

Executive summary

- 1 The past three years have seen a severe deterioration in the fiscal position of governments around the world, especially in developed countries. In the UK, the banking crisis and recession of 2008 and 2009 fuelled the largest budget deficit in our peacetime history and a big increase in public sector indebtedness.
- 2 In our March 2011 *Economic and fiscal outlook (EFO)*, we forecast that public sector net borrowing would shrink from 11.1 per cent of GDP in 2009-10 to 1.5 per cent in 2015-16 as the economy recovers and as the Government's fiscal consolidation is implemented. We forecast that public sector net debt would peak at 70.9 per cent of GDP in 2013-14, before falling back slightly to 69.1 percent in 2015-16.
- 3 In this *Fiscal sustainability report* we consider the outlook beyond this medium-term forecast horizon and ask whether the UK public finances are sustainable over the long term. Our approach is twofold:
 - first, we look at the fiscal impact of past government activity, as reflected in the assets and liabilities accumulated on the public sector's balance sheet. Some balance sheet measures include the present value of some future spending flows; and
 - second, we look at the potential fiscal impact of future government activity, by making 50-year projections of all public spending, revenues and significant financial transactions, such as government loans to students.
- 4 These projections suggest that the public finances are likely to come under pressure over the longer term, primarily as a result of an ageing population. Under our definition of unchanged policy, the Government would end up having to spend more as a share of national income on age-related items such as pensions and healthcare. But the same demographic trends would leave government revenues roughly stable as a share of national income.
- 5 In the absence of offsetting tax increases or spending cuts this would eventually put public sector net debt on an unsustainable upward trajectory. It is likely that such a path would lead to lower long-term economic growth and higher interest rates, exacerbating the fiscal problem. The UK, it should be said, is far from unique in facing such pressures.

- 6 Needless to say, while our remit is to look at the fiscal challenges of an ageing population, the fact that people are living longer – and longer in good health – is clearly something that society should welcome.
- 7 Separate from our central projections, we also present evidence that non-demographic trends are likely to reduce revenue from sources such as transport taxes and North Sea oil as a share of national income over the next 30 years. Governments are likely to need some replacement sources of revenue to keep the tax burden constant, let alone to meet the costs of an ageing population.
- 8 Long-term projections such as these are highly uncertain and the results we present here should be seen as broad brush illustrations rather than precise forecasts. We illustrate some of the uncertainties around them through sensitivity analyses – by varying key assumptions regarding demographic trends, whole economy and health sector productivity growth, and the position of the public finances at the end of our medium-term forecast horizon.
- 9 It is important to emphasise that we focus here on the additional fiscal tightening that might be necessary beyond this parliament. The report should not be taken to imply that the substantial fiscal consolidation already in the pipeline for the next four years should be made even bigger. That said, policymakers and would-be policymakers should certainly think carefully about the long-term consequences of any policies they introduce or propose in the short term. And they should give thought too to the policy choices that will confront this and many other industrial countries once the challenge of the current crisis-driven consolidation has passed.

Public sector balance sheets

- 10 We assess the fiscal impact of past government activity by looking at measures of assets and liabilities on the public sector balance sheet. In this report we draw on longstanding National Accounts balance sheet measures and also the long-awaited Whole of Government Accounts (WGA) that the Treasury is publishing for the first time alongside this report in unaudited summary form.
- 11 The current and previous governments have both set targets for the National Accounts measure of public sector net debt (PSND) – the difference between the public sector's liabilities and its liquid financial assets. In March 2011, PSND stood at £906 billion, 60 per cent of GDP or £35,000 per household. Public sector net worth (PSNW) is a broader measure, which also includes physical and illiquid financial assets. At the end of 2009, PSNW stood at £138 billion, 10 per cent of GDP or £5,700 per household. The Treasury has never used PSNW as a target, because reliable estimates of physical assets are hard to construct.

