



AUSTRALIA

SELECTED ISSUES

February 2019

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Approved By
**Asia and Pacific
Department**

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EVALUATING AND REINFORCING THE COMMONWEALTH OF AUSTRALIA'S FISCAL STRATEGY¹

- **This paper evaluates Australia's experience with its principles-based fiscal framework.** The framework requires the Commonwealth government to define and report against a medium-term fiscal strategy (MTFS), which effectively serves as the medium-term fiscal anchor. It offers options to reinforce and enhance fiscal strategies in the current and prospective macroeconomic environments.
- **Australia's fiscal framework is defined by the *Charter of Budget Honesty Act 1998*.** A core element of the framework is that it requires the Commonwealth government defines an MTFS based on its "Principles of Sound Fiscal Management." The MTFS is presented annually in the Commonwealth budget. Since 1998, the MTFSs have been to either maintain or achieve either a budget balance or surplus, on average, over the economic cycle, or at least in the medium term.
- **The MTFS is buttressed by an accountability framework.** The *Charter* also prescribes regular government reporting requirements with the purpose of providing information to allow the assessment of the fiscal performance against the MTFS. This includes the publication of the budget (including the fiscal strategy and risks), a mid-year review of the budget, and the final budget outcome, along with other special reports. The Parliamentary Budget Office (PBO) contributes to transparency around fiscal and budgetary issues.
- **A key contribution of the paper is an evaluation of whether the medium-term budget balance anchor remains suitable in the post-GFC economic environment.** The Commonwealth budget has recorded deficits since 2008, reflecting the weaker economic performance since the global financial crisis and automatic stabilizers playing out. Net public debt, while still low in international comparison, has risen substantially in this context. While not problematic per se – Australia's gross and net public debt ratios are still low in comparison – the increase has been larger than had been expected with a medium-term fiscal anchor in place. This increase has at times conflicted with a strong preference for low net debt across the political spectrum against the backdrop of Australia's large net external liabilities.
- **The fiscal framework and the MTFS could be strengthened by considering three areas of reform** in face of the new, more volatile, post-GFC economic environment:
 - **Introduce a more explicit link between debt and budget balance objectives**, to prevent the drift in debt one might expect in prospective macroeconomic environments where the effective lower bound on nominal policy interest rates might occur more often.
 - **Add to the accountability framework**, to further encourage transparency and public debate, to hold governments even more to account.
 - **Reduce the variability of the fiscal policy toolkit**, using less distortionary taxes in the least distortionary manner (broader tax bases) and protecting productive infrastructure spending, to better preserve fiscal space and provide greater flexibility in face of large shocks.

¹ Prepared by Dirk Muir (APD).

A. Introduction

1. Australia’s fiscal framework is laid out in the *Charter of Budget Honesty Act 1998* and was among the first of a new generation of such frameworks. A fiscal framework anchors the government to medium-term concerns of stability and sustainability of fiscal policy rather than solely the annual budget. Generally, it has overlapping components – public financial management; fiscal strategy; fiscal rules; and institutions including the legislature, treasury or ministry of finance, a fiscal council, and/or audit institutions, all either being accountable for or to the fiscal framework. This paper focuses on the relationship of the *Charter* with medium-term fiscal strategy (MTFS) and its accountability framework. The *Charter* is innovative in that it relies on principles for sound fiscal management, rather than rules. Moreover, it requires the definition of the MTFS, which is currently to achieve budget surpluses on average, over the course of the economic cycle.

2. This paper evaluates the MTFS in the context of the principles underlying the fiscal framework and offers suggestions for reinforcement. Section B below describes Australia’s fiscal framework, focusing on the MTFS and the accountability framework. Section C puts that framework into an international context, by comparing it with those of Canada, New Zealand, and the United Kingdom. Section D looks more closely at the Australian experience. This sets up Section E, which suggests areas for enhancing Australia’s fiscal framework, from previous work by Dizioli and others (2017) related to deficit and debt anchors, lessons from the international comparison, and examination of the fiscal policy toolkit using an IMF policy model, the Australia-New Zealand Integrated Monetary and Fiscal model (ANZIMF). Section F concludes.

B. The Fiscal Framework

3. The *Charter of Budget Honesty Act 1998* is the cornerstone of Australia’s fiscal framework. The Commonwealth government of the day is required to set out and report against a medium-term fiscal strategy (MTFS) in the annual budget. The *Charter* specifies that its MTFS must be consistent with its “Principles of Sound Fiscal Management.” These include: prudent management of fiscal risks and the level of debt; following policies to sustain national saving; smoothing the economic cycle while accounting for economic risks and their impacts on the fiscal position; and maintaining spending and taxation consistent with a stable, predictable tax burden. All measures consistent with these principles should account for their impacts on future generations. The *Charter’s* accountability framework reports on the status of the MTFS in a systematic manner.

Medium-Term Fiscal Strategy (MTFS)

4. To evaluate the experience with MTFS, it is useful to distinguish three broad phases since the inception of the *Charter* in FY1998/99 (Table 1). These phases roughly match the broad economic phases – the strong economy before the Global Financial Crisis (pre-GFC); the downturn and subsequent recovery between the Global Financial Crisis (GFC) and the end of the commodity boom in late 2011; and the adjustment period afterwards. The medium-term fiscal strategy has been to either maintain or achieve either budget balance or budget surpluses either “on average, over the course of the economic cycle” or “over the medium term.”

Table 1. Australia: Commonwealth MTFs since the Inception of the Charter

FY1998/99	<p>Fiscal Strategy Maintain budget balance, on average, over the course of the economic cycle</p> <p>Policy Elements Return the underlying budget to surplus during that Parliament Maintain budget surpluses over the forward estimates while growth prospects remains sound Reduce the ratio of net debt to GDP to 10 percent by 2000/01 No increase in the overall tax burden Reduce expenses to GDP by 2000/01 but direct sufficient resources to high priority areas</p>
FY1999/00	<p>Fiscal Strategy Maintain budget balance, on average, over the course of the economic cycle</p> <p>Policy Elements Maintain budget surpluses over the forward estimates while growth prospects remains sound Reduce the ratio of net debt to GDP to 10 percent by 2000/01 Reduce expenses to GDP by 2000 but direct sufficient resources to high priority areas No increase in the overall tax burden Improve the Government's net assets position over the medium to longer term</p>
FY2000/01 to FY2007/08	<p>Fiscal Strategy Maintain budget balance, on average, over the course of the economic cycle</p> <p>Policy Elements Maintain budget surpluses over the forward estimates while growth prospects remains sound Not increase the overall tax burden from FY1996/97 levels Improve the Government's net worth over the medium to longer term</p>
FY2008/09	<p>Fiscal Strategy Ensure fiscal sustainability over the medium term</p> <p>Policy Elements Achieve budget surpluses, on average, over the medium term Keep taxation as a share of GDP, on average, below the level of 2007-08 Improve the Government's net financial worth over the medium term</p>
2009 UEFO to FY2013/14	<p>Fiscal Strategy Ensure fiscal sustainability over the medium term</p> <p>Policy Elements Achieve budget surpluses, on average, over the medium term Keep taxation as a share of GDP, on average, below the level of 2007-08 Improve the Government's net financial worth over the medium term</p> <p>Deficit exit strategy Allow the ratio of taxes to GDP to recover naturally, but remain below their FY2007/08 levels Hold real growth in spending to 2% a year until the budget returns to surplus</p>
to end of FY2009/10	<p>Temporary Stimulus Support the economy during the recession through fiscal stimulus</p>
FY2014/15 to FY2018/19	<p>Fiscal Strategy Achieve budget surpluses, on average, over the course of the economic cycle</p> <p>Policy Elements Redirect spending to quality investment to boost productivity and workforce participation Reduce the government's share of the economy, freeing resources for private investment to stimulate productivity and growth by a) reducing the ratio of payments to GDP b) stabilizing then reducing net debt over time (Stated in terms of government securities, FY2014/15 and FY2015/16) Improve net financial worth over time New in FY2018/19: Maintain ratios of taxes to GDP at or below 23.9 percent of GDP</p> <p>Budget repair strategy Deliver budget surplus building to at least 1% of GDP in the medium term (Originally by FY2023/24, FY2014/15 and FY2015/16)</p> <p>Policy Elements Offset new spending measures with spending reductions elsewhere</p>

Sources: Commonwealth of Australia Budget Papers Number 1, FY1998/99 to FY2018/19.

5. The MTFs has been implemented through policy elements. These elements have varied over time but have retained broad similarities. They rely on the fiscal policy toolkit – different tax instruments, long-term infrastructure spending programs, debt management strategy, and the like. Currently, there are four policy elements, as outlined in Table 2.

Policy Element	Notes
1 Reprioritize government spending towards quality government investment to boost productivity and workforce participation	pre-GFC, often more vaguely formulated as a redirection to priority spending
2 Reduce the Commonwealth government's share of the economy, freeing resources for private investment to stimulate productivity and growth with:	
a falling ratio of payments to GDP	post-GFC, for a time, had a ceiling on real payments growth of 2 percent
b stabilizing then reducing net debt over time	
3 Support revenue growth by supporting policies that drive growth, maintaining the tax-to-GDP ratio at or below 23.9 percent	pre-GFC, specified keeping taxation as a share of GDP below the level for FY1996/97 or FY2007/08
4 Strengthen the Commonwealth government's balance sheet by improving net financial worth over time	pre-GFC, often based instead on net worth

Sources: Commonwealth of Australia *Budget 2018-19*; previous budgets.

6. Recently, the MTFs have included a budget repair strategy. The budget repair strategy replaced the deficit exit strategy that was introduced in FY2009/10 after the fiscal stimulus used to offset the effects of the GFC in Australia. The inclusion of such strategies was required by the *Charter*, which requires that the government indicate the process for reversing temporary fiscal policy actions taken to moderate the economic cycle. First articulated in the FY2014/15 budget, it will stay in place until there are budget surpluses of at least 1 per cent of GDP, following a clearly defined path. Budget repair is to be achieved by having any new spending offset by spending cuts elsewhere and using any unexpected windfall from higher revenues or underspending to pay down debt.

Accountability Framework

7. Accountability for the MTFs is supported by several Commonwealth institutions. They include the reporting by the Treasury, and the Parliamentary Budget Office (PBO).

8. The Treasurer and Minister for Finance supported by the Department of the Treasury and the Department of Finance are responsible for annual reporting. This comprises the *Budget (Budget Economic and Fiscal Outlook)* usually in May just before the start of the fiscal year on July 1st, a mid-year review by the end of January in each year, or within 6 months after the last budget,

known as the *MYEFO (Mid-Year Economic and Fiscal Outlook)*, and the final report of the outcomes from the Budget within 3 months of the end of each financial year, the *FBO (Final Budget Outcome)*. The contents of these reports are laid out by the *Charter*. All three documents include outcomes. Only the *Budget* and *MYEFO* also contain the MTFS in detail, forecasts and analysis for revenues and expenditures, and a full accounting of risks and deviations from previous reports, helping relate them to the MTFS, providing a high degree of transparency for government operations. The reporting is supplemented by monthly financial statements required by the *Public Governance, Performance and Accountability Act 2013*, published by the Minister for Finance, as soon as practicable after the end of each month.

9. The PEFO (Pre-election Economic and Fiscal Outlook) is a special report in advance of some elections. Within 10 days of the election of the House of Representatives being called there is a requirement under the *Charter* to publish the *PEFO* (akin to a compressed *MYEFO*) which is issued jointly by the Secretaries of the Treasury and the Department of Finance (not the Treasurer in this case). The *PEFO* provides updated information on the economic and fiscal forecasts and assumptions, discussion on the sensitivity of fiscal estimates to changes in economic assumptions and an updated statement of risks. It is to reflect the best professional judgment of officers of the Departments and takes into account all economic and fiscal information available.

10. The Treasurer releases the Intergenerational Report to provide a view on long-term fiscal sustainability and its interaction with demographic trends. It is not a product of the Treasury and Ministry of Finance staffs. Published every five years, it considers the interaction of the current trends and stated intentions of fiscal policy with demographic trends. This assesses the long-term sustainability of current Government policies over the next 40 years.

11. The Parliamentary Budget Office (PBO) also provides limited support for the MTFS. The PBO was established in 2012 with the amendment of the *Parliamentary Service Act 1999* and acknowledged by amending the *Charter*. Its intent is to inform the Parliament by providing independent analysis of the budget cycle, fiscal policy and the financial implications of proposal. In practice its primary role is to cost policy measures. Parliamentarians and parliamentary committees can request policy costings and budget analysis from the PBO, including during election campaigns (alternatively, parliamentary parties may instead request costings during elections from the Secretaries of Treasury and Finance). The PBO's election costings are publicly released, while other costings are confidential, unless otherwise authorized by the requesting parliamentarian. It also produces costings for party platforms within 30 days after a federal election. Otherwise, the PBO conducts research to enhance the public understanding of the budget and fiscal policy and prepares the *National Fiscal Outlook*, an annual report by aggregating the Commonwealth and State budgets.²

² For the purposes of this paper, the "States" include both the six states and two territories of Australia.

Table 3. Australia: Cross-Country Comparison of Fiscal Frameworks

	Australia	Canada	New Zealand	United Kingdom
Nature of the Fiscal Framework	Overarching legislation calls for institutional definition of the detailed goals of fiscal strategy in the medium term.	A mix of convention and procedure in Parliament to define some institutions and reporting; supporting legislation to define some institutions.	Overarching legislation calls for institutional definition of the detailed goals of fiscal strategy in the medium term.	Overarching legislation calls for institutional definition of the detailed goals of fiscal strategy in the medium term.
Legislation	<i>Charter of Budgetary Honesty Act 1998</i> with major amendments in 2011. PBO further defined by <i>Parliamentary Service Act 1999</i> as amended in 2011 and 2013.	<i>Federal Accountability Act 2006</i> for the PBO.	<i>Public Finance Act 1989</i> with major amendments in 2005 and 2013.	<i>Budget Responsibility and National Audit Act 2011</i> and the current <i>Charter of Budget Responsibility Act</i> .
Purpose	Define institutional framework, including reporting, PBO.	To define the PBO's role and responsibilities.	Define institutional framework, including reporting.	Define institutional framework by specifying the OBR, the reporting, and the need for a <i>Charter for Budget Responsibility</i> .
Definition of MTFS	Key goals outlined in <i>Charter</i> , defined by the government in the budget, but it may be modified at any time.	This no formal statement of fiscal strategy. Informally the <i>Budget</i> discusses elements of strategy in its <i>Fiscal Outlook</i> and its <i>Debt Management Strategy</i> (Annexes).	Key goals outlined in <i>Public Finance Act</i> defined by the government in the <i>BPS</i> and the <i>FSR</i> .	Defined by an act of Parliament, the <i>Charter of Budget Responsibility</i> also specifies the contents of budget and financial reporting and OBR's role. The government may modify the <i>Charter</i> but must be passed by Parliament. Last modified in 2016q3.
Current MTFS	As of FY2018/19: to achieve budget surpluses on average over the course of the economic cycle by: redirecting spending to quality investment; reducing government size by reducing expenses to GDP and net debt; keeping taxes to GDP ratio under 23.9 percent; improving net financial worth; with a <i>budget repair strategy</i> to deliver a 1% of GDP surplus as soon as possible.	Informally the <i>Budget</i> discusses the fiscal outlook for the next five fiscal years in Annex 1, and notes the downward track for the deficit and the debt in its forecasts. Part of a general emphasis on fiscal consolidation and increasing federal holdings of assets to ensure low net debt versus gross det.	As of FY2018/19: to deliver an operating surplus across an economic cycle; reduce net debt to 20 percent of GDP within 5 years; prioritize investments to address long-term financial and sustainability challenges; maintain the spending to GDP ratio within its recent historical range; ensure a fair and balanced progressive taxation system.	Since mid-FY2016/17: to balance public finances at the earliest possible date in the next Parliament (by FY2027/28; possibly FY2022/23); mandate is to reduce by FY2020/21 cyclically-adjusted public sector net borrowing to below 2 percent of GDP; public sector net debt as a percentage of GDP to be falling in FY2020/21; expenditure on welfare in FY2021/22 is contained within a predetermined cap and margin.
Other Features		Fiscal framework and strategy is informal, covered by custom and individual pieces of legislation.	Based on the self-imposed <i>Budget Responsibility Rules</i> , which helped frame the <i>BPS</i> and <i>FSR</i> , defined by the Labour/NZ First government during the 2017 election campaign. Also working on embedding into the <i>Act</i> requirements for the budget to be a "wellbeing budget" by 2019.	Some transition still underway. <i>Budget</i> moved to late October from early March to allow for its passage before the fiscal year, as of 2017. Starting 2018, the <i>Spring Statement</i> has been introduced in March as a check on the upcoming budget.

Table 3. Australia: Cross-Country Comparison of Fiscal Frameworks (continued)

	Australia	Canada	New Zealand	United Kingdom
Reporting	Required and defined by the <i>Charter</i> .	Mix of law and customary practice.	Required and defined by the <i>Act</i> .	Required by the <i>Act</i> ; defined the <i>Charter</i> .
Fiscal Strategy	Part of the <i>Budget</i> as mandated by the <i>Charter</i> . Can also be tabled separately by a new government, or updated at any time and tabled by the government.	This no formal statement of fiscal strategy. Informally the <i>Budget</i> discusses the fiscal outlook for the next five fiscal years in Annex 1, and notes the downward track for the deficit and the debt in its forecasts.	The <i>Budget Policy Statement (BPS)</i> sets out policy goals that will guide the Government's short-term priorities, issued with preceding fiscal year's <i>HYEFU</i> . Can be part of a mini-budget for a new government. The <i>Fiscal Strategy Report (FSR)</i> is issued with the <i>BEFU</i> with the 3-year short-term intentions and 10-year long-term objectives for fiscal policy.	The <i>Charter</i> is the sole reporting vehicle. If there is to be a change in fiscal strategy, a new <i>Charter</i> must be passed by the Parliament.
Budget	<i>Budget Economic and Fiscal Outlook (Budget)</i> : Released in May, ahead of the fiscal year starting July 1st (unless delayed because of an election). Compared with previous <i>Budget</i> , <i>MYEFO</i> . Contains preliminary outcomes for the previous <i>Budget</i> . New economic and fiscal forecasts. New statement of risks. New risk scenarios.	<i>Budget Plan (Budget)</i> : Released often in March, ahead of the fiscal years starting (unless delayed by an election). Compared with previous <i>Budget</i> , <i>FES</i> . Contains preliminary outcomes for the previous <i>Budget</i> . New economic and fiscal forecasts. New risk scenarios.	<i>Budget Economic and Fiscal Update (BEFU)</i> . Released in May, ahead of fiscal year starting July 1st (unless delayed because of an election). Compared with previous <i>BEFU</i> , <i>HYEFU</i> . Affirms the fiscal strategy. Contains preliminary outcomes for the previous <i>BEFU</i> . New economic and fiscal forecasts. New statement of risks. New risk scenarios.	<i>Budget Report</i> . Released in November, ahead of the fiscal year starting April 5th (as of 2017; used to be in March, just before new fiscal year). Compared with previous <i>Budget Report</i> . Affirms the fiscal strategy. Contains preliminary outcomes for the previous <i>budget</i> . New economic and fiscal forecasts by OBR. New risk scenarios.
Mid-Year Review	<i>Mid-Year Economic and Fiscal Outlook (MYEFO)</i> : Released December / January. Discusses outcomes relative to the <i>Budget</i> , any changes since the <i>Budget</i> . New economic and updated fiscal forecasts. Updated statement of risks.	<i>Fall Economic Statement (FES; Update of Economic and Fiscal Projections from 2008-2015)</i> . Released October / November. Discusses outcomes relative to the <i>Budget</i> . New economic and updated fiscal forecasts. Can act as a mini-budget.	<i>Half-Year Economic and Fiscal Update (HYEFU)</i> : Released December. Discusses outcomes relative to the <i>BEFU</i> , any changes since the <i>BEFU</i> . New economic and updated fiscal forecasts. Updated statement of risks. Can act as a mini-budget for a new government.	<i>Spring Statement</i> : Part of the budget process, it is a speech by the Chancellor to the House of Commons in March, providing an update the implementation of the <i>Budget</i> for the upcoming fiscal year. Based on OBR forecasts released at the same time.
Final Outcome	<i>Final Budget Outcome</i> : Published for the Commonwealth government and public corporations, usually in September after end of the fiscal year (has to be within 90 days). Comparison relative to the <i>Budget</i> .	<i>Public Accounts of Canada</i> : Required by the <i>Financial Administration Act</i> . Tabled in Parliament in September or October. For federal government and Crown corporations. Comparison relative to the <i>Budget</i> .	<i>Annual Financial Statements</i> : Published as soon as possible after the end of the fiscal year. For the central government and Crown enterprises. Comparison relative to the <i>BEFU</i> .	<i>Whole of Government Accounts</i> : Published over a year after the fiscal year, but it covers the entire general government. Comparison relative to the <i>Budget Report</i> .

Table 3. Australia: Cross-Country Comparison of Fiscal Frameworks (concluded)

	Australia	Canada	New Zealand	United Kingdom
Reporting (concluded) Pre-Election	<i>Pre-Election Economic and Fiscal Outlook (PEFO)</i> : Published 20-30 days before the election date, in much the same format as the <i>MYEFO</i> , by the Secretaries of the Departments of Treasury and Finance	NONE	<i>Pre-Election Economic and Fiscal Update (PREFU)</i> : Published 20-30 days before the election date, in much the same format as the <i>HYEFU</i> .	NONE
Medium- to Long-Term	<i>Intergenerational Report</i> : Defined in the <i>Charter</i> . Published every five years by the Treasurer (not the Treasury), accounting for interaction of fiscal policy and demographic trends for the next 40 years.	<i>Update of Long-Term Economic and Fiscal Projections</i> : Published yearly, based on the budget's medium-term forecasts. Extends out to 2055 (as of 2017) accounting for the interaction of fiscal and demographic trends, without an explicit debt target.	<i>Long-term Fiscal Statement (LTFS)</i> , published at least every four years by the Treasury, includes fiscal projections accounting for the interaction of fiscal policy and demographic trends for at least the next 40 years.	<i>Fiscal Sustainability Report (FSR)</i> : Published annually by the OBR, usually in July. It accounts for announced and expected future fiscal policy, incorporating demographic and productivity trends, for the next 50 years.
Fiscal Council	Parliamentary Budget Office (PBO)	Parliamentary Budget Officer (PBO)	NONE but planning underway for an Independent Financial Institution (IFI).	Office for Budget Responsibility (OBR)
Staffing	Parliamentary Budget Officer plus approximately 35 staff.	Parliamentary Budget Officer plus 15 staff.		Approximately 20 staff.
Reporting Line	Reports to the Parliament.	Administered under the Library of Parliament, but in practice reports to the Parliament.		The OBR is independent. It provides data directly to Treasury for the <i>Budget Report</i> .
Costing	For budget; for election campaign platforms within 30 days after the election; or any proposal requested by any member or senator. Election-related costings are released. Others are confidential unless given permission by requester to release, at any time after completion.	For budget; for any proposal requested by any member or senator.	<i>Proposed for the IFI</i> : for proposals from any political party.	For budget; for any proposal requested by any member of parliament or lord.
Other Functions	<i>National Fiscal Outlook</i> for the general government, using all budgets for current and 4 fiscal years, published annually. Research papers on various topics.	<i>Fiscal Sustainability Report</i> for long-term general government trends, published annually	<i>Proposed for the IFI</i> : monitor adherence to the <i>Budget Responsibility Rules</i> or the <i>BPS</i> and <i>FSR</i> .	Produces and publishes the economic and fiscal forecasts used by the government in their budget documents, twice a year
Access to Information	PBO has MoUs with the ministries for data access.	PBO has a right to data from federal government departments, as settled by the Supreme Court.		By the <i>Charter</i> , the OBR has an MoU with the Treasury and government departments for data access.

