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FISCAL FUTURES, INSTITUTIONAL BUDGET REFORMS, AND THEIR EFFECTS: WHAT CAN BE LEARNED?

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For further information, please contact James SHEPPARD (tel. +33 1 45 24 93 81 - Email: james.sheppard@oecd.org) or Barry ANDERSON (tel. +33 1 45 24 90 85 - Email: barry.anderson@oecd.org)

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ABSTRACT

Long-term fiscal projections provide a basis to discuss the sustainability of current public policies over an extended period (10 years or more) against select summary fiscal indicator(s). They do so by modelling future government expenditures and revenues based upon a number of explicit demographic, macroeconomic, microeconomic, and other assumptions. Such projections have been considered best practice for budget/fiscal transparency for nearly a decade, yet their use is still limited to a relatively small number of industrialised countries. This paper extrapolates evidence from 12 OECD countries of the role of fiscal projections in balancing political pressures for short-term spending against fiscal pressures and risks over an extended time horizon. The paper makes recommendations concerning three aspects of fiscal projections: their frequency; their analytical quality; and their institutional quality.

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PART I. LONG-TERM FISCAL PROJECTIONS AS AN INSTITUTIONAL BUDGET REFORM

I.A. INTRODUCTION

Long-term fiscal projections provide a basis to discuss the sustainability of current public policies over an extended period (10 years or more) against select summary fiscal indicator(s).[1] They do so by modelling future government expenditures and revenues based upon a number of explicit demographic, macroeconomic, microeconomic, and other assumptions. Over the last decade, fiscal projections have become increasingly common within OECD countries: in the mid 1990s, projections were published in only a couple of countries, *e.g.* New Zealand, Norway and the United States; in 2009, 20 countries report that they prepare them (see Table I.1). The time horizon of fiscal projections varies among countries, from 25 years in Korea to approximately 100 years in the Netherlands. While the majority of these countries prepare fiscal projections on an annual basis, six countries prepare them on a regular periodic basis (every three to five years) and four prepare them on an *ad hoc* basis. In parallel with these developments, attention to fiscal projections and fiscal sustainability has become more prominent in the monitoring and surveillance work of international organisations, including the European Commission, the International Monetary Fund, the International Public Sector Accounting Standard Board,[2] and the Organisation for Economic Cooperation and Development.

Although a growing number of countries publish fiscal projections, cross country attention to them remains limited, and an assessment of their effectiveness has been absent altogether. This paper seeks to explore three questions regarding fiscal projections:

- How have countries reformed their budget institutions and decision-making procedures to more effectively cope with the challenge of fiscal sustainability;
- What evidence is there regarding the effectiveness of fiscal projections in managing the political incentives that result in a projected mismatch of government obligations and revenues; and
- To what extent and in what ways is the experience of successful countries relevant for other countries exposed to similar fiscal pressures and risks.

[1] What constitutes the long term is subject to much discussion. Logically, the long-term is anything beyond the medium term, which itself varies between countries. Long term is typically associated with the impact across generations, where an average generation in industrialised countries approximates 30 to 40 years. The time period of more than 10 years has been selected in this paper noting that a number of countries prepare medium-term fiscal frameworks spanning up to eight years (*e.g.* Denmark and Sweden).

[2] An International Public Sector Accounting Standard Board Task Force is currently preparing a Consultation Paper to analyze existing approaches to long-term fiscal sustainability reporting. OECD staff have participated in the meetings of this Task Force.

TABLE I.1. Published fiscal projections in OECD countries[1]

Frequency fiscal projections are published?	How many years do published fiscal projections cover?					
	21-30	**31-40**	**41-50**	**51-60**	**61+**	**Total**
Annually			Belgium, Finland, France*, Hungary, Poland, Portugal, Sweden*, United Kingdom*	Czech Republic*	Denmark*, United States	11
Periodic (every 3-5 years)		Australia, New Zealand	Germany*, Ireland, Norway, Switzerland			6
Ad hoc basis	Korea[2]	Canada	Japan[3]		Netherlands	4
Total	1	3	13	1	3	

NOTES:
1. Austria, Greece, Iceland, Mexico, and Turkey responded that they did not publish fiscal projections of 10 years or more. Belgium, France, Ireland, Slovak Republic, and Spain responded that they prepare fiscal projections primarily for European Commission Stability and Convergence Program reporting.
2. **Korea,** Vision 2030 was prepared in 2030 and included projection of expenditures to meet the government's proposed policy goals.
3. **Japan**, Fiscal projections were prepared in 2007 by the Council on Economic and Fiscal Policy until 2025 and the Financial Systems Council within the Ministry of Finance until 2050.

* Countries also present fiscal projections over an infinite time horizon.

SOURCE: OECD (forthcoming); Authors' notes.

In addressing these questions, this paper focuses on the experiences of 12 OECD countries in using fiscal projections: Australia, Canada, Denmark, Germany, Korea, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States. For the most part, these countries were selected based upon responses to the 2007 OECD Budget Practices and Procedures Survey,[3] though attention is also given to the geographic coverage of countries. Canada was included because of knowledge of previous fiscal projections within government (albeit less formal in nature). In each case, a country's fiscal projections were analysed to assess their content and their linkage to other budget practices, namely fiscal rules and fiscal triggers.

The task set forward in this paper, however, is made difficult because of various conceptual and measurement issues. These relate to defining and measuring fiscal sustainability and the impact of policy reforms designed to strengthen fiscal sustainability, determining how fiscal projections are used in decision making, and assessing the quality of the projections themselves. Moreover, the relatively recent introduction of fiscal projections in some OECD countries means that it is almost certainly premature to assess their real impact. Despite these difficulties, an assessment — even if only a crude one — can help to steer policy makers towards the type of process changes that are likely to be valuable to strengthen country's respective fiscal futures.

This paper recommends that:

- **Fiscal projections should be prepared on an annual basis to draw attention to the long-term fiscal consequences of current policies, and to eliminate discretion over when projections are produced.** Periodic and/or *ad hoc* projections, as well as those out of sync with the electoral cycle,

[3] See Q. 12 "How often do you prepare long-term fiscal projections?" and "How many years do [the long-term fiscal] projections normally cover?" (accessed from www.oecd.org/gov/budget/database).

can give rise to the possibility that issues of sustainability can be temporarily shelved and to gaming as to when to prepare such analysis. While political pressures mean that governments may not be able to avoid preparing budget projections, frequent reporting supports policy and process changes.

- **Fiscal projections should incorporate comparisons with past government assessments to highlight trends regarding sustainability.** While many countries prepare fiscal projections on a regular basis, most do not provide a comparison with previous projections. Australia and the Netherlands are two notable exceptions: Australia publishes trends in spending by type and the primary balance; and the Netherlands uses a synthetic indicator and decomposes the cause of any change.
- **Fiscal projections should include sensitivity analysis (or "alternative scenarios") of demographic, macro- and micro-economic, and other assumptions to illustrate the exposure to fiscal risks caused by exogenous developments.** Sensitivity analysis serves to illustrate that projections are only projections and subject to uncertainty. Equally important is the rationale and justification for sensitivity analysis of selected variables, as well as the changes in the values underpinning the analysis and whether alternative assumptions have changed relative to previous reports.
- **Fiscal projections should clearly present changes in the methodology, key assumptions, and data sources to provide a means of assurance and credibility of their quality.** Projections are by their very nature subject to uncertainty and are sensitive to the assumptions underlying them. Disclosure and justification of changes in the underlying assumptions are one means to provide assurance about the quality of the projections and a basis for an independent review of a country's fiscal future.
- **Countries should use fiscal projections to illustrate the fiscal consequences of reforms or policy options.** It is necessary to carefully review the types of simulations used to ensure that policy options are not presented as prescriptions or means of circumventing political consultation about the types and specifics of reforms. These may serve to highlight the impact of already approved reforms (*e.g.* Denmark, Germany) or more general examples of reductions of expenditure or increases in taxation (*e.g.* Australia, the United State's Office of Management and Budget).
- **Finally, although fiscal projections should be directly tied to the annual budget, they also should be linked to other budget practices and procedures to ensure adequate attention is given to the fiscal projections prepared.** This may be accomplished through linking the results of fiscal projections to fiscal targets, medium-term budget ceilings, or entitlement benefit formulas through either hard or soft budget triggers.

The expanding use of fiscal projections in countries with very different governmental and budgetary systems seems to support that these recommendations should be relevant to a broad range of OECD and non-OECD countries alike.

