THE LONG TERM FISCAL IMPLICATIONS OF RAISING AUSTRALIAN LABOUR FORCE PARTICIPATION OR PRODUCTIVITY GROWTH

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ABSTRACT

This paper examines the fiscal implications of a significant rise in Australian labour force participation or labour productivity growth over the next forty years, relative to the projections in the Australian Government's 2002-03 Intergenerational Report (IGR). The alternative, higher, labour force participation projections assume that Australian participation rates by age and gender rise gradually over the next twenty years to just reach the top one-fifth of the current experience of the OECD, and then remain at these higher levels over the subsequent twenty years. Results for higher productivity growth are presented for two alternative assumptions. Both assume average economy-wide labour productivity growth at an annual rate of 2¼ per cent, which is ½ per cent faster than assumed in the IGR but close to its average rate since the early 1990s. They differ, however, in the assumed coverage across the economy of the higher productivity growth. The first alternative assumes higher productivity growth that is shared across all sectors of the economy, while the second assumes no rise, relative to the IGR, in productivity growth in government-funded service sectors.

The paper describes how the significant areas of Australian Government expenditure are modelled for the alternative projections, with a focus on Australian Government health expenditure, and in particular on the non-demographic component of that expenditure, because of its importance for the fiscal projections. The paper also presents estimates of the 'fiscal gap' for the IGR and the three alternative projections.

The long-term fiscal projections for all three alternative assumptions are more favourable than those in the IGR. The projection that assumes higher productivity that is not shared by government-funded service sectors generates

only a small fiscal improvement; the projection that assumes higher productivity that is shared across all sectors generates a significantly larger improvement, while the largest fiscal improvement occurs for the higher-participation projection. The paper explores the reasons for this ordering, which arises primarily because of the economic relationship between labour productivity and real wages, and the link from real wages to the cost of providing both government services and government payments to individuals.

The fiscal improvements for both the projection that assumes higher productivity that is shared across all sectors, and the higher-participation projection are sufficiently large that, were either to be realised, that component of the IGR fiscal gap arising from the ageing of the population would be more than eliminated, although the rest of the IGR fiscal gap — arising from non-demographic growth in Australian Government health spending — would not be.

JEL Classification Numbers: H30, H60, J11

Keywords: Intergenerational Report, labour force participation, productivity, fiscal projections, ageing

CONTENTS

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1. INTRODUCTION

This paper examines the fiscal implications of significantly higher Australian labour force participation or faster trend productivity growth over the next forty years. It takes as a benchmark the fiscal projection in the Australian Government's 2002-03 Intergenerational Report (IGR) and examines the implications for this projection of alternative, more optimistic, assumptions for labour force participation or productivity.

The IGR presents a projection of the Australian Government's underlying cash budget balance, which shows deterioration from small surpluses currently to a deficit of 5 per cent of GDP in 2041-42. This fiscal projection is derived from detailed disaggregated modelling of a broad range of Australian Government spending areas, under the assumption that current government policies remain in place combined with an assumption that Australian Government total revenues remain a constant share of GDP over the projection period. The modelling takes into account projected trends in both the age distribution and labour force participation of the population.

Labour force participation rates have been increasing for women of all ages for the past few decades and the IGR projects a continuation of these trends — although with the rate of increase slowing over time. Gradual declines in the age-specific participation rates of men less than 60 years of age have provided a

partial offset to these higher participation rates for women, and again, the IGR projects a continuation of these trends. For productivity, the IGR assumes labour productivity growth over the forty year projection period, 2001-02 to 2041-42, at an annual rate of 1¾ per cent, which is its average over the previous thirty years.

Here, we examine the fiscal implications of three alternative sets of assumptions. The first alternative uses the IGR's assumed annual labour productivity growth rate of 1¾ per cent, but assumes significantly more optimistic labour force participation rates than those contained in the IGR. These more optimistic projections assume that Australian participation rates for each age-and-gender cohort rise gradually over roughly the next twenty years to reach the 80th percentile of the current distribution of participation rates across the OECD, and then remain at these higher levels over the following twenty years. Gruen and Garbutt (2003) provide more detail on these alternative participation rate projections, which we call the 'high-participation' projections.

The second and third alternative sets of assumptions both use the participation rate projections from the IGR. Both assume economy-wide annual labour productivity growth over the forty-year projection period of 2¼ per cent, which is ½ per cent faster than assumed in the IGR, but close to its average since the early 1990s. The two alternative high-productivity projections differ, however, in the assumed coverage of the higher productivity growth across the economy. The 'high-productivity-shared' projections assume higher productivity growth is shared across all sectors of the economy, while the 'high-productivity-not-shared' projections assume no rise in productivity growth in government-funded service sectors.[1]

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1 Productivity growth *outside* the government-funded service sectors is higher for the high-productivity-not-shared projections than for the high-productivity-shared projections to ensure that the two projections generate the same 2¼ per cent

There is no attempt in the paper to assess the relative likelihood of the various sets of assumptions, nor what changes to policy settings, community attitudes, or the economy more generally, might be needed to bring them about. The aim is instead the more limited one of examining the implications of the alternative assumptions for fiscal projections over the next forty years.

Figure 1 shows the GDP implications of the alternative projections relative to the baseline defined by the IGR. The two high-productivity projections have identical implications for GDP, since they assume the same average rate of labour productivity growth across the economy. As the figure shows, all the alternative projections have very similar implications for GDP for roughly the first twenty years of the projection period, with GDP rising by about 10 per cent relative to the IGR baseline over this time. Over the subsequent twenty years, however, the high-productivity projections continue to generate gains in GDP, while the high-participation projection does not. This result for the high-participation projection is simply a consequence of the assumption made by Gruen and Garbutt (2003) that there are no further rises in cohort-specific participation rates in the second twenty years of the projection period.[2]

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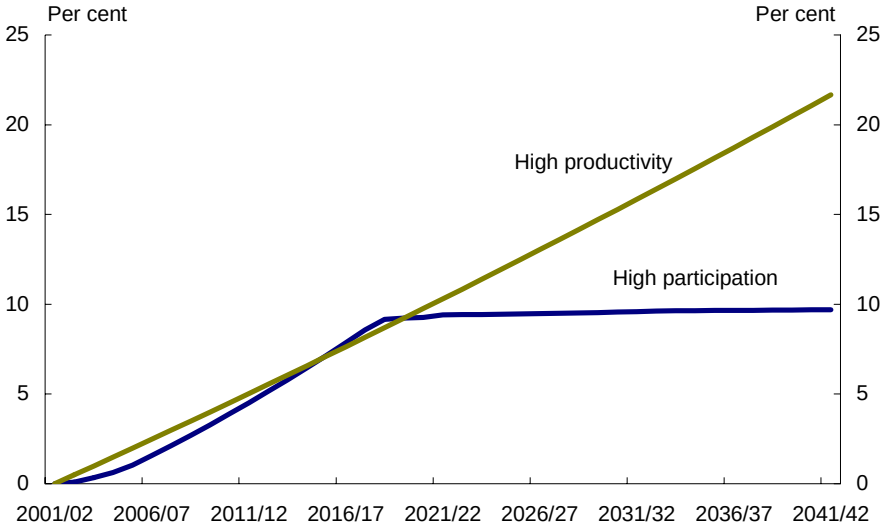
economy-wide productivity growth. Gruen and Garbutt (2003) present a discussion of likely influences on economy-wide productivity growth over the next several decades.