Sources: Chohan (2017); Commonwealth of Australia (2014); Government of Canada (2018); Government of New Zealand (2018a, 2018b, 2018c); Government of the United Kingdom (2011); Keep (2018); Parliamentary Budget Office (2018); Smith (2015)

C. Australia in International Comparison

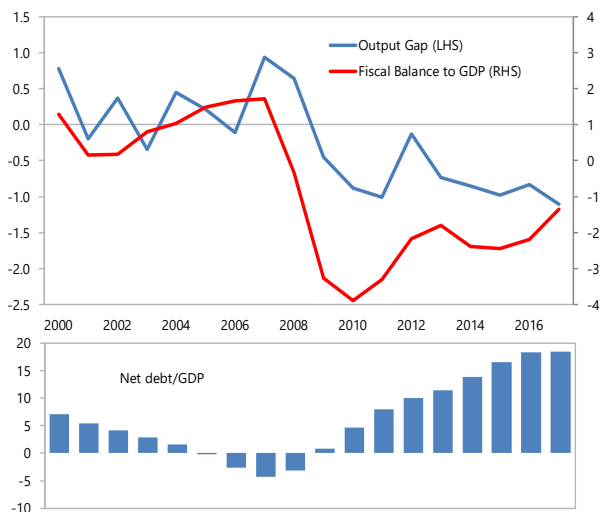
12. Other countries besides Australia use principles-based medium-term fiscal frameworks to strengthen fiscal discipline (Table 3). New Zealand, Canada and the United Kingdom have similar political cultures, broader experiences, and finally, fiscal frameworks. They have Westminster-style parliamentary systems where the executive and legislative powers are closely related. Australia is one of the leaders in defining a modern fiscal framework, starting in 1998, and modifying the framework as late as 2014. Countries such as New Zealand (with its own framework starting in 1989) and the United Kingdom (starting in 1998, like Australia) have also made substantial progress. New Zealand has revised its act several times, while United Kingdom introduced a new framework starting in 2011. Canada is an example of a country with many similar institutions and practices, but without an overarching statement of its fiscal strategy, relying more on public reporting and custom to maintain its fiscal strength.

13. In all four countries, the fiscal frameworks seek to limit the size of public debt, while also allowing for fiscal policy being used in macroeconomic stabilization. When the frameworks were first designed during the 1990s, discretionary fiscal policy was not seen as an important stabilization tool; it was more about using policy tools as automatic stabilizers. Monetary policy was seen as the main stabilization tool, a circumstance that has now changed, as monetary policy remains relatively loose historically, even in economies where central banks have started to raise rates.

14. The state of the economic cycle, especially for Australia, is sometimes difficult to identify. Australia has not had a recession in over 26 years, unlike the other three countries, using the standard NBER definition of an output contraction lasting for at least two quarters. Using the output gap gives a more nuanced view of the cycle. All four countries saw an increase in their net debt positions with the onset of the GFC, which afterwards developed differently in each country (Figures 1 to 4).

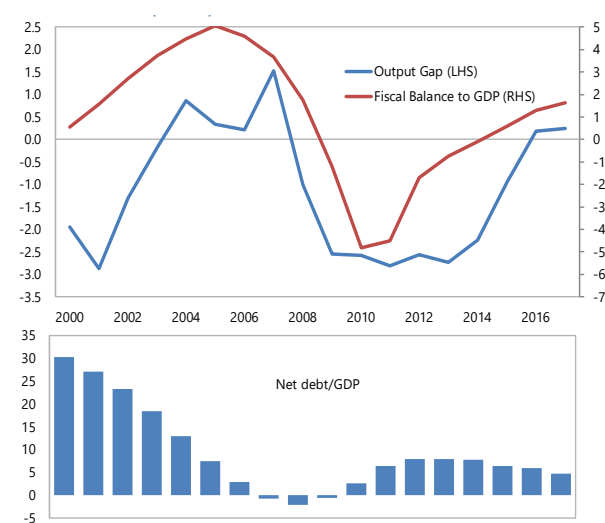
15. Three of the four countries experienced protracted negative output gaps after the GFC. This was despite all four countries allowing for stimulus within their fiscal frameworks, leading to increases in their net debt positions. After Australia faced a GFC-induced economic downturn and a negative output gap in 2009, the gap nearly closed in 2012. This was followed by another downturn starting in 2013 after the end of the global commodity boom (Figure 1). The economy benefitted from a rebound from 2015, but with the supply side of the economy expanding at roughly the same rate as aggregate demand, and the output gap only narrowed very gradually. New Zealand also experienced a negative output gap starting in 2009 because of commodities and links with Australia (Figure 2). The United Kingdom's negative output gap, starting in 2009, was also protracted, much like that of some euro area economies (Figure 4). Canada recovered the fastest after experiencing the sharpest downturn of the four in 2008, reflecting U.S. spillovers, including from the U.S. policy response, as well as the domestic policy response (Figure 3).

Figure 1. Australia’s Fiscal Position
(Percent of GDP but Percent for Output Gap)



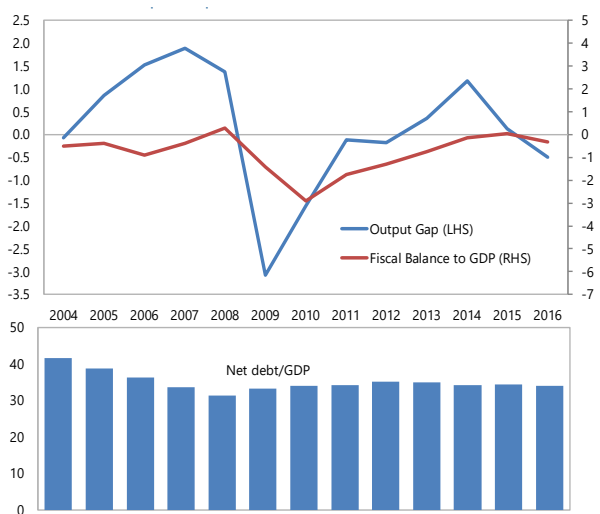
Sources: Commonwealth of Australia Treasury; ABS; IMF staff calculations.

Figure 2. New Zealand’s Fiscal Position
(Percent of GDP but Percent for Output Gap)



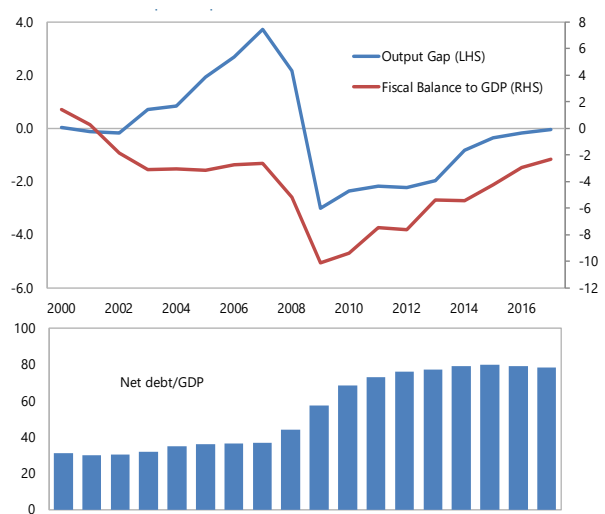
Sources: New Zealand Treasury; StatsNZ; IMF staff calculations.

Figure 3. Canada’s Federal Fiscal Position
(Percent of GDP but Percent for Output Gap)



Sources: Canada Department of Finance; Statistics Canada; IMF staff calculations

Figure 4. United Kingdom’s Fiscal Position
(Percent of GDP but Percent for Output Gap)



Sources: UK Treasury; OBR; Office for National Statistics; IMF staff calculations

16. The formulation and implementation of each country’s MTFS has had different outcomes, even after accounting for the state of the economic cycle. The scaling of the fiscal balance roughly indicates the scale of the automatic stabilizers to the output gap of roughly 0.5, in line with values for all four countries (Price and others, 2015).

- Australia’s MTFS has been flexible enough to change with the economic circumstances, but net debt continued to rise before stabilizing in 2016. Fiscal stimulus (and the large deficit) played some role in sustaining output growth over this period.
- New Zealand has demonstrated that its MTFS was achievable. But it may have been at the expense of a larger output gap for a longer period compared to the other three countries. New

Zealand has generally had countercyclical fiscal policy, and this is reflected in the evolution of its net debt to GDP ratio.

- Canada has achieved goals similar to both Australia and New Zealand without a formal framework. Canada's fiscal policy (at least when considering the fiscal balance) has been much less variable, but also mildly countercyclical, but its net debt to GDP ratio has only been broadly stable since 2011.
- The United Kingdom seems to have experienced weak outcomes over the 2000s, not exploiting the period of excess demand prior to the GFC, even if a substantial part of that may have been driven by asset prices. With ongoing reform to its fiscal framework and MTFS starting in 2011, the United Kingdom has been working towards better outcomes, despite other shocks (such as Brexit), and stabilized its net debt starting in 2015.

17. The fiscal frameworks in all four countries have been updated over the past decade or so. Australia introduced the PBO in a major reform in 2011, followed by minor modifications in 2013. New Zealand legislated its last major changes in 2005 and 2013. However, as mentioned above, it is considering the addition of a fiscal council. Their three major comparators happen to be Australia, Canada and the United Kingdom (Government of New Zealand, 2018c). The United Kingdom started reform in 2011 with the introduction of a new framework, with a *Charter for Budget Responsibility* and an Office for Budget Responsibility (OBR). It continues to work on strengthening the OBR's role and last updated its charter in autumn 2016, while also changed the timing of the release of budget documents, to provide more time for public debate in advance of the new fiscal year in April. Canada continues to discuss a fiscal rule and has updated various pieces of legislation over the past 10 years to sustain its budget practices, without a formally stated MTFS since removing its explicit debt rule in 2006.

D. The Interaction of the *Charter* and the MTFS

18. The similarity of the MTFSs across governments and over time in Australia seems to reflect broad consensus about the best way to meet the purpose of the *Charter*. The MTFS has always focused on the state of government finances (budget balance or surplus) over a flexible horizon related to the economic cycle, which should satisfy the *Charter's* explicit purpose to improve fiscal policy outcomes, where fiscal policy "is to be directed at maintaining the on-going economic prosperity and welfare of the people of Australia."

19. Consequently, the *Charter's* five "Principles of Sound Fiscal Management" have shaped the policy conduct in service of the MTFS since 1998. Fiscal policy has consistently been focused on the contents of the *Charter*, with the result that policy elements have had a strong degree of continuity and allowed governments to pursue prudent strategies over the life of each parliament. This has been consistent with MTFSs that have changed somewhat over time (Table 1), The flexibility of the *Charter*, exemplified by the objective to moderate the economic cycle, has also allowed governments to address concerns of the day. Governments can maintain credibility of fiscal policy, as the principles of fiscal management continue to be applied without specific rules, that might need to be abandoned in crisis situations (such as the GFC). The Commonwealth's use of the *Charter* has also encouraged many of the States to adopt similar frameworks, especially for

accountability and transparency. For example, in 2009, Queensland enacted the *Fiscal Accountability Act*, which requires the Treasurer to table a *Charter of Fiscal Responsibility* containing the government’s fiscal strategy in Parliament and report regularly on the government’s progress towards its objectives.

20. The principles in the *Charter* have been operationalized through the four policy elements of the current MTFs. There has been some measure of success, although perhaps not as much as intended for the policy elements. To some degree, this is to be expected, as there may arise situations where meeting on one policy element slows the ability to satisfy another. Table 4 summarizes the current set of policy elements, before considering each of the four policy elements in turn. All four elements have existed throughout the use of MTFs related to the *Charter*, but sometimes stated with different metrics, or emphasized to varying degrees, as highlighted in the discussions below.

