A ILLUSTRATIVE LONG-TERM FISCAL PROJECTIONS

To safeguard long-term economic growth and ensure inter-generational fairness it is important that Budget decisions are consistent with the long-term sustainability of the public finances. The illustrative long-term fiscal projections presented in this annex provide an assessment of the long-term sustainability of the Government's fiscal policies over the period up to 2035-36, in line with the requirements of the *Code for fiscal stability*. The key points are:

- **the UK remains well-placed to deal with potential future spending pressures due to ageing and other factors;**
- **given the projected profile for tax revenue and transfers current public consumption can grow at around assumed GDP growth after the medium term while meeting the Government's golden rule; and**
- **public sector net investment can grow more or less in line with the economy without jeopardising the sustainable investment rule.**

This conclusion concurs with the findings of the 2005 *Long-term public finance report*, which provides a more detailed examination of the long-term public finances. The report finds that, on a range of assumptions and using a number of techniques, the UK's fiscal position is sustainable in the long term on the basis of current policies, and that the UK is well-placed relative to many other developed countries to face the challenges ahead. However, the Government remains vigilant to future risks and is not complacent about the long-term challenges posed by an ageing population. It will therefore continue to update and report on assessments of long-term fiscal sustainability.

A.1 The Government's fiscal policy framework, as set out in the *Code for fiscal stability*,[1] is designed to ensure transparent, long-term decision-making. Fiscal policy is set to ensure sustainable public finances, with consideration to the short, medium and long term. Long-term fiscal sustainability helps to promote long-term economic growth and ensures that financial burdens are not shifted to future generations.

Illustrative long-term fiscal projections

A.2 To assess the sustainability and inter-generational impact of fiscal policy, the Code requires the Government to publish illustrative long-term fiscal projections covering a period of at least 10 years. In practice, a 30-year horizon has been adopted. The projections published in previous Budgets showed that the UK's long-term fiscal position was relatively favourable and that the Government is in the position to meet its two fiscal rules – the golden rule and the sustainable investment rule – over the long term.

A.3 To complement and enhance the illustrative projections, the Government has published the *Long-term public finance report* each year since 2002, most recently alongside the 2005 Pre-Budget Report.[2] The 2005 report examined long-term challenges to the public finances and provided a comprehensive assessment of the sustainability of the public finances. It also updated the illustrative long-term fiscal projections in Budget 2005. The projections in this annex provide a further update, incorporating the Budget 2006 medium-term spending and revenue projections. The underlying assumptions and methodology remain broadly unchanged from previous years.

[1] *Code for fiscal stability*, HM Treasury, 1998.

[2] 2005 *Long-term public finance report: an analysis of fiscal sustainability*, HM Treasury, December 2005.

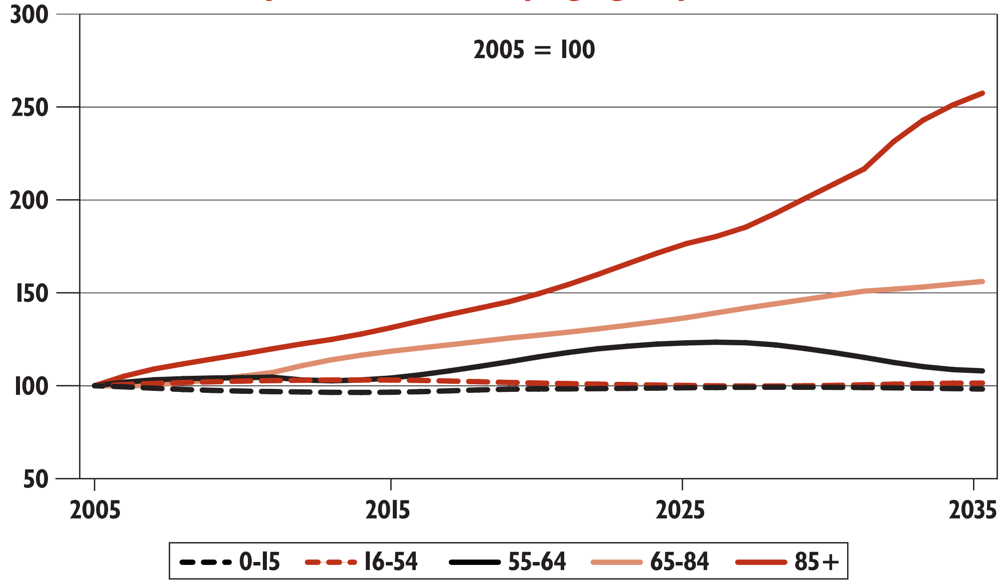
LONG-TERM SOCIO-ECONOMIC TRENDS

A.4 Declining fertility rates and improvements in life expectancy over past decades have led to a general ageing of the population in the UK and throughout most of the developed world. Since Budget 2005, the Government Actuary's Department (GAD) has published a new set of projections, based on the Office for National Statistics' mid-year 2004 population estimate.[3] The new population projections use the same assumption regarding the long-term fertility rate (the average number of children per woman) as the previous ('2003-based') projections, which remains at 1.74. Long-term annual net migration is assumed to be 145,000 per year, 15,000 more than previously.[4]

A.5 However, the new population projections are based on a higher life expectancy assumption than the previous projections, with life expectancy at birth assumed to be 81.4 for males and 85 for females.[5] The evolution of the understanding of mortality trends illustrates the importance of updating long-term fiscal projections and the need to assess the sustainability of the public finances on a regular basis.

A.6 Based on the latest principal projections, the UK's population will increase from nearly 60 million today to around 68 million by the mid 2030s, before continuing to grow (at a relatively slower rate) to around 70 million by 2070. The population structure is also projected to change substantially. Chart A.1 shows the wide variations between the projected change in size of different age groups, with the older age groups projected to increase substantially in absolute size over the next 30 years. According to the projections, the number of people aged 65-84 years will increase by more than 50 per cent, while the number of people aged 85 years and over will more than double. The latter trend is also projected to continue beyond 2035, with four times as many people projected to be in this age group in 2050 than there are now.

Chart A.1: Population indices by age group



Source: Government Actuary's Department, 2004-based principal population projections.

[3] Available at www.gad.gov.uk.

[4] For a comparative table of the assumptions used in GAD population projections, see 2005 *Long-term public finance report: an analysis of fiscal sustainability,* HM Treasury, December 2005.

[5] Period life expectancy at birth in 2031. For more details of the revisions to the life expectancy assumption, see 2005 *Long-term public finance report: an analysis of fiscal sustainability,* HM Treasury, December 2005.

A.7 The composition of the population will change as a result. Whereas those aged between 16 and 64 years make up nearly two-thirds of the total population now, their share is projected to fall by around 5½ percentage points between now and 2035. At the same time the share of people aged 65 years and over, which currently make up around 16 per cent of the total population, is projected to rise by around 8 percentage points over this period, and the share of those aged 85 years and over is projected to rise by just over 2 percentage points, from its present level of around 2 per cent. By contrast the share of children (those aged up to 15 years) in the total population is projected to fall by around 2½ percentage points over the same period, from its current level of nearly 20 per cent.

A high degree of uncertainty

A.8 Any long-term projection is subject to a high degree of uncertainty.[6] To deal with this uncertainty, GAD has produced high and low variants around the principal projections. For example, the high fertility variant assumes that the average number of children per woman is 1.94, while the high longevity variant assumes life expectancy at birth in 2031 of 83½ years for males and 86½ years for females. The variants differ markedly from the principal projections in terms of future overall size and composition of the population, and suggest that governments should attempt to plan for a wide range of potential outcomes.[7] To this end, a cautious approach to assessing the long-term sustainability of the public finances is taken below.