- 12 Commentators often criticise the use of PSND as an indicator of fiscal health (and the same criticisms would apply to PSNW) as this measure excludes future liabilities arising from past government action, for example payments to Private Finance Initiative (PFI) providers and the accrued rights to pension payments built up over the past by public sector workers.
- 13 More information on future and potential liabilities arising from past government action is available in the WGA. These are produced using commercial accounting rules and they have somewhat broader coverage than PSND and PSNW, both in the accounts themselves and in accompanying notes. According to the unaudited WGA:
- the net present value of future **public sector pension payments** arising from past employment was £1,133 billion or 78.7 percent of GDP at the end of March 2010. This was £331 billion higher than a year earlier, but almost £260 billion of this increase had nothing to do with changes in the size of prospective pension payments. Instead, it reflected a fall in the discount rate used to convert these future payments into a one-off sum. The discount rate is linked to the real yield on high-quality corporate bonds, which fell over the year;
 - the total capital liabilities arising from **Private Finance Initiative** contracts were around £40 billion or 2.9 per cent of GDP in March 2010. (Only £5.1 billion of these were on the public sector balance sheet in the National Accounts and therefore included in PSND and PSNW);
 - there were a further £105 billion (7 per cent of GDP) in **provisions** for future costs that are expected (but not certain) to arise, most significantly the hard to predict costs of nuclear decommissioning; and
 - there were also £207 billion (14.4 per cent of GDP) of quantifiable **contingent liabilities** – costs that could arise in the future, but where the probability of them doing so was seen as less than 50 percent. These included £175 billion of guarantees and similar undertakings arising from interventions to stabilise the financial sector. Contingent liabilities appear in the notes to the WGA, rather than on its balance sheet.
- 14 Compared to PSND, the WGA balance sheet also includes the value of tangible and intangible fixed assets, estimated at £759 billion or 52.7 percent of GDP in March 2010. The overall public sector net liability in the WGA was £1,216 billion or 84.5 per cent of GDP at end-March 2010, compared to a PSND of £760 billion or 52.8 per cent of GDP at the same date.
- 15 The publication of the WGA is a welcome contribution to the transparency of the public finances and we look forward to seeing the final audited version. The

WGA will become increasingly useful as a time series builds up, allowing users to compare movements in the two sets of balance sheet measures over time.

- 16 That said, there are significant limitations in what public sector balance sheets alone can tell us about fiscal sustainability. For one thing, there is the sensitivity of balance sheet measures to the choice of – and movements in – the discount rate, as the change in the public service pension liability between 2009 and 2010 illustrates. We cannot easily quantify how much difference the choice of discount rate makes in aggregate, as the different accounts consolidated into the WGA use a variety of different discount rates according to their own accounting rules.
- 17 More fundamentally, balance sheet measures look only at the impact of past government activity. They do not include the present value of future spending that we know future governments will wish to undertake, for example maintaining health, education and pension provision. And, just as importantly, they exclude the public sector's most valuable financial asset – its ability to levy future taxes. This means that we should not overstate the significance of the fact that PSND and the WGA balance sheet both show the public sector's liabilities outstripping its assets, or that our latest EFO forecast shows PSNW turning negative this year.

Long-term projections

- 18 We assess the potential fiscal impact of future government activity by making long-term projections of government revenue, spending and financial transactions on the basis of our assumptions regarding long-term policy. In doing so we assume that spending and revenues initially evolve over the next five years as we forecast in our March 2011 EFO. This allows us to focus on long-term trends rather than making revisions to the medium-term forecast.

Demographic and economic assumptions

- 19 Demographic change is a key source of long-term pressure on the public finances. Like many developed nations, the UK is projected to have an 'ageing population' over the next few decades. This reflects increasing life expectancy, declining fertility, and the 'demographic bulge' created by the post-WWII 'baby boom'.
- 20 We base our analysis on projections of the UK population produced by the Office for National Statistics (ONS) every two years. Under the ONS scenario that we use for our central projection, the proportion of the population aged 65 and above rises from roughly 17 per cent in 2011 to roughly 26 per cent in 2061, and net inward migration flows average roughly half the rate seen in

recent years. We examine various alternative scenarios in which the age structure is older or younger, and in which migration flows stay closer to recent levels.

- 21 As regards the economy, we assume in our central projection that whole economy productivity growth will average 2 per cent a year on an output per worker basis, in line with the average rate over the past 50 years. But we also run alternative scenarios with productivity growth averaging 1.5 and 2.5 percent. We assume CPI inflation of 2 per cent (in line with the Bank of England’s target) and a long-term GDP deflator inflation rate of 2.7 per cent.

Defining ‘unchanged’ policy

- 22 Fiscal sustainability analysis is designed to identify whether and when changes in government policy may be necessary to move the public finances from an unsustainable to a sustainable path. To make this judgement, it is necessary to define what we mean by ‘unchanged’ policy in our long-term projections.
- 23 Government policy is rarely clearly defined over the long term. And, in many cases, simply assuming that a stated medium-term policy continues for 50 years would lead to an unrealistic outcome. Where policy is not clearly defined over the long term, the *Charter for Budget Responsibility* allows us to make appropriate assumptions. These are set out clearly in the report.
- 24 The most significant definitions of unchanged policy that we need to make are regarding how to up-rate income tax allowances and thresholds, and working age benefit rates. Our medium-term forecasts assume that governments increase these in line with inflation in the absence of a stated decision to do otherwise. But there is no stated policy for us to adopt over the long term. Over the long term, earnings tend to rise more quickly than prices. So if the medium-term definition of unchanged policy was sustained over the longer term, the average tax rate would rise relentlessly as people found more of their income moving into higher tax brackets (‘fiscal drag’) and working age benefits would become steadily less generous relative to the average incomes of those in work.
- 25 We assume instead that income tax allowances and thresholds, and working age benefit rates, rise in line with earnings rather than prices beyond 2015-16. This would keep income tax receipts and benefit costs broadly constant as a share of GDP, other things being equal. Up-rating in line with inflation would increase income tax and national insurance contributions by roughly 2.6 per cent of GDP and reduce working age benefit costs by 1.6 per cent of GDP by 2030-31.
- 26 Consistent with the *Charter for Budget Responsibility*, we only include the impact of policy announcements in our central projections when they can be quantified with “reasonable accuracy”. The Government has identified a number of public

sector assets that it is considering to sell, but it has not announced firm decisions as to whether, when and how to sell them. For that reason, we do not include estimates of the resulting sale proceeds and losses of future income flows in our central projection. But we do discuss their potential impact in online Annex A.

- 27 In our central projections, our assumption for unchanged policy is that beyond 2015-16 underlying spending on public services, such as health, rises in line with per capita GDP. But health care is relatively labour intensive, so we might expect productivity growth in the sector to lag the rest of economy even though wages have to keep up. This implies that if we were to define unchanged policy as keeping health sector output growing at the same rate as the economy, governments would need to spend an increasing share of GDP to do so. We therefore show an alternative set of projections in which health care spending per capita rises by 3 per cent a year in real terms rather than our central projection of 2 per cent.

Results of our projections

- 28 Having defined unchanged policy we apply our demographic and economic assumptions to produce projections of spending and revenue streams over the next fifty years.

Expenditure

- 29 Population ageing will put upward pressure on public spending. In our central projection, spending other than on debt interest rises from 36.3 per cent of GDP at the end of our medium-term forecast in 2015-16 to 41.7 percent of GDP by 2060-61, an increase of 5.4 per cent of GDP or £80 billion in today's terms.
- 30 The main drivers are upward pressures on key items of age-related spending:
- **health spending** rises from 7.4 per cent of GDP in 2015-16 to 9.8 per cent of GDP in 2060-61, rising smoothly as the population ages. If healthcare spending per capita was to rise by 3 per cent a year in real terms, as explained above, this could increase spending by a further 5.3 percent of GDP by 2060-61;
 - **state pension costs** increase from 5.5 per cent of GDP to 7.9 per cent of GDP as the population structure ages and State Second Pension entitlements mature. We assume that the 'triple guarantee' means that the value of the Basic State Pension rises by earnings growth plus 0.2 percentage points a year; and
 - **social care costs** rise from 1.2 per cent of GDP in 2015-16 to 2 per cent of GDP in 2060-61. The broad trend is in line with projections published by

the Commission on the Funding of Care and Support on July 4, although the results are not directly comparable. We have not pre-judged the Government's response to the report.

- 31 These increases are partially offset by a fall in **gross public service pension payments** from 2 per cent of GDP in 2015-16 to 1.4 per cent in 2060-61. These costs fall as a result of the decision to up-rate pensions in payment by CPI rather than RPI, the current pay freeze and planned workforce reductions. These projections are very similar to those in the final report of the Independent Public Service Pensions Commission, chaired by Lord Hutton. We have not made any assumptions about the implementation of Lord Hutton's recommendations.

