OECD Economics Department Working Papers No. 818

Fiscal-Consolidation Strategies for Canadian Governments

Yvan Guillemette

https://dx.doi.org/10.1787/5km36j7nc2g4-en

OECD

Unclassified **ECO/WKP(2010)74**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development **06-Dec-2010**

English - Or. English

ECONOMICS DEPARTMENT

ECO/WKP(2010)74
Unclassified

FISCAL-CONSOLIDATION STRATEGIES FOR CANADIAN GOVERNMENT

ECONOMICS DEPARTMENT WORKING PAPER No. 818

By
Yvan Guillemette

All OECD Economics Department Working Papers are available on the OECD Intranet website at www.oecd.org/eco/workingpapers

JT03293999

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format

English - Or. English

ABSTRACT/RESUME

Fiscal-consolidation strategies for Canadian governments

Although Canada remains in an advantageous fiscal position relative to many other OECD countries as the global economy recovers from the 2008/09 recession, the deterioration in the country's public finances has been substantial. Years of spending increases above trend economic growth have led to high structural levels of expenditure, and some Canadian governments are now on unsustainable fiscal paths, a diagnosis made starker when taking an even longer-term view that considers the fiscal implications of demographic change. Evidence shows that successful fiscal consolidations tend to rely on spending restraint rather than tax increases. When focused on restraining less productive expenditure, they can also boost economic growth. Fiscal rules can be useful tools in achieving budgetary consolidation, but also as part of the general fiscal framework to limit deficit bias and counteract the tendency shown by some Canadian governments over the past two decades to run pro-cyclical fiscal policies. Canadian governments with large deficits should announce deficit targets on the way to fiscal balance and should consider supporting these targets with spending growth limits. Other governments should also limit spending growth and target reductions in debt-to-GDP ratios, perhaps supported by budget surplus targets. Temporary fiscal stimulus measures should be allowed to expire as planned. To date, the federal and almost all provincial/territorial governments have committed to return to budget balance over the medium term and outlined plans to do so that focus primarily on expenditure restraint. These plans are broadly in line with the recommendations set forth in this paper and should allow Canada to return to budget balance over the medium term. Of crucial importance for the long-term success of fiscal-consolidation and debt-reduction strategies are public backing and transparency. The federal government should continue to support the Parliamentary Budget Office, and provinces should consider establishing similar independent fiscal agencies that can assess compliance relative to objectives and reinforce accountability. This Working Paper relates to the 2010 *OECD Economic Review of Canada* (www.oecd.org/eco/surveys/Canada).

JEL classification codes: E62; H68; H77
Keywords: Canada; federal; provincial; budget; fiscal; deficit; debt; consolidation

****

Stratégies d'assainissement budgétaire pour les administrations canadiennes

Bien que la situation budgétaire du Canada demeure plus favorable que celle de beaucoup d'autres pays de l'OCDE au moment où l'économie mondiale se remet de la récession de 2008/09, ses finances publiques se sont sérieusement détériorées. Les dépenses ayant progressé pendant des années à un rythme supérieur à la croissance économique tendancielle, les dépenses structurelles atteignent aujourd'hui un niveau élevé et la trajectoire budgétaire prévisible de certaines administrations canadiennes n'est pas viable, en particulier si l'on se place dans une perspective à long terme tenant compte des conséquences budgétaires de l'évolution démographique. L'expérience nous apprend que les stratégies d'assainissement budgétaire les plus efficaces reposent sur des restrictions de dépenses plutôt que sur des augmentations d'impôts. Lorsqu'elles visent à restreindre les dépenses les moins productives, ces stratégies peuvent aussi stimuler la croissance économique. Des règles budgétaires peuvent non seulement être utiles pour assainir les finances publiques,

mais aussi se révéler précieuses dans le cadre des mécanismes budgétaires généraux conçus pour limiter la dérive des déficits et contrecarrer la tendance à mener une politique budgétaire procyclique, observée dans certaines administrations canadiennes au cours des deux dernières décennies. Les administrations dont les finances sont très déficitaires devraient annoncer des objectifs de réduction du déficit dans la perspective d'un retour à l'équilibre budgétaire et envisager parallèlement de plafonner les augmentations de dépenses. Les autres administrations devraient aussi limiter l'augmentation de leurs dépenses et s'efforcer de réduire leur endettement en proportion du PIB, éventuellement en se fixant des objectifs d'excédent budgétaire. Les mesures temporaires de relance budgétaire devront venir à expiration dans les délais prévus. À ce jour, l'administration fédérale et presque toutes les administrations provinciales/territoriales se sont engagées à rétablir l'équilibre budgétaire à moyen terme, et pour ce faire elles ont défini des plans qui mettent l'accent sur le freinage des dépenses. Ces programmes s'accordent globalement avec les recommandations formulées dans la présente étude et devraient permettre au Canada de revenir à l'équilibre budgétaire dans le moyen terme. La mobilisation de l'opinion publique et la transparence revêtent une importance primordiale pour le succès des stratégies d'assainissement des finances publiques et de désendettement. L'administration fédérale devrait continuer d'appuyer l'action du Bureau du Directeur parlementaire du budget, tandis que les provinces devraient envisager de mettre en place des organismes budgétaires indépendants du même type pour jauger le degré de réalisation des objectifs et assurer une plus grande transparence. Ce Document de travail se rapporte à l'*Étude économique de l'OCDE du Canada 2010* (www.oecd.org/eco/etudes/Canada).

Classification JEL : E62 ; H68 ; H77
Mots clefs : Canada ; fédéral ; provincial ; budget ; fiscal ; déficit ; dette ; consolidation

Copyright © OECD, 2010. All rights reserved. Application for permission to reproduce or translate all, or part of, this material should be made to: Head of Publications Service, OECD, 2 rue André-Pascal, 75775 PARIS CEDEX 16, France.

Table of contents

Fiscal-consolidation strategies for Canadian governments 7

Most Canadian governments need fiscal consolidation, soon, ideally through spending restraint 7
The recent reversal in fiscal positions has been substantial 7
Baseline projections for the next decade show that the recent fiscal path is unsustainable 9
Implicit demographic liabilities beyond 2020 add to the urgency of consolidation 13
Fiscal consolidation should occur soon and mainly through spending restraint 13
The 1990s federal government fiscal-consolidation experience points the way forward 15
Deriving jurisdiction-specific fiscal-consolidation recommendations 17
Fiscal targets should depend on the need and capacity for fiscal consolidation 18
How much spending restraint would be necessary to meet these objectives? 20
Curbing federal transfers to provinces would make provincial fiscal consolidation significantly tougher 23
To curb spending growth, start with withdrawing fiscal stimulus and restrain public sector wage growth 24
If new revenue-raising measures cannot be avoided, start with broadening tax bases and green levies 27
Discussion by jurisdiction 28
Consolidation plans announced to date are broadly consistent with these recommendations 36
Well-designed fiscal rules can help fiscal consolidation and strengthen fiscal frameworks 36
Fiscal rules help counteract perverse government incentives 36
The design of fiscal rules matters 37
Conclusions and recommendations 38

Annex A1 **Summary description of the medium-term fiscal simulation model** 43

Boxes

1. The undesirable economic effects of rising debt 11
2. Fiscal consolidation: Spending restraint or revenue enhancement? 14
3. Criteria for evaluating a fiscal rule 37
4. Fiscal policy recommendations 38

Tables

1. Federal and provincial/territorial fiscal situations and projections 10
2. Current fiscal positions and fiscal sustainability assessment in the baseline scenario 12
3. Demographically driven implicit assets and liabilities 13
4. Suggested fiscal-consolidation objectives and consistent fiscal balance targets 19
5. Spending restraint necessary to achieve fiscal-consolidation targets 21
6. Probabilities of provinces meeting their fiscal-consolidation targets 24
A1.1. Short- and medium-term fiscal assumption in the baseline scenario 47

Figures

1. Fiscal indicators 8
2. Projected fiscal balances in 2010 9
3. Interest-rate spreads of federal-government debt 15
4. Mean net lending in stochastic approach under baseline and consolidation scenarios 22
4. Mean net lending in stochastic approach under baseline and consolidation scenarios 23
5. Average weekly earnings by province 25
5. Average weekly earnings by province 26
6. Intensity of use of tax expenditures 28
7. Federal programme spending 29

Fiscal-consolidation strategies for Canadian governments

By Yvan Guillemette[1]

In view of the significant deterioration in the fiscal positions of virtually every OECD country, including Canada, the need for credible fiscal-consolidation plans has mounted. This paper examines the sustainability of current fiscal positions, projecting their likely evolution over the medium term, and studies fiscal-consolidation strategies under various economic scenarios. These exercises serve as the basis for jurisdiction-specific recommendations on fiscal-consolidation paths to 2020. Already, the federal government, along with almost all provincial and territorial governments, have committed to return to budget balance over the medium term and have begun to elaborate specific plans to meet their commitments. These plans focus primarily on expenditure restraint, including limits to public sector wage growth. No doubt they will firm up and be adjusted as uncertainties surrounding the post-crisis economic setting dissipate. They are broadly in line with the recommendations set forth in this paper and should allow Canada to return to budget balance over the medium term. The paper also discusses the conduct of fiscal policy across the country in recent years and how it could be improved, notably through the use of new or improved fiscal rules.

Most Canadian governments need fiscal consolidation, soon, ideally through spending restraint

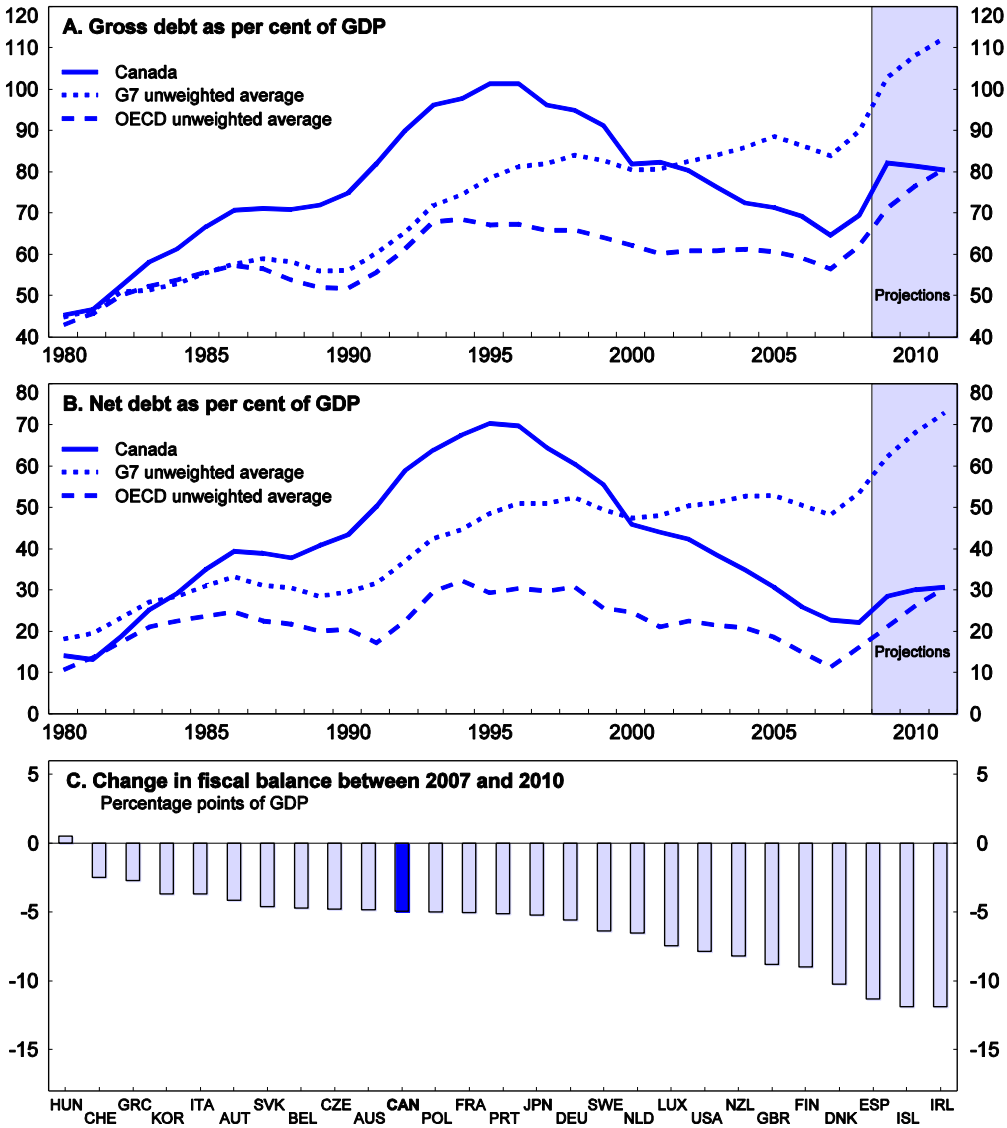
The recent reversal in fiscal positions has been substantial

Before the recent global economic crisis, Canada had a total government surplus and the lowest net debt-to-GDP ratio among G7 countries, thanks in part to an important fiscal-consolidation effort in the mid-1990s at the federal level and to structural reforms to public pension plans during the same period. These reforms brought Canada's gross and net debt-to-GDP ratios from levels much higher than G7 and OECD averages in 1995 to, respectively, below G7 averages and closer to OECD averages in 2008 (Figure 1, Panels A and B). Entering the crisis with a relatively large budgetary margin for manoeuvre, the fiscal authorities implemented measures to support the economy during the recession. Now, in the aftermath of the crisis, and of Canada's first significant recession since the early 1990s, the cyclical decline in tax revenue and the concurrent extraordinary spending measures have provoked a sharp turnaround in the country's fiscal situation, from a total government surplus of 1.6% of GDP in 2007 to a deficit of 5.1% in 2009 and an expected deficit of 3.4% in 2010 (Figure 1, Panel C). Despite a substantial fiscal stimulus, the size of this turnaround is about average compared to other OECD countries, thanks to a relatively shallow recession. Together with a better starting point, this average turnaround means that Canada is

1. Economist in the OECD Economics Department. This paper was originally produced for the *OECD Economic Survey of Canada*, published in September 2010 under the authority of the Economic and Development Review Committee. The author is thankful to Alexandra Bibbee, Andrew Dean, Robert Ford and Peter Jarrett and for their valuable comments on previous drafts. Special thanks go to Françoise Correia for statistical assistance and to Mee-Lan Frank for editorial support.

expected to come out of the cyclical downturn with still the lowest net debt-to-GDP ratio in the G7, and one of the strongest fiscal balances among OECD countries.

Figure 1. **Fiscal indicators**

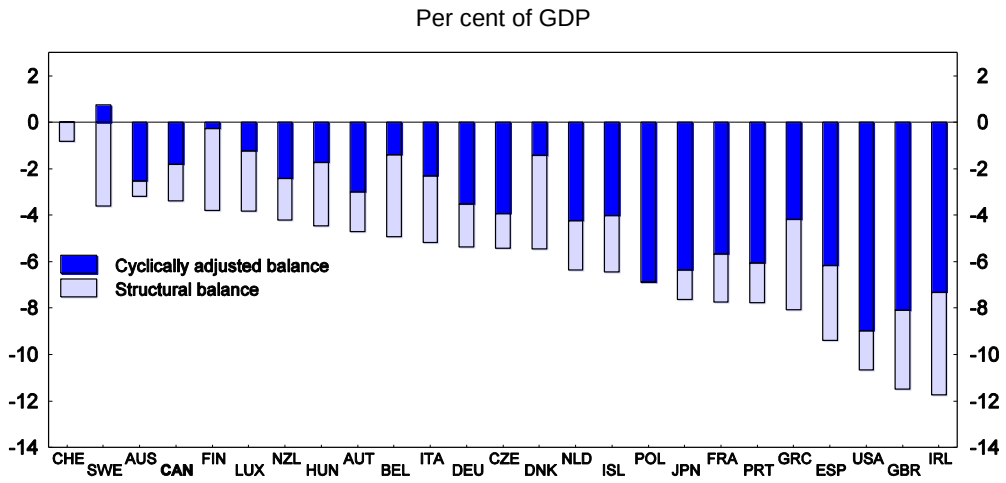


Source: OECD, *Economic Outlook 87 database*.

While such international comparisons may be comforting, a medium-term fiscal-consolidation effort is nevertheless necessary. Naturally, if the economic recovery that has started is sustained, government revenue will pick up and spending on automatic fiscal stabilisers will recede. But even if the level of output returns to its pre-crisis trend within a few years, which is doubtful, cyclical effects will not be sufficient to restore a sustainable fiscal position at the total government level. That is partly because of the discretionary fiscal easing of recent years, partly because of the permanent loss in potential output due to the crisis and partly because instead of being saved (*i.e.* used to reduce public debt), some of the cyclical revenue strength associated with the long pre-crisis upswing was used to permanently increase spending and lower

taxes. The result of these developments is a structural deficit, as shown by the projected negative cyclically adjusted fiscal balance in 2010 (Figure 2).[2]

Figure 2. **Projected fiscal balances in 2010**



Source: OECD, *Economic Outlook 87 database*.

While relatively small at the national level, this total government structural deficit hides significant variation at the sub-national level, with some provinces facing large structural deficits and others being in much better condition. Official government projections, on a public accounts basis, show that almost all provinces/territories are expected to be in deficit in 2010, which was not the case only a few years ago (Table 1). The largest province, Ontario, which was particularly hard hit by the crisis because of the importance of its manufacturing sector (autos in particular), is expected to have one of the largest deficits in relation to the size of its economy.

Baseline projections for the next decade show that the recent fiscal path is unsustainable

To determine how much of a fiscal-consolidation effort would be necessary to eliminate the general government deficit, the medium-term baseline projection to 2025 in *OECD Economic Outlook* 87 assumes that, starting in 2012, Canada undertakes five years of fiscal consolidation whereby the underlying primary balance is strengthened by ½ percentage point of GDP in each year. This effort, along with the natural elimination of the cyclical part of the deficit as the economy returns to its potential production level by 2015, is sufficient to generate a positive fiscal balance of 0.3% of GDP in 2016. To carry out a similar assessment for each province/territory and separately for the federal government, and to simulate fiscal outcomes by jurisdiction under a variety of economic scenarios, a new medium-term fiscal simulation model was developed. It is summarised in Annex A1. Using this model, baseline fiscal projections are produced with what can roughly be described as business-as-usual or extrapolation-of-recent-trends assumptions, whereby most non-cyclically sensitive expenditures are assumed to keep growing at their 1997-2007 average growth rates from 2011 on except for extraordinary stimulus outlays on fixed capital (Table A1.1 in Annex A1). Of course, 1997-2007 was a period of generally high GDP and revenue

2. The cyclically adjusted budget balance shows the estimated budget balance if the economy were operating at its potential level. A deficit on this indicator suggests that even when the cyclical downturn is over and the economy has returned to its potential productive level, deficits will continue, *i.e.* that some part of the total deficit is structural.

Table 1. **Federal and provincial/territorial fiscal situations and projections**

	% of Canada real GDP in 2008	Budget balance (CAD million)				Budget balance (% of GDP)[1]				Net debt in 2008/09		Target year for budget balance or surplus
		2008/09	20009/10	2010/11	2011/12	2008/09	20009/10	2010/11	2011/12	CAD million	% of GDP	
Newfoundland and Labrador	1.5	2 434	-295	-194	-157	7.8	-1.3	-0.7	-0.5	7 896	25.2	none
Prince Edward Island	0.3	-41	-84	-55		-0.9	-1.8	-1.1		1 409	30.5	2013/14
Nova Scotia	2.2	20	-489	-222	-370	0.1	-1.4	-0.6	-1.0	12 324	36.0	2013/14
New Brunswick	1.8	-265	-754	-749	-681	-1.0	-2.8	-2.7	-2.3	7 388	27.0	2014/15
Quebec	20.4	0	-4 257	-4 506	-2 900	0.0	-1.4	-1.4	-0.9	128 793	42.6	2013/14
Ontario	40.3	-6 409	-21 330	-19 690	-17 300	-1.1	-3.7	-3.2	-2.7	165 864	28.2	2017/18
Manitoba	3.2	470	-555	-545	-448	0.9	-1.1	-1.0	-0.8	11 498	22.6	2014/15
Saskatchewan	3.1	2 389	425	20	50	3.8	0.7	0.0	0.1	3 848	6.1	n/a
Alberta	14.1	-852	-3 624	-4 748	-1 135	-0.3	-1.4	-1.6	-0.4	-26 769	-9.2	2012/13
British Columbia	12.5	78	-2 775	-1 715	-945	0.0	-1.5	-0.8	-0.4	24 540	12.4	2013/14
Yukon	0.1	1	-23	3	7	0.1	-1.3	0.1	0.3	-151	-7.9	2010/11
Northwest Territories and Nunavut	0.4	-165	-153	35		-2.5	-2.5	0.5		221	3.3	2010/11
Federal government	100.0	-5 755	-46 956	-49 200	-27 600	-0.4	-3.1	-3.0	-1.6	525 213	32.8	none

1. Provincial/territorial GDP used for the provinces and territories and national GDP used for the federal government.

Source: *RBC Economics Provincial Fiscal Tables* (on the basis of Department of Finance Canada *Fiscal Reference Tables*, provincial budgets and public accounts), territorial budgets and OECD calculations. Current as of 31 May 2010.

growth. The average spending growth rates extrapolated from this decade are of course not in line with future spending trends outlined in the latest federal and provincial/territorial budgets. But given that the objective of the simulations is to illustrate the extent to which spending growth must be restrained in the various jurisdictions to achieve fiscal-consolidation objectives, the expenditure growth rates from recent history are the natural benchmarks.[3] The simulation results are compared with the latest plans and projections from governments in the discussion below.

Unfortunately, economic theory does not provide a fiscal sustainability definition that is widely accepted without reservations. Different theoretical definitions and sustainability conditions have been proposed, while in practice, various indicators – not always grounded in economic theory – have been applied.[4] One common condition derived from the government's inter-temporal budget constraint says that fiscal policy is sustainable if the present discounted value of all future primary surpluses is at least equal to the initial value of debt. Sustainability defined in this way is ensured even if the government debt-to-GDP ratio diverges from its initial level, as long as its growth rate is lower than the difference between the real interest rate on government debt (r) and the trend real GDP growth rate (g), in other words, if the debt-to-GDP ratio expands at a pace lower than $r - g$. The condition can be expressed in terms of a target primary balance (pb^*), the long-term primary balance as a ratio of output consistent with stabilising the long-term debt ratio at a given level, say the current level (b_0). A primary gap (pg) can then be defined as the difference between the estimated or projected primary balance (pb) and the target primary balance. If this gap is negative, the debt ratio would be expected to rise without bound, causing deleterious economic effects (Box 1), and fiscal policy can be qualified as unsustainable. This condition is necessary but not sufficient for fiscal sustainability as it allows an arbitrarily large initial debt ratio. It is therefore a weak test of fiscal sustainability.

This weak test is sufficient for the present exercise, because no jurisdiction has a very large net debt-to-GDP ratio. Also, even with this weak test, and using the fiscal simulation model and baseline economic and fiscal assumptions described in Annex A1, primary gaps are estimated to be significantly negative in 2010 in all jurisdictions except the federal level, Nova Scotia, Saskatchewan and British Columbia (Table 2).[5] Both Saskatchewan and British Columbia are projected to have negative

Box 1. **The undesirable economic effects of rising debt**

High deficits and debt may lower the growth rate of GDP, and thus lower the economy's capacity to service a given amount of debt, for two main reasons. The first reason is that deficits lower overall saving. To the extent that households are non-Ricardian – that is, they do not perfectly offset a decline in public saving with higher private saving, for example because of finite planning horizons, a hypothesis supported by empirical evidence (Röhn, 2010) – higher fiscal deficits lead to lower overall saving. The resulting increase in the real interest rate crowds out investment in physical capital and therefore real output. The second reason is the existence of distortionary taxes. In the long run, unless higher debt-service costs crowd out other expenditure in government budgets, servicing a larger stock of public debt that carries a higher real interest rate means that taxes must eventually rise to maintain the same level of programme spending. The disincentive effects of higher taxes reduce the rate of output growth, with the size of the loss depending on the distortionary effects of the fiscal instrument used. Nations typically see growth slow when gross public debt reaches 90% of GDP (Reinhart and Rogoff, 2010). The median growth rate falls by one percentage point and average growth falls even more.

3. An alternative baseline would be to hold the ratio of discretionary expenditure to GDP constant over the projection period, but this approach would for most jurisdictions already imply a significant slowdown in spending growth compared to recent history.

4. For a discussion of various fiscal sustainability definitions and concepts, see Krejdl (2006).

5. The long-term real interest rates used for these calculations are the predicted nominal interest rates in 2020 by jurisdiction (which are based on *OECD Economic Outlook* 87 projections but also depend on projected debt and deficit levels in 2020), minus the assumed long-term inflation rate (2.1%). The trend output growth rate is equal to the average predicted real growth rate of potential output from 2010 to 2020. See Guillemette (2010) for more details.

Table 2. **Current fiscal positions and fiscal sustainability assessment in the baseline scenario**

		NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YT	NT&NU	Federal
Current fiscal positions (% of GDP)														
Total budget balance (net lending)		-6.0	-4.6	0.9	-1.8	-4.9	-3.7	-1.5	1.1	-1.9	-0.9	-7.3	-5.3	-0.9
Cyclically adjusted (% of potential GDP)	2010	-4.9	-4.9	0.8	-1.5	-4.6	-3.0	-1.5	1.7	-0.5	-0.7	-7.8	-4.3	-0.2
Primary budget balance	estimates	-5.1	-3.2	2.5	-1.1	-3.7	-2.7	-1.6	0.6	-3.0	-0.5	-8.2	-4.9	0.3
Cyclically adjusted (% of potential GDP)		-4.1	-3.5	2.4	-0.8	-3.5	-2.1	-1.7	1.2	-1.5	-0.4	-8.7	-4.0	0.9
Government net-debt-to-GDP ratio		30.8	35.4	29.7	24.5	41.9	25.0	23.6	9.4	-10.3	8.1	-2.5	13.8	31.7
Assumptions for fiscal sustainability assessment														
Trend real output growth rate (*g*) (%)	Projected average for 2010-20	1.0	0.8	0.5	0.8	0.6	1.6	1.3	1.5	3.2	1.1	3.0	4.0	1.5
Real interest rate on government debt (*r*) (%)	Projected for 2020	3.4	3.2	2.7	2.8	3.1	3.0	2.9	2.6	2.7	1.8	3.3	3.4	2.8
Target government net debt-to-GDP ratio (b_0)		Stabilise at 2010 level for every jurisdiction												
Fiscal sustainability indicators														
Primary balance required to reach target debt ratio (*pb* *) (% of GDP)		0.7	0.9	0.7	0.5	1.1	0.3	0.4	0.1	0.1	0.1	0.0	-0.1	0.4
	2010	-5.8	-4.1	1.8	-1.6	-4.8	-3.1	-2.0	0.5	-3.1	-0.6	-8.2	-4.8	-0.1
	2011	-4.4	-2.4	2.4	-0.9	-2.5	-2.4	-0.1	0.2	-3.2	0.2	-6.1	-7.2	0.2
	2012	-5.1	-3.2	2.3	-1.2	-2.3	-2.8	-0.4	-0.1	-3.6	0.1	-6.7	-7.5	0.4
	2013	-5.9	-4.0	1.9	-1.5	-3.0	-3.1	-0.9	-0.4	-3.9	-0.1	-7.3	-7.8	0.5
	2014	-6.8	-4.8	1.4	-1.8	-3.7	-3.4	-1.3	-0.7	-4.3	-0.3	-7.9	-8.0	0.6
Primary gap (*pg*) (% of GDP)	2015	-7.8	-5.7	1.0	-2.1	-4.5	-3.8	-1.7	-0.8	-4.5	-0.5	-8.6	-8.2	0.6
	2016	-8.9	-6.4	0.7	-2.4	-5.2	-4.2	-2.2	-1.0	-5.1	-0.6	-9.2	-8.7	0.5
	2017	-10.1	-7.2	0.4	-2.8	-6.0	-4.7	-2.6	-1.3	-5.8	-0.8	-9.7	-9.2	0.4
	2018	-11.4	-8.0	0.1	-3.1	-6.7	-5.2	-3.0	-1.4	-6.4	-1.1	-10.3	-9.7	0.3
	2019	-12.8	-8.8	-0.2	-3.5	-7.6	-5.7	-3.5	-1.8	-7.3	-1.3	-10.8	-10.2	0.2
	2020	-14.3	-9.7	-0.6	-3.9	-8.4	-6.3	-4.0	-2.1	-8.3	-1.6	-11.4	-10.7	0.0

Source: OECD calculations.

primary gaps within a few years, however. Although most jurisdictions are projected to see an improvement in their primary gaps in 2011, when stimulus spending on capital expenditure is assumed to be withdrawn, projected gaps grow again under baseline assumptions as the projection horizon lengthens. Only the federal government and Nova Scotia remain near their target primary balance over the entire projection period.

Implicit demographic liabilities beyond 2020 add to the urgency of consolidation

Even a zero or a small positive primary gap does not necessarily signify that fiscal policy is sustainable without any need for future adjustment. After 2020, government spending as a percentage of GDP is set to increase, and trend growth to decline, as a result of ageing. Maintaining the primary deficit at the sustainable level (pb^*) would then require further adjustments to revenue or expenditure. Implicit demographic liabilities, which take into account health care, education, transfers to the elderly and children's benefits, amount to 172% of GDP for the country as a whole (Robson, 2010) (Table 3). They are particularly large for provinces, as they have the main responsibility for the delivery of health-care services, even more so for the Atlantic Provinces and Quebec, where population ageing is expected to be particularly pronounced (Bélanger, Martel and Caron-Malenfant, 2005). Unfortunately, most provinces already show wide primary gaps, underscoring the urgency of attending to fiscal consolidation. Even for other jurisdictions, significant implicit demographic liabilities call for running budget surpluses and paying down debt over the next decade, thus helping to free up fiscal room, which is equivalent to pre-funding future obligations. For resource-rich Alberta and other provinces with relatively little debt, these liabilities call for building up a net asset position.

Table 3. **Demographically driven implicit assets and liabilities**

CAD billion except as noted

	Health	Education	Elderly benefits	Child/family benefits	All programmes	All programmes as % of (est.) 2010 GDP
Newfoundland and Labrador	-58.9	-2.1	-0.2	0.2	-61.0	-199
Prince Edward Island	-10.9	-0.6	n.a.	n.a.	-11.5	-251
Nova Scotia	-77.3	-5.2	n.a.	0.1	-82.4	-244
New Brunswick	-58.4	-2.5	-0.1	0.1	-60.8	-225
Quebec	-592.0	-83.5	n.a.	n.a.	-675.4	-224
Ontario	-1 006.9	-53.4	-1.1	13.1	-1 048.3	-178
Manitoba	-68.6	-17.0	0.0	0.1	-85.4	-168
Saskatchewan	-53.4	-15.7	0.0	n.a.	-69.1	-109
Alberta	-372.4	-50.2	-1.1	1.4	-422.3	-144
British Columbia	-332.7	-27.6	0.0	0.2	-360.1	-181
Yukon	-5.8	-0.4	n.a.	n.a.	-6.2	-329
Northwest Territories and Nunavut	-19.6	-1.2	n.a.	n.a.	-20.8	-309
Provincial/territorial total	-2 657.0	-259.5	-2.4	15.2	-2 903.6	-181
Federal government	n.a.	14.2	-69.9	198.8	143.2	9
Canada total	**-2 657.0**	**-245.2**	**-72.3**	**214.1**	**-2 760.5**	**-172**

Source: Robson, W.B.P. (2010), "The Glacier Grinds Closer: How Demographics Will Change Canada's Fiscal Landscape", *C.D. Howe Institute e-brief*, No. 106, C.D. Howe Institute, Toronto, www.cdhowe.org/pdf/eBrief_106_Robson.pdf.

Fiscal consolidation should occur soon and mainly through spending restraint

The recent empirical evidence from OECD countries, reviewed in Box 2, quite clearly demonstrates that fiscal consolidation based upon selective spending cuts is more likely to durably reduce deficits and debt ratios than revenue increases. Spending restraint is also less likely to provoke recessions or jeopardise recoveries, and, when anticipated, it can enhance the effectiveness of short-term fiscal stimulus. For these

reasons, the fiscal-consolidation simulations in this paper focus on spending restraint. Furthermore, to the extent that fiscal consolidation based on spending restraint can accelerate an economic expansion, the empirical evidence just reviewed suggests that the reductions in deficits and debt ratios to be simulated below should be considered worst cases, because the model used here does not build in positive effects of fiscal consolidation on the economy.

Box 2. **Fiscal consolidation: Spending restraint or revenue enhancement?**

A number of theoretical and empirical studies suggest that spending restraint, notably with respect to government consumption and transfers, is more likely to generate lasting fiscal consolidation and better economic performance than measures to raise more revenue. For instance, OECD research shows that an emphasis on cutting current expenditure has been associated with larger consolidation results in the past than strategies based on increasing revenue (Guichard *et al.* 2007):

- *The higher the initial primary deficit, the larger was the overall consolidation that was achieved over a consolidation episode*. This finding likely means that jurisdictions facing a bigger fiscal problem are able to garner more public support for their fiscal-consolidation efforts. It underlines the importance of being fully transparent about the size and negative consequences of future deficits, thereby bolstering public support.

- *Large fiscal adjustments are associated with restraint in primary current expenditures (public consumption and social transfers)*. This finding argues for concentrating fiscal-consolidation efforts on reducing the growth of public consumption and transfers, rather than of other types of expenditure (*e.g.* capital expenditure) or on tax increases.

- *The probability of a consolidation period lasting longer was higher if it was initiated at the time of a large negative output gap*. This finding argues for not waiting for normal economic conditions before beginning fiscal consolidation. Like the first finding, it suggests that it is easier to convince the public of the necessity of acting before the fiscal balance starts partially recovering on its own during the cyclical upturn. Furthermore, it supports the idea of pre-emptive adjustment; that is, of minimising the risk that financial markets will eventually force a hesitant government to bring in unpopular measures. A consolidation period triggered by a loss of confidence of financial-market participants is generally much more chaotic. Waiting also increases the severity of the adjustment necessary to reach a given sustainability target by a given date, as the snowballing of debt and interest payments digs a deeper structural deficit.

Another recent study largely confirms the findings of the OECD study. Alesina and Ardagna (2009) look at major fiscal-consolidation periods in 21 OECD countries over the period 1970 to 2007 and evaluate them according to two criteria: whether they were successful in significantly reducing deficits and debt-to-GDP ratios; and whether they were associated with a reduction in growth. On the first criterion, they define a fiscal-consolidation period as successful if the cumulative reduction of the debt-to-GDP ratio three years after the beginning of a fiscal adjustment is greater than 4.5 percentage points, which selects 17 successes among 107 fiscal-consolidation episodes. They find that in successful episodes total primary spending as a percentage of GDP falls by about two percentage points. Total revenue, for its part, declines by about half a percentage point of GDP. Thus, successful fiscal-consolidation episodes are completely based on spending cuts, accompanied by modest tax cuts (as a share of GDP). On the contrary, in unsuccessful adjustments, total revenue goes up by almost 1.5 percentage points of GDP and primary spending is cut by about 0.8 percentage points of GDP. On the second criterion, looking at all 107 fiscal-consolidation episodes, they find that the expansionary episodes are mostly characterised by spending cuts, a result consistent with theory and found in other empirical studies (*e.g.* Briotti, 2005). In those expansions, primary spending falls by more than two percentage points of GDP. Total revenue instead increases slightly, by about 0.3 percentage point of GDP. On the other hand, during contractionary fiscal-consolidation episodes, primary spending falls by about 0.7 percentage point of GDP, while revenue increases by about 1.2 percentage points of GDP. Thus, fiscal consolidations occurring on the spending side have superior effects on growth than those based upon increases in revenue.

Using different and multiple empirical methods – including case studies, panel regressions and simulations with a multi-country dynamic general equilibrium model – to study the effects of fiscal consolidation on economic activity in OECD countries, Kumar, Leigh and Plekhanov (2007) arrive at similar conclusions: while fiscal-consolidation episodes have tended to have short-run contractionary effects, some have had expansionary effects. The key to having long-run expansionary effects seems to reside in not relying excessively on cuts in productive government expenditure. Furthermore, there is evidence that even before fiscal consolidation begins, the anticipation of medium-term spending cuts generally enhances the expansionary effect of short-run fiscal stimulus, a conclusion that still applies when monetary policy is constrained by the zero lower bound on policy rates (Corsetti *et al.*, 2010).