Other long-term trends

A.9 However, demographic change is only one of a number of trends that may have a significant impact upon public finances in the future. The 2007 Comprehensive Spending Review will be informed by a detailed assessment of the long-term trends and challenges that will shape public services over the next decade.[8] This includes the intensification of cross-border economic competition; the acceleration in the pace of innovation and technological diffusion; continued global uncertainty and poverty, with ongoing threats of international terrorism and global conflict; and increasing pressures on our national resources and global climate.

METHODOLOGY AND ASSUMPTIONS

A.10 The methodology for producing the long-term fiscal projections presented in this annex determines the rate at which current public consumption can grow while the Government meets its fiscal rules. This is achieved by projecting the evolution of tax receipts, transfer payments (such as pensions) and capital consumption (depreciation) over the coming decades. Subtracting transfers and capital consumption from tax revenues provides a measure of the financial resources available for current public consumption.[9]

A.11 Up to and including 2010-11, the end of the medium-term forecast period, the long-term illustrative projections are based on the fiscal forecasts and assumptions presented in Chapter C of the Financial Statement and Budget Report (FSBR). Beyond that, the long-term projections are based on the assumption of current policy, in other words it is assumed that the Government will leave current policy unchanged in the future. This should not be interpreted as meaning that policy will not change over time but is used so that the long-term projections do not pre-judge future government policy.

[6] For example, a study of UK population projections cites a census from 1891 that projected the combined population stock of Australia and New Zealand in 1981 to be 94 million, five times greater than the projected outcome. See *Accuracy and uncertainty of the national population projections for the United Kingdom*, Chris Shaw, *Population trends No.77*, 1994, page 24. The study was revealed in a letter to *Royal Statistical Society News*, February 1994.

[7] For a discussion of the use of scenarios in long-term planning see 2005 *Long-term public finance report: an analysis of fiscal sustainability*, December 2005.

[8] For further details, see Chapter 6.

[9] See *Budget 2000: Prudent for a Purpose: Working for a Stronger and Fairer Britain*, HM Treasury, March 2000 for a discussion of the methodology.

Economic assumptions

A.12 Table A.1 sets out the economic assumptions that underlie the long-term fiscal projections after 2010-11. To deal with the uncertainty involved in projecting long-term trends, particularly cautious assumptions are used. Productivity is assumed to grow by 1¾ per cent a year from 2011-12, which is ¼ per cent lower than the neutral view of productivity growth. This is in line with the 'lower productivity' scenario used in the 2005 *Long-term public finance report*, reflecting a cautious approach to projecting long-term fiscal aggregates.

A.13 Annex A of Budget 2005 introduced an alternative approach to projecting gender- and age-specific employment rates and total employment levels beyond the medium term. The illustrative projections presented in this year's Budget use this alternative approach, the so-called 'cohort' method, for the employment projections (see Box A.1 for more details of the methodology). The growth rates for productivity and employment generate the growth rates for GDP from 2011-12 onwards.

Table A.1: Real GDP growth and its components

Year	2011-12 to 2015-16	2016-17 to 2025-26	2026-27 to 2035-36
Productivity	1¾	1¾	1¾
Employment	¼	0	0
Real GDP	2	1¾	1¾

Source: HM Treasury.

