OECD Economic Outlook,
Volume 2012/1

Chapter 4

MEDIUM AND LONG-TERM SCENARIOS FOR GLOBAL GROWTH AND IMBALANCES

Introduction and summary

This chapter considers long-term prospects and risks for the world economy

Many countries face a long period of adjustment to erase the legacies of the crisis, particularly high unemployment, excess capacity and large fiscal imbalances. Further ahead, demographic changes, including ageing, and fundamental forces of economic convergence will bring about massive shifts in the composition of global GDP. To illustrate the nature and scale of some of the policy challenges posed by these developments, this chapter describes medium and long-term scenarios for OECD and non-OECD G20 countries using a new modelling framework to extend the short-term projections described in Chapters 1 to 3. This framework focuses on the interaction between technological progress, demographic change, fiscal adjustment, current account imbalances and structural policies. The scenarios suggest that gradual but ambitious fiscal consolidation and structural reforms could bring about substantial gains in growth as well as reducing a range of risks, particularly by reducing large fiscal and current account imbalances.

The key findings are:

The main conclusions are:

The next 40 years will see major changes in the relative size of economies…

- Growth of the present non-OECD economies will continue to outpace that of the present OECD countries, driven primarily by catch-up in multi-factor productivity, but the difference will likely narrow substantially over coming decades. From over 7% per year on average over the last decade, non-OECD growth may decline to around 5% in the 2020s and to about half that by the 2040s. Until 2020, China will have the highest growth rate among major countries, but could be then surpassed by both India and Indonesia. Fast growth in China and India will take their combined GDP, measured at 2005 purchasing power parities (PPPs), from less than half of the total output of the major seven OECD economies in 2010 to exceeding it by around 2025. China's GDP is projected to surpass that of the United States in 2017.

… but large gaps in living standards will persist in 2050

- Large GDP per capita differences will persist despite more rapid growth in poorer countries; for example, by 2050 GDP per capita in China and Russia will be about half of that of the leading countries, while in Brazil it will be about 40% and in India and Indonesia it will be about one-quarter. Among OECD countries, the most rapid catch-up in income per capita will likely occur in initially lower-income countries (Mexico, Turkey, Chile and Eastern European countries) while the dispersion in income per capita among initially high-income countries will change only marginally.

Fiscal and current account imbalances are expected to worsen

- In the absence of ambitious policy changes, in particular if governments just undertake sufficient measures to stabilise public debt, worsening and re-emerging imbalances could undermine growth prospects. Firstly, as the current cycle unwinds, the scale of global current account imbalances may increase to pre-crisis peaks by the late 2020s. In addition, in many OECD countries government indebtedness will exceed thresholds at which there is evidence of adverse effects on interest rates, growth and the ability to stabilise the economy.

Consolidation needs to stabilise debt are substantial for many countries

- Fiscal consolidation requirements are substantial in many countries, particularly in the two largest. For Japan, stabilising the debt-to-GDP ratio would eventually require a total improvement in the underlying primary balance of 13 percentage points of GDP from the 2011 position, with little progress expected over the next two years.[1] For the United States, the total required fiscal consolidation to stabilise debt is about 6½ percentage points of GDP, of which about 2½ percentage points is expected to be achieved by 2013. Other countries for which consolidation requirements are large include the euro area countries that have been under financial market pressure: Ireland, Greece, Portugal and Spain. To stabilise debt they require between 4 and 7 percentage points of GDP improvement in the underlying primary balance from the 2011 position on average until 2030, but most of this adjustment is expected to be completed within the next two years. Other OECD countries requiring more than 4 percentage points of GDP of consolidation from 2011 include Poland, Slovak Republic, Slovenia and United Kingdom. In addition, for a typical OECD country, additional offsets of 3 to 4% of GDP will have to be found over the coming 20 years to meet spending pressures due to increasing pension and health care costs.

On this basis there are large differences in the adequacy of current official plans

- The United States and Japan also stand out because there is, as yet, a lack of any detailed official medium-term fiscal plan that would be sufficient to stabilise debt. Japan has a medium-term plan, but it is not sufficiently ambitious. In the United States, there are a number of fiscal plans, but political disagreement makes the extent, pace and instruments of future consolidation very uncertain. Very substantial front-loaded consolidation is planned in those euro area countries – Greece, Ireland and Portugal – that requested assistance from the European Union and the IMF. For these countries, and for most other

1. For both Japan and the United States, the consolidation requirements reported here are higher than the average consolidation reported in Table 4.3, because a protracted period of adjustment implies the total increase in the underlying primary balance by the end-year (2030 for the United States and 2040 for Japan) is significantly larger than the average increase over the period from 2011 to the end-year. For other countries, where the requirement is smaller and/or much of the adjustment is expected by 2013, the difference between the average and end-year measure is typically small.

countries where consolidation needs are most severe, official medium-term consolidation plans exceed the requirements to stabilise debt, so their implementation would put the debt ratio on a downward path.

To reduce debt levels rapidly would require much greater consolidation

- Consolidation requirements would be more demanding if the aim were to lower debt-to-GDP ratios to 60%, which for most countries could be achieved before 2030. For the OECD area as a whole, fiscal tightening equivalent to a 6 percentage points of GDP increase in the underlying primary balance from the 2011 position would be required on average until 2030, although this calculation is dominated by the requirements of the two largest OECD economies. Among OECD economies for which debt exceeds 100% of GDP, lowering the debt ratio to 60% by 2030 requires 2-3 percentage points of GDP more consolidation than to only stabilise debt. Japan is an exception, however, as it would require much more consolidation and even then there would be little prospect of reaching a debt ration of 60% within the next two decades.

Sustaining fiscal consolidation would help reduce global imbalances and risks

- Because consolidation needs are higher in current account deficit countries, more ambitious long-term fiscal consolidation among OECD countries would help relieve global current account imbalances. Lowering government indebtedness to below thresholds where they risk affecting interest rates and lowering trend growth would also create fiscal space for dealing with future shocks, as well as reduce vulnerability to any future decline in global saving, whether due to ageing or other factors.

Ambitious reforms could boost growth and reduce imbalances

- A combination of ambitious fiscal consolidation efforts and deep structural reforms can both raise long-run living standards and reduce the risks of major disruptions to growth by mitigating global imbalances, raising aggregate OECD GDP in 2050 by 7% and non-OECD GDP by 13%, with much larger effects in countries where policy lags most behind best practice.

A new modelling framework based on conditional convergence

Scenarios are underpinned by a new modelling framework

Long-term growth projections are needed to facilitate the analysis of macroeconomic issues related to fiscal and international imbalances and demographic shifts, which develop gradually over long time horizons, as well as the effects of structural reforms on trend growth over the long run. While there is no single theory of economic growth, there is wide support for a view in which each country converges to its own steady-state trajectory of GDP per capita determined by the interface between global technological development and country-specific structural conditions and policies (so-called conditional convergence). The scenarios presented in this chapter are underpinned by a new model which is used to extend the short-term projections presented in Chapters 1 to 3 by about 40 years within a conditional convergence economic growth framework (Box 4.1).

Box 4.1. **The new modelling framework for long-term economic projections**

The new model is designed to extend the short-term projections over a horizon of about 40 years. It is a replacement for the OECD's Medium-Term Baseline (MTB) model (Beffy *et al*., 2006) which was also used to extend the short-term projections, but over a shorter horizon. The country coverage has also broadened to include all OECD countries as well as current non-OECD G20 countries (Argentina, Brazil, China, India, Indonesia, the Russian Federation, Saudi Arabia and South Africa), equivalent to about 90% of world GDP in 2010 at market exchange rates. The level of detail in the model is greater for OECD countries than for non-OECD countries, reflecting wider data availability for OECD countries, particularly in respect of fiscal accounts.

The backbone of the model is a consistent set of long-run projections for potential output. Potential output is based on a Cobb-Douglas production function with constant returns to scale featuring physical capital, human capital and labour as production factors plus labour-augmenting technological progress. By projecting these trend input components, assuming a degree of convergence in total factor productivity, potential output is also projected over a 40-year horizon. The degree of convergence in total factor productivity depends on the starting point, with countries farther away from the technology frontier converging faster, but it also depends on the country's own structural conditions and policies, hence the "conditional convergence" nomenclature. Given the long time horizon, even the baseline scenario includes changes in policies that affect the speed of convergence (see main text and Box 4.2).

In the long run, all countries grow at the same rate determined by the worldwide rate of technical progress, but cross-country GDP per capita gaps remain, mainly reflecting differences in technology levels, capital intensity and human capital. These in turn partly depend on differences in structural conditions and policies. In this framework, two forces can reduce cross-country GDP per capita gaps in the long run: first, countries that are initially below their steady state level of GDP per capita "catch up" to this level principally as a result of accumulation of different kinds of capital (human and physical) and improvements in efficiency driven by technology adoption and innovation; second, cross-country differences in steady-state GDP per capita are evened out as some structural conditions converge (*e.g.* due to globalisation) and best policy practices disseminate, affecting in turn factor accumulation, efficiency improvements and the speed of catch up.

Private saving rates for OECD countries are determined according to recent OECD empirical work (Kerdrain *et al.,* 2010), which suggests that demographic effects, captured by old-age and youth dependency ratios, are important drivers of long-term trends in saving, but with additional effects from fiscal balances, the terms of trade, productivity growth, net oil balances and the availability of credit. Total saving in OECD countries is then determined as the sum of public and private saving, assuming a 40% offset of any improvement in public saving from reduced private saving due to partial Ricardian equivalence (in line with recent OECD estimates, see for example Roehn, 2011). For non-OECD countries, the total saving rate is determined according to an equation, which is close to being a total economy variant of the private saving equation for OECD, with effects from the old-age and youth dependency ratios, the terms of trade, the availability of credit, the level of public expenditure (a proxy for public social protection) and productivity growth.

Short-term interest rates vary with the state of the cycle. Once the output gap has closed, they depend on the country-specific inflation target (see Box 4.2), on the growth rate of potential output and on a global balancing premium which keeps the global sum of current account balances stable. Long-term interest rates are determined as a forward convolution of short-term rates plus a fixed term premium plus a fiscal risk premium (see below). Interest rates affect both the cost of government debt servicing and also investment through the cost of capital.

Box 4.1. **The new modelling framework for long-term economic projections** *(cont.)*

Through the global interest rate balancing premium just mentioned, movements in long-term interest rates ensure that global saving and investment remain aligned, whereas imbalances at the national level are reflected in current account balances. An exception is a group of major non-OECD oil exporting countries, defined to include Saudi Arabia, Russia as well as 27 smaller non-OECD countries. For these countries, no individual projections of current balances are made. Rather, the combined current account balance of all non-OECD oil exporting countries is calculated based on projections of their balance of trade in oil. The real price of oil is assumed to rise by 5% per annum to 2020 and continue rising thereafter, but at a more moderate pace (see Box 4.2).

The fiscal side of the model ensures that government debt-to-GDP ratios stabilise over the medium term. This is achieved through alternative fiscal closure rules for the primary balance which either stabilise debt through a gradual improvement in the primary balance or target a specific (usually lower) debt-to-GDP ratio. Debt service responds to changes in debt and market interest rates, but with lags which reflect the maturity structure of debt. Higher debt levels are assumed to entail higher country-specific fiscal risk premia consistent with the findings of Égert (2010) and Laubach (2009): for every percentage point that the debt ratio exceeds a threshold of 75% of GDP, the fiscal risk premium applied to long-term interest rates increases by 2 basis points, with an additional increase of 2 basis points for every percentage point that the debt ratio exceeds 125%. No allowance for an additional interest rate premium is made for countries which do not have their own national currency.

Further details on the new model and on the methodology used to make the long-term projections are available in Johansson *et al.* (2012).

It should be kept in mind that projections made over several decades are inherently speculative, with many layers of uncertainty including the determinants of growth and the size of their impact on growth.

Output is assumed to return to potential over four to five years…

The long-term scenarios are anchored on the short-term projections for 2013,[2] beyond which output gaps are assumed to close smoothly over a period of four to five years (under both fiscal rules considered), depending on their initial size, and are generally almost entirely closed by 2018. This implies above-trend growth for the first few years of the projections in countries with negative output gaps in 2013, including where this gap is exceptionally large such as Greece, Ireland, Portugal and Spain. Also, despite continued and, in many cases, large negative output gaps over this period, no country experiences sustained deflation. Once the output gap is closed, output grows in line with potential and monetary policy ensures that inflation returns to a country or region-specific target (see Box 4.2).[3]

… but there are large risks and uncertainties around this path

The scenarios presented in this chapter thus provide a benign, even optimistic, medium-term outlook for the world economy. There are large risks around this central path that could derail the recovery in one or more countries, including: further crises of confidence around the debt of one or more governments; disorderly debt defaults; the collapse of one or more systemically important financial institutions or renewed concerns

2. An exception is that there is a minor discrepancy between the short-term and long-term projections for Japan, with the former including the most recent quarterly GDP update.
3. This is consistent with inflation expectations remaining fairly well anchored (both upwards and downwards) and with the operation of "speed-limit" effects.