2 Gruen and Garbutt (2003) present results under two alternative assumptions about age-and-gender cohorts in the labour market. They assume that labour productivity is either the same for each cohort or proportional to the average wage paid to members of each cohort. The results shown in Figure 1 use the former assumption, although the latter assumption generates quite similar implications for GDP, as shown by Gruen and Garbutt (2003).

Figure 1: Rise in GDP relative to the IGR



2. APPROACH

Our approach to deriving the alternative fiscal projections follows closely the approach taken in the IGR. In common with the IGR, we assume a continuation of current government policies over the projection period out to 2041-42. The IGR presents detailed projections of Australian Government expenditure in the broad areas of health and aged care, social safety net payments to individuals, education and government superannuation spending. For other areas of Australian Government spending, however, the IGR assumes that expenditure remains a constant 8.3 per cent share of GDP over the projection period. Similarly, the IGR does not specifically model Australian Government total revenues, from both taxation and non-taxation sources, which are instead assumed to remain at a constant 22.4 per cent share of GDP over the projection period.[3]

3 To be more precise, these constant shares of GDP for Australian Government spending and revenue apply from the end of the forward estimates period for the IGR, 2005-06, to

For the alternative projections presented here, we also impose these constant-share-of-GDP assumptions. Of course, since our alternative projections imply higher levels of GDP than the IGR projections (Figure 1), they also imply higher projected dollar-values for 'other' Australian Government spending and total revenues.

Five categories of Australian Government spending contribute most significantly to differences between the fiscal projections using the alternative assumptions and those in the IGR. In descending order of importance, these categories are health; age and service pensions; disability support pensions (these pensions all fall in the broad area of social safety net payments to individuals, discussed above); aged care; and education.

Given their overwhelming importance for the fiscal projections, the next sub-section presents a more detailed discussion of the health projections, focusing in particular on non-demographic growth in health expenditures.

2.1 Health

Figure 2 shows the IGR projections of the Australian Government's underlying cash budget balance, along with the projected contribution of rising Australian Government health spending, out to 2041-42.[4] As the figure makes clear, about

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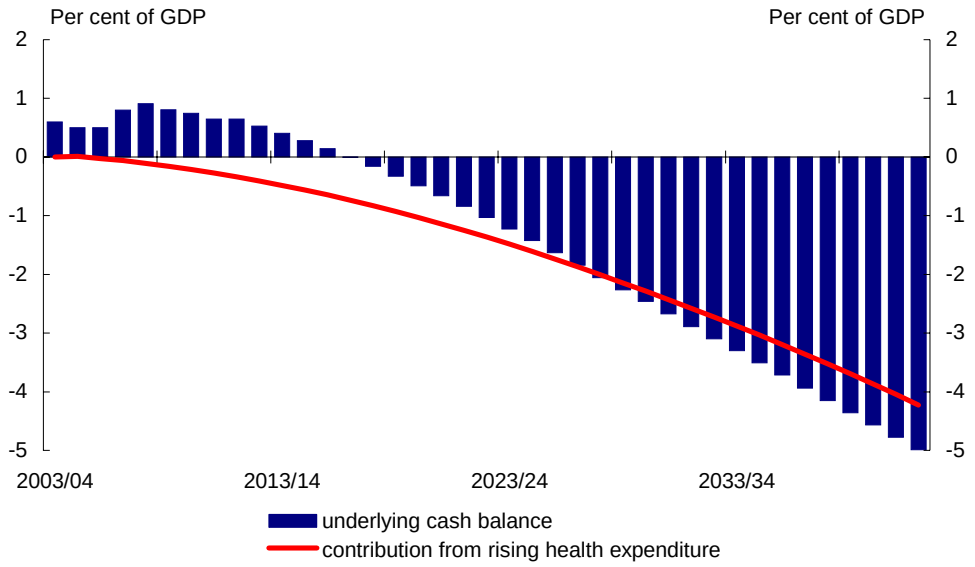
the end of the projection period, 2041-42. Up to 2005-06, numbers from the forward estimates are used.

4 The IGR uses the term 'fiscal pressure' to refer to the underlying cash budget balance. Beyond the forward estimates period, Figure 2 and subsequent figures showing the underlying cash balance report the primary balance and make no allowance for government debt dynamics. The implications of debt dynamics are considered in section 3.2 of the paper 'Fiscal Gaps'. The health spending projections in the IGR assume that measures to reduce the growth in the cost of the PBS, which were contained in the 2002-03 Budget, are in place over the projection period. These measures have not, however, been passed by the Parliament. To enhance comparability with the IGR, we also

four-fifths of the deterioration in the underlying cash balance over the next forty years projected in the IGR is accounted for by rising Australian Government health spending.

Figure 2: Underlying cash budget balance from the IGR and the contribution from rising health expenditure



Note: The first four years of the projection use forward estimates from MYEFO 2003-04, and hence are updated from those reported in the IGR, which were based on forward estimates from the 2002-03 Budget.

Given its clear quantitative significance, it is worth exploring Australian Government health spending in more detail. Real Australian Government spending per person for significant parts of health has grown faster than real wages for at least the past two decades. Recognising this, projections for these parts of health spending are treated differently in the IGR than are other parts of Australian Government spending.

