

To safeguard long-term economic growth and ensure intergenerational 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 2034-35, 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 2004 *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 in a strong position 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 continue to update and report on assessments of long-term fiscal sustainability.

Illustrative long-term fiscal projections

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 by ensuring that financial burdens are not shifted to future generations.

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 will 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 2004 Pre-Budget Report.² The 2004 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 2004. The projections in this annex provide a further update, incorporating the Budget 2005 medium-term spending and revenue projections. The underlying assumptions and methodology remain broadly unchanged from previous years.

¹ *Code for fiscal stability*, HM Treasury, March 1998.

² 2004 *Long-term public finance report: an analysis of fiscal sustainability*, HM Treasury, December 2004.

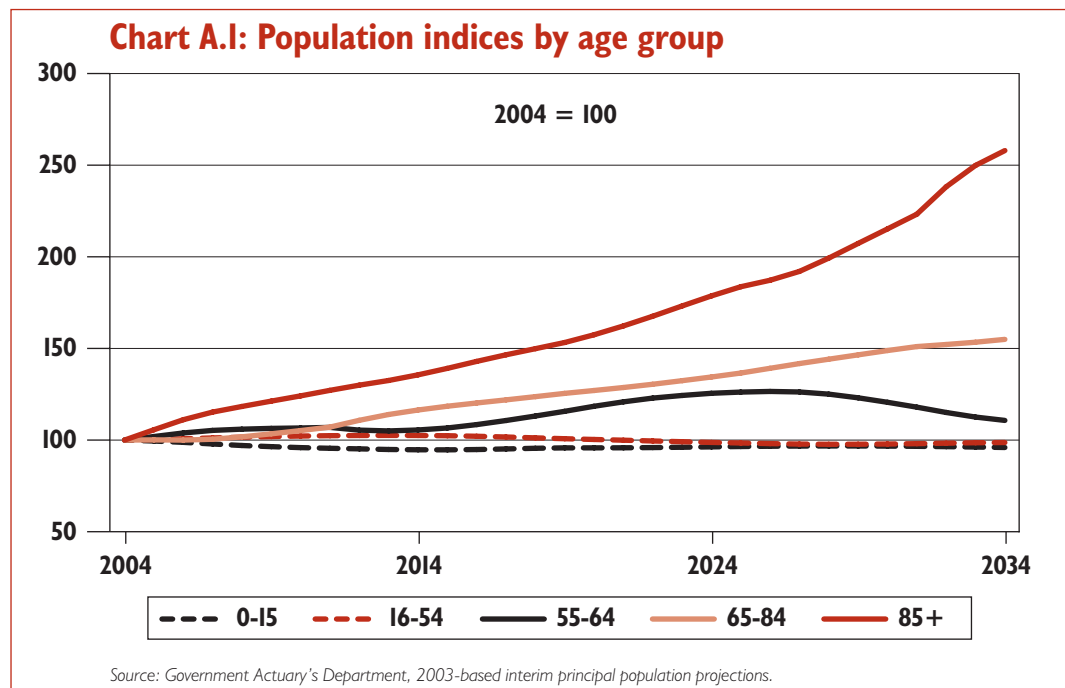
LONG-TERM SOCIO-ECONOMIC TRENDS

Population ageing

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 2004, the Government Actuary's Department (GAD), which is the official producer of population projections in the UK, has published a new set of projections, based on the Office for National Statistics' mid-year 2003 population estimate.³ The new population projections differ from their predecessor only in their assumption regarding long-term annual net migration, with the latest projections assuming net migration of 130,000 per year – 30,000 more than previously. The assumptions regarding the fertility rate (the average number of children per woman) and life expectancy have remained unchanged at 1.74, and 80.6 years (males) and 84.6 years (females), respectively.⁴

A.5 However, the new population projections are based on a substantially higher life expectancy assumption than the 2001-based new projections.⁵ This reflects a constantly evolving understanding of future demographic trends in general, and of the future evolution of life expectancy in particular. As future population projections may look very different from today's, it is important to update long-term fiscal projections and 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 66 million by the mid 2030s, before stabilising. 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 increase by around 250 per cent. The latter trend is also projected to continue beyond 2034, with four times as many people in this age group in 2050 than there are now.