Box 4.2. **Assumptions in the baseline long-term economic scenario**

The baseline represents a stylised scenario that includes the following structural and policy assumptions for the period beyond the short-term projection horizon that ends in 2013:

- The gap between actual and potential output in both OECD and non-OECD countries is gradually eliminated from 2013, for most countries within four to five years, depending on the size of the initial output gap.
- The upward pressure on oil prices, on which the short-term projections are based, is assumed to continue for the remainder of the decade, but is thereafter assumed to be mitigated by a supply response. Hence, an increase in real oil prices by about 5% per annum is assumed from 2013 to 2020, 2% per annum from 2020 to 2030 and 1% per annum thereafter.
- Bilateral exchange rates between most OECD countries remain unchanged in real terms. The real dollar exchange rate for non-OECD countries, as well as those OECD countries below a certain real per capita income threshold relative to the United States (taken to be 40%, and so including Chile, Mexico and Turkey), appreciates in line with convergence in living standards, through the so-called Harrod-Balassa-Samuelson effect, based on the empirical work of Frankel (2006).
- The availability of private-sector credit in the economy (relative to GDP) is assumed to gradually catch up with the situation in the United States – where private credit is assumed to remain constant at around 200% of GDP – with the gap assumed to close at 2% per annum. For example, this means that for an average of the BRIC countries, the availability of credit rises from just over one-third of that in the United States in 2010, to around three-quarters in 2050. The wider availability of credit in turn reduces precautionary saving and saving that reflects repressed consumption (in the case of the BRIC countries this effect reduces saving rates by about 2-3 percentage points).

Assumptions regarding monetary and fiscal policy are as follows:

- Policy interest rates continue to normalise as output gaps close and beyond that are directed to converge on a neutral real short-term rate, which in turn follows the potential growth rate of the economy.
- The target for inflation is generally taken to be 2%, with the following exceptions: Japan targets 1%; Australia, Poland, Iceland and Norway target 2.5%; Chile, Hungary, Mexico and Korea target 3%; Turkey targets 5%; Argentina, China, India and Russia target 4% and Brazil, Indonesia and South Africa target 4.5%.
- For those countries where the debt-to-GDP ratio is currently rising, there is a gradual increase in the underlying fiscal primary balance of ½ percentage point of GDP per year from 2013 onwards (1 percentage point per annum for Japan given the severity of the task of stabilising debt) through a combination of reduced government spending and higher revenues until the ratio of government debt to GDP is stable given long-term trend growth and long-term interest rates. The rule is symmetric so that countries for which the debt ratio is falling are assumed to undertake gradual fiscal expansion in order to stabilise debt ratios. It should be noted that in many cases this assumption may contradict current government plans and is not necessarily consistent with national or supra-national fiscal objectives, targets or rules. No allowance is made for Keynesian effects of consolidation on demand.
- There are no further losses to government balance sheets as a result of asset purchases or guarantees made in dealing with the financial crisis. No contribution to deficit or debt reduction is assumed from government asset sales.
- Effects on public budgets from population ageing and continued upward pressures on health spending are not explicitly included, or, put differently, they are implicitly assumed to be alleviated through reforms of relevant spending programmes or offset by other budgetary measures.

Box 4.2. **Assumptions in the baseline long-term economic scenario** *(cont.)*

Assumptions regarding structural policies are as follows:

- The share of active life in life expectancy is assumed to remain constant, hence the legal pensionable age is implicitly assumed to be indexed to longevity. In addition, recently-legislated pension reforms that involve an increase in the normal retirement age by 2020 are assumed to be implemented as planned, which lowers exit rates for the 50-to-64 age group in the countries concerned according to estimated elasticities and thus raises overall participation rates.[1] On average, these reforms raise total labour force participation in 2050 by 0.7 percentage points.
- Structural unemployment in OECD countries gradually returns to the lowest value estimated between 2007 and 2013. Unemployment in non-OECD countries where the level is currently above the OECD average is assumed to gradually converge to the average level of unemployment in OECD countries, while it remains unchanged in countries currently below the OECD average.
- The long-term trend increase in average years of schooling per worker (the proxy that represents human capital) is assumed to continue in all countries, which has two countervailing effects on aggregate labour force participation. On the one hand, a longer schooling period lowers the labour force entry rate of young cohorts. On the other hand, educated workers are more likely to enter the labour force once they have completed their education and possibly less likely to exit the labour force at older age. Due to these offsetting forces, the projected increase in educational attainment only moderately raises labour force participation – on average by 0.5 percentage points in 2050, although the effect is noticeably larger in some countries (*e.g.* Turkey, Mexico, Korea, Italy and Hungary).
- Countries with relatively stringent product market and trade regulations are assumed to gradually converge towards the average regulatory stance observed in OECD countries in 2011. For other countries regulations remain unchanged. This implies faster MFP growth in countries where the regulatory stance is currently more stringent than the OECD average.
- For non-OECD countries, a gradual increase in public spending on social protection is assumed, amounting on average to an increase of four percentage points of GDP to a level of provision similar to the average OECD country. It is further assumed that this is financed in a way in which there is no effect on public saving.

1. Countries for which adjustments to the exit rates of older workers are made on the basis of recently-legislated pension reforms include Australia, Belgium, Canada, the Czech Republic, Germany, Spain, Estonia, France, the United Kingdom, Greece, Hungary, Ireland, Israel, Italy, Japan, New Zealand, the Slovak Republic, Slovenia, Turkey and the United States.

around bank solvency that would further impair private credit necessary to fuel the recovery; worse-than-anticipated growth impacts from private-sector deleveraging; worse-than-anticipated drag from sustained and concurrent fiscal consolidation; a spike in energy prices from already elevated levels; and more generally risks from political turmoil, conflict or natural disaster. Any or a combination of these factors could tip countries back into recession or lead to stagnation (OECD, 2011a). Policies that could help reduce some of these risks are discussed in Chapter 1.

Policies play an important role in the baseline scenario

Structural and fiscal policies play an important role in the scenarios presented here. The projection framework takes into account the effect of labour market policies on developments in unemployment and labour force participation, the effect of product market and trade regulations on innovation and technological diffusion, as well as the effect of fiscal consolidation and enhanced welfare policies in emerging economies on

saving, global imbalances, indebtedness and capital accumulation *via* changes in the cost of capital. Over a time horizon covering several decades, these structural conditions and policies are likely to evolve, and so the baseline scenario incorporates a number of policy developments seen as probable in several areas (Box 4.2).[4] While these policy changes are, in some respects, significant and perhaps even ambitious, there remains considerable scope for further fiscal consolidation and structural reforms over the projection period to improve trend growth and reduce the build-up of macroeconomic imbalances, as explored in variant scenarios.

The crisis had permanent adverse effects on the level of potential output

Another optimistic assumption that underlies the scenarios presented here is that the crisis has only reduced the level of potential output and has had no permanent adverse effect on its growth rate. Compared with pre-crisis projections, the level of aggregate OECD potential output, both currently and over the next few years, has been revised downwards by about 2½ per cent.[5, 6] Underlying the loss are permanent reductions in capital endowment as firms have adjusted to the end of cheap financing and increases in the number of people becoming detached from the labour force as long-duration cyclical unemployment has evolved into structural unemployment. Some of the smaller countries, including Greece and Ireland, experienced losses exceeding 10% of potential output relative to pre-crisis projections, the difference *vis-à-vis* the OECD as a whole being attributable mainly to much larger negative hysteresis effects due to very large and sustained negative output gaps. Because even very large output gaps are assumed to close fairly quickly, the possibility of large negative output gaps persisting for several years, with hysteresis-type effects continuing to drag down the level of potential output, is thus a downside risk to the scenarios presented here.

OECD potential growth rates moderate over the long term mainly for demographic reasons

From 2013 onwards the growth rate of OECD-wide potential output recovers from the immediate post-crisis slowdown to average 2¼ per cent per annum over the period 2018-30 and beyond that 2% to 2050 (Table 4.1). The moderation of OECD potential growth over the long term is due to demographic factors, particularly ageing, as the population of working age and aggregate participation rates grow more slowly. The slowdown in the potential growth of non-OECD countries is much more marked, particularly because, in addition to the demographic effects, productivity growth slows as their economies catch up with the technology frontier and gaps in human capital, represented by years of schooling, begin to close.

4. Baseline projections for euro area countries receiving assistance from the European Union and IMF (*e.g.* Greece) do not take into account the impact of structural reforms announced in the recent programmes, which could alter growth prospects and fiscal positions for these countries.
5. Studies of the effect of past financial crises on GDP tend to find considerable heterogeneity in responses across different countries, with an important factor being how policy responds to the crisis, see for example Haugh *et al.* (2009).
6. While the downward revision may appear small, even prior to the crisis potential output growth was projected to fall significantly in most OECD countries on account of demographic changes.

Table 4.1. **Growth in total economy potential output and its components**

Annual averages, percentage change

	Output Gap	Potential real GDP growth				Potential labour productivity growth (output per employee)				Potential employment growth				Real GDP growth
	2012	2001-2007	2012-2017	2018-2030	2031-2050	2001-2007	2012-2017	2018-2030	2031-2050	2001-2007	2012-2017	2018-2030	2031-2050	2012-2017
Australia	-2.0	3.2	3.3	3.0	2.3	1.1	2.0	2.1	1.6	2.1	1.3	0.9	0.7	3.6
Austria	-2.2	2.1	1.8	1.5	1.4	1.2	1.2	1.6	1.4	0.9	0.6	-0.1	0.0	1.9
Belgium	-1.1	1.8	1.9	2.2	1.9	0.8	1.1	1.8	1.6	1.0	0.7	0.3	0.3	1.8
Canada	-1.0	2.6	2.2	2.2	2.3	0.9	1.4	1.8	1.8	1.7	0.8	0.4	0.5	2.3
Chile	-0.2	3.9	4.9	3.6	2.3	1.6	2.5	2.5	2.0	2.3	2.4	1.1	0.3	4.8
Czech Republic	-3.4	3.7	2.6	3.0	1.8	3.5	2.3	2.8	1.9	0.3	0.3	0.1	-0.1	2.7
Denmark	-3.3	1.5	0.9	1.7	2.2	1.0	0.7	1.5	1.9	0.5	0.2	0.2	0.3	1.4
Estonia	-3.0	5.0	3.0	2.8	2.2	4.2	2.7	3.0	2.4	0.8	0.3	-0.2	-0.1	3.5
Finland	-1.1	2.6	2.1	2.3	1.7	1.8	2.0	2.1	1.4	0.8	0.1	0.1	0.2	2.2
France	-3.3	1.8	1.8	2.1	1.5	0.9	1.4	2.0	1.3	0.9	0.4	0.1	0.1	2.2
Germany	-0.8	1.3	1.6	1.2	1.0	0.9	1.4	1.8	1.5	0.3	0.2	-0.6	-0.4	1.7
Greece	-12.0	3.0	0.6	2.4	1.1	1.8	0.3	2.2	1.6	1.1	0.3	0.2	-0.4	1.7
Hungary	-5.3	2.7	1.9	2.9	1.8	2.6	1.4	2.8	2.3	0.2	0.6	0.2	-0.5	2.3
Iceland	-3.6	3.7	1.4	2.4	2.3	2.2	0.8	1.4	1.8	1.4	0.6	0.9	0.6	2.3
Ireland	-9.5	5.0	1.4	2.6	1.8	2.3	1.0	1.5	1.1	2.7	0.4	1.1	0.7	2.8
Israel	1.6	3.5	3.2	2.4	2.6	0.6	1.1	0.9	1.2	2.8	2.1	1.5	1.3	2.8
Italy	-4.5	1.2	0.2	0.7	1.2	0.2	-0.3	0.7	1.3	0.9	0.5	0.1	-0.1	0.5
Japan	-0.9	0.6	0.9	1.4	1.3	0.9	1.2	1.7	2.0	-0.3	-0.3	-0.3	-0.7	1.3
Korea	-0.3	4.4	3.4	2.4	1.0	3.1	2.7	2.4	1.7	1.2	0.7	0.0	-0.6	3.4
Luxembourg	-4.0	3.9	2.4	1.6	0.6	1.8	0.5	0.7	0.4	2.1	1.9	0.9	0.2	2.8
Mexico	-0.8	2.4	3.2	3.5	3.0	0.6	1.1	1.9	2.3	1.8	2.1	1.6	0.6	3.5
Netherlands	-3.1	1.9	1.7	2.0	1.6	1.0	1.3	2.1	1.8	0.9	0.4	0.0	-0.2	1.8
New Zealand	-1.0	3.1	2.4	2.8	2.7	0.9	1.2	2.0	2.0	2.2	1.1	0.8	0.6	2.5
Norway[1]	-1.8	2.9	3.1	2.8	2.0	1.8	1.8	2.0	1.4	1.1	1.2	0.7	0.6	3.6
Poland	0.2	4.2	3.5	2.3	1.1	3.4	3.1	2.8	1.9	0.7	0.4	-0.4	-0.8	3.3
Portugal	-6.4	1.6	0.7	1.9	1.6	1.1	0.6	1.8	2.0	0.5	0.1	0.1	-0.4	1.0
Slovak Republic	-0.9	4.7	3.5	2.8	1.6	3.7	3.3	2.7	1.8	0.9	0.3	0.2	-0.3	3.5
Slovenia	-4.6	3.2	1.6	2.3	1.8	2.3	1.5	2.4	2.0	0.9	0.1	-0.2	-0.3	1.8
Spain	-8.7	3.4	1.5	2.2	1.5	0.3	0.7	1.6	1.7	3.1	0.8	0.6	-0.2	2.3
Sweden	-2.2	2.6	2.7	2.4	1.9	1.9	1.9	2.0	1.4	0.7	0.8	0.4	0.4	2.7
Switzerland	-1.3	1.8	2.2	2.3	2.1	0.9	1.2	2.0	1.9	0.9	1.0	0.3	0.2	2.2
United Kingdom	-3.5	2.4	1.6	2.2	2.3	1.5	0.9	1.7	1.7	0.9	0.8	0.5	0.6	2.1
United States	-3.6	2.5	2.1	2.4	2.1	1.5	1.3	1.5	1.3	1.0	0.8	0.9	0.8	2.7
Turkey	-2.2	4.0	5.2	4.1	2.3	2.7	2.7	2.4	1.8	1.3	2.5	1.6	0.5	5.2
Argentina	5.4	4.0	4.5	3.2	2.3	0.9	2.9	1.9	1.9	3.0	1.6	1.3	0.4	3.7
Brazil	-1.4	3.2	4.4	3.9	2.5	0.9	2.9	3.1	2.6	2.2	1.4	0.8	-0.1	4.4
China	-0.8	10.2	8.9	5.5	2.8	9.2	8.4	5.9	3.6	0.9	0.5	-0.3	-0.8	8.8
Indonesia	0.9	4.0	5.9	5.1	3.7	2.1	4.0	4.0	3.7	1.9	1.8	1.0	0.0	5.7
India	-0.3	7.4	7.2	6.5	4.5	5.5	5.3	4.6	3.6	1.8	1.8	1.8	0.8	7.2
Russian Federation	-3.9	5.3	3.6	2.7	0.9	4.6	4.8	3.4	2.0	0.7	-1.1	-0.7	-1.2	4.2
South Africa	-2.4	3.5	4.0	3.8	2.7	0.7	1.5	2.0	2.1	2.7	2.5	1.8	0.6	4.3
Euro area	-3.6	1.8	1.4	1.7	1.4	0.7	1.0	1.7	1.5	1.1	0.4	0.0	-0.2	1.7
Total OECD	-2.8	2.1	2.0	2.2	1.9	1.2	1.2	1.7	1.6	1.0	0.8	0.5	0.3	2.3
Total non-OECD	-0.9	6.9	6.9	5.1	3.0	5.5	5.8	4.4	3.0	1.3	1.0	0.6	0.0	6.9
World		2.7	3.4	3.3	2.4	1.5	2.4	2.7	2.3	1.2	0.9	0.6	0.1	3.6

1. As a % of mainland potential GDP.

Source: OECD Economic Outlook 91 long-term database.

StatLink http://dx.doi.org/10.1787/888932610843

A higher oil price may lower growth but is unlikely to disrupt the recovery

High and rising oil prices are yet another factor that may hinder economic growth over the medium term. Sharp rises in oil and commodity prices combined with macroeconomic policy mistakes led to stagflation in the 1970s. By draining away funds that consumers would otherwise spend on other things, high oil prices reduce consumption and output in the short run (see Chapter 1). But high oil prices can affect the economy's supply side as well. Previous OECD estimates based on a Cobb-Douglas production approach (OECD, 2008) suggest that over the full scenario horizon to 2050, with assumed increases in real oil prices amounting to more than 125%, the level of potential GDP in 2050 could be reduced by 1.2% to 3.2% depending on the country.[7] On the other hand, this does not account for attendant revenues accruing to oil-producing countries being recycled into safe government securities in major OECD countries, resulting in lower long-term interest rates that may boost growth.

Fiscal imbalances will build up without stronger policy action

The baseline scenario suggests a build up of imbalances

Over a horizon to 2030, the period of focus in this and the next sections of the chapter, the baseline scenario shows a build-up of a number of major macroeconomic imbalances including: high and widespread government indebtedness; rising global current account imbalances; and upward pressures on interest rates (Table 4.2). These imbalances should be viewed as identifying future tensions which will need to be addressed by policy rather than most likely outcomes, not only because projections made over several decades are inevitably subject to huge uncertainty, but also because no specific policy or endogenous economic response to these tensions is built into the baseline.

Government indebtedness will be high and widespread among OECD countries

Fiscal consolidation is planned in almost all OECD countries in 2012 and 2013. Nonetheless, fiscal deficits are projected to remain large in 2013 (see Chapter 1) and with a substantial component that is not explained by the cycle. In the absence of further action, debt would remain on an increasing trajectory in about a third of OECD countries, so some fiscal consolidation (at least 1 percentage point of GDP) needs to continue after 2013 just to stabilise debt-to-GDP ratios (Table 4.3). Here it is assumed to follow a stylised rule whereby, beyond the improvement which results from the operation of the automatic stabilisers as output gaps close, underlying primary balances improve in a gradual manner which is just sufficient to stabilise gross debt-to-GDP ratios (Box 4.2).[8] The

7. These estimates are likely to exaggerate the long-run costs of higher energy prices because they assume fixed factor shares and do not allow for changes in technology in response to changing relative factor prices.
8. Actual fiscal consolidation requirements are typically larger than implied by this rule because fiscal consolidation would also be required to offset the fiscal implications of ageing populations that are not explicitly incorporated in the framework. On the basis of unchanged policies, public spending on pensions for a typical OECD country could increase by about 3 percentage points of GDP by 2050 (OECD, 2011b) and even under optimistic assumptions about "cost containment" spending on health and long-term care could increase by 3-4 percentage points of GDP to 2050 (Oliveira Martins and de la Maisonneuve, 2006).

Table 4.2. **Summary of the baseline long-term scenario**

As percentage of GDP (unless otherwise specified)

	Average 2000-07	2010	2013	2020	2025	2030
United States						
Potential real GDP growth (%)	2.6	1.7	2.1	2.3	2.4	2.4
Fiscal balance	-2.6	-10.7	-6.5	-4.1	-4.1	-4.1
Gross government debt	62	98	111	115	116	116
Real Interest rates (%)	2.4	1.7	1.4	3.3	3.5	3.5
Total national savings	14.7	12.5	12.7	11.6	10.7	9.9
Total investment	19.7	15.8	17.0	16.6	16.7	16.5
Current balance	-4.9	-3.2	-4.3	-4.9	-5.9	-6.6
Japan						
Potential real GDP growth (%)	0.7	0.6	0.8	1.3	1.4	1.4
Fiscal balance	-5.4	-8.4	-10.1	-6.9	-4.7	-4.6
Gross government debt	157	193	223	257	263	264
Real Interest rates (%)	2.7	2.4	3.0	2.9	3.3	3.3
Total national savings	26.4	23.2	22.8	22.3	23.1	22.5
Total investment	23.1	19.8	21.0	22.7	23.8	23.8
Current balance	3.3	3.6	1.9	-0.3	-0.6	-1.1
Euro Area						
Potential real GDP growth (%)	1.9	1.0	1.3	1.8	1.7	1.5
Fiscal balance	-1.9	-6.2	-2.0	-2.1	-2.2	-2.1
Gross government debt	75	93	100	97	97	97
Real Interest rates (%)	2.4	2.3	3.2	2.9	2.6	2.4
Total national savings	21.6	19.4	20.5	17.4	16.2	14.8
Total investment	19.2	20.5	19.9	20.4	20.2	19.6
Current balance	0.3	0.4	1.6	-2.0	-2.9	-3.9
OECD Total						
Potential real GDP growth (%)	2.2	1.5	1.9	2.2	2.2	2.1
Fiscal balance	-2.1	-7.5	-4.2	-3.2	-3.0	-2.9
Gross government debt	74	99	109	116	117	116
Real Interest rates (%)	2.5	1.9	2.2	3.1	3.1	3.0
Total national savings	19.8	18.0	18.8	17.3	16.6	15.6
Total investment	21.0	18.6	19.5	19.2	20.1	18.6
Current balance	-1.2	-0.6	-0.9	-2.2	-2.7	-3.3
China						
Potential real GDP growth (%)	10.0	10.2	9.5	6.8	5.1	4.0
Total national savings	44.6	51.8	50.1	42.9	38.3	33.2
Total investment	40.1	47.8	48.3	38.8	32.1	27.7
Current balance	4.6	4.0	1.7	4.1	6.2	5.5
India						
Potential real GDP growth (%)	7.4	7.8	7.3	6.9	6.4	5.9
Total national savings	29.6	31.8	28.3	26.1	24.5	22.8
Total investment	29.1	34.3	31.2	30.4	29.1	27.5
Current balance	0.0	-3.2	-2.9	-4.2	-4.6	-4.7
Brazil						
Potential real GDP growth (%)	3.1	4.2	4.5	4.1	3.9	3.6
Total national savings	16.1	17.5	16.7	16.5	15.8	14.7
Total investment	17.1	20.2	19.9	19.1	18.4	17.4
Current balance	0.7	-2.2	-3.2	-2.6	-2.6	-2.7
Potential real GDP growth (%)						
OECD	2.2	1.5	1.9	2.2	2.2	2.1
non-OECD	6.8	7.5	7.3	5.8	4.8	4.1
World	2.8	2.7	3.4	3.5	3.2	3.0

Source: OECD Economic Outlook 91 long-term database.

StatLink http://dx.doi.org/10.1787/888932610862

Table 4.3. **Fiscal trends with debt stabilisation**

As percentage of nominal GDP

	Underlying fiscal balance	Average consolidation to stabilise debt from:[1]		Financial balances[2]			Net financial liabilities[3]			Gross financial liabilities[4]		
	2011	2011	2013	2011	2020	2030	2011	2020	2030	2011	2020	2030
Australia	-3.5	3.7	-1.0	-3.9	-0.4	-0.3	5	6	6	27	27	28
Austria	-2.0	0.8	-0.4	-2.6	-1.8	-1.7	46	48	49	80	84	84
Belgium	-3.9	1.2	-1.2	-3.9	-3.5	-3.2	82	81	82	102	101	102
Canada	-4.1	2.4	0.9	-4.5	-1.8	-1.7	33	39	39	84	84	85
Czech Republic	-3.0	3.2	1.0	-3.1	-0.8	-0.6	8	13	14	48	54	54
Denmark	0.1	-0.2	0.2	-1.9	-0.3	-0.4	4	9	9	62	64	65
Estonia	0.0	1.3	0.9	1.0	1.4	1.0	-33	-26	-26	10	15	15
Finland	-0.7	2.8	2.1	-0.9	2.0	1.7	-53	-47	-46	57	65	66
France	-4.0	2.6	-0.1	-5.2	-2.9	-2.6	63	66	67	100	106	107
Germany	-1.0	-0.3	-0.4	-1.0	-1.8	-1.5	52	50	51	87	88	89
Greece	-5.8	6.9	2.2	-9.2	-6.7	-5.2	135	145	143	170	177	175
Hungary	-4.7	3.2	-1.3	4.2	-3.1	-2.8	52	52	52	85	82	83
Iceland	-1.4	1.6	-0.1	-4.4	-2.2	-2.4	50	47	47	128	125	126
Ireland	-5.2	4.3	0.6	-13.0	-3.9	-4.0	74	89	89	114	129	129
Israel	-5.3	1.3	0.8	-4.4	-3.0	-3.1	67	71	70	74	77	76
Italy	-3.1	2.3	-2.5	-3.8	-1.6	-2.4	94	84	83	120	110	110
Japan[6]	-8.8	8.9	9.3	-9.5	-6.9	-4.6	126	177	184	205	257	264
Korea	1.2	0.9	0.1	1.8	2.1	1.8	-37	-38	-38	35	34	34
Luxembourg	0.5	1.3	1.1	-0.6	1.8	1.2	-48	-41	-41	24	31	31
Netherlands	-3.9	2.9	0.1	-4.6	-1.9	-1.8	39	45	45	75	83	84
New Zealand	-4.6	3.8	1.9	-8.2	-1.0	-1.1	11	21	22	44	54	55
Poland	-5.5	4.2	0.5	-5.1	-1.9	-1.5	33	36	36	63	64	64
Portugal	-5.7	5.9	0.9	-4.2	-3.1	-3.3	74	85	84	118	130	129
Slovak Republic	-5.4	4.0	1.1	-4.8	-1.7	-1.4	27	32	33	47	55	56
Slovenia	-4.2	4.2	0.4	-6.4	-0.6	-0.6	7	15	15	56	64	64
Spain	-5.2	5.0	-2.1	-8.5	-1.4	-2.0	49	48	48	75	82	81
Sweden	0.4	1.0	0.2	0.1	0.8	0.7	-21	-19	-18	49	47	47
Switzerland	0.6	0.0	-0.2	0.8	0.1	0.1	-3	-4	-4	41	39	40
United Kingdom	-7.0	4.5	2.5	-8.4	-3.5	-3.6	68	84	85	98	113	114
United States	-7.7	5.1	3.0	-9.7	-4.1	-4.1	80	92	93	103	115	116
Euro Area	-3.1	2.1	-0.7	-4.1	-2.1	-2.1	61	60	60	95	97	97
OECD	-5.5	3.9	2.0	-6.3	-3.2	-2.9	65	79	79	103	116	116

Note: **These fiscal projections are the consequence of applying a stylised fiscal consolidation path and should not be interpreted as a forecast.**

1. The average improvement in the underlying primary balance to 2030 (or 2040 for Japan) required to stabilise the gross government debt-to-GDP ratio, assuming consolidation in 2012-13 is consistent with the short-term projections described in Chapters 1 and 2 and thereafter amounts to ½ percent of GDP per annum (1 percent of GDP in Japan).
2. General government fiscal surplus (+) or deficit (-) as a percentage of GDP.
3. Includes all financial liabilities minus financial assets as defined by the system of national accounts (where data availability permits) and covers the general government sector, which is a consolidation of central, state and local governments and the social security sector.
4. Includes all financial liabilities as defined by the system of national accounts (where data availability permits) and covers the general government sector, which is a consolidation of central, state and local governments and the social security sector. The definition of gross debt differs from the Maastricht definition used to assess EU fiscal positions.
5. Interest rate on 10-year government bonds.
6. Japan requires more consolidation from 2013 than from 2011 because given its high debt level, projected improvements in the underlying primary balance in 2012 and 2013 reduce future deficits less than the future cost of servicing the extra debt accumulated in these two years.