For most Australian Government spending, the IGR assumes that real spending rises either with real wages or with real GDP. By contrast, for the Pharmaceutical Benefits Scheme (PBS) and the Medical Benefits Scheme (MBS),

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assume that these PBS cost-containing measures are in place for our alternative projections.

the IGR projects a continuation, over the projection period out to 2041-42, of observed growth rates over the previous twenty years.[5] Based on these historical trends, real PBS spending per person, adjusted for the changing age composition of the population, is assumed to grow at the rapid annual rate of 5.64 per cent over the projection period, while the rate of growth of real MBS spending per person varies by age cohort, but is higher than real wage growth for those aged 55 years and over.[6]

Figure 3 shows the contribution of Australian Government subsidies to the PBS to the projected rise in Australian Government health spending over the IGR projection period. More than half the projected rise in Australian Government health spending out to 2041-42 is accounted for by projected rises in subsidies to the PBS.

5 For the PBS, estimated spending over the forward estimates period is also used in generating the assumed growth rate of spending over the projection period (see Australian Government (2002) p. 82 for further details).

6 While these parts of Australian Government health spending can be projected to grow faster than real wages for the next forty years, they clearly cannot do so forever, because they would eventually take up the whole economy.

Figure 3: Projected rise in Australian Government health expenditure from 2003-04 and the contribution of the PBS

Based on the IGR

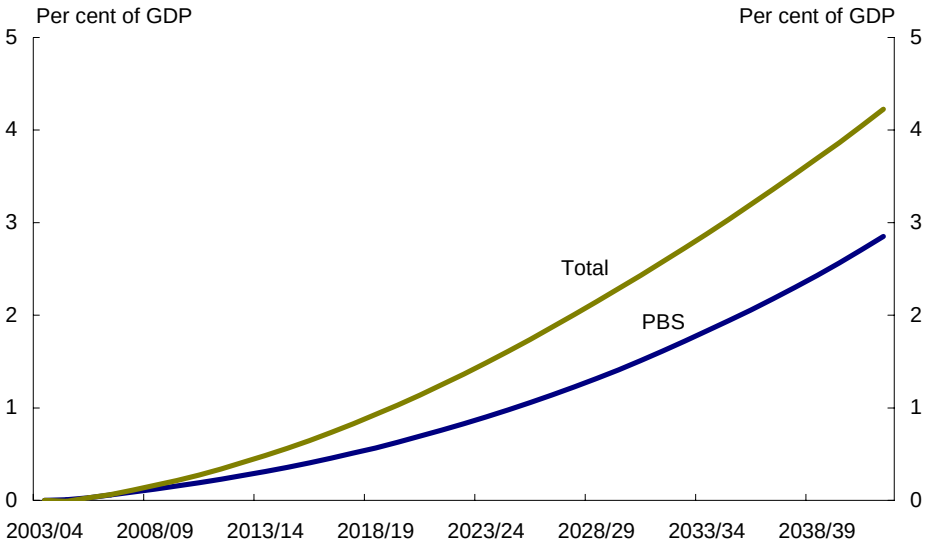
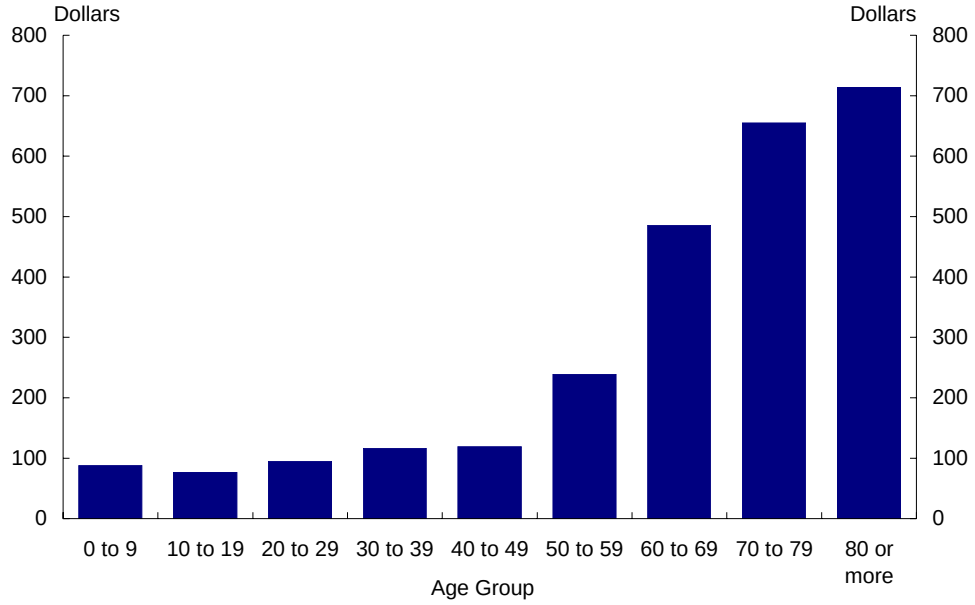


Figure 4 shows an estimate of the Australian Government's average PBS contribution to individuals in different age groups in 2000-01. The Australian Government's PBS contribution to seventy-plus-year-olds is about seven times the contribution to individual teenagers or young adults. With this pattern of PBS spending, it comes as little surprise that the ageing of the population — with a projected rise in the proportion of seventy-plus-year-olds from 10 per cent of the population in 2001-02 to 14 per cent in 2021-22 and 19 per cent in 2041-42 — contributes significantly to the projected rise in Australian Government health spending over coming decades.

Figure 4: Per capita expenditure on the PBS in 2000-01



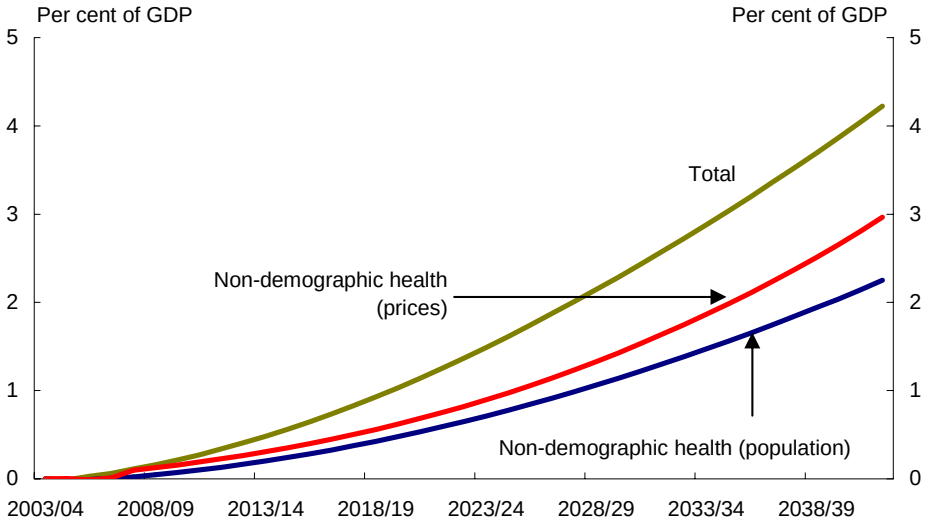
Note: Based on the health model in Schofield (1998).

Interestingly, however, this demographic effect is projected to be smaller than the non-demographic influences on health spending. These non-demographic influences include the invention of improved, but more expensive, medical technology, including new drugs, as well as the luxury-good nature of health services, which implies that the share of expenditure devoted to health services rises as community living standards rise, even if relative prices remain unchanged.

Figure 5 shows estimates of non-demographic growth in Australian Government health expenditure derived using two alternative approaches.

Figure 5: Projected rise in Australian Government health expenditures from 2003-04 and estimates of the non-demographic component of that rise

Based on IGR



Note: The estimates of the non-demographic component of the rise in Australian Government health expenditures are derived as follows. The non-demographic health (population) estimate is derived by using cohort-and-health-component-specific growth rates from the IGR (for example, 5.64 per cent per annum real per capita growth for the PBS) but keeping the 2001-02 age distribution for the population over the projection period. For the alternative estimate — non-demographic health (prices) — we begin with an estimate of the demographic component of health expenditure growth. This is derived allowing for the changing age distribution over the projection period from the IGR but assuming, for those IGR components of health expenditure with cohort-specific per capita growth rates (the PBS, the MBS, and hospital and health services), that these growth rates are 1¾ per cent per annum. The non-demographic health (prices) estimate is then the difference between total growth in government health expenditures and this estimate of the demographic component. The results in the first few years of the projection are derived from the forward estimates.

As we have seen in Figure 3, the PBS is projected to contribute most of the rise in Australian Government health spending over the next forty years. For our three alternative projections, there are plausible reasons to expect higher productivity or participation to have some influence on community demands for the PBS. For example, continued participation in the workforce presumably has implications for individuals' health, and therefore for their demand for PBS drugs. But it seems plausible that these influences are not strong ones. Instead, the dominant influence on PBS expenditure presumably has to do with the invention of new more effective, but often more expensive, drugs, and that this invention process is largely independent of developments in labour force participation or productivity in Australia. Based on this logic, we assume that the dollar-value of

Australian Government expenditure on the PBS over the projection period is the same for the alternative high-productivity and high-participation projections as it is for the IGR. (We do, however, revisit this assumption in the 'Discussion and summary' section of the paper.) Of course, this assumption implies that PBS expenditure as a share of GDP is lower in the alternative projections, because GDP is higher (Figure 1).

2.2 A key difference between projections: real wage growth

All three alternative projections imply improvements in the fiscal balance relative to the IGR over the projection period, as we will show in the 'Results' section of the paper. The extent of improvement, however, varies significantly across the alternative projections, with the high-participation projection showing the largest improvement. A key reason for this difference is the implied difference in real wage growth in the alternative projections.

The high-participation projection assumes higher participation than in the IGR (no surprise there) but the same rate of labour productivity growth, 1¾ per cent per annum. This implies that average per capita real wage growth across the economy in the high-participation projection is also 1¾ per cent per annum. By contrast, the high-productivity projections assume average labour productivity growth across the economy, and hence average per capita real wage growth, which is ½ per cent faster at 2¼ per cent per annum.

These alternative growth rates for productivity and real wages have significant effects, both direct and indirect, on the fiscal projections. The direct effects arise from the indexing to wages of several types of government payments to individuals, and this in turn implies that the dollar value of these payments rises more rapidly in the high-productivity projections than in the high-participation

one. Of payments of this kind, the age and service pension and the disability support pension are of most quantitative significance for the fiscal projections.[7]

The indirect fiscal effects of the alternative assumed growth rates for productivity and real wages arise from their implications for the cost of providing a range of government services. Consider, for example, government-funded services for which the government pays, or subsidises, the wages of the service providers (teachers or doctors, for example). The dollar cost of providing these services in the high-participation projection is assumed to be the same as in the IGR, because higher labour force participation should have minimal implications for wage costs, both in this sector and in the wider economy.

The dollar cost of providing the same services in the high-productivity projections, however, depends on the source of the higher productivity growth. Higher average productivity growth across the economy, whether or not it is shared by all sectors, should lead, via competition across the labour market, to higher average real wage growth across the economy. If productivity growth is higher in all sectors of the economy, including the government-funded service sectors, then the higher real wages paid in these sectors will be matched by higher productivity, and the dollar unit cost of providing the services will not be affected.

Alternatively, if higher average productivity growth is a consequence of productivity improvements in other parts of the economy and not in the government-funded service sectors, then there will be no productivity offset in those sectors for the higher real wages being paid. In that case, the dollar unit

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7 Although the details are somewhat complex, both pensions scale predominantly with average weekly earnings.

cost of providing the services will rise in line with the higher average real wage growth.[8]

The major Australian Government funded services for which this distinction is important are in the areas of health, aged care and education, as shown in Table 1.[9]

Not surprisingly, it is difficult to assess which of the two sectoral productivity assumptions discussed above is more realistic across the range of government-funded services in Table 1. We therefore generate results using both assumptions. For the high-productivity-shared projections, we assume that all the government-funded service sectors in Table 1 share equally in the ½ per cent per annum boost to average economy-wide productivity, so that dollar unit costs for these areas of government spending are the same as in the IGR. Alternatively, for the high-productivity-not-shared projections, we assume that they do not share in the productivity boost, so their productivity performance is the same as in the IGR, and dollar unit costs grow at a ½ per cent per annum faster rate.

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8 One could easily imagine further alternatives for the sectoral allocation of the higher productivity growth than the two examples in the text. They were chosen for simplicity and plausibility. The logic presented in the text is the same as that underlying the Balassa-Samuelson effect, which explains differential price growth in the traded and non-traded sectors of the economy as a consequence of differential productivity growth in those sectors.

9 Aside from the PBS, discussed earlier, and the areas of health spending in Table 1, there is one further area of Australian Government health spending — 'other' health spending not including private health insurance, which amounted to 0.7 per cent of GDP in 2001-02. In common with the IGR, we assume for the alternative projections that this component of spending remains a constant share of GDP.