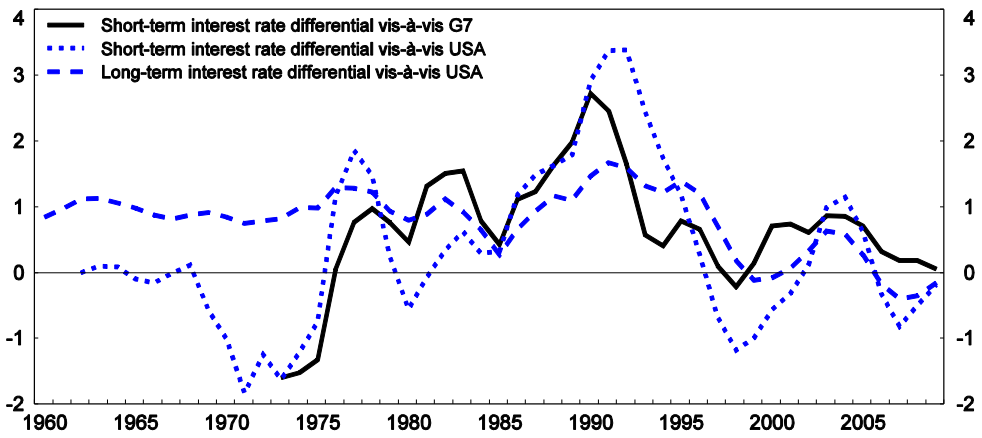
The 1990s federal government fiscal-consolidation experience points the way forward[6]

The fiscal-consolidation experience of Canada, or more precisely of the federal government, in the second half of the 1990s is often presented in international case studies as one of the most successful examples of fiscal consolidation in recent history. It is thus worth reviewing the lessons learned then that could be applied now and in the coming years.

As it entered the 1990s, Canada had to contend with a recession that threw the country's fiscal position into sharp relief. In 1992, general government gross debt exceeded 90% of GDP, higher than any other G7 country bar Italy, with the federal government accounting for just over half the total. The level of public spending appeared unsustainable in a setting of flaccid growth and high interest rates. The general government deficit was slightly above 9% of GDP in 1992, higher than any other G7 country except Italy, with the federal government accounting for about 60% of the deficit. Canadians and governments could see the link between persistently high deficits, the level of interest rates and an inevitable increase in the tax burden in the near future. Financial markets were becoming nervous as well – spreads on federal government short- and long-term debts had been rising steadily since the mid-1980s (Figure 3), and there was downward pressure on the Canadian currency. In response, the federal government introduced extensive reforms starting in 1993. The reforms were centred on three main strategic priorities: setting deficit targets, controlling expenditures and ensuring public buy-in.

Figure 3. **Interest-rate spreads of federal-government debt**

36-month moving averages, per cent



Source: OECD, *Economic Outlook 87 database*.

- *Deficit targets*. A reasonable but firm medium-term target for the federal government deficit was set, an approach deemed more effective than aiming for a zero deficit further out. In 1994, the government began setting two-year rolling deficit targets, with an ultimate goal of balancing the budget.

- *Expenditure control*. The federal government began enforcing the *Federal Spending Control Act* of 1991, which set limits on all programme spending with the exception of that under major self-financing programmes, such as Unemployment Insurance (later renamed

6. This section draws on Kennedy and Robbins (2001) and Bouthevillain, Paul and Pavot (2007). Other reviews of the federal fiscal-consolidation experience of the 1990s include Bourgon (2009) and Lilico, Holmes and Sameen (2009).

Employment Insurance). Except in 1992-93 (when part of under-spending in the previous year was allocated to cover the excess spending) actual expenditures met the requirements of the *Act* until 1996 when it became no longer needed as subsequent budgets became more restrictive than the legislation. In 1995, the government introduced a contingency reserve in its budget planning to protect against adverse changes in the economy or forecasting errors. If not needed, the reserve was applied to debt reduction. Legislated and non-legislated fiscal rules were supported by budget cuts, expenditure reviews, workforce reductions, wage freezes, labour-market reforms and other structural reforms. Budget cuts affected all spending categories, particularly transfers to provinces and social benefits. With the help of robust post-recession growth, federal government programme expenses (all budgetary expenses except debt service) fell from 17.4% of GDP in 1992-93 (on a public accounts basis) to 13% of GDP five years later (programme expenses actually decreased in nominal terms over this period), at which time the federal deficit had been completely eliminated.

- *Public buy-in*. The third priority was to get economic stakeholders behind the reforms. Indeed, a key factor in the success of the fiscal-consolidation effort during this period appears to have been strong public support for the strategy. Media stories around government debt downgrades contributed to making the public aware of the perils of runaway deficits and debt. The government also contributed by explaining to the public that if it continued to accumulate debt, an ever-diminishing share of expenditure could be assigned to priorities such as education and health, and that the fiscal-consolidation steps taken were justified and consistent with efforts to restore growth and employment in the medium term. Large-scale pre-budget consultations helped garner support for specific budget measures. Public understanding and buy-in eventually became so strong that even after the deficit was eliminated, a *de facto* no-deficit rule prevailed as it became politically extremely difficult to run deficits. Even without a legislated fiscal rule, the federal government did not run another deficit until 2008/09 when the global economic crisis caused a recession in Canada. This episode demonstrates that public understanding and support is the most effective compliance/enforcement mechanism available. Judging by the political debate in Canada over the last several months, the public appears to favour a return to zero deficits again as long as it does not hurt growth prospects.

After eliminating the deficit, the federal government complemented the *de facto* no-deficit rule with a debt-reduction strategy. While the deficit was being reduced between 1992 and 1995, the federal government's debt continued to increase. In 1995/96 federal net debt reached a high of 68.4% of GDP. So in 1998, the federal government committed to follow the non-legislated debt-repayment plan that had prevailed since 1995, under which the contingency reserve set aside each year was devoted to debt reduction if not needed. Other commitments to accelerate debt repayment followed. As a result of these commitments and the growing economy, the ratio of net public debt to GDP was reduced to below 60% by 1999/2000. In the 2004 budget, the federal government announced an objective to reduce the debt due to accumulated deficits to 25% of GDP by 2014/15. At the time – in the spring of 2004 – this ratio stood at 40%. The target year was brought forward in subsequent budgets, and in the 2008 budget the government planned to reach the 25% debt-to-GDP ratio by 2011/12. While this target was seen by some as arbitrary, the government argued that achieving it would free up funds for priorities such as health care, education or tax cuts. It also argued that such funds would be all the more needed as the population aged and put increasing demands on the health-care system. These arguments, of course, remain just as valid today. And with less time remaining before the acceleration in retirements, the urgency of reducing the debt burden has only increased.

Today, the federal government does not have a legislated fiscal rule. But since 2006, it has had the *Federal Accountability Act*. Among its many provisions, the *Act* aims to increase transparency in

government spending and establish clearer links between approved expenditure and outcomes (previous legislation required linkage between expenditure and "purpose", rather than outcomes). The *Act* created the Office of the Parliamentary Budget Officer (PBO), which is intended to provide Parliament with objective analysis about the estimates and projections of the government, the state of the nation's finances and trends in the national economy. The PBO has proved useful at providing an independent, sometimes discordant, opinion on the federal government's fiscal forecasts, which can only improve the transparency and debate around federal fiscal policy.

Budget agencies are missing at the provincial level

By contrast, one particularly glaring feature of provincial fiscal frameworks is that no external/independent bodies exist to monitor the fiscal health of provinces and the application of rules. Provincial Auditors General audit official financial statements and can give opinions on the general framework, but audits are only carried out *ex post*. The advantage of bodies like the PBO and the Congressional Budget Office in the United States is their independence, which improves transparency and credibility. Provinces should consider the creation of such provincial/territorial agencies tasked with monitoring more stringent fiscal rules as part of their strategies to update their fiscal frameworks and institutions. Concurrently or alternatively, because small provinces may not feel they have the resources needed for such an office, one agency reporting to the Council of the Federation and tasked with providing independent analysis on provincial fiscal matters could be established.

The lessons that can be drawn from the federal government's experience of fiscal consolidation since the 1990s is that the following features can achieve significant improvement in a short period of time: *i*) rolling deficit targets toward a no-deficit objective, *ii*) legislated or *de facto* rules on spending supported by expenditure reviews and structural reforms, and *iii*) a good communication strategy to ensure strong public buy-in. Over a longer time frame, once consolidation has been achieved, a medium-term debt target seems useful to guide fiscal policy. These results from the Canadian federal experience align well with theoretical and empirical lessons from the economic literature on fiscal consolidation. Consequently, an approach based on these principles is recommended for the federal government as well as the provinces and territories in need of fiscal consolidation in the coming years.

This time, however, interest rates on government bonds are near historical lows, spreads are much lower than they were in the early 1990s (see Figure 3), and there is no downward pressure on the Canadian dollar. In Canada at least, there is not the same impetus and sense of urgency from capital markets to concentrate the minds of politicians and public alike on the need for fiscal restraint, making it less likely perhaps that the consolidation effort will be vigorous and sustained. Rather, the impetus must come from a collective realisation of the urgency of preparing fiscally for the spending pressures associated with demographic change, as demonstrated in Table 3 above and in other studies (*e.g.* Parliamentary Budget Office, 2010). Enshrining the fiscal plan in legislated rules and institutions may be useful this time around to ensure that consolidation efforts do not falter. Also, as noted above, a significant share of the federal consolidation effort in the 1990s was achieved by cutting transfers to the provinces. In a context where both the federal and sub-national governments are planning to consolidate at the same time, such a federal strategy this time would only increase the difficulty of consolidating at the provincial/territorial level and would be fraught with political difficulties, given delicate intergovernmental relations on this issue. Indeed this strategy has been rejected by the current federal government. The trade-off between federal consolidation through reductions in provincial transfers and sub-national consolidation is examined further in the simulations below.

Deriving jurisdiction-specific fiscal-consolidation recommendations

Over the short term, the recommended fiscal-consolidation approach is the same for all jurisdictions currently in a significant deficit position: announce a series of deficit targets on the way to a balanced

budget. The precise strategies used to reach a balanced budget will of course vary by jurisdiction, but efforts should concentrate on curbing the growth of spending, possibly by introducing spending ceilings. Once the budget has been balanced, and for provinces/territories already near fiscal balance, the fiscal strategy should focus on lowering debt-to-GDP ratios. For this purpose, a balanced-budget target, or in some jurisdictions surplus targets, consistent with achieving medium-term debt-ratio targets should be used, keeping spending growth limits in place. A surplus target has the advantage of providing a fiscal cushion for unexpected fiscal developments, in the absence of which surpluses should be allocated to debt reduction. While not absolutely necessary, setting surplus and debt-ratio targets in law as well would make them better able to stand up to changes of government, political disputes and pressure from social groups that refuse to give up their advantages or benefits. This overall strategy would provide clear yardsticks for accountability and transparency. It should be accompanied with a public-relations campaign to explain to the public the fiscal objectives of the government and their rationale. Public buy-in would serve as the enforcement mechanism. Transparency at the provincial/territorial level should be strengthened by establishing independent fiscal agencies, which would provide similar information to legislatures as the federal PBO. With these qualitative general recommendations in mind, the next section seeks to offer quantitative suggestions for fiscal-consolidation targets tailored to each jurisdiction.

Fiscal targets should depend on the need and capacity for fiscal consolidation

What should the fiscal-consolidation targets be in the different jurisdictions? While this decision is political and depends on many factors, not all of them economic, it should be duly informed by a fiscal-sustainability assessment of the sort presented above (see Table 2). Jurisdictions with a large cyclically adjusted deficit, which thus cannot rely on the cyclical upturn to balance their budgets, need policy action to restrain the growth of spending and in some cases maybe even new revenue measures. Short- to medium-term deficit targets are suggested here and used for the rest of the analysis (Table 4). These targets take four factors into account. *First*, the greater the degree of consolidation needed, the more time is generally allowed to eliminate a deficit. *Second*, already-announced official fiscal-consolidation objectives are kept when they seem ambitious but achievable. *Third*, target consolidation paths all eliminate deficits in or before 2015, because planning to eliminate a deficit over a period longer than five years runs several risks. Economic developments, such as another recession or sharply higher interest rates, could derail the plan, public support for the fiscal-consolidation effort could falter, the government could change once or more, etc. For these reasons, distant objectives, such as Ontario's commitment to eliminate its deficit by 2017/18, lack credibility. And, *fourth*, the later the output gap in a given jurisdiction is projected to close in the baseline projections, the more time is generally allowed for consolidation. This last factor reflects the undesirability of rushing to eliminate deficits faster than the economy is expected to return to its potential productive level and in so doing remove fiscal support to the economy. The baseline provincial economic projections are made to be roughly consistent with the *OECD Economic Outlook* 87 medium-term baseline, in which the Canada-wide output gap closes in 2015.[7] For jurisdictions already near

7. See Guillemette (2010) for the baseline output gap projections by province and territory.

Table 4. **Suggested fiscal-consolidation objectives and consistent fiscal balance targets**

CAD billion or percent of GDP

	Objective		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Federal government	Zero net lending by 2014	Baseline projections	-14 281	-8 999	-7 289	-6 146	-2 773	-1 679	-3 497	-5 538	-7 828	-10 378	-13 244
		Targets	n.a.	-8 000	-6 000	-3 000	0	Adopt debt reduction target					
Newfoundland and Labrador	Zero net lending by 2015	Baseline projections	-1 157	-1 359	-1 682	-2 112	-2 600	-3 154	-3 820	-4 583	-5 455	-6 448	-7 582
		Targets	n.a.	-900	-700	-500	-200	0	Adopt debt reduction target				
Prince Edward Island	Zero net lending by 2013	Baseline projections	-223	-146	-190	-245	-305	-374	-444	-522	-611	-710	-820
		Targets	n.a.	-80	-40	0	Adopt debt reduction Target						
Nova Scotia	Reduce net debt to zero by 2020	Baseline projections[1]	29.7	27.7	25.5	23.4	21.8	20.4	19.4	18.5	18.0	17.7	17.7
		Targets[1]	n.a.	28.0	25.0	23.0	20.0	17.0	14.0	10.0	7.0	3.0	0.0
New Brunswick	Zero net lending by 2014	Baseline projections	-505	-199	-258	-365	-482	-613	-769	-945	-1 145	-1 370	-1 620
		Targets	n.a.	-100	-50	-25	0	Adopt debt reduction target					
Quebec	Zero net lending by 2014	Baseline projections	-15 462	-8 021	-7 500	-10 137	-13 228	-16 758	-20 664	-24 989	-29 904	-35 472	-41 745
		Targets	n.a.	-6 000	-2 000	-800	0	Adopt debt reduction target					
Ontario	Zero net lending by 2015	Baseline projections	-22 294	-19 392	-22 815	-26 963	-31 494	-36 471	-43 008	-50 257	-58 420	-67 578	-77 841
		Targets	n.a.	-15 000	-11 000	-8 000	-4 000	0	Adopt debt reduction target				
Manitoba	Reduce net debt to <10% of GDP by 2020	Baseline projections[1]	23.6	23.9	22.6	21.6	21.1	21.1	21.5	22.4	23.7	25.4	27.8
		Targets[1]	n.a.	24.0	22.0	20.0	19.0	17.0	15.0	13.0	12.0	10.0	<10.0
Saskatchewan	Reduce net debt to zero by 2020	Baseline projections[1]	9.4	7.9	6.6	5.6	5.0	4.6	4.4	4.4	4.7	5.1	5.9
		Targets[1]	n.a.	9.0	8.0	7.0	6.0	5.0	4.0	3.0	2.0	1.0	0.0
Alberta	Zero net lending by 2014	Baseline projections	-5 402	-5 922	-7 722	-10 051	-12 669	-15 338	-19 547	-24 611	-29 985	-37 666	-46 566
		Targets	n.a.	-4 000	-2 500	-1 500	0	Save a fixed share of revenue					
British Columbia	Reduce net debt to zero by 2020	Baseline projections[1]	8.1	8.6	8.1	7.8	7.7	7.9	8.3	9.0	9.9	11.1	12.7
		Targets[1]	n.a.	9.0	8.0	7.0	6.0	5.0	4.0	3.0	2.0	1.0	0.0
Yukon	Zero net lending by 2014	Baseline projections	-146	-114	-136	-162	-192	-226	-263	-305	-352	-404	-462
		Targets	n.a.	-80	-50	-25	0	Maintain budget balance					
Northwest Territories and Nunavut	Zero net lending by 2015	Baseline projections	-359	-562	-654	-762	-883	-1016	-1175	-1355	-1556	-1782	-2033
		Targets	n.a.	-400	-300	-200	-100	0	Debt reduction target				

1. Per cent of GDP

Source: OECD calculations.

fiscal balance, the proposals are instead for debt-to-GDP ratio targets for 2020 that take into account current debt levels. All things considered, the targets remain somewhat arbitrary, but any target is bound to be, and these are intended only as guides.

One important factor to bear in mind when comparing official fiscal-consolidation objectives (as shown in Table 1) and plans with the model-based simulations is the different accounting systems used. Official plans are based on public accounts systems, which differ between jurisdictions and with the national accounts system used in the simulations (see Annex A1). Consequently, differences between official and simulated fiscal-consolidation plans and their discussion should be interpreted with caution

How much spending restraint would be necessary to meet these objectives?

Discretionary spending-growth limits consistent with achieving the fiscal-consolidation targets set out in Table 4 are derived using the fiscal simulation model described in Annex A1. The spending categories considered discretionary include the bulk of government spending. They are "net current expenditure on goods and services", "transfers to businesses", "transfers to provincial/local governments" and "investment in fixed capital and inventories". Spending in these categories is assumed to grow at the same rate starting in 2011, unlike in the baseline scenario where different, historically based growth rates, were applied to the various expenditure categories. There are two exceptions to this rule where baseline assumptions are preserved. The first is for the growth rate of "investment in fixed capital and inventories" in 2011 when, as in the baseline scenario, stimulus spending on fixed capital is assumed to be withdrawn. The second is for federal transfers to provinces/territories. For 2011 and beyond, they are assumed to grow at 4.8% per year based on a weighted average of the size of major transfers and their expected growth rates (see Annex A1). The focus on discretionary expenditure is not meant to suggest that reforms to programmes that affect non-discretionary expenditure categories (*e.g.* transfers to persons) should not be envisaged, or that revenue-increasing measures are unnecessary. But discretionary expenditures had been growing at a fast rate before the recession (Table 5), certainly much faster than projected trend GDP growth over the coming decade. Therefore, restraint of such spending is undoubtedly necessary in many jurisdictions. In the first instance, discretionary expenditure growth limits that achieve the fiscal targets set out in Table 4 in the deterministic approach are derived (Table 5).