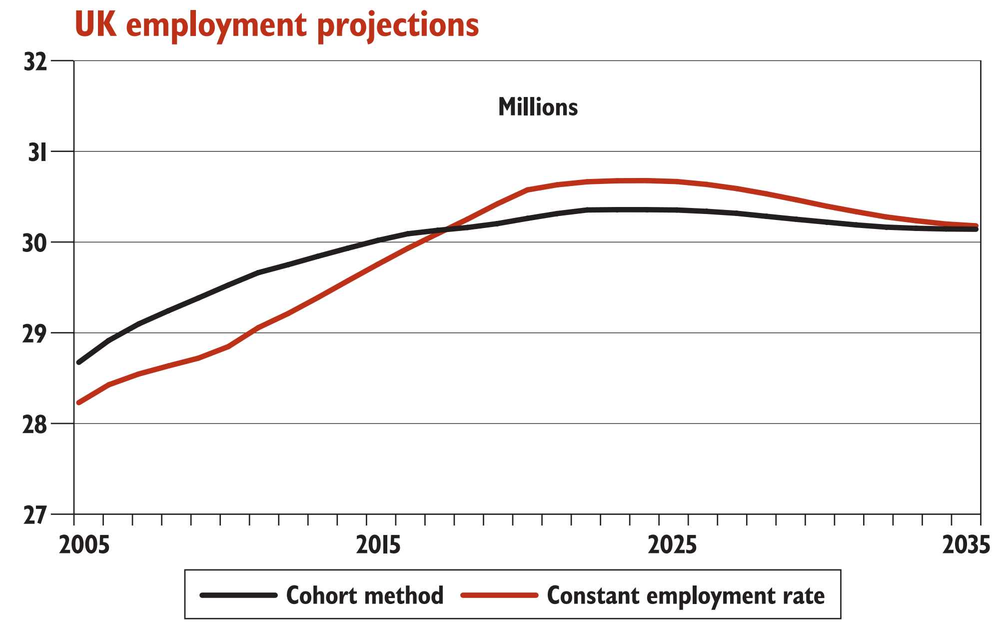
Taxation and spending assumptions

A.14 For the period up to and including 2010-11, the illustrative long-term fiscal projections are based on the forecasts and assumptions presented in Chapter C of the FSBR. Unless stated otherwise, high-level policy settings in 2010-11 are then assumed to continue throughout the rest of the projection period. For example, the Government is assumed to raise the same amount of revenue as a proportion of GDP as in 2010-11, offsetting possible changes in tax bases by changing policy in a revenue neutral way. Tax revenues are also assumed to be equal to total current spending from 2011-12 onwards. This implies that, by assumption, the golden rule is met, with the current budget in balance at all times.

A.15 Current public consumption is calculated as the difference between tax revenues and other current spending, which comprises transfers and capital consumption. Transfers mainly consist of social security spending (e.g. Disability Living Allowance) and debt interest payments. The latter are calculated using the projected debt stock and a long-term interest rate, which is assumed to equal the implicit average interest rate between 2006-07 and 2010-11. Under the assumption that the current budget is in balance, the growth of public sector net debt reflects growth in public sector net investment. As in previous illustrative long-term projections, the share of public sector net investment in GDP is reset at 1.8 per cent beyond the medium term.

Box A.1: Employment projections

In previous illustrative projections, a basic assumption was made that the overall employment rate remains unchanged at the end of the medium term. Although simple and transparent, this method did not take into account the effect of ageing or the recent trend of increasing female labour market participation upon future participation rates. The 'cohort' method of projecting employment[a] attempts to capture these trends by using historical participation rates to calculate the probability that a male or female will enter or leave the labour market at a specific age. These probabilities can then be applied to existing and future participants in the labour market to build up a projected lifetime participation profile of each cohort. By applying these projections of participation rates to the latest population projections provided by the Government Actuary's Department, a long-term projection of total employment is obtained. The chart below indicates that the employment path projected using the cohort method is more stable between now and 2035 than that projected using the previous assumption of a constant employment rate.



Source: HM Treasury projections, based on Government Actuary's Department, 2004-based principal population projections.

In January 2006, the Office for National Statistics published employment projections for the period 2006-2020.[b] Their findings were broadly comparable with those presented here, with a similar increase in the labour force projected to occur between now and 2020.

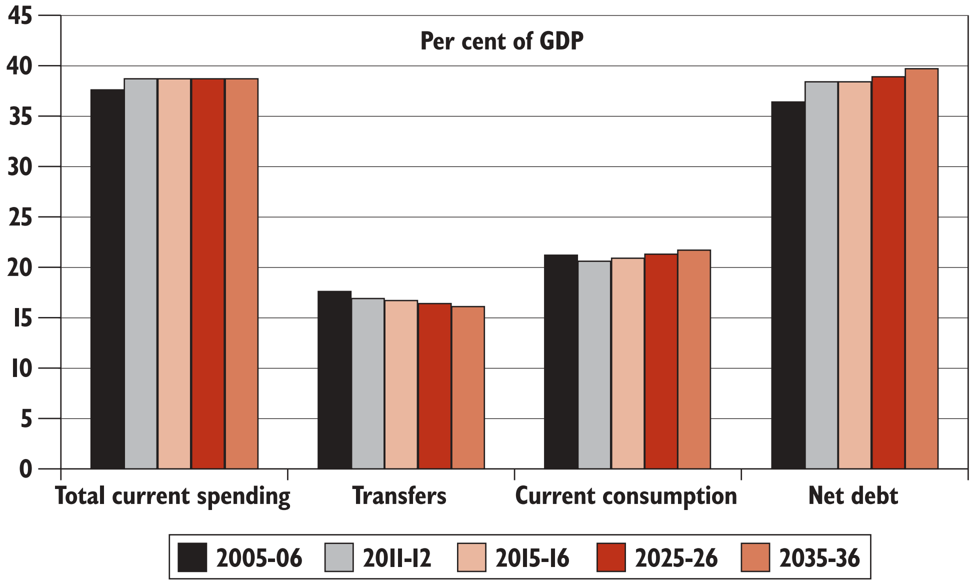
[a] This method has also been used by the Organisation for Economic Co-operation and Development (OECD) and European Commission in labour market projections. See *Coping with ageing: A Dynamic Approach to Quantify the Impact of Alternative Policy Options on Future Labour Supply in OECD Countries*, OECD, June 2004 and *The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long-term care and unemployment transfers (2004-2050)*, European Union Economic Policy Committee, February 2006.

[b] *Labour Force Projections 2006-2020*, Office for National Statistics, January 2006.

ILLUSTRATIVE PROJECTIONS

A.16 Chart A.2 shows the projected evolution of total current spending, transfers, current consumption and net debt as a share of GDP between 2005-06 and 2035-36, given the assumptions stated above. Total current spending is projected to increase between 2005-06 and 2010-11, and then remain stable by assumption. Transfers are projected to fall from 17.6 per cent in 2005-06 to 16.1 per cent by 2035-36, while current consumption is projected to fall initially before increasing from 20.6 per cent in 2011-12 to 21.7 per cent in 2035-36. Hence current consumption can grow at around assumed GDP growth while still meeting the fiscal rules. Starting from just over 38 per cent in 2011-12, net debt is projected to remain broadly stable before rising beyond the mid 2020s, reaching 39.7 per cent by 2035-36, consistent with the sustainable investment rule. The projected changes in net debt emphasise the importance of ensuring sound public finances in the medium term to prepare for future developments.

Chart A.2: Illustrative long-term fiscal projections



Source: HM Treasury.

A.17 The illustrative long-term fiscal projections presented here yield similar conclusions to those presented in the 2005 *Long-term public finance report,* which uses a broader range of techniques, assumptions and modelling approaches to assess long-term sustainability. The report demonstrates that the UK fiscal position is sustainable in the long term on the basis of current policies and that the UK is well placed relative to many other developed countries to face the challenges ahead. In addition to an overall assessment of long-term fiscal sustainability, the 2005 *Long-term public finance report* also identifies individual spending trends: health spending is likely to increase the most as a share of GDP over the coming decades, while spending on education is projected to remain relatively stable.

Sensitivity analysis

A.18 Long-term projections of any type are inevitably subject to a high degree of uncertainty. The outcome of any projection exercise depends on the underlying assumptions. These include population projections and assumptions regarding productivity, revenue, labour market participation and social security spending. It is important to determine the sensitivity of baseline projections to changes in the assumptions. The 2005 *Long-term public finance report* illustrates the effect of different interest rate and productivity assumptions and includes a more detailed discussion of the uncertainty surrounding long-term projections.[10]

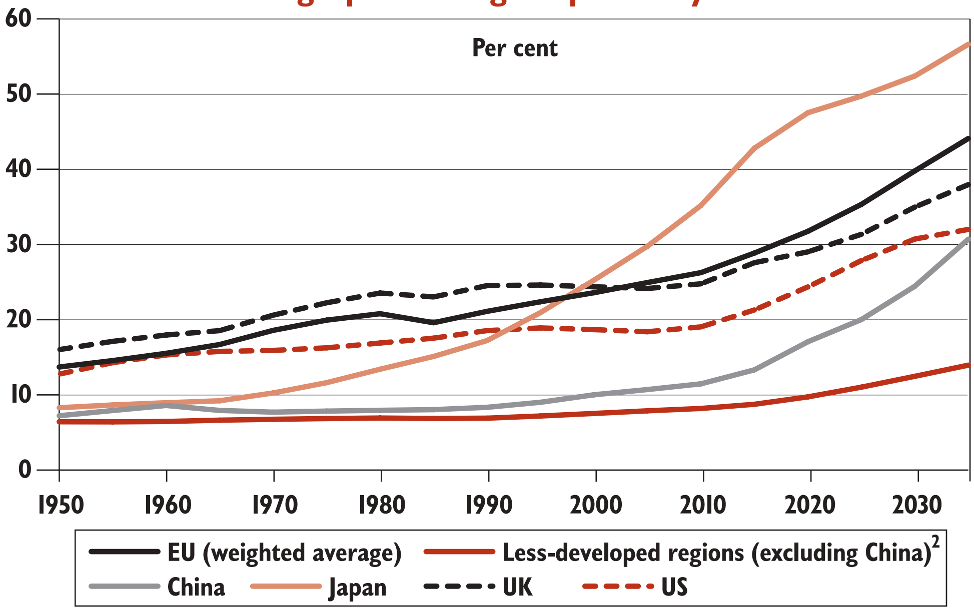
INTERNATIONAL COMPARISONS

Population ageing: a global phenomenon

A.19 The UK is not alone in facing an ageing population, and many countries are projected to age more rapidly than the UK. Chart A.3 shows the historical and projected evolution of the demographic old-age dependency ratio between 1950 and 2035 in selected regions and countries. While the UK is projected to observe an increase in the demographic old-age dependency ratio from 24 per cent at present to around 38 per cent by 2035, a steeper increase is projected for the EU average, rising from 24 per cent to 44 per cent over this period. Japan is projected to experience a marked increase in the demographic old-age dependency ratio, reaching 57 per cent by 2035.

A.20 The ageing trend is not limited to the developed world. For example, Chart A.3 indicates that China is projected to age significantly over the next three decades, with a projected increase in the demographic old-age dependency ratio from 11 per cent to 31 per cent between now and 2035. In addition, other less-developed regions are also projected to age, albeit from a lower starting point.

Chart A.3: Demographic old-age dependency ratios[1]



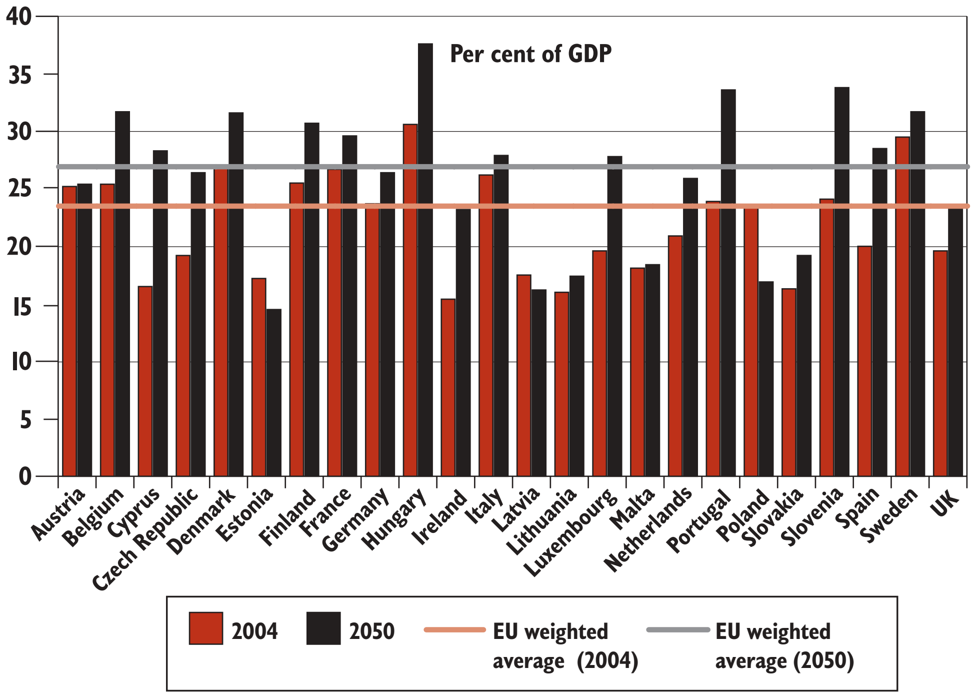
[1] Number of people aged 65 years and over as a share of number of people aged 15 to 64 years. EU weighted average based on EU25 countries. All estimates are based on the 'medium variant' version of the UN population projections.
[2] 'Less-developed regions' are defined by the UN as all regions of Africa, Asia (excluding Japan), Latin America and the Caribbean plus Melanesia, Micronesia and Polynesia.
Source: United Nations, World Population Prospects.

[10] The 2004 *Long-term public finance report: an analysis of fiscal sustainability*, HM Treasury, December 2004 projected spending and revenue using different employment projections, while the 2003 *Long-term public finance report: fiscal sustainability with an ageing population*, HM Treasury, December 2003, analysed the effects of different fertility, longevity and migration assumptions on spending projections.

US A.21 As can be seen from Chart A.3, the US is projected to age relatively slowly in comparison with a number of developed and developing countries. Nonetheless, fiscal imbalances are projected to arise in the US over the coming decades. The US Congressional Budget Office (CBO) regularly publishes long-term analysis covering a wide range of topics, including future social security spending. The CBO projects that spending on social security will increase from 4.2 per cent of GDP in 2005 to 6.4 per cent by 2050,[11] while spending on Medicare and Medicaid (the two principal public health care schemes) is projected to rise from just over 4 per cent of GDP in 2005 to 12.6 per cent by 2050, due to a combination of demographic and non-demographic factors.[12] In addition, the CBO also projects the evolution of the future budget position and debt based on current policies. Based on the 'intermediate-spending scenario' and the assumption that tax revenue will remain unchanged as a share of GDP after 2014, the CBO projects the deficit on the total budget to rise to around 19 per cent of GDP by 2050, with federal debt rising to over 250 per cent of GDP over the same period.[13]

EU A.22 In February 2006, the EU's Economic Policy Committee (EPC) published detailed findings on the impact of an ageing population on future spending trends.[14] It found that age-related spending is projected to rise substantially in some EU Member States if existing policies remain unchanged (see Chart A.4).[15] Across the EU as a whole, age-related spending is projected to increase to around 27 per cent of GDP by 2050. Chart A.4 indicates that projected spending pressures are not confined to the existing EU15, with many EU10 countries projected to observe increases in age-related expenditure between now and 2050.

Chart A.4: Age-related spending in EU countries[1]



[1] Projections for Cyprus, Estonia, France, Hungary and Portugal do not include long-term care. Projections for Greece are not shown as they do not include projections of pension expenditure.
Source: European Union Economic Policy Committee, February 2006.