Table 1: Major Australian Government spending programs for which costs are assumed to rise with average economy-wide real wage growth in the alternative projections[a]

Category of Australian Government spending	Share of GDP in 2001-02 (percent)	Approach to estimating spending growth over the projection period used in the IGR
Health *MBS* [b]	1.1	Non-demographic real growth rates by age and gender are estimated over the previous twenty years, and then projected out to 2041-42.
Hospitals and health services	1.2	Non-demographic real annual growth rate is 1.64 per cent for all age-and-gender cohorts.
Private Health Insurance rebate	0.3	Grows with the MBS, hospitals and nursing homes.
Aged Care [c]	0.7	Real per person age-adjusted cost grows with real wages at 1.75 per cent per annum.
Education	1.8	Cost per student grows at a rate determined by both wage and CPI growth.

(a) Note that rising costs are offset by rising productivity in the high-productivity-shared projections (see text for further explanation).
(b) The MBS, which forms the core of Medicare, provides patient subsidies for medical practitioner services, optometry, diagnostic imaging and pathology.
(c) The Aged Care sector comprises nursing homes, hostels and community care.

2.3 Details, Details

This sub-section explains how the alternative participation and productivity assumptions affect the number of people projected to receive the age and service pension and the disability support pension.[10]

For the age and service pension, the high-participation projection implies a rise in the proportion of people of pension age in the labour force, and hence in receipt of smaller pensions, or none at all.[11] For the high-productivity

10 The alternative high-participation assumption also implies a slight rise in the number of unemployed recipients, because cohort-specific unemployment rates are assumed to remain the same as in the IGR, while higher participation implies a larger labour force. Further details on unemployment allowances and other programs with only a small quantitative impact on the alternative projections are presented in Appendix 1.

11 The projected rises in participation rates for 65-plus-year-olds in the high-participation projection are from 9.8 per cent in 2001-02 to 18 per cent in 2021-22 for men, and from 3 per cent to 9 per cent for women (see Gruen and Garbutt 2003 for further details).

projections, the implied faster real wage growth leads to higher living standards, which in turn implies a small fall in expenditure on age and service pensions as a consequence of the associated income and assets tests.

For the disability support pension, we assume that the ratio of DSP recipients to the number of people not-in-the-labour-force for each age-and-gender cohort is the same as in the IGR. This assumption implies the same number of DSP recipients for the high-productivity projections as for the IGR, since these projections assume no change in participation rates. For the high-participation projection, however, there are fewer DSP recipients than in the IGR simply because higher labour force participation implies fewer people not in the labour force.[12]

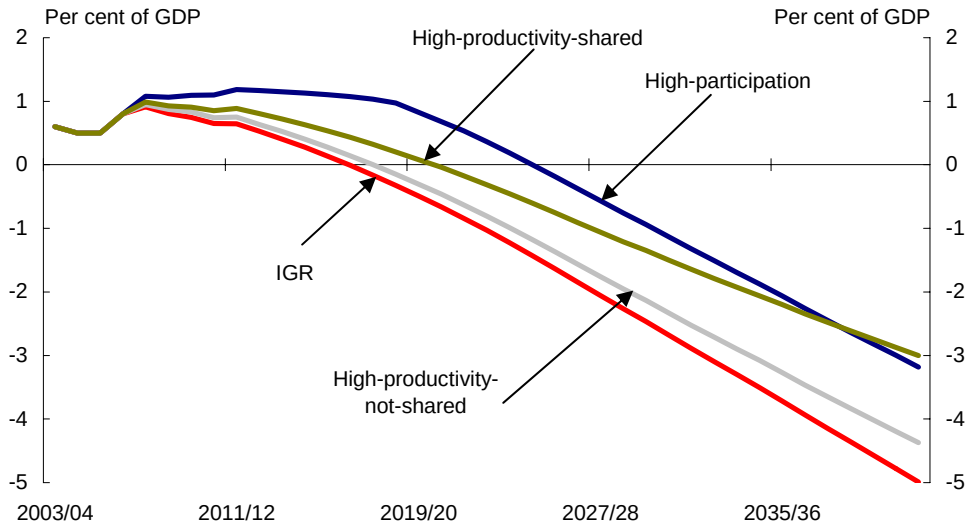
12 Recall that we make no explicit assumptions about what might cause the alternative projections to come about (although Gruen and Garbutt 2003 present some discussion on this issue). Had we assumed that the number of DSP recipients remained unchanged for the high-participation projections, then more than all of the men not in the labour force for the age groups 20-29, 30-39 and 40-49 would be projected to be DSP recipients. This occurs not because the projected rises in participation rates for these cohorts are particularly large, but because their participation rates are already very high.

3. RESULTS

3.1 Underlying cash balances

Figure 6 shows projections of the Australian Government's underlying cash budget balance for the IGR, and the three alternative projections.

Figure 6: Underlying cash balances for the IGR and the three alternative projections



Following the approach taken in the IGR, we use the current forward estimates of the underlying cash balance for the first four years of each projection.[13] As explained earlier with reference to Figure 2, beyond the forward estimates period, the primary underlying cash balance is shown, and therefore no account is taken of the implications of government debt accumulation. These

13 That is, we use the forward estimates of the underlying cash surpluses from the 2003-04 MYEFO, which are 0.6 per cent of GDP in 2003-04, 0.5 per cent in 2004-05 and 2005-06, and 0.8 per cent in 2004-05. Alternative estimates for the underlying cash balances in these years for the alternative projections could be derived, based on the alternative assumptions underlying the projections, although this would make minimal quantitative difference to the results.

implications are, however, taken into account in the calculation of fiscal gaps, to which we now turn.

3.2 Fiscal gaps

In general, the fiscal gap is the change in fiscal policy settings needed to achieve a particular government debt target at some point in the future. A positive (negative) fiscal gap indicates that that a permanent rise (fall) in the primary budget balance is required to achieve a selected debt target in a particular future year. The specific fiscal gap that we calculate here is the rise in the underlying primary cash balance as a proportion of GDP that, when sustained in each year over the projection period, generates a ratio of government net debt to GDP at the end of the period equal to its initial level. Appendix 2 provides a formal derivation of the fiscal gap, and Janssen (2002) presents a good discussion of the concept, as well as fiscal gap estimates for New Zealand under a range of alternative assumptions.

Calculation of the fiscal gap takes into account the dynamics of the accumulation of government debt or assets through time. Estimates of the fiscal gap consequently vary somewhat depending on the interest rate that is assumed to be paid on government debt/assets.