Unsurprisingly, jurisdictions where most or all the deficit is estimated to be cyclical, such as the federal government, need less spending restraint than those where most of the deficit is estimated to be structural, such as Quebec. Likewise, jurisdictions that can expect faster economic growth, because of stronger population growth or more depressed starting conditions, have an easier time consolidating. Indeed, because the stylised deterministic approach assumes that provincial/territorial output gaps close linearly from 2012 to 2015 and remain closed afterwards, jurisdictions with larger projected output gaps in 2011 are implicitly assumed to grow faster than other jurisdictions over the following years to 2015 relative to their potential rates of growth, thus making fiscal consolidation appear somewhat easier. While it is likely that jurisdictions that have suffered the most during the recession will also bounce back the most during the recovery, it is by no means certain. The great uncertainty around how provincial/territorial economies will evolve over the decade makes it useful to also offer guidance on how much fiscal consolidation would be necessary to reach the targets set out in Table 4 under a wide range of plausible growth paths in a probabilistic framework. To this end, a stochastic projection approach is used (see Annex A1) to trace out mean net lending paths from 2010 to 2020 across 1 000 simulations using baseline assumptions compared to consolidation scenarios where discretionary expenditure grows at 5%, 4%, 3% and 2%, respectively (Figure 4).

Table 5. **Spending restraint necessary to achieve fiscal-consolidation targets**

	Nominal rate of growth of overall discretionary expenditure[1] (%)					
	Average 1997-2007[2]	Estimates[3]		Required over the 2010-to-2020 period to meet consolidation objectives[4]		
		2008	2009	In deterministic approach	In stochastic approach on average	In stochastic approach with 80% probability
Federal government[5]	4.5	9.6	6.5	4.5	4.0	1.5
Newfoundland and Labrador	7.4	5.7	14.5	0.5	0.5	0.0
Prince Edward Island	6.0	9.3	15.0	0.5	1.0	0.5
Nova Scotia	4.9	3.7	6.5	3.0	4.0	3.5
New Brunswick	5.0	2.5	7.9	3.5	3.5	3.0
Quebec	6.0	11.4	10.8	1.5	2.0	1.5
Ontario	6.6	4.2	14.7	0.5	0.0	-0.5
Manitoba	5.8	7.1	9.3	3.5	4.0	3.5
Saskatchewan	5.9	20.2	0.3	5.0	4.5	4.5
Alberta	9.3	13.7	1.8	2.5	1.5	1.0
British Columbia	4.3	3.5	5.8	2.5	3.0	2.5
Yukon	6.4	7.0	16.8	1.5	1.5	1.0
Northwest Territories and Nunavut	6.6	20.4	2.4	1.0	0.5	0.5

1. Discretionary expenditure is defined to include net expenditure on goods and services, provincial transfers to local governments, transfers to businesses and acquisition of non-financial capital.
2. Based on Provincial Economic Accounts.
3. Based on official budget documents for provinces/territories (direct programme spending or operating expenditure) and on National Accounts for the federal government.
4. The simulations are done in 0.5 percentage point increments.
5. Federal transfers to provincial/territorial governments are not considered discretionary expenditure.

Source: Statistics Canada and OECD calculations.

On the basis of these simulations, discretionary-expenditure-growth limits that, on average, achieve the fiscal targets set out in Table 4 are derived (Table 5). They are broadly similar to those derived using the deterministic approach. Using these to guide fiscal policy would far from guarantee that consolidation objectives would be attained, however. In fact, governments could only be about 50% certain of achieving these objectives. Many jurisdictions, especially those concerned about debt-rating downgrades, will want to be more certain of achieving objectives in the time span promised. To illustrate the difference in the required stringency of spending-growth paths to raise the likelihood of achieving fiscal-consolidation objectives, discretionary-expenditure-growth guidelines consistent with an 80% probability of reaching the deficit and/or debt-ratio targets under the stochastic projection approach are also derived (Table 5). In most cases, an extra 0.5 percentage point of restraint in the growth of discretionary spending is necessary. The simulation exercises demonstrate that jurisdictions starting from large cyclically adjusted deficits, such as Ontario, need more stringent consolidation strategies over a longer time span than those in better fiscal health.

Figure 4. **Mean net lending in stochastic approach under baseline and consolidation scenarios**[1]

Per cent of GDP

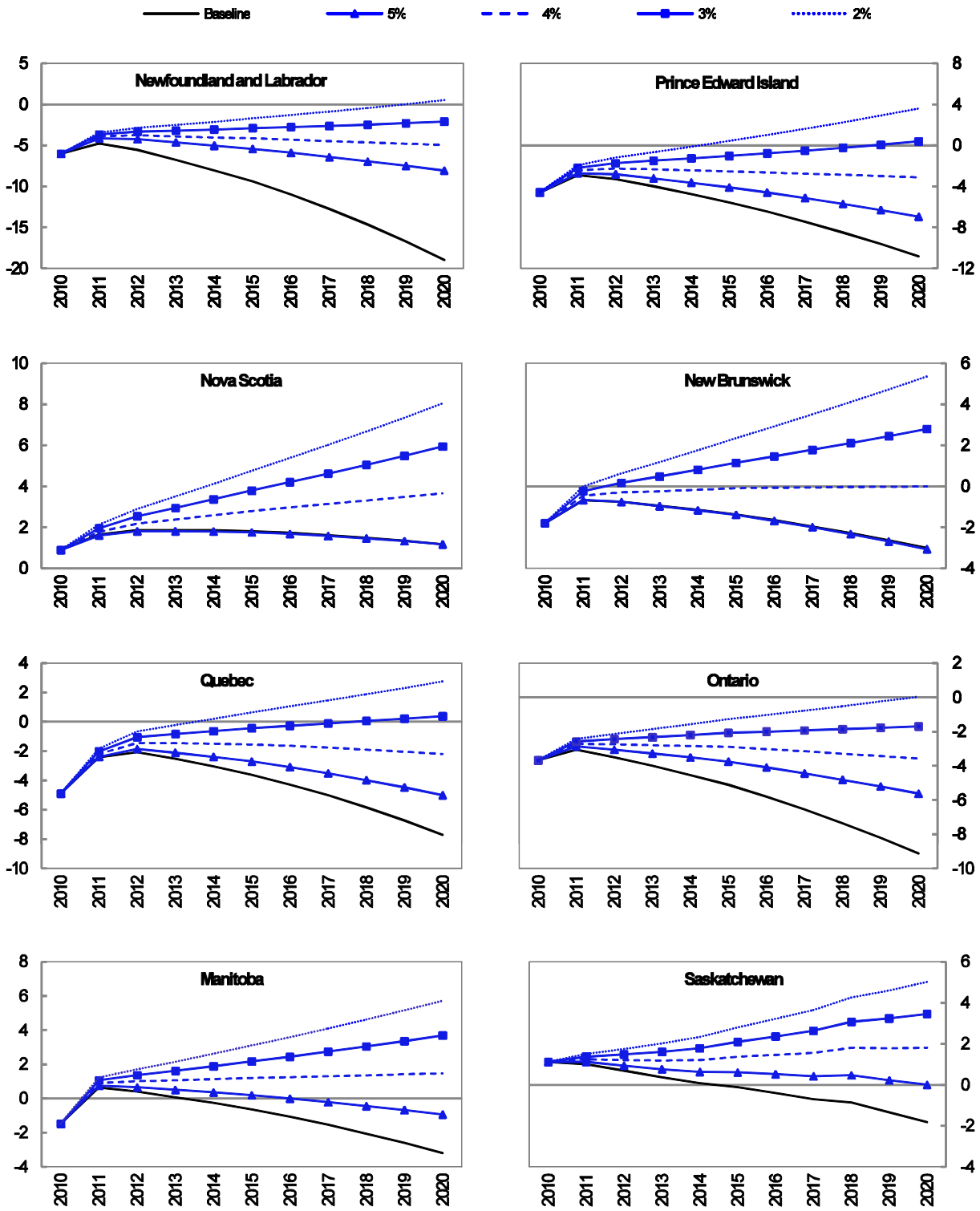
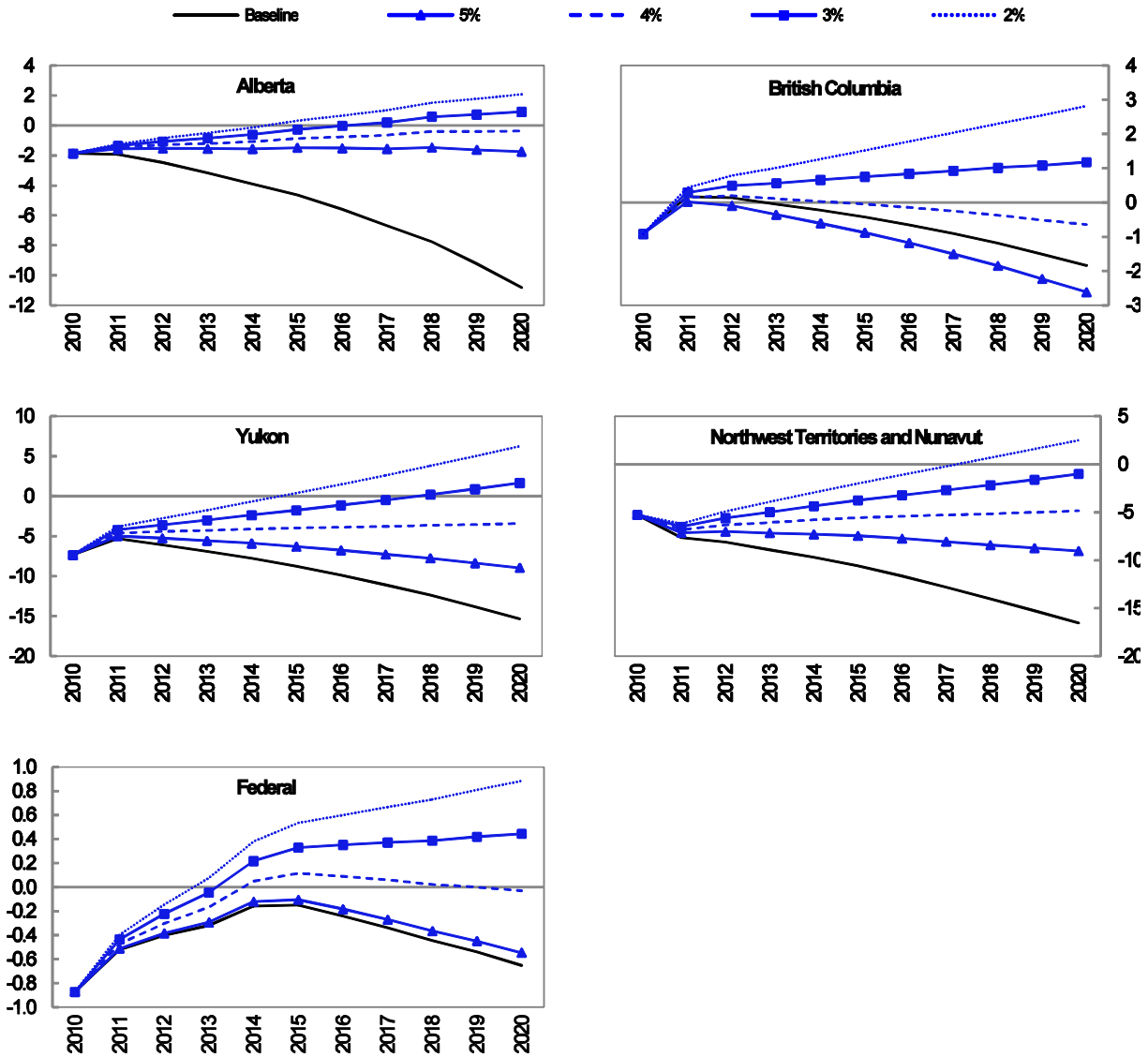


Figure 4. **Mean net lending in stochastic approach under baseline and consolidation scenarios**[1] (*continued*)

Per cent of GDP



1. The consolidation scenarios use the same nominal growth rate, given in the legend, for all discretionary expenditure categories. See Annex A1 for more details.

Source: OECD calculations.

Curbing federal transfers to provinces would make provincial fiscal consolidation significantly tougher

Current legislation on federal-provincial transfers expires in 2013/14. In all simulations reported so far, transfers to provinces are assumed to grow at a rate of 4.8% per year until 2020. The federal government has promised not to cut provincial transfers to eliminate its deficit, as it did in the mid-1990s. But if it were merely to lower the growth rate of these transfers starting in 2014, most provinces would find it substantially more difficult to meet their own consolidation objectives. For each percentage point fall in the growth rate of federal transfers to provinces from 2014 on, the probabilities that provinces will be able to meet the fiscal-consolidation objectives in Table 4 by following the spending-growth rules in the final column of Table 5 fall significantly (Table 6). The territories are not shown because they depend on a federal transfer called Territorial Formula Financing, which is not subject to the same negotiation as the

three major transfers to provinces. Two factors must be kept in mind when interpreting the results. *First*, the more distant in time the fiscal-consolidation objective, the greater the cumulative impact of changes in federal transfers on the probability of meeting this objective. Of course, only fiscal outcomes in 2014 and beyond are affected, which explains why the probabilities for Prince Edward Island, whose fiscal-consolidation objective is prior to this date, do not vary. *Second*, jurisdictions which are dependent on federal transfers for a large share of their revenue, such as the Atlantic Provinces, would of course be more affected than jurisdictions that depend more on their own revenue, such as Alberta.

Table 6. **Probabilities of provinces meeting their fiscal-consolidation objectives**

Per cent

	Memo: Share of revenue attributable to federal transfers in 2007	Nominal rate of growth in federal transfers to provinces[1] from 2014 to 2020					
		4.8%	4%	3%	2%	1%	0%
Federal government	n.a.	79.5	81.1	83.0	84.8	86.5	89.1
Newfoundland and Labrador	51.3	90.0	77.1	59.4	42.7	27.2	13.9
Prince Edward Island[2]	41.7	92.7	92.7	92.7	92.7	92.7	92.7
Nova Scotia	39.5	97.3	91.1	67.5	33.1	13.1	3.2
New Brunswick	36.5	97.7	96.5	93.5	90.3	85.3	78.2
Quebec	17.6	90.7	89.9	88.1	85.9	83.2	79.6
Ontario	16.0	81.1	77.9	73.5	71.0	67.7	64.3
Manitoba	32.0	83.4	78.2	71.1	63.7	56.5	47.9
Saskatchewan	20.9	79.0	70.0	58.6	48.9	40.0	32.2
Alberta	8.7	77.6	76.3	73.7	71.9	69.8	68.3
British Columbia	15.8	86.3	80.8	73.3	64.2	56.3	47.0

1. The territories are not shown as they do not receive the three major transfers considered here (Equalization, CHT and CST) but they instead receive Territorial Formula Financing, which is subject to a different agreement.
2. The probabilities are constant because the consolidation objective is anterior to 2014.

Source: Statistics Canada and OECD calculations.

To curb spending growth, start with withdrawing fiscal stimulus and restrain public sector wage growth

For all governments, an important first step to restrain spending is to keep temporary economic stimulus measures temporary. Failure to let them expire, and notably to reduce capital expenditure to pre-crisis levels as assumed in the simulations, would only make fiscal consolidation more difficult to achieve. At the federal level, temporary measures include the Canadian Skills and Transition Strategy (worth about CAD 8 billion), including enhancements to Employment Insurance and new funding for skills and training, and special infrastructure investment funds (about CAD 12 billion). Some measures have already expired, most notably the Home Renovation Tax Credit. At the provincial level, fiscal stimulus has mostly taken the form of accelerated infrastructure spending, taking advantage of federal co-financing.

The promise to focus on curbing the growth of programme spending raises the issue of public-sector compensation. Apart from Saskatchewan and Alberta, all governments in Canada have seen average weekly earnings in public administration grow faster on average than in the rest of the economy over the past two decades (Figure 5). While there may be good reasons for a higher average level of pay in the public sector, such as differences in the educational/skill composition of the workforce, these should not give rise to large differences in the growth rate of compensation unless that composition is also changing over time. Also, careful studies that look at comparable occupations in both the public and private sectors find a significant public-sector pay premium. Indeed, the federal government's own studies show that with the exception of executives and trades people, federal public-sector employees are paid a premium over their private-sector counterparts (Treasury Board of Canada Secretariat, 2006). Whereas the premium was smaller historically, the rate of increase in salaries in the federal public service since 1998 has exceeded

Figure 5. **Average weekly earnings by province**

Indices (1991 = 100)

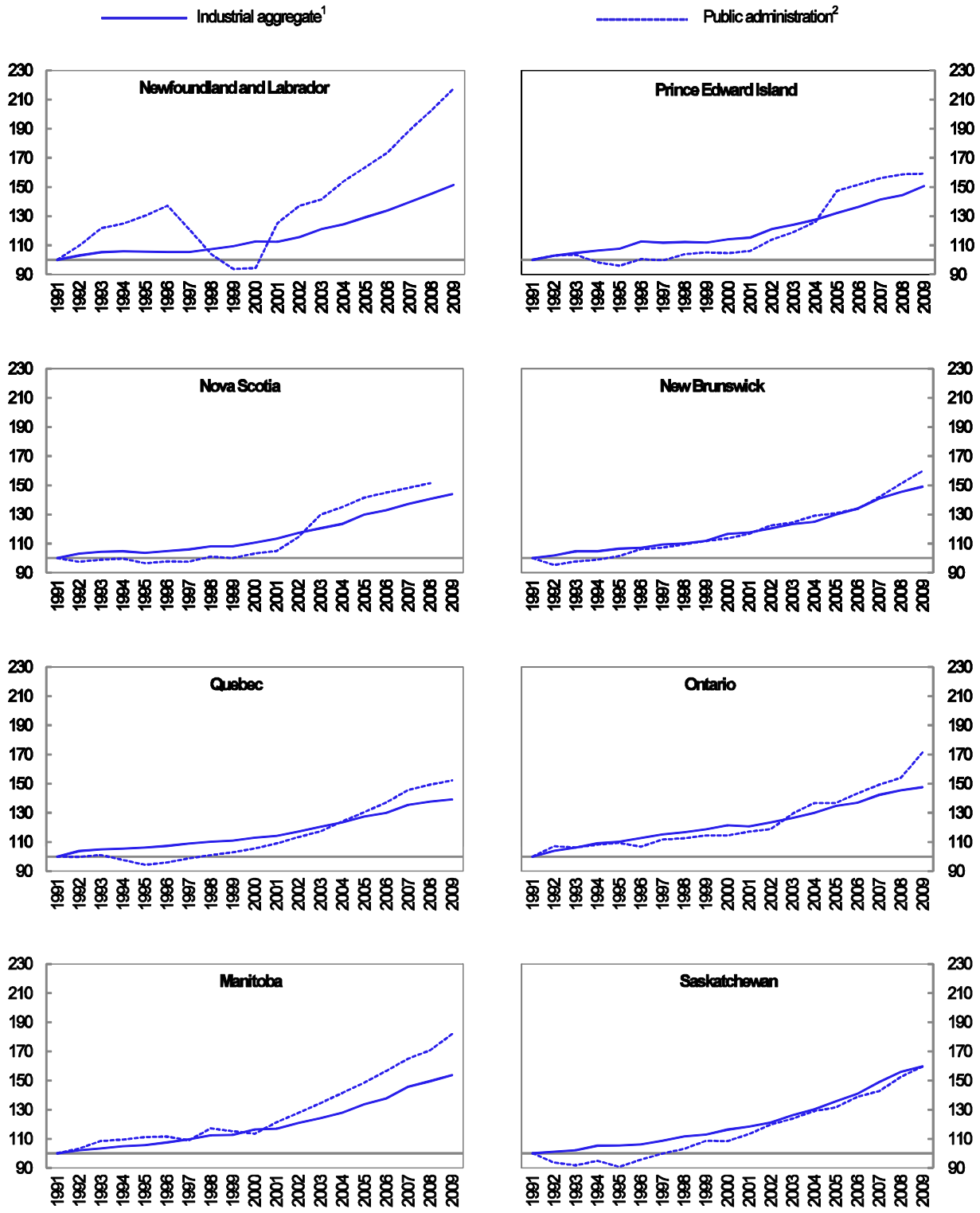
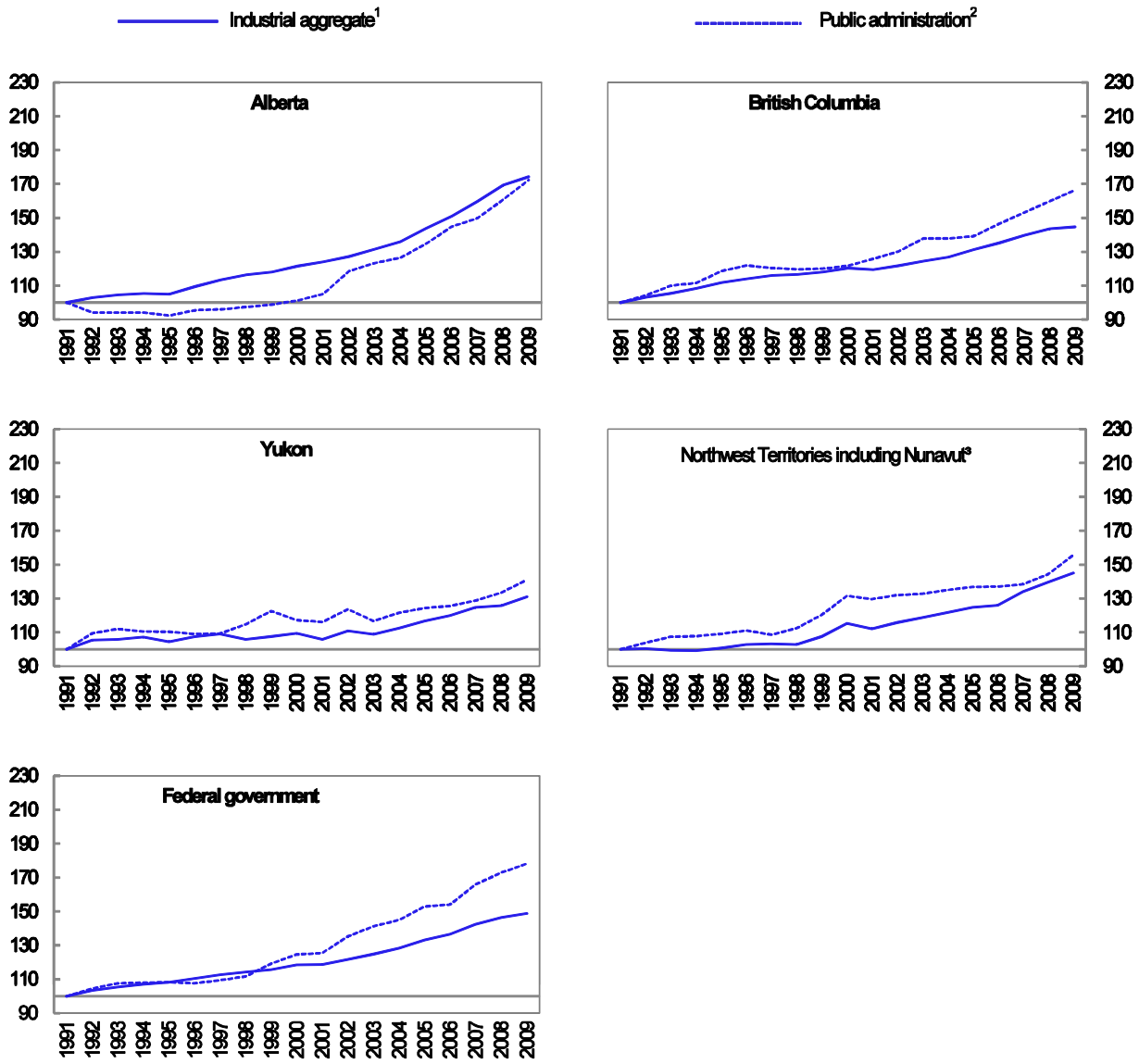


Figure 5. **Average weekly earnings** (*continued*)

Indices (1991 = 100)



1. The industrial aggregate covers all industrial sectors except those primarily involved in agriculture, fishing and trapping, private household services, religious organisations and the military personnel of the defence services.
2. The public sector comprises establishments primarily engaged in activities of a governmental nature, such as legislative activities, taxation, national defence, public order and safety, immigration services, foreign affairs and international assistance, and the administration of government programs. It does not cover government-owned establishments in other sectors such as health care (*e.g.* hospitals) or education (*e.g.* schools and universities).
3. There is a break in the series in 2001. For that and later years, the series are weighted averages of the two separate territories using sectoral employment as weights.

Source: Statistics Canada, CANSIM Tables 281-0027 and 281-0024 and OECD calculations.

what the private sector has experienced on average. The public-sector pay premium is even more marked when considering the generosity of public-sector pension plans. Only a small and shrinking fraction of private-sector workers enjoys pension plans with parameters comparable to those found in the public sector. The result is that the lump-sum value of a middle-income public-sector retiree's pension, not including private retirement wealth, is roughly five times that of a typical private-sector worker, including the latter's pension plan, if any, and all private retirement accounts (Pierlot, 2008). With a view to

restraining government spending growth to eliminate deficits, but also to reduce income inequality and reinforce the social contract between citizens and their public servants, governments should devise strategies to limit wage increases in their public sectors. Indeed, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Alberta and British Columbia have all signalled their intent to limit public sector pay increases.

If new revenue-raising measures cannot be avoided, start with broadening tax bases and green levies

Although spending restraint is the most effective and economically stimulative way to achieve fiscal consolidation, it might also be necessary to consider new revenue measures. Within existing tax systems and without introducing any new tax, one strategy to raise more revenue would be to scale back the large number and relative importance of tax expenditures in the federal and provincial/territorial tax bases.[8] In 2004, the federal government reported 143 tax expenditures under the income tax system (personal and corporate), accounting for a revenue shortfall relative to a benchmark tax system of 5.4% of GDP (OECD, 2010a).[9] General business incentives, not including sector- and region-specific tax relief, accounted for about half this amount. Personal exemptions include an age credit for seniors, a mineral exploration tax credit for investors and a first-time home buyers' tax credit. The federal government also reported 32 tax expenditures under the Goods and Services Tax (GST) in 2004, equal to 1.2% of GDP. Goods and services that are exempted or zero-rated under the GST include basic groceries, prescription drugs, health and dental services, financial services, long-term residential accommodation, child-care services and educational services All together, tax expenditures subtracted an amount equal to 6.6% of GDP from federal revenue in that year, or roughly 55% of the relevant tax revenue (Figure 6). Relative to some other OECD countries, such as Germany, Korea and the Netherlands, these proportions are large. It should be noted that the reporting of tax expenditures varies by country, and Canada is recognised as having a comprehensive approach relative to other countries. Even so, high proportions of tax expenditure to GDP imply that broadening tax bases without increasing tax rates would yield new revenue and at the same time potentially remove some economic distortions. This conclusion also goes for provinces/territories. Though tax-expenditure evaluations are not available for all of them, provinces/territories use tax bases that are very similar to those of the federal government, so the intensity of tax expenditures in their own tax bases would be comparable, as would be the possible broadening and proportionate revenue increase.

If new taxes are needed, environmental levies that correct negative externalities stand out as the most promising options. For instance, the federal government has announced a target of reducing carbon emissions by 17% from 2005 levels by 2020. An analysis based on reducing emissions by 20% from 2006 levels by 2020 found that a carbon price starting at CAD 40 per tonne in 2011 and rising to CAD 100 per tonne by 2020 would be needed, along with other policies (Pembina Institute and David Suzuki Foundation, 2009). This analysis found that gradually phasing in such carbon charges would yield about CAD 45 billion per year in extra revenue to the government by 2020, enough to completely eliminate the federal deficit in the baseline scenario.

Finally, new revenue should be raised through instruments that introduce the least possible economic distortions. Taxes on immoveable property and value-added taxes have been shown to be the most economically efficient and growth-friendly taxes (Johansson *et al.*, 2008; Arnold, 2008). At the federal level, the two recent successive one-point cuts in the GST could be reversed. Failing that, provinces could

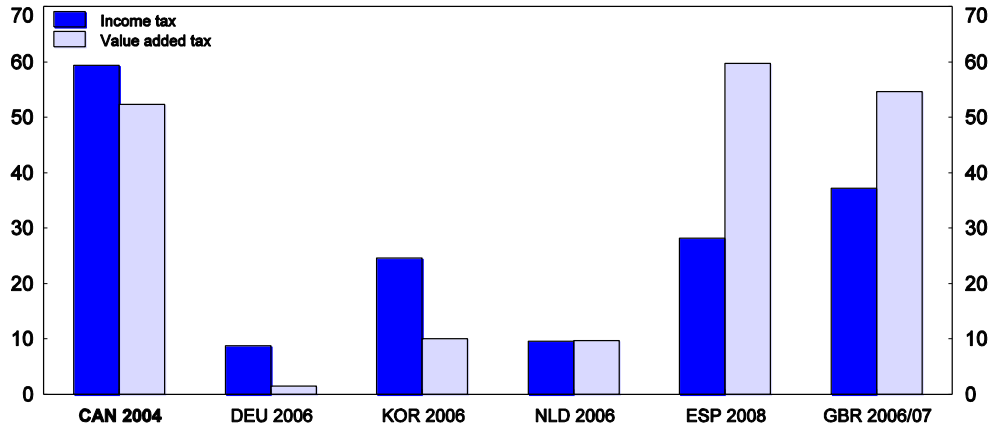
8. Tax expenditures are provisions of tax law, regulation or practices that reduce the tax liability of a comparatively narrow population of taxpayers (physical or moral) relative to a benchmark tax system.

9. There are many conceptual and measurement difficulties involved in accounting for tax expenditures and in making international comparisons. For a thorough discussion of caveats, see OECD (2010a).

decide to occupy the value-added tax room opened up by the GST cuts and raise their own sales (or preferably value-added) tax rates, as Nova Scotia has done.

Figure 6. **Intensity of use of tax expenditures**

Per cent of relevant tax receipts



Source: OECD (2010), *Tax Expenditures in OECD countries,* Paris, OECD.

Discussion by jurisdiction

The subsections below discuss consolidation strategies in a more tailored way for each jurisdiction and offer some thoughts on related fiscal issues.

Federal government

According to the 2010 federal budget, released in March, the deficit will be virtually eliminated by 2014/15 through a combination of cyclical increases in revenue and spending restraint. The federal strategy aligns well with the general recommendations made above: letting temporary fiscal stimulus measures expire and focusing on restraining the growth of discretionary spending. On the revenue side, besides the general improvement in cyclical revenue, the only significant discretionary revenue measures planned are an increase in employment insurance (EI) premiums[10] and a move to close certain tax loopholes. On the spending side, besides the lapsing of temporary fiscal stimulus measures after 2010/11, the federal government's fiscal-consolidation strategy focuses on restraining the growth of direct programme spending. This excludes transfers to persons and governments, leaving only about half of total programme spending subject to restraint (Figure 7).[11] Announced measures include restraining national defence spending growth, capping the international assistance envelope, containing public-administration

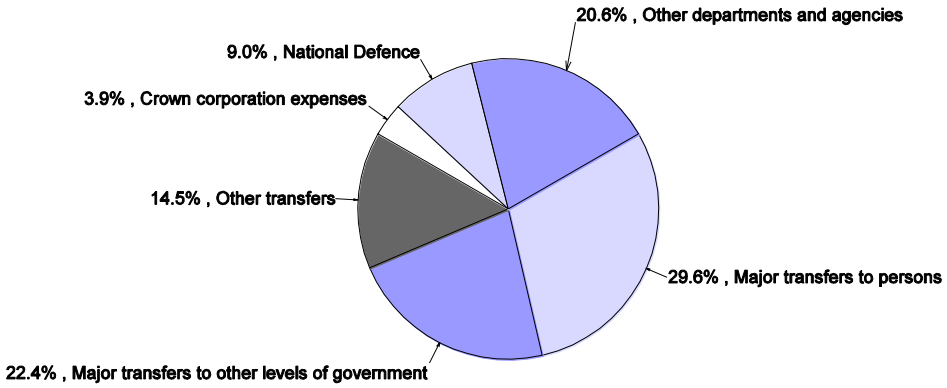
10. After having been frozen in 2009 and 2010 as part of temporary stimulus measures, EI premiums will rise from their current CAD 1.73 (per CAD 100 of insurable income) by the cap of 15 cents per year to a projected CAD 2.33 by fiscal 2014/15 in order to return the EI account to balance. The increase in premiums is projected to raise an extra CAD 15.5 billion in revenue cumulatively over the 2011/12 to 2014/15 period. Starting in 2011, an independent board – the Canada Employment Insurance Financing Board – will set contribution rates in a manner that balances the EI programme from 2009 forward. Annual changes in the EI premium rate are limited to 15 cents. See Orr (2009) for more details.

11. Programme spending corresponds to total current expenditure minus public debt charges. Direct programme spending excludes transfers to other levels of government and to persons from total programme spending.

costs by freezing operational budgets and identifying savings through strategic programme reviews. These measures are expected to help contain total direct programme-spending growth to about 1.3% per annum starting in fiscal 2011/12 when temporary stimulus measures will have expired. The simulation exercises above suggest that this spending-growth target would be sufficient to eliminate the deficit by 2014 with a high probability and, if maintained thereafter, would generate persistent surpluses and allow a rapid rate of debt reduction.

Figure 7. **Federal programme spending**

2008/09



Source: Department of Finance Canada, Fiscal Reference Tables, www.fin.gc.ca/pub/frt-trf/index-eng.asp.

In recent years, federal transfers to provinces have increased much more than initially planned, partly because provinces have successfully put pressure on federal politicians to solve a perceived vertical fiscal imbalance. A case in point: from 1997 to 2005, federal budgets repeatedly announced plans for stable or even declining transfers under the Canada Health and Social Transfer (CHST, now split into the CHT and CST) over the medium term, only to have those commitments overturned and replaced by higher spending tracks in the next fiscal update or budget (Smart, 2005). Frequently, transfer increases have been the result of negotiations among the premiers and the prime minister at their annual meetings – as was notably the case in 2000, 2003, and 2004. The result is a transfer system with unpredictable federal spending commitments, one where provinces are conceivably able to extract more transfers from the federal government by manufacturing political crises, for instance around waiting times in hospitals, thus creating perverse incentives. There is empirical evidence that, in a federal system (in this case Germany), sub-national jurisdictions with softer budget constraints (those with more political influence in the upper chamber of the German parliament) exhibit higher deficits and debts, and receive more "bailouts" from the federal government (Fink and Stratmann, 2009). Furthermore, these jurisdictions are less efficient in spending public funds and are more prone to respond to rent seeking by interest groups. In the last few years the federal government in Canada has taken steps to put transfers to provinces, notably Equalization, on more predictable paths. An even more stable, rules-based transfer system could limit the growth of federal transfers, sharpen incentives for provincial governments and help them plan their fiscal-consolidation strategies by providing them with more certainty than they have had over the last two decades. Well in advance of the expiration of the current accord in 2013/14, the federal government should announce a "growth cap" under which federal-provincial negotiations would take place. For instance, the growth of transfers other than Equalization, which has already been capped at a three-year moving average of nominal GDP growth, could be similarly limited by GDP or federal revenue growth.[12] Such a cap would

12. Nominal GDP growth over the 2014-to-2020 period is projected to average 3.8% in the baseline scenario.

help enforce "hard" budget constraints on provinces and send a signal to both government negotiators and provincial public-sector unions regarding the wage increases they can hope for as new work contracts are negotiated over the next few years.

Newfoundland and Labrador

On a public accounts basis, Newfoundland and Labrador registered four consecutive surpluses from 2005/06 to 2008/09. As noted by the province's Auditor General, the surpluses in recent years were due in large part to increased oil and gas revenue. Buoyant revenue from natural resources also allowed the province to increase spending at a fast pace over the last decade. In fiscal 2009/10 the province is estimated to have realised a deficit, however, and additional deficits are projected for the current and the next two fiscal years. A cut in programme spending is planned in 2012/13, but this will be insufficient to balance the budget. To do so by 2015, the simulations above suggest that discretionary spending would have to be frozen. Such a large downward adjustment in the growth rate of spending will require considerable discipline. Once the zero deficit is achieved, debt-reduction objectives should be announced and continue to be supported by spending growth limits and surplus targets. Newfoundland and Labrador being one of the jurisdictions which face the direst demographic outlooks, reducing the level of debt takes on added urgency. After eliminating its debt, Newfoundland and Labrador should implement a savings policy for its substantial natural resource revenues along the lines recommended for Alberta (see below).

Prince Edward Island

The economic downturn and the high rates of growth of discretionary spending over the past few years have caused the fiscal position of Prince Edward Island to deteriorate significantly from a balanced position only a few years ago. In its 2010 budget the government has chosen to balance the budget over a term of four years by holding the pace of growth in expenditure below the rate of increase in revenue. The simulations imply that rates of discretionary spending growth should come down significantly and be limited to between 0.5% and 1% per year to balance the budget by 2013, after which debt-reduction targets should be adopted.

Nova Scotia

After its election in June 2009, the new government commissioned an independent review of the province's finances, which found that the deficit was set to increase to CAD 1.3 billion (on a public accounts basis) by 2012/13, with net debt continuing to grow (Deloitte and Touche, 2009). Another report commissioned by the government to study longer-term fiscal issues demonstrated that without permanent changes in the revenue or spending paths relative to recent trends Nova Scotia would face a structural deficit (Nova Scotia Economic Advisory Panel, 2009). As a result, first in its September 2009 budget and then in its April 2010 budget, the new government presented fiscal projections to 2013/14 that include new revenue measures and significant expenditure cuts, with the objective of achieving a small surplus in 2013/14. Most notably, the province is increasing its Harmonised Sales Tax (HST) rate by two percentage points to 10%, effective 1 July 2010. The spending cuts are to be made via an expenditure management initiative, starting in 2010/11, that is projected to identify CAD 772 million in yearly savings by its fourth year, which implies that programme expenditures would be lower in 2013/14 than in 2009/10. The simulations presented above are somewhat more optimistic regarding the medium-term fiscal outlook than the two reports commissioned by the government. Taking the tax rate change into account, they show that on a national accounts basis, the budget is expected to be balanced in 2010 after a small deficit in 2009. But they also show that the province faces longer-term fiscal pressure. Without a reduction in the recent rate of expenditure growth, the province would return to a negative net lending position before the end of the decade. On the other hand, by reducing discretionary expenditure growth to between 3% and 4%

per year, Nova Scotia could generate fiscal surpluses over the coming decade and lower its net debt-to-GDP ratio from about 30% now to zero by 2020.

New Brunswick

In its December 2009 budget the government presented a six-year plan that, it argued, would put the province on the path to a balanced budget by 2014/15, two years later than the original four-year plan presented in March 2009. It also stated that the objective after attaining a balanced budget would be to reduce the province's net debt. In the new plan, total spending growth is assumed to be 0.5% on average over the period 2009/10 to 2014/15. The simulations suggest that holding discretionary spending growth to between 3% and 3.5% per year would be sufficient to eliminate the deficit by 2014.

Though details are lacking in the government's plan as to how the ambitious reduction in spending growth is to be achieved, part of it relies on containing wage growth in the public sector. To do so, the government took the unusual step of announcing in its March 2009 budget:

- a wage freeze on base salaries for all management and non-unionised employees from 1 April 2009 to 31 March 2011;
- that effective 17 March 2009, all expiring collective bargaining agreements for which no replacement agreement has been signed would be re-negotiated for a two-year term with no wage increases during that period;
- a wage freeze for Members of the Legislative Assembly extending to 2010/11;
- that all crown corporations would be directed to institute a similar wage-restraint policy.

The government signalled its intent to implement the wage-restraint policy through negotiations, but also stated that it was prepared to legislate it if necessary. Wage costs being a very significant share of public expenditure, constraining their growth sends a strong signal to markets that governments are serious about curbing spending growth.

Quebec

Given its high level of debt – it is the most indebted province in relation to the size of its economy – Quebec's fiscal-consolidation effort needs to be especially vigorous. The province's long-term debt has persistently carried the highest spread over federal government debt of the four large provinces. The government intends to limit programme spending growth to 2.9% in 2010/11 and to 2.2% thereafter until 2013/14, at which time the budget would be balanced, but not without new revenue-raising measures. Among such measures is a one percentage point increase (from 7.5% to 8.5%) in the Quebec Sales Tax (QST) effective 1 January 2011 and a further one percentage point increase effective 1 January 2012. Quebec is also introducing an annual health contribution, for each adult, of CAD 25 in 2010, CAD 100 in 2011 and CAD 200 as of 2012. Taking these new revenue measures into account, the simulations suggest that even greater efforts at restraining spending and/or other revenue-raising measures are needed. Assuming an objective of balancing the budget one year later than the government's, by 2014, the simulations imply that discretionary spending growth should be limited to between 1.5% and 2% from 2011 on to achieve this objective.

Fiscal competition with other provinces and countries constrains the scope for tax increases. Thus, Quebec is now examining options to collect more revenue through user charges, of which it now makes relatively little use. A 2008 report estimated that Quebec could raise about CAD 5 billion, or about 8% of

current budgetary revenue, by closing the gap with other jurisdictions (Government of Quebec, 2008). Electricity tariffs are especially low, hiding large natural-resource rents. Economic efficiency dictates that the price of electricity should match its marginal opportunity cost, determined by the price at which Quebec can sell electricity on inter-provincial or international markets, or at a minimum it should match its marginal production costs (Boyer, 2005 and 2007).[13] Despite having been unfrozen a few years ago, tuition fees for colleges (CEGEPs) and universities remain especially low and could be increased substantially while remaining competitive with other North American jurisdictions (Laberge, 2008). Rather than raising further revenue, a more significant effort at reducing expenditure growth could be made, which would almost certainly require substantial structural reforms in areas like health care.

In the past, Quebec had a balanced-budget rule targeting only the operating balance (the so-called "golden rule"). This fiscal rule created two problems. *First*, because it excluded capital expenditure, it provided an incentive to minimise maintenance expenditure (part of operating expense) relative to new capital formation. *Second*, whereas the rule required budget balance, Quebec should instead have run large surpluses during the pre-crisis period to pay down debt, the equivalent of pre-funding future obligations associated with demographic change. The fiscal rule had the perverse effect of limiting efforts to close the operating deficit, because merely achieving a balanced operating budget was enough to declare success and reap political dividends. Given its need to reduce debt quickly, once the deficit has been eliminated, surplus targets combined with debt-reduction objectives would focus attention on the right measures. A similar approach was recommended some years ago by Joanis and Montmarquette (2004).

The Government of Quebec should consider winding down the Generations Fund, an asset-accumulation fund created in 2006 and applying the proceeds to debt repayment. The idea behind the fund was that the province could earn a greater financial rate of return on assets in the fund than it pays on its debt, thereby eventually allowing for greater debt reduction. But such a possibility exists only if there is a spread between the cost of the province's liabilities and the return on assets the fund invests in, and the risk difference corresponding to this spread effectively falls on taxpayers. The existence of such a risk became obvious during the economic crisis as the fund's value collapsed. The average rate of return on the fund was -22.4% in 2008 (a loss of CAD 326 million). Amounts diverted to the fund over the past years would have been better applied directly to debt reduction, as they would in the future as well.

Ontario

On a public accounts basis, Ontario programme spending increased at a trend rate of 7.3% between fiscal 2000/01 and 2007/08. If the province had kept spending to the amounts legislated in spring budgets, it would now be in a much better fiscal position, but additional expenditure was voted on the back of strong cyclical revenue increases for several years in a row, creating large structural obligations. The province now faces a deep structural deficit (see Table 2). As required by Ontario's *Fiscal Transparency and Accountability Act 2004*, the government has tabled a recovery plan to balance its books by 2017/18. The plan assumes that revenue growth averages 4.2% annually over the next seven years, while annual increases in programme outlays are held to 1.9% per year on average beyond 2012/13. The government's goal is to hold annual health-sector spending increases to 3% by 2012/13, significantly lower than recent growth, and this goal is the key to the fiscal-consolidation plan. The simulations assume that the budget should be balanced by 2015, two years prior to the government's objective. They imply that to do so would require freezing discretionary expenditure from 2011 on. Other simulations (not shown in the tables above) reveal that even holding discretionary spending growth to 2% from 2011 on would not be sufficient to

13. One problem with raising electricity prices that does not apply to some other revenue-increasing measures is that roughly 38% of the new revenue generated and distributed by Hydro-Quebec to the provincial government in dividends is clawed back by the federal government in lower Equalization payments to Quebec (Bélanger and Bernard, 2009).

balance the budget by the government's target year of 2017. These results suggest two broad choices. Ontario could seek to constrain discretionary spending more than currently planned, a strategy which undoubtedly would need to be supported by extensive structural reforms to be credible, or it needs to raise more revenue. Given the very large increases in public expenditure in recent years, which were not justified either by inflation or population growth, a strategy of expenditure consolidation appears feasible and preferable.

On the topic of fiscal rules, Ontario provides an example of the potentially counterproductive effects of rules that are too strict. Starting in 1999, the government had a no-deficit rule with financial penalties for cabinet members. The rules may have led to a lack of transparency in budgeting. Since then, Ontario has abandoned strict rules, a flexibility that is proving useful in the current context, but which also did not prevent the emergence of a large structural deficit. This 10-year history suggests that while the rules may have been too strict in the past, they now seem to have shifted too close to discretion. If anything, it highlights the need for independent fiscal agencies so that the true fiscal situation can be assessed, and political incentives brought to bear, in real time.

Ontario has decided to harmonise its provincial sales tax with the federal GST, a value-added tax, as of 1 July 2010. Both the province and the federal government, which worked with Ontario on the new policy and supported harmonisation with transitory financial compensation to the province, are commended on this development, long advocated by the OECD. Unfortunately, Ontario has decided to provide point-of-sale rebates for a number of goods or services categories from the new Harmonised Sales Tax (HST) (*e.g.* some prepared food and beverages and print newspapers) in addition to those already exempt under the GST, thus going against advice to have as broad a base as possible to minimise distortions. Removing these provincial point-of-sale rebates, while keeping the same tax rate (8% for the provincial component), should be the first step taken if fiscal consolidation requires raising more revenue. As it stands, the tax package that introduces the HST is expected to be broadly revenue neutral for the province, as higher revenue from the broader sales tax base will be offset with a package of temporary and permanent business and personal income tax cuts and grants, the latter designed to offset the regressivity of higher spending-based taxation.

Manitoba

Manitoba's Budget 2010 projects a deficit in 2010/11 followed by three further years of deficits before balance is achieved in 2014/15. These deficits are not large, but the province has chosen to keep overall expenditure growing at an annual average rate of 1.8% over the four-year period and to balance the budget gradually. As this plan means five consecutive years of red ink when including the 2009/10 deficit, the government will amend the current legislated fiscal rule requiring budget balance over a four-year period. The new legislation will require the current budget shortfall to be eliminated over four years and a return to surplus in year five of the plan. It will also keep the legal requirement to have balanced budgets into the future. On a national accounts basis, the simulations project that the province will show a small surplus in 2011 after a deficit the previous year. Furthermore, they suggest that by maintaining growth in discretionary expenditure between 3.5% and 4% per year from 2011 on, the province can reduce its net debt-to-GDP ratio to below 10% by 2020.

Saskatchewan

Saskatchewan's public-accounts deficit in 2009/10 was funded by drawing down the Growth and Fiscal Security Fund (GFSF). Without a downward adjustment to spending growth relative to recent history, deficits would likely continue and would soon cumulatively dwarf the amount left in the GFSF, estimated at about CAD 705 million at the end of fiscal 2009/10. The government would then have to suspend the application of its existing fiscal rules, which require fully offsetting a deficit the following

fiscal year. Saskatchewan started this necessary adjustment by cutting total operating expense in 2009/10. The 2010 budget projects that operating spending will be held constant in 2010/11 and then rise by 1% in 2011/12 and by 2% in the following two fiscal years, for an annual average growth rate of 1.3% from 2010/11 to 2013/14. The budget is projected to be balanced without recourse to the GFSF in 2012/13. The simulations show that, on a national accounts basis, the province will likely realise a surplus in 2010 after a small deficit in 2009. Therefore, the simulations assume an objective of reducing the net debt-to-GDP ratio to zero by the end of the decade. They show that Saskatchewan could attain this objective by limiting growth in discretionary expenditure to between 4.5% and 5% per year.

Alberta

In Alberta, the rapid deterioration in public finances in recent years involves a downturn in the global energy market as much as the recession. Some of this turnaround in energy prices may prove to be only temporary in nature – for instance the oil price has rebounded from its recent low. But some of it may well be permanent. In particular, revenue from natural gas royalties have collapsed over the past two years along with the international price for natural gas, partly reflecting shale gas discoveries in the central-eastern United States, which have resulted in a structural change in the market for gas and in traditional pricing models. In 2007, the government raised the royalty rates on natural resource extraction but it recently backtracked on that policy. Given these developments, the government estimates a CAD 3.6 billion deficit for the 2009/10 fiscal year. The deficit was fully funded by transferring CAD 3.6 billion out of the Alberta Sustainability Fund (ASF),[14] which has already declined from CAD 16.8 billion at the end of the 2007/08 fiscal year to a projected 15 billion at end-2009/10. The government expects to continue drawing down the fund for the current (2010/11) and the next fiscal years, at which point its value is expected to have fallen to about CAD 4.7 billion. In 2012/13, the government expects to have eliminated its deficit, mainly by severely constraining spending growth over the next few years while revenue recovers.

Indeed, spending is being squeezed in typical boom-bust fashion. As shown in Guillemette (2010), the province exhibits a clear pattern of pro-cyclical fiscal policy whereby spending is ramped up or non-resource revenue slashed (*e.g.* by using higher royalties to cut tax rates or give rebates) in good years followed by spending contraction in bad ones. Instead of stabilising the economy, the government has thus frequently exacerbated macroeconomic volatility. Once again, after growing at a pace of 10% per year as revenue was growing at 8% per year from fiscal 2002/03 to 2008/09 (on a public accounts basis), the government now projects total spending to grow at an average of only 2% per year from 2008/09 to 2012/13, and to actually fall in 2011/12. These projections rely on rising prices for energy commodities and real GDP growth of around 3% per year, which result in nominal GDP growth of 6.5% to 8% per year. The simulations suggest that restraining discretionary spending growth to roughly 1.5% to 2% per year would at best balance the budget two years later than the government objective, in 2014. A legislated spending growth rule, rather than the current in-year spending rule, would help anchor fiscal policy and, if respected, would avoid another acceleration of spending when the budget is finally balanced. The rule should also be consistent with a new saving policy.

Enacting a new policy on saving is indeed a crucial issue for Alberta. The province is comparable to Norway and Chile in that it benefits from large natural resource reserves and derives a large part of its revenue from royalties. Unlike Norway, which saves all of its oil and gas revenue in a stabilisation fund and draws only 4% of the fund's value each year, Alberta has not had a consistent and disciplined approach to saving. In the 1970s, the government had a policy of saving 30% of its resource revenue in a fund to

14. The Alberta Sustainability Fund is a cyclical stabilisation fund. It differs from the Alberta Heritage Savings Trust Fund from which only income earned from investments, minus the amount kept in the Fund for inflation-proofing, is transferred to the provincial government's operating fund.

provide resources for the future. In the face of falling resource prices and rising public expenditures during the 1980s, the province stopped saving. In the early 1990s, with large deficits, rising debt levels and high per capita spending, Alberta went through a painful experience of cutting spending to restore its fiscal strength. The government then set its sights on paying down its debt in full, which it achieved while accumulating upward of CAD 36 billion in net financial assets, thanks in part to rising natural resource prices from 2000 to 2008. Now, with a high level of structural spending, the province has returned to deficit and taken to drawing down its Sustainability Fund to fill the budget gap.

The result of this *ad hoc* saving approach is that Alberta's resource wealth is unlikely to benefit current and future generations equitably. Even current generations lose out if too-rapid short-term spending growth in response to rising cyclical royalties is dissipated in inflation. To improve intergenerational fairness and help achieve long-term fiscal sustainability, a much higher percentage of resource revenue should be saved (Shiell and Busby, 2008). To this end, a government-commissioned report recommended that Alberta legislate a fiscal rule that requires the government to set aside a fixed share of the province's total revenue in a new consolidated savings fund with a target of building up a CAD 100 billion net asset position by 2030 (Alberta Financial Investment and Planning Advisory Commission, 2007). In addition, the Commission recommended that any year-end surpluses be used first to top up a CAD 3.5 billion macroeconomic stability fund (a re-purposed ASF), as required, and that at least 75% of the rest be allocated to the new consolidated savings fund. Only 4.5% of the value of the fund could be disbursed annually. Such a saving policy, when combined with a spending growth rule, would have the major advantage of building up more savings in good times, rather than using revenue windfalls to ramp up spending. Savings could be used in bad times to avoid cutting back on public services. That would no longer amplify the business cycle.

British Columbia

Due to the effects of the economic crisis on provincial finances, the government amended its *Balanced Budget and Ministerial Accountability Act* in 2009 to permit temporary deficits until 2012/13. The official fiscal-consolidation plan thus states that the budget must be balanced in 2013/14 and that the debt-to-GDP ratio will decline thereafter. The government's projections are for total expenses to rise by about 2.4% per year until balance is achieved. The simulations project no deficits in 2011 and 2012 even under baseline assumptions, but a return to deficit starting in 2013 unless some effort at reducing spending growth relative to recent trends is made. Limiting discretionary spending growth to about 2.5% per year would reduce the net debt-to-GDP ratio to zero by the end of the decade. The government hopes to achieve most of the savings required in its consolidation plan by attrition in the public sector, taking advantage of upcoming baby-boom retirements, and by tight expenditure controls, notably the "zero cost" mandate under which renegotiated collective agreements must result in no new cost to government. Penalties on Ministers' salaries will be imposed if targets are not met. On the revenue side, the health-care premium (a fixed head tax which must be paid in order to qualify for Medicare benefits) is being raised as of 2011.[15] On the other hand, the government has said that health-care spending, which continues to increase, would not be affected by the effort to restrain spending growth, a promise it might have to reconsider in light of the savings potential of structural reform in the health sector. Like Ontario, British Columbia is harmonising its provincial retail sales tax with the federal GST, effective 1 July 2010, however, it too should reduce the too-numerous exemptions to improve the tax's efficiency.[16]

15. Maximum monthly premium rates will increase by CAD 3.50 per month to CAD 60.50 for single persons, by CAD 7 per month to CAD 115 for two person families and by CAD 7 per month to CAD 121 for families of three or more persons.