The remainder of this paper is structured as follows. The first section of Part I provides a definition of fiscal projections and their rationale, describes the types of fiscal indicators used, and discusses how their effectiveness may be assessed. The second section provides an analysis of the sustainability or fiscal futures reports in 12 OECD countries to understand how their analysis is substantiated, whether or not their underlying assumptions are disclosed, and their linkage to political decision-making processes. The closing section of Part I summarises the lessons for other OECD and non-OECD countries. Descriptions of the fiscal projections in the 12 individual countries surveyed are presented in Part II. Each description provides an illustration of the approach and content of each country's fiscal futures report. The focus is not to draw

attention to the numbers *per se* but how fiscal projections are presented and linked to other budget practices and procedures.

I.B. FISCAL SUSTAINABILITY, PROJECTIONS AND OUTCOMES

This section explores the concepts of fiscal sustainability, the rationale for preparing fiscal projections, and how the impact of fiscal projections may be assessed. Fiscal sustainability is a multi-dimensional concept that incorporates an assessment of solvency, stable economic growth, stable taxes, and intergenerational fairness. It has not only financial implications but also social and political ones related to both current and future generations. While sustainability is conceptually difficult to define, fiscal indicators should be clear and easy to understand by all users of fiscal projections. Creating more complexity may, in fact, add to the opacity of projections and reduce the utility of users to understand the fiscal challenges and inform decision making.

Fiscal projections provide an assessment of the affordability of current policies, both benefits and services. They are typically based on an assumption that current policies do not change. They differ from medium-term expenditure estimates that focus on available resources for existing and new programs and initiatives over a period of three to five years. Similarly, they are much more inclusive than actuarial projections of mandatory spending (*e.g.* public pensions and health care). While there are no clear means to assess the impact of fiscal projections, this paper suggests a framework by which to do so. Note that it is not the projections themselves that have the potential of improving a country's fiscal future, but the effective communication and linkage of their assessments to decision-making practices and procedures that can ultimately help in managing the short-term political incentives that shape government spending.

I.B.1. Measuring fiscal sustainability: Concepts and indicators

A good fiscal indicator is one that sends a clear and easily understandable signal should current policy spending move beyond a defined level of sustainability (Blanchard e*t al.*, 1990). Moreover, such an indicator should be sufficiently transparent to understand how that conclusion was drawn. Clear presentation and justification of the approach, methodology, and underlying assumptions are necessary to support an open process to determine whether debts are excessive. Justification of what indicators are used helps to reorient attention away from questions of the methodology and more to the results. Developing more sophisticated estimation instruments may help to make fiscal projections more reliable (Crippen, 2003); however their complexity risks introducing opacity into the projections (Wyplosz, 2007). After all, no fiscal indicator is without it shortcomings and replacing one with a new indicator will not solve this process (Balassone *et al*., 2006).

Fiscal sustainability in its narrowest sense focuses upon government solvency measured using either government liabilities (gross or net) and/or government net worth. Each is subject to measurement issues (see Box I.1). This paper focuses upon liabilities (debt) rather because of the inherent issues in measuring some of the most important fundamentals (the ability of governments to collect taxes; heritage assets; defense assets; government obligations versus liabilities) required to assess net worth. For fiscal sustainability to be achieved, the present value of future budget surpluses must exceed the present value of future budget deficits. Alternatively, the present value of future primary surpluses must exceed the present value of future primary deficits. In other words, while there may be an overall deficit, debt service can be met and gross debt will grow at a sustainable rate.

BOX I.1. Defining government liabilities and net worth

Government liabilities may be defined in either gross or net terms. Gross liabilities comprise all financial liabilities; net liabilities comprise all financial liabilities minus all financial assets of general government. Within this category, however, attention primarily focuses upon direct explicit liabilities, *i.e.* those obligations that are certain to arise (direct) and those that are defined in laws or contract (explicit). Excluded from this category are obligations triggered by discrete but uncertain events (contingent) and/or those that represent a moral obligation or expected burden for the government (implicit).

Government net worth is the balance of all financial and non-financial assets accumulated over all debt and other liabilities. Measures of government net worth are listed in the government balance sheet. However, because of the impossibility of measuring some of the most fundamental assets and liabilities, governments really don't have comprehensive balance sheets. As such, it is difficult to assess whether government assets are indeed sufficient to cover all existing liabilities.

Using government liabilities as a measure of sustainability does not assume that they should be reduced or eliminated altogether. Rather, debt may be considered sustainable at a specific but stable debt-to-GDP ratio (e.g. Domar, 1944). Similarly, using net worth as a measure of sustainability does not assume that fiscal policy should result in the gross accumulation of assets. It should maintain, or improve, the ratio of public sector net worth to output at its current level (e.g. Buiter, 1985).

While important, solvency is an insufficient condition for fiscal sustainability. With the exception of obvious but extreme cases, the difference between solvency and insolvency is not clearly delineated. Large debts can be paid back, yet small debts may not be sustainable. Moreover, government debt may remain high for decades and experience large fluctuations over time. The British public debt-to-GDP ratio has, for example, ranged between 20 and 270 percent and averaged 117 percent over the last 300 years. Although debt may have been considered as unsustainable on a number of occasions during this period, the fact that the British government never defaulted ensured that sustainability was maintained (Wyplosz, 2007).

Any approach to assess sustainability based on solvency alone may be misleading if not based on an explicit assessment of current policies. Although future democratic governments have formal powers to amend mandatory and discretionary expenditures as well as tax policies, many potential amendments may not be politically feasible. This implies that sustainability requires that solvency be analyzed based on the assumptions of current policies and stable taxes.

While attention to solvency constitutes a common basis to assess fiscal sustainability, broader measures of fiscal sustainability are also important. Fiscal policy should also support continued stable economic growth and intergenerational fairness. Continued stable economic growth is the ability of fiscal policy to support and sustain domestic economic activity. However, it should not be assumed that governments can outgrow their fiscal pressures. Intergenerational fairness is the capacity of government to pay current obligations without shifting the cost to future generations or denying future generations many of the services that are available today. Grossly unfair distributions are not sustainable either politically, because future tax payers are likely to rebel against drastic changes in spending and confiscatory tax rates, or economically, because the well-being of the country may be retarded by tax rates that are too high, thus providing disincentives for work, savings and investment.

Balancing all elements, it is important to be able to succinctly convey whether fiscal policy is currently sustainable or not. Given the difficulties posed by the multidimensional nature of fiscal sustainability, attention has been given to using synthetic fiscal indicators to assess the stability of debt under the assumptions of current policies and a constant tax-to-GDP ratio. Synthetic indicators measure the

size of an immediate and permanent increase in tax and/or reduction in non-interest expenditure required to set the present value of all future primary spending surpluses (i.e. revenues less non-interest expenditures) equal to a specific level of debt. They may be calculated against a specific terminal date and/or an infinite time horizon to illustrate the magnitude of the policy response necessary to maintain a specific level of debt in the future.[4] Within the category, a variety of synthetic indicators are possible. Box I.2 provides an illustration of the synthetic indicators that have been used by European Commission.

BOX I.2. The European Commission's Sustainability Indicators

The European Commission typically uses two quantitative indicators to assess the sustainability of public finances of its member countries:

- **The S_1 indicator** is inspired by the tax-gap indicator (Blanchard *et al.* 1990) and the reference value for public debt defined in the Treaty on the European Community. It is defined as the size of the permanent budgetary adjustment necessary for the gross consolidated debt to reach 60 percent of GDP in 2050. The S_1 indicator is time dependent and is typically linked to a target year in the medium term (*e.g.* at the end of the time horizon of the stability program) but in principle can be calculated using any target year.
- **The S_2 indicator** is similar to the S_1 indicator with the variation of being a permanent budgetary adjustment, *i.e.* the difference between the primary balance required in a certain target year to equal the present value of the sequence of all future primary balances in percentages of GDP to the debt ratio projected at the beginning of the target year and the primary balance actually projected for the target year. The S_2 indicator thus operationalizes the theoretical benchmark of the intertemporal budget constraint.

In addition, two alternative sustainability indicators have been proposed:

- **The S_3 indicator** is a variant on the S_2 indicator but rather than defining the budgetary adjustment required to reach a debt-stabilising budget balance in 2050 (or, more generally, at the end of the period considered) as an 'abrupt' increase in the target year, the required adjustment is calibrated as a gradual improvement of the primary balance in the years leading up to the target year.
- **The S_4 indicator** is a variant on the S_1 indicator but measures the required gradual adjustment in the primary balance in the period up to the target year in order to reach the balanced budget by 2050. Since the restriction imposed by the S_4 indicator (a balanced budget) is stronger than the one associated with the S_1 indicator (a debt ratio of 60 percent of GDP in 2050), the public finance position at the end of the period considered is generally much sounder.