Figure 7 shows estimates of the fiscal gap for the IGR and the three alternative fiscal projections for real interest rates on government debt/assets in the range from 1 to 5 per cent per annum (whichever number is used, it is assumed to remain constant over the projection period). With Australian Government net debt equal to 3.9 per cent of GDP at the end of 2002-03 (*Final Budget Outcome 2002-03*), Figure 7 implies, for example, that with an assumed real interest rate on government net debt/net assets of 4 per cent per annum, an improvement in the primary fiscal balance relative to the IGR projections of roughly 1.1 per cent of GDP, sustained over the projection period, would

generate a ratio of government net debt to GDP in 2041-42 equal to its initial level of 3.9 per cent of GDP in 2002-03. Alternatively, at the same real interest rate, the fiscal gap associated with the high-participation fiscal projection is estimated to be about 0.1 per cent of GDP.

Figure 7: Fiscal gaps

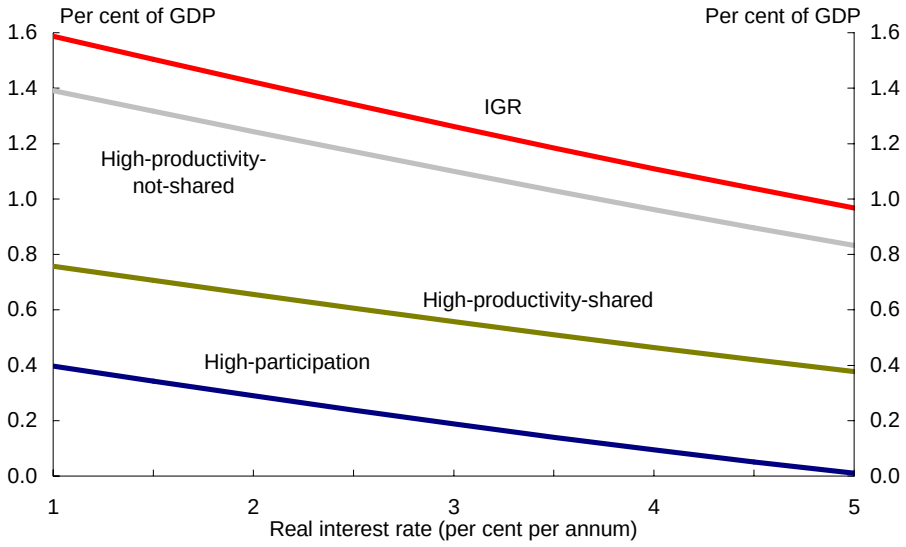


Figure 7 confirms the relative ranking of fiscal improvements revealed in Figure 6. The high-productivity-not-shared projection generates a small fiscal improvement relative to the IGR; the high-productivity-shared projection generates a much larger improvement, while the high-participation projection generates the largest improvement.

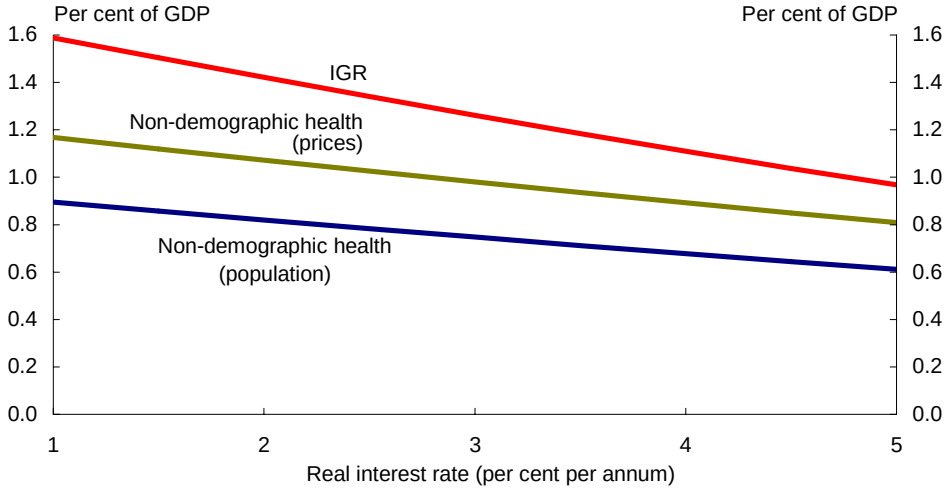
We can also use estimates of the fiscal gap to provide disaggregated information about the fiscal projections.[14] Figure 8 compares the IGR fiscal gap with two estimates of the fiscal gap associated with non-demographic growth of health expenditures from the IGR. These non-demographic health fiscal gaps are generated by calculating the fiscal gaps associated with the two alternative

14 Appendix 2 explains in more detail how disaggregated fiscal gaps are calculated.

projections of non-demographic growth of health expenditures shown in Figure 5. As Figure 8 shows, non-demographic growth of health expenditures accounts for between three-fifths and four-fifths of the IGR fiscal gap (depending on assumptions), while the myriad effects of ageing across the range of areas of Australian Government expenditure, including health, account for the remainder of the IGR fiscal gap.

Figure 8: Fiscal Gaps

IGR and non-demographic growth of government health expenditure



Note: The small component of the fiscal gap arising from the initial level of net debt is not included in either of the non-demographic health fiscal gaps. See Appendix 2 for further details.

As a comparison of Figures 7 and 8 makes clear, the fiscal gaps for the high productivity-shared and high-participation projections are smaller than either of the non-demographic health IGR fiscal gaps, for any constant real interest rate in the range from 1 to 5 per cent per annum. This observation implies that that component of the IGR fiscal gap arising from the ageing of the population would be more than eliminated were either of these two alternative projections to be realised.

The high-productivity-not-shared projection generates a decline in the fiscal gap of about 0.2 per cent of GDP relative to the IGR (Figure 7). This modest decline can be explained, almost entirely, as a consequence of our assumption that the

projected dollar costs of the PBS are the same for the alternative projections as for the IGR. This assumption implies that the projected costs of the PBS as a ratio of GDP are lower for the alternative projections, simply because GDP is higher.[15]

Moving from the high-productivity-not-shared to the high-productivity-shared projection generates a further fall in the fiscal gap of between 0.5 and 0.6 per cent of GDP, depending on the assumed interest rate (Figure 7). The size of this fall demonstrates the quantitative significance of productivity improvements in government-funded service sectors. As explained earlier, higher average productivity growth generates higher real wage growth across the economy, but only when the higher productivity growth is shared by the government-funded service sectors do the higher wage costs not translate into higher unit costs of supplying these services.