Revenue

- 32 Demographic factors will have less impact on revenues than on spending. Total revenues are projected to rise from 38.4 per cent of GDP at the end of our medium term forecast in 2015-16 to 39.3 per cent of GDP in 2060-61, an increase of 0.9 per cent of GDP or £13 billion in today's terms.
- 33 The biggest increase is in capital tax receipts, which are projected to rise from 1.2 per cent of GDP in 2015-16 to 1.7 per cent of GDP in 2060-61. More than half this rise comes from inheritance tax, reflecting the fact that the elderly will be a growing proportion of the population.
- 34 Long-term fiscal sustainability analyses tend to assume that revenues are constant as a share of GDP or (as in our central projection) that they move only in line with demographic changes. But we also include in this report a detailed discussion of non-demographic factors that might affect the size of particular revenue streams over the long term. The key areas covered are:
- **income tax**, where we show that revenues increase if income growth is skewed toward the top end of the income distribution, as has been the case over the past couple of decades;
 - **transport taxes**, where improvements in fuel efficiency could reduce revenue from fuel duty and VED by around 1 per cent of GDP by 2030;
 - **North sea revenues**, which are projected to decline by around 0.8 per cent of GDP from 2011-12 as production falls; and
 - **other environmental taxes**, where revenue from the climate change levy, EU ETS auction receipts and the carbon price floor could rise by around 0.3 per cent of GDP. Tobacco duty is also expected to decline by 0.3 per cent of GDP as consumption falls.

- 35 Overall, this analysis suggests that revenue from these sources could decline by up to 2 per cent of GDP in the next thirty years. So future governments are likely to need to find replacement revenue streams to keep the tax burden constant, let alone to meet the costs of the ageing population.

Financial transactions

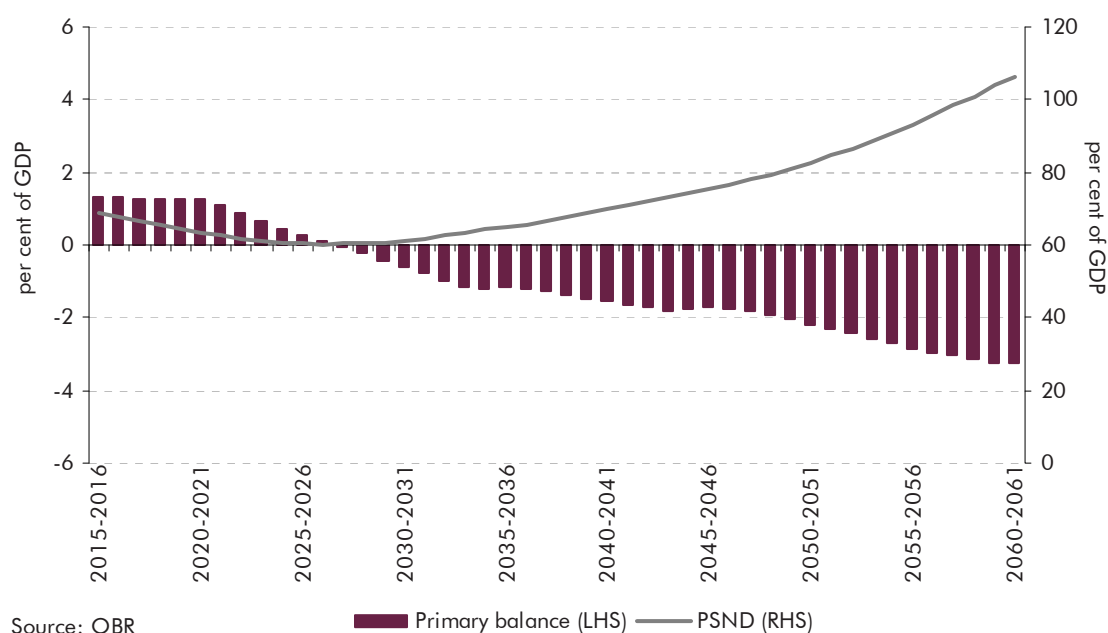
- 36 In order to move from spending and revenue projections to an assessment of the outlook for public sector net debt, we need also to include the impact of public sector financial transactions that affect net debt directly.
- 37 For the majority of financial transactions, we assume that the net effect is zero. One exception is the impact of the student financial support arrangements announced in December 2010. Student loans are projected to increase net debt by a maximum of 4.3 per cent of GDP (£63 billion in today's terms) around the early 2030s, falling to 3.3 per cent of GDP (£49 billion) by 2060-61 as the value of loan repayments rises relative to the value of new loans made.
- 38 If we were to include all off balance sheet Private Finance Initiative capital liabilities in PSND, then as of March 2010 this would have increased PSND by around £35 billion or 2.5 per cent of GDP.
- 39 We do not include the potential impact of mooted asset sales in our central projections, as their impact cannot be quantified with "reasonable accuracy". But we do note them as fiscal risks. The two most likely to have a material impact are the shareholdings in public sector banks, which if sold at current market prices would generate a loss of £13.5 billion for the taxpayer, and the sale of spectrum, which is an upside risk to the public finances, but one that is very hard to quantify.

Projections of the primary balance and public sector net debt

- 40 Our central projections show public sector revenues increasing as a share of GDP beyond our medium-term forecast horizon, but not as quickly as public spending. As a result, the primary budget balance (the difference between revenues and non-interest spending), which is shown in Chart 1 is projected to move from a surplus of 1.3 per cent of GDP in 2015-16 to a deficit of 3.2 per cent of GDP in 2060-61 – a deterioration of 4.5 per cent of GDP or £66 billion in today's terms.
- 41 Taking this and our projection of financial transactions into account, PSND is projected to fall from 69 per cent of GDP in 2015-16 to a trough of 60 per cent in the mid-2020s, before rising increasingly quickly to reach 107 per cent of GDP in 2060-61. The importance of demographic pressures in driving this

increase is evident from that fact that if instead the primary balance remained constant beyond 2015-16 PSND would fall to zero by the late 2050s.

Chart 1: Central projection of the primary balance and PSND



- 42 Needless to say, there are huge uncertainties around any projections extending this far into the future. And it is therefore important to be aware of the sensitivity of our central projections to the assumptions that underlie them.
- 43 The position of the public finances at the end of our medium term forecast horizon is a key sensitivity, as the structural difference between spending and revenue at that point is effectively locked into the long-term projections. If the structural primary balance in 2015-16 was worse by 1 per cent of GDP than in our EFO forecast then net debt would increase to around 150 per cent of GDP rather than 107 per cent by 2060-61. A structural gap one per cent better than in our central projection in 2015-16 would keep debt on a relatively sustainable path.
- 44 The eventual increase in PSND would be bigger than in our central projection if long-term interest rates turned out to be higher relative to long-term economic growth, if long-term productivity growth was weaker (as this pull down receipts, but not those areas of spending linked to prices), or if the age structure of the population was to turn out older than in our central projection.

- 45 Higher net inward migration than in our central projection – closer to the levels we have seen in recent years, for example – would put downward pressure on borrowing and PSND, as net immigrants are more likely to be of working age than old age than the population in general. This effect would reverse over a longer time horizon, when the immigrants reach old age.
- 46 Under the scenario in which governments respond to relatively weak productivity growth in the health service by increasing underlying health spending per capita by 3 per cent a year in real terms, the upward debt trajectory would be much more steep. PSND would be in excess of 200 per cent of GDP by the late 2050s.

Economic feedbacks

- 47 Left unaddressed, persistent fiscal deficits could have a number of negative consequences for the economy, and therefore for fiscal sustainability, that are not captured by our central projections. If fiscal deficits reduce national saving, raise interest rates and ‘crowd out’ investment, this would lead to lower levels of output and a reduction in living standards. Higher levels of debt can also restrict policymakers’ ability to respond to future economic difficulties.
- 48 Persistent deficits should be distinguished from temporary deficits, which may be used to help boost economic activity in the short run when economic activity is below its trend level. The short-run effects of current fiscal policy on the economy are captured in our medium-term forecasts. In the longer-term projections in this report, output is assumed to remain at its sustainable trend level from 2017-18 onwards.
- 49 Historical correlations suggest that a £1 increase in the fiscal deficit is associated with an increase in private saving of around 80p and a widening of the current account of 1p. Assuming, for the purposes of illustration, that this holds true in the future, then if the deficit evolved as in our central projection, the capital stock would be around 4 per cent smaller and the level of real GDP around 1 per cent lower by 2060-61 than our central projections assume.
- 50 Using a simple illustrative rule of thumb that a 1 per cent increase in the fiscal deficit raises interest rates by 20 to 30 basis points, the path of deficits in our central projection would also increase the debt-to-GDP ratio by 2 to 3 per cent of GDP in 2060-61 (including the impact of crowding out).