Source: OECD Economic Outlook 91 long-term database.

StatLink http://dx.doi.org/10.1787/888932610881

stylised rule provides a common metric against which to assess the need for further consolidation, although it should be recognised that this assumption may contradict current government plans and is not necessarily consistent with national or supra-national fiscal objectives,

targets or rules. Japan and the United States are the countries requiring the most consolidation beyond 2013 with, respectively, an extra 13 and 4 percentage points of GDP in budget restraint by 2030 to stabilise debt burdens.[9] In Italy and Spain, the substantial fiscal consolidation projected for 2012 and 2013 should be more than sufficient to stabilise debt ratios, and in Greece, Ireland and Portugal the additional 2, ½ and 1 percentage points of GDP of consolidation, respectively, which would be required beyond 2013 appears modest against the planned tightening over 2012-13. Nevertheless, government indebtedness increases substantially relative to pre-crisis levels (Table 4.3). The OECD government debt-to-GDP ratio increases from a pre-crisis level of 74% to stabilise at some 115-120% of GDP.

Rising government debt poses a risk to the growth outlook

In many OECD countries, government debt-to-GDP ratios are projected to increase well above levels at which a growing empirical literature suggests adverse effects on interest rates and growth.[10] Applying estimates from this literature in a crude ready-reckoner fashion to compute the effect of the recent and projected build-up of government debt leads to rather alarming conclusions: if applied to the baseline projections described above for the OECD area as whole, the estimates imply a loss in the trend GDP growth rate of ½-¾ percentage point. The transmission mechanism by which negative growth effects occur is likely to involve higher interest rates and a crowding out of private investment and R&D, with adverse consequences for trend productivity growth. In the scenarios presented here, they arise only *via* the effect of higher real interest rates, which occur both at the country level from higher fiscal risk premia and at the global level to the extent that fiscal imbalances contribute to an *ex ante* shortage of global savings and so push up interest rates everywhere. Higher interest rates in turn lower capital investment and thus potential output. Many OECD countries would appear vulnerable to these effects, with the gross debt-to-GDP ratio projected to stabilise at above 75% in more than half of all OECD countries, and above 90% in nearly one-third of OECD countries.

Higher interest rates and lower growth aggravate debt dynamics

Together with the primary fiscal balance, interest rates and growth are the main determinants of public debt dynamics. Higher nominal GDP growth reduces the debt-to-GDP ratio (simply by virtue of increasing the

9. The consolidation requirements reported here are higher than the 'average' figure reported in Table 4.3 because for Japan and the United States the protracted period of adjustment implies that the average increase in the primary balance over 2013-30 is smaller than the final increase between 2013 and 2030.
10. Reinhart and Rogoff (2010) find that GDP growth rate in advanced economies falls by one percentage point when gross public debt reaches 90% of GDP; Kumar and Woo (2010) find that each 10 percentage point increase in the gross debt-to-GDP ratio is associated with a slowdown in annual real per-capita GDP growth of about 0.15-0.2 percentage points per year for advanced economies, the effect being larger when debt goes above 90% of GDP; Cecchetti *et al.* (2011) find that government debt can be a drag on growth beyond a threshold of 85% of GDP (2010); whereas Elmeskov and Sutherland (2012) find even lower debt thresholds, of around 40% and 70% of GDP.

denominator), while higher interest rates raise it by increasing debt service. During the years prior to the crisis, this differential between interest rates on government bonds and nominal potential growth rates was unusually favourable to restraining the endogenous snowballing of debt. It was negative for many OECD economies, compared with an average positive differential of over 200 basis points over the 1980s and 1990s (Turner and Spinelli, 2011). With potential output growth generally projected to decline relative to the pre-crisis period and interest rates to rise as financial conditions and policy rates normalise, the interest rate-growth differential is expected to increase rapidly and soon be positive across the OECD, thereby worsening debt dynamics.

Japan's situation looks particularly daunting

Japan's fiscal situation appears particularly challenging. Not only is it projected to have the highest gross debt ratio in the OECD in 2013 at 223% of GDP, but at 9% of GDP in 2013, its structural deficit is such that, according to the stylised fiscal rule used in the baseline scenario, it would need 13 percentage points of GDP of fiscal consolidation before the debt ratio would stabilise. And it would do so at the extreme level of more than 260% of GDP. Moreover, because Japan has seen a substantial increase in indebtedness over the past two decades with little effect so far on interest rates, it is treated as an exception in the baseline scenario by assuming that the magnitude of its fiscal risk premium, in terms of the increase in interest rates per percentage point of public debt ratio beyond certain thresholds, is only one-quarter that of other OECD countries. One reason why the risk premium may be low in Japan is the high proportion of government debt which is financed from domestic sources. This has been possible thanks to a high private saving rate, to a stable domestic institutional investor base and to a current account that has been in surplus since the early 1980s, so that for the past three decades Japan has not had to rely on external sources to finance its government deficits. However, in the baseline scenario, Japan's current account is expected to move into deficit by the late 2010s, mostly because of a decline in the private saving rate due to population ageing. When this occurs, and the government needs to seek foreign sources of financing, foreigners may well ask for a more "normal" fiscal risk premium, which could quickly generate an unsustainable and unstable situation. Set against these arguments, Japanese government financial assets are particularly high in international comparison.

On a net debt measure the situation looks less worrisome in some countries

The evolution of government indebtedness is presented here using the gross government debt concept, but net debt (net of financial assets held by government) is another measure that is sometimes used. Both concepts are useful. Gross debt is preferable when looking at the borrowing needs of governments as it is a good approximation of the debt that must be financed on the markets. When looking at debt burdens and long-term sustainability, however, the net debt measure is conceptually preferable as it represents the amount of debt that would remain if the government were to liquidate all the financial assets it holds, although government assets may not always easily be used to offset liabilities. The

gap between gross and net debt is particularly large for Norway (gross debt of 49% of GDP in 2009 against a net debt of –157%), Japan (189% vs 106%), Sweden (52% vs –22%) and Canada (82% vs 28%).[11] The more practical reason to focus on gross debt is that it is more comparable across countries because data on financial assets are of unequal quality.

Requirements to put public indebtedness on a lower path

Many OECD countries require consolidation just to stabilise debt ratios

In many countries, including Japan and the United States, following the fiscal consolidation rule assumed in the baseline scenario would stabilise debt ratios, but at very high levels which are neither desirable nor likely to prove sustainable. Fiscal consolidation needs to be more ambitious if the aim is to reduce debt-to-GDP ratios to sustainable levels rather than merely stabilise them. Lower debt ratios would avoid the high interest rates associated with high public debt undermining economic growth and provide a safety margin for public finances to tackle future shocks.

Reducing debt ratios to 60% would require greater consolidation

In an alternative scenario, OECD countries are assumed to undertake deeper fiscal consolidation, improving their fiscal balance by up to 1 percentage point of GDP each year (1.5 percentage point in the case of Greece, Ireland, Italy, Portugal, United States, United Kingdom and Japan) and targeting a gross debt ratio of 60%, unless the debt ratio is already projected to be lower than 60% in 2013 in which case the 2013 ratio is maintained (Table 4.4, Figure 4.1).[12] While in the baseline scenario where debt is stabilised, total required consolidation depends mostly on the size of the underlying primary balance projected for 2013, here it also depends importantly on the debt ratio in 2013. Countries such as Greece, Ireland and Portugal, where the planned consolidation in 2012 and 2013 was almost enough to stabilise debt but at a high level, require further substantial consolidation to get it down to 60%. Other countries requiring very substantial consolidation beyond 2013 to meet a 60% debt ratio target are the United States (average consolidation of nearly 6 percentage points

11. At the same time, some governments hold financial assets in special accounts that are meant to "pre-fund" future liabilities such as pension promises (*e.g.* US Social Security Trust Fund). And while they may recognise the financial assets on their books, they do not always recognise the corresponding long-term liability. Netting out financial assets against a gross debt concept that does not recognise the present value of the corresponding long-term liabilities could thus distort the picture of a government's fiscal health. The issue of including in government liabilities the present value of pension, health and other services promised is a separate one, however.
12. Gradual fiscal consolidation paths consistent with debt stabilisation at the target are obtained using a fiscal rule derived by Rawdanowicz (2012). The fiscal rule accounts for the current gross debt-to-GDP ratio, its target, the current level of government assets, the current fiscal balance, nominal GDP growth relative to potential in the current year as well as projected nominal GDP growth 10 years ahead (the rule is forward-looking). There is also a parameter to account for the size of automatic stabilisers. In years where the rule would call for fiscal consolidation greater than a certain cap (here 1% of GDP) the cap is applied instead.

Table 4.4. **Fiscal trends in the baseline scenario with debt targeting**

As percentage of nominal GDP

	Underlying fiscal balance	Average consolidation to target 60% from:[1]		Financial balances[2]			Net financial liabilities[3]			Gross financial liabilities[4]		
	2011	2011	2013	2011	2020	2030	2011	2020	2030	2011	2020	2030
Australia	-3.5	3.7	-1.0	-3.9	-0.6	-0.4	5	7	7	27	28	29
Austria	-2.0	2.0	1.0	-2.6	0.8	-0.6	46	34	25	80	70	61
Belgium	-3.9	3.2	1.0	-3.9	1.1	-1.3	82	56	41	102	76	61
Canada	-4.1	3.7	2.4	-4.5	0.9	-0.4	33	24	15	84	69	61
Czech Republic	-3.0	3.4	1.3	-3.1	-0.4	-0.5	8	13	12	48	53	52
Denmark	0.1	0.2	0.6	-1.9	0.3	-0.1	4	7	5	62	63	60
Estonia	0.0	1.2	0.9	1.0	1.0	1.0	-33	-23	-23	10	18	18
Finland	-0.7	3.6	2.9	-0.9	2.7	2.1	-53	-50	-52	57	62	60
France	-4.0	4.9	2.4	-5.2	2.6	-0.2	63	45	22	100	84	62
Germany	-1.0	1.1	1.1	-1.0	1.0	-0.5	52	31	23	87	69	61
Greece	-5.8	9.6	5.2	-9.2	5.6	0.3	135	92	34	170	123	65
Hungary	-4.7	4.2	-0.1	4.2	-0.3	-1.5	52	38	30	85	68	60
Iceland	-1.4	4.8	3.4	-4.4	5.2	1.8	50	17	-16	128	95	63
Ireland	-5.2	7.4	4.1	-13.0	2.9	0.4	74	71	25	114	111	65
Israel	-5.3	2.0	1.6	-4.4	-1.4	-2.3	67	60	54	74	65	60
Italy	-3.1	4.1	-0.5	-3.8	3.5	-0.4	94	57	35	120	84	62
Japan[6]	-8.8	14.1	15.0	-9.5	0.4	10.8	126	148	41	205	228	121
Korea	1.2	1.2	0.5	1.8	2.2	1.8	-37	-38	-38	35	33	34
Luxembourg	0.5	1.5	1.3	-0.6	1.7	1.1	-48	-38	-39	24	34	33
Netherlands	-3.9	4.1	1.5	-4.6	0.9	-0.6	39	33	23	75	71	61
New Zealand	-4.6	4.1	2.2	-8.2	-0.6	-0.8	11	19	17	44	52	50
Poland	-5.5	4.4	0.8	-5.1	-1.6	-1.3	33	33	32	63	61	60
Portugal	-5.7	8.6	3.9	-4.2	4.7	0.2	74	51	18	118	96	63
Slovak Republic	-5.4	4.0	1.2	-4.8	-1.6	-1.3	27	33	32	47	55	55
Slovenia	-4.2	4.6	0.8	-6.4	-0.1	-0.3	7	14	11	56	63	60
Spain	-5.2	6.1	-0.9	-8.5	1.1	-0.8	49	40	28	75	74	61
Sweden	0.4	1.4	0.6	0.1	1.1	0.8	-21	-20	-21	49	46	45
Switzerland	0.6	0.1	0.0	0.8	0.1	0.2	-3	-4	-4	41	39	39
United Kingdom	-7.0	7.0	5.3	-8.4	2.6	-0.5	68	62	33	98	92	63
United States	-7.7	7.6	5.8	-9.7	2.4	-0.9	80	67	39	103	90	62
Euro Area	-3.1	3.8	1.2	-4.1	1.9	-0.4	61	41	24	95	78	61
OECD	-5.5	6.3	4.7	-6.3	1.7	0.7	65	59	29	103	96	66