Table 4. Australia: Mapping the FY2018/19 MTFs into the *Charter*

Principles of Sound Fiscal Management	MTFS Policy Element	Outcomes
a) Manage financial risks faced by the Commonwealth prudently, including maintaining debt at prudent levels	2b Stabilize then reduce net debt over time - Risks included in reporting	May be stabilizing starting 2016/17; reduction has yet to occur Very detailed, comprehensive in <i>Budget</i>
b) Policy contributes to i) national saving	4 Improve net financial worth	Financial assets improve, but borrowing offsets
ii) moderating the economic cycle	All	4 Yes during recessions (GFC), not as clear as during expansions
c) Pursue spending and taxing policies consistent with a predictable tax burden	3 Limit on tax to GDP 2a Reduce payments to GDP	Being tied to an explicit number may mistake cyclical improvement as a permanent opportunity for tax cuts Met outside of recessions
d) Maintain the integrity of the tax system	- Not explicitly in MTFs; relies on policy conduct	Generally, tax changes are not enacted without careful consideration
e) Policy decisions have regard to financial effects on future generations	1 Reprioritize spending towards quality investment 2a Reduce payments to GDP 2b Stabilize then reduce net debt over time 4 Improve net financial worth	Improving; still low relative to pre-GFC; remains important for rising health and aged care needs Could potentially restrict health- and aged-care spending, but does not currently; can be impetus to encourage efficient spending Could provide a buffer for age-related shocks (i.e. Influenza epidemic) Missed opportunity to provide assets for future use as pensions come due, other than those related to the Future Fund

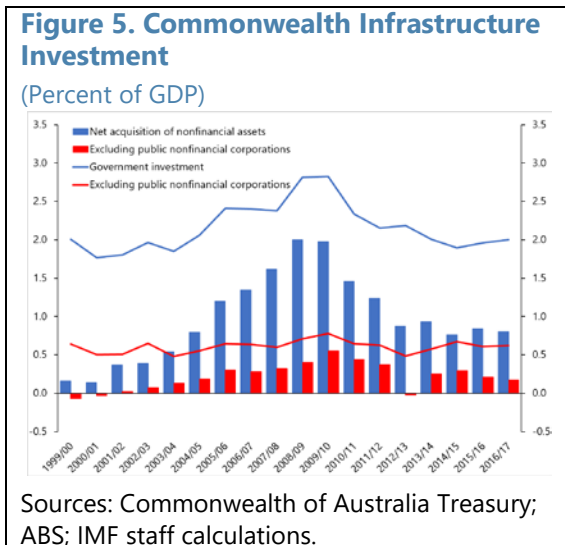
Sources: *Charter of Budget Honesty Act 1998* (2014); Commonwealth of Australia *Budget 2018-19*; IMF staff.

Element 1: Reprioritize Spending Towards Quality Government Investment

21. Commonwealth-level government investment declined after the GFC but strengthened in recent years (Figure 5). To some extent, the responsibility for infrastructure falls to the States. Public non-financial corporations have been an important channel for the Commonwealth through marque projects such as the National Broadband Network, Western Sydney Airport and the Brisbane-Melbourne Inland Railway.

22. Another important contribution has been the creation of a strong Infrastructure Australia.

While its impact is less quantifiable, Infrastructure Australia has acted as an arm’s-length costing and advisory agency since 2012, at both Commonwealth and State levels. It is responsible for auditing federally significant infrastructure projects as well as developing and renewing a 15-Year Infrastructure Plan that specifies Commonwealth and State priorities. It has helped elevate the amount of investment in high-quality projects with strong benefit-cost ratios.

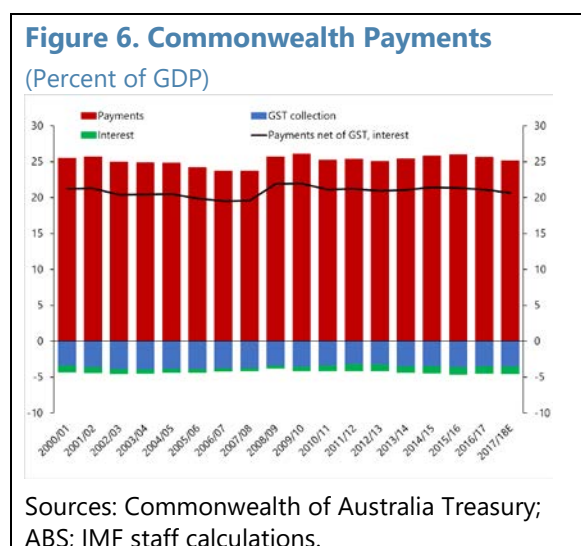


Element 2: Control Expenditure to Reduce the Share of Government in the Economy

23. The Commonwealth government as a share of the economy has not been reduced during the life of the Charter. This is the case for both measures: the ratio of payments to GDP and the level of net debt, even with the addition of the deficit exit strategy followed by the budget repair strategy. Currently, budget repair aims to stabilize expenditure (offsetting new measures with new cuts), and as the economy strengthens, to reduce debt with an increasingly large fiscal surplus that is to stabilize at 1 percent of GDP. Overall, one of the intentions of the MTFs has been to restrict taxes and expenses.

Reduce the Expenses-to-GDP Ratio

24. The ratio of payments to GDP has been relatively constant, with relatively small year-to-year changes since the increase during the GFC (Figure 6). Both overall payments, and net expenses that exclude payments that cannot be directly controlled by the Commonwealth – interest payments (varying from 0.3 to 1.0 percent of GDP), and the on-passing of goods and services tax (GST) revenues to the States (varying from 3 to 4 percent of GDP) – have behaved in this manner. Since the large-scale fiscal stimulus in FY2008/09 and



FY2009/10 in response to the GFC, there has been one other new comprehensive spending program, the National Disability Insurance Scheme (NDIS), which began to ramp up in 2013 and went nationwide starting in 2016. There are also other occasional initiatives for labor skills and education. These have offset other expense-cutting efforts and some of the decline in cyclical spending such as unemployment insurance and welfare. Overall, expenses (net of interest and GST payments to the States) peaked at 22 percent in FY2009/2010, troughed at 20.9 percent of GDP in FY2012/13, before rising again. Expenses are estimated to have returned to that trough in FY2017/18, as the cyclical position of the economy continued to improve.

Stabilize and Reduce the Net Debt

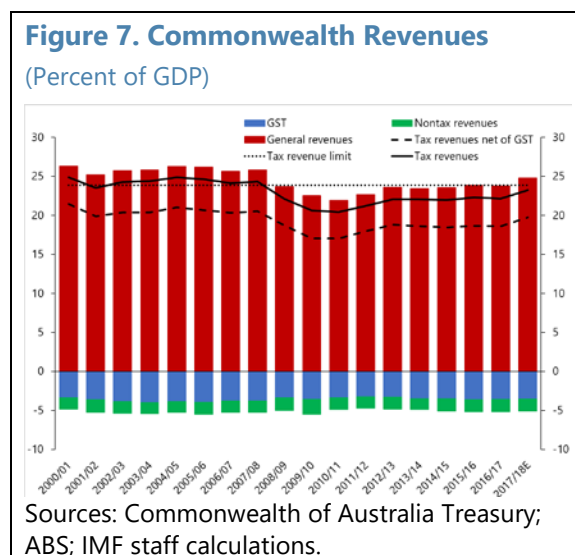
25. Net debt has only stabilized starting in FY2016/17. Pre-GFC, net debt declined substantially, even becoming a net asset position. The GFC drove debt up, but this was consistent with the MTFs of the time, and the objective of the *Charter* to moderate the economic cycle. One key part of this policy element is that economic conditions must warrant the restrictions needed to halt debt accumulation. Given that the output gap is still not closed (repeatedly returning to -1 percent of real GDP since 2009 as in Figure 1) the stabilization of the net debt to GDP ratio is a notable achievement, although the level of net debt is only close to stabilizing as of FY2018/19.

Element 3: Maintaining the Tax-to-GDP Ratio At or Below 23.9 Percent of GDP

26. Using a tax ceiling as a policy element returned to the MTFs in FY2018/19. Prior to FY2014/15, the MTFs restricted the tax-to-GDP ratio to be no higher than some other year’s value such as using FY2007/08 as the ceiling in the FY2011/2 and FY2012/13 budgets, or in the 2013 PEFO in the medium-term fiscal scenarios. The current 23.9 percent of GDP ceiling is the average of amount of taxes collected during the last prolonged economic expansion from FY2000/01 to FY2007/08. However, it had been used before usually for medium-term projections, as in the FY2014/15 budget and the *2015 Intergenerational Report* (Commonwealth of Australia 2013, 2015).

27. Tax collection as a ratio to GDP has generally followed the commodity price and economic cycles (Figure 7). Personal income tax (PIT) and GST collection usually follow the economic cycle. Corporate income tax (CIT) collection also follows the commodity price cycle, given the preponderance of mining companies and natural gas exporters among profitable firms.

28. A tax-to-GDP ceiling may be inconsistent with the principle of running surpluses over the cycle. If there are surpluses, but it is not yet clear that those surpluses are structural instead of cyclical, permanent tax cuts to meet the tax-to-GDP ceiling could cause long-term difficulties for

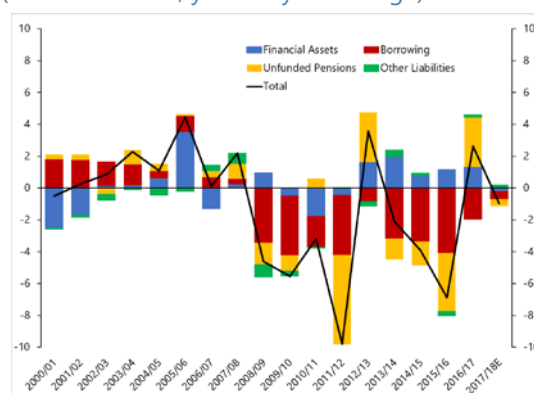


achieving the MTFs. In the FY2018/19 budget, given the implications from strong economic growth pushing up tax revenues, personal income taxes were cut, and there was a retreat from the FY2017/18 budget's 2019 increase in the Medicare levy to secure complete long-term funding for the NDIS. This is consistent with 23.9 percent ceiling on tax collection in the short term, provided that the current strength in tax collection is structural, not cyclical. Past ceilings often were couched in vaguer language, such as the "tax burden," in line with the *Charter* itself, and left a fair amount of discretion. Using an explicit ceiling does not have sufficient consideration for structural adjustments such as using potential output rather than real GDP when specifying that ceiling.

Element 4: Increase Net Financial Worth Over Time

29. Commonwealth net financial worth has been tied strongly to the stabilization of net debt (Figure 8). While it serves an independent purpose for meeting the *Charter*, in practice, it reflects net debt. The only other notable factor has been the increases in the present discounted value of unfunded pension liabilities as a share of GDP, albeit with an occasional revaluation of those liabilities in either direction.³ Net financial assets generally improved pre-GFC and deteriorated post-GFC.

Figure 8. Commonwealth Net Financial Worth
(Percent of GDP, year-to-year change)



Sources: Commonwealth of Australia Treasury; ABS; IMF staff calculations.

E. Options for Enhancing the Fiscal Framework

30. The MTFs put in place over the past two decades have broadly met the principles outlined in the *Charter*, although some issues in implementation have emerged. The MTFs has consisted of policy elements that are principles rather than inflexible numeric targets, for the most part, with broad continuity over time. Adjustments to these elements, moreover, have reflected economic circumstances – any shifts in the political spectrum usually results in changes in wording, but not the core principles, and the *Charter* itself has been unchanged since 1998, except for the addition of the PBO. However, five issues have arisen in the implementation of the MTFs.

- The reliance on a flow medium-term fiscal anchor (budget balance over the cycle) has allowed for the debt to drift upwards, as there is no strongly stated view on the desired level of debt, as long as it is consistent with "maintaining ... debt at prudent levels" as stated in the *Charter*.

³ This is beyond the yearly revaluation that occurs as the government shifts from a forecasted discount rate to the actual discount rate when calculating the present discounted value of the unfunded pension liabilities (known in Australia as "unfunded superannuation liabilities"). The forecasted discount rate (6 percent in budgets up to and including FY2017/18; 5 percent starting in FY2018/19) is used in the *Budget* and the *MYEFO*; the actual discount rate is calculated for the *FBO* and used in the published ABS statistics (Commonwealth of Australia 2018).

- It is not clear that consistent surpluses could be maintained, as the political economy implies pressures to use the surplus – this is partly built into the policy elements, and partly an outcome of a tendency (not unique to Australia) to commit to spending the surplus before it is definitively identified as structural rather than cyclical.
- At any point in time, including when the budget is released, there is considerable uncertainty about the shocks and the implications for the budget balance paths. Systematic review outside that already within the budget process on how such uncertainty affects outcomes could be a valuable learning tool for fiscal processes.
- There is transparency, but it is not clear that transparency is equivalent to accountability. There is not a clear mechanism for systematic, repeated, independent evaluation of fiscal policy and the fiscal framework, which could help hold in check the policy economy impulses described above.
- Fiscal policy has relied on a toolkit built around automatic stabilizers, so that revenue collection and recurrent spending vary with the economy. But the new economic environment is one where there is limited conventional monetary policy space, but also more variability in the economy, starting with the GFC and then the end of the terms-of-trade boom. This has been reducing the effectiveness of the toolkit.

31. There are three broad areas of reform to help address these issues. First, a more explicit link between debt and deficit in the setting the medium-term fiscal anchor could address the issue of drift in the debt. Second, some additions and reforms in the accountability framework may strengthen the pursuit of the policy elements. Third, by modifying the fiscal policy toolkit, the important role of countercyclical automatic stabilizers in macroeconomic stabilization could be preserved while making them more resilient to large unexpected or poorly understood shifts in economic outcomes, such as the GFC, the end of the commodities boom, and the current very-low-inflation recovery. By reducing variability in fiscal outcomes, variability in economic outcomes could also be reduced, insofar that the degree of unexpected variability in fiscal outcomes can be attributable to the behavior of the toolkit – an objective consistent with the *Charter*.

Introducing an Explicit Link Between Debt and Deficits

32. The *Charter* and the budget balance anchor in the MTFS were introduced at a time when the primary concerns were about preventing larger current account deficits and increasing national savings. However, in the late 1990s and early 2000s, the Commonwealth budget was already close to balance, with only small variations away from zero – much like the output gap. The *Charter* was formulated in a more favorable baseline environment, despite risks from then recent episodes such as the Asian Financial Crisis of the late 1990s. Perhaps the concept of the economic cycle has been too narrow, as it seems that cycles can be longer, and shocks larger. These large shocks, starting with the GFC have introduced a large element of debt drift. It follows that the underlying principle in the *Charter* for a prudent level of debt may be more at risk than before. But the current framework has no clearly stated policy options to bring the debt back to more prudent levels, which themselves are not clearly defined.

33. There are several options to introduce such a link, ranging from formalizing the feedback from debt to deficits to introducing a medium-term debt target as a fiscal anchor.

Dizioli and others (2017) analyzed a range of options for debt anchors with varying degrees of cyclical flexibility. It considered the efficacy of these debt anchors in Australia in the face of three shocks: a large boom-bust cycle in commodity prices; a temporary but substantial increase in aggregate demand; or a large-scale consolidation in net debt. First, they found that a debt anchor would perform better than a simple deficit target. Second, by analyzing the outcomes of five different criteria (including variability of real GDP and the degree of procyclicality in fiscal policy), they found that the debt target with the best outcomes would have an allowance for the level of debt to vary from its target for roughly 5 years, instead of correcting any deviations in the most rapid manner possible or allowing it to vary for a longer time period. Such conclusions have been drawn using similar experiments in other countries such as Canada (Kinda 2015).

Augmenting the Accountability Framework

34. **The Australian accountability framework could be reinforced to increase transparency and timeliness.**

Transparency is already very high, with a fair amount of timely analysis. Governments have consistently used the publications of the *Budget* and the *MYEFO* to explain developments and identify risks. The PBO has provided timely research and has helped present a whole country picture by assembling the *National Fiscal Outlook*. Nonetheless, the following three options could further strengthen the effectiveness of the accountability framework. These suggestions are in line with those proposed in 2017 in the inaugural *5 Year Productivity Review* by the Productivity Commission, an arm's-length public analytical institution that is not formally part of the fiscal framework (Productivity Commission, 2017).

35. Follow the example of New Zealand's *Budget Policy Statement*.⁴ New Zealand releases it well in advance of the upcoming budget, usually the same time as the previous year's *Half-Year Economic and Fiscal Update (HYEFU)*. It clearly sets out policy goals that will guide the forthcoming budget, consistent with the MTFs. For Australia, it could be released at the time of the *MYEFO*, for example, or when the budget process begins in Parliament around September, providing a more publicly accessible and transparent version of the operational rules that are set by Cabinet at that time as mentioned in the *Cabinet Handbook* (Department of Prime Minister and Cabinet, 2018). In New Zealand, the *Budget Policy Statement* is reinforced at the time of the budget by its *Fiscal Strategy Report*, which Australia already has in its *Budget's* fiscal strategy chapter. The New Zealand government has the incentive to meet the current budget objectives in order to make it easier to meet new commitments in the upcoming budget. It provides more year-to-year linking for the fiscal strategy and may reduce incentives to change short-term objectives in absence of economic shocks or without strong justification.

36. Legislate the MTFs, formally, in advance of the budget or at the beginning of a new government. In the United Kingdom, the MTFs is passed as a separate Act of Parliament, a *Charter of Budget Responsibility*. It includes formal fiscal targets, and provisos as needed to act as reasonable

⁴ See Table 3 for information on publications in the New Zealand fiscal framework such as the *BPS (Budget Policy Statement)* and the *HYEFU (Half-Year Economic and Fiscal Update)*.

escape clauses. This opens proposed changes to the MTFs to public debate. It provides a legal commitment that requires serious effort to change.

37. Increase the role of the PBO, to include regular reviews of fiscal policy. This would follow the example of the United Kingdom's arm's length fiscal council, the OBR. At any point in time, including when the budget is released, there is considerable uncertainty about the shocks and the implications for the budget balance paths. Regular review would allow for the government to better understand the uncertainty, and perhaps improve budget processes in the future. Such a review could be based on the FBOs versus the MTFs and could even provide more granular analysis relative to the *Budgets*. There are evaluations of various elements of fiscal policy that already occur, but not necessarily at regular intervals, and not always with a high degree of publicity, thereby some lacking transparency in practice. By having regular reviews at an arm's length institution like the PBO, its work would not be interrupted or delayed by the political cycle, or unexpected disruptions to it. An annual frequency may be too demanding, but it could be at some lower frequency, although having reviews more than 3 years apart would probably reduce its usefulness too much as an accountability device. There could even be a role for a public reply by the government to the findings of a review, although this probably most useful for a frequent review cycle, where the government of the day would answer in regard to its own policies and not potentially those of a previous government. Such reviews could be released in a public manner with media coverage, much like the *Budget* and the *MYEFO*.

38. The PBO could serve as a long-term repository of knowledge for implementing the fiscal framework. Using the PBO formally for a review process could reduce reliance on other private institutions, such as credit rating agencies. Centralizing such reviews at the PBO would allow for the build-up of institutional knowledge, which would be a useful complement to the research in which they already engage. By functioning as such a repository, the PBO would also be better placed to assume other existing evaluation work being done, such as the *Intergenerational Report*. As an added benefit, it would be more difficult for accusations that the *Intergenerational Report* has been politicized by the government in power to gain traction.

Reforming the Fiscal Policy Toolkit

39. The fiscal policy toolkit could be reconfigured to better serve the MTFs. Given the discretionary nature of fiscal policy, having more certainty about the fiscal stabilization elements of the fiscal toolkit would help to set clearer limits to fiscal policy and hopefully a clearer understanding of its effects. In other words, in face of unexpected shocks, it would be beneficial if the fiscal toolkit was less variable because of unexpected shocks, but still provided its well-understood automatic stabilizing functions. A reformed toolkit should make the economy more resilient to shocks and make revenues less subject to swings in the economic cycle. There are long-standing policy discussions in Australia which can be drawn upon. They can be summarized as:

- Shifting towards GST (indirect taxes) from CIT and PIT (direct taxes) to maximize efficiency.
- Indexation of PIT brackets by inflation to reduce reliance on bracket creep.
- Broadening the base of the GST to minimize variability in tax collection.

- Committing to maintaining infrastructure and adding new infrastructure investment.

While these measures are suggested to reduce the variability of fiscal outcomes, they also serve other primary concerns, such as increased economic efficiency (tax shifting), increased tax efficiency (broadening the GST base, reducing reliance on bracket creep) and improved productivity (attention to infrastructure maintenance and investment).

40. *Shifting the tax burden towards indirect taxes.* In the face of temporary or permanent shocks to the economy, a GST-reliant tax mixture produces less volatility than a tax mix relying on PIT and CIT.⁵ The literature demonstrates that different taxes have different multipliers in the short and the long term.⁶ While multipliers are indications of the effects of changing tax rates, they are also indicators of the way in which economic decisions are made over time. Generally, if considering tax increases, indirect taxes have less negative effects on economic output than direct taxes. For direct taxes such as personal income taxes and company taxes, such taxes not only reduce income of individual households and firms (and ultimately households as shareholders), they also place a cost on firms in producing goods and services for the economy, increasing costs for factors that are passed onto consumers as higher prices, reducing their real buying power. By contrast, indirect taxes only reduce the buying power of households and firms, have an indirect impact.

41. *Indexation of personal income tax brackets.* Indexation of personal income tax brackets minimizes inflation as a source of bracket creep, although given real wage increases, bracket creep cannot be eliminated. However, recently, inflation has been harder to predict in a timely fashion, probably due to repeated unexpected shocks (terms of trade, foreign prices, exchange rate movements) and an incomplete understanding of trend prices probably related to international price competition.⁷ PIT revenues are often hard to predict. The government needs to understand how many households will be pushed into higher tax brackets because of changes in nominal income growth. Instead of depending on a difficult forecasting process, the uncertainty around PIT revenues can be decreased by indexing the tax brackets to inflation, a common practice in other countries, including, for example, Canada. This would allow the effective and statutory PIT rates to move more in tandem. Therefore, bracket creep only relies on household's real income crossing tax brackets.

42. *Expanding the tax base of the GST.* The tax base for the GST is estimated to cover only 50 percent of consumption (OECD 2015). In comparison, New Zealand covers roughly 95 percent of consumption, with few exemptions. Many of the exemptions fall on goods which are deemed, in some sense, necessities – for example, fresh food, water and sewerage, and tuition fees for education. To put it another way, demand for these goods and services are more income inelastic than those goods and services currently taxed by the GST. Therefore, a broader tax base that would generate the same GST revenues as the current narrower tax base should also lead to less variability

⁵ See the Henry Tax Review (Commonwealth of Australia 2010) or more generally, Johansson and others (2008).

⁶ See, for example, Coenen and others (2012).

⁷ See, for example in the case of Australia, Ballantyne and Langcake (2016) and Karam and Pranovich (2018).

in tax revenues over the course of the economic cycle, as a larger part of that tax base will be derived from goods subject to income inelastic demand (Cao and others 2015; Pearl 2016).

43. *Committing to an infrastructure investment target.* Generally, infrastructure investment enhances productivity in the whole economy.⁸ There is a demonstrable gap for Australia's infrastructure needs, so there is room for a firm commitment to infrastructure spending as a share of some GDP measure, such as potential output. Infrastructure per capita is probably a more salient measure, but stronger population growth and economic growth are well correlated in Australia, so using an infrastructure to potential GDP ratio is not unreasonable. Allowances should also be made to maintain the additional capital stock. This puts emphasis not just on gross infrastructure investment (which is the measure registered in the national expenditure accounts) but the net acquisition of non-financial assets.

44. *These reforms can be treated as an alternative fiscal policy toolkit.* For purposes of illustration below, the four components are quantified as follows.

- GST revenues are increased by 2 percent of GDP, and given to the Commonwealth, while CIT and PIT are each decreased by 1 percent of GDP.
- Personal income tax brackets are indexed to inflation so that households only move to higher tax brackets only as real income increases.
- GST is applied to all of household consumption which reduces the statutory GST rate to roughly 5 percent, all else being equal.
- Government investment spending maintains the infrastructure capital stock at its current level and increases the stock annually at a net infrastructure investment to potential output ratio of 0.7 percent (its FY2018/19 level).

Exploring a Downside Scenario

45. *Comparing the alternative and current fiscal policy toolkits under a downside scenario demonstrates possible improvements to fiscal outcomes.* While there is an array of risk analyses undertaken in the Australian budgets, they are usually limited to certain features, and in a partial equilibrium context – something from which other countries, such as the United Kingdom, have moved away.

46. *The downside scenario is quantified using the Australia and New Zealand Integrated Monetary and Fiscal model, ANZIMF (based on the IMF's Global Integrated Monetary and Fiscal model).*⁹ ANZIMF is an annual, multi-region, micro-founded non-Ricardian general equilibrium model of the global economy. This version comprises five regions – Australia, China, the rest of Asia, the United States, and a bloc of the remaining countries. There is an extensive fiscal

⁸ See Bom and Ligthart (2014) for the output elasticity of infrastructure investment, Oxford Economics and the Global Infrastructure Hub (2017) for a quantification of the infrastructure investment gap, and Muir (2018) for analysis on closing the infrastructure investment gap going forward.

⁹ See Annex I for an overview of the model, and further references.

sector with seven tax instruments – GST, CIT, PIT, dividend income tax, payroll tax, property tax, and other lumpsum taxes – and four spending instruments – government consumption, infrastructure investment, general lumpsum transfers (such as pensions, unemployment insurance) and lumpsum transfers targeted to poorer households (such as social assistance).¹⁰ Moreover, Australia has both a Commonwealth and a State-level government with separate debts, deficits, expenses and revenues. Therefore, this scenario can focus on the Commonwealth’s fiscal policy toolkit.

47. For the purposes of this experiment, there is no strict debt or deficit target. To understand the contributions of the behavior of tax and expenditure parameters, the deficit is allowed to drift for a substantial period of time (more than 40 years), and therefore debt will also vary between the current and alternative toolkits. These results are indicative of reduction of volatility in fiscal instruments, and the implications for economic outcomes. The toolkit that induces less drift in debt in this experiment would also induce less economic variability under a debt target, as fewer or smaller adjustments to fiscal policy would be required to satisfy the debt target.

48. The downside scenario is a substantial recession outside of Australia. The global recession originates in China, the United States, the rest of Asia and other advanced economies, with a permanent downward revision in the expected path of productivity in all countries, a fall in housing prices that lasts into the medium term in numerous advanced economies (with consequent wealth effects), and short-term increases in the cost of corporate financing, that persist in the longer term.¹¹ Relative to the baseline, after 4 years, real GDP in the rest of the world is about 6 percent lower. In the short-term, outcomes are exacerbated by higher costs of investment, despite monetary policy easing. Consumption falls rapidly because of the housing price adjustment. Global commodity demand permanently suffers, so that commodity prices fall by 10 percent. Because of the productivity shock, real exchange rates generally appreciate against Australia and countries less affected by the recession.¹²

49. There are notable spillovers to Australia (Figure 9). First, there is the direct trade channel which depresses Australian exports. Second, the commodities channel depresses commodity exports. This also leads a depreciation of the real effective exchange rate (REER), which increases the costs of imports, although does help exports somewhat. Third, lower productivity globally spillovers over to Australia, as it imports technology gains from abroad (Franco and others, 2011). The specific numbers are reliant on to some degree on the calibration of the Commonwealth fiscal toolkit. Generally, real GDP is 3.0 percent lower in the short term, and 2.2 to 2.3 percent lower in the long term.

50. Australia’s outcomes from the downside scenario are presented under both the current and alternative fiscal policy toolkits. The alternative calibration has smaller impacts on

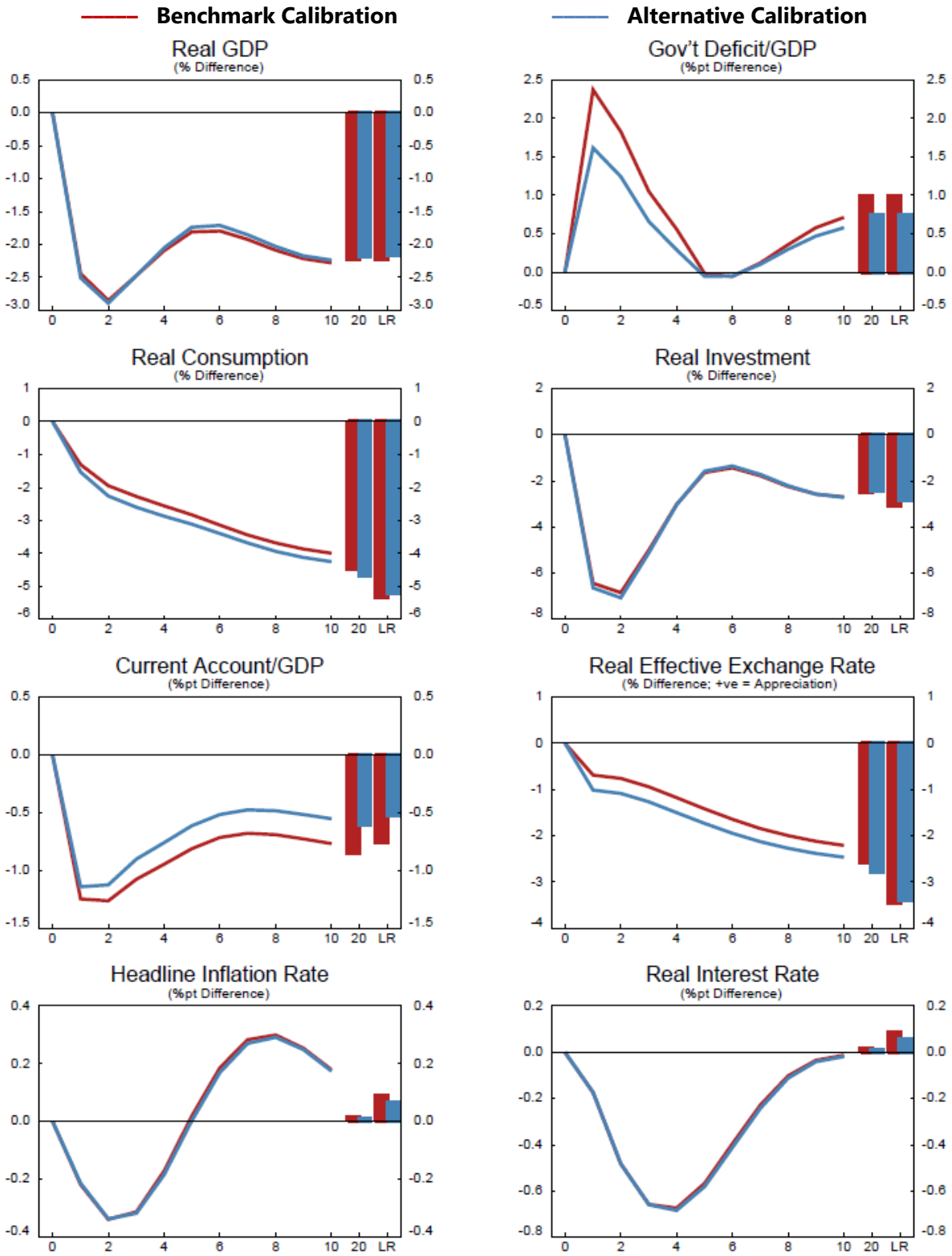
¹⁰ See Annex II for more on the calibration of the model.

¹¹ See Annex III for more technical details on the shocks used.

¹² See Annex IV for more on the outcomes of the recession outside of Australia.

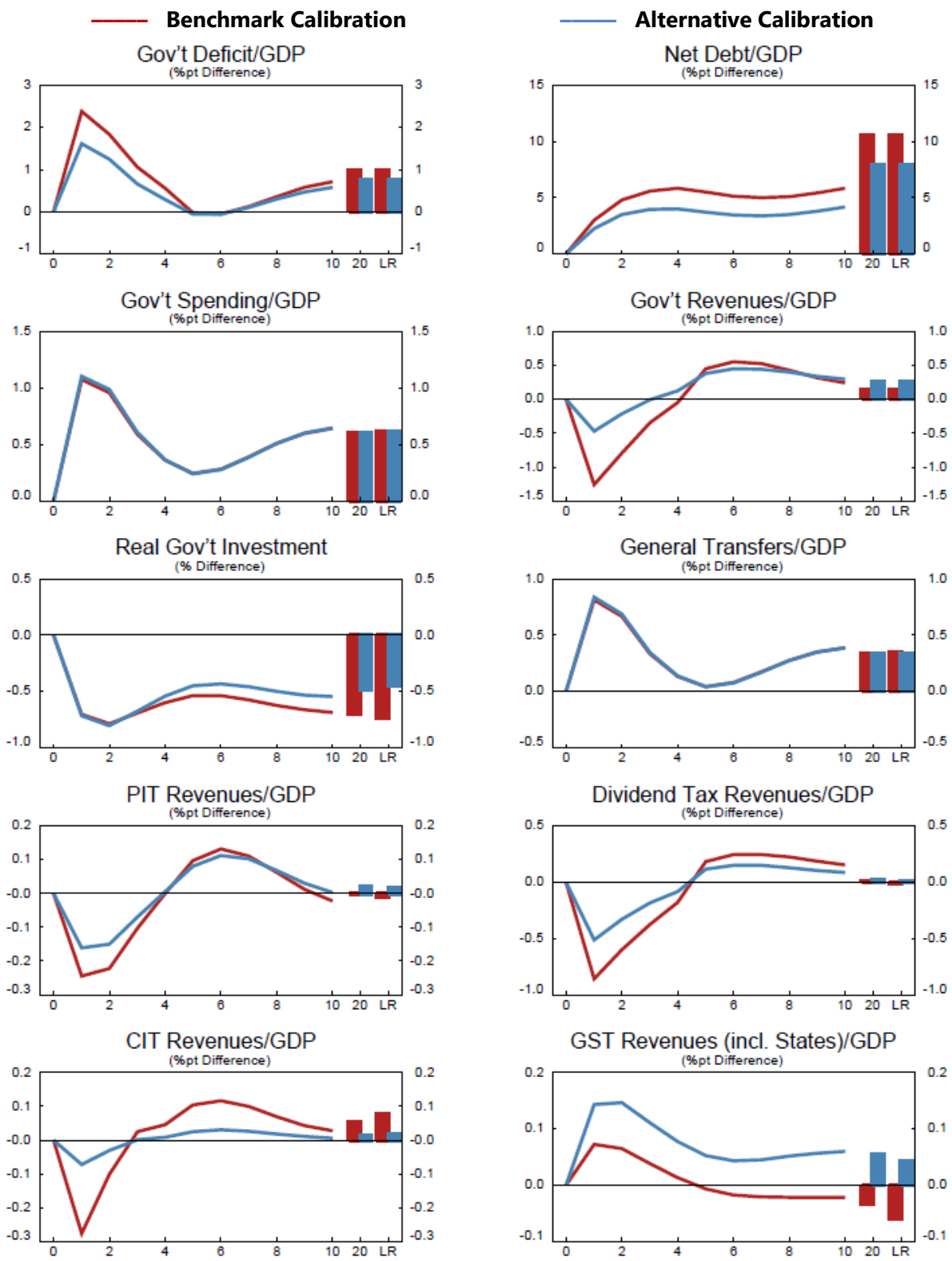
Figure 9. Downside Scenario – Economic Impact in Australia

(Deviations from baseline scenario)



Source: IMF staff calculations.

Figure 10. Downside Scenario – Fiscal Impact on the Commonwealth Government
(Deviations from baseline scenario)



Source: IMF staff calculations.

the Commonwealth’s fiscal outcomes (Figure 10). revenues fall by only 0.5 percent of GDP instead of 1.2 percent of GDP, as the collection of PIT and GST are more stable relative to GDP. The stronger revenues from the broad GST tax base also extend to the State level, as only about 30 percent of GDP revenues go the Commonwealth. Moreover, with the emphasis on indirect taxes, as the economy contracts, the negative multiplier effects from taxes are lower. The stronger tax position reduces the pressure on the Commonwealth’s deficit by almost 1 percent of GDP, which is expanding because of automatic stabilizers’ role in increasing other spending.

51. The debt-to-GDP ratio deteriorates less under the alternative. This is attributable partly to the better deficit position driven by better tax collection, but also the marginally better real GDP outcome (Figure 9). In addition, the lower CIT rates relative to the benchmark calibration help investment in the long term. Real GDP is also stronger because the Commonwealth defends the downward pressure on government investment.

52. The alternative calibration’s treatment of infrastructure investment has an impact on the economy. While both the benchmark and alternative calibrations both maintain the infrastructure-spending-to-GDP ratio, as GDP is lower, offsetting the yearly depreciation of the infrastructure capital stock is a feature of the alternative calibration only. Since infrastructure is productivity-enhancing, maintaining the stock allows for stronger economic growth than under the benchmark calibration. However, the effect is smaller than it could be in other countries, simply because the Commonwealth only accounts for a portion of the stock, the rest being at the State level.

53. There are trade-offs between the benchmark and alternative calibrations. While the alternative calibration delivers a stronger fiscal position for the Commonwealth, it does so by

Table 5. Australia: Short-Term Multipliers

Fiscal Instrument	Multiplier 1/
Increased government investment	0.98
Increased government consumption	0.81
Increased transfers to liquidity-constrained households	0.39
Cut in GST	0.29
Cut in CIT	0.25
Cut in PIT	0.19
Increased transfers to all households	0.11

1/ Multipliers are under the alternative toolkit. They are the average 2-year response of real GDP to a 2-year, 1 percent of GDP change in the relevant fiscal instrument.
Source: IMF staff calculations using ANZIMF

delivering higher taxes than it would otherwise. While real GDP does slightly better under the alternative calibration in the long term (0.2 percentage points) in the short term, it is not substantial. In fact, consumption does slightly worse, hit by higher-than-benchmark levels of PIT and GST.

54. Under the alternative calibration, the stronger fiscal position helps protect the Commonwealth’s fiscal space. This affords the government a better opportunity to undertake explicit stimulus against the recession. Such stimulus could also offset the loss to consumption resulting from using the alternative fiscal toolkit. Fiscal stimulus could be done through fiscal instruments that would provide the greatest return, such as further infrastructure spending, or a general temporary increase in discretionary spending. In the context of the ANZIMF, the greatest return would

come from spending measures, then transfers to liquidity-constrained households, followed by cuts to GST, CIT or PIT, and finally transfers to all households (Table 5).¹³

55. Implementing the alternative calibration would require the restatement of one policy element, and legislative changes. There would be a more specific statement of the policy element related to government investment. The tax reform, by helping to reduce cyclical variability of taxes, could also allow the Commonwealth to return to a more general specification of the policy element related to taxation without a specific numeric component. The tax reform would be contingent on agreement with the State level through the Council of Australian Governments (COAG) on the redefinition of the tax base for the GST and permitting the Commonwealth to retain a fixed share of the revenues.

F. Conclusions

56. Australia's fiscal framework has relied on a medium-term fiscal strategy (MTFS) as a fiscal anchor since the inception of the *Charter of Budget Honesty* in 1998. The *Charter* lays out the need for an MTFS and associates it with an accountability framework. The MTFS usually expects the Commonwealth to either maintain or achieve economic surpluses on average, over the course of the economic cycle. The MTFS is supported by 3 to 4 policy elements (many in place in some form since before the GFC) guided by the *Charter's* "Principles of Sound Fiscal Management."

57. The operational principles of the MTFS have been consistent with the broad principles for sound fiscal policy laid out in the *Charter*, although implementation has involved difficult trade-offs. These difficulties stem primarily from the economy being now subject to larger shocks, starting with the GFC and then the end of the terms-of-trade boom. Therefore, the deficit may no longer be in a state of near-balance for the extended periods, as seen in the late 1990s and early 2000s. Debt may be subject to larger swings, putting the principle of low medium-term debt more risk than before. Parts of the fiscal toolkit may react too heavily to the economic cycle, causing larger variability in the economic cycle.

58. Australia's fiscal framework and the MTFS could be strengthened by considering three areas of reform. Such reforms would help in adjusting to the changes in the macroeconomic environment relative to the time when the *Charter* was introduced.

- ***The introduction of a more explicit link between debt and budget balance objectives***, to mitigate the drift in the public debt that is likely to occur in an economic environment in which macroeconomic policies might be constrained by the lower effective bound on policy interest rates more often than they have been in the past. Discretionary spending may need to play more of a role in macroeconomic stabilization, and a more explicit link would recognize the implications for debt and related principles in the *Charter*.

¹³ This is consistent with the broader literature on fiscal multipliers. For a broad survey of economic policy models, see Coenen and others (2012). For more practical considerations, see Spilimbergo and others (2009).

- **Add to the accountability framework**, to further encourage transparency and public debate, to hold governments even more to account. Possibilities include a Budget Policy Statement, formally legislate the MTFS, and give PBO the role to regularly and systematically review fiscal outcomes relative to the MTFS.
- **Reduce the variability of the fiscal policy toolkit**, by using less distortionary taxes (indirect versus direct) in the least distortionary manner (a broader GST base) while protecting productive infrastructure spending. The illustrative alternative toolkit considered helps better preserve fiscal space and provide greater flexibility in face of large shocks. However, this option also has costs in terms of economic outcomes, so is appropriate only if the economic environment is indeed more volatile than in the past.

59. Overall, the *Charter* and the MTFS with its policy elements have been a workable fiscal framework for the Commonwealth, although it could be reinforced with some augmentations.

Options to deal with the treatment of debt, its accountability framework and its fiscal policy toolkit should help strengthen the statement and implementation of Australia's fiscal strategy and reinforce its fiscal framework in the current and prospective economic environment.

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Annex I. ANZIMF—The Australia-New Zealand Integrated Monetary and Fiscal Model

1. ANZIMF is an annual, multi-region, micro-founded general equilibrium model of the global economy. This version comprises five regions – Australia, China, the rest of Asia, the United States, and a bloc of the remaining countries.¹ It is an annual, micro-founded DSGE model with commodity and services sectors and a detailed fiscal sector. It is based on the IMF’s Global Integrated Monetary and Fiscal model (GIMF).² Structurally, each country block is close to identical, but with different key steady-state ratios and behavioral parameters, based on a stylized data set consistent with 2015 and 2016, and some long-term trends, primarily related to asset holdings (Table 1).

Table 1. ANZIMF National Expenditure Accounts Calibration

	Australia	China	Rest of Asia	United States
Share of Global GDP (Percent)	1.7	15.1	14.8	24.4
Domestic Demand (Percent of GDP)				
Household Consumption	58.8	54.5	58.7	62.0
Private Investment	20.0	25.0	21.0	18.2
Government Absorption	21.2	20.5	23.0	19.8
Consumption	17.9	13.5	20.0	16.3
Investment	3.3	7.0	3.0	3.5
Trade (Percent of GDP)				
Non-Commodity Exports	13.8	19.3	26.3	13.7
Non-Commodity Imports	-20.6	-18.0	-25.5	-13.7
Net Commodities	6.9	-1.3	-0.8	0.0
Key Parameters				
Percent share of LIQ households	25	25	40	25
Fiscal output semi-elasticity	0.54	0.25	0.33	0.50

Sources: IMF staff calculations; IMF’s World Economic Outlook and Direction of Trade Statistics Databases; U.N. Comtrade; OECD.Stat National Accounts Database.

2. Consumption dynamics are driven by saving households and liquidity-constrained (LIQ) households. Saving households face a consumption-leisure choice, based on the overlapping generations (OLG) model of Blanchard (1985), Weil (1989) and Yaari (1962) where households treat government bonds as wealth since there is a chance that the associated tax liabilities will fall due beyond their expected lifetimes, making the model non-

Ricardian and endogenizing the long-term determination of the real global interest rate to equilibrate global savings and investment. The real exchange rate serves to adjust each country’s saving position (its current account and associated stock of net foreign assets) relative to the global pool. LIQ households cannot save, consuming all their income each period, amplifying the model’s non-Ricardian properties in the short term.

¹ The rest of Asia includes the advanced economies Hong Kong SAR, Japan, the Republic of Korea, New Zealand, Singapore and Taiwan Province of China; the emerging economies Bangladesh, Cambodia, India, Indonesia, Lao PDR, Malaysia, Mongolia, Myanmar, Nepal, the Philippines, Sri Lanka, Thailand, Vietnam; and other smaller Asian and Pacific island states. The remaining countries bloc includes the rest of the world but is dominated by the European Union, and the other non-Asian G-20 countries.

² See Kumhof and others (2010) and Anderson and others (2013), which are also applicable for ANZIMF.

- 3. Private investment relies on the Bernanke-Gertler-Gilchrist (1999) financial accelerator.** Investment cumulates to the private capital stock for tradable and nontradable firms, which is chosen by firms to maximize their profits, with a standard inverse relationship between the capital-output ratio and the cost of capital. Firms are costly for investors to monitor and are perceived as riskier as financial conditions (or the economy, more generally) worsen, leading to endogenously determined corporate risk premia.
- 4. Government absorption consists of exogenously determined spending on consumption goods and infrastructure investment.** Both affect the level of aggregate demand. In addition, spending on infrastructure cumulates into an infrastructure capital stock (subject to constant but low rate of depreciation). A permanent increase in the infrastructure capital stock permanently raises the economy-wide level of productivity. The fiscal sector and fiscal policy is discussed further below.
- 5. The nominal side of the economy depends on implicit Phillips' curves and monetary policy.** The core price is the consumer price index, CPI, while relative prices mimic the structure of the national expenditure accounts. There is also wage inflation, which is implicitly a key driver for CPI inflation. In the short term, the nominal side of the economy is linked to the real side through monetary policy, which is usually an inflation forecast targeting regime that uses an interest rate reaction function reliant on expected inflation. As interest rate effects work their way through the transmission mechanism, inflation moves back to its target level within several years.
- 6. Trade is tracked bilaterally between all regions.** The flows react to demand, supply and pricing (i.e. the terms of trade and bilateral real exchange rates) conditions. There are flows for non-commodity goods and services, and commodities. Commodities trade, and its related demand and supply equations, are based on coal and metals (especially iron ore). Non-commodities trade is further broken into final goods (consumption and investment), consumption services, and intermediate goods.
- 7. Relative to standard versions of GIMF, there are sectors for commodities and for services.** The data definition for commodities is relatively narrow, covering only coal, iron ore, and other minerals. Services is restricted to tourism (mostly travel, accommodation, and food services) and education (mostly travel and correspondence courses). Commodities have a global market and global prices, and net trade among countries. Services are produced from tradable and nontradable goods, are a part of consumption, with relatively inelastic demand vis-à-vis consumption goods, are traded on a bilateral basis, and have prices that are enter directly into the CPI basket.
- 8. Relative to standard versions of GIMF, this model also contains a detailed fiscal sector.** It has nine tax instruments – personal income tax (PIT), dividend income tax, corporate (or company) income tax (CIT), goods and services tax (GST; also known as value-added tax, VAT), payroll tax, property tax, other lumpsum taxes, and social security taxes on households and firms. And there are four spending instruments – government consumption, infrastructure investment, general lumpsum transfers (such as pensions, unemployment insurance) and lumpsum transfers targeted to LIQ households (such as welfare).

9. Fiscal policy aims to maintain a debt target. It is expressed as a deficit target, in flow space, and uses at least one of the available fiscal policy instruments to reconcile the government budget constraint with that target. In addition, the deficit also varies cyclically because of automatic stabilizers such as unemployment insurance or welfare, based on the parameterization in Price and others (2015). The OECD simple average semi-elasticity is such that a 1 percent increase in the output gap generates a 0.50 percent fall in the deficit; for Australia the semi-elasticity is 0.54.

Table 2. Australia’s Fiscal Sector Calibration in ANZIMF

Percent of GDP	General	Commonwealth	State 1/
Deficit	1.0	0.9	0.1
Net Debt	19.0	18.0	1.0
Revenues	40.0	21.2	18.8
General Sales Tax (GST) 2/	3.6	...	3.6
Excise Taxes	2.2	1.3	0.9
Company Tax (CIT)	5.4	5.4	...
Personal Income Tax (PIT)	11.1	11.1	...
Dividend Income Tax	0.6	0.6	...
Payroll Tax	1.4	...	1.4
Property Tax 3/	3.0	...	3.0
Royalties	1.9	...	1.9
Revenue Transfer to States 4/	3.1	...	3.1
Other (modelled as lumpsum)	7.7	2.8	4.9
Expenditures	39.1	22.1	17.0
Consumption	17.9	7.9	10.0
Gross Infrastructure Investment	3.3	0.7	2.6
Lumpsum Transfers	13.8	9.5	4.3
Debt interest payments	1.0	0.9	0.1
Revenue Transfer to States 4/	3.1	3.1	...

1/ "State" level includes state, territorial and local governments.
 2/ GST revenue is collected directly by the State level in ANZIMF; in practice, it is collected by the Commonwealth and then passed on to the State level.
 3/ Includes land taxes and stamp duties.
 4/ Excludes GST revenues (or "GST entitlement").
 Sources: IMF staff calculations; ABS; Commonwealth of Australia FY2018/19 budget; FY2018/19 budgets for the States.

10. ANZIMF has distinct governments at the Commonwealth and State levels for Australia. The State government is an amalgam of all the state and territorial governments, along with the local government sector. Table 2 indicates how the instruments are calibrated and allocated between the two layers of government. There is an additional instrument, the transfer of revenues from the Commonwealth to the State level. Both levels have government debt (and a target) and independent budget constraints.

11. ANZIMF accounts for some Australian tax features that are uncommon internationally. There is a more complete treatment of the taxation of corporate income throughout both company and

dividend taxation. Firms pay CIT and issue dividends. Households notionally pay their marginal tax rate on dividend income as part of their payment of PIT (along with taxes on their wage income). In Australia, households are rebated the tax amount already paid by firms as CIT – the dividends are “franked.” Dividend income tax revenues to GDP are calibrated using the assumption that 90 percent of dividends are franked (Hathaway 2010), so that dividend income will be 11 percent of the size of corporate income tax revenues, or 0.6 percent of GDP.

12. The exclusive State-level taxes have simple representations. The payroll tax is an average percentage share of firms’ labor demand costs. The property tax (stamp duty; conveyance tax) is assumed to change at twice the speed of the output gap. Neither plays a large role in this paper.

Annex II. Alternative Calibration of Australia's Fiscal Block

Table 1. Australia's Fiscal Sector Calibrations Under the Risk Scenario

Percent of GDP	Benchmark	Alternative
Deficit	0.9	0.9
Net Debt	18.0	18.0
Revenues	21.2	21.2
General Sales Tax (GST)	...	2.0
Excise Taxes	1.3	1.3
Company Tax (CIT)	5.4	4.4
Personal Income Tax (PIT)	11.1	9.1
Dividend Income Tax	0.6	1.6
Other (modelled as lumpsum)	2.8	2.8
Expenditures	22.1	22.1
Consumption	7.9	7.9
Gross Infrastructure Investment	0.7	0.7
Lumpsum Transfers	9.5	9.5
Debt interest payments	0.9	0.9
Revenue Transfer to States 1/	3.1	3.1
Key Features		
GST base as a percent of consumption	50	100
Inflation elasticity of the PIT rate	0.5	0.2

1/ Excludes GST revenues (or "GST entitlement").

Sources: IMF staff calculations; ABS; Commonwealth of Australia FY2018/19 budget; FY2018/19 budgets for the States.

1. The downside scenario is analyzed for Australia using the benchmark and an alternative calibration.

The benchmark fiscal sector calibration for both the Commonwealth and State levels is partially presented above in Table 2, Annex I. and here for Commonwealth only, where all the changes are, along with the alternative in Table 1.

2. A key feature of the alternative calibration is the change in tax structure.

GST is introduced at the Commonwealth level, in order to collect 2 percent of GDP in revenues. It offset by equal decreases of 1 percent of GDP for firms and households. Firms receive a reduction of 1 percent of GDP taxes through a lower CIT rate. Household taxation then becomes more complex, as the reduction in CIT becomes a 1 percent of GDP increase in dividend income taxes for

households from unfranked dividends. Therefore, PIT must be lowered to generate a decrease in tax revenues by 2.0% of GDP.¹ It is assumed that the lowering of revenues of the 1.0 percent of GDP associated with dividend taxation accrues only to OLG households, as LIQ households do not hold dividends. In this case, an opportunity to make the PIT system more progressive is foregone.

¹ This consistent with behavior modelled for Australia in Cao and others (2015).

Annex III. Key Assumptions Underlying the Downside Scenario

A. Key Model Assumptions for ANZIMF

1. All agents in the model (including households, firms and the fiscal and monetary authorities) have perfect foresight.
2. The model has non-linearities in the financial accelerator, and potential for non-linearities in the conduct of monetary policy by either encountering the zero-interest-rate floor or using monetary accommodation (features not used here). Otherwise, the model is approximately linear for small enough shocks.
3. All countries in ANZIMF have the same economic structures, differing only through their parameterization and calibration.
4. The benchmark calibration of ANZIMF is based on parameter values consistent with 2015 for the great ratios to GDP such the capital stock, government debt and deficit, net foreign assets and current account, and national accounts aggregates as well as trade flows, 2015 and 2016 for services data, 2018 for fiscal data
5. The real exchange rate is a “jumper,” adjusting immediately in the first year to shocks, since it follows the standard forward-looking, risk-adjusted uncovered interest rate parity condition which equates the forward sum of Australia-international interest rate differentials with the one-year in the exchange rate. However, there is no financial friction in the equation required to bring the net foreign asset position to its steady state, as the net foreign asset position and its dynamics solve endogenously as part of the OLG framework.
6. There are no substantial financial market channels. ANZIMF only has a financial accelerator (albeit using the full general equilibrium form with non-linearities) and assumes complete domestic ownership of firms. All net foreign asset positions are denominated in U.S. dollars, in all countries. Some financial channels could be mimicked by correlated, exogenously-specified shocks.
7. The model is at an annual frequency, so degree of detail for some of the economy’s dynamics are lost, particularly in the first year for investment.

B. Shocks and their Assumptions for the Downside Scenario

The scenario is composed of three separate shocks. They occur in different and a varying number of regional blocks.

1. **Lower productivity.** Occurs in all regions outside of Australia, with negative productivity spillover effects to Australia. Permanent reduction in tradables and nontradables productivity of 5 percent. Phased in as -2 percentage points on productivity growth in years 1 and 2, and -1 percentage point on growth in year 3. There is a shock to Australia that is 1/3 the size of the global shock because of productivity spillovers, based on Franco and others (2011) as applied to the IMF’s G20mod.

2. **Lower housing wealth.** Occurs in the United States, the advanced economies (75 percent of the remaining countries block), and Australia. 10 percent decline on impact in year 1 in nontradable sector net worth, to proxy for the permanent fall in the value of the housing stock.
3. **Increased corporate risk premia.** Occurs in all regions, including Australia. Five-year increase in the corporate risk premia for both tradable- and nontradable-producing firms. 2 percentage points on impact in year 1; 1 percentage point thereafter.

In this scenario, the level of the Australian debt is allowed to drift for the first 40 years.

Australia's debt-to-GDP ratio will only stabilize once all the shocks have played out in the economy. Therefore, transfers move in response to automatic stabilizers only; they are not being used to stabilize the debt-to-GDP ratio, which is the default fiscal rule in ANZIMF. The other four regional blocks in ANZIMF (China, United States, rest of Asia, and the remaining countries block) still use that default fiscal rule.

Annex IV. Effects of the Downside Scenario Outside of Australia

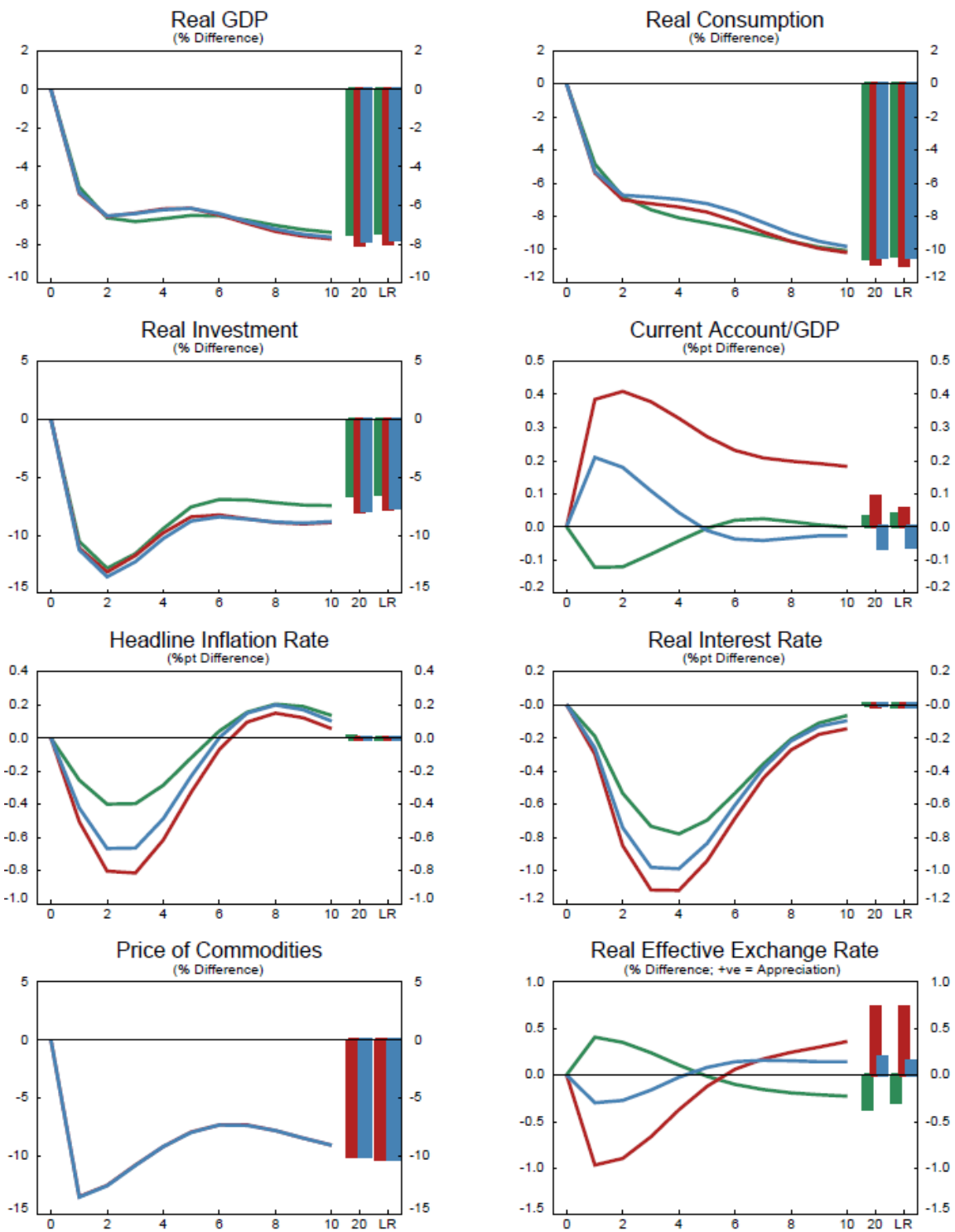
The downside scenario leads to a substantial recession outside of Australia (Figure 1). Real GDP contracts up to 6.5 percent by the second year on average across the economies, relative to the baseline scenario. Impacts on the United States are reflective of the advanced economies' outcomes in general. Investment declines more strongly, from both negative demand effects and lower productivity of capital, being roughly 12 to 14 percent lower by the end of year 2. Commodity demand also contracts, especially in China. Because of the effects on consumption, inflation is between 0.3 percent and 0.8 percent lower globally by year 3, which would be worse if not for the monetary policy offset of lower real interest rates between 0.7 and 1.1 percentage points by the third year. The scenario also assumes that the only fiscal policy response are the standard automatic stabilizers, which is possible at this juncture, as few countries have substantial fiscal space.¹

¹ See Table 1, Annex I for the calibration of the semi-elasticities of output for the automatic stabilizers in the different regions, based on Price and others (2015).

Figure 1. Downside Scenario – Impact Outside of Australia

(Deviations from baseline scenario)

— United States — China — Rest of Asia



Source: IMF staff calculations.