³ Available at www.gad.gov.uk.

⁴ Life expectancy at birth in 2027.

⁵ For a comparative table, see 2004 *Long-term public finance report: an analysis of fiscal sustainability*, HM Treasury, December 2004.

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 to 58 per cent by 2034. At the same time the share of people aged 65 years and over in the total population is projected to rise from 16 per cent to nearly a quarter by 2034, with the share of those aged 85 years and over more than doubling from 1.8 per cent to 4.3 per cent. By contrast the share of children (those aged up to 15 years) in the total population is projected to fall by 2½ percentage points over the same period.

A high degree of uncertainty **A.8** Any long-term projection is subject to a high degree of uncertainty. To deal with this uncertainty, the GAD produces high and low variants around the principal projections. These projections differ in their assumptions regarding the fertility rate, life expectancy at birth and annual net migration flows. 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 2027 of 82.5 years for males and 85.9 years for females. The variants differ markedly from the principal projections in terms of future overall size and composition of the population. Other approaches to dealing with this uncertainty have been developed. For example, the National Institute for Economic and Social Research (NIESR) has generated a set of stochastic population projections, which produces a larger range of outcomes than the GAD's projections.^{6,7}

Other long-term trends **A.9** Over the last few years, many studies have analysed the potential effects of an ageing population on the public finances.⁸ However, there are other trends that could affect the UK's economy and public finances over the long term. For example, it is reasonable to assume that an older population will have a greater demand for health services than a younger population. However, future demand (and so spending needs) will also depend on factors such as health status, technological progress and changes in social preferences.⁹ The sustainability of the public finances will also be affected by future trend economic growth, which depends on labour market developments and productivity growth. Some commentators have suggested that an ageing population could lead to slower productivity growth. While there is no consensus on this issue,¹⁰ a cautious approach to assessing the long-term sustainability of the public finances would allow for this possibility and is the approach taken below. The expected continued integration of the world economy is also likely to affect the UK economy over the coming decades, including through changes to capital flows and the location of business activity.

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

⁶ Available at www.niesr.ac.uk.

⁷ See *World Economic Outlook September 2004: The Global Demographic Transition*, International Monetary Fund, September 2004, pages 144-145 for a more detailed discussion of uncertainty.

⁸ See the European Union's Economic Policy Committee's study on the budgetary cost of ageing populations at www.europa.eu.int for an example.

⁹ See *Securing our Future Health: Taking a Long-Term View*, Derek Wanless, 2002, *2004 Long-term public finance report: an analysis of fiscal sustainability*, HM Treasury, December 2004, *Intergenerational Report 2002-03*, Department of the Treasury of Australia, May 2002 and www.europa.eu.int.

¹⁰ For example, the Department of Trade and Industry finds that: "There is no evidence to support the view that older workers are inherently less productive than younger workers, except in a limited range of jobs requiring rapid reactions or physical strength, and people tend to move out of these as they become harder for them", *Retirement ages in the UK: a review of the literature*, Department of Trade and Industry, 2003, page vii.

coming decades. Subtracting transfers and capital consumption from tax revenues provides a measure of the financial resources available for current public consumption.¹¹

A.II The projections are based on prudent and cautious economic assumptions, and on existing policies. They are based on the fiscal forecasts and assumptions presented in Chapter C of the *Financial Statement and Budget Report* (FSBR), up to and including 2009-10, the end of the medium-term forecast period. Unless stated otherwise, the Government is assumed to leave these policies unchanged in 2010-11 and future years. The projections cannot, and do not, attempt to pre-empt future policy decisions.

Economic assumptions

A.I2 Table A.1 sets out the economic assumptions that underlie the long-term fiscal projections after 2009-10, which are broadly unchanged from those used in Budget 2004. The greater degree of uncertainty involved in projecting long-term trends means that the assumptions used in this exercise are particularly cautious. Productivity is assumed to grow by 2 per cent a year between 2010-11 and 2014-15, and then by 1³/₄ per cent a year between 2015-16 and 2034-35, which is ¹/₄ per cent lower than the neutral view of productivity growth. The assumption of a slower rate of productivity growth in later years reflects the greater use of caution. The 2004 *Long-term public finance report* provides sensitivity analysis on the use of different productivity growth assumptions.