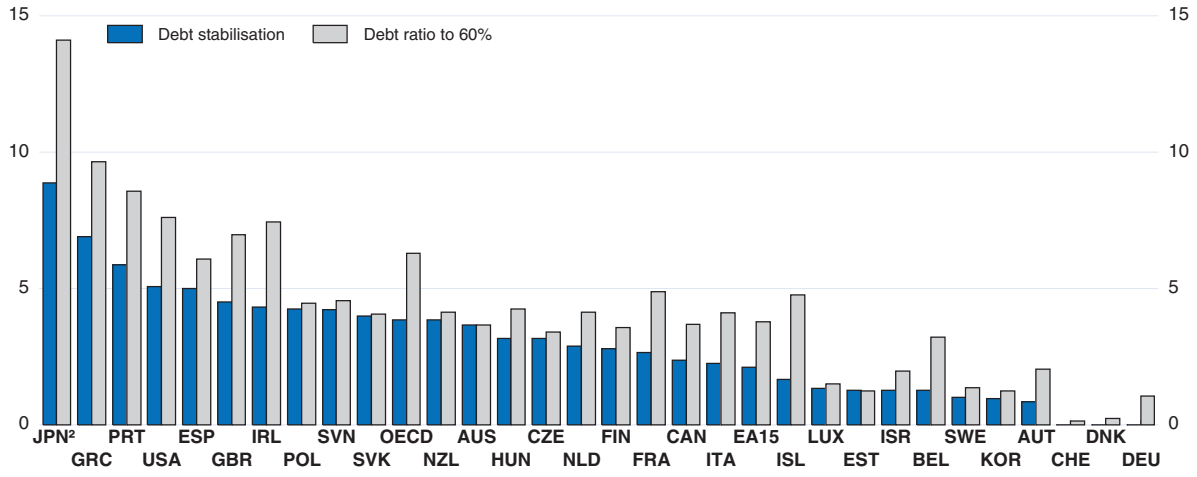
Note: **These fiscal projections are the consequence of applying a stylised fiscal consolidation path and should not be interpreted as a forecast.**

1. The average improvement in the underlying primary balance to 2030 (2040 for Japan) required to reach a target gross debt-to-GDP ratio of 60%, assuming consolidation in 2012-13 is consistent with the short-term projections described in Chapters 1 and 2 and thereafter amounts to 1 per cent of GDP per annum (1.5 percentage points in the case of Greece, Ireland, Italy, Portugal, United States, United Kingdon and Japan). Some countries have not quite achieved the 60% debt target by 2030, but with the exception of Japan, it is close enough that it is achieved within a few years after 2030 with little further consolidation. Countries with a projected debt ratio lower than 60% in 2013 are assumed to target their 2013 debt ratio.
2. General government fiscal surplus (+) or deficit (-) as a percentage of GDP.
3. Includes all financial liabilities minus financial assets as defined by the system of national accounts (where data availability permits) and covers the general government sector, which is a consolidation of central, state and local governments and the social security sector.
4. Includes all financial liabilities as defined by the system of national accounts (where data availability permits) and covers the general government sector, which is a consolidation of central, state and local governments and the social security sector. The definition of gross debt differs from the Maastricht definition used to assess EU fiscal positions.
5. Interest rate on 10-year government bonds.
6. Japan requires more consolidation from 2013 than from 2011 because, given its high debt level, projected improvements in the underlying primary balance in 2012 and 2013 reduce future deficits less than the future cost of servicing the extra debt accumulated in these two years.

Source: OECD Economic Outlook 91 long-term database.

StatLink http://dx.doi.org/10.1787/888932610900

Figure 4.1. **Consolidation required to meet alternative debt targets**
Average increase in the underlying primary balance from 2011 to 2030, in percentage points of GDP[1]



1. The bars show the average improvement in the underlying primary balance between 2011 and 2030 necessary to either stabilise government debt ratios or bring them down to 60% of GDP. When simply stabilising debt ratios, the average increase in the underlying primary balance over this period corresponds closely to the peak increase over the same period. When targeting 60%, however, the peak increase will be substantially higher than the average increase, but past the peak fiscal policy can be loosened and the underlying primary balance decrease before the debt ratio stabilises at 60% of GDP. In some cases the debt target is reached only after 2030.
2. In Japan's case, the average consolidation shown would be sufficient to stabilise the debt ratio but only after 2030.

Source: OECD Economic Outlook 91 long-term database.

StatLink http://dx.doi.org/10.1787/888932609304

of GDP), the United Kingdom (5 percentage points) and Japan (15 percentage points).[13] Average gross government debt in the OECD is lower by about 50 percentage points of GDP by 2030. Not only does OECD-wide public indebtedness go down substantially, but, perhaps more importantly, the number of OECD countries with debt ratios in excess of 100% in 2013 declines from ten to only one (Japan) by 2030.

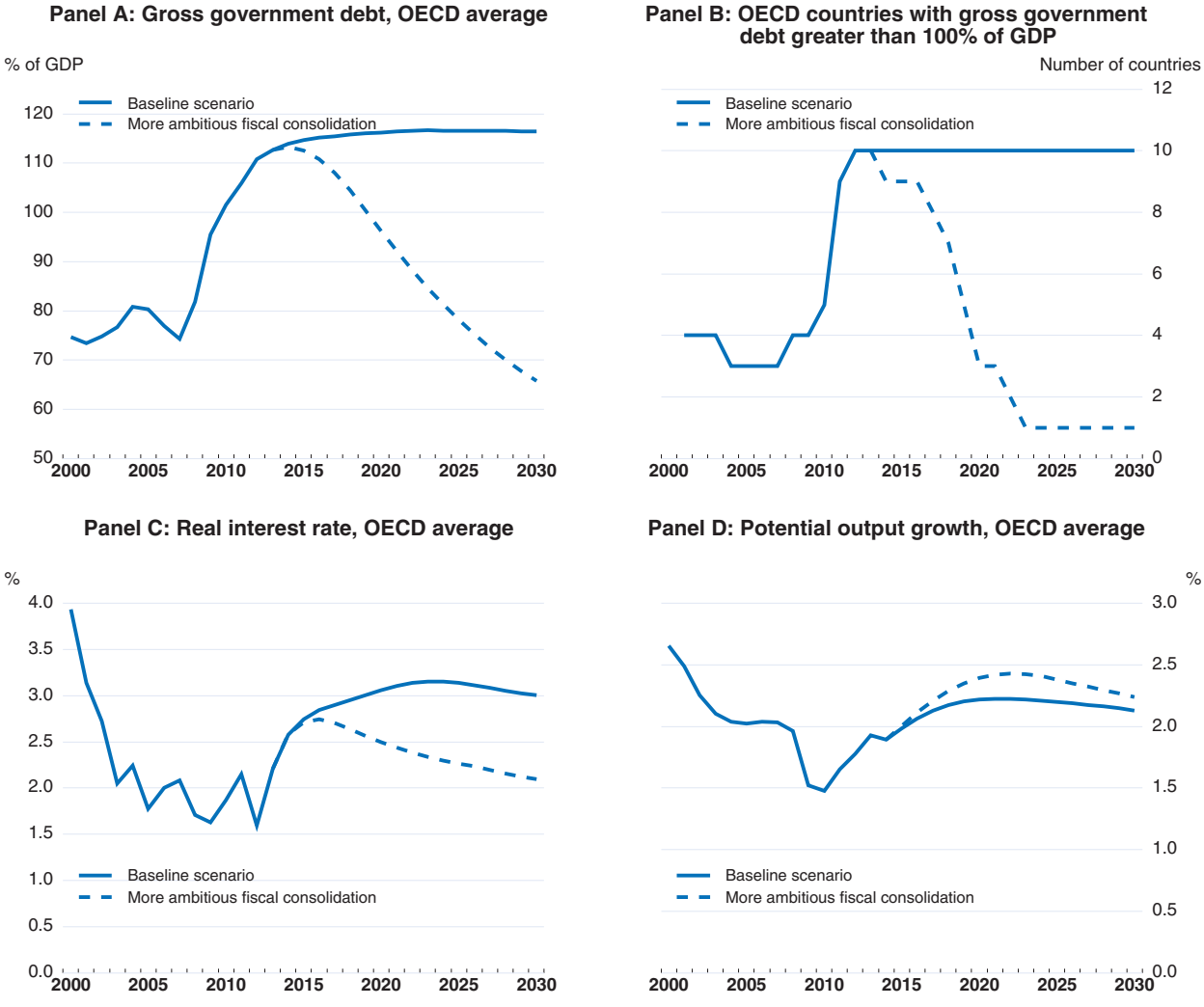
Sustained fiscal consolidation would lower interest rates and boost growth…

As the recovery becomes established, sustaining OECD-wide fiscal consolidation has two distinct effects on interest rates: firstly, lower government indebtedness lowers a country's fiscal risk premium; secondly, it increases global savings and so puts downward pressure on

13. For these countries, lowering the debt burden down to 60% of GDP initially requires substantial fiscal consolidation, but the fiscal stance can eventually be loosened so that the ratio stabilises at 60% rather than continuing to fall. To take the United States as an example, the underlying primary balance must go from –3½ per cent of GDP in 2013 to as high as 5% of GDP in the early 2020s, for a total *maximum* consolidation effort of more than 8 percentage points of GDP over roughly a decade, but the fiscal stance can then be loosened gradually and the underlying primary balance eventually stabilised at around ½ per cent of GDP for the debt ratio to stabilise at 60% around the same time. The consolidation requirement reported in the text and in Table 4.4 corresponds to the *average* increase in the underlying primary balance to 2030 (5.8 percentage points from 2013 in the case of the United States). Although this debt targeting rule does not generate a 60% debt ratio (or less) for all countries by 2030, with the exception of Japan, it is close enough so that it is achieved within a few years.

global interest rates (Figure 4.2). The second effect is obviously more important when larger rather than smaller countries undertake substantial consolidation, as is the case in this alternative scenario because the United States, Japan, Italy, the United Kingdom and France are among the countries with the highest levels of debt in the baseline. Overall, by 2030 the average OECD long-term real interest rate is about 90 basis points lower in this alternative scenario than in the baseline, with a much larger difference for countries undertaking the most consolidation. OECD potential output growth is noticeably higher for a period as lower real interest rates reduce the cost of capital, thereby increasing capital deepening. The level of potential OECD output increases by more than 2% by 2030 and by much more in those countries where indebtedness falls most; for example, potential output in Greece is boosted by more than 7%.

Figure 4.2. **More ambitious fiscal consolidation boosts potential growth**



Source: OECD Economic Outlook 91 long-term database.

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… but there may still be a trade-off between consolidation and growth

An important qualification to the more ambitious fiscal consolidation scenario presented above is that no explicit account is taken of the short-term adverse effect of fiscal consolidation on demand, rather the focus is on the medium and long-term effects on potential output. There is unfortunately a trade-off between slowing the accumulation of government debt to stave off its possible negative effect on growth, and the risk that fiscal consolidation itself may create sustained headwinds for the recovery and reduce growth for the duration of the consolidation effort. The size of the adverse demand effects will vary by country and depend on the scope to cut policy interest rates, the effect of consolidation on confidence and thus private spending and interest rates, the fiscal instruments used and the speed of consolidation. In some circumstances, fiscal austerity could potentially be self-defeating if it reduces growth and magnifies negative hysteresis effects on trend output by enough to worsen long-term government solvency more than short-term deficit reductions help (DeLong and Summers, 2012).

A judicious choice of measures would minimise growth impacts

Countries face particularly difficult choices regarding the speed of consolidation and the instruments to use, but both provide opportunities to reduce adverse effects. Fiscal consolidation should be more ambitious if there is scope for monetary policy to offset some of the negative demand effects. If the recovery proceeds at the projected pace, the constraints on monetary policy should be less of a concern from 2014 onwards for most countries and the pace of normalisation of interest rates could be then adjusted to partially or fully offset demand weakness resulting from budget improvements. The growth trade-off can be further improved by placing more weight on measures that improve long-term fiscal positions but which have relatively limited immediate negative effects on demand. Country-specific estimates of budgetary gains from a wide range of spending and revenue measures which have little adverse or even a positive effect on growth, at least in the medium term, amount to 7% on average across OECD countries (OECD, 2012). On the expenditure side, these include adopting best practices in many spending areas such as health and education (Joumard *et al.*, 2010; Sutherland *et al.*, 2007); reforming public pensions and transfer programmes to better target the poor and sharpen incentives to work and save; and reducing distortionary subsidies. On the revenue side, measures include broadening tax bases, for instance by reducing poorly targeted and distorting tax expenditures such as those aimed at boosting retirement savings, promoting homeownership and charitable giving (OECD, 2010); and choosing less harmful taxes such as those on immobile property and corrective taxes such as pollution charges.[14]

14. See OECD (2012) and references therein for detailed discussions of the pros and cons of different fiscal consolidation instruments on both the revenue and spending sides.