Finally, Figure 9 disaggregates the fall in the fiscal gap from the IGR to the high-participation projection into two components. From the IGR to the high-participation projection, the fiscal gap falls by between 1.0 and 1.2 per cent of GDP, depending on the assumed interest rate. About one-quarter of this fall is a consequence of a fall in the number of people projected to receive government pension benefits, and/or the size of their payments, in the high-participation projection relative to the IGR.[16] The remaining three-quarters of the fall is a consequence of the higher output associated with the high-participation projection, and the associated higher tax revenues.

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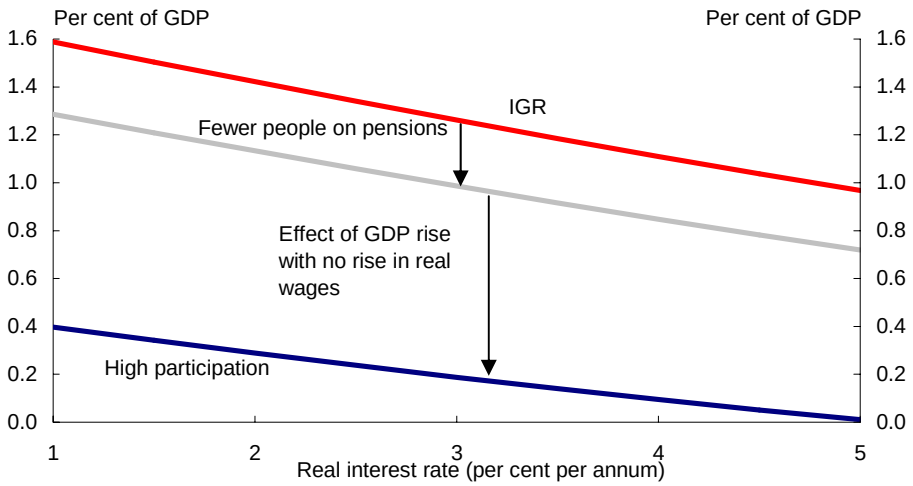
15 We can confirm that the PBS is, overwhelmingly, the source of the improvement in the fiscal gap for this projection in the following way. We generate a new hybrid projection of primary underlying cash balances from the IGR's primary underlying cash balances by replacing the IGR's projection of the cost of the PBS as a proportion of GDP with the high-productivity projection of that cost as a proportion of GDP. The fiscal gap associated with this new hybrid projection is almost identical to that shown in Figure 7 for the high-productivity-not-shared projection (results available from the authors on request).

Figure 9: Fiscal gaps

Disaggregating the fall in the fiscal gap from the IGR to the high-participation projection



4. DISCUSSION AND SUMMARY

We have examined the longer term fiscal implications of raising labour force participation or productivity growth relative to the projections presented in the IGR.

As we have seen, the fiscal implications of faster productivity growth depend quite sensitively on whether the faster productivity growth is shared by government-funded service sectors or not. If it is not shared, there is only a modest fiscal improvement relative to the IGR. That improvement arises, almost entirely, from our assumption that projected subsidies to the PBS are unaffected by changes in Australian productivity growth (or labour force participation). That assumption (which we will revisit later in this section) implies a fall in the cost of the PBS as a ratio of GDP when GDP is higher. Beyond the PBS, however, the fiscal implications of faster productivity growth that is not shared by government-funded service sectors are remarkably small. This is simply because faster economy-wide labour productivity growth generates faster real wage

16 This component also takes into account the slightly more unemployed people in the

growth, which in turn implies faster growth in the cost of providing both government-funded services (since there is no productivity offset, by assumption) and government payments to individuals, which are predominantly indexed to average wages.

Alternatively, if faster productivity growth is shared by government-funded service sectors, the fiscal improvement is significantly larger relative to the IGR. In this case, the dollar unit cost of providing government-funded services is the same as in the IGR, because improved productivity in these sectors offsets the higher real wages being paid. Of course, the dollar cost of government payments to individuals still grows more rapidly than in the IGR, because of the wage-indexation arrangements for these payments.

The largest fiscal improvement relative to the IGR occurs for the high-participation projection. This occurs despite the rise in GDP for this projection being similar to that for the high-productivity projections for the first twenty years of the projection, and significantly less thereafter (Figure 1). There are two reasons for this larger fiscal improvement. The first reason is that higher labour force participation implies fewer people on both age and disability support pensions. The second, and quantitatively more significant, reason is that the rise in GDP associated with higher labour force participation is not accompanied by a rise in real wage growth, and so the dollar cost of providing both government-funded services and government payments to individuals (for those individuals who continue to receive them) remains the same as in the IGR. Tax revenues rise in line with the higher GDP, by assumption, but there is no rise in government expenditure to offset these higher revenues. This lack of any offset from rising government expenditure is of considerable quantitative significance for the fiscal projections, as our results show.

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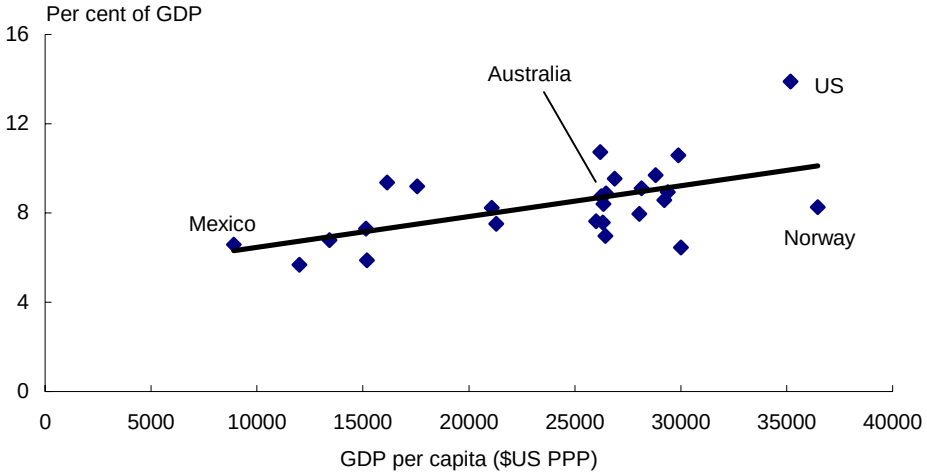
high-participation projection, although this has only a negligible fiscal impact.

Most of the fiscal gap associated with the IGR projection — amounting to between three-fifths and four-fifths of it depending on assumptions — is a consequence of projected non-demographic growth in government health expenditures out to 2041-42. The effects of ageing across the range of areas of government expenditure that are modelled in the IGR, including health, account for the remainder of the IGR fiscal gap. Our results suggest, therefore, that that part of the IGR fiscal gap arising from the ageing of the population would be more than eliminated were either the high-productivity-shared or high-participation projections to be realised. This observation brings into focus how important, for the fiscal projections, are projections of government health expenditure, and in particular that part of health expenditure that is growing for reasons other than the ageing of the population.

As we have seen, strong non-demographic growth in government health expenditures has long been part of Australia's fiscal experience. Looking beyond Australia, moreover, the luxury-good nature of health services is revealed by an examination of the relationship across the OECD between total health expenditure, both public and private, and GDP per capita (Figure 10). As material living standards rise, countries tend to spend a rising share of their incomes on health expenditure.

On this general point, it is perhaps as well to end on a note of caution. While strong non-demographic growth in Australian Government health expenditures is a prominent feature of the IGR, the projected rises in government health expenditures that we have assumed for our alternative projections may be too low.

Figure 10: Total health expenditure for OECD countries



Note: The figure shows a scatter-plot for twenty-six OECD countries. Data are from the OECD and are for 2001 where available, and for 2000 otherwise. The upward-sloping relationship shown is highly statistically significant, and remains so even with the exclusion of the outlying US data point.

Recall that we have assumed that the projected dollar cost of the PBS subsidy in the alternative projections is the same as in the IGR. Furthermore, for other major components of government health expenditures summarised in Table 1, dollar unit costs are assumed to grow faster than the IGR projections only when real wage growth is also faster than the IGR projections and is not matched by faster productivity growth in that sector. Thus, the dollar unit costs of these programs for the high-productivity-shared and high-participation projections are the same as in the IGR, while for the high-productivity-not-shared projections, they grow at a ½ per cent faster rate, as does GDP. Given the luxury-good nature of these services, however, as revealed for example in Figure 10, it may be that the higher national income implicit in the alternative projections might well generate more of a rise in these government-funded health expenditures than we have assumed.

APPENDIX 1

This appendix presents details on the modelling approach used for those Australian Government programs with only a small quantitative impact on the alternative fiscal projections.

Unemployment allowances

The unemployment allowances are the Youth Allowance (YA), the Mature Age Allowance (MAA) and the New Start Allowance (NSA). Future expenditure is modelled by projecting the coverage for each program, by age-cohort, as a proportion of the projected number of unemployed. The unit cost for each program grows with the consumer price index, in line with current policy.

Cohort-specific unemployment rates are assumed unchanged from the IGR. As a consequence, the high-participation projection results in a larger *number* of unemployed people because the labour force is larger. Thus, the dollar value of unemployment allowances in this projection is higher, although expenditure is slightly reduced as a proportion of GDP.

The dollar value of unemployment benefits in the high-productivity projections is the same as in the IGR, again because these benefits are indexed to the CPI.

Single Parenting Payment

Single Parenting Payment (SPP) expenditure is modelled by projecting the number of recipients, by age-cohort, as a proportion of the residential population using linear trends in the near-term and logistic trends in the long term. The dollar value of the benefit is projected to grow in line with the

maximum value of the age pension beyond 2009-10, the end of the forward estimates period.[17]

The high-participation projection assumes that the number of people receiving the SPP benefit is the same as in the IGR. The savings as a proportion of GDP compared to the IGR projection are therefore a result of the higher GDP only.

The high-productivity projection is modelled by raising annual growth in the value of the benefit by ½ percentage point above that in the IGR projection after the forward estimates period ends in the year 2009-10.

Family Tax Benefit (Parts A and B)

Future expenditure on the FTB (Parts A and B) is calculated by multiplying the projected number of 0-15 year-old children by the average value of the benefit per child. The number of children aged 0-15 years old is the same as in the IGR, while the average value of the benefit rises according to a legislated function of the CPI and average weekly earnings (AWE).

For the high-productivity projections, the value of the AWE component of the benefit is raised by ½ percentage point after the forward estimate period ends in the year 2010-11.

Unfunded government superannuation

The dollar value of unfunded government superannuation liabilities for the alternative projections is assumed to be the same as in the IGR.

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17 There is some variation in the end-dates of the forward-estimates periods for different government programs. We follow the approach taken in the IGR for these end-dates.

APPENDIX 2

Fiscal gap calculations

Let B_t be the underlying primary cash budget balance associated with a fiscal projection over the years $t = 1, \ldots, m$, and let D_t be the level of net debt at the end of year t. Assuming a constant nominal interest rate, n, the fiscal gap expressed as a proportion of GDP, f, for this fiscal projection can be derived as follows. Consider improving the underlying primary cash balance each year by $f.GDP_t$, where GDP_t is nominal GDP in year t. Then net debt would evolve as

$$D_{t+1} = D_t(1+n) - B_{t+1} - f\,GDP_{t+1}. \qquad (0.1)$$

Solving forward yields

$$D_m = D_0(1+n)^m - \sum_{i=1}^{m}\left(B_i + f\,GDP_i\right)(1+n)^{m-i}. \qquad (0.2)$$

By imposing the constraint $D_0/GDP_0 = D_m/GDP_m$, or equivalently, $D_0(1+g)^m = D_m$, where g is the average growth in GDP over the m years, we can derive the fiscal gap, f, which is given by

$$f = \frac{1}{G}\left[D_0\left((1+n)^m - (1+g)^m\right) - \sum_{i=1}^{m} B_i(1+n)^{m-i}\right], \qquad (0.3)$$

where $G = \sum_{i=1}^{m} GDP_i(1+n)^{m-i}$.

The fiscal gap therefore consists of two parts, $f = f_D + f_B$. The first part, $f_D = D_0\left((1+n)^m - (1+g)^m\right)/G$, depends on the initial level of net debt, while the second part, $f_B = -\sum_{i=1}^{m} B_i(1+n)^{m-i}/G$, depends on the profile of underlying primary cash balances over the projection period. For our fiscal projections, the initial level of net debt is a very small 3.9 per cent of GDP, and so the first term, f_D, is

also very small, ranging from -0.05 per cent of GDP for an assumed real interest rate of 1 per cent pa to 0.1 per cent of GDP for an assumed real interest rate of 5 per cent pa.

If we decompose the underlying primary budget balance into two components, $B_t = B1_t + B2_t$, we can then decompose the fiscal gap into three components, $f = f_D + f_{B1} + f_{B2}$. When undertaking such a decomposition, we could show all three components of the fiscal gap. Since f_D is so small, however, we simply add it to one of the other components (f_{B1} or f_{B2}), as explained in the text.

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