[11] See *The Long-Term Budget Outlook*, Congressional Budget Office, December 2005, page 4.
[12] Assuming that 'excess cost growth' will decline to one percentage point.
[13] *The Long-Term Budget Outlook*, Congressional Budget Office, December 2005, page 14.
[14] *The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long-term care and unemployment transfers (2004-2050)*, European Union Economic Policy Committee, February 2006.
[15] Age-related spending comprises spending on pensions, health, long-term care, education and unemployment benefits in these projections.

A.23 There is substantial variation in the scale of future spending pressures, with age-related spending in 2050 projected to range between 15 per cent and 38 per cent of GDP among EU countries. Based on the EPC projections, age-related spending for the UK is projected to remain below the EU average throughout the projection period, reaching just over 23 per cent of GDP by 2050.[16] As can be seen from the chart, this is broadly equal to the current EU average.

Other developed countries

A.24 Many other developed countries will also have to deal with the fiscal challenges that arise from an ageing population. For example, recent projections published by the Japanese Ministry of Finance suggest a rise in social security benefits from 23½ per cent of GDP in 2004 to 29 per cent of GDP in 2025.[17] Underpinning this is a particularly marked rise in medical care spending, which is projected to rise as a share of GDP over this period. A recent International Monetary Fund (IMF) report commented on the long-term fiscal challenge faced by Canada, noting a projected rise in public health care spending of almost 7 per cent of GDP between now and 2050.[18] The IMF concludes that '... fiscal sustainability would be jeopardized unless significant debt reduction is achieved ahead of the retirement of the baby boom generation and health care spending is constrained'.[19] A recent report published by the New Zealand Treasury also projects a significant increase in health spending as a share of GDP between now and 2050.[20] Similarly, the Australian Government Productivity Commission recently projected an increase in fiscal pressure (the extent to which government spending outpaces revenue growth) in Australia of 5.7 percentage points of GDP between 2003-04 and 2044-45.[21]

CONCLUSIONS

A.25 The fiscal projections presented in this annex show that the UK's public finances are broadly sustainable over the long term, confirming the detailed findings presented in the 2005 *Long-term public finance report*. Current public consumption can grow at around assumed GDP growth beyond the medium term, ensuring that resources are available to meet potential future spending pressures. The golden rule and the sustainable investment rule are both met throughout the projection period, with net debt projected to be below 40 per cent of GDP in the long run. Public sector net investment can grow more or less in line with the economy without jeopardising the sustainable investment rule. The UK is also well-placed to face future challenges relative to many other developed countries.

A.26 However, notwithstanding the use of prudent and cautious assumptions, a wide range of unforeseen developments and spending pressures could arise over the projection period. The Government will therefore continue to update and report on its assessments of long-term fiscal sustainability, both through regular publication of the Long-term public finance report alongside the Pre-Budget Report and through the illustrative long-term fiscal projections presented with each Budget, so as to ensure that all fiscal policy decisions are set within a sustainable long-term framework.

[16] This conclusion is similar to that reached on the basis of the projections presented in the 2005 *Long-term public finance report: an analysis of fiscal sustainability*, HM Treasury, December 2005.

[17] See *Current Japanese Fiscal Conditions and Issues to be Considered*, Ministry of Finance, Japan, 2005, page 21. Social security benefits represent the total expenditures paid under the social security system and include medical care, pensions and welfare.

[18] *Canada: 2004 Article IV Consultation-Staff Report; Staff Statement; and Public Information Notice on the Executive Board Discussion*, International Monetary Fund, March 2004, page 13.

[19] *Ibid*, page 12. The IMF reaches similar conclusions in its 2005 Report. See *Canada: 2005 Article IV Consultation-Staff Report; Staff Statement; and Public Information Notice on the Executive Board Discussion*, International Monetary Fund, March 2005.

[20] *Modelling New Zealand's Long-term Fiscal Position*, New Zealand Policy Perspectives Paper 06/01, February 2006.

[21] *Economic Implications of an Ageing Australia*, Australian Government Productivity Commission, March 2005.