SOURCE: Balassone *et al.* (2009)

However, projections and synthetic indicators alone do not necessarily capture intergenerational equity: consider the net tax benefits (*i.e.* taxes paid less benefits received) received over the lifetime of different generations under current tax and spending policies.[5] Such information can be used to inform government fiscal policy setting and assess policy changes. Measures of intergenerational equity are subject to a number of caveats. Benefits that cannot be specifically linked to a particular generation are assumed to benefit all generations equally, although this may be considered uncertain due to changes in technology and the economic structure. Moreover, such calculations typically do not capture non-tangible assets so cannot give a complete picture of intergenerational redistribution. Thus, their modelling is based on a number of value judgements related to the benefits of different generations by the designers of the generational account models.

4 For example, see Blanchard's (1985) tax gap, Buiter's (1985) primary gap, and Auerbach's (1994) fiscal gap.
5 See otlikoff and Auerbach (1999).

This list is not intended as exhaustive and other approaches to conduct fiscal analysis do exist, such as balance sheet analysis, stochastic long-run forecasts, and "futures" studies. Balance sheet analysis uses the accounting concepts of assets and liabilities to assess the net worth of government in the long-term, though it tends to focus on pensions. Stochastic long-run forecasts seek to gauge the likelihood of alternative forecast outcomes. "Futures" studies provide a qualitative analysis to identify the long-term forces that will bear upon public finances and their sustainability (Heller, 2003). While these alternative methods may warrant exploration, their uses by governments are less common and beyond the scope of this paper. Common across all approaches, however, is their inability to address the uncertainty of the long-term and the absence of a single strategy to redress any imbalance in fiscal sustainability.

I.B.2. Fiscal projections and their rationale

Fiscal projections provide a means to assess fiscal sustainability based on assumptions of current policies, stable taxes, and other key demographic and micro- and macro-economic parameters. Fiscal projections can also help to support intergenerational efficiency and effectiveness of policy responses. Fiscal projections help current governments respond to known fiscal pressures and risks in a gradual manner earlier rather than later, and avoid future governments being forced to adopt sudden policy changes. Moreover, they can help to guarantee that unforeseen or less predictable fiscal pressures and risks can be more effectively managed by future governments. They do not, however, assess the efficiency of existing government policies or their desirability compared to alternatives. Nor do they automatically provide solutions to restore and/or strengthen the government's fiscal position.

Projections are one means that can be used to promote fiscal sustainability; others include the use of fiscal rules that support stability in the short- and medium-term, and programmatic reforms to entitlement spending. However, while these other budget practices can support stability they do not provide an assessment of the size or the risks associated with future fiscal pressures. Thus, projections should complement, and themselves be complemented by, the government's short-term fiscal position and structural content of fiscal policies, and influenced by institutions and political economy that is important to the successful implementation of a desired fiscal policy stance.

OECD Best Practices for Budget Transparency state that fiscal projections should cover between 10 and 40 years and be prepared or updated at least every five years or when major changes are made in revenue and expenditure programs (see Box I.3). In addition, all key assumptions underlying the long-term fiscal projections should be made explicit, together with a range of plausible scenarios. The IMF Manual on Fiscal Transparency states that governments should publish a periodic report on long-term public finances and that the focus of the projections should be on more than just demographic changes.

BOX I.3. Best practices for fiscal projections

- Baseline projections or fiscal gap analysis typically covering 10-40 years;
- Published at least every five years, or following major policy changes;
- Explicitly present all key assumptions underlying projections;
- Illustrate a range of possible projected scenarios; and
- Focus of the projections should be more than just on demographic changes.

SOURCES: Adapted from OECD (2002); IMF (2001; 2007)

Confusion can arise when differentiating between fiscal projections, medium-term budget frameworks, and actuarial projections of specific budgetary funds. Fiscal projections illustrate the nature and magnitude of future fiscal pressures and risks as a means to discuss sustainability. Medium-term

budget frameworks provide a means to support fiscal stability through signalling and programming functions. They enable budgetary resources to be programmed at an aggregate chapter (often equivalent to a government organisation) or program level. They signal the likely resources in subsequent budget years to enable managers to plan and allocate budget resources in the most efficient and effective manner to achieve the government's objectives. And insofar as they may look at debt, fiscal projections present debt as an illustration of the cumulative impact of fiscal pressures and risks.

Over the last 20 years many OECD countries have worked to stabilise and consolidate their fiscal position, balance government budgets, and reduce their respective gross and net debt. These efforts have been supported by a combination of political commitments, the introduction of modern budget practices (such as fiscal rules and medium-term budget frameworks), and increased transparency of public finances. Two-thirds of all OECD countries have improved their respective government balances and debt (both gross and net) between 1991 and 2007 (see Table I.2). While the level of government debt and the direction of its movement are important indicators of fiscal stabilisation in the medium-term, they are not appropriate measures of fiscal sustainability. Past actions do not necessarily suggest what the future will hold. In the long-term, a number of fiscal pressures and risks exist, including demographic change, global climate change, spending on infrastructure, and contingent government liabilities.[6]

Fiscal projections are also different from long-term projections of specific budgetary funds, such as a public pensions and social security. Fiscal projections should include all public revenues and expenditures to support fiscal stability and efficient allocation of resources in line with the budget principal of universality. A specific budgetary fund may be managed as a separate independent legal entity responsible for assets and contributions for an exclusive purpose. For example, fiscal projections of pension funds are undertaken in a number of OECD countries (see Box I.4). While this has served as an important practice in many countries, should the public pension funds be insufficient, general tax revenues may be required necessary to cover any shortfalls. Fiscal projections may build upon the work of projections of specific budget funds, however, as in the case of the United States.

[6] Heller (2003) also notes a number of other potential fiscal pressures and risks including: globalization; rapid technological change; shrinking agricultural lands; HIV/AIDS and other infectious diseases; global political tensions and heightened insecurity; and the risks of terrorist attacks. While these developments may certainly pose challenges for the fiscal sustainability of public finances, they are not discussed in this paper.

TABLE I.2. Fiscal consolidation in OECD countries (fiscal years, in percent of nominal GDP)

	General government financial balances: Surplus (+) or deficit (-)[1]				General government gross financial liabilities[2]				General government net financial liabilities[3]			
Country / Year	**91**	**96**	**01**	**06**	**91**	**96**	**01**	**06**	**91**	**96**	**01**	**06**
Australia	-5	-2	0	2	23	39	22	16	11	21	6	-4
Austria	-3	-4	0	-2	58	70	72	66	29	40	36	33
Belgium[4]	-7	-4	0	0	127	133	112	91	108	116	95	77
Canada	-8	-3	1	1	82	102	83	68	51	70	44	27
Czech Republic	..	-3	-6	-3	..	..	..	35	..	..	..	-10
Denmark	-3	-2	1	5	67	77	55	37	26	36	22	3
Finland	-1	-4	5	4	25	66	50	45	-33	-7	-32	-67
France	-3	-4	-2	-2	40	67	64	71	18	42	37	37
Germany[5]	-3	-3	-3	-2	38	59	60	69	9	33	37	48
Greece	-10	-7	-4	-3	..	103	118	106	..	82	93	76
Hungary	-3	-6	-4	-9	79	76	60	72	-59	25	32	52
Iceland	-3	-2	-1	6	38	56	46	30	20	39	25	8
Ireland	-3	0	1	3	..	..	37	29	..	..	13	2
Italy	-11	-7	-3	-3	100	129	121	117	86	105	96	91
Japan[6]	2	-5	-6	-1	64	94	144	172	13	29	66	85
Korea	2	3	5	4	7	6	17	28	-15	-19	-30	-35
Luxembourg	1	1	6	1	..	10	8	10	..	-41	-58	-45
Netherlands	-3	-2	0	1	89	88	59	54	34	53	33	32
New Zealand	-3	3	2	4	..	45	35	27	..	33	21	-8
Norway	0	6	13	18	28	36	33	61	-37	-41	-86	-138
Poland	..	-5	-5	-4	..	51	44	56	..	-6	19	20
Portugal	-7	-4	-4	-4	..	68	63	72	..	27	30	43
Slovak Republic	..	-10	-7	-4	..	38	57	35	..	-18	10	4
Spain	-5	-5	-1	2	50	76	62	47	33	55	42	24
Sweden	0	-3	2	2	55	84	63	53	-5	27	1	-16
Switzerland	-2	-2	0	1	33	50	51	51	..	..	11	14
United Kingdom	-3	-4	1	-3	33	51	40	46	15	40	32	29
United States	-5	-2	0	-2	68	70	55	62	49	52	35	42
Memoranda Items: Government general financial balance excluding social security												
Japan	-1	-7	-6	-1								
United States	-6	-3	-2	-4								

NOTES:

1. Financial balances include one-off factors such as those resulting from the sale of the mobile telephone licenses. As data are on a national account basis (SNA93/ESA95), the government financial balances may differ from the numbers reported to the European Commission under the Excessive Deficit Procedure for some EU countries.
2. Gross debt data are not always comparable across countries due to different definitions or treatment of debt components. Notably, they include the funded portion of government employee pension liabilities for some OECD countries, including Australia and the United States. The debt position of these countries is thus overstated relative to countries that have large unfunded liabilities for such pensions which according to ESA95/SNA93 are not counted in the debt figures, but rather as a memorandum item to the debt.
3. Net debt measures are not always comparable across countries due to different definitions or treatment of debt (and asset) components. First, the treatment of government liabilities in respect of their employee pension plans may be different. Second, the range of items included as general government assets differs across countries. For example, equity holdings are excluded from government assets in some countries whereas foreign exchange, gold and SDR holdings are considered as assets in the United States and the United Kingdom.
4. Includes the debt of the Belgium National Railways Company (SNCB) from 2005 onwards.
5. Includes the debt of the Inherited Debt Fund from 1995 onwards.
6. Includes the debt of the Japan Railway Settlement Corporation and the National Forest Special Account from 1998 onwards.

SOURCE: OECD Economic Outlook 84. For details see OECD Economic Outlook Sources and Methods (http://www.oecd.org/eco/sources-and-methods).

Box I.4. Actuarial projections of pensions/social security funds in Australia, Canada, Japan, Korea, the United Kingdom, and the United States

In Australia, Long Term Cost Reports (LTCRs) containing actuarial projections of defined benefit schemes are undertaken every three years. The actuarial projections of the estimated value of public sector pension payments and the unfunded liability are undertaken by actuaries appointed by each of the departments with policy responsibility for the respective superannuation schemes, *i.e.* the Department of Finance and Deregulation for the civilian superannuation schemes such as the Public Sector Superannuation Scheme (PSS) and the Commonwealth Superannuation Scheme (CSS), the Department of Defence for the military schemes, the Office of Prime Minister and Cabinet for the Governor-General scheme, and the Attorney-General Department for the judge's scheme. There is no requirement to use the Australian Government Actuary within the Department of Treasury for this task. The Australian Government Actuary does work for the Department of Defence, Prime Minister and Cabinet, and the Attorney-General's Department while a private firm is responsible for estimating the unfunded liability for the civilian schemes.

Canada's Office of the Chief Actuary, located in the Superintendent of Financial Institutions Canada, undertakes a review of the Canada Pension Plan as required by legislation. To date, 23 actuarial reports have been prepared since 1964, though their frequency and time horizons have varied over this period. Since 1997, actuarial projections have been standardized to cover a 75 year period and to be published every three years.

Japan's Chief Actuary of the Ministry of Welfare conducts a mandatory review of the financial status of the public pension system at least once every five years as required in legislation, most recently in February 2009. The Reports update the underlying modelling assumptions and checks whether the replacement rate is on track to fall below its prescribed minimum level in the future.

In Korea, an assessment of sustainability of the Korean National Pension Scheme is required by legislation every five years. The introduction of actuarial projections as of 2003 represents one of the major changes in the 1998 amendment to the National Pension Act. To date, two actuarial projections have been prepared: the first in 2003; the second in 2008.

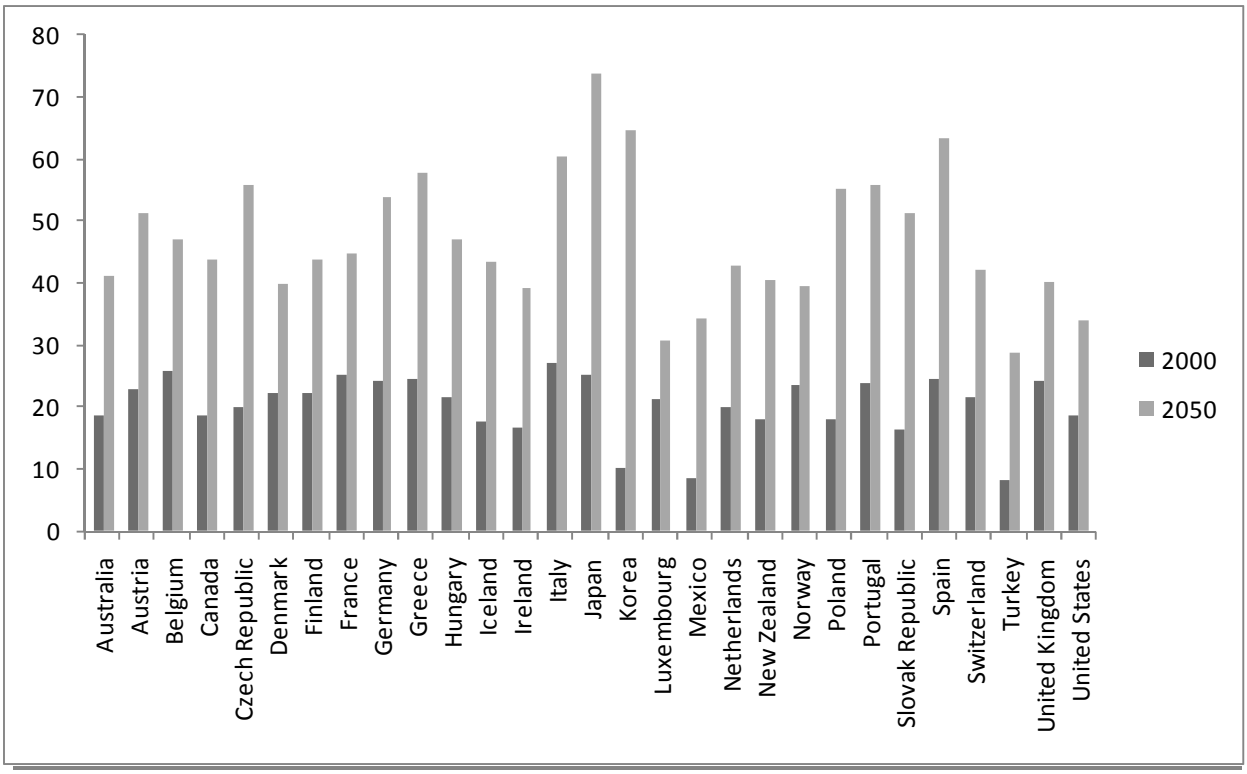
The United Kingdom Government Actuary's Department prepares reviews every 5 years of the National Insurance Fund. The Reviews provide a 60 year projection to estimate the contribution rates required to be paid to the National Insurance Fund in future years in order to meet expenditure on a pay-as-you-go basis. Projections, however, may be updated more frequently as necessary to illustrate the financial consequences of reform proposals and new draft legislation. An external peer review of Department's projections is conducted periodically, most recently in 2002.

In the United States, the Social Security Act was amended in 1968 to provide for the appointment of an Advisory Council every 4 years beginning in 1969. The Council was to review the status of the Social Security and Medicare Trust Funds as well as the scope of coverage and adequacy of benefits under the Social Security and Medicare programs. The statute specifically authorised the Council to engage the technical assistance necessary to carry out their functions. A Technical Advisory Panel also reviews the methods and assumptions used in the annual projections for the Social Security trust funds.

Demographic change includes changes in fertility, longevity, and the age structure of the population. These changes affect government spending through mandatory age-related spending (*e.g.* public pensions, health spending and aged-care) and government revenues (*e.g.* shrinking of the tax base as the old-age dependency ratio increases). Due to population ageing and the magnitude of transfers and spending for this group, special interest has been given to the old-age dependency ratio when looking at a country's fiscal future. Between 2000 and 2050 the old-age dependency ratio or the proportion of the population 65 and over relative to the working age population is anticipated to increase significantly. The old-age dependency ratio is defined as the ratio of the population aged 65 years or over to the population aged 15-64. It is represented as number of dependants per 100 persons of working age (15-64). In most OECD countries,

the old-age dependency ratio is projected to more than double from around 20 to 50 and above, reaching as high as 73 in Japan, 65 in Korea, and 63 in Spain.

Figure I.1. Median projection of old-age dependency ration in OECD countries



NOTES: The old-age dependency ratio is defined as the ratio of the population aged 65 years or over to the population aged 15-64. It is represented as number of dependants per 100 persons of working age (15-64).

SOURCE: United Nations World Population Prospects (2006).

While migration is seen as important for many aging countries, studies indicate that its impact on fiscal sustainability is likely to be small. In general, migration changes the age composition of the population. Moreover, immigrants may have a higher propensity to emigrate, have lower labour force participation rates for a given age cohort, and decrease the government per capita debt at the time of entry. Positive net migration has a positive effect of public finances where immigrants resemble the existing population, but it does not close the fiscal imbalance (*e.g.* see Bonin *et al.*, 2000 and Storesletten, 2000 for Germany and the US respectively).[7] Evidence from other cases, such as the Netherlands and Sweden, suggests that migration may actually be less beneficial for fiscal sustainability, and whatever benefits it may have are contingent on successful integration of immigrants and their descendants (*e.g.* Schou, 2006 and Roodenburg *et al.*, 2003 respectively). And although demographic projections certainly contain uncertainties, they may well be less uncertain than other long-term changes.

[7] CBO (2005b) discusses the impact of immigration on the federal, state and local government finances to conclude that a doubling of the present rate of immigration will probably only fill a small portion of the projected gap between government spending and revenue, even if immigrants are skilled workers without children. Rodway and Wilson (2006) state that in order for New Zealand to keep the aged-dependency ratio under 20 percent (2005 level) until 2050 would require 300,000 net migrants each year beginning in 2020 (*i.e.* 4.9 percent of the 2020 population every year thereafter) while the 2006 fiscal projection assumes net immigration of 10,000.

Climate change may require new public spending and investment to adapt to extreme weather and low probability/high consequence climatic events, much of which is likely to be national in scope. Moreover, fiscal risks may be related to public insurance schemes. The uncertainty and irreversibility of climate change calls for balancing the need for precautionary spending against the risk of undertaking costly expenditures that may eventually prove unnecessary. Although, this is not to state that fiscal instruments are necessarily the best policy response to the potential risks. Nevertheless, an important first step is to recognize the fiscal costs and risks that stem from climate change. While many countries have costed public projects to protect against adverse impacts of climate change, few have made projections of the aggregate fiscal costs of these (IMF, 2008). Moreover, attention also needs to be directed to quantifying the fiscal risks faced by public insurance programs (an explicit, direct government liability). In the US, for example, concern has been raised over the absence of any analysis of the risks related to climate change facing the country's two major federal insurance programs -- the Federal Crop Insurance Corporation and National Flood Insurance Program -- although there may be significant fiscal implications for each (GAO, 2007).

Government (or public) contingent liabilities are potential obligations whose budget impact is dependent on future events that are uncertain. These obligations may be uncertain because of the unknown likelihood of future events, or because the amount associated with the obligation cannot be measured reliably. As such, they differ from direct liabilities that have certain obligations. Liabilities can also be distinguished between by those that are recognised by legal obligation (explicit liabilities) and those that arise out of moral obligations by government as a consequence of public pressures (implicit liabilities). Government contingent liabilities have in the past provided some of the largest fiscal risks for industrialised countries. Examples include: guarantees on government loans; investments and insurance schemes (explicit); bail outs of the banking sector, state-owned enterprises, and sub-national governments; public-private partnerships; and natural disasters. Experience from the 1990s suggests that the fiscal costs of stemming the loss of confidence in and recapitalizing of the financial system in particular can be large: more than 10 percent of GDP in Finland and approximately 20 percent of GDP in Japan (Price *et al.*, 2008).

While the inclusion of the fiscal consequences of climate change and contingent liabilities in the budget is desirable, it does not automatically support efforts to achieve fiscal sustainability. Information on these issues is likely to be too broad to highlight specific areas for reform and can provide little or no help to guide choices. Nevertheless, the inclusion of contingent liabilities does enable them to be factored into fiscal projections.

I.B.3 Assessing the effectiveness of fiscal projections

In examining the effectiveness of fiscal projections, attention can focus on analytical and/or institutional dimensions. Analytically, an examination may focus on the fiscal analysis conducted and the explicit disclosures accompanying a projection. Institutionally, an examination may focus upon the extent to which fiscal projections are complemented by, and integrated with, other budget procedures and decision-making processes (Tarschy, 2002).

A discussion of the analytical dimensions of a fiscal projection includes:

- The types of sustainability analyses produced to assess the affordability of current public policies, including: fiscal indicator(s); comparisons of a country's fiscal future relative to the previous projection; and sensitivity analyses of the fiscal indicator(s) for changes in select underlying assumptions.
- Explicit disclosures of the methods, assumptions, and other supporting information to help provide assurances of the quality of projections, including: disclosure of modelling approaches,

key assumptions, and sources of data used in the projections; and accompanying textual discussions that explain the methods, assumptions, and any changes since the previous report.

A discussion of the institutional dimensions of a fiscal projection includes:

- Analyses linked to policy options, either through presenting projections together with the budget; or preparing assessments of the long-term costs for new initiatives and reforms that are sensitive to demographic changes; or preparing analysis that demonstrates the impact of policy options.
- Explicit linkages to other budget practices and procedures targeted at maintaining fiscal stability in the short- and medium-term, namely deficit and debt rules; medium-term budget ceilings and revenue rules; and the use of budget triggers should the government's fiscal position be considered unsustainable.

A fiscal rule is a constraint on fiscal policy that binds political decisions by the executive and the legislature expressed in terms of a summary indicator reduce the scope for time inconsistent fiscal policy (see Kopits and Symansky, 1998). Fiscal rules respond to alleged shortcomings in budgeting and the political decisions underlying the budget that result in expansionary government spending. Four broad and distinctive categories of rules exist:

- Expenditure rules impose limits on the amount of government spending, either in nominal or real terms, or using nominal or real expenditure growth rates, or using a specific government expenditure-to-GDP ratio.
- Budget balance rules impose limits on government spending vis-à-vis revenues, using either cyclically adjusted/structural or nominal measures, or using percentage of GDP measures.[8]
- Debt rules impose limits on the amount of government debt, either in nominal terms, as a ratio to GDP, or even an explicit reduction of debt in terms of the debt-to-GDP ratio.
- Revenue rules impose constraints on the allocation of higher-than-expected revenues in good times, and can impose constraints on expansion of the tax-to-GDP ratio.

BOX I.5. Impact of fiscal rules on fiscal stability and sustainability

While evidence suggests that fiscal rules can assist governments achieve fiscal stabilization and sustainability, their specific contributions cannot be easily established. Evidence suggests that countries that practice fiscal discipline without explicit fiscal rules do not need them (*e.g.* Australia, New Zealand), and that countries that have fiscal rules but that do not enforce, or fail to renew, them have not achieved fiscal discipline (*e.g.* the US following the expiration in 2002 of the Budget Enforcement Act of 1990).

Expenditure rules (or ceilings) focusing on discretionary spending are considered to be more effective than deficit and debt rules. An expenditure ceiling is an overall restriction on the outcome of all or most of government expenditure established in advance of the start of the preparation of the budget. It is an independent decision on the maximum level of expenditure and not just the simple sum of lower level restrictions. A ceiling that is an overall restriction is different from ministerial or sectoral expenditure limits that are set in the early stages of a top-down budget formulation process, and from appropriations that add up to the budget (Ljungman, 2008).

[8] A variation of a balance rule is the "Golden Rule" in which the government is only allowed to borrow to finance investments. The rationale underlying the golden rule is that investments represent future, and not current, consumption and have the potential to generate future growth.

There are several advantages of expenditure rules/ceilings over deficit and debt rules:

- Violation of expenditure rules are transparent;
- Expenditure rules provide firm guidance to policy makers irrespective of economic conditions;
- Expenditure rules allow automatic stabilisers to work in full, at all times, and in all economic conditions; and
- Expenditure rules can help to ensure that resource availability remains predictable, most notably with respect to annually appropriated funds for core government functions such as public investments.

In addition, there are several disadvantages of deficit and debt rules:

- Non-compliance can be hidden by creative accounting;
- They can encourage the executive to run the largest permitted deficit;
- They can create a risk of excessive deficits under unexpected adverse conditions;
- They limit the use of automatic stabilisers in economic downturns;
- They undermine the predictability of resources; and
- Core government functions such as public investments can be cut as a result of the rules.

Moreover, expenditure ceilings avoid the risk of contributing to already high tax burdens (Anderson and Minarik, 2006).

Funding arrangements can also be necessary to lock in foreseen budget surpluses in preparation of a future bulge of mandatory spending commitments. Surpluses can be used to reduce taxes, especially those that are most distortive and detrimental to growth. Or surpluses could be used to finance alleged growth-enhancing public expenditures, such as spending on education, health, R&D, and public infrastructure. Moreover, budget surpluses may be associated with "fiscal fatigue" associated with their achievement and greatly increase the pressure to spend the surplus (Posner and Gordon, 2001).

While fiscal rules can complement fiscal projections, it is also important to assess the integration of projections with other budget practices and procedures. Two examples include the use of long-term projections when evaluating existing and new government initiatives, and entitlement spending in particular, and linking the analysis of projections through budget triggers. Budget triggers are a signal for budget restraint based on indicator of solvency (*e.g.* actuarial projections) or a sustainability factor (*e.g.* dependency ratio). The may be hard or soft. Hard triggers can result in automatic cuts to program spending, changes in eligibility criteria or benefit formulas of mandatory spending, and/or tax increases. Soft triggers can result in points of order, agency reports, and/or proposals to change the path of fiscal policy (GAO, 2008).

I.C. ANALYTICAL AND INSTITUTIONAL DIMENSIONS OF PROJECTIONS IN 12 OECD COUNTRIES

This section introduces and examines the analytical dimensions of the fiscal projections presented in the future futures reports of 12 OECD countries: Australia, Canada, Denmark, Germany, Korea, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the UK, and the US. Fiscal futures reports can include any statement and/or assessment of government's fiscal position spanning 10 years or more. The examination here provides an overview of the institutional requirements of the reports, a discussion of the fiscal indicators and types of analysis used, as well as the extent to which methodology and assumptions underlying the reports are disclosed. The section presents a synthesis of a survey of individual country fiscal futures reports.[9]

Before continuing with the discussion on fiscal projections, it should be noted that Canada and Korea do not have fiscal projections as per the other 11 countries. In Canada there are no formal fiscal projections; rather a number of *ad hoc* Department of Finance staff working papers that presented fiscal projections spanning around 40 years were prepared in 2000. In Korea, Vision 2030 was not a fiscal projection *per se*, but a government goal-setting document spanning 25 years with only rough cost estimates. Also, three projections are presented for the US: by the White House Office of Management and Budget (OMB); by the Congressional Budget Office (CBO, *i.e.* the legislative budget research office); and by the Government Accountability Office (GAO, *i.e.* the Supreme Audit Agency). The US is the only country in which multiple government agencies routinely present fiscal projections.

The remainder of this section is divided into four parts. First, the different fiscal futures reports are introduced, including their legal obligations for reporting, the responsibility for their production and release, and the time horizon and frequency of their analysis. Second, the types of analysis conducted are examined, including whether comparisons are made to previous projections and whether sensitivity analysis is conducted for changes in the underlying assumptions. Third, the specific disclosures within the reports are discussed, including methodology, key assumptions and data sources as well as any changes since the previous projection. Finally, the linkage of projections to other types of sustainability analysis and budget procedures is surveyed to help understand the institutional quality of projections themselves.

I.C.1. Overview of fiscal future reports

An overview of the fiscal futures reports from the 12 countries surveyed is presented in Table I.3. It includes the report titles, responsibility for its preparation and release, mandatory reporting obligations established in law, the level of government operations covered, and the time horizon and frequency of projections. While it should be noted that a number of countries have and continue to produce fiscal projections for internal purposes in formulating fiscal policies, the table focuses solely on those projections that are publicly available.

[9] Descriptions of individual countries are provided in Part II of this paper.

TABLE I.3. Overview of fiscal futures reports

Country	Formal reporting obligations	Most recent report title	Responsibility for prepares and release	First/most recent release	Level of analysis	Most recent time horizon	Frequency produced
Australia	Charter of Budget Honesty (1998)	Intergenerational Report 2	Department of Treasury	2002 / 2007	Central government	40 years	Within every 5 years[1]
Canada	n/a	Working papers	Department of Finance	2000 / 2002	General government	40 years	Ad hoc
Denmark	EC Convergence Prog.	Convergence Reports	Ministry of Finance	1997 / 2008	General government	Until 2050 (fixed)[2]	Every 5 years
Germany	EC Stability Program.	Report on the Sustainability of Public Finance	Federal Finance Administration	2005 / 2008	General government	Until 2050 (fixed)[2]	Every 4 years
Korea	n/a	Vision 2030	Jt Task Force Team [3]	2006 / 2006	Central government	25 years	*Ad hoc*
Netherlands	EC Stability Program.	Aging and the Sustainability of Dutch Public Finances	Central Planning Bureau	2000 / 2006	General government	Until 2100[4]	*Ad hoc*
New Zealand	Public Finance Act (1989 as amended)[5]	New Zealand's Long-term Fiscal Position	New Zealand Treasury	1993 / 2006[6]	Central government	40 years	Every 4 years
Norway	n/a	Long-term Perspective for the Norwegian Economy	Ministry of Finance	1993 / 2009[7]	General government	50 years	Annually
Sweden	EC Convergence Prog.	Sweden's Economy (Budget Bill)	Ministry of Finance	1999 / 2008	General government	Until 2050 (fixed)[2]	Annually
Switzerland	n/a	Long term Sustainability of Public Finances in Switzerland	Federal Department of Finance	2008 / 2008	General government	50 years	Every 4 years
United Kingdom	Code of Fiscal Stability (1998)	Long-term Public Finance Report	H.M. Treasury	1999 / 2008	General government	50 years[2]	Annually
United States	n/a	Analytical Perspectives (Long-run budget outlook)	OMB	1997 / 2008[8]	Central government	75 years	Annually
United States	n/a	The Long-term Budget Outlook	CBO	1991 / 2007	Central government	75 years	Every 2 years
United States	n/a	Long-term Fiscal Outlook	GAO	1992 / 2008	Central government	75 years	3 times / year

NOTES:

1. **Australia:** In December 2008 the government announced that it would produce the Intergenerational Report once every three years.
2. **Denmark, Germany**, **Norway, Sweden and UK:** fiscal projections also prepared for an infinite time period.
3. **Korea**: Joint Task Force Team consisting of government officials and other experts. Government officials were mainly from Ministry of Finance and Economy, Ministry of Planning and Budget, and the Ministry of Health and Welfare. Other experts were involved from the Korean Development Institute and the Korean Institute of Public Finances.
4. **Netherlands**: time horizon spans until 2100 though report also separately discusses policies until 2040.
5. **New Zealand**: legal obligations were first required under the Fiscal Responsibility Act, 1994 and subsequently integrated into the Public Finance Act, 1989 as amended in 2004.
6. **New Zealand:** in 1993 and 1996 as pre-election report spanning approx. 50 years; since 2000 integrated in budget for 10 years; since 2006 as a standalone report for 40 years.
7. **Norway: s**ince 1954 the Cabinet's "Long-term Program" showed the Cabinet's policies for the next four year. Between 1954 and 1973 fiscal projections spanned four years; between 1973 and 1993 projections spanned 20 years, but only focused on the development of government expenditure compared to projected GDP. From 1993 projections spanned 40-50 years and covered both government expenditure and income/net lending.
8. **US (OMB):** 5-year budget projections prepared during the 1970s and 1980s were labelled "long-term" projections. These are considered medium-term budget estimates in this report.

BOX I.6. Multilateral monitoring of fiscal sustainability: European Commission, IMF, and OECD

The European Commission's Director General for Economic and Financial Affairs (DG ECFIN) regularly produces common projections of age-related expenditures for European Union member countries. These have included stand alone reports as well as designated chapters within the Public Finances in EMU reports.[1]

In addition, the Commission requires EU countries to annually report fiscal projections under its Stability and Convergence Program. Guidelines establish a minimum reporting requirement and a timeline for reporting. Fiscal projections appear in Part VII of country's stability and convergence reports. Reports should include a projected budget aggregates in a standard stable (see Table I.4) along with "all necessary additional information, of both qualitative and quantitative nature, to enable the Commission and the Economic Policy Council to assess the sustainability of Member States of public finances based on current policies". Reports should be submitted after national governments have presented their budget proposals to parliaments, but not earlier than mid-October and not later than 1 December.

The International Monetary Fund's Fiscal Affairs Department examines fiscal sustainability through its Fiscal Transparency Reviews and Staff Papers. Fiscal Transparency Reviews focus on country's institutional aspects to assess fiscal sustainability --- one element included in the Manual for Fiscal Transparency (2001; 2007). The 2007 revision of the Manual gave a more prominent focus on periodic reporting of fiscal sustainability (as a standalone section, 3-1-7), and broadened its focus of long-term analysis beyond demographic change alone. IMF staff periodically produce fiscal projections in IMF Country Papers.[2]

The Organisation for Economic Cooperation and Development periodically discusses member country's fiscal projections, those by the European Commission, as well as its own assessment in its annual Economic Surveys and Staff Working Papers.

1. For example, see EC (2001; 2003a; 2003b; 2006; 2007; 2008a; 2008b).
2. For example, see Dunaway and N'Diaye (2004) for Australia; Cardarelli (2003) for Canada; Brunner (2008) and Ekesen (2002) for Denmark; Klingen (2002) and Traa (2005) for Germany; Feyzioglu *et al.* (2008) for Korea; Cerra and Canetti (2001) for Norway.

Formal reporting obligations to prepare and release fiscal projections exist in domestic legislation in only three of the countries surveyed: Australia, New Zealand and the UK. In each of these countries, however, legalisation establishes only minimum details regarding the time horizon, reporting frequency and delegation of responsibility for their production and release. While not bound by domestic legislation, Denmark, Germany, the Netherlands and Sweden present fiscal projections as part of the European Commission's Stability and Convergence Program reporting.

Australia's Charter of Budget Honesty Act, 1998, requires the Treasurer to publicly release and present to the House of Representatives an intergenerational report spanning 40 years to assess the long-term sustainability of current policies within every five years of the preceding report. New Zealand's Fiscal Responsibility Act, 1994, as later incorporated into the Public Finance Act, 2004 requires the Treasury to prepare a statement on the fiscal position, and the Minister of Finance to present it to the House of Representatives at least every four years. The UK's Code for Fiscal Stability, 1998, requires the government to present illustrative projections based on a range of plausible assumptions for a period of not less than ten years. The explicit mention of fiscal projections, however, only appears in the "Explanation to the Code". Among these three countries, New Zealand perhaps goes the furthest and legislates for projections to be accompanied by a signed statement of responsibility that the work represents the Treasury's best professional judgment along with a list of all significant assumptions used.

TABLE I.4. European Commission Sustainability and Convergence Reporting Template for Fiscal Sustainability

Revenue and expenditure	2000	2005	2010	2020	2030	2050
Total expenditure (percent of GDP)						
Of which:						
Age-related expenditure						
Pension expenditure						
Social security pension						
Old-age and early pensions						
Other pensions (disability, survivor)						
Occupational pensions (if in general government)						
Health care						
Long-term care (previously included in health care)						
Education expenditure						
Other age-related expenditures						
Interest expenditure						
Total Revenue (percent of GDP)						
Of which:						
Property income						
Of which: from pensions contributions (or social contributions if appropriate)						
Pension reserve fund assets						
Of which:						
Public pension fund assets (other than government liabilities)						
Demographic and macroeconomic assumptions (percent)	**2000**	**2005**	**2010**	**2020**	**2030**	**2050**
Labor productivity growth						
Real GDP growth						
Participation rate males (aged 20-64)						
Participation rate females (aged 20-64)						
Total participation rate (aged 20-64)						
Unemployment rate						
Structural unemployment						
Population aged 65+, 1,000 persons						

Responsibility for the preparation and release of fiscal projections is generally located within the central budget authority, *i.e.* the public entity responsible entity for the preparation of the executive's budget proposal and management of public money. This is the case in eight countries: Australia, Denmark, Germany, New Zealand, Norway, Sweden, the UK, and the US. While in Germany fiscal projections are released by the Federal Ministry of Finance, the modelling exercise is commissioned to an independent research body, the ifo Institute. There is, however, no formal requirement for this to be the case.

In the Netherlands, projections are prepared by the Central Planning Bureau, a government independent economic research institute. Although funded under the budget of the Ministry of Economic Affairs, the Bureau provides forecasts that are widely considered independent in content from the executive. Several factors are given as indicative of its independence. The Bureau has an external advisory board, the Central Planning Commission, which provides advice on the Bureau's work and methods. There is also substantial mobility of personnel in and out of the Bureau to universities, ministries, trade unions, politics and the media. Moreover, the relevance of the Bureau's work is independently evaluated every five years (Bos, 2008). In Switzerland, projections are released by the Federal Finance Administration, a unit of the Federal Department of Finance, but not headed by a member of executive. In each case, the analysis does not constitute the opinion of the executive.

Time horizon and frequency of reporting. Time horizons of fiscal projections may be categorised into finite or infinite as well as rolling or fixed time periods. A finite time horizon can provide less uncertainty than an infinite horizon and may be considered more meaningful to readers. An infinite time horizon, on the other hand, provides a means to ensure that any assessment is not subject to the "moving window effect" (*i.e.* where extending the horizon changes the analysis significantly, as may be associated with rapidly accelerating deficit and debt levels at the projection cut off period or thereafter. Rolling projections assume the same discrete number of years in each new assessment; fixed projections maintain a constant terminal projection year.

The time horizon of fiscal projections ranges from 25 years in Korea to almost 100 years in the Netherlands. In between, Australia, Canada and New Zealand prepare projections for between 30 and 40 years; Germany, Norway, Sweden, Switzerland and the UK for between 40 and 50 years; and the US for 75 years. Projections may be rolling or fixed. Rolling projections assume the same length in years in each new report (*e.g.* Australia, Canada, New Zealand, the UK, and the US). Fixed projections maintain a constant terminal projection year in each report (*e.g.* Germany, Norway, and Sweden --- until 2050 in correspondence with the European Commission's S_1 indicator). In addition, a number of countries prepare fiscal projections in perpetuity (*e.g.* in Denmark, Germany, Netherlands, Norway, Sweden, Switzerland, and UK).

While projections should span a period sufficient to illustrate fiscal sustainability, few countries explain the reason underlying the length of their projections. In most cases the length of the projections corresponds with an established standard elsewhere. European Union countries have largely adopted the time horizon established by the European Commission's Stability and Convergence Reporting requirements. In the US fiscal projections correspond with the length of actuarial projections for Social Security and Medicare Trust Funds.

In half of all countries surveyed, fiscal projections are updated annually; in the other half, projections are produced periodically between every three to five years or on an *ad hoc* basis. Only the US GAO updates its fiscal projections more than once a year: in the winter following release of Budget and Economic Outlook, in spring following release of Social Security and Medicare Trustee Reports, and in the summer following release of CBO Budget and Economic Outlook Update. Canada, Korea and the Netherlands prepare projections on an *ad hoc* timetable, when seen as necessary. In Canada, projections were prepared in 2000 and 2002 though there is no suggestion that they will be repeated. Similarly, there has been no discussion of the projections within Korea's "Vision 2030" published in 2006 being repeated. In the Netherlands, reports have been published in 2000 and 2006. While there is no specified time for a revised report in the Netherlands, annual updates based on the reports are published under the Stability and Convergence Reporting requirements.

General government is typically the focus of projections, *i.e.* central, state/regional and local government expenditures, including government-managed social security funds and non-profit institutions (based on GFSM2001). The definition of general government is the central government sub sector (including national social security funds) plus the state government sub sector (including state social security funds) plus the local government sub sector plus non-profit institutions. Only Australia, New Zealand and the US prepare projections limited to the central government. These projections include transfers to state and local governments, but model them according to formula established by the central government. The US GAO projections have on occasion also included baseline projections included state government.

Fiscal projections remain a relatively new practice and most of the countries surveyed have only introduced them during the last 10 years. Projections have longer histories in both New Zealand and the US, though in both countries, the format and content of projections has evolved over time. In New Zealand, the first fiscal projections were prepared by the Department of the Treasury in 1993 and 1996 containing projections until 2049 as part of the Briefing to the Incoming Government. Between

2000 and 2005 projections spanning 10 and 50 years were presented in the annual Fiscal Strategy Report. In 2006 the New Zealand's Treasury launched its first Long-term Fiscal Position (hereafter the Statement) to be updated every four years. In comparison to the Fiscal Strategy Report the Statement provides a more detailed discussion of the long-term. The Fiscal Strategy Report does, however, still include 10 year projections and serves to link the annual budget, medium-term (5 years) and extended medium-term (10 years).

In the US, the OMB began preparing fiscal projections spanning 3 years more than 40 years ago. These were gradually extended to timeframes of 5, then 10, then 50, and now 75 years. The OMB had previously included the 75 year projections of the present value of the Medicare and Social Security Trust Funds. It should be noted, however, that the 5-year budget projections introduced by in the 1971 budget were also coined "long-term projections" (Rivlin, 1975). While perhaps correctly labelled fiscal projections in the 1970s, in today's terms, these would be more appropriately considered medium-term projections. CBO prepared its first fiscal projection spanning 10 years in 1991. It was not, however, until 1996 that this exercise was repeated in which projections were extended until 2070 for Social Security and Medicare spending and revised annually in its Long-term Budgetary Pressures and Policy Options until 1999. Since 2000, projections have been presented in the Long-term Budget Outlook with other specific CBO reports focusing on social security and health spending. GAO has published long-term budget simulations since 1992. Earlier reports included projections until 2025 (*i.e.* 30 years) in 1995 and subsequently extended to 2050 (*i.e.* 55 years) in 1997.

I.C.2. Sustainability analysis

Fiscal projections provide a means to measure, assess and communicate the fiscal sustainability of current government operations to inform discussion concerning potential policy responses. Tables I.5 and I.6 provide a summary of the type of analysis contained in fiscal futures reports. In particular, Table I.5 assesses whether fiscal projections are based upon projected budget balance, debt, synthetic indicators and/or net tax benefits per cohort group. The accompanying text discusses the fiscal indicators used for each measure. Table I.6 provides the basis for a discussion of whether the assessments presented in the report include a comparisons with previous projections, sensitivity analysis and/or policy options. Sensitivity analysis is further decomposed into demographic and macroeconomic, and microeconomic assumptions. The former determines increases in government spending and tax revenue indexed to economic growth and the age characteristics of the population. The latter is related to the modelling of particular expenditure categories (*e.g.* the growth of health input costs or the income elasticity of consumption of health services), policy options, both past actions and possible future actions, and costs associated with the timing of government action.

For fiscal indicators that include projections of the budget balance and debt, sustainability may be assessed using synthetic fiscal indicators and/or net tax benefits by different cohort (age and gender) groups. The majority of countries surveyed utilise both the projected budget balance and debt and synthetic indicators as fiscal indicators (see Table I.5). Generational accounting is used in only two of the countries surveyed: the Netherlands and Norway. While most baseline projections focus on the primary balance and debt as a percentage of GDP, Australia's Intergenerational Report also measures the ratio of government spending per person to GDP per person. In terms of synthetic indicators, the level and measurement of debt varies between countries. In Denmark, Germany, the Netherlands, and Sweden, the European Commission's S_2 Indicator is the primary indicator of fiscal sustainability, *i.e.* the present value of public expenditures and gross debt in initial period are covered by the present value of public revenue over an infinite time horizon. In the UK, a net debt target is set a 40 percent of GDP; in New Zealand, it is gross debt of 20 percent.

The two types of analysis together reflect the common basis methodology underlying each, albeit with different presentations. In this regard, it is perhaps more important to differentiate between primary and secondary indicators of fiscal sustainability -- and even the value of the fiscal indicator. In Denmark, Germany and Sweden, synthetic indicators (explicitly the European Commission's S_2

Indicator) serve as the primary indicator. In Australia, Korea and the US baseline projections serve as the primary indicator. And in New Zealand and the UK, there appears to be no particular emphasis on one over the other. Both countries place emphasis on balancing both.

TABLE I.5. Analytical approach and fiscal indicators used in the fiscal futures reports

Analytical approach/Fiscal indicator		Baseline	Projections	Generational accounting: Net individual tax benefits by demographic cohort
Country	Report	Projected budget balance and debt	Synthetic indicators (*e.g.* fiscal gap)	
Australia	2007	●	●	○
Canada	2002	●	○	○
Denmark	2008	●	●	○
Germany	2008	●	●	○
Korea	2006	○[1]	○	○
Netherlands	2006	●	●	●
New Zealand	2006	●	●	○
Norway	2008	●	●	●
Sweden	2008	●	●	○
Switzerland	2008	●	●	○
United Kingdom	2008	●	●	○
United States (OMB)	2008	●[2]	○	○
United States (CBO)	2007	●[3]	●	○
United States (GAO)	2008	●	●	○
Total		14	11	2

NOTES:
● = Presented; ○ = Not presented
1. **Korea:** Projections based only upon expenditure and not revenues.
2., 3. **United States:** Present value of the Medicare and Social Security obligations as prepared for their respective Trust Fund is also presented in the budget documentation. It has also experimented with generational accounting, the Office of Management and Budget in 1992, 1993 and 1994 and the Congressional Budget Office in 1995.

TABLE I.6. Comparison with past analysis, sensitivity analysis and policy simulations

Country	Report	Comparison of fiscal indicator(s) with past analysis	Sensitivity analysis/scenarios	
			Demographic & macroeconomic assumption	Expenditure/ microeconomic assumptions
Australia	2007	●	●	○
Canada	2002	○	○	●
Denmark	2008	●	○	○
Germany	2008	○	●	○
Korea	2006	n/a[1]	○	○
Netherlands	2006	●	●	○
New Zealand	2006	○	●	○
Norway	2008	●[2]	●	○
Sweden	2008	○	●	●
Switzerland	2008	n/a[3]	●	○
United Kingdom	2008	●	●	○
United States (OMB)	2008	○	●	●
United States (CBO)	2007	○	○	●
United States (GAO)	2008	○	○	●
Total		5	9	5

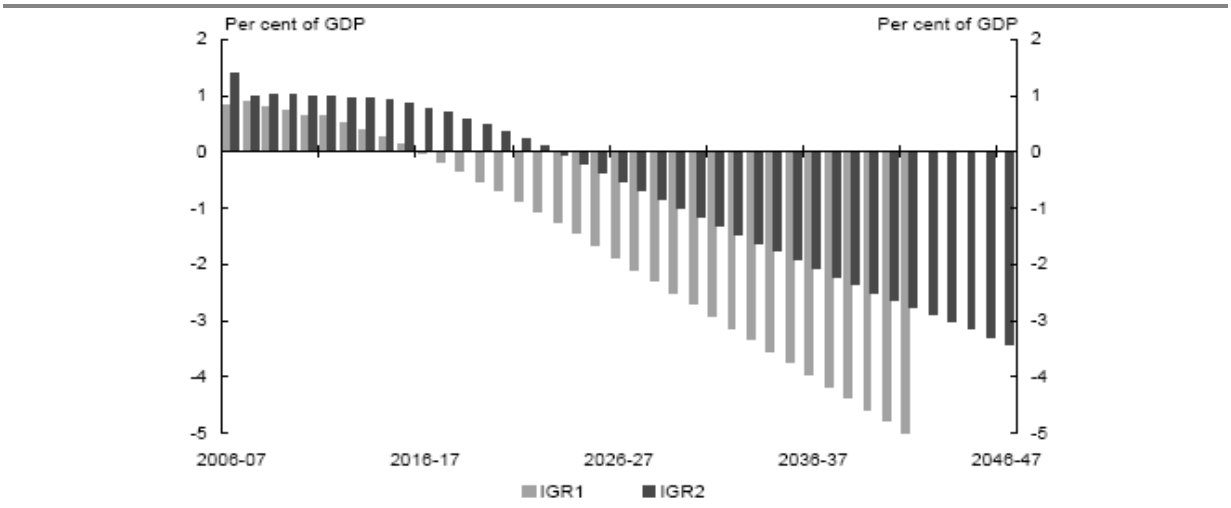
NOTES:
● = Presented; ○ = Not presented; n/a = not applicable
1., 3. **Korea, Switzerland:** Only one fiscal projection prepared to date.
2. **Norway:** Comparison only for generational accounting.

Comparison with past analysis provides a means to highlight how a country's fiscal future has changed in comparison to that within previous assessments. The discussion here focuses attention specifically on the fiscal measure and not on changes in the underlying assumptions, which are discussed later in this section. Although many countries have prepared more than one analysis of fiscal sustainability, albeit with methodological variations between years, comparisons with past analysis are done in only five countries: Australia, Denmark, Netherlands, Norway, and the United Kingdom (see Table I.6).

Such a comparison of present projections against the past is only widely used in Australia's Intergenerational Report. It includes the primary fiscal measure (*e.g.* primary deficit) as well as by expenditure categories (e.g. health, old-age care, education and other) as a percent of GDP and real dollars in current values (see Figures I.2 and I.3). The change in the projected primary balance is due to a lower rate of growth of projected spending per person and higher projected nominal GDP per person. In terms of health and certain payments to individuals, this is partly offset by increases in areas such as education and aged care. The change in spending per person (as well as that in per capita terms) is attributed to improvements in the terms of trade and associated increases in nominal GDP per capita. Moreover, it lists some policy actions taken—Future Fund to prefund superannuation (public pension) payments—which are also illustrated in (see Figure I.4).

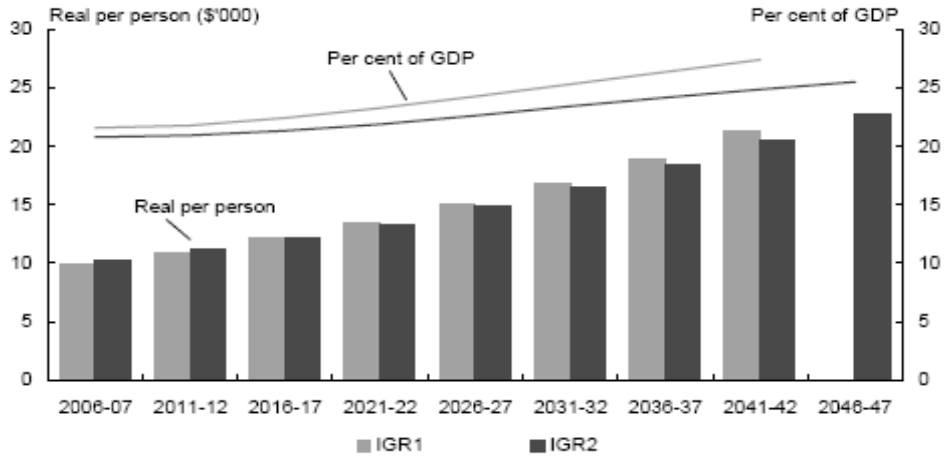
In the Netherlands, a comparison to the previous projection is included, as measured by a sustainability gap, with the impact decomposed into the different factors captured in the new projection (see Table I.7). The Netherlands' Report explains the deterioration in sustainability as attributed to changