

## *Chapter 4*

# **GROWTH PROSPECTS AND FISCAL REQUIREMENTS OVER THE LONG TERM**

### Summary

- Growth of the present non-OECD will continue to outpace that of the present OECD, but the difference will narrow substantially over coming decades. From over 7% per year recently, non-OECD growth may decline to around 4½ per cent per annum in 2030. Until around 2020, China is set to have the highest growth rate among major countries, but could be then surpassed by India.
- China will likely pass the United States as the world's largest economy in the next few years and India has probably recently surpassed Japan to be third largest. By the early 2030s, the BRIICS combined GDP should roughly equal that of the OECD (based on current membership), compared with just over half that of the OECD now.
- Between now and 2060, GDP per capita is seen to increase more than eightfold in India and sixfold in Indonesia and China, whereas GDP per capita in the highest-income OECD countries may only roughly double over this period. Nevertheless, today's lowest income countries will still have large gaps in GDP per capita compared with the highest income countries; India, Indonesia and Brazil could have GDP per capita levels (on a current PPP basis) which will only be 30-40% of that of the United States in 2060.
- In terms of geographical distribution, there will be a big shift in the share of world GDP accounted for by Asia, at the expense of both North America and Europe; having accounted for about one-quarter of global GDP (at current PPPs) at the beginning of the century, Asia's share has already risen to over one-third and is expected to reach one-half by the late 2030s and stabilise slightly above that level in the 2050s.
- The required fiscal consolidation, measured in terms of the average change in the underlying primary balance, to gradually reduce gross government debt to 60% of GDP by around 2030 differs across countries. About two-thirds of OECD countries will have debt exceeding this ratio in 2014, but of these more than half will require relatively little (less than 1 percentage point of GDP) or no further consolidation, over and above that projected to 2014, to achieve a 60% target. A second group of countries – France, Iceland, Ireland and Spain – require average consolidation of between 1 and 3 percentage points of GDP beyond 2014, but this represents less than one-third of the required post-crisis consolidation.
- A third group of countries – Greece, Portugal, United Kingdom and United States – all have debt ratios exceeding 100% of GDP and require larger average consolidation of between 3 and 6 percentage points of GDP. Finally, Japan has a massive average fiscal consolidation requirement beyond 2014 of 11 percentage points, just to stabilise the debt ratio by 2030, suggesting that an approach of gradual fiscal consolidation will not be sufficient on its own to tackle the government indebtedness and will need to be supplemented by other policies.
- These calculations of consolidation requirements are likely to understate the necessary fiscal efforts for a number of reasons. Firstly, increased pressures on public spending from health and pensions, will add about 2¾ percentage points of GDP to required fiscal efforts by 2030, for a typical OECD country, but with considerable cross-country variation and a much greater increase in some countries. A second reason why consolidation requirements will be larger is that the required profile of the underlying primary balance is likely to involve an intermediate *peak* increase which is greater than the *average* increase

referred to above. Among the countries that require most consolidation, the peak measure in these projections is typically 2-4 percentage points of GDP higher than the average measure of consolidation. Finally, uncertainty is related to the loss in potential output due to the crisis and there is a risk that countries in which the recovery is delayed suffer further losses in potential output due to hysteresis effects which will aggravate consolidation requirements.

- Going beyond the relatively passive structural reform agenda in the baseline, a stylised package of structural policy reforms which move countries to best policy practice in a number of areas could raise GDP for the median OECD country by about 20% by 2060, albeit with smaller effects for countries already close to best practice. For the non-OECD G20 countries, where greater policy change is needed to move to best practice, reforms could raise GDP by more than a third by 2060. The largest gains result from the reform of product market regulations, raising productivity and GDP in the median OECD country by 17% and in the non-OECD by about 30% over the long run. Educational reforms in the BRIICS could raise GDP by 2060 by between 5% and 8%, with the largest effect in India where average years of schooling are currently very low and the baseline foresees only gradual convergence to leading countries.
- The *average* gains from reforms which raise labour utilisation are smaller, but there are large gains in selected OECD economies from lowering structural unemployment (in particular Estonia, Greece, Poland, Slovak Republic and Spain) and raising labour force participation (in particular Czech Republic, Hungary, Italy, Poland and Slovak Republic). Such reforms may be more beneficial in easing fiscal consolidation requirements than reforms which raise productivity.

**This chapter describes long-term projections for the global economy**

### Long-term growth projections for the global economy

Coming decades will witness massive changes in the global economy, particularly in terms of the relative size of the major economies, in living standards and in the pattern of global saving and investment. This chapter is an attempt to provide orders of magnitude for these changes through a set of long-term growth projections, that extend the short-term projections presented in Chapters 1 to 3 to 2060 using a modelling framework described in Johansson *et al.* (2013) and summarised in Box 4.1.<sup>1</sup> Bearing in mind all the caveats that apply to this kind of exercise, these projections are then used as a back-drop for the analysis of fiscal imbalances and consolidation needs and the effects of structural reforms on medium- and long-term growth.

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

The global model used to extend the short-term *Economic Outlook* projections to 2060 is described in Johansson *et al.* (2013). The country coverage is 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 which OECD economies are modelled is greater than for non-OECD economies, 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 (based on gradually declining returns to average years of schooling) 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 and human capital, potential output is projected out to 2060. 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. In the long run, productivity in all countries will tend to 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, human capital and labour utilisation, which in turn partly depend on differences in structural conditions and policies.

1. The country coverage in this modelling exercise is all OECD countries and all G20 non-OECD countries which together accounted for about 90% of nominal world GDP in 2010. This limitation in the country coverage should be particularly borne in mind in interpreting statements throughout the chapter concerning shares of world GDP or country rankings.

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

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 the fiscal balance, the terms of trade, productivity growth, net oil balances and the availability of credit. Total saving in OECD countries is determined as the sum of public and private saving, although there is a 40% offset of any improvement in public saving from reduced private saving due to partial Ricardian equivalence (in line with recent OECD estimates, for example Röhn, 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 the OECD, with effects from the old-age and youth dependency ratios, the terms of trade, the availability of credit, the level of public expenditure (as a proxy for public social protection) and productivity growth.

Movements in global 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.

Current account imbalances are accumulated to provide a proxy for foreign asset positions – with higher levels of external indebtedness leading to higher country-specific risk premiums that are reflected in market interest rates, consistent with the findings of Lane and Milesi-Ferret (2001) and Rose (2010). This is implemented as an increase of 2 basis points in interest rates for every percentage point increase in the ratio of net external debt to GDP. For countries that are net creditors, there is no discount placed on their domestic interest rate since no evidence for one has been found in empirical work.

Fiscal closure rules acting on the primary balance ensure that the ratio of government debt to GDP is stable either at recent levels or by targeting a specific (usually lower) debt-to-GDP ratio, which in the baseline here is 60%. 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.

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

The long-term growth scenarios are anchored on the short-term projections for 2014, beyond which output gaps are assumed to close smoothly, typically over a period of four to five years, depending on their initial size. This implies above-trend growth for the first few years of the projections in countries with negative output gaps in 2014, 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, it is assumed that 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). The projections presented in this chapter thus provide a benign, even optimistic, medium-term outlook for the world economy (Table 4.1).

### Box 4.2. Assumptions in the baseline long-term scenario

The baseline scenario includes the following assumptions for the period beyond the short-term projection horizon that ends in 2014:

- Cross-country comparisons of levels of GDP and GDP per capita are made in terms of current purchasing power parities (PPPs). PPPs are projected on the basis of differences in aggregate inflation and a relative price effect (reflecting the relative price of tradeables and non-tradeables) which is related to changes in relative living standards, through the so-called Harrod-Balassa-Samuelson effect, based on the empirical work of Frankel (2006). Nominal exchange rates adjust in line with relative aggregate inflation rates and also correct the level of the real exchange rate in line with predictions of the Harrod-Balassa-Samuelson effect. The upshot is that the GDP of low-income countries like India and China rise somewhat less over the projection, relative to high-income countries such as the United States, when measured on a current PPP basis than on a fixed PPP basis.

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: Australia, Poland, Iceland and Norway target 2.5%; Chile, Hungary, Mexico and Korea target 3%; Argentina, China, India and Russia target 4%; Brazil, Indonesia and South Africa target 4.5%; and Turkey targets 5%.
- For those countries with initial gross general government debt in excess of 60% of GDP, fiscal policy is directed towards convergence on this debt level. Otherwise, for countries where debt is initially below the 60% threshold, fiscal policy is directed to stabilising the gross government debt ratio. To achieve these objectives for the debt ratio, fiscal consolidation is assumed to take place through a gradual improvement in the underlying primary balance, with a maximum cap on consolidation in any single year of ½ percentage point of GDP. It should be noted that 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.
- 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 (see Box 4.4).

Assumptions regarding structural policies are as follows:

- Policy influences on labour force participation differ between two stages of the projections. Recently-legislated pension reforms that involve an increase in the normal retirement age by 2030 are assumed to be implemented as planned, and the participation rates of older workers adjusted accordingly. In countries where no such reforms have been undertaken, retirement behaviour is assumed to reflect only effects coming from a rising education level. Beyond 2030, a more stylised assumption is adopted whereby 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.
- Structural unemployment in OECD countries gradually returns to the lowest value estimated between 2007 and 2014. Unemployment in non-OECD countries where the level is currently above the OECD average is assumed to gradually converge to the OECD average, while it remains unchanged in countries currently below the OECD average.
- The long-term trend increase in average years of schooling per worker (the basis for estimating human capital) is assumed to continue in all countries, and is calculated to have a modest positive effect on aggregate labour force participation.
- Product market and trade regulations are assumed to gradually converge towards the average regulatory stance observed in OECD countries in 2011 in countries where regulations are currently more restrictive, while for other countries, regulations remains unchanged.
- 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 so as to have no effect on public saving.

Table 4.1. **Growth in total economy potential output and its components**  
Annual averages, percentage change

	Output Gap 2012	Potential real GDP growth				Potential labour productivity growth (output per worker)				Potential employment growth				Real GDP growth 2012-2017
		2001-2007	2012-2017	2018-2030	2031-2060	2001-2007	2012-2017	2018-2030	2031-2060	2001-2007	2012-2017	2018-2030	2031-2060	
Australia	-0.9	3.2	3.3	3.0	1.9	1.1	1.9	2.1	1.5	2.1	1.4	0.9	0.5	3.5
Austria	-1.6	2.1	1.7	1.8	1.3	1.1	1.0	1.6	1.3	1.0	0.7	0.1	-0.1	1.7
Belgium	-0.8	1.8	1.5	2.2	1.8	0.8	0.8	1.9	1.4	0.9	0.6	0.3	0.3	1.3
Canada	-0.4	2.6	2.0	2.2	1.9	0.8	1.1	1.7	1.5	1.7	0.9	0.4	0.3	2.0
Chile	0.2	4.0	5.0	3.3	1.4	1.7	2.9	2.2	1.5	2.3	2.0	1.1	0.0	5.0
Czech Republic	-2.5	3.6	2.1	2.9	1.6	3.4	2.0	3.1	2.0	0.3	0.2	-0.2	-0.4	1.9
Denmark	-3.2	1.4	1.0	1.8	1.9	0.9	0.8	1.6	1.8	0.5	0.2	0.1	0.1	1.2
Estonia <sup>2</sup>	-1.7	5.1	3.0	3.0	1.7	4.4	2.9	3.2	2.2	0.7	0.1	-0.2	-0.4	3.4
Finland	-1.4	2.7	1.5	2.1	1.4	1.5	1.4	2.3	1.4	1.1	0.1	-0.2	0.1	1.5
France	-2.4	1.7	1.5	2.3	1.4	0.8	1.2	2.1	1.2	0.8	0.4	0.2	0.1	1.6
Germany	0.1	1.2	1.2	0.9	0.7	0.8	1.0	1.5	1.4	0.4	0.2	-0.6	-0.7	1.1
Greece	-11.7	2.8	-0.5	3.2	1.3	1.6	0.2	2.6	1.6	1.1	-0.8	0.6	-0.3	0.1
Hungary	-3.3	2.7	1.3	3.1	1.8	2.9	1.1	3.0	2.4	-0.2	0.2	0.1	-0.6	1.4
Iceland	-4.2	3.7	0.8	2.2	2.0	2.2	0.4	1.5	1.7	1.4	0.4	0.7	0.3	1.6
Ireland	-7.9	5.4	1.4	3.0	1.6	2.4	1.1	1.7	0.9	2.9	0.4	1.2	0.7	2.5
Israel	1.0	3.5	3.5	2.8	2.5	0.9	1.2	1.2	1.4	2.6	2.2	1.5	1.2	3.2
Italy	-4.5	1.1	0.1	2.0	1.4	0.2	0.0	1.6	1.5	0.9	0.1	0.4	-0.1	0.3
Japan	-0.8	0.7	0.8	1.1	1.1	0.9	1.2	1.7	1.8	-0.2	-0.4	-0.5	-0.7	1.2
Korea	-3.1	4.5	4.1	3.3	0.6	3.2	3.4	3.4	1.3	1.2	0.7	0.0	-0.7	4.1
Luxembourg	-2.5	4.1	2.6	2.6	1.5	0.5	0.2	1.5	1.2	3.6	2.4	1.0	0.4	2.6
Mexico	-0.4	2.4	3.2	3.6	2.7	0.7	1.0	1.9	2.3	1.7	2.1	1.6	0.4	3.5
Netherlands	-2.7	1.9	1.4	2.1	1.5	0.9	0.9	2.1	1.6	1.0	0.5	0.0	-0.1	1.3
New Zealand	-1.5	3.1	2.4	2.4	1.9	0.7	1.4	1.6	1.5	2.4	1.0	0.8	0.4	2.8
Norway <sup>1</sup>	-0.5	3.0	2.7	2.4	1.6	1.7	1.6	1.9	1.2	1.2	1.2	0.5	0.4	3.0
Poland	0.7	4.1	2.9	2.2	0.8	3.4	2.9	2.7	1.7	0.7	0.0	-0.5	-0.9	2.5
Portugal	-6.7	1.6	0.2	2.1	1.5	1.2	0.5	1.8	1.9	0.4	-0.3	0.3	-0.4	0.5
Slovak Republic	-0.5	4.4	3.2	2.4	0.9	3.8	3.0	2.8	1.7	0.6	0.2	-0.4	-0.8	2.8
Slovenia	-3.3	3.2	1.1	2.8	1.5	2.6	1.4	2.9	1.9	0.7	-0.3	-0.1	-0.3	0.9
Spain	-7.7	3.3	0.8	3.0	1.5	0.6	1.1	1.8	1.6	2.8	-0.3	1.2	-0.1	1.4
Sweden	-1.4	2.6	2.7	2.5	1.5	2.0	1.9	2.2	1.2	0.6	0.8	0.3	0.2	2.6
Switzerland	-0.9	1.9	2.1	2.2	1.6	0.8	1.0	1.9	1.7	1.0	1.1	0.3	-0.1	2.0
United Kingdom	-2.1	2.5	1.7	2.6	2.0	1.6	0.9	2.0	1.6	0.9	0.8	0.6	0.4	1.8
United States	-3.0	2.4	2.0	2.1	1.7	1.7	1.5	1.7	1.1	0.7	0.5	0.4	0.5	2.5
Turkey	-2.1	4.0	5.1	4.3	1.9	2.6	2.5	2.5	1.6	1.3	2.5	1.7	0.3	4.8
Argentina <sup>2</sup>	6.7	3.7	3.8	3.1	2.3	0.6	2.1	1.8	2.1	3.1	1.6	1.2	0.2	2.3
Brazil	-1.1	3.0	3.7	3.6	2.0	0.8	2.2	2.7	2.4	2.2	1.4	0.8	-0.4	3.3
China	0.1	10.2	8.4	5.4	2.1	9.2	7.9	5.8	3.0	0.9	0.5	-0.3	-0.9	8.1
Indonesia	0.5	4.1	6.0	5.2	3.4	2.1	4.0	4.2	3.6	1.9	1.9	1.0	-0.1	6.0
India	0.1	7.0	6.9	6.8	4.3	5.2	5.0	4.9	3.7	1.7	1.8	1.8	0.6	6.3
Russian federation	-1.7	5.4	3.3	2.8	1.3	4.6	4.4	3.5	2.0	0.7	-1.1	-0.7	-0.7	3.5
South Africa	-2.5	3.1	4.6	4.9	2.3	2.0	2.7	2.8	1.9	1.1	1.9	2.0	0.4	4.7
Euro area <sup>2</sup>	-2.9	1.7	1.0	2.0	1.3	0.8	0.9	1.8	1.5	1.0	0.1	0.2	-0.2	1.2
OECD <sup>2</sup>	-2.3	2.1	1.9	2.3	1.6	1.3	1.3	1.8	1.5	0.9	0.6	0.4	0.1	2.2
Non-OECD	0.7	7.1	6.8	5.3	2.8	5.7	5.7	4.6	2.9	1.3	1.0	0.6	-0.2	6.4
World <sup>2</sup>		3.5	3.7	3.6	2.2	2.3	2.8	3.0	2.3	1.2	0.9	0.6	-0.1	3.8

1. Based on measures of mainland GDP.

2. Reported growth for 2001-2007 starts in 2002. For Argentina, it starts in 2003.

Source: OECD Economic Outlook 93 long-term database.



**The crisis is assumed to have had permanent adverse effects only 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 trend or potential output and has had no permanent adverse effect on its growth rate. Compared with pre-crisis trends, the level of aggregate OECD potential output, has been revised downwards by about 3% though the median adjustment across countries is about 6% (Box 4.3). There are, however, a number of smaller OECD countries, for which such estimates suggest losses exceeding 10% of potential output relative to pre-crisis trends. Some of this loss in potential output is assumed to be reversed over the medium term as hysteresis-induced increases in the structural rate of unemployment are reversed and the structural rate of unemployment gradually returns to pre-crisis levels. It is also assumed that even very large output gaps close fairly quickly, with any multiplier effects from further fiscal consolidation being ignored. An alternative, whereby large negative output gaps persist for several years, raises the downside risk that hysteresis-type effects drag down the level of potential output further and on a more permanent basis.

**Policies play an important role in the baseline scenario**

Structural and fiscal policies play an important role in the projections presented here. The projection framework takes into account the impact of labour market and retirement policies on developments in unemployment and labour force participation, the impact of product market and trade regulations on innovation and technological diffusion, as well as the impact of fiscal consolidation in advanced economies 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).<sup>2</sup> While these policy changes are significant, there remains considerable scope for further structural reforms to improve trend growth, as explored in variant scenarios (see below).

**Productivity convergence implies faster growth in the BRIICS...**

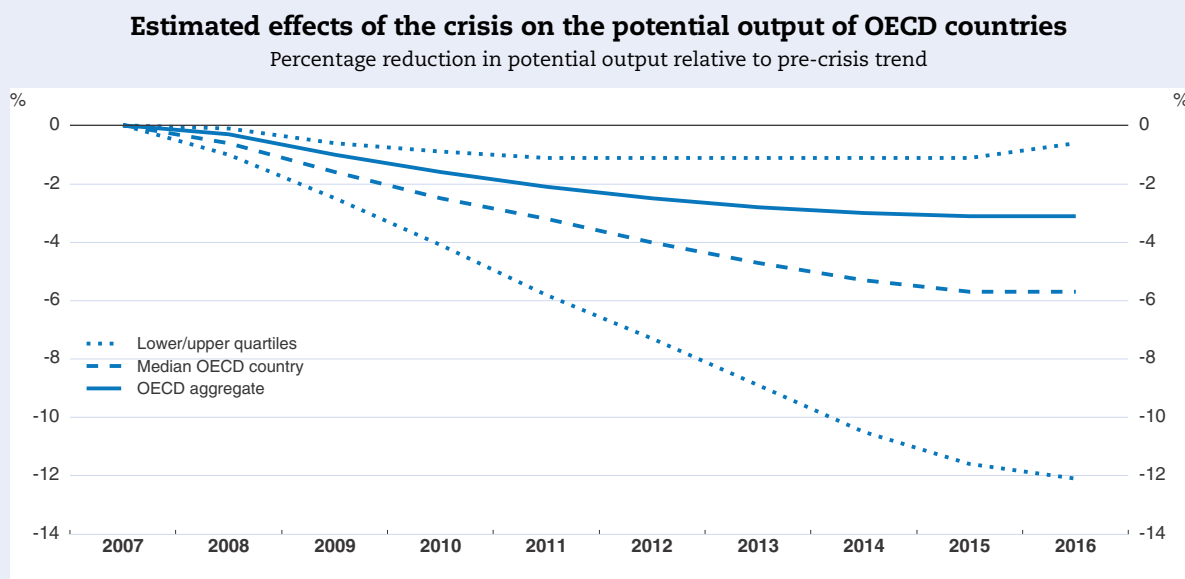
A defining feature of the long-term projections is “conditional convergence” in trend labour productivity (Figure 4.1) which occurs as countries move closer to the technological frontier, increase human capital by raising years of schooling to catch up with leading countries<sup>3</sup>

2. Baseline projections for European programme countries (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.
3. The level of schooling of the cohort aged 25-29 for all countries is assumed to converge towards the leading country with a speed of convergence of 1% per year. While this is equal to the observed speed of convergence over 1960-2005 across all countries, there is likely to be potential for a much faster rate of catch-up for countries which are furthest behind, particularly where major reforms would have a large impact on primary and secondary education.




### Box 4.3. The effect of the crisis on potential output

The crisis is likely to have resulted in a permanent loss in the level of potential output for most OECD countries, so that even with a continuing recovery, GDP may not catch-up to its pre-crisis trajectory. The extent of these losses is very uncertain, because of the difficulty of knowing what the counter-factual would be and because of the difficulties of disentangling what the effect of the crisis is from other effects, including policy changes. Estimates here are derived from comparing current estimates of potential output per head of the working population with an extrapolation of the pre-crisis trend (over 2000-07) in potential output per head of the working population. Potential output is normalised on the population of working age because some slowdown in potential growth was always expected for demographic reasons and this should not be attributed to the crisis. This method implies a reduction in aggregate OECD-wide potential output of just under 3% (see figure below), which is similar to an estimate that is obtained from comparing projections of potential output made prior to the crisis with the latest projections. It is also similar in broad terms to estimates that were made shortly after the onset of the crisis (OECD, 2010a).

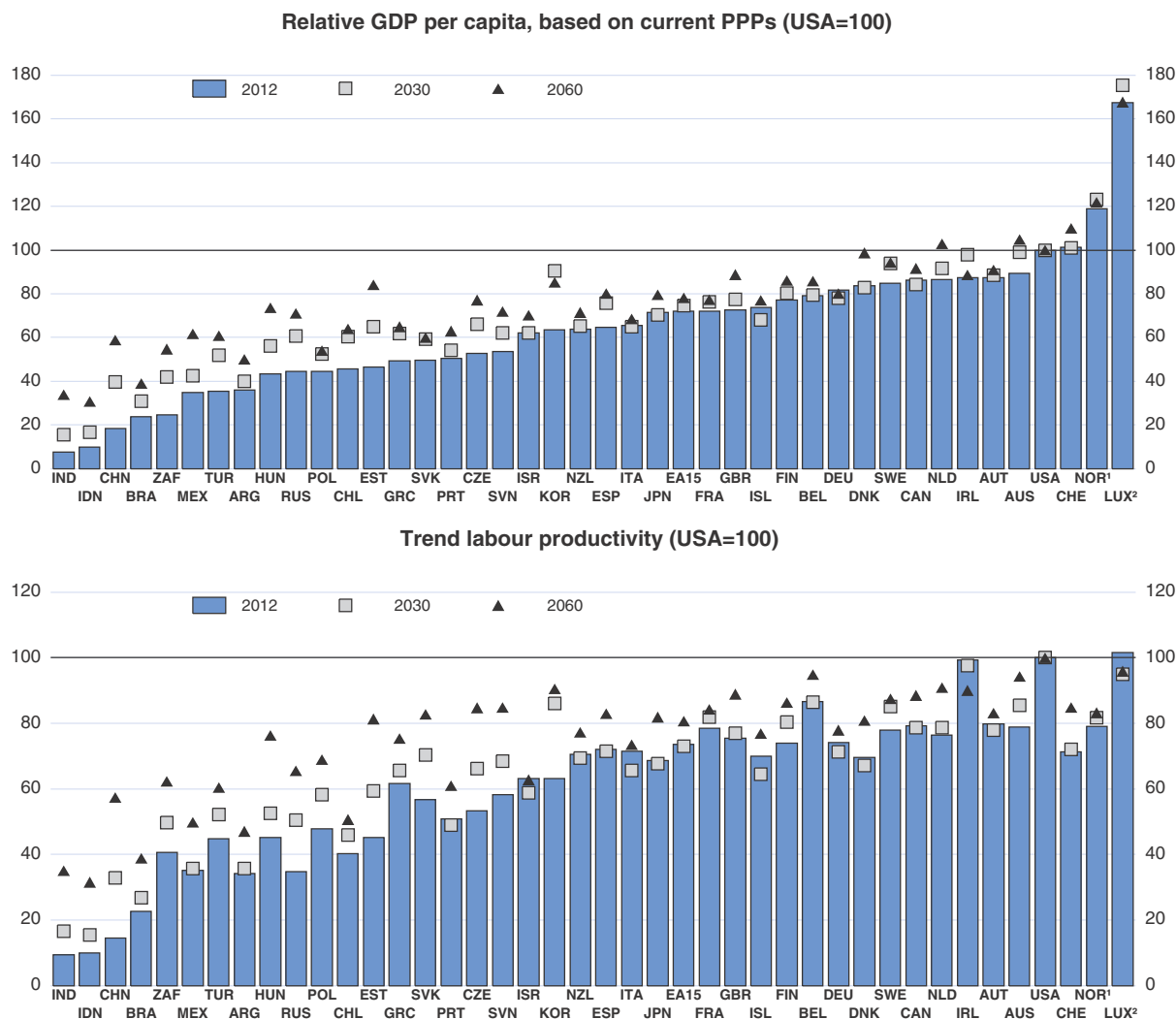


Source: OECD Economic Outlook 93 long-term database.

StatLink  <http://dx.doi.org/10.1787/888932836658>

There is, however, wide variation in the estimated effect of the crisis on individual countries. The estimated effect on the median OECD country is about double the effect on the area-wide aggregate, reflecting that smaller countries have typically been hit harder than larger ones. On this basis, the effect of the crisis on potential has been small in Japan and Germany and reduced output by less than 2½ per cent for the United States. Other countries where the estimated effect of the crisis is relatively small include Austria, Australia, Israel, Mexico and Switzerland. Conversely the estimated effect is to reduce potential output in 2014 by more than 10% for Czech Republic, Hungary, Ireland, Iceland, Slovenia, Estonia, Greece and Luxembourg.

A few countries, notably Ireland and Spain, have experienced a very marked slowdown in the growth of the population of working age, which is not due to standard demographic developments, but rather arises because of a sharp decline in net immigration flows which probably should be attributed to the effect of the crisis, but is not included as such in these calculations, which may therefore err on the side of optimism for these countries.

Figure 4.1. **Convergence in living standards is driven by trend productivity**

1. GDP per capita for Norway in panel A includes oil production, while the measure of productivity in panel B excludes oil and is based on mainland GDP only.
2. Luxembourg has a very high GDP per capita because it is boosted by an exceptionally high ratio of employment to resident population, due to cross border workers.

Source: OECD Economic Outlook 93 long-term database.

StatLink  <http://dx.doi.org/10.1787/888932836715>

and increase physical capital per worker.<sup>4</sup> This implies that countries that are the furthest behind in terms of the level of productivity today are likely to grow the fastest in the future. In particular, for China, India and Indonesia (which currently have the lowest levels of trend productivity among the sample of countries considered here) trend productivity

4. Conditional convergence implies that there is not complete convergence in productivity levels even in the long run, rather differences in productivity levels will persist because of permanent differences in structural characteristics, including policy settings. Nevertheless, as economies converge on their own steady-state path the growth rate of trend productivity will tend towards a common rate determined by the growth rate of technical progress.

growth will average three to four times that of the OECD between now and 2030, and, although gradually declining over the entire projection, will be double that of the OECD over the period 2030-60.

**... as well as in low-income  
OECD countries...**

Convergence of trend labour productivity is also a feature, albeit less striking, of the pattern of long-term growth among OECD countries. Thus, those countries with currently low productivity levels (including the OECD Eastern European economies, Turkey and Mexico) typically experience long-term trend productivity growth rates of 2-3% per annum, compared with about 1½ per cent per annum for countries like the United States, which are at, or close to, the productivity frontier. The projected growth rate of trend productivity does not, however, always conform to this pattern, in particular over the medium term because of inertia, so that those countries which have experienced poor trend productivity growth recently (including Portugal, Greece and Italy) experience only a modest pick-up before 2020.

**... but convergence is  
incomplete**

While growth is generally more rapid in low-income countries, a complete catch-up in productivity levels does not generally occur even by 2060. This is not only because it would take longer for those countries which start furthest from the productivity frontier, though in some cases such as upgrading of education levels convergence is bound to be very slow, but also because differences in structural policies and other structural factors matter and can prevent complete catch-up; in the present modelling framework important differences in underlying productivity levels are attributed to differences in structural policy settings as represented by the degree of competition-friendly product market regulation. Furthermore, differences in GDP per capita will persist because of differences in labour utilisation due to different structural characteristics of the labour market, including structural policy settings, as well as demographic differences.

**Potential employment  
growth is slowing for  
demographic reasons**

The contribution to growth from labour utilisation is slowing nearly everywhere, reflecting demographic factors, particularly ageing, as the population of working age and aggregate participation rates grow more slowly. This occurs even though the baseline scenario embodies retirement reforms that are sufficient to maintain a stable proportion of life expectancy in the labour force beyond 2030 (up to 2030, known retirement policy is included). Aggregate OECD employment growth, while slowing, remains positive throughout, but important exceptions include Japan, Germany, Korea and some Eastern-European economies where employment growth becomes negative. There is even wider variation among the BRIICS: both China and Russia are expected to experience strong negative employment growth over the long term, particularly beyond 2030; whereas India experiences very strong positive employment growth to 2030 and positive, albeit slowing, growth rates beyond.

**Labour utilisation will be pushed down by an increasing dependency ratio...**

Beyond 2030 pressures on labour utilisation from ageing populations will tend to reduce GDP per capita in a majority of countries (Figure 4.2, upper panel). In itself, aggregate population growth has no immediate implications for GDP per capita in the modelling framework used for the projection. However, the projected decline in the share of working-age population due to ageing will have a negative impact in most countries (Figure 4.2, lower panel). The conclusion tends to be the same whatever definition of working age is used – here it is ages 15 to 74 – as long as a fixed age range is considered. Large declines in the working-age share of more than 10 percentage points to 2060 occur in Slovenia, Slovak Republic, Czech Republic, Poland and especially in Japan and Korea. Exceptions to this decline in the share of the working age population occur to 2030 in several low-income countries (Turkey, Mexico, Chile, India, Indonesia, Brazil and China); however, this is only sustained beyond 2030 in India, while China is projected to experience a particularly strong turnaround.

**... but can be offset by higher participation, including through later retirement**

A rise in the labour force participation rate in a majority of countries helps to offset some of the negative effect on labour utilisation from the declining share of people of working age (Figure 4.2, middle panel). This arises partly because of a continuation of the observed trend for later cohorts to participate more in the workforce at a given age than earlier cohorts did before them. Up to 2030, the labour force participation projections also incorporate legislated reforms to public retirement schemes which in a number of cases increase the age of retirement. Beyond 2030, labour force participation is boosted by an assumption that participation in the workforce rises in line with increasing life expectancy, which corresponds roughly with the notion that effective retirement ages increase in line with life expectancy. Assuming fixed retirement ages over a long horizon with rising life expectancy would have undermined the realism of the exercise.

