developing adult training. Given the magnitude and entrenched nature of the skills shortfall, a wide set of measures is needed. Stronger basic literacy and reduced school truancy should give a better foundation for further learning. Building on this the offer and quality of intermediate and vocational training should be improved to raise its low esteem. Clearer economic incentives to accumulate human capital would also help.

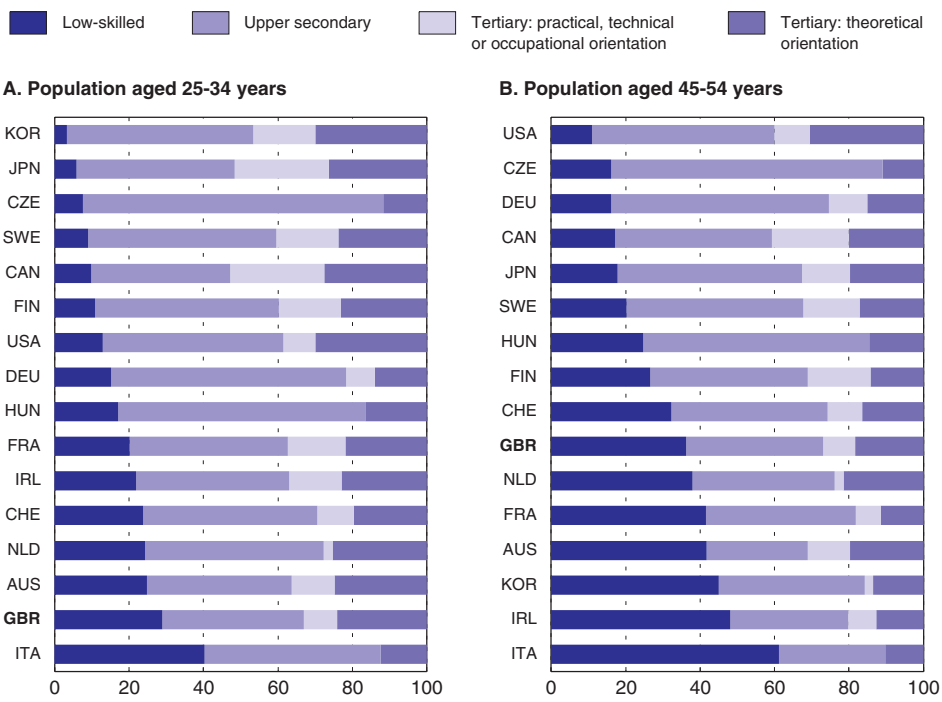
Diagnosis of the skill shortage and its causes

Making and adopting innovations requires human resources, not only in terms of scientists and researchers, but also in terms of a skilled workforce capable of implementing new work processes and tailoring products and services to specific customer needs. And technical innovations often go hand in hand with organisational changes involving decentralisation of responsibility, de-layering of managerial functions and increased multi-tasking which typically require additional skills (Caroli and Van Reenen, 2001). Compared with other countries, the major weakness in the United Kingdom is the remarkably high share of the workforce having little or no formal qualifications beyond compulsory schooling: 29% of the 25-34-year-olds are low-skilled, a considerably larger share than in most other OECD countries (Figure 8.1). And many adults lack the most basic literacy skills.

The obvious policy response would seem to be to expand education and training strongly at the intermediate level, but it may not be that easy. At university level,

Figure 8.1. **Educational attainment of the adult population**[1]

2003[2]



1. "Low-skilled" comprises persons having primary school, lower secondary school or ISCED 3C short programmes as their only formal qualification. Upper secondary includes post secondary non-tertiary programmes. Tertiary type A includes type B for Czech Republic, Hungary and Italy.
2. 2002 for Italy.

Source: OECD (2005), *Education at a Glance*.

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enrolment expanded rapidly during the 1990s and with graduate contributions more resources will now be made available. Conversely, developments at the intermediate skill level have lagged far behind. In particular, the disengagement of one in ten 16-18-year-olds being neither in education, employment or training has officially been described as a "scandal" (DfES, 2004). Of 28 OECD countries, the United Kingdom has the 5th lowest school enrolment rate of 17-year-olds, and among the 12 OECD countries with a compulsory school-leaving age of 16 it has the lowest enrolment rate of 17-year-olds, except New Zealand (OECD, 2005a).[1] The government's long-term aim is that all young people continue in learning until at least the age of 18, and a more specific target is for educational participation at age 17 to rise from the current 75% to 90% over the next ten years. This is a very ambitious target, as the participation rate at age 17 has been broadly stable over the last ten years, and achieving it is likely to be an uphill struggle as some basic economic structures and entrenched attitudes will need to be addressed. The Government has asked Lord Leitch to review the future skill needs of the UK economy to support productivity, economic growth as well as social objectives. The review, due to report in Spring 2006, aims to collect evidence so that Government can gauge the desired workforce skill composion by 2020 and derive implications for current skills policy.

Skill demand in the labour market is growing…

Skills matter a lot for labour market outcomes. People lacking formal qualifications have less chance of being employed, as over 4 in 10 are inactive compared with less than 2 in 10 for the remainder of the population. Apparently, many are not sufficiently capable in a modern workplace and presumably all the more so in the case of innovative firms. Average gross hourly earnings are almost twice as high for people with university education as for people without any formal qualifications, but there are also considerable differences between different levels of vocational qualifications (Table 8.1). In recent years, there has been a marked shift in the composition of working age adults towards higher educational attainment. In particular, the number of persons with a Master or PhD has grown by almost 50% since 1998, but despite this rapid expansion in supply, the compression in the earnings differential has been modest with gross hourly wages rising 5% from 2001 to 2004 for people with a university degree compared to 10% for the working age population as a whole, leaving a differential of over 30%. And while the number of low-skilled contracted and the number of intermediately skilled grew, their relative hourly pay remained unchanged. This indicates that the demand for intermediate and highly trained staff has increased considerably alongside the expansion of supply.