Current consolidation plans

Among countries requiring substantial consolidation…

Most governments recognise the need for further consolidation and have objectives that imply moving back towards more sustainable fiscal positions. Among a group of 11 OECD countries where consolidation needs are greatest, there are, however, considerable differences in the extent to which such objectives are clearly articulated in terms of credible medium-term fiscal plans (Table 4.5).

… US medium-term fiscal plans are unclear…

- In the United States, there are a number of fiscal plans, but political disagreement makes the extent, pace and tools of future consolidation uncertain, as discussed in Chapter 1. Given the scale of the needed consolidation, such plans would need to include the major spending categories, notably entitlement spending and defence outlays, as well as revenue increases. Agreeing on a credible consolidation path to restore long-term fiscal sustainability will become more urgent as the recovery firms and government borrowing costs may increase.

… and those of Japan appear inadequate

- In Japan, the government's medium-term fiscal objectives, announced in June 2010, aimed at halving the primary deficit of the central and local governments by fiscal year (FY) 2015 and eliminating it by FY 2020. Given the very high sovereign debt level, specifying a more detailed medium-term consolidation plan that identifies the revenue and spending measures to achieve these long-term objectives is a priority. The government has proposed raising the consumption tax rate to 10% by 2015, and the phase-in of this measure should be swiftly initiated to demonstrate commitment to longer-term fiscal goals.

Planned consolidation would put debt on a downward trend in Portugal, Ireland and Greece…

- Very substantial front-loaded consolidation is planned in those euro area countries – Greece, Ireland, Portugal – that have been under the greatest pressure from financial markets and requested assistance from the European Union and the IMF. The extent of the planned consolidation beyond 2013 exceeds the stylised rule of the debt-stabilisation scenario presented above and would be sufficient to put the debt-to-GDP ratio on a clear downward trajectory.

… and in the United Kingdom

- In the United Kingdom, current plans embody cumulative structural fiscal tightening of 3.6% of GDP over the next three fiscal years, with additional medium-term policy measures worth around 1.3% of GDP to be implemented from 2015 onwards to ensure a decline in the debt ratio from fiscal year 2015/16. These plans are more ambitious than the stylised rule for debt-stabilisation in the scenario presented above.

Other EU countries also require credible medium-term fiscal plans

- Other EU countries requiring substantial consolidation beyond 2011 to stabilise debt include Poland, the Slovak Republic and Slovenia. While aggregate fiscal objectives in these countries are consistent with stabilising debt ratios, specific consolidation objectives and measures need to be specified to reduce uncertainty. In Belgium, Italy, France and

Table 4.5. **Medium-term fiscal plans in OECD countries requiring substantial consolidation**

	Fiscal situation in 2011			
	Fiscal balance	Average consolidation to stabilise debt[1]	Gross debt	Summary of latest official medium-term fiscal plans
	As percentage of nominal GDP			
Belgium	-3.9	1.2	102	Achieve a nominal balanced budget in 2015, requiring fiscal consolidation of 1% of GDP per year.
Greece	-9.2	6.9	170	Reduce the fiscal deficit to around 2% of GDP by 2014, primary balance remaining at around 4½ per cent of GDP until 2020, through cuts in spending in areas such as pharmaceuticals and the wage bill, a reform of the tax system, improvements in tax administration and the implementation of the revised privatisation programme.
Ireland	-13.0	4.3	114	Reduce the headline deficit to 2.8% of GDP in 2015, mainly through expenditure reduction (2/3 of measures) including cutting public sector employment, capital spending and the coverage of welfare benefits. Revenue raising measures include raising VAT, capital taxes and user charges and abolishing tax reliefs.
Italy	-3.8	2.3	120	Reduction of the deficit to 1.7% of GDP in 2012, 0.5% in 2013 and 0.1% in 2014. Tax increases make the main contribution in 2012, expenditure restraint thereafter.
Japan	-9.5	8.9	205	Halving the primary budget deficit of central and local governments by FY2015, achieving a primary budget surplus by FY 2020 and putting the public debt ratio on a downward trend from FY 2021. To meet these objectives, central government primary spending, excluding reconstruction, is to be held stable until FY2014 and the government has proposed doubling the consumption tax rate to 10% by 2015.
Poland	-5.1	4.2	63	Reduce the general government deficit to 2.9% of GDP in 2012, 2.5% in 2013 and 1% by 2015.
Portugal	-4.2	5.9	118	Reduce the nominal budget deficit to 4.5% of GDP in 2012, 3% in 2013 and 0.5% in 2016, through mainly expenditure-based consolidation.
Slovak Republic	-4.8	4.0	47	Reduce the fiscal deficit below 3% of GDP by 2013. According to recently introduced fiscal rules, keep the debt below 60% of GDP until 2017 and below 50% from 2028.
Spain	-8.5	5.0	75	Specific measures have been taken to reduce the government deficit to 5.3% of GDP in 2012. The government aims to reduce the deficit to 3% of GDP in 2013.
United Kingdom	-8.4	4.5	98	The consolidation programme aims at a cyclically-adjusted current budget surplus by fiscal year 2016-17 and declining public sector net debt by 2015-16, essentially through spending cuts. Entitlements, including pensions, are being limited.
United States	-9.7	5.1	103	No specific medium-term plan has yet been adopted. Current law provides for substantial consolidation but is likely to be overridden. The Administration's FY 2013 budget proposal, which also is unlikely to be adopted, provides for deficit reductions of 2% of GDP in both 2013 and 2014 and smaller reductions to 2018 and would halt the rise in the debt-to-GDP ratio by 2015.

Note: This table summarises official medium-term fiscal plans for those countries where consolidation requirements are judged to be substantial, based on two criteria, either (a) the required increase in the underlying primary balance to stabilise the debt-to-GDP ratio in 2011 is at least 4% points of GDP or (b) gross government debt as a share of GDP exceeds 100% in 2011.

1. The average improvement in the underlying primary balance to 2030 (or 2040 for Japan) required to stabilise the gross government debt-to-GDP ratio, assuming consolidation in 2012-13 is consistent with the short-term projections described in Chapters 1 and 2 and thereafter amounts to ½ percent of GDP per annum (1 percent of GDP in Japan).

Sources: Most recent budget documentation or, for EU countries, the latest Stability Programme.

StatLink http://dx.doi.org/10.1787/888932610919

Spain, planned fiscal consolidation to 2013 should be more than sufficient to stabilise debt ratios, but additional measures may be warranted after 2013 to reduce these ratios from high levels.

Global saving and current account imbalances may return to pre-crisis levels

The global saving rate will decline…

In the short term, most OECD countries face a cyclical fall in private saving rates as output gaps close, although this may be offset by deleveraging in some countries. Ageing populations are then projected to be the dominant force driving down saving rates over the long term.[15] Demographic developments (combining the effect of changes in old-age and youth dependency ratios as well as life expectancy) are estimated to reduce the private saving rate for the median OECD country by about 3-4 percentage points by 2030, with much heterogeneity around this median. Increases in OECD public saving, required to stabilise general government debt, offset much of the fall in private saving at least until the mid-2020s, particularly in Japan and the United States. Among the largest non-OECD economies, projected demographic influences on saving are even more heterogeneous, with two extreme and important cases being India and China. For India, the effect of a falling youth dependency ratio offsets much of the effect on saving from a moderate increase in the old-age dependency ratio, so that the overall demographic effect on saving is small. In contrast, for China, a legacy of the "one-child policy" is that the old-age dependency ratio is projected to rise more steeply than even in most OECD countries, with little change in the youth dependency ratio.

… and be increasingly driven by China and India

Paradoxically, while saving rates are falling in most countries, the global saving rate remains relatively stable until the early 2030s as the share of high-saving countries in global output rises sharply. Particularly striking is the growing importance of China and India in accounting for global saving (here assessed at market exchange rates). Their combined share rises from just under 30% in 2010 to 50% by 2030. However, large uncertainty surrounds projections for saving rates in emerging economies. Firstly, the panel equations used to project saving have generally under-estimated the rise in saving, notably in China and India, over the past decade, which in turn suggests that there are other, perhaps country-specific, factors at work or that saving rates may have overshot levels supported by fundamentals. Secondly, future saving rates in emerging economies could be subject to additional change if, for example, the provision of more comprehensive social safety nets or access to easier

15. A note of caution is warranted in using old-age dependency ratios based on fixed age groups when projecting saving rates, given that changes in life expectancy and retirement ages are also expected in future decades. For the purposes of sensitivity analysis, an alternative approach was tried using a rolling definition of the old-age dependency ratio for which the upper age limit was increased in line with the assumption about the extension of working lives. However, this approach eliminated virtually any demographically-induced fall in saving rates and was judged too extreme. Instead, a compromise approach, adopted for the projections reported here, was to incorporate an estimated positive effect from increasing longevity on saving, based on Li *et al.* (2007), which acts to partially offset the negative effect of rising old-age dependency rates.

credit were to be introduced more quickly than assumed in the baseline scenario.

Current account imbalances will build up again

After narrowing during the global recession of 2008/09, global current account imbalances started widening again as economies recovered, though they remain well below the peaks seen prior to the crisis. Going forward, the same factors that drove increased global financial flows before the crisis are projected to continue reasserting themselves. In the baseline scenario, a widening of global current account imbalances in the short term is mostly a cyclical response given the assumption that output gaps close mainly through a recovery in domestic demand, because those countries that had been running the largest deficits prior to the crisis (most obviously the United States) have more typically experienced sharper downturns than those that had been running surpluses (most obviously China but also Germany and to a lesser extent Japan). Over the longer term, the negative effect of ageing populations on saving is the dominant effect, leading to lower current account balances in most OECD countries. China's current account surplus widens until 2030 as the investment rate falls more rapidly than the saving rate due to slowing potential growth. Moreover, the increasing share of China in world GDP means that the increase in the surplus as a share of Chinese GDP becomes a relatively much larger increase as a share of world GDP. The current account surplus of oil exporters rises sharply to 2020 before roughly stabilising as a share of world GDP, reflecting the profile of increasing real oil prices which offset the tendency for oil exporters to gradually run down any overall current account surplus. Overall, the scale of current account imbalances (normalised on world GDP) reaches the pre-crisis (2007) peak by the late 2020s (Figure 4.3).

Over the longer term, living standards in non-OECD countries will slowly catch up to OECD levels

Growth in the non-OECD will outpace that of the OECD, shrinking gaps in living standards