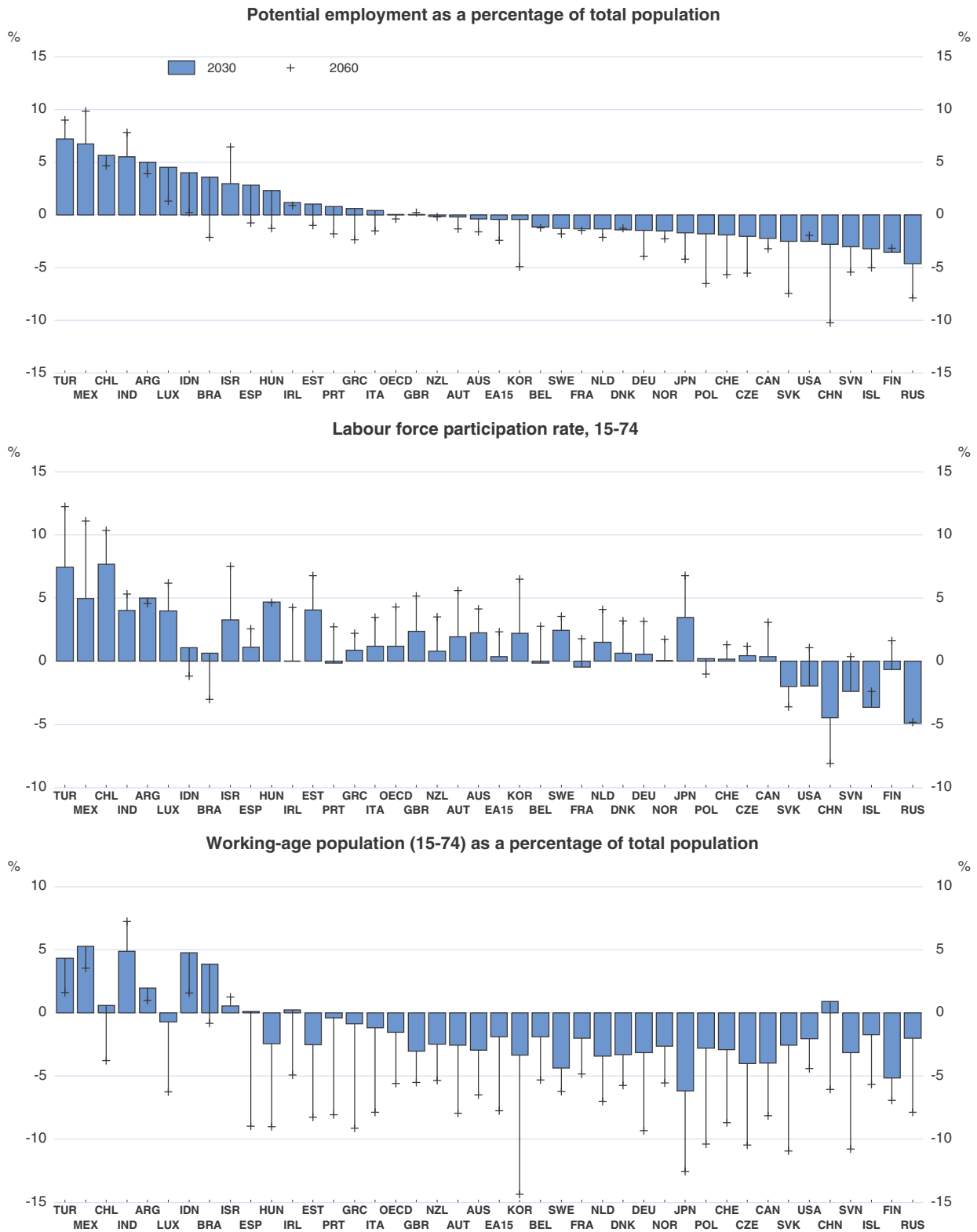
**OECD potential growth moderates over the longer term**

Aggregate OECD output growth picks up to between 2 and 2¼ per cent per annum to 2030, slightly higher than the pre-crisis trend because post-crisis slack is being absorbed and structural unemployment reverts to pre-crisis levels. It then slows to 1¾ per cent per annum to 2060, reflecting a gradual slowing in trend productivity as more countries get closer to the frontier and as potential employment slows for demographic reasons. The differential between non-OECD and OECD growth remains positive but narrows continuously, with non-OECD potential (and actual) growth rates falling from around 7% per annum currently to about 4½ per cent per annum by 2030 and 2% per annum by 2060, but still implying a massive upheaval in the structure of the global economy over coming decades (Figure 4.3).

**The growing importance of China and India is already apparent**

- In the short term, these trends imply that China will pass the United States as the world's largest economy in the next few years and India has probably recently just surpassed Japan to be third largest (all comparisons, here and below, are based on projected current PPPs).

Figure 4.2. **Changes in labour utilisation and its components**  
Change compared to 2012, in percentage points



Source: OECD Economic Outlook 93 long-term database.


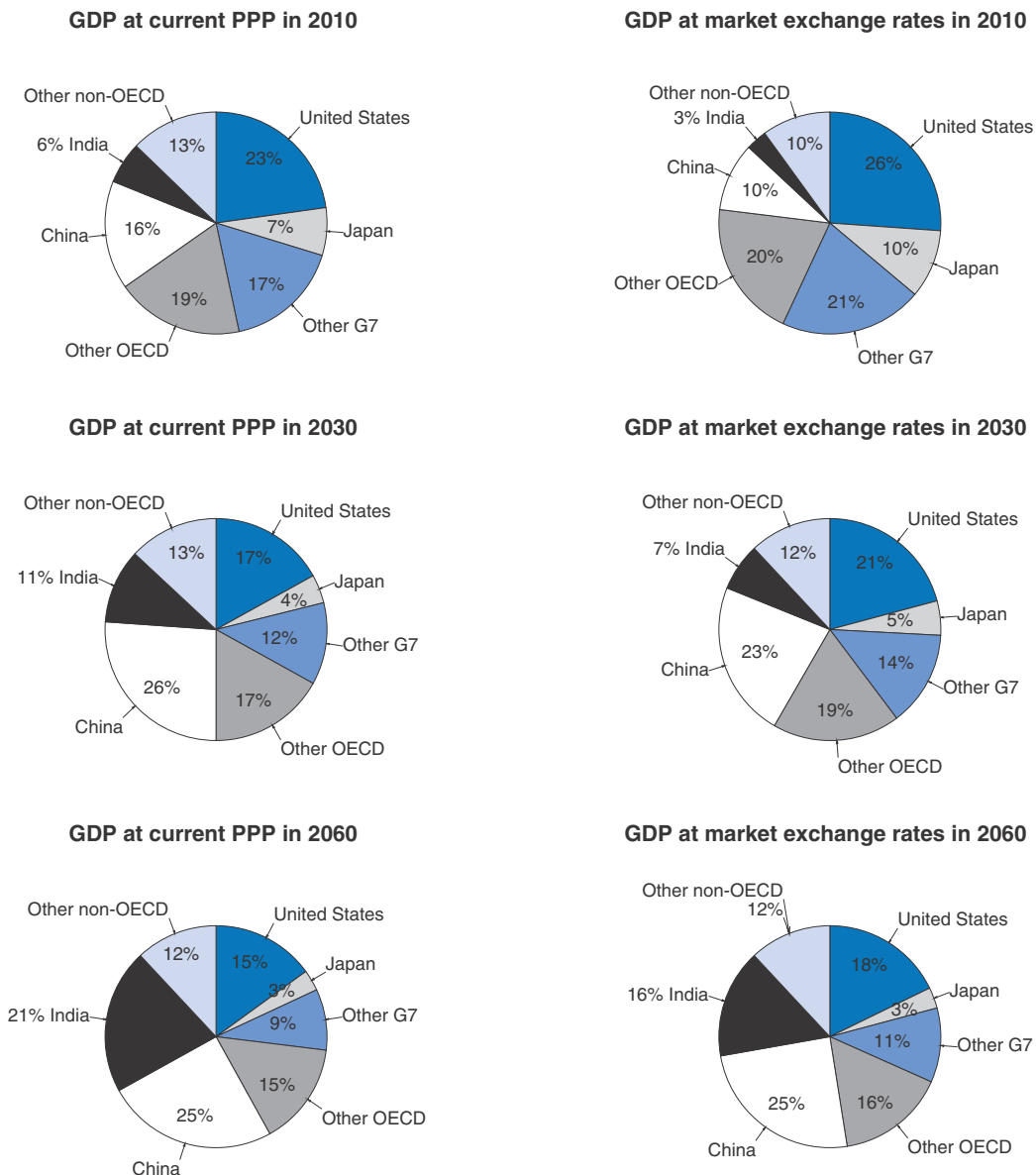
StatLink  <http://dx.doi.org/10.1787/888932836734>

Figure 4.3. **There will be major changes in the composition of global GDP**  
Percentage of world GDP



Note: World is here defined as the sum of OECD countries plus Argentina, Brazil, China, Indonesia, India, the Russian Federation, Saudi Arabia and South Africa.

Source: OECD Economic Outlook 93 long-term database.

StatLink <http://dx.doi.org/10.1787/888932836753>

**The BRIICS will eventually surpass the OECD**

- By 2030, the BRIICS' combined GDP will roughly equal that of the OECD (based on current membership), compared with just over half that of the OECD now, with Brazil and Russia becoming the fifth and sixth largest world economies. By 2060, the BRIICS' GDP could surpass that of

the OECD by one-third, with China followed by India being the largest economies, Indonesia ranked fourth and Brazil sixth.

**Asia will become increasingly important**

- In terms of geographical distribution, there will be a big jump in the share of world GDP accounted for by Asia, at the expense of both North America and Europe; having accounted for about one-quarter of global GDP at the beginning of the century, Asia's share has already risen to over one-third and is expected to reach one-half by the mid-2030s and stabilise at just above that share in the 2050s.<sup>5</sup>

**Large gaps in income per capita will remain**

This implies that between now and 2060, GDP per capita will increase eightfold in India and sixfold in Indonesia and China, whereas GDP per capita in the highest-income OECD countries will (only) double over this period. Nevertheless, today's lowest income countries will still have large gaps in GDP per capita in 2060 compared with the highest income countries; India, Indonesia and Brazil will have GDP per capita levels (on a current PPP basis) which will be only 30-40% of that of the United States.

**Changes in China will be of particular importance**

The size of China in the global economy makes developments in that country of particular interest (Eichengreen *et al.*, 2011; Haltmaier, 2013). Its very high current saving and investment rates and the marked slowdown in potential growth over the medium term, could be a source of future instability. The projected slowdown in potential growth from rates of about 8-9% currently to about 4½ per cent by the mid-2020s is accompanied by a marked fall in the share of investment in GDP, from about 45% currently to around 30%, which could in itself be demanding in terms of reallocation needs in the domestic economy and the avoidance of "bumps" in demand and activity. While the saving rate is expected to decline over this period, it does not fall by as much and hence a growing surplus on the current account could contribute to the re-emergence of global imbalances. Beyond 2030, adjustments in the Chinese saving rate may have a major impact on the global economy. This is both because China will account for more than one-third of all world saving and because over the 2030s China is expected to experience one of the most rapid changes in the old-age dependency ratio of any country in the projection period, which is expected to pull down the saving rate strongly, based on cross-country empirical evidence (for example, Kerdrain *et al.*, 2010). In the current modelling framework this effect is large enough to turn the external surplus into a deficit and to drive up global interest rates significantly.

**The medium-term outlook for public finances**

**Government indebtedness needs to be reduced over the medium term**

Government indebtedness has risen substantially over the crisis; the number of OECD countries with gross general government debt exceeding 100% of GDP will have risen from three prior to the crisis to 11 by 2014 on

5. This calculation does not take into account non-G20 non-OECD countries.



the basis of the short-term projections. A range of empirical studies,<sup>6</sup> suggest high government indebtedness is associated with lower growth, although the strength and shape of the relationship is likely to vary over time and with a number of country-specific factors. A likely transmission mechanism from higher indebtedness is through higher domestic interest rates which gradually reduce investment, capital intensity and research and development, and hence growth, over the medium term. Additional reasons for reducing indebtedness are that it can inhibit counter-cyclical fiscal policy – whether discretionary or automatic – during a severe downturn and also increase the vulnerability of government finances to adverse shocks, with the risk of a vicious cycle in debt dynamics if higher interest rates result from financial market concerns about fiscal sustainability.

**Government debt is reduced to 60% of GDP in the baseline**

In the baseline scenario, and in line with earlier exercises of this kind, it is thus assumed that for those countries with 2014 gross general government debt in excess of 60% of GDP, fiscal policy is directed towards achieving that level, although the choice of this particular level is somewhat arbitrary. For countries where debt is initially below the 60% threshold, fiscal policy is directed to stabilising the gross government debt ratio. Over and above the improvement in the fiscal balance which results from the operation of the automatic stabilisers as output gaps close, fiscal consolidation is assumed to take place through a gradual improvement in the underlying primary balance. There is a maximum cap on consolidation in any single year of ½ percentage point of GDP, so the speed at which the debt target is achieved could be considered as unambitious and in some cases falls well short of governments' stated intentions.

**On a net debt measure the situation looks less problematic for some countries**

The focus here is on the concept of gross government debt, but net debt (net of financial assets held by government) is also important. 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. The gap between gross and net debt is particularly large for Norway (gross debt of 34% of GDP in 2011 against a

6. A non-exhaustive list of recent studies finding a negative link between growth and government indebtedness is: Égert (2012) finds some evidence in favour of a negative non-linear relationship between debt and growth, although results are sensitive to the sample period, country coverage and data frequency and, when detected, the negative nonlinear effect kicks in at levels of public debt between 20% and 60% 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; whereas Elmeskov and Sutherland (2012) find lower debt thresholds, of around 40% and 70% of GDP.

net debt of -158%), Japan (211% vs 127%), Sweden (49% vs -21%), Finland (58% vs -54%) and Canada (83% vs 32%). The more practical reason to focus on gross debt is that it is more cross-country comparable because data on financial assets are of unequal quality across countries, although for countries that have large government financial assets a gross debt target of 60% may appear unduly stringent.

**Debt exceeds 60% of GDP in two-thirds of OECD countries**

More than one-third of OECD countries have maintained gross public debt below 60% of GDP through the crisis (including Australia, Czech Republic, Denmark, Estonia, Korea, Luxembourg, New Zealand, Norway, Slovak Republic, Slovenia, Sweden and Switzerland). Of the remaining OECD countries, the following groups can be identified in terms of further consolidation requirements beyond 2014, here measured as the difference between the projected underlying primary balance in 2014 and the average underlying primary balance to 2030 which is required to stabilise debt at 60% by that year (Table 4.2 and Figure 4.4):<sup>7</sup>

**Of these, many need little further consolidation to reduce debt**

- A large group of countries require little (less than 1 percentage point of GDP) or no further average consolidation beyond 2014 to achieve the 60% target by 2030: Austria, Belgium, Czech Republic, Germany, Hungary, Israel, Italy, Netherlands, Poland, Slovak Republic and Slovenia. Most of these countries have debt ratios which are already not far from 60%, or where this is not the case (Italy and Belgium), went into the crisis already running an underlying primary surplus. Most of these countries have front-loaded consolidation so that the average requirement beyond 2014 is less than one-fifth of what will have already been achieved over 2010-14.

**Another group requires more consolidation but much has already been front-loaded**

- A second group of countries require average consolidation of between 1 and 3 percentage points of GDP: France, Iceland, Ireland and Spain. All of these countries have also front-loaded consolidation so that this average requirement beyond 2014 is less than one-third of the required post-crisis consolidation.

**A few countries require substantial further consolidation**

- A third group of countries all have debt ratios exceeding 100% of GDP and require larger average consolidation of between 3 and 6 percentage points of GDP: Greece, Portugal, United Kingdom and United States. Of these, the United Kingdom will only have completed about one-third of

7. The measure of average consolidation is taken as the difference between the underlying primary balance in the initial year (here 2014) and the average of the underlying primary balance in each year up to 2030, except for those countries where the debt target is reached after 2030 (Greece, Portugal, United Kingdom and United States), where the average is taken to the year in which government debt reaches the 60% target. Japan is an exception because the debt target of 60% is not even reached by 2060 in the baseline which, however, should also be seen in the light of gross assets of some 80% of GDP. The measure of average consolidation is conceptually similar to, and empirically closely correlated with, measures of the so-called “fiscal gap”, which measures the immediate increase in the underlying primary balance, which if sustained, will ensure a particular debt target is reached in a particular year (Sutherland et al., 2012).

**Table 4.2. Fiscal trends with debt ratio targeting (60%)**  
As percentage of nominal GDP (unless otherwise specified)

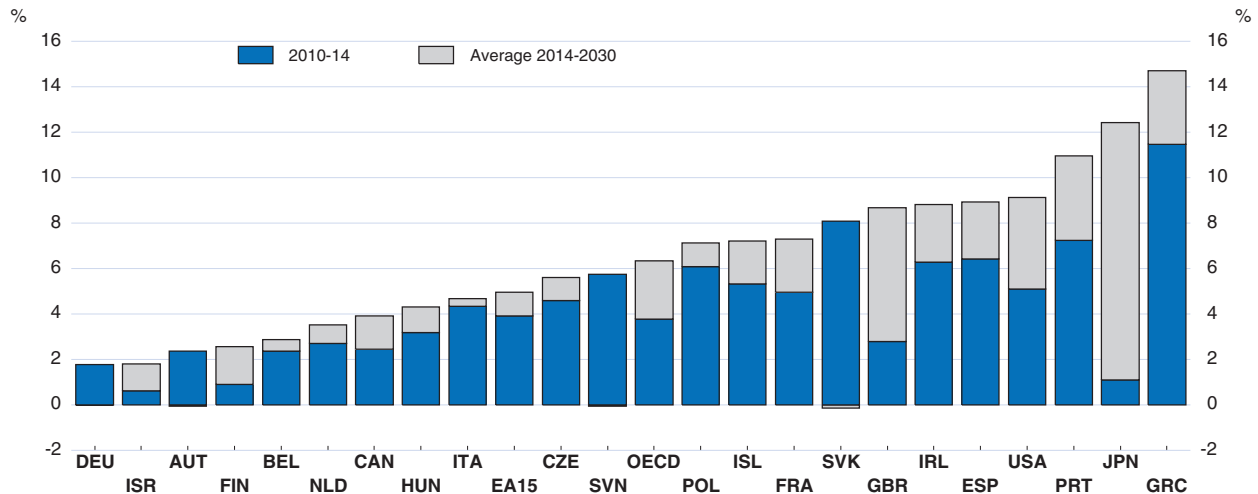
	Consolidation <sup>1</sup>	Consolidation from 2014 to achieve debt target <sup>2</sup>		Financial balances <sup>3</sup>			Net financial liabilities <sup>4</sup>			Gross financial liabilities <sup>5</sup>		
		2012-14	Average	Peak	2012	2020	2030	2012	2020	2030	2012	2020
Australia	3.0	0.1	0.3	-3.3	0.1	-0.3	10.9	7.7	6.4	32.4	29.2	28.0
Austria	0.5	-0.1	1.6	-2.5	1.6	-0.9	50.8	34.0	25.1	84.9	68.6	59.7
Belgium	1.6	0.5	2.6	-4.0	2.6	-1.4	82.0	58.1	38.1	104.1	79.5	59.5
Canada	1.0	1.5	2.8	-3.2	2.0	-0.4	34.5	24.8	11.6	85.5	72.9	59.7
Czech Republic	0.3	1.0	1.4	-4.4	0.0	-0.5	11.8	15.3	12.7	55.9	59.4	56.9
Denmark	0.3	-0.9	0.0	-4.1	-0.4	-0.5	7.0	12.0	11.7	58.9	60.1	59.9
Estonia	-0.3	-0.2	0.0	-0.3	1.6	1.2	-32.7	-28.1	-28.9	14.2	16.3	15.5
Finland	0.8	1.7	2.6	-2.3	3.9	2.2	-54.6	-49.6	-57.4	63.3	67.4	59.6
France	2.4	2.4	4.3	-4.9	2.0	0.1	70.7	56.3	20.5	109.7	96.2	60.5
Germany	-0.1	0.0	1.5	0.2	1.7	-0.6	50.9	30.5	23.1	89.2	67.2	59.7
Greece	3.2	3.2	8.1	-10.0	-1.9	8.0	102.8	110.3	32.6	165.6	170.0	92.2
Hungary	0.7	1.1	2.8	-2.0	0.8	-1.6	60.4	46.0	31.4	89.0	74.1	59.5
Iceland	1.7	1.9	4.3	-3.4	3.3	1.5	60.5	28.8	-10.8	131.8	100.1	60.5
Ireland	3.1	2.5	5.0	-7.5	1.3	0.5	79.5	69.4	22.3	123.3	108.4	61.3
Israel	1.2	1.2	2.3	-5.1	-1.2	-2.5	-	-	-	72.9	66.5	59.8
Italy	1.5	0.4	3.6	-2.9	4.6	-0.5	112.9	82.0	32.6	140.2	108.9	59.5
Japan	2.0	11.3	21.0	-9.9	-6.0	-5.6	135.9	159.8	169.1	219.1	243.0	252.3
Korea	0.0	-1.1	0.0	2.1	2.4	1.8	-37.7	-36.3	-36.4	35.1	36.4	36.3
Luxembourg	1.5	-0.7	0.0	-0.8	2.2	1.6	-45.9	-39.1	-40.3	28.4	35.3	34.0
Netherlands	1.8	0.8	2.1	-4.0	1.7	-0.8	42.0	32.5	21.9	82.6	70.3	59.7
New Zealand	2.0	-0.1	0.2	-3.9	-0.8	-0.6	8.3	13.5	13.9	44.3	49.4	49.9
Poland	2.4	1.1	1.2	-3.9	-1.1	-1.3	34.5	35.2	33.4	62.6	61.9	60.1
Portugal	2.1	3.7	7.7	-6.4	-1.3	5.3	88.5	95.3	37.4	138.8	139.4	81.6
Slovak Republic	3.9	-0.1	0.3	-4.3	-0.7	-0.9	25.1	25.5	23.7	56.6	57.4	55.7
Slovenia	2.3	-0.1	1.4	-4.0	1.4	-0.3	8.2	13.1	6.7	61.0	65.9	59.5
Spain	2.8	2.5	4.9	-10.6	0.3	-0.5	61.0	65.7	30.2	90.5	94.8	59.3
Sweden	0.5	0.5	0.8	-0.7	1.9	1.0	-23.3	-22.1	-25.1	48.7	49.9	47.0
Switzerland	-0.1	-0.9	0.0	0.7	0.3	0.0	5.5	0.7	0.2	43.8	39.0	38.5
United Kingdom	1.7	5.9	10.0	-6.5	-3.5	0.3	70.9	83.8	66.3	103.9	116.8	99.3
United States	2.9	4.0	6.6	-8.7	-1.6	1.4	87.1	84.5	49.4	106.3	104.1	69.0
Euro Area	1.4	1.1	2.4	-3.7	2.0	-0.1	66.3	50.7	23.7	103.9	87.6	60.6
OECD	2.0	2.6	3.7	-5.7	-0.6	0.1	70.9	66.8	43.3	108.8	104.5	80.7

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

1. Consolidation is measured as the change in the underlying primary balance.
2. Over the projection period, countries with gross government debt ratios in excess of 60% of GDP are assumed to gradually reduce debt to this level, whereas other countries stabilise debt ratios at their current levels. Consolidation requirements from 2014 to achieve these objectives are measured in two ways: average consolidation measures the difference between the underlying primary balance in 2014 and its average over the period to 2030 (or until the debt ratio stabilises); peak consolidation measures the difference between the underlying primary balance and its peak over the period until 2030 (or the debt ratio stabilises).
3. General government fiscal surplus (+) or deficit (-) as a percentage of GDP.
4. 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. The definition of gross debt differs from the Maastricht definition used to assess EU fiscal positions.
5. 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.

Source: OECD Economic Outlook 93 long-term database.

Figure 4.4. **Consolidation requirements to reduce government debt to 60 per cent of GDP**  
Change in the underlying primary balance, percentage points of GDP



Note: The average measure of consolidation is the difference between the underlying primary balance in 2014 and the average underlying primary balance between 2015 and 2030, except for those countries for which the debt target is only achieved after 2030, in which case the average is calculated up until the year that the debt target is achieved.

Source: Source: OECD Economic Outlook 93 long-term database.

StatLink <http://dx.doi.org/10.1787/888932836772>

the required post-crisis consolidation by 2014, whereas the United States will have completed just over half and Portugal about two-thirds. Greece would still require another 3½ percentage points of consolidation, despite having undertaken 10 percentage points of consolidation between 2010 and 2014, though this does not take into account any potential debt relief.

**Japan is a special case requiring a combination of policies to reduce debt**

- Finally, and despite a massive average fiscal consolidation requirement beyond 2014 of 11 percentage points, the scenario for Japan only manages to broadly stabilise debt between 2014 and 2030. Indeed, this result underlines that, for Japan, an approach of gradual fiscal consolidation will not be sufficient to tackle the government indebtedness on its own and will need to be supplemented by other policies (see Box 1.4 in Chapter 1). That said, large assets suggest that in any case the 60% debt target is unduly ambitious for Japan. Nonetheless, it is in the nature of long-term fiscal adjustment paths that the exact end-point for debt matters relatively little for consolidation requirements which are determined primarily by the initial imbalance which is particularly large in the case of Japan.

**Health and pension pressures add to consolidation requirements**

The preceding calculations are likely to understate overall fiscal policy requirements for a number of reasons. Firstly, increased pressures on public spending from health and pensions (Box 4.4) are not explicitly incorporated in the fiscal projections, but will need to be offset or counteracted to contain government indebtedness (Figure 4.5). To put it differently, governments will have to run to stand still. Recent OECD work (Oliveira Martins and de la Maisonneuve, 2013) suggests that increased

### Box 4.4. Changing health and pension expenditures

Public expenditure on pensions has been growing faster than national income and in many countries is expected to continue to do so in coming decades. While past pension reforms (OECD, 2011), have reduced the budgetary costs of pensions through lower benefits and increased retirement ages, they have been insufficient to stabilise spending, not least because of the demographic effect as a larger proportion of the population reaches retirement age and people live longer. Around half of OECD countries are in the process of increasing pension ages or have already legislated change for the future. Nevertheless, public spending on pensions for a typical OECD country could still increase by about 1¼ percentage points of GDP to 2030 (see table below).

Recent OECD work (Oliveira Martins and de la Maisonnette, 2013) suggests that in a “cost containment scenario”, which assumes that policies act more strongly than in the past to rein in expenditure growth, OECD public expenditure on health and long-term care could still rise by an average of 1½ percentage points of GDP between 2014 and 2030. In a “cost-pressure scenario”, which assumes no stepped-up policy action, the increase in expenditure rises by an additional one-third. Significant differences in health and long-term care spending emerge across OECD countries, reflecting differences in factors such as demographic trends and the initial starting point concerning income and the extent of informal long-term care supply. Korea, Chile, Turkey and Mexico, for example, are projected to experience above average increases in public health expenditures.

#### Changes in public spending on health and pensions for selected OECD countries

Change 2014-30, percentage points of GDP

	Health care <sup>1</sup>	Long-term care <sup>1</sup>	Pensions	Total
Australia	1.2	0.2	0.7	2.1
Austria	1.3	0.2	2.5	4.1
Belgium	1.1	0.3	4.3	5.6
Canada	1.4	0.2	1.5	3.2
Chile	1.4	0.5		1.9
Czech Republic	1.1	0.2	-0.1	1.3
Denmark	1.3	0.2	0.5	2.0
Estonia	0.9	0.2	-0.5	0.7
Finland	1.2	0.2	3.4	4.8
France	1.2	0.2	0.4	1.7
Germany	1.3	0.3	1.3	2.9
Greece	1.2	0.3	0.4	1.9
Hungary	0.9	0.3	-0.8	0.4
Ireland	1.2	0.1	1.3	2.7
Iceland	1.2	0.2	1.4	2.8
Israel	1.3	0.3	0.5	2.1
Italy	1.3	0.3	-0.7	0.8
Japan	1.4	0.3		1.7
Korea	1.7	0.4	1.6	3.6
Luxembourg	1.4	0.3	4.7	6.3
Mexico	1.3	0.4	0.3	2.0
Netherlands	1.4	0.3	2.3	4.0
Norway	1.3	0.2	3.3	4.9
New Zealand	1.1	0.1	2.0	3.2
Poland	1.1	0.2	-0.6	0.7
Portugal	1.3	0.2	0.5	2.0
Slovak Republic	1.2	0.3	1.5	3.0
Slovenia	1.3	0.3	2.0	3.6
Spain	1.3	0.4	0.4	2.1
Sweden	1.0	0.1	0.5	1.7
Switzerland	1.3	0.2	1.7	3.3
Turkey	1.2	0.3	1.2	2.7
United Kingdom	1.1	0.2	0.1	1.4
United States	1.2	0.1	0.3	1.6
<b>OECD (unweighted) average</b>	<b>1.2</b>	<b>0.3</b>	<b>1.2</b>	<b>2.7</b>

Note: Where projections are not available over the period 2014-30, linear interpolation has been applied.

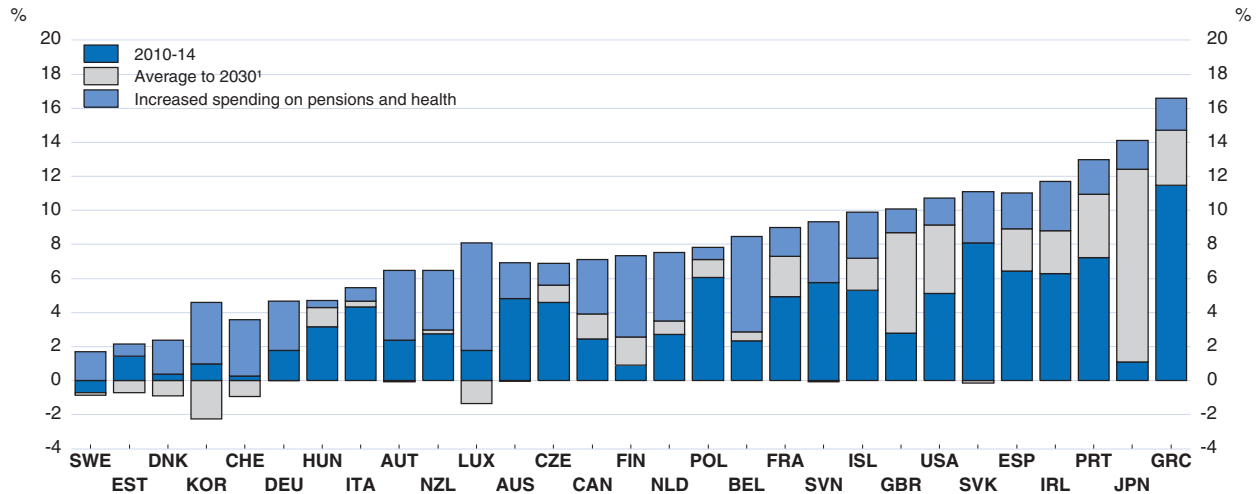
1. Assuming cost-containment (Oliveira Martins and de la Maisonnette, 2013).

Source: European Commission (2012), OECD Pensions at a Glance (2011). Merola and Sutherland (2012), Bank of Israel.

StatLink  <http://dx.doi.org/10.1787/888932838330>

Figure 4.5. **Broader fiscal efforts to reduce government debt to 60 per cent of GDP**

Change in the underlying primary balance, percentage points of GDP



1. The average measure of consolidation is the difference between the primary balance in 2014 and the average primary balance between 2015 and 2030, except for those countries for which the debt target is only achieved after 2030, in which case the average is calculated up until the year that the debt target is achieved.

Source: OECD Economic Outlook 93 long-term database.

StatLink <http://dx.doi.org/10.1787/888932836791>

spending on health could amount to about 1½ percentage points of GDP by 2030 for a typical OECD country even under a “cost containment scenario” that would involve greater success than in the past in curtailing that part of health care and long-term care spending increases which cannot be ascribed to identifiable influences such as income growth, demographic changes, female labour force participation, etc. The average increase in pension costs across OECD countries is slightly less at 1¼ percentage point of GDP by 2030, but with wide variation and a much greater increase in some countries (for example by more than 4 percentage points of GDP in Belgium and Luxembourg to 2030).

**A peak measure of consolidation requirements exceeds the average measure**

A second reason why fiscal efforts will be larger is that the required profile of the underlying primary balance is likely to involve an intermediate peak increase which is greater than the average increase referred to above (see Box 4.5). This is because of the need to put debt on a declining path towards the target. Once on that path, declining debt interest payments allow for some relaxation of effort while achieving a gradual convergence to the target. Among the countries that require most consolidation, the peak measure in these projections is typically 2-4 percentage points of GDP higher than the average measure of consolidation.<sup>8</sup> However, many different time paths

8. The peak measure is, however, more dependent on the particular fiscal adjustment profile used to achieve the debt target, of which the baseline represents one specific case. For example, it might be possible to bring debt down to the target by a given year either through increasing the primary surplus to a very high level and then reducing it quickly, or alternatively by maintaining the primary surplus at a more modest level, but over a much longer period before reducing it. The peak measure of consolidation would be larger in the first case, although the difference between the average consolidation measures would typically be relatively small.



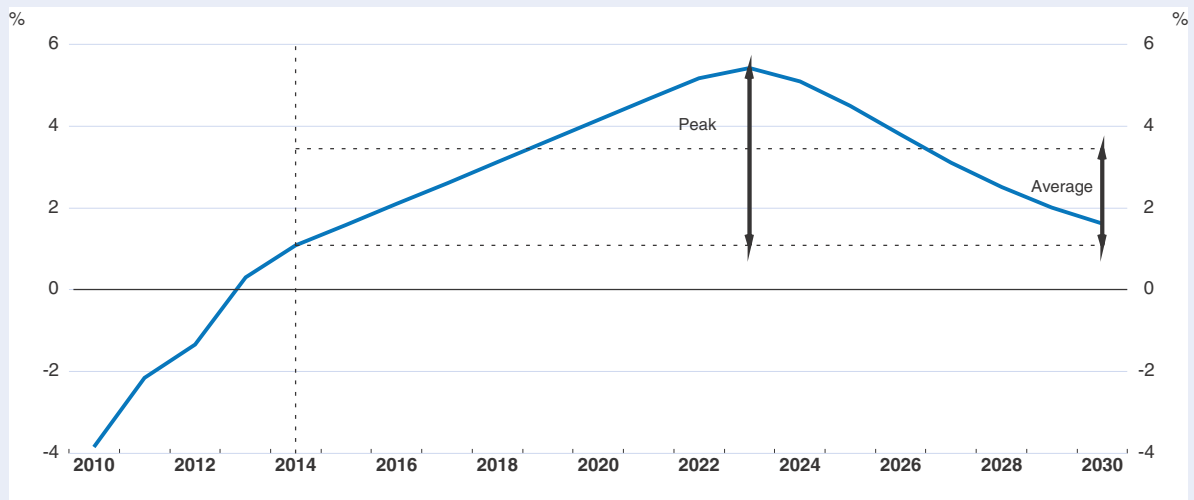
### Box 4.5. Measuring fiscal consolidation requirements

This box explains the measures which are used to summarise fiscal consolidation requirements to reduce gross government debt ratios to 60% of GDP in Table 4.2 and Figures 4.4 and 4.5. The target for the government debt-to-GDP ratio is achieved here using a rule for the underlying primary balance described in Rawdanowicz (2012), which is constrained by placing a cap on the maximum annual change in the underlying primary fiscal balance of  $\frac{1}{2}$  per cent of GDP. However, many alternative time paths could be imagined. Nonetheless, a common feature of such time paths would usually involve a peak in the adjustment of the primary balance to put debt on a downward trajectory towards the target followed by some gradual relaxation as declining debt leads to lower debt service payments and convergence towards (rather than overshooting of) the target debt allows a reduction in the pace of debt reduction.


Given the non-linear profile of the underlying primary balance there is an issue of how the required consolidation effort can be summarised into a single number. For example, for France in the baseline scenario, the underlying primary surplus increases from 1.1% of GDP in 2014 to a peak primary surplus of nearly 5½ per cent of GDP in 2023, before falling and subsequently stabilising at a primary surplus of between 1 to 1¼ per cent of GDP beyond 2030, consistent with a stable government debt-to-GDP ratio of 60% (see figure below).

#### Fiscal consolidation profile for France to achieve a 60% government debt target by 2030

Underlying primary balance as a percentage of GDP



Source: OECD Economic Outlook 93 long-term database.

StatLink  <http://dx.doi.org/10.1787/888932836677>

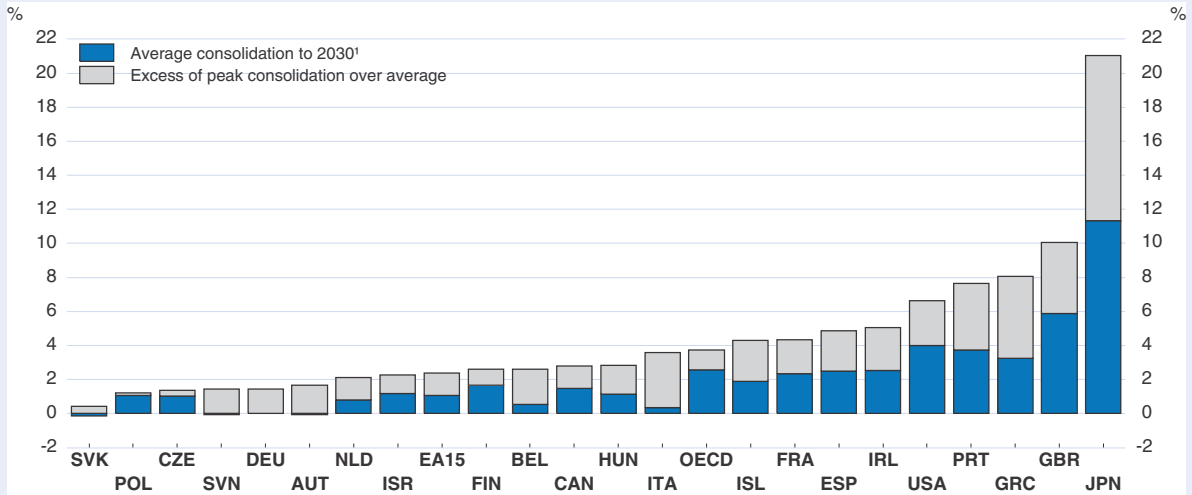
The summary measure of fiscal consolidation emphasised in this chapter is the difference between the underlying primary balance in the initial year (here 2014) and the average primary balance to 2030. In this example, for France the *average* increase from 2014 to 2030 is just under 2½ percentage points of GDP. The average measure has the advantage that it is reasonably robust to alternative fiscal consolidation profiles which achieve the debt target around the same year. The average measure is, however, significantly less than the *peak* consolidation effort between 2014 and 2022 of over 4 percentage points of GDP. Thus in some respects the average measure understates the required consolidation effort before the debt target is eventually achieved and for this reason the peak measures of consolidation are reported in Table 4.2 and in the following figure as an example of the kind of adjustment that may be necessary to put debt on a downward path towards the target.



## Box 4.5. Measuring fiscal consolidation requirements (cont.)


## Alternative summary measures of consolidation requirements

Change in the underlying primary balance, percentage points of GDP



1. The average measure of consolidation is the difference between the primary balance in 2014 and the average primary balance between 2015 and 2030, except for those countries for which the debt target is only achieved after 2030, in which case the average is calculated up until the year that the debt target is achieved.

Source: OECD Economic Outlook 93 long-term database.

StatLink  <http://dx.doi.org/10.1787/888932836696>

towards the debt target can be imagined and the measure of peak fiscal effort is strongly sensitive to the exact path chosen, which is why this chapter, in line with its predecessor, emphasises the measure of average adjustment.

### Fiscal consolidation will reduce interest rates and global imbalances

While OECD-wide interest rates are still projected to rise as output gaps close and policy rates normalise, lower government indebtedness will damp the rise in interest rates through a number of channels: firstly, it will lower fiscal risk premia, which are assumed to increase with the excess of government debt levels above 75% of GDP; secondly, to the extent that lower government debt reduces net external debt, it will also reduce country-specific risk premia on domestic interest rates; and finally, additional fiscal consolidation will boost global savings which will tend to reduce interest rates in all countries. Overall, fiscal consolidation in the baseline scenario reduces OECD real long-term interest rates by about 50 basis points and, through this channel, boosts OECD potential growth by an average of about 0.1 percentage point per annum over the period to 2030, with larger effects on those countries undertaking most consolidation. Because consolidation requirements are typically greater in countries which are prone to running current account deficits, fiscal consolidation will also tend to reduce the scale of global imbalances (measured as the absolute sum of all current account balances

normalised on world GDP) over the medium term by up to one-tenth (see also Box 1.3 in Chapter 1).<sup>9</sup>

### Structural policies can boost growth

**There is considerable scope to improve structural policies in most countries...**

Cross-country differences in structural policy settings represent an opportunity to adjust policy towards “best practice” and so boost incomes and welfare, as well as in some cases to bolster fiscal sustainability and reduce current account imbalances. In contrast to the detailed country-specific recommendations of the OECD’s annual *Going for Growth* publication (for example, OECD, 2013), the approach taken here is more stylised to gauge the order of magnitude of effects on growth over the medium and long term from reforms in a number of broad areas.

**... in product market regulation...**

- There is a range of firm, industry and macro-level evidence to suggest that product market regulation has an impact on trend productivity, not least via the pace at which it adjusts towards the international frontier.<sup>10</sup> Indeed, this is confirmed by the empirical work underlying the current modelling framework (Johansson *et al.*, 2013), so that more pro-competitive product market regulation, as quantified by the OECD’s product market regulation index (PMR), is found to boost long-term productivity. Whereas in the baseline scenario, PMR is assumed to gradually improve to at least the OECD average, an alternative scenario is considered here whereby it gradually improves to current best practice.<sup>11</sup>

**... education...**

- Reforms that promote the accumulation of human capital are among the most important for boosting long-run living standards (Cohen and Soto, 2007; Bouis *et al.*, 2011). While policy priorities for reform of education systems have been identified for many OECD countries, they are a particular priority for the BRIICS where there is a focus on primary and secondary education (OECD, 2013). Indeed, there is likely to be a larger benefit to reforms where average years of schooling are initially low, as empirical evidence would suggest that the returns from boosting coverage and performance in primary and secondary education are greater than for tertiary education.<sup>12</sup> In order to simulate the effect of education reforms in the BRIICS a variant scenario with faster convergence in human capital was constructed based on past historical episodes for low-income countries during which educational levels rose particularly quickly. During these episodes – which include countries

9. These effects are calculated relative to a counter-factual scenario (not reported in further detail here) in which fiscal policy is directed so as to hold government debt-to-GDP ratios stable.

10. See for example Bourlès *et al.*, 2010; Barone and Cingano, 2011; Conway *et al.*, 2006; Bas and Causa, 2012.

11. Best practice in terms of PMR, based on the last survey in 2008, was found to be for the United Kingdom.

12. This is reflected in the current modelling framework whereby human capital improvement is modelled as a decreasing function of additional years of schooling.

with major reforms to enhance primary and secondary coverage and performance, such as Korea in the 1950s and 1960s or Mexico and Chile in the 1980s – the annual speed of convergence in education levels was on average around 50% higher than in the baseline. The variant scenario is based on the assumption that this faster speed of convergence in educational attainment applies to the BRIICs from 2014 onwards.

**... retirement policies...**

- Population ageing will have an adverse impact on labour utilisation and also important fiscal implications in terms of possible increased pension costs. Around half of OECD countries have begun increasing pension ages or plan to do so in the near future and these reforms are incorporated in the baseline up to 2030, at which point it is further assumed that working lives are extended in line with increasing life expectancy. A variant scenario considers deeper labour market reforms in which cross-country differences in active life expectancy are progressively eliminated, with the share of life expectancy which is spent in the labour market slowly converging in all countries towards that observed in Switzerland, one of the leading countries in terms of aggregate participation.

**... and in the labour market**

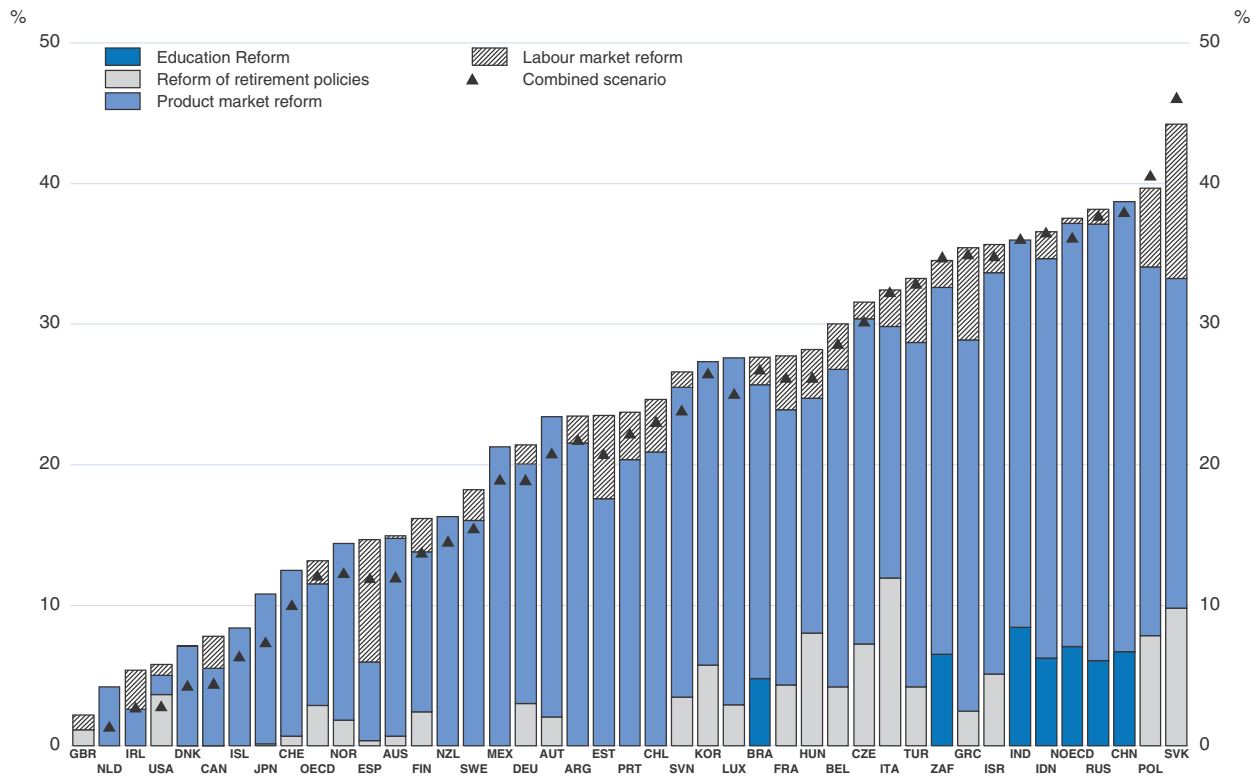
- Recent OECD recommendations for structural reform priorities have shown an increasing focus on the labour market, reflecting the job-market legacy of the crisis. Recommendations to reduce structural unemployment include reform of tax and benefit systems, active labour market policies and job protection legislation. In the baseline scenario the structural unemployment rate is assumed to gradually return to pre-crisis levels in each country. In the variant scenario no attempt is made to evaluate the scope to reduce the unemployment rate further based on structural policy characteristics of individual countries, rather a stylised assumption is made that through a combination of policies the structural unemployment can be gradually reduced to 5% in those countries where it would otherwise exceed it.

**Structural reforms could lead to large GDP gains for some countries...**

Each of the policy reforms was simulated separately and then together as a package. The GDP effect of a combined package of measures simulated in all countries are typically less than the sum of each policy reform simulated separately because the combined package would lead to faster global growth, higher investment demand and so upward pressure on global interest rates. The effect of a combined package of measures also differs widely across countries, according to how far away they are from best practice initially in each of the policy areas (Figure 4.6). Aggregate OECD wide output is about 12% higher in 2060, but this understates the benefits for many countries because the larger OECD countries are typically closer to best practice. Indeed, the long-term gain in GDP for the median OECD country is about 20%. For the non-OECD, where there is greater scope for implementing best practice policies,


Figure 4.6. **Structural reforms raise long-run output**

Difference in the level of GDP in 2060, per cent



Note: The size of each bar shows the effect on GDP of each policy simulated in isolation, whereas the 'Combined scenario' shows the effect of all policy reforms simulated together. The reform of retirement policies was applied only to OECD countries so that the ratio of working-life to life-expectancy converges towards that of Switzerland. The education reform scenario was applied to non-OECD countries only, with human capital assumed to converge more quickly to the OECD leader (Korea), at a speed consistent with that observed after major educational reforms. Labour market and product market reforms were applied to both OECD and non-OECD countries. Labour market reforms are assumed to gradually reduce the structural unemployment rate to 5% in all countries where it would otherwise be above this level. Product market reforms move each country's regulations gradually towards best practice.

Source: OECD Economic Outlook 93 long-term database.

StatLink  <http://dx.doi.org/10.1787/888932836810>

reforms could raise GDP by about 36% in 2060. Across the different areas of structural reform the main findings are as follows:

**... particularly from reforms to product markets...**

- The largest gains would be seen as a result of the reform of product market regulations, raising productivity and GDP in the median OECD country by 17% and in the non-OECD by about 30%.<sup>13</sup>

**... as well as to education in the BRIICS**

- Educational reforms in the BRIICS would raise GDP in the long run by between 5% and 8%, with the largest effect in India where average years

13. The large gains in productivity reflect the effect of product market regulation indicators in the estimated equations underlying the model. It is, however, possible that such indicators are collinear with other structural characteristics and so may be capturing the effect not just of product market regulation, but structural policy settings more generally.

of schooling are currently very low. The lags before GDP increases are, however, more pronounced compared to the other policy reforms.

**Scope for reforms that raise labour utilisation varies widely**

- Reforms directed at raising participation have widely varying impacts across OECD countries, with the largest gains in those countries where participation rates of older workers and females are currently low; GDP is increased by 7-12% in Czech Republic, Hungary, Italy, Poland and Slovak Republic. As these larger effects would occur partly through a disproportionate increase in the female participation rate, it suggests that reforms would need to include increased childcare provision. The labour market reforms directed at lowering the structural unemployment rate have smaller effects on aggregate OECD output, but with large effects of between 6-11% in a few countries such as Estonia, Greece, Poland, Slovak Republic and Spain.

**Higher labour utilisation promotes fiscal sustainability**

Finally, it might be noted that while there may be greater scope for long-run gains to GDP from policies that promote productivity, GDP increases brought about by policies that increase labour utilisation are likely to have a greater effect in boosting fiscal sustainability. This is because higher employment increases GDP and tax revenues, reduces unemployment benefits and, to the extent the additional employment is in the private sector, public spending falls as a share of GDP (OECD, 2010b).<sup>14</sup> On this basis, each percentage point improvement in employment improves government financial balances by between 0.3% and 0.7% of GDP, with the effect largest in countries where the ratio of public to private sector employment and unemployment-related benefits are initially highest.<sup>15</sup> For countries with the largest employment gains from structural reforms (Slovak Republic and Poland), or where public sector employment is high and unemployment-related benefits more generous (Belgium and France), or for countries where some combination of the two holds (Hungary, Italy and Spain), such effects imply a direct improvement in underlying fiscal balances of 5-8 percentage points of GDP. In the scenarios reported here, such fiscal savings are not taken into account which implies that these countries would find reaching their debt target easier.

14. Increases in trend productivity also increase GDP and tax revenue, but over the medium term are also likely to lead to higher wages, including in the public sector, so that the medium-term implications for fiscal balances may be less favourable.

15. These figures are based on stylised calculations using the OECD's regular elasticities for cyclical adjustments, for further details see OECD (2010b).

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