A.I3 By assumption, employment is driven entirely by demographic trends. Specifically, with the overall employment rate assumed to remain constant from 2009-10 onwards, changes in employment levels reflect changes in the working-age population. As in previous years, this includes the impact of the increase in the female state pension age from 60 years in 2010 to 65 years by 2020, which will increase the working-age population. The assumed growth rates for productivity and employment generate the growth rates for GDP from 2010-11 onwards.

Table A.1: Real GDP growth and its components

| Year | 2010-11 to 2014-15 | 2015-16 to 2024-25 | 2025-26 to 2034-35 |
|--------------|-------------------------------|-------------------------------|-------------------------------|
| Productivity | 2 | 1 ³ / ₄ | 1 ³ / ₄ |
| Employment | ¹ / ₄ | ¹ / ₄ | - ¹ / ₄ |
| Real GDP | 2 ¹ / ₄ | 2 | 1 ¹ / ₂ |

Source: HM Treasury.

¹¹See *Budget 2000: Prudent for a Purpose: Working for a Stronger and Fairer Britain*, HM Treasury, March 2000 for a discussion of the methodology.

Box A.1: Projecting future employment trends

The illustrative long-term fiscal projections presented in this annex are based on the assumption that the total employment rate of the working-age population will remain constant in the future. This approach has the advantage that it is transparent and consistent with previous projection exercises, which have been based on the same assumption. One of the disadvantages is that it does not capture the impact of an ageing workforce on the total employment rate.

However, there are other approaches to projecting future employment trends. The dynamic cohort approach, for example, describes the effect of current young cohorts gradually replacing current older cohorts.^a By doing so, it explicitly takes into account that individuals belonging to any given generation or cohort have their own specific level of participation. For example, younger females today are much more likely to participate in the labour market than females of the same age, say, 20 or 30 years ago. It is reasonable to expect that the current generation of young females will participate in the labour market more over their entire working lives than their predecessors. Using gender and age-specific data, the cohort approach also captures the impact of an ageing workforce and the (assumed) effect of the increase in the female state pension age on total participation rates. The 2004 *Long-term public finance report* uses both modelling approaches to project employment trends and finds that, despite their differences, the overall projections are very similar.^b

^aSee *Coping with Ageing: A Dynamic Approach to Quantify the Impact of Alternative Policy Options on Future Labour Supply in OECD Countries*, OECD, June 2004.

^b2004 *Long-term public finance report: an analysis of fiscal sustainability*, HM Treasury, December 2004.