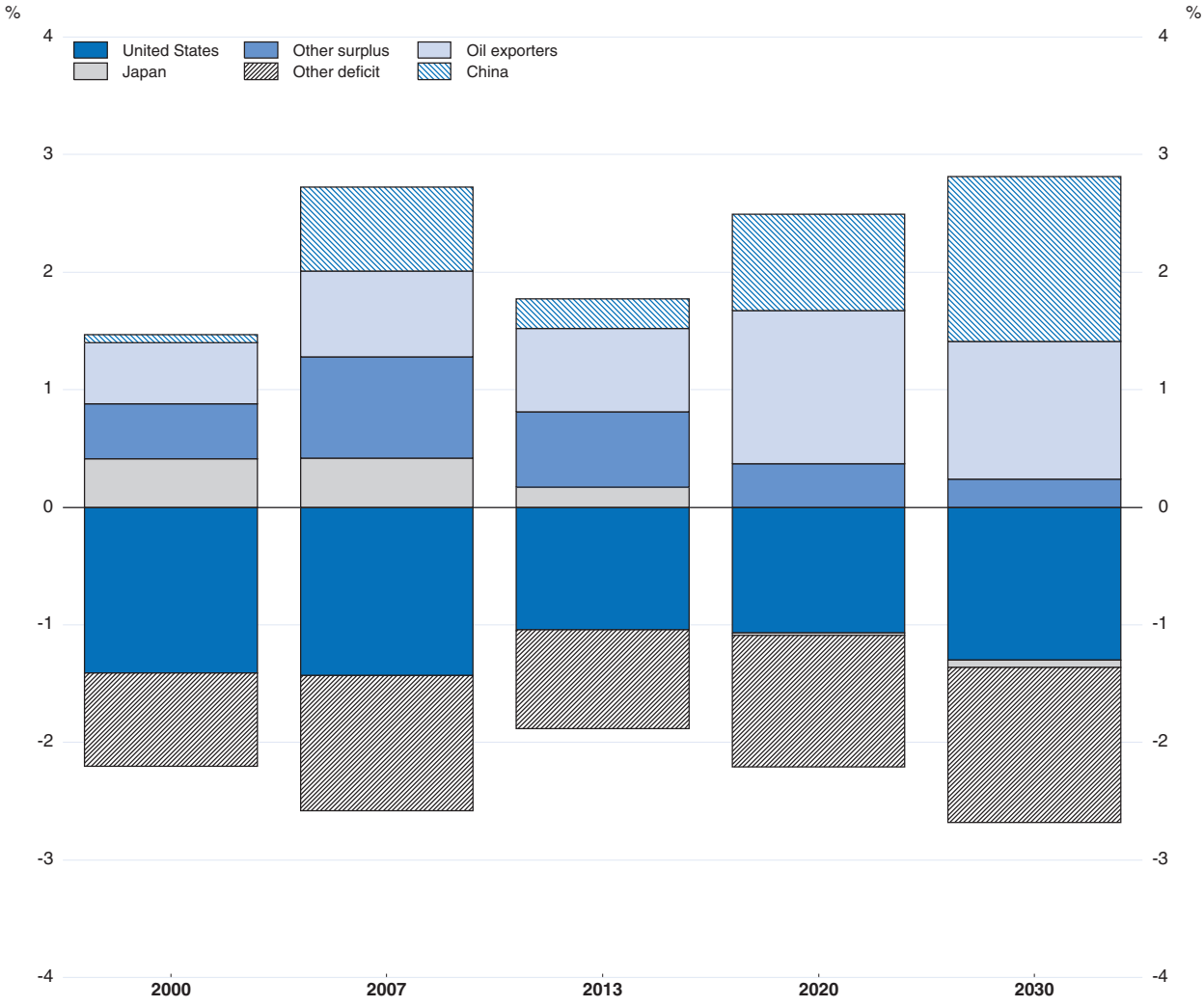
In the baseline scenario, the aggregate trend real GDP growth rate of the OECD remains at about 2% per annum to 2050, whereas that of the non-OECD declines from 7-8% per annum over the last decade to 4-6% per annum in the 2020s and 2-3% per annum in the 2040s. Until 2020, China has the highest growth rate of any country, but it is then surpassed by India and by Indonesia a few years later.[16] The trend growth rate of world real GDP declines gradually as of the next decade as the contribution from the non-OECD economies from their rising share in global output does not entirely compensate for their declining growth rate.

Looking at the evolution of per capita measures to assess living standards, income differences between poor and rich countries are reduced when compared with 2011, with the most noticeable

16. There is uncertainty about how quickly the rate of growth of China will decline. For example, Eichengreen *et al.* (2011) and Herd and Dougherty (2007) suggest the slowdown may be more gradual.

Figure 4.3. **Global imbalances are projected to rise over the next two decades**

Current account balance, in per cent of world GDP



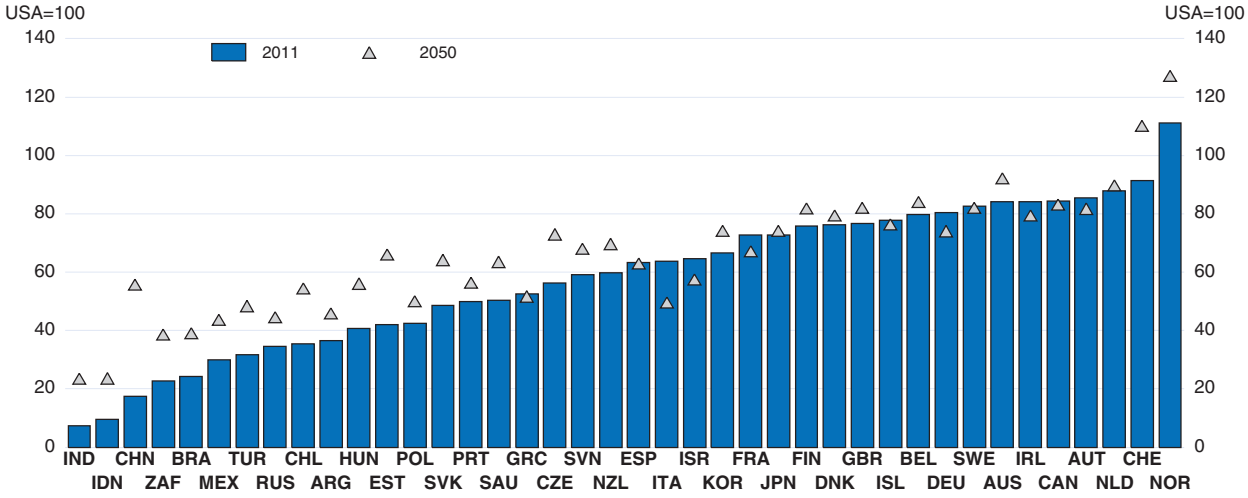
Source: OECD Economic Outlook 91 long-term database.

StatLink http://dx.doi.org/10.1787/888932609342

improvements in emerging economies (Figure 4.4). Over the projection period, GDP per capita in the 10 poorest economies more than quadruples (in 2005 PPP terms), whereas it only doubles in the 10 richest economies. China and India experience a six-fold increase of their income per capita by 2050, which roughly leaves China at the current (2011) income level of the United States and India at a little less than half the current US level. By contrast, in a few countries (*e.g.* Italy, Israel and Greece) living standards deteriorate relative to the United States over the projection period, mainly due to weaker labour utilisation driven by low participation in combination with ageing. But despite fast output growth among "catching up" countries, large differences in GDP per capita persist across countries in 2050 – the dispersion of relative living standards

Figure 4.4. **Stronger convergence will be experienced by poorer countries**

GDP per capita, measured at 2005 PPPs, relative to the United States



Source: OECD Economic Outlook 91 long-term database.

StatLink http://dx.doi.org/10.1787/888932609361

across all countries is reduced by only about one quarter between 2011 and 2050.[17]

The relative size of economies will change dramatically

The next 40 years will see major changes in country rankings and shares of world GDP (Figure 4.5). On the basis of 2005 PPPs, in 2017 China surpasses the United States to become the largest economy in the world, and India is about now surpassing Japan. The combined GDP of China and India exceeds that of the major seven (G7) OECD economies by around 2025 and by 2050 it is 1½ times larger, whereas in 2010 these two countries accounted for less than one-half of the G7's GDP. Using market exchange rates rather than 2005 PPPs, China surpasses the United States in the early 2020s and India only surpasses Japan in the late-2020s, but the combined GDP of China and India grows from less than one-quarter the size of the G7 in 2010 to exceed it by 2040.

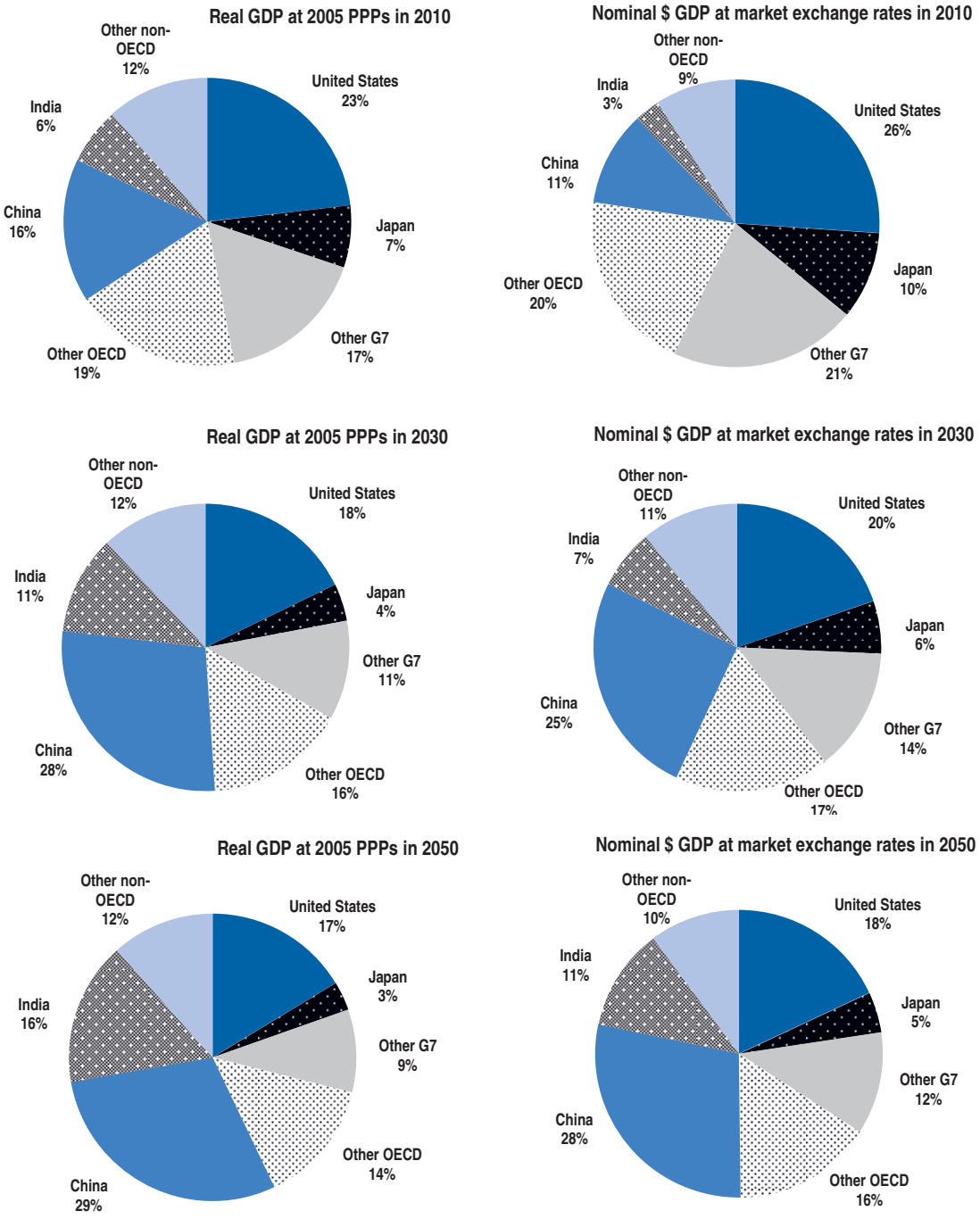
Convergence in living standards is driven mostly by efficiency gains…

Multi-factor productivity (MFP) is the main driver of growth and the main driver of convergence between non-OECD and OECD countries. MFP projections are driven by the global rate of technological progress, assumed to be 1.3% per year (corresponding to the average rate of MFP growth observed among advanced economies over the period 1996-2006) and by catching up toward country-specific steady-state levels of MFP. This catch-up occurs at a speed dependent on the country's trade openness and the strength of domestic competition.[18] In this set-up,

17. One caveat to these comparisons of GDP levels is that using PPP estimates with a fixed base year may bias comparisons far into the future, as discussed in Johansson *et al.* (2012).
18. On average across countries, the estimated speed of convergence is 6% per year, broadly in line with existing empirical evidence (*e.g.* Bouis *et al.*, 2011; Bourlès *et al.*, 2010; Fouré *et al.*, 2010), implying that it takes roughly 12 years to eliminate half of the initial MFP gap.

Figure 4.5. **There will be major changes in the composition of world GDP**

Percent of world GDP



Note: World GDP is taken as the sum of GDP for all countries which are distinguished by the model.

Source: OECD Economic Outlook 91 long-term database.

StatLink http://dx.doi.org/10.1787/888932609380

countries exhibiting comparatively low initial MFP levels – such as India, China, Indonesia and Eastern European countries – tend to grow faster than more developed economies. However, in fast-growing catching-up countries (*e.g.* Brazil, China, Czech Republic, Estonia, India, Slovak Republic and Slovenia), MFP growth tends to slow down over the projection period as MFP levels approach steady-state.

… and additions to human capital

Educational attainment of cohorts aged 25-29 slowly converge in all countries towards those in the leading country (Korea) at the average speed observed globally over the period 1960-2005, with attainment in Korea also continuing to rise slowly. Average years of schooling of the adult population thus increases by two years on average over the period 2011-50, compared with an increase of four years over 1970-2010. In several countries with initially low levels of education, particularly in India, Turkey, China, Portugal and South Africa, the contribution of human capital to annual GDP per capita growth is more than 0.6 percentage points, driven by fast catch-up.

Capital intensity varies with interest rates

Compared with human capital, physical capital accumulation contributes little to potential output growth in the baseline scenario. Any recent trend in the capital-to-output ratio is *a priori* assumed to stabilise gradually, which means that there can be a slight negative or positive contribution at the beginning of the projection period. After that, investment and thus capital intensity are affected to the extent that interest rates respond to changes in government indebtedness or to the global saving-investment balance. For countries where the capital-to-output ratio has been trending strongly in recent years, the assumption that trends gradually disappear over the projection period can produce large changes in the share of investment in output. One such country is China: with an investment share in output of 45-50% in recent years, the capital-to-output ratio has been rising quickly. Over the projection period, however, the assumed stabilisation of this ratio combined with declining potential growth lowers the investment share in output gradually to about 30% in 2030.