Summary indicators of fiscal sustainability

- 51 Our central projections, and several of the variants we calculate, show that on current policy we would expect the budget deficit to widen sufficiently over the long-term to put public sector net debt on a continuously rising trajectory as a share of national income. This is clearly unsustainable.
- 52 Summary indicators of sustainability can be used to illustrate the scale of the challenge more rigorously and to quantify the tax increases and/or spending cuts necessary to return the public finances to different definitions of sustainability.
- 53 Most definitions of fiscal sustainability are built on the concept of solvency – the ability of the government to meet its future obligations. In formal terms the government’s ‘inter-temporal budget constraint’ requires it to raise enough revenue in future to cover all its non-interest spending and also to service and eventually pay off its outstanding debt over an infinite time horizon. Under our central projections, the government would need to increase taxes and/or cut spending permanently by a little over 3 per cent of GDP (£45 billion in today’s terms) from 2016-17 onwards to satisfy the inter-temporal budget constraint through an immediate and permanent adjustment.
- 54 The inter-temporal budget constraint has the attraction of theoretical rigour, but it also has several practical limitations. For example, it assumes that governments will eventually wish to eliminate their debts entirely, which relatively few have expressed a desire to do. Revenue and spending projections over 50 years are uncertain enough; projections over an infinite horizon are clearly far more so. And the use of an infinite horizon could also allow governments to run substantial deficits for a considerable period as long as they promise offsetting surpluses in the potentially far distant future. This is hard to promise credibly.
- 55 For these reasons sustainability is more often quantified by asking how big an immediate and permanent spending cut or tax increase is necessary to move public sector net debt to a particular target level at a particular target date. This is referred to as the ‘fiscal gap’. The current Government does not have such a long-term target. So, for illustration, we calculate the additional fiscal tightening necessary from 2016-17 to return PSND to its roughly pre-crisis level of 40 per cent of GDP and to return it to the near-term peak we forecast in the EFO of 70 per cent of GDP, both at the end of our projection horizon in 2060-61.
- 56 Under our central projections, the government would need to implement a permanent tax increase or spending cut of 1.5 per cent of GDP (£22 billion in today’s terms) in 2016-17 to get debt back to 40 per cent and 0.8 per cent of GDP (£12 billion in today’s terms) to get it back to 70 per cent.

- 57 These calculations depend significantly on the health of the public finances at the end of our medium-term forecast. If the structural budget balance was 1 per cent of GDP weaker or stronger in 2015-16 than we forecast in the EFO (which would imply an underlying deficit that much greater throughout the projection horizon), then the necessary tightening would be bigger or smaller by the same amount.
- 58 The sensitivity factors that we identified in the previous section as posing upward or downward risks to our central projections for PSND similarly pose upward or downward risks to our estimates of fiscal gaps. The most dramatic would be the scenario of annual 3 per cent per capita real growth in health spending; this would increase the necessary permanent policy adjustment in 2016-17 to 3.9 per cent of GDP for the 40 per cent target or 3.2 per cent of GDP for the 70 per cent target.
- 59 Governments need not respond to fiscal pressures with a one-off permanent tightening, of course. As an alternative to the tightening of 1.5 per cent of GDP in 2016-17 necessary to meet the 40 per cent target, governments could opt for a series of tax increases or spending cuts worth an additional 0.5 per cent of GDP each decade. A more gradual adjustment would mean a smaller fall in the debt to GDP ratio in the early years before PSND begins to rise again towards the target level as the upward pressures on spending mount.
- 60 There is considerable uncertainty surrounding the scale of the fiscal challenge that confronts future governments, but the fact there is such a challenge is not in doubt. Neither is this a challenge confined to the UK. As the International Monetary Fund argued in their Fiscal Monitor in April: *“Although substantial fiscal consolidation remains in the pipeline, adjustment will need to be stepped up in most advanced economies, especially to offset the impact of age-related spending... From an even longer-term perspective, spending on pensions – and especially, health care – constitutes a key challenge to fiscal sustainability.”*