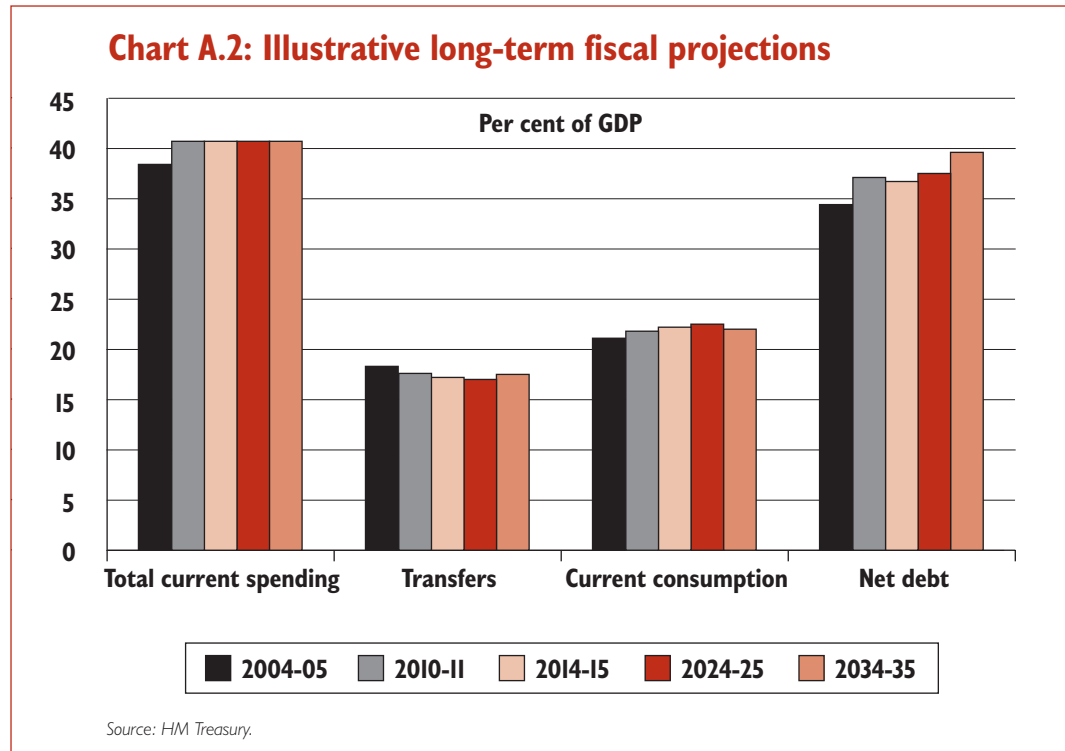
Taxation and spending assumptions **A.14** For the period up to and including 2009-10, the illustrative long-term fiscal projections are based on the forecasts and assumptions presented in Chapter C of the FSBR. Unless stated otherwise, policy settings in 2009-10 are then assumed to continue throughout 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 2009-10, 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 2010-11 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. the basic state pension) 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 interest rate in 2009-10; the last year of the medium-term forecast. 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 long-term fiscal projections, the share of public sector net investment in GDP is reset at 1.8 per cent beyond the medium term.

ILLUSTRATIVE PROJECTIONS

A.16 Chart A.2 shows the projected evolution of total current spending, transfers, current (public) consumption and net debt as a share of GDP between 2004-05 and 2034-35, given the assumptions stated above. Total current spending is projected to increase between 2004-05 and 2009-10, and then remain stable by assumption. Transfers are projected to fall from 18.3 per cent in 2004-05 to 17 per cent by the mid 2020s before rising again gradually, while current

consumption is projected to be more or less the same in 2034-35 as in 2010-11. Hence current consumption can grow at around the same annual rate as GDP, after the medium term, while still meeting the fiscal rules. Starting from just over 37 per cent in 2010-11, net debt is projected to fall initially before rising again, reaching 39.6 per cent by 2034-35, 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.



A.17 Transfers are projected to fall as a share of GDP until the mid 2020s mainly because most social security transfers are projected to rise less rapidly than nominal GDP. However, on current projections, this trend will be reversed in the second half of the 2020s as pension spending (as a share of GDP) will increase as the baby-boom generation reaches retirement age.

A.18 The illustrative long-term fiscal projections presented here yield similar conclusions to those presented in the 2004 *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 in a strong position relative to many other developed countries to face the challenges ahead. In addition to an overall assessment of long-term fiscal sustainability, the 2004 *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.19 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 2004 *Long-term public finance report* illustrates the effect of different assumptions of productivity, interest rates and future labour market and health trends.¹²

¹² 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.

INTERNATIONAL COMPARISONS

Population ageing: a global phenomenon

A.20 The UK is not the only developed country with an ageing population. In fact, the populations of many developed countries are projected to age more rapidly than the UK's. One of the best ways to capture the ageing process is through the evolution of the old-age dependency ratio. This ratio is calculated as the number of people aged 65 years and over relative to the number of people aged 16 to 64 years. Based on the GAD's latest principal population projections, the old-age dependency ratio will rise in the UK from around 25 per cent today to just above 40 per cent in the early 2030s and then further to around 45 per cent by the middle of the century.