Demographics will drag down growth in most countries

Population ageing generally has a negative effect on trend per capita growth rates as it leads to a declining share of the population of traditional working age and a declining participation rate in most countries. Only a few countries experience a demographic dividend to 2050, either due to a significant increase in the share of the population of traditional working age (India and South Africa) or a significant increase in labour force participation (Chile, Estonia, the United States and New Zealand). Net migration mitigates the increase in dependency ratios in most countries, by 2 percentage points on average between now and 2050, but given the sheer size of projected increases in dependency ratios (23 percentage points on average to 2050), policies aimed at attracting migrants would be unable to offset the adverse consequences of population ageing on the labour force.

Bold fiscal and structural policies can boost growth and reduce global current account imbalances

An alternative scenario assumes more ambitious structural policy reforms

This section presents the results of an alternative scenario where OECD countries consolidate their budget positions faster than in the baseline scenario to reduce debt ratios to 60% or lower and, simultaneously, OECD and non-OECD countries implement more ambitious structural reforms than those assumed in the baseline scenario (Table 4.6). These more ambitious structural policy reforms provide for stronger improvement in product market regulation, reductions in the tax wedge to lower trend unemployment and higher labour force participation rates. In addition, welfare and financial reforms in non-OECD countries are assumed to occur more quickly than in the baseline scenario: whereas public spending on social protection was assumed to increase gradually to 2040 in the baseline, the same increases are assumed to take place by 2025; similarly, the availability of credit (expressed as a share of GDP) is assumed to reach the same level in 2035 as was previously achieved in the baseline by 2050.

Product market liberalisation would speed up convergence

The baseline scenario assumption of relatively slow convergence of product market policies towards average OECD levels of regulation may be too conservative given the push for structural reform currently exerted in the context of the G20 mutual assessment process and given the further urgency of reform as one response to the euro area crisis. If more rapid liberalisation in product markets is achieved, productivity gaps may be closed faster. Hence, the alternative scenario assumes that the target for product market regulation is the average level of regulation in the five "best practice" countries in 2011 (*i.e.* the United States, the United Kingdom, Ireland, Canada and the Netherlands). More rapid product market liberalisation raises GDP by an average of 7% in 2050 relative to the baseline, the impact being greater in countries with relatively stringent regulation, including most non-OECD countries and Turkey, Slovenia and Greece (when some of these adjustments may already be taking place as part of the current programme).

Labour market reforms can partly counteract demographic effects

The alternative scenario also assumes deeper labour market reforms than the baseline scenario, which results in convergence towards higher labour force participation rates.[19] Cross-country differences in active life expectancy are assumed to progressively disappear: the average duration of individual active life slowly converges in all countries towards 46% of life expectancy, which is the standard observed in Switzerland, one of the leading countries in terms of aggregate participation. The increases in participation rates add on average about 3½ per cent to potential output by 2050, but with much larger increases in Italy (25%), Israel (11%) and

19. It should be noted that this stylised scenario does not take into account any ramifications on public budgets and interest rates from the labour market reforms.

Table 4.6. **Summary of scenario with more ambitious fiscal consolidation and structural reform**

As percentage of GDP (unless otherwise specified)

	Average 2000-07	2010	2013	2020	2025	2030
United States						
Potential real GDP growth (%)	2.6	1.7	2.1	2.5	2.5	2.4
Fiscal balance	-2.6	-10.7	-6.5	2.3	0.6	-0.9
Gross government debt	62	98	111	90	70	62
Real Interest rates (%)	2.4	1.7	1.4	3.1	3.3	3.6
Total national savings	14.7	12.5	12.7	15.6	13.6	11.8
Total investment	19.7	15.8	17.0	17.4	17.2	16.1
Current balance	-4.9	-3.2	-4.3	-1.7	-3.5	-4.3
Japan						
Potential real GDP growth (%)	0.7	0.6	0.8	1.3	1.6	1.8
Fiscal balance	-5.4	-8.4	-10.1	0.4	7.9	10.9
Gross government debt	157	193	223	228	187	121
Real Interest rates (%)	2.7	2.4	3.0	2.8	3.3	3.2
Total national savings	26.4	23.2	22.8	26.8	30.8	32.1
Total investment	23.1	19.8	21.0	23.6	25.0	26.3
Current balance	3.3	3.6	1.9	3.2	5.9	5.8
Euro Area						
Potential real GDP growth (%)	1.9	1.0	1.3	2.2	2.0	1.8
Fiscal balance	-1.9	-6.2	-2.0	1.8	0.4	-0.5
Gross government debt	75	93	100	77	65	61
Real Interest rates (%)	2.4	2.3	3.2	2.9	3.0	3.2
Total national savings	21.6	19.4	20.5	20.0	18.0	15.9
Total investment	19.2	20.5	19.9	22.2	20.9	19.2
Current balance	0.3	0.4	1.6	-0.9	-1.7	-2.2
OECD Total						
Potential real GDP growth (%)	2.2	1.5	1.9	2.4	2.4	2.3
Fiscal balance	-2.1	-7.5	-4.2	1.6	1.3	0.7
Gross government debt	74	99	109	96	78	66
Real Interest rates (%)	2.5	1.9	2.2	3.0	3.3	3.5
Total national savings	19.8	18.0	18.8	20.1	19.0	17.6
Total investment	21.0	18.6	19.5	20.2	20.5	18.4
Current balance	-1.2	-0.6	-0.9	-0.2	-0.6	-1.0
China						
Potential real GDP growth (%)	10.0	10.2	9.5	7.1	5.4	4.3
Total national savings	44.6	51.8	50.1	37.9	29.6	27.2
Total investment	40.1	47.8	48.3	39.7	32.3	27.5
Current balance	4.6	4.0	1.7	-1.8	-2.6	-0.2
India						
Potential real GDP growth (%)	7.4	7.8	7.3	7.0	6.6	6.1
Total national savings	29.6	31.8	28.3	23.4	19.7	19.0
Total investment	29.1	34.3	31.2	30.6	29.1	27.3
Current balance	0.0	-3.2	-2.9	-7.3	-9.4	-8.2
Brazil						
Potential real GDP growth (%)	3.1	4.2	4.5	4.4	4.2	3.8
Total national savings	16.1	17.5	16.7	16.2	15.2	13.8
Total investment	17.1	20.2	19.9	19.5	18.5	17.3
Current balance	0.7	-2.2	-3.2	-3.3	-3.2	-3.5
Potential real GDP growth (%)						
OECD	2.2	1.5	1.9	2.4	2.4	2.3
non-OECD	6.8	7.5	7.3	6.1	5.1	4.4
World	2.8	2.7	3.4	3.7	3.5	3.2

Source: OECD Economic Outlook 91 long-term database.

StatLink http://dx.doi.org/10.1787/888932610938

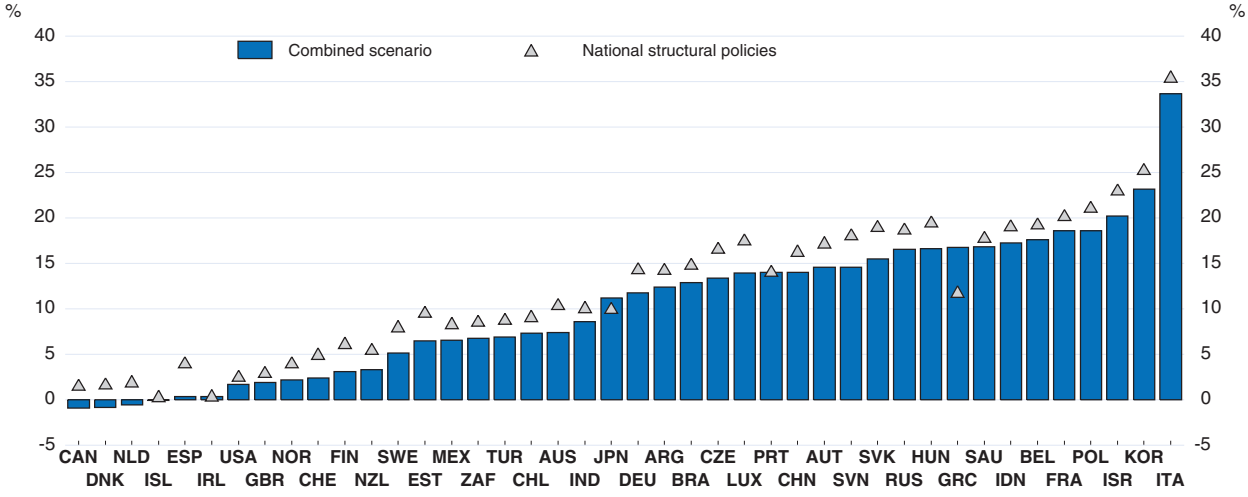
Korea (14%). The overall effect of these labour market reforms is to raise GDP by 4% on average in 2050 compared with the baseline scenario.

More ambitious structural and fiscal reforms boost growth

The main macroeconomic impact of more ambitious structural and fiscal reforms is to boost trend output. The level of potential output in 2050 is higher in both OECD and non-OECD countries, by about 7% and 13%, respectively (Figure 4.6). There are, however, large differences in the magnitude of this effect across countries, the effect being generally larger in countries with the greatest scope for improvement in structural polices relative to best practice. The largest gainers are Italy, Korea and Israel, where there are large potential gains from raising labour force participation, as well as many countries which currently have relatively stringent product market regulation and stand to gain around 10% or more of GDP by 2050 by improving competition and so speeding up the convergence process. On the other hand, countries such as Canada, Denmark, Iceland, and the Netherlands benefit less from structural reforms, but this is only because they are currently at, or close to, best practices in respect of product market regulation and labour force participation. The effects of reform are generally lower when all countries take action than they would be if reforms applied to only one country. This reflects that simultaneous reform boosts global growth, which again raises global interest rates, thereby partially offsetting the positive effect of structural reforms on GDP. Exceptions are countries where fiscal consolidation is so large that the domestic reduction in interest rates more than compensates for this global effect (notably Greece and Japan).

Figure 4.6. **Structural reforms and more ambitious fiscal consolidation raise GDP**

Difference in level of GDP in 2050, compared to baseline



Source: OECD Economic Outlook 91 long-term database.

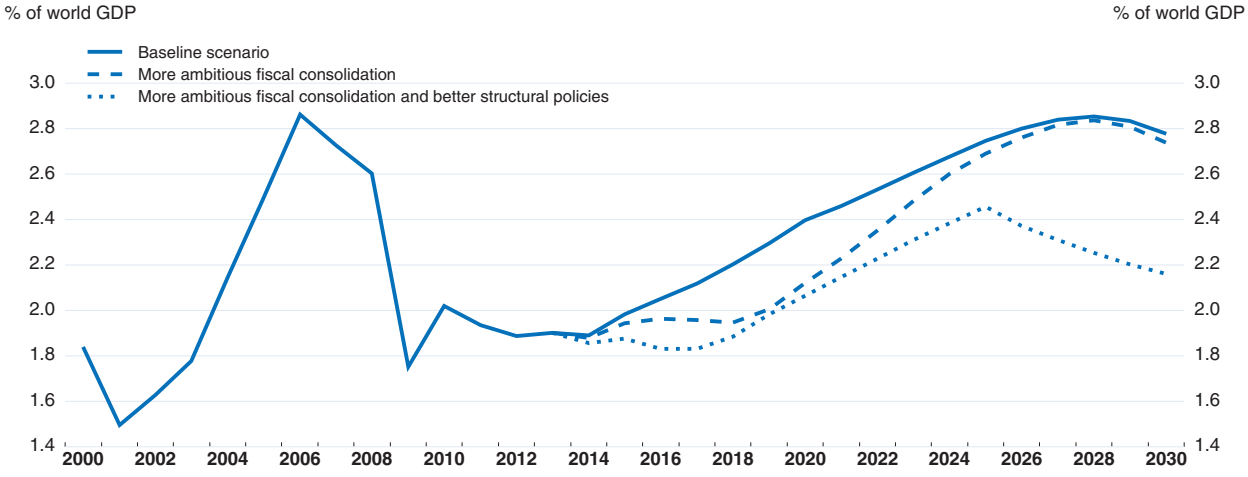
StatLink http://dx.doi.org/10.1787/888932609399

Structural reforms can reduce current account imbalances

More ambitious structural policy reforms combined with faster fiscal consolidation reduce global current account imbalances. This improvement comes about principally by lowering large current account surpluses in some non-OECD economies, especially China, because precautionary saving falls more rapidly as a consequence of more rapid welfare and financial reforms. By narrowing the gaps between public (and thereby national) saving and investment, fiscal tightening also contributes to reducing external imbalances as the need for such tightening is generally higher in external deficit countries. The peak effect on total global imbalances – measured as half the sum of individual current balances in absolute value as a share of world GDP – occurs in the late 2020s when they are approximately 0.6 percentage point of world GDP lower than in the baseline scenario, implying a reduction in total global imbalances by more than one-fifth (Figure 4.7). The timing for the peak effect is opportune as it is when global imbalances would otherwise have returned to their pre-crisis maximum.

Figure 4.7. **Policy action can reduce global imbalances**

Absolute sum of current account balances, as a share of world GDP divided by 2



Source: OECD Economic Outlook 91 long-term database.

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