16. On top of exemptions and zero ratings already provided under the GST, point-of-sale rebates for the provincial portion of the harmonised sales tax (HST) will be provided in British Columbia for motor fuels,

Territories

The Yukon projects a balanced budget in 2010/11 after a deficit in the previous fiscal year. The simulations suggest, however, that on a national accounts basis the territory is in a deficit position and should limit discretionary spending growth to 1.5% over the next few years to balance its budget by 2014. Spending growth could increase thereafter and the objective switch to maintaining balance, given that it is already in a net asset position. As to the Northwest Territories and Nunavut, both expect a small budgetary surplus in 2010/11 after deficits in 2009/10. They are analysed as a single unit in the simulations, which suggest that, on a national accounts basis, their combined deficit could be eliminated by 2015 by limiting discretionary-expenditure growth to between 0.5% and 1%.

Consolidation plans announced to date are broadly consistent with these recommendations

To date, the federal government and virtually all provincial and territorial governments have committed to return to budget balance over the medium term and have begun to elaborate specific plans to meet their commitments. These plans focus primarily on expenditure restraint measures, including for example limits to public sector wage growth, although some provinces have also introduced revenue-raising measures such as increases to consumption taxes. The plans are broadly consistent with the recommendations made in this paper and should allow Canada to return to budget balance over the medium term.

Well-designed fiscal rules can help fiscal consolidation and strengthen fiscal frameworks

Fiscal rules can potentially be useful in achieving consolidation, particularly in avoiding "consolidation fatigue" when multi-year plans are required, as they are in many Canadian jurisdictions. A fiscal rule can be defined in general terms as a constraint on fiscal policy expressed in terms of an indicator of overall fiscal performance. In the study on fiscal-consolidation episodes cited in Box 2, the size of fiscal consolidation was significantly larger and the consolidation efforts sustained for longer when such rules were present. On the basis of a detailed analysis of 12 fiscal-consolidation episodes, however, Lilico, Holmes and Sameen (2009) argue that in periods of significant consolidation, self-imposed fiscal rules seem to have had limited, if any, role compared to a "just do it" culture.[17] They have rather tended to be used after successful consolidations, in an attempt to "lock in" success and as an expression of cultural change, not as substitutes for it. What is clear is that the rationale for fiscal rules goes beyond possibly helping to achieve fiscal consolidation. Perhaps most importantly, rules can strengthen fiscal frameworks for the post-consolidation period when the impetus for fiscal discipline is likely to fade.

Fiscal rules help counteract perverse government incentives

The main rationale for the introduction of a fiscal rule, whether a government needs to embark on fiscal consolidation or not, is to improve the credibility of government policy over time; in other words, to improve the time consistency of fiscal policy. The time-consistency problem stems from the existence of a deficit bias in the conduct of fiscal policy, which in turn originates from a common-pool resource problem, as argued by Hagen (1992). In this view, politicians and constituencies benefit from specific spending programmes, while imposing the costs on a common pool. Due to this negative externality, the individually rational strategies generate budgets that are sub-optimal from the perspective of the group. The equilibrium

---

books, children's clothing and footwear, children's car seats and car booster seats, children's diapers and feminine hygiene products. In addition, a provincially administered credit equal to the provincial portion of the HST will be provided for residential energy purchases.

17. Studies of the influence of fiscal rules on budget outcomes that focus on the Canadian experience include Millar (1997), Bird and Tassonyi (2003) and Tellier and Imbeau (2004).

outcome is an inefficient excess appropriation of the common pool of revenue. In an inter-temporal version of the model, short-run political expediency and a lack of understanding of the government inter-temporal budget constraint by the electorate leads to spending that is too high and financed by deficits, with all the ensuing economic and distributional effects of public-debt accumulation, including redistribution from the unborn to the present generations.[18] The results of this dynamic can be seen across OECD countries, almost all of which have tended to run budget deficits year after year in recent history. Fiscal institutions in general, including formal and informal rules, can potentially enhance fiscal discipline and thus counteract the deficit bias.

Another rationale for fiscal rules is to support macroeconomic stability. A lack of fiscal discipline by governments can reduce the natural counter-cyclical role of fiscal policy to the point of rendering it pro-cyclical. By helping to restore counter-cyclicality, fiscal rules can lessen the burden on monetary policy to damp output fluctuations. Fiscal policy has indeed tended to be pro-cyclical in many Canadian jurisdictions over the past quarter century, particularly in Alberta, Ontario and Manitoba (Guillemette, 2010).

The design of fiscal rules matters

The specifics of the rule or rules chosen to guide budgeting are important determinants of its efficacy. Inappropriate fiscal rules can be destabilising, such as balanced-budget rules that may force governments to cut spending when revenue falls during a downturn (as occurred recently in many US states). Fiscal rules may also lead to behaviour aimed at respecting the letter but not the spirit of the rule (Koen and van den Noord, 2005). Box 3 outlines a list of criteria that a good fiscal rule should meet.

Box 3. **Criteria for evaluating a fiscal rule**

The characteristics of the fiscal rule determine its credibility with the capital markets and the electorate and its efficacy in reaching the government's fiscal targets. Following Kopits and Symansky (1998), a good fiscal rule would:*

Have a track record of satisfactory compliance. For instance, while it did not involve fiscal rules per se, the approach taken in the mid-1990s by the federal government worked well for several years in that it achieved the objective of eliminating the federal deficit and reducing the level of debt. These objectives may have been achieved at the expense of creating other problems with the fiscal framework, such as too much caution in forecasting (O'Neill, 2005), but the success achieved with respect to the main objectives argues for using a similar approach in the coming years.

Be supported by well-specified policy measures. For instance, a fiscal rule that limits the growth rate of expenditure should be accompanied by specific explanations of how the reduction in spending growth is to be achieved, including, if necessary, structural reform (*e.g.* reforms to social entitlement programmes). In the case of provinces, health-sector reforms are especially important to limit expenditure growth, given this sector's relative size in provincial budgets.

Be well defined and transparent. The indicator to be constrained, the institutional coverage, the specific escape clauses and the accounting and forecasting concepts used should all be clearly spelled out to improve transparency and avoid ambiguities and ineffective enforcement.

Target the objective. The rule specified should correspond directly to the objective sought. For instance, sustainability of the public debt-to-GDP ratio would require a rule expressed as a maximum and non-increasing debt ratio, perhaps in conjunction with other rules on expenditure growth, etc, that support this objective.

Be consistent with other rules and objectives of the government. For instance, price stability being an objective of the central bank, a fiscal rule should support price stability by avoiding pro-cyclical fiscal policy.

18. See Corsetti and Roubini (1992) and Alesina and Perotti (1996).

Be simple. The simplicity of a fiscal rule enhances its appeal and understanding, to politicians and members of the public alike, making it more likely to be followed.

Be flexible. A fiscal rule should be flexible enough to accommodate exogenous shocks beyond the control of the authorities, but there can be tradeoffs between flexibility and other objectives. Fiscal rules defined over the medium term, or in terms of cyclically adjusted balances, can allow flexibility over a strict year-to-year budget balance rule, but at the cost of diminished simplicity, transparency and possibly credibility. A highly flexible rule can even border on discretion.

Be enforceable. The consequences for non-compliance, whether in the form of financial, judicial or reputational sanctions, should be clearly spelled out. The likelihood of enforcement, both by the capital markets and from self-imposed mechanisms, is increased if an independent authority is responsible for monitoring compliance.

* See also Anderson and Minarik (2007).

Conclusions and recommendations

Box 4 gathers the paper's principal recommendations on the fiscal strategies and processes that should support the fiscal-consolidation drive in the years to come, many of which echo the recommendations of the OECD Working Party of Senior Budget Officials (OECD, 2010b). In the end, however, commitments and institutional rules cannot achieve fiscal consolidation on their own, and laws are simply laws; they can be altered and abolished at any time, as indeed many have been in response to the latest recession. Immediate action to address long-term structural issues that threaten fiscal sustainability is what is needed, both to achieve targets and to reassure markets. In many countries, reforming public pension plans are the principal challenge when it comes to fiscal sustainability. In Canada, the principal challenge is to reform provincial health-care systems to reduce the pace of spending increases without sacrificing service quality.

Box 4. **Fiscal policy recommendations**

Recommendations for all jurisdictions:

- For jurisdictions with large deficits: maintain ambitious but achievable deficit targets on the way to a balanced budget. Then, and for jurisdictions not in deficit but with a significant debt burden, announce medium-term debt-to-GDP-ratio targets accompanied by fiscal-balance or surplus targets consistent with meeting these debt targets. Allocate realised surpluses automatically to debt reduction.

- Begin fiscal consolidation in 2011 by allowing temporary stimulus measures to expire as planned. Make restraining the growth of expenditure the cornerstone of fiscal-consolidation strategies, and consider supporting this approach by legislating spending growth caps for which governments can be directly held to account.

- To enhance credibility, flesh out existing fiscal-consolidation plans including, where necessary, plans for structural reforms. Implement these plans starting in 2011. Adopt or implement existing public-sector wage-restraint policies.

- If raising new revenue is necessary, use instruments that reduce or minimise distortions to economic efficiency. Start with broadening tax bases by eliminating tax expenditures that do not have a compelling economic rationale. Then use measures that correct negative externalities (*e.g.* carbon tax or emission permit auctions) or relatively efficient taxes (*e.g.* value-added taxes and property taxes at the local level).

- Consider establishing provincial budget agencies similar to the federal Parliamentary Budget Office that provide independent analysis of fiscal forecast and cost estimates for policy proposals; and/or an agency reporting to the Council of the Federation and tasked with providing independent analysis on provincial fiscal matters.

Some jurisdiction-specific recommendations:

- *Federal government.* Continue working toward a more stable, permanent, rules-based system for determining transfers to provincial governments so as to enhance planning certainty and at the same time place "harder" budget constraints on provinces.

- *Quebec*. Wind up the Generations Fund and apply the remaining assets to debt reduction.

- *Ontario*. Bring forward the target date for balancing the budget and be more ambitious in restraining non-health spending growth.

- *Alberta*. Implement the recommendations of the Alberta Financial Investment and Planning Advisory Commission. In particular, legislate a fiscal rule that directs a fixed share of total revenue into a long-term investment fund and allows a maximum share of the fund to be spent each year.

Bibliography

Alberta Financial Investment and Planning Advisory Commission (2007), *Preserving Prosperity –Challenging Alberta to Save*, Alberta Financial Investment and Planning Advisory Commission Report and Recommendations, Government of Alberta, Edmonton.

Alesina, A.F. and R. Perotti (1996), "Budget Deficits and Budget Institutions", *IMF Working Paper*, No. 96/52, IMF, Washington, D.C.

Alesina, A.F. and S. Ardagna (2009), "Large Changes in Fiscal Policy: Taxes versus Spending", *NBER Working Paper Series*, No. 15438, National Bureau of Economic Research, Cambridge, MA.

Anderson, B. and J.J. Minarik (2007), "Design Choices for Fiscal Policy Rules", *Fiscal Policy: Current Issues and Challenges*, Banca d'Italia, Rome, pp. 513-55.

Arnold, J. (2008), "Do tax structures affect aggregate economic growth? Empirical evidence from a panel of OECD countries", *OECD Economics Department Working Papers*, No. 643, OECD, Paris.

Beffy, P.-O. P. Ollivaud, P. Richardson and F. Sedillot (2006), "New OECD methods for supply-side and medium-term assessments: a capital services approach", *OECD Economics Department Working Papers*, No. 482, OECD, Paris.

Bélanger, A., L. Martel and E. Caron-Malenfant (2005), *Population Projections for Canada, Provinces and Territories – 2005-2031*, Catalogue No. 91-520-XIE, Statistics Canada, Ottawa.

Bélanger, G. and J-T. Bernard (2009), "Québec se prive annuellement de centaines de millions", *Cyberpresse*, 13 March, www.cyberpresse.ca/le-soleil/opinions/points-de-vue/200903/13/01-836163-quebec-se-prive-annuellement-de-centaines-de-millions.php.

Bird, R.M. and A. Tassonyi (2003), "Constraining Subnational Fiscal Behavior in Canada: Different Approaches, Similar Results?" in J.A. Rodden, G.S. Eskeland and J. Litvack (eds.), *Fiscal Decentralization and the Challenge of Hard Budget Constraints*, MIT Press, Cambridge, MA, pp. 85-132.

Bourgon, J. (2009), *Program Review: The Government of Canada's Experience Eliminating the Deficit, 1994-1999 – A Canadian Case Study*, The Centre for International Governance Innovation, Waterloo.

Bouthevillain, C., L. Paul and J. Pavot (2007), "Debt retrenchment strategies and control of public spending", *Banque de France Bulletin Digest*, No. 161, Banque de France, Paris.

Boyer, M. (2005), "Raise Electricity Prices in Quebec – and Benefit Everyone", *C.D. Howe Institute e-brief*, No. 13, C.D. Howe Institute, Toronto, www.cdhowe.org/pdf/ebrief_13_english.pdf.

Boyer, M. (2007), "Higher Electricity Prices Can Unleash the Value of Quebec's Energy Potential", *Economic Note*, Montreal Economic Institute, Montreal, www.iedm.org/uploaded/pdf/avril2007_en.pdf.

Briotti, M.G. (2005), "Economic Reactions to Public Finance Consolidation: A Survey of the Literature", *European Central Bank Occasional Paper Series*, No. 38, ECB, Frankfurt.

Corsetti, G. and N. Roubini (1992), "Tax Smoothing Discretion Versus Balanced Budget Rules in the Presence of Politically Motivated Fiscal Deficits: The Design of Optimal Fiscal Rules for Europe after 1992", *CEPR Discussion Paper*, No. 682, Centre for Economic Policy Research, London.

Corsetti, G., K. Kuester, A. Meier and G. Müller (2010), "Debt consolidation and fiscal stabilization of deep recessions", *CEPR Discussion Paper*, No. 7649, Centre for Economic Policy Research, London.

Deloitte & Touche (2009), *Province of Nova Scotia Financial Review – Interim Report*, www.gov.ns.ca/finance/site-finance/media/finance/final_report.pdf.

Fink, A. and T. Stratmann (2009), "Institutionalized Bailouts and Fiscal Policy: The Consequences of Soft Budget Constraints", *CESifo Working Paper*, No. 2827, CESIFO, Munich.

Girouard, N. and C. André (2005), "Measuring cyclically adjusted budget balances for OECD countries", *OECD Economics Department Working Papers*, No. 434, OECD, Paris.

Government of Quebec (2008), *The Right Fees to Live Better Together – Report – Task Force on Fees for Public Services*, www.gttsp.gouv.qc.ca/RapportENG_GTTSP.pdf.

Guichard, S., M. Kennedy, E. Wurzel and C. André (2007), "What promotes fiscal consolidation: OECD country experiences", *OECD Economics Department Working Papers*, No. 553, OECD, Paris.

Guillemette, Y. (2010), "A simulation model of federal, provincial and territorial government accounts for the analysis of fiscal-consolidation strategies in Canada", *OECD Economics Department Working Papers*, No. 800, OECD, Paris.

Hagen, J. von (1992), "Budgeting Procedures and Fiscal Performance in the European Communities", *European Economy – Economic Papers*, No. 96, Commission of the EC –Directorate-General for Economic and Financial Affairs (DG ECFIN), Brussels.

Joanis, M. and C. Montmarquette (2004), "La dette publique: un défi prioritaire pour le Québec", *Choix*, Vol. 10, No. 9, Institute for Research on Public Policy, Montreal, www.irpp.org/fr/choices/archive/vol10no9.pdf.

Johansson, A., C. Heady, J. Arnold, B. Brys and L. Vartia (2008), "Tax and economic growth", *OECD Economics Department Working Papers*, No. 620, OECD, Paris.

Kennedy, S. and J. Robbins (2001), "The Role of Fiscal Rules in Determining Fiscal Performance", *Department of Finance Working Paper*, No. 2001-16, Department of Finance Canada, Ottawa.

Koen, V. and P. van den Noord (2005), "Fiscal gimmickry in Europe: one-off measures and creative accounting", *OECD Economics Department Working Papers*, No. 417, OECD, Paris.

Kopits, G. and S. Symansky (1998), "Fiscal Policy Rules", *IMF Occasional Paper*, No. 162, International Monetary Fund, Washington, D.C.

Krejdl, A. (2006), "Fiscal Sustainability – Definition, Indicators and Assessment of Czech Public Finance Sustainability", *Czech National Bank Working Paper Series*, No. 2006/3, Czech National Bank, Prague.

Kumar, M.S., D. Leigh and A. Plekhanov (2007), "Fiscal Adjustments: Determinants and Macroeconomic Consequences", *IMF Working Paper*, No. WP/07/178, International Monetary Fund, Washington, D.C.

Laberge, M. (2008), "Tuition Fees and the Long-Term Financing of Universities", *Economic Note*, Montreal Economic Institute, Montreal, www.iedm.org/uploaded/pdf/octobre08_en.pdf.

Lilico, A., E. Holmes and H. Sameen (2009), *Controlling Spending and Government Deficits – Lessons from History and International Experience*, Policy Exchange, London, www.policyexchange.org.uk/images/publications/pdfs/Controlling_Public_Spending_-_Nov_09.pdf.

Millar, J. (1997), "The Effects of Budget Rules on Fiscal Performance and Macroeconomic Stabilization", *Bank of Canada Working Paper*, No. 97-15, Bank of Canada, Ottawa.

Nova Scotia Economic Advisory Panel (2009), *Addressing Nova Scotia's Fiscal Challenge – A report prepared by the Nova Scotia Economic Advisory Panel for Premier Darrell Dexter*, www.gov.ns.ca/PPO/PDFs/EAP_FinalReport_Nov12_rev.pdf.

OECD (2010a), *Tax Expenditures in OECD Countries*, Paris, OECD.

OECD (2010b), *Restoring Fiscal Sustainability: Lessons for the Public Sector*, OECD Public Governance Committee – Working Party of Senior Budget Officials, Paris.

O'Neill, T. (2005), *Review of Canadian Federal Fiscal Forecasting – Processes and Systems*, O'Neill Strategic Economics.

Orr, D. (2009), *How Increases in EI Premiums Speed Up Deficit Reduction*, Dale Orr Economic Insight, www.economicinsight.ca.

Parliamentary Budget Office (2010), *Fiscal Sustainability Report*, Parliamentary Budget Office, Ottawa, www2.parl.gc.ca/Sites/PBO-DPB/documents/FSR_2010.pdf.

Pembina Institute and David Suzuki Foundation (2009), *Climate Leadership, Economic Prosperity: Final report on an economic study of greenhouse gas targets and policies for Canada*, http://pubs.pembina.org/reports/climate-leadership-report-en.pdf.