A.21 By contrast, the ratio is projected to exceed 45 per cent on average in the EU15 by the mid 2030s and to reach 50 per cent by the 2050s. The picture is similar in the new Member States. The most marked increase is projected in Japan though, where the ratio is projected to reach more than 70 per cent by the 2050s. However, the ageing trend is not limited to the developed world: many emerging markets are also projected to age. For example, in China and India, the two most populous countries in the world, the ratio is projected to increase, respectively, from 10 to 37 per cent and from 8 to 22 per cent over the same period.¹³

Ageing and trend growth

A.22 Demographic changes, and in particular changes in the working-age population, are likely to affect the long-term growth potential of an economy. All else being equal, the slower the expansion of the working-age population, the lower will be trend growth. Combined with other long-term trends, differing population trends across countries and regions could therefore have profound effects on the balance of global economic activity in the decades to come.¹⁴

A.23 The US is ageing slowly by comparison with other developed 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 and health spending. The CBO projects that spending on social security will increase from 4.4 per cent of GDP in 2003 to 6.2 per cent by 2050, while spending on Medicare and Medicaid (the two principal public health care schemes) is projected (in an 'intermediate spending path scenario') to rise from just under 4 per cent of GDP in 2003 to 11½ per cent by 2050, due to a combination of demographic and non-demographic factors.¹⁵ The CBO also acknowledges the wide degree of uncertainty in these projections, particularly in the area of health care, with a 'low spending path scenario' projecting a modest increase in Medicare and Medicaid spending to 6.4 per cent of GDP, while the share would rise to 21.3 per cent in a 'high spending path scenario'.

EU A.24 Many EU countries face significant challenges from ageing populations. In October 2003, the EU's Economic Policy Committee (EPC) published detailed findings on the impact of ageing populations on the public finances.¹⁶ The EPC found that age-related spending will rise substantially in many Member States over the coming decades if policies remain unchanged but also noted that projected age-related spending increases are not necessarily highest in those countries with the most rapidly ageing population.¹⁷ Despite recent efforts in

¹³ With the exception of the GAD-generated UK-specific projections, the figures presented are based on United Nations' projections. See United Nations, *World Population Prospects: The 2002 Revision*. Also see *Budget 2004: Prudence for a purpose: A Britain of stability and strength*, HM Treasury, March 2004.

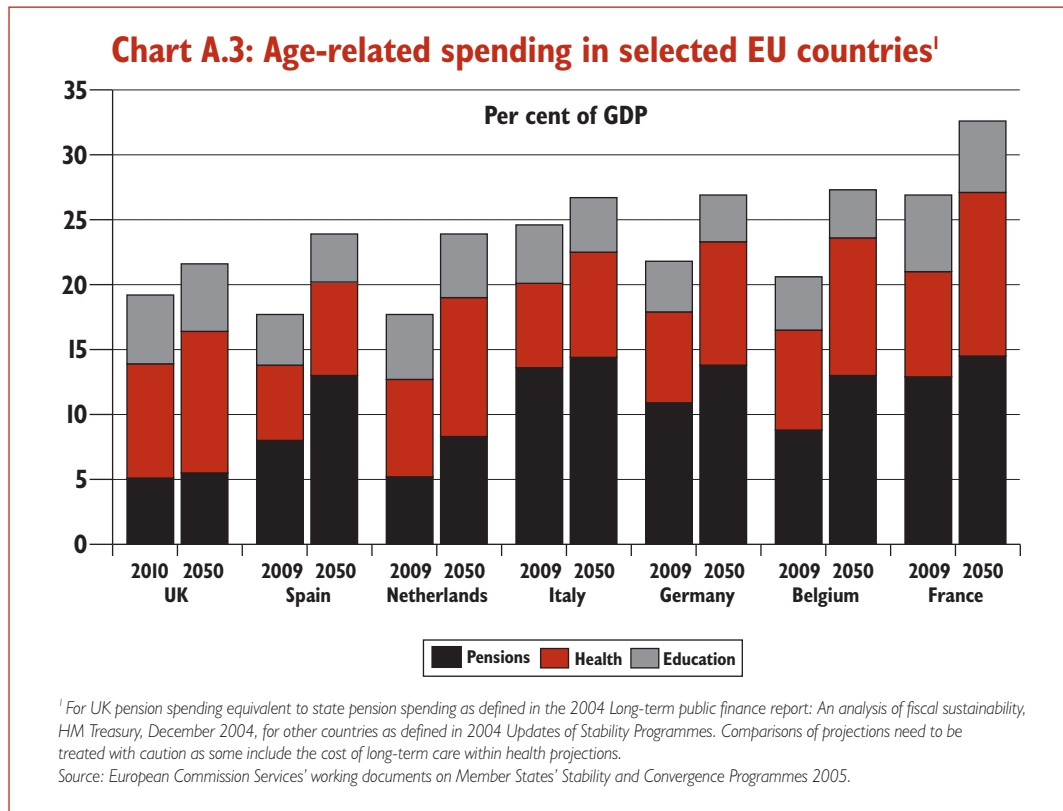
¹⁴ See *Long-term global economic challenges and opportunities for Europe*, HM Treasury, March 2005 for more details.

¹⁵ *The Long-Term Budget Outlook*, Congressional Budget Office, December 2003. Also see *The Economic Costs of Long-Term Federal Obligations*, Congressional Budget Office, February 2005.

¹⁶ *The impact of ageing populations on public finances: overview of analysis carried out at EU level and proposals for a future work programme*, Economic Policy Committee, October 2003.

¹⁷ The CBO and EPC health projections are not directly comparable as the former include non-demographic drivers, whereas the latter are based on demographic changes only.

a number of EU Member States to control future spending increases, the latest projections continue to confirm the EPC findings. Chart A.3 shows the projected evolution of age-related spending over the coming decades in the seven largest EU countries.¹⁸ It shows that age-related spending in the UK is projected to rise only moderately over the next five decades to reach a relatively low level by 2050. This contrasts with substantial projected increases in some other countries.



A.25 In 2002, the Council of European Finance Ministers (ECOFIN) asked the EPC to provide a new set of long-term fiscal projections in 2005. Key objectives of the exercise are to widen the projections to cover the ten new Member States that joined in May 2004, to incorporate recent policy developments in EU Member States, to use updated and refined assumptions and modelling techniques, and to raise the degree of cross-country comparability of the projections.

A.26 Other developed countries will also have to deal with the fiscal challenges arising from an ageing population. Due to its rapidly ageing population, these challenges are particularly marked in Japan. The Japanese Ministry of Health, Labour and Welfare, which manages social security spending, including health and pensions, estimates that the funds necessary to finance the current social security system will need to rise from 16 per cent of GDP in 2002 to nearly 25 per cent by 2025.¹⁹ The Australian Treasury projected that the deficit on the primary balance could reach around 5 per cent of GDP by 2041-42, mainly as a result of substantially higher projected health spending.²⁰ The Australian Treasury intends to update its findings every few years. Canada provides another interesting example of a developed country that is preparing for the fiscal impact of an ageing population. Mainly as a result of rapid population ageing, the Canadian Department of Finance projects that health spending

¹⁸ In terms of purchasing power parity adjusted GDP in 2004. See <http://www.europa.eu.int>.

¹⁹ 'Assessing the long-term fiscal position of Japan', International Monetary Fund, 2003, in: *Japan: Selected Issues*.

²⁰ The Australian Treasury found that non-demographic factors are likely to be the main driver of future health spending increases. See *Intergenerational Report 2002-03*, Department of the Treasury of Australia, May 2002.

will increase from 7.1 per cent of GDP in 2004 to 11.2 per cent by 2050. The ageing process will also put substantial pressure on the country's social security programmes. To meet this challenge, the Canadian government set itself the objective in 2004 to reduce the federal debt to GDP ratio to 25 per cent within ten years.²¹

CONCLUSIONS

A.27 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 2004 *Long-term public finance report*. Current public consumption can grow at around the same rate as GDP 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 in a strong position to face future challenges relative to other developed countries.

A.28 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.

²¹ *The Budget Plan 2005: Delivering on Commitments*, Department of Finance Canada, February 2005.