These labour market trends, together with findings from studies based on micro data (Box 8.1), are suggestive of what competencies are in growing demand and what sort of intermediate and vocational qualifications are most valued:

- Sizeable economic returns in terms of higher wages for persons having a university degree are consistent with the hypothesis that abstract cognitive and problem-solving abilities are increasingly demanded by businesses.
- There appears to be a threshold effect so that vocational programmes need to have a certain length and lead to a professional competence that is clearly recognised by employers before eliciting substantial economic benefits in terms of higher wages.
- Vocational training appears to be more effective if having *some* connection with a workplace compared with purely school-based programmes.

Table 8.1. **Formal qualifications, earnings and labour market status**

England, working age population,[1] 2004

	Number of persons		Average gross hourly earnings[2]		Labour market status, %[3]		
	Million	% change since 1998	£	% change since 2001	Employed	Unemployed[4]	Inactive
Highest level of qualification[5]							
5 Masters, PhDs and equivalent	1.6	+46			88	2	10
4 First degree and sub-degree higher education and equivalent, e.g. teaching and nursing	6.4	+16	14.97	+5	86	3	11
3 Advanced level of vocational or academically oriented qualifications[6]	5.9	+12	10.50	+11	78	3	19
2 Vocational or academically oriented qualifications[7]	6.6	+2	9.41	+10	75	4	20
< 2 Basic vocational qualifications[8]	5.9	–6	8.77	+9	72	5	22
– No formal qualifications	4.1	–15	7.65	+14	51	6	43
Total working age population	30.4	+3	11.29	+10	75	4	21

1. Working age is defined as males aged 16-64 and females aged 16-59.
2. Full-time employees. Average gross hourly earnings for trade apprenticeships are excluded from levels 2 and 3 and amount to £10.15.
3. Percentages may not add up to total due to rounding.
4. ILO definition.
5. Following the UK National Qualification Framework. The correspondence with the categories shown in Figure 8.1 is the following: levels 5 and 4 are "tertiary", level 3 and part of level 2 are "upper secondary" and the rest of level 2 and below are "low-skilled".
6. Includes RSA Advanced Diploma, BTEC Nationals, ONC/ONDs, City and Guilds Advanced Craft or trade apprenticeships, Access to HE, Advanced GNVQs, more than one GCE A level, 4 or more AS levels or SCE Highers/Scottish, Certificates of Sixth Year Studies (CSYS) at level 3. Typically attained at age 18-19.
7. Includes RSA Diplomas, City and Guilds Craft, BTEC Firsts or trade apprenticeships, one GCE A level, 2-3 AS levels, five or more GCSE grades A*-C or equivalent/SCE Highers/CSYS at level 2. Typically attained at age 16-17.
8. Includes BTEC general certificates, YT certificates, other RSA qualifications, other City and Guilds at level 1, one or more GCSE grade G or equivalent, Key Skills qualifications.

Source: DfES (2005), "The Level of Highest Qualification Held by Young People and Adults: England 2004", *First Release*, SFR 06/2005, ONS, February.

... but several factors discourage young people from improving qualifications

Financial incentives to up-skill may be weakened by taxes and benefits

The clear earnings differentials pose a puzzle as to why more people do not seek to acquire at least intermediate skills to raise their income. Persons at the median earned 80% more than persons at the 10th percentile of the distribution of gross earnings among the full-time employed in 2002, which is a somewhat larger difference than for most European countries, although smaller than for Canada and the United States[2] (Table 8.2). However, the incentives to acquire human capital are weakened for some low-income groups by benefits and tax credits tapering off rapidly as income rises. The gain in terms of higher *net* earnings from taking education and achieving higher *gross* earnings can therefore be rather limited in some cases.

A teenager considering whether to leave school at 16 to seek work or continue in education might be looking at income of the parents, relatives or friends to get an idea about whether education pays off. If the teenager compares singles or couples without children, education certainly does pay off, as the 70% marginal effective tax rate only extends up to a bit above full-time earnings at the minimum wage of £5.05 an hour (equal to slightly less than 50% of the average production worker's earnings). Thereafter people retain two-thirds of every extra pound earned as a result of better qualifications. But if comparing couples with children or sole parents, the picture is less encouraging. Because the child and working tax credits are large for families, their withdrawal extends over a

Box 8.1. **Studies of economic returns to vocational qualifications in the United Kingdom**

Detailed studies of the economic benefits from taking a vocational programme that control for the effect of individual characteristics, industry, etc. find significantly higher earnings for some programmes giving qualifications at level 2 only (typically corresponding to age 17-18 if pursued right after compulsory education). Compared to someone without any formal qualifications, Dearden *et al.* (2004) find that wages are 5-20% higher for City and Guild Crafts, First Diploma from the Business and Technology Education Council and the Royal Society of Arts, as well as for trade apprenticeships and modern apprenticeships. However, puzzling results appear for the National Vocational Qualification (NVQ) certificates that can be obtained either as a certification of skills associated with work experience and employer-provided training or as college-based programmes. Here Dearden *et al.* (2004) find that in most fields the wages earned by persons holding an NVQ2 are equivalent or *lower* than for otherwise similar persons. However, there are statistically significant positive returns with *higher* wages for some sectors and occupations including women in public administration, education and health (3-8%) and for male plant and machine operatives (5-7%). And if considering only NVQ2s obtained based on work experience and employer-provided training, then returns are positive whereas they appear to be negative when an NVQ2 is obtained *via* a college-based programme. Finally, the earnings effect of obtaining an NVQ2 qualification is considerably greater for individuals who showed limited cognitive abilities as children or come from a low-status family background. This raises the question as to whether this group is particularly vulnerable when leaving school at 16 without any professionally-oriented diploma, and it suggests that the "second chance" of learning provided by the NVQ is more important for this group than for others. Some gender differences exist in particular for apprenticeships where McIntosh (2004a) finds a 7% increase in earnings for men with an apprenticeship, but no evidence of positive effects for females. In all of these studies, the estimated returns do not take account of the opportunity cost of time when studying, a point emphasised by Sianesi (2003).

The finding of *modest* gains associated with vocational qualifications at level 2 is corroborated when examining employment rates (McIntosh, 2004b). Those who leave school with no qualifications can improve their employment chances through the study of vocational qualifications. Of those males who were unemployed before undertaking a vocational qualification at level 2, 36% moved into employment, compared to only 28% of those who remained unqualified. Of those males who were inactive before gaining their level 2 vocational qualification, 19% entered employment, compared to 13% of the group which remained unqualified. However, 44% of males and 46% of females who leave school unqualified never engage in learning in later life.

Analysis of the economic aspects of education and skill formation are made difficult by a shortage of labour market data on skill categories. While the Office for National Statistics (ONS) produces a wealth of high-quality statistics on, for example, weekly and hourly earnings broken down by industry and occupational categories, there is much less data on the employment situation and earnings by educational attainment, not to mention the possibility of following outcomes for individuals over time. Developing such data could help inform policymaking in an area that is increasingly seen as vital for economic growth.

wide income interval. The marginal effective tax rate of 70% faced by a couple with two children and with both parents earning two-thirds of the income of an average production worker (APW) is considerably higher than in other OECD countries (Table 8.2). Moreover, when also considering the coverage of childcare costs by the working tax credit, withdrawal extends further up the income scale, and with one parent earning 67% of APW, marginal effective tax rates only fall from 70% to 33% when the other parent earns over 115% of an APW, assuming typical childcare costs. Or if one parent works full-time with average earnings for level 3 qualifications (having left school at 19), the difference in family *net* earnings of the other parent having similar qualifications *versus* having left school at 16 with no formal qualifications is only £34 per week or 7% of disposable earnings net of childcare costs despite a difference in *gross* earnings of £114 per week.[3] For sole parents as

Table 8.2. **A wide earnings distribution is counteracted by high marginal effective tax rates**

2004 for United Kingdom, 2002 for other countries

Earnings distribution[1] (2002, decile ratios)			**Marginal effective tax rates for different earnings levels** (% of APW)[2] ***not* including withdrawal of childcare benefits**							
				Single person				Two earner couple with 2 children[3]			
	90/50	50/10		50%	67%	100%	150%	50%	**67%**	100%	150%
Hungary	2.29	2.15	Korea	9	11	12	26	7	**11**	12	24
United States	2.28	2.05	Japan	21	21	22	30	21	**21**	22	30
France	2.01	1.56	Ireland	20	24	26	48	20	**24**	26	26
Korea	1.98	2.02	Czech Republic	26	26	30	30	26	**26**	30	30
United Kingdom	**1.97**	**1.80**	Switzerland	23	23	31	32	26	**28**	30	30
Ireland	1.92	1.70	United States	29	29	29	41	29	**29**	29	41
Canada	1.86	1.99	Canada	29	29	36	33	29	**29**	36	33
Australia	1.84	1.67	Australia	33	31	31	49	33	**31**	31	49
Japan	1.84	1.62	Italy	43	32	39	39	43	**32**	39	39
Germany	1.80	1.69	Sweden	36	38	30	52	36	**38**	30	52
Switzerland	1.78	2.14	Finland	74	40	46	51	36	**40**	46	51
Czech Republic	1.76	1.68	Hungary	25	40	40	50	24	**40**	40	50
Italy	1.74	1.38	France	17	48	33	36	24	**42**	33	30
Finland	1.71	1.44	Germany	50	50	57	58	46	**54**	57	46
Sweden	1.65	1.38	**United Kingdom**	**70**	**33**	**33**	**33**	**70**	**70**	**33**	**33**
			United Kingdom if including withdrawal of working tax credit's childcare credit[4]								
				Single person				Sole parent with 2 children			
			One earner	70	33	33	33	89	70	70	70
				Couple without children				Couple with 2 children			
			One earner	70	33	33	33	89	70	70	33
			Two earner[3]	33	33	33	33	70	70	70	33

1. 1996 for Italy, 2000 for Hungary and Ireland. Full-time gross earnings except for France where the data covers net earnings.
2. Marginal effective tax rates (METRs) measure the extent to which taxes and benefits reduce the financial gain from work, *i.e.* what part of any additional earnings are "taxed away" through the combined effect of increasing tax and decreasing benefit. The calculation is as follows:
   METR = 1 – (net income 2 – net income 1) / (gross income 2 – gross income 1).
   where gross income 2 = gross income 1 + "margin" (+1 percentage point of APW earnings).
   Earnings in work are expressed as a percentage of the APW earnings and exclude social assistance.
3. The one spouse's earnings are held fixed at 67% of APW; the other spouse has current earnings of the amount specified.
4. As in chapter 5 full-time childcare costs of £140 per week are assumed.

Source: OECD, Tax-Benefit Models and Earnings databases, April 2005 and calculations based on information from the Department for Work and Pensions.

well as for couples incurring the maximum childcare costs covered by the working tax credit, the 70% marginal effective tax rate extends up the earnings scale to well above 150% of APW earnings.

How important future earnings prospects are for the education choices made by teenagers and low-skilled adults is hard to know and there is no firm evidence, but at a minimum the calculations above could point to a *potential* problem. For those adults who are functionally illiterate and for school-tired teenagers with problems of truancy, incentives related to future earnings are *not* likely to matter much since more fundamental factors keep them from acquiring intermediate skills. But for others, it may be an impediment.

Optimising the tax and benefit structure involves an unavoidable trade-off between the financial reward for being in work rather than unemployed or inactive *versus* the incentive for low-income groups to progress to higher earnings once they are in employment. Because taking the income level provided for people out of work as a given, moving into work can only be rewarded by improving the financial outcome for low-income workers by reducing their effective income taxation such as *via* in-work tax credits. To secure government revenue, taxes for average and high-income earners cannot be reduced also, meaning that people progressing up the income scale will see much of their income gain being taxed away. There are currently about 1.75 million households facing marginal effective tax rates of 70% or more, although this is only around 11% of all working households. A positive aspect of high marginal tax rates is, however, that on-the-job human capital investment is effectively "co-financed by the tax authorities". If a person joins employer-funded training in return for lower gross wages, then he or she only carries 30% of the gross income loss, as the remaining 70% are matched by lower tax payments and less withdrawal of the working tax credit (Lydon and Walker, 2004). This mitigates the disincentives for continued on-the-job training, but only for those eligible for the working tax credit – in practice mostly parents. Persons under 25 and without children, who are more likely to have time for training, are not helped.

The government's priority has been to achieve employment opportunity for all and eradicate child poverty by raising the income level for all families with children including those out of work while maintaining a clear financial reward for going into work in particular for sole parents. This limits the options for reducing marginal effective tax rates, although the introduction in 1999 of the Working Tax Credit that tapers off less steeply than the Family Credit it replaced has removed the worst peaks of marginal effective tax rates (HM Treasury, 2005; Dilnot and McCrae, 2000). But at the same time, larger tax credits to all families with children have extended means testing further up the income scale. The effect of tax credit reforms over recent years for the average couple with children has been to push up marginal effective tax rates by 5 percentage points (Brewer and Shephard, 2004). In contrast with the high rates for families at below-average income, marginal effective tax rates at 33% for high-income groups imply stronger incentives to pursue higher education than in most OECD countries – matching the attainment pattern observed in Figure 8.1 with comparatively many highly educated people but comparatively few at the intermediate skill level. What is special about the UK tax structure is that the resulting high marginal effective tax rates are concentrated at low-to-average income levels. Other countries typically have a smoother profile of marginal effective tax rates. Changing that is ultimately a political choice involving also issues of redistribution. It would be useful to

obtain evidence about how much or how little taxation matters for the propensity of teenagers and adults to make use of the improved education and training on offer.

Quality problems and entrenched attitudes hamper the vocational route

An important precondition for including a wider group in continued learning is that a strong foundation of basic literacy skills is laid during childhood and in school. According to the PISA study, the average literacy of 15-year-olds compared well in international comparison in mathematics, reading and in particular in science already in the 2000 assessment, and also the fraction of 15-year-olds lacking the most basic literacy skills is comparatively low.[4] Moreover, in recent years significant progress has been made in raising standards in poorer performing schools, particularly primary schools, thereby addressing the fairly strong tendency for socio-economic background to determine learning outcomes. The share of 11-year-olds achieving the expected standards in English reached 78% in 2004, up from 48% in 1995, with a similar increase for mathematics, although in both cases the improvement has tailed off in recent years. And with the Sure Start programme targeted at improving the situation during early childhood in disadvantaged neighbourhoods and the substantial additional financial resources allocated to schools since 1998, basic literacy skills of teenagers may be expected to strengthen further in the future. More can be done with respect to teaching methods and in particular to address school truancy. But the important conclusion here is that the relatively low participation in post-compulsory education cannot simply be ascribed to a lack of basic literacy skills, as other countries manage to retain more teenagers in continued learning despite weaker literacy skills at age 15.

The main issue concerning the offer of vocational training appears to be inadequate quality rather than quantity. The lack of a transparent structure, common standards and external accreditation makes current vocational programmes less useful as a stepping stone to further study so that teenagers are pushed towards either academically oriented study or work. The large number and heterogeneous structure of vocational qualifications in itself reduces their value as employers may find it difficult to assess and distinguish the many different diplomas and because teenagers may find the wealth of different programmes confusing and be concerned about ending up with too narrow competencies limiting their choices later on. Moreover, inspections in 2003-04 rated 29% of work-based learning programmes unsatisfactory. The *Apprenticeship* programme (formerly *Modern Apprenticeships*) goes a long way to remedying these problems. It provides structured on and off the job training covering occupational competence, supporting academic knowledge and key or functional skills. In 2003-04 7.9% of 16-18 year-olds were in work-based training, of whom more than four-fifths were in apprenticeships.

This is reinforced by an educational tradition of focusing on academically oriented qualifications which have higher prestige than vocational qualifications (Unwin *et al.*, 2004). This is illustrated by the fact that among those in the current workforce who have upper secondary education as their highest formal qualification, almost half (15% of the 25-64-year-olds) have ended education with an academically-oriented programme designed to prepare for university entry, such as A-levels, without actually succeeding with further studies. Finally, inertia in the attitude of some parents and social environment appears to play a role with expectations for 16-year-olds to find a job rather than continuing school. This is demonstrated by the very different shares staying on in education post 16. They are over 81% for the main ethnic minority groups and particularly high for Asians *versus* just 69% for whites.

Dealing with the skills shortage

Reforming vocational qualifications to raise their value and prestige

The Government has announced a wide-ranging reform of vocational programmes for students aged 14-19 years (Box 8.2). Employers have welcomed the proposed reform of diplomas, as it will help equip young people with work-relevant skills. Both educationalists and business representatives, however, remain concerned that the reform will not succeed in upgrading vocationally-oriented programmes *vis-à-vis* the academically-oriented programmes. An important reason is that top universities are expected not to accept applicants with one of the new specialist diplomas which could lead schools to advise students to focus on getting the academically-oriented A-levels in case they want to apply for university.[5] Working with universities to ensure that it is at least well defined what additional course elements are required for subsequent university entry will therefore be crucial.

Given uncertainty about how universities will value future vocational diplomas, it is important to address quality shortfalls. Overall, the level of resources available for secondary education per student is roughly comparable to that in other OECD countries, but quality can be improved without adding more public funding. In particular, the 200 city academies being built now in disadvantaged neighbourhoods with intensive involvement

Box 8.2. **Upgrading and expanding vocationally-oriented programmes for the 14-19-year-olds**

In February 2005, the Department for Education and Skills published a white paper on education and skills for the 14 to 19-year-olds (DfES, 2005a). The government's aims are: *i)* to tackle the low post-16 school participation with the target that participation at age 17 increases from 75% to 90% over the next ten years, *ii)* to ensure that every young person has a sound grounding in the basics of English and mathematics and the skills they need for employment, *iii)* to provide better vocational routes and diplomas which equip young people for further learning and employment, *iv)* to give all young people challenging opportunities, and *v)* to re-engage the disaffected.

The white paper proposes a wide-ranging reform of the vocationally-oriented programmes, introducing 14 lines of specialist diplomas at two levels: intermediate for students aged 14-17 and advanced for students aged 16-19. Each diploma builds on a combination of core courses like English and mathematics, courses like design and science, and optional specialised elements like electronics, Spanish and media techniques. The Sector Skill Councils are to determine the content required for each of the 14 diplomas of which the first four will be available in 2008: information and communication technology, engineering, health and social care, and creative and media.

As part of the planned expansion and improvement of vocational education Sir Andrew Foster has been invited to carry out a review of the role of the further education sector in delivering the skills and learning the nation needs. The purpose of the review will be to identify the distinctive contribution further education colleges make to the learning and skills sector; their long-term contribution to economic development and social inclusion; and what more needs to happen to transform the sector in line with the vision in the 5 *Year Strategy for Children and Learners*. In particular, this includes the reform agenda for colleges in meeting the requirements of the 14-19 and adult skills strategies. It is due to publish its report on 2nd November 2005.

of businesses, including sponsorships, are an interesting start in this respect – provided that their teething problems get resolved. While one of the first academies has experienced severe problems of teacher absence, poor management and financial distress, others have clearly improved learning outcomes, and the Government intends to continue the programme (DfES, 2005b). By their visibility as state-of-the-art institutions, city academies could break the entrenched poor reputation of vocational qualifications and *via* their close links with business help employers to get a better understanding of the qualifications offered by new vocational programmes and diplomas. Indeed, contacts between businesses and schools must be an important element in all reforms of professionally oriented training, because in a context of rapidly changing technologies and business practices, such close contact is crucial to ensure that courses are kept up-to-date and relevant from the perspective of future employers. Secondary schools specialising in one or two subjects, as encouraged by Government, will also help develop business contacts. Improving the information and career guidance available to teenagers is another important element – a point also raised by employers' organisations. The recently published green paper, *Youth Matters* sets out reforms to improve information, advice and guidance to young people on careers and other important issues such as health. The green paper's proposals give a stronger role for schools and colleges in commissioning services locally.

The government's reform proposals depart from the more radical recommendations made by the *Tomlinson review* (DfES, 2004) which also placed emphasis on vocational training, but advocated having a single type of diploma merging academic (GCSE and A-levels) and vocational qualifications. The diploma would be made up of modules which would be adapted from the existing A-level and GCSE modules, with students being able to pick their own combination or opt for one of 20 pre-designed combinations with the aim of giving stronger and more respected vocational qualifications. Students would be able to progress at their own rate, implying mixed-age classes. Arguably, by addressing the discontinuous nature of the present system, whereby many pupils who fail to achieve satisfactory results in GCSE at age 16 are discouraged from continuing in education, it might have helped raise post-compulsory participation rates.

A more draconian measure would be to make education compulsory beyond the age of 16. In Germany and the Netherlands, schooling is compulsory until the age of 18, and enrolment rates are higher than in the United Kingdom also at age 19, possibly reflecting that the longer compulsion entrenches a culture of inclusion. But enrolment rates of 19-year-olds are also higher in a number of countries (Australia, Czech Republic, Ireland, Korea and Switzerland) where compulsory education ends at 14 or 15 years, demonstrating that compulsion is not the only way forward. Indeed, motivation is crucial to learning. Students actively choosing to continue education because it is thought to be important to get a well-paid job are likely to learn more than reluctant students who are compelled to attend against their will.

Probably a better alternative is to consider *part-time* compulsion obliging all teenagers not in education and whether in employment or not to take part in some form of training for one or two days a week. For those in employment, the choice of course content should be linked to the workplace as much as possible and the obligation could be met by taking part in training organised by the employer for all staff. For employers that do not organise any training, this part-time compulsion would imply an obligation to give teenage

employees time off to participate in training elsewhere. There already exists a statutory right to paid time off to study or train for 16 and 17 year olds in employment.

Strengthening the training offer for adults already in the workforce

The Government targets a 40% reduction in the number of workforce adults having less than the basic level 2 qualification between 2001 and 2010, a fifth of which had been achieved in 2004 as 72% of the adults in the workforce were qualified to at least level 2. With a changing age structure of the workforce and with 55% of those of working age being over 40, it will not be sufficient to rely on the inflow of young people to meet skill needs. In this context, the Government has issued a second skills white paper in spring 2005 emphasising the ambition of forging a learning culture and strengthening the dialogue with business, *e.g. via* Sector Skills Agreements in addition to efforts to improve training supply (DfES, 2005c). Already today there is wide and frequent participation in adult learning. According to surveys, three quarters of those aged 20-59 participated in vocational learning in the last three years, and about a third report that they have received job-related training in the last three months. In addition the United Kingdom is one of the OECD countries where employees spend most time in employer-sponsored training and education: a total of 30 hours a year on average in 1996 (OECD, 2004a, 2004b and 2005b).

A key element in the expansion of adult training is the National Employer Training Programme to be established across England from 2006-07 following 18 pilots introduced in 2002. The programme offers training typically at the workplace and is focused on the least skilled with public funding of the full cost of brokers and training of employees in basic literacy skills and up to the first full level 2 qualification. In return, employers offer time off at work for participating employees, although about half of all training hours have been covered by publicly-funded wage compensation during the pilot phase, with small and medium-sized enterprises typically receiving complete wage compensation.[6] Evaluation of the pilots during the first two years has found that while nine out of ten participating employers and employees are satisfied, it is a cause for concern that learners are often not able to identify specific benefits and abilities acquired during training, although they become more interested in further training. Similarly, employers become more positive in their attitudes to training following involvement with the training programme and say they are more likely to train less-skilled employees. However, the programme seems to entail considerable deadweight costs as most employers reply that they would have provided the training in any event (DfES, 2005c). This indicates that the extensive compensation of wage costs is too generous and that limiting public funding to free provision of training and brokerage would give employers and learners incentives to keep training focused on skills that are work-place relevant and improve employability as they have to contribute to costs *via* foregone earnings or foregone spare time, as also recommended in the previous *Survey* (OECD, 2004a). When implementing the national programme from 2006-07, wage compensation should be used only sparingly as an icebreaker, helping to create a culture of learning also within the hardest-to-reach firms.

Improving the financial incentives to acquire skills

A recent policy initiative to provide a financial incentive to students aged 16 to 18 from lower income backgrounds to continue in post-compulsory education is the *Education Maintenance Allowance,* which, after successful pilots, was rolled out nationally in September 2004. It pays £30 per week to students continuing in full-time education if

household income is below £19 630 a year (equal to the gross earnings of an average production worker) and lower rates for household income up to £30 000 a year. In addition a £100 bonus is paid in January and July each year, plus in September/October for those who return to learning after the summer holidays. It can be claimed for three years plus an extra year for vulnerable groups (HM Treasury, 2004). In the pilot projects, participation in education increased by 6 percentage points among the eligible young people, half of whom would otherwise have gone into the "NEET" group (those not in education, employment or training). Interestingly, the evaluation found that paying a higher amount (£40) did *not* have a larger effect indicating that the symbolic value of being paid *something* is at least as important as the actual amount. Also, the allowance was found to raise participation in education twice as much when paid directly to the student than when paid to parents (Middleton *et al.*, 2003). The national rollout is expected to increase overall participation in education by 3 percentage points for the age group.

The Education Maintenance Allowance should be seen in a context where many teenagers may be attracted to leave school by the higher immediate disposable income they can achieve by working. For a single person on low income, the average tax rate is 5 to 10 percentage points lower than in most other OECD countries. Foregoing lightly-taxed income as a teenager reduces the attractiveness of continuing in vocational training post-16, on top of the disincentives from high effective marginal tax rates faced later on when the person has completed vocational training and moved away from the parents to live on their own, thereby becoming eligible for housing benefit and for working tax credit when having children. Following the same rationale of the Education Maintenance Allowance, changes could also be made to the tax system to balance these disincentives. For example, reducing the personal allowance in income taxation for persons younger than 19 by £1 000 to £3 615 a year would reduce net disposable income by 5% for teenagers taking a full-time job paying around 40% of the average production wage, thereby making continued education or training financially more attractive. It would also make apprenticeships more attractive because, as the Government aims for a lower minimum pay level for apprentices of £70-80 a week, their income would remain almost entirely tax free whereas any additional earnings would be taxed at 20-32%. When considering equity issues, it is worthwhile noting that for a couple with two children and one of the spouses being at home and not receiving any transfers, the working spouse has to earn at least 125% of APW pay before net income per person reaches that of a typical working 16-year-old.[7]

The introduction of a national minimum wage of £3 an hour for 16-17-year-olds since October 2004 should be monitored closely with respect to its impact on post-16 education enrolment. When recommending this measure, the Low Pay Commission's assessment was that at such a level the minimum wage would not make employment too attractive relative to schooling (Low Pay Commission, 2004). What is also important is that employers see a sufficiently clear incentive to offer apprenticeships to benefit from below minimum wage staff. Apprenticeships are exempted from the £3 per hour minimum wage, and the Government is working to achieve minimum pay levels for apprentices of £70-80 a week.

The Government will be piloting new Activity and Learning Agreements to help young people back into education or training from April 2006. The *Activity Agreement and Allowance* pilot scheme is aimed at 16 and 17-year-olds who have dropped out of education and who are not in employment (so called NEETs). They will be offered financial support in return for committing to a plan to reintegrate into education or training, including work-based

training. A separate *Learning Agreement* pilot scheme builds on the existing statutory right to paid time off to study or train for 16 and 17-year-olds who are in work, but not receiving accredited training. The initiative will test the effectiveness of a range of financial incentives in encouraging employers and employees to take up this offer.

Summary and conclusions

The intermediate and vocational skills that are often needed in a modern workplace appear to be lacking and represent an impediment to the economy's capacity to absorb innovations and an important explanation for the productivity gap with major competitors. Changing this is essential, but not easy, as witnessed by the fact that the share of teenagers that continue in education or training when compulsory school ends at age 16 has remained stubbornly flat for a decade, so that the lack of intermediate and vocational skills in the workforce is perpetuated. This persistence partly reflects entrenched attitudes and a large divide in the prestige attached to vocational and academic education than seen in other countries. That is hard to address directly by policy, but there are things that policy can and should do (Box 8.3).

Reforms should aim at simplifying the current very mixed array of vocational programmes and diplomas. The government's white paper on the educational offer for 14-19-year-olds implies a significant step towards simpler and more up-to-date specialist diplomas providing the students with better pathways later on.

Another policy handle is to improve financial incentives to continue schooling or undertake training. This is demonstrated by the success in pilot areas of the *Education Maintenance Allowance,* in encouraging students aged 16 to 18 from lower income backgrounds to continue in post-compulsory education. Also important, but more difficult, is to reduce the marginal effective tax rates for low-income adults with children, which are still higher than in most OECD countries, so as to better allow market signals about demand for intermediate skills to feed through to net earnings. This can be achieved by making the working tax credit and child tax credit less generous, but tapering off more gradually. Such measures can be crafted in a way that can help finance increased spending on training. Matching better provision of training for low income groups with less generous tax and benefit treatment is fair because when lifting sufficiently many people from low to intermediate skill levels, earnings are likely to increase for those who are left in the low-skilled group – a tendency observed in recent years with the least qualified experiencing the strongest earnings growth from 2001 to 2004. A scheme where learners contribute individually to financing an expansion of vocational training in a way similar to the graduate contribution scheme introduced for higher education cannot be recommended, precisely because at the outset marginal effective tax rates are high at low income levels, whereas they are fairly low at high income levels.

But are incentives enough or should compulsion be considered as a way to address the entrenched skills shortages? Indeed the government's long-term aim that *all* young people continue in learning until at least the age of 18 is well taken. To achieve this, improvements in quality of the vocational offer have to come first to improve the reputation and social esteem of vocational programmes. Improving quality of the vocational offer *before* considering whether to extend compulsory schooling is essential because a too-early extension of compulsion could lead to additional classroom disruption that would cement the current divide between a high-esteem academically oriented route and a low-esteem

vocational route. A place to start would be to oblige all teenagers to take part in some form of training at least one or two days a week and at the same time obliging employers to give time off for training while keeping the minimum wage for 16-17-year-olds at a low level, so that increased requirements do not lead to higher youth unemployment.

Box 8.3. **Recommendations for skills to promote innovation and growth**

- Continue to improve basic literacy and numeracy in schools to provide a stronger foundation for continued learning. Tackling school truancy is essential.
- Develop more relevant and higher-quality vocational programmes. Continue to establish city academies to raise the profile and esteem of education at the intermediate level with links to local businesses. Resolve the academies' teething problems.
- Pursue the direction set out with the white paper on education for the 14-19-year-olds to unify the current mixed array of vocational programmes into a limited number giving clearer options for further progression. Work with universities to maximize recognition of the new vocational diplomas.
- Let the National Employer Training Programme grow, with full public subsidies for training costs, but use wage compensation only sparingly as an "ice breaker" helping to create a learning culture also within the hardest-to-reach firms.
- Be attentive to the effects of disincentives to acquire human capital resulting from high marginal effective tax rates for below-average income persons. If for example national insurance contributions were to be raised in the future, adjustments of the working tax credit and child tax credit might become necessary.

Notes

1. The low average enrolment rate in New Zealand is mainly due to the very low enrolment rate of certain ethnic minority groups such as the Maori population.
2. Among other factors, this relatively large earnings differential reflects that persons with a limited earnings potential are more likely to be employed in the United Kingdom than in many European countries where high transfer incomes create unemployment traps.
3. Calculation based on the average earnings indicated in Table 8.2 and assuming childcare costs for the two children jointly of £140 per week.
4. In the PISA 2003 study, the share of schools responding was not sufficient to ensure the high standard of statistical reliability required for cross-country comparability, or for comparisons between years.
5. A few days after the government had released its white paper, the Vice-Chancellor of Oxford University told the parliamentary Education Select Committee: "We typically do not accept vocational qualifications." And leaders of the association of secondary school headmasters have been surprisingly outspoken, saying that the reform would simply affirm the second-class status of vocational qualifications (*The Times*, 7 March 2005). Employer's organisations have expressed similar views.
6. On average, wage compensation has amounted to £260 per individual under the pilot scheme, equal to 50 hours claimed at a rate of £5.20. It is estimated that it takes about 100 hours for a learner to complete an NVQ course.
7. For somebody leaving school at age 16 to take a full-time job paying £4 an hour, gross earnings amount to £7 200 a year, equalling 37% of the average production worker's earnings. That is not a lot, but when paying almost no taxes, net disposable income reaches £130 a week. With a personal annual allowance of £4 615 a year, £1 920 is taxed at a rate of 10% and the remaining £665 is taxed at 22%, implying total income taxes of £338. Adding to this national social security contributions

being 10% of earnings in excess of the personal allowance, *i.e.* £258, the average income tax rate is still merely 8.3%. These calculations and the comparisons with the single earner family are based on the OECD tax and benefit model for the United Kingdom (OECD, 2004c) with information on 2002 tax rules and on the assumption that each child's consumption equals half of an adult's.

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ANNEX A

Progress on structural reforms

This annex provides a compendium of recommendations carried forward from the previous *Economic Survey*, finalised in January 2004, and records what actions have been taken since then together with an updated assessment and current recommendations as appropriate.

Housing

Previous Survey

- Reconsider use of Section 106 of the 1990 Planning Act whereby local authorities negotiate with developers for a proportion of the planning gain.
- Reform the council tax to relate it more closely to current valuations of property and make it less regressive.
- Reform the planning system to speed up and simplify the planning process and involve less layers of bureaucracy.

Policy actions taken and current assessment

- Major changes to the planning system have been introduced by the Planning and Compulsory Purchase Act 2004. The Government has also published a new circular on planning obligations (section 106 agreements).
- A further phase of planning reform is planned in response to the *Barker review*. This includes a response to Kate Barker's recommendation for a Planning-gain Supplement (PGS) to capture a portion of the uplift in value accruing to land during the development process to fund enhanced investment in social housing, housing-related infrastructure and to provide incentives for local authorities to deliver housing growth.
- The Government has published a new circular on planning obligations to streamline the current arrangements for negotiated section 106 agreements. The aims of the new circular are to increase transparency, predictability, accountability and speed in the negotiation of planning obligations, and to promote the good practice that already exists in many local authorities.
- Sir Michael Lyons' review of local government funding will examine how to make the current local government finance system fairer and more sustainable. It will report by the end of 2005.

Public health care spending

Previous Survey

- Increase spending more gradually in order to limit inflationary pressures, be able to recruit the necessary doctors and have time to carefully pilot and implement various promising innovations such as Foundation Hospitals with more operational flexibility, activity-based funding mechanisms and Fast Track Surgeries.
- Extend cost-sharing where it does not compromise equity concerns. For example, additional user charges to cover the extra cost of non-generic drugs or charging for missed appointments should be introduced.
- Implement activity-based funding for hospitals, which will help reducing waiting times. Introduce incentive-pay for hospital doctors faster and more broadly than currently planned.

Policy actions taken and current assessment

- The plans for rapid spending growth towards 2007-08 have been maintained unchanged. More doctors and nurses have been recruited with a substantial share being migrants from outside Europe, but the density of doctors still cannot be raised as quickly as the level of spending. The number of places in medical school has been increased significantly, but it will take time before this increase works its way through to the number of graduates.
- No changes have been made on cost-sharing.
- Activity-based funding is gradually being rolled out, but incentive-pay for hospital doctors has not been developed much.

Education and skills

Previous Survey

- Improve the educational opportunities leading to an apprenticeship, skilled craft or technician level qualification.
- Provide more resources to universities via graduate contributions. In light of the insurance implied by the income-contingency of contributions, fee exemptions, below-market interest rates and other subsidies for students with a low-income background should be limited, as they redistribute income to individuals that may be poor today, but over their lifetime are more affluent than the average tax payer.
- Adult training programs must be sufficiently focused to ensure that productivity improvements are sufficient to warrant the costs of tuition and the loss of production from being out of work. Cost-sharing should be developed to ensure that relevant course content is chosen.

Policy actions taken and current assessment

- In February 2005, the Government published a White Paper on the 14-19 curriculum and qualifications, describing the detail of reforms to education and training for 14-19-year-olds, including an increased focus on securing basic skills, reform of vocational qualifications, and measures to tackle disengagement.

- The Government is introducing City Academies, a new type of secondary school involving sponsorship from business, faith and voluntary groups, located in disadvantaged areas. The aim is to have 200 academies built or in the pipeline by 2010.
- Legislation concerning the graduate contribution scheme has been passed and from 2006 students will contribute up to £3 000 a year towards the costs of their university courses.
- The Government will be piloting new schemes to help young people back in to education or training in selected areas from April 2006. The Activity Agreement pilot will offer 16 and 17-year-olds who are not in education or work a weekly allowance in return for committing to a plan to reintegrate them into education or training. The Government will also pilot a negotiated Learning Agreement between employers and employees aged 16-17 who are in work but not receiving accredited training. This pilot will build on the existing statutory right to paid time off to study or train for this group, and will test the effectiveness of a range of financial incentives in encouraging employers and employees to take up this offer.
- A National Employer Training Programme for adults with low skills will be introduced across England between 2006 and 2008, following final evaluation of the pilot phase. A decision on public coverage of wage costs for the employees as part of the national programme has not yet been made.
- The National Employer Training Programme will offer some matched funding to employers for skilled craft or technician level qualifications.
- A network of Sector Skills Councils is being set up to act as strategic employer-led bodies, licensed by Government. They will work with employers, trade unions, professional bodies, trade associations and Government to identify skills and productivity needs, the action they will take to meet those needs, and how they will collaborate with providers of education and training so that skills demand can directly shape the nature of supply.

Competition

Previous Survey

- In the longer term, attention needs to be paid to potential duplication between the Office of Fair Trading (OFT) and the Competition Commission (CC). As the OFT's range and capacity expand the extent of the CC's distinct contribution may need to be reconsidered.
- Planning restrictions for the retail sector could be relaxed significantly without compromising social objectives.
- The Government should allow open entry into pharmacies, subject only to demonstrated professional qualifications.
- The industry regulators for electricity, gas and telecoms must remain vigilant to prevent abuses of dominant position and ensure consumers reap the full benefits from liberalisation.
- The Strategic Rail Authority should consider granting longer term franchises, as the current policy of short franchises with tightly specified performance criteria is unlikely to provide incentives for either the rolling stock owners or train operators to invest in rolling stock.

Policy actions taken and current assessment

- The Government remains committed to maintaining the split between the OFT and CC. The current regime is considered advantageous as it maintains independence between first and second phase of investigations, allows for greater specialisation and detailed investigation by the second phase investigator and also provides a "checks and balances" on first phase (OFT) decisions.
- With respect to the Pharmacy market, the Government concluded that simple deregulation was not the best way to achieve its aims. Instead it decided to move cautiously in the direction recommended by the OFT by: revising the test for new entry into the market to put emphasis on the benefits of competition and choice; exempting from entry controls a range of types of pharmacy including those in retail centres over 15 000 square metres in size; those in one-stop primary care centres; and those operating wholly by mail order or on the internet; making the system faster, more transparent and more consistent. The OFT will carry out a further review of the need for change in 2006.
- The railways white paper, *The Future of Rail* (July 2004), set out the conclusion of the Rail Review announced by the Secretary of State for Transport in January 2004. Under the new structure the Government will set the level of public expenditure and take over the role of setting the strategy for the railways from the Strategic Rail Authority, which will be wound up (by December 2005).
- Over 1 300 new railway vehicles came into service during 2004, as part of the biggest rolling stock replacement programme ever seen in this country. Since 1997, over four thousand new carriages have been ordered, worth around £4 billion.
- Current policy is to generally let franchises for periods of around 10 years although Government does have flexibility to let them for longer periods. The Government takes the view that this is long enough to encourage operators to take a long term view, but will allow the taxpayer and passenger to benefit from a new competition at regular intervals. The Department for Transport will be introducing a new franchise template from 2006 which will include a performance regime with fewer key performance indicators than at present and which is better tailored to particular services.
- The Government has issued a revised policy statement (PPS6) on planning for town centres, which applies to the retail sector It continues to promote a "town centres first" approach to retail development and does not aim to significantly relax existing planning restrictions.

Pensions

Previous Survey

- Consider raising the level of the basic state pension if income inadequacy on retirement remains a problem, though such measures should not be allowed to destabilise public finances.

Policy actions taken and current assessment

- Pension Credit introduced from autumn 2003, guaranteeing all pensioners a minimum of £109 for single pensioners and £165 (pensioner couples), increasing in line with earnings through to 2008.
- The Pensions Commission is due to report in autumn 2005 with recommendations on pensions.

Acronyms

APW	Average production worker
BERD	Business Enterprise Expenditure on R&D
CIS	Community Innovation Survey
CPI	Consumer price index
DfES	Department for Education and Skills
DTI	Department for Trade and Industry
EMU	Economic and Monetary Union
EU	European Union
EU15	European Union, first 15 member states
G7	Group of 7 countries (Canada, France, Germany, Italy, Japan, the United Kingdom and the United States)
GCSE	General Certificate of Secondary Education
GDP	Gross domestic product
HEIF	Higher Education Initiative Fund
ICT	Information and Communication Technology
IPR	Intellectual property rights
IT	Information technology
km^2	Square kilometre
MEI	Main economic indicators
MPC	Monetary Policy Committee
NHS	National Health Service
NI	National insurance
ODPM	Office of the Deputy Prime Minister
ONS	Office for National Statistics
PDG	Planning Delivery Grant
PFI	Private Finance Initiative
PhD	Doctor of Philosophy
PPP	Purchasing power parity
R&D	Research and development
RDS	Research and Development Statistics
SET	Science, engineering and technology
SMEs	Small-medium sized enterprsies
STAN	Structural Analysis Database
UK	United Kingdom
UMTS	Universal mobile telephone communications systems (third generation mobile telephony)

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