Pierlot, J. (2008), "A Pension in Every Pot: Better Pensions for More Canadians", *C.D. Howe Institute Commentary*, No. 275, C.D. Howe Institute, Toronto, www.cdhowe.org/pdf/Commentary_275.pdf.

Reinhart, C.M. and K.S. Rogoff (2010), "Growth in a time of debt", *American Economic Review*, Vol. 100, No. 2 (May), pp. 573-578.

Robson, W.B.P. (2010), "The Glacier Grinds Closer: How Demographics Will Change Canada's Fiscal Landscape", *C.D. Howe Institute e-brief*, No. 106, C.D. Howe Institute, Toronto, www.cdhowe.org/pdf/eBrief_106_Robson.pdf.

Röhn, O. (2010), "New evidence on the private saving offset and Ricardian equivalence", *OECD Economics Department Working Papers*, No. 762, OECD, Paris.

Shiell, L. and C. Busby (2008), "Greater Saving Required: How Alberta can Achieve Fiscal Sustainability from its Resource Revenues", *C.D. Howe Institute Commentary*, No. 263, C.D. Howe Institute, Toronto, www.cdhowe.org/pdf/commentary_263.pdf.

Smart, M. (2005), "Federal Transfers: Principles, Practice and Prospects", *C.D. Howe Institute Working Paper*, Prepared for the Policy Conference "Federal-Provincial Fiscal Reform", 23 June 2005, Toronto, www.cdhowe.org/pdf/workingpaper_2.pdf.

Tellier, G. and L.M. Imbeau (2004), "Budget deficits and surpluses in the Canadian provinces: a pooled analysis", Paper presented at the annual conference of the European Public Choice Society, Berlin, April.

Treasury Board of Canada Secretariat (2006), *Expenditure Review of Federal Public Sector – Volume One – The Analytical Report and Recommendation*, Treasury Board, Ottawa, www.tbs-sct.gc.ca/report/orp/2007/er-ed/vol1/vol1-eng.asp.

Annex A1

Summary description of the medium-term fiscal simulation model

The basic idea behind the model is to estimate output gaps for each of the provinces and territories on the basis of simple aggregate supply and demand concepts, and then use these output gaps as cyclical indicators to examine the influence of economic conditions on fiscal variables. Below is a summary of the methodology, which is detailed in Guillemette (2010).

Estimation of output gaps over history and projections

A first estimate of potential output is obtained using a production function on the basis of the working-age population, the trend labour force participation rate, the natural rate of unemployment, trend hours worked, the capital stock and trend labour-augmenting technical progress. This methodology is similar to that of the *OECD Economic Outlook* which is described in Beffy *et al.* (2006). A second estimate of potential output is obtained by simply filtering historical GDP estimates using the Hodrick-Prescott filter. The final potential-output estimate used is the average of the production-function and HP-filter estimates. Historical output gaps from 1981 to 2008 are calculated as percentage deviations of official real GDP estimates from these potential-output estimates.

For the projection period 2009 to 2020, potential-output estimates are extended using population projections, projections of trend labour force participation rates on the basis of recent averages of age- and sex-specific participation rates, projections of hours worked and technical efficiency assuming continuation of historical trends, and assuming that the natural rate of unemployment remains near recent estimates. The capital stock is projected on the basis of historical accumulation and scrapping rates, but adjusted slightly so that once aggregated for the country as a whole, projections of potential output match the projection made for Canada in *OECD Economic Outlook* 87. Demand-side projections are then needed in order to derive output-gap projections. First, near-term GDP growth forecasts for 2010 and 2011 by province are taken from a private-sector forecaster and adjusted so that the Canada-wide projections match those of *OECD Economic Outlook* 87. An external source is necessary because the OECD does not produce projections at the provincial/territorial level. Then, for the years 2012 to 2020, two different approaches are used.

Under the first approach, similar to that used to produce the *OECD Economic Outlook* medium-term baseline, projected output gaps in 2011 are simply assumed to close linearly over a chosen number of years. For consistency and comparability with the *OECD Economic Outlook* 87 medium-term baseline, output gaps are assumed to close over a four-year period, so that they are completely closed in 2015. Thereafter, output grows at its potential rate, so output gaps remain closed. A second approach, based on stochastic methods, allows the simulation of a large number of plausible paths for output gaps and the construction of probability densities for economic (and eventually fiscal) variables. Under this approach, GDP growth rates by province/territory for each year from 2012 to 2020 are drawn from a multivariate normal distribution. The vectors of means and standard deviations are based on historical GDP growth rates from 1981 to 2008, and the full cross-correlation matrix of provincial growth rates based on the historical period is used to take into account contemporaneous correlation between provincial/territorial

economic conditions. GDP deflators by province are projected using a simple relationship in which GDP inflation depends on the size of the provincial and national output gaps.

Influence of economic conditions on fiscal variables

The fiscal accounting framework used is that of Statistics Canada's Provincial Economic Accounts (PEA), which is consistent with the national accounts framework. The most recent historical figures available are for 2007. Other data sources, including Statistics Canada's Financial Management System, as well as official fiscal documents from the various jurisdictions, are used to extend PEA figures to today and for near-term fiscal projections. Balance-sheet figures are from Statistics Canada's Government Financial Statistics, which are also consistent with the national accounts. Some revenue categories are assumed to be cyclical, or non-discretionary, namely personal and business income taxes, social insurance contributions, indirect taxes and the share of investment income due to royalties from natural resources. Non-cyclical revenue categories are assumed to grow at the rate of nominal potential output, while the cyclical ones are assumed to depend on output gaps according to estimated elasticities (see below). The exception is royalties from natural resources. In provinces where such royalties account for a large share of investment income, cyclical royalties are assumed to be influenced by "commodity price gaps". These are similar in spirit to output gaps, but they are computed as differences between current real energy and non-energy commodity prices relative to equilibrium values, which are assumed to be 10-year moving averages of Bank of Canada commodity price indices. One spending category, transfers to persons, is assumed to be cyclical. Others are considered discretionary variables – transfers to other levels of government, net expenditure on goods and services, transfers to businesses and investment in fixed capital and inventories – and the rest are assumed to be non-cyclical and to grow along with nominal potential output.

The sensitivity of cyclical revenue and expenditure categories with respect to their respective cyclical indicators are estimated separately for each jurisdiction using mainly regression analysis but also other techniques following the general approach described in Girouard and André (2005) and used for cyclical fiscal adjustments in the *OECD Economic Outlook*.

Other model features and outputs

The sensitivity estimates allow the calculation of historical cyclically adjusted budget balances for each jurisdiction. Cyclically adjusted primary balances are also computed. These cyclically adjusted balances can be used along with output-gap estimates to study the historical stance of fiscal policy in each jurisdiction. Sensitivity estimates are also used to project cyclical government revenue and expenditure over the medium term by applying them to projected output gaps under either the deterministic or the stochastic approaches. To obtain a full set of fiscal projections, a few other model features are needed. *First*, non-cyclical revenue and expenditure are projected by making them grow at the rate of growth of nominal potential output. *Second*, investment income due to natural resource royalties is projected by assuming that real commodity prices stay constant at the last historical observation over the projection period, so that "commodity price gaps' are closed by the end of the projection period. *Third*, investment income not due to royalties is assumed to depend on the level of financial assets (which grow at the rate of potential output except if gross debt reaches zero in which case surpluses add to financial assets) and on long-term interest rates as projected in *OECD Economic Outlook* 87, with the recent historical spread over the long-term interest rate remaining constant over the projection period. As for stocks, net debt changes along with net lending. Market debt is obtained by identity and non-market debt grows at the rate of potential output. Interest on the public debt is assumed to depend on the level of market debt, on a blended interest rate and on the term structure of market debt. The blended interest rate on market debt is modelled using a dynamic equation with interest-rate inertia. To take into account the reaction of capital markets to

fiscal positions, market interest rates are adjusted using a spread that depends on fiscal balances and debt, using estimates from the empirical literature.

Assumptions then have to be made for discretionary fiscal variables, which are all spending and transfer variables. These can be varied to construct different scenarios, in either the deterministic or the stochastic approaches, to study the influence of government decisions on future fiscal outcomes and on the likelihood of reaching certain targets. The baseline assumptions derived by extrapolating recent trends are described below.

Baseline fiscal assumptions

For the federal government, actual fiscal results for all budget categories are available for 2008 and 2009 in the regular quarterly National Accounts releases. Assumptions for discretionary variables for 2008, 2009 and 2010 for the provinces and territories and for 2010 for the federal government are derived from official budget documents. They are as follows:

- "Net current expenditure on goods and services" and "current transfers to businesses" are assumed to grow at the budgeted rate of growth of programme/operating expenditure. The reason for applying this assumption to transfers to businesses is that there is typically no budget line that corresponds closely to transfers to businesses, and, in any case, these are invariably a small share of current expenditures.

- "Investment in fixed capital and inventories" is assumed to grow at the budgeted rate of growth of capital expenditure, or, when available in the statement of change in net debt, of acquisition of tangible capital assets. This category does not include depreciation allowances (which are assumed to grow at the rate of nominal potential output) and net capital transfers (which are set to zero).

- The rates of growth of federal transfers to provinces are obtained from provincial and territorial budget documents.

- The rates of growth of provincial transfers to local governments are assumed to remain at their 1997-2007 average growth rates.

For 2011 and beyond, the baseline assumptions for federal and provincial discretionary fiscal variables are as follows:

- The rate of growth of federal "current transfers to provincial governments" is assumed to be 4.8%, based on a weighted average of the size of major transfers and their expected growth rates. The Canada Health Transfer (CHT) and the Canada Social Transfer (CST) are currently legislated to grow at 6% and 3%, respectively, and Equalization grows at a three-year moving average of nominal GDP growth.[1] After the current legislation expires in 2013/14, the overall rate of growth of federal transfers remains at 4.8% on a business-as-usual basis.

- The growth rates of "net current expenditure on goods and services" and "current transfers to businesses" are set equal to the average rate of growth of "net current expenditure on goods and

1. In November 2008, the federal government announced changes to the Equalization formula to limit increases in payments that would have otherwise occurred given buoyant resource revenue in Alberta. It put a limit on the total amount that would be paid out – the limit is set to grow at a three-year moving average of nominal GDP.

services" over the 1997-to-2007 period. The reason why historical growth rates of "current transfers to businesses" are not used is that there is too much year-to-year variation in this expenditure category historically, especially in small provinces, so the growth rate would depend too much on the particular start and end years. The 1997-to-2007 period is chosen because 2007 is the last year for which data are available from the PEA, and it avoids the more recent period where fiscal stimulus temporarily increased the rate of growth of expenditure.

- The level of "investment in fixed capital and inventories" in 2011 is assumed to fall back to its 2008 level as stimulus spending is withdrawn. Almost all jurisdictions saw large cumulative increases in this spending category in 2009 and 2010 because a significant portion of stimulus spending in provinces was targeted on infrastructure, with the help of federal transfers earmarked for infrastructure. Post 2011, "investment in fixed capital and inventories" grows at its average rate of growth over the 1997-to-2007 period (1999 to 2009 for the federal government).

- Provincial/territorial "current transfers to local governments" are assumed to grow at their 1997-2007 average growth rates until the end of the projection period.

The fiscal assumptions are summarised in Table A1.1.

Differences between projections based on national accounts versus public accounts

The projections given by the model, based on national accounts concepts, can differ substantially from official government projections, based on public accounts concepts. For instance, some jurisdictions exclude certain government entities from their headline fiscal projections that would be included in the national accounts system. Also, fiscal targets based on national accounts concepts are implicitly more stringent than targets based on public accounts concepts as net lending balances are currently more negative than public accounts balances. This is because net lending is a cash-based concept and therefore includes the full cash outlay associated with capital purchases rather than just the amortised amount, as in the public accounts. For example, the net lending balance averaged almost a full percentage point of GDP less than the corresponding public accounts figure for provinces and territories between 2000/01 and 2009/10. As a result, returning to balance on a net lending basis is equivalent to targeting a surplus of about 1% of GDP on a public accounts basis. Another difference is that public accounts use fiscal years (which end on 31 March) whereas national accounts and therefore the simulations use calendar years.

Table A1.1. **Short- and medium-term fiscal assumptions in the baseline scenario**

Growth rate of …		NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	YT	NT&NU	Federal
		Variables that change after 2010 depending on the scenario												
… current transfers from federal government	2009	-38.1	13.5	10.5	4.3	8.6	11.9	5.3	-6.8	18.8	14.1	3.9	2.3	n.a.
	2010	15.1	-0.2	-1.7	0.5	0.6	27.6	1.3	5.8	2.4	12.5	5.2	6.4	
	2011-13	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	
	2014-20	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	
… net current expenditure on goods and services and transfers to businesses	2009	15.7	9.8	6.3	6.7	3.8	14.8	6.9	-1.9	0.3	6.7	11.5	1.3	Actual
	2010	3.5	5.9	-0.3	1.6	2.9	6.5	1.5	0.6	3.9	2.0	-3.8	1.2	3.1
	2011	8.7	5.9	5.1	5.1	5.4	6.5	6.4	5.9	8.5	4.4	6.1	6.5	5.3
	Post-2011	8.7	5.9	5.1	5.1	5.4	6.5	6.4	5.9	8.5	4.4	6.1	6.5	5.3
… investment in fixed capital and inventories	2009	24.4	50.1	18.1	42.7	56.9	37.1	30.9	14.8	-1.3	6.2	54.2	5.1	Actual
	2010	79.6	-2.8	-9.2	45.0	3.8	15.3	39.2	-17.3	5.9	34.9	-13.8	-33.3	9.1
	2011	-55.2	-31.5	-6.8	-51.7	-38.6	-36.7	-45.1	5.3	-4.3	-30.2	-24.8	42.6	-15.9
	Post-2011	7.0	6.8	8.7	2.8	10.6	9.3	7.0	7.0	20.0	10.6	7.0	7.0	3.7
		Variable that do not change												
… current transfers to local governments	2009	2.8	5.2	2.9	1.0	4.4	5.8	1.7	5.3	8.0	2.0	-0.4	6.1	n.a.
	2010	2,8	5.2	2.9	1.0	4.4	5.8	1.7	5.3	8.0	2.0	-0.4	6.1	
	2011	2.8	5.2	2.9	1.0	4.4	5.8	1.7	5.3	8.0	2.0	-0.4	6.1	
	Post-2011	2.8	5.2	2.9	1.0	4.4	5.8	1.7	5.3	8.0	2.0	-0.4	6.1	

Source: OECD calculations.

WORKING PAPERS

The full series of Economics Department Working Papers can be consulted at www.oecd.org/eco/workingpapers/

817. *The land transport sector: policy and performance*
(November 2010) by Jan Persson and Daeho Song

816. *A simple model of the relationship between productivity, saving and the current account*
(November 2010) by Jean-Marc Fournier, Isabell Koske

815. *The impact of structural policies on saving, investment and current accounts*
(November 2010) by Clovis Kerdrain, Isabell Koske, Isabelle Wanner

814. *Towards a less distortive and more efficient tax system in Portugal*
(November 2010) by Alvaro Pina

813. *Are global imbalances sustainable? Shedding further light on the causes of current account reversals*
(November 2010) by Luiz de Mello, Pier Carlo Padoan, Linda Rousová

812. *Turkey's improving integration with the global capital market: Impacts on risk premia and capital costs*
(November 2010) by Rauf Gönenç, Saygin Şahinöz, Őzge Tuncel

811. *Trade linkages in the OECD trade system*
(October 2010) by Jérôme Brézillon, Stéphanie Guichard and Dave Turner

810. *Enhancing the effectiveness of social policies in Indonesia*
(October 2010) by Margherita Comola and Luiz de Mello

809. *Tackling the infrastructure challenge in Indonesia*
(October 2010) by Mauro Pisu

808. *Phasing out energy subsidies in Indonesia*
(October 2010) by Annabelle Mourougane

807. *Implementing cost-effective policies in the United States to mitigate climate change*
(October 2010) by David Carey

806. *Restoring fiscal sustainability in the United States*
(October 2010) by Patrick Lenain, Bob Hagemann and David Carey

805. *Norway: Sustainable development: climate change and fisheries policies*
(September 2010) by Paul O'Brien

804. *Netherlands: How the transport system can contribute to better economic and environmental outcomes*
(September 2010) by Tomasz Koźluk

803. *Public-private partnerships and investment in infrastructure*
(September 2010) by Sónia Araújo and Douglas Sutherland

802. *Sustaining the momentum of fiscal reform*
(September 2010) by Colin Forthun and Robert Hagemann

801. *The consequences of banking crises for public debt*
(September 2010) by Davide Furceri and Aleksandra Zdzienicka

800. *A simulation model of federal, provincial and territorial government accounts for the analysis of fiscal-consolidation strategies in Canada*
(September 2010) by Yvan Guillemette

799. *Product market regulation: extending the analysis beyond OECD countries*
(October 2010) by Anita Wölfl, Isabelle Wanner, Oliver Röhn, Giuseppe Nicoletti

798. *Korea's green growth strategy: mitigating climate change and developing new growth engines*
(July 2010) by Randall S. Jones and Byungseo Yoo

797. *Health-care reform in Korea*
(July 2010) by Randall S. Jones

796. *The Korean financial system: overcoming the global financial crisis and addressing remaining problems*
(July 2010) by Masahiko Tsutsumi, Randall S. Jones and Thomas F. Cargill

795. *Are global imbalances sustainable? Post-crisis scenarios*
(July 2010) by Luiz de Mello and Pier Carlo Padoan

794. *Is there a case for carbon-based border tax adjustment? An applied general equilibrium analysis*
(July 2010) by Jean-Marc Burniaux, Jean Chateau and Romain Duval

793. *Promoting potential growth: The role of structural reform*
(July 2010) by Luiz de Mello and Pier Carlo Padoan

792. *Catching-up and inflation in Europe: Balassa-Samuelson, Engel's law and other culprits*
(July 2010) by Balázs Égert

791. *Do product market regulations in upstream sectors curb productivity growth? Panel data evidence for OECD countries*
(July 2010) by Renaud Bourlès, Gilbert Cette, Jimmy Lopez, Jacques Mairesse, Giuseppe Nicoletti

790. *Preparing for Euro adoption in Poland*
(July 2010) by Rafal Kierzenkowski

789. *Gauging the impact of higher capital and oil costs on potential output*
(June 2010) by Boris Cournède

788. *The German banking system: lessons from the financial crisis*
(June 2010) by Felix Hüfner

787. *Measuring competition in Slovenian industries - estimation of mark-ups*
(June 2010) by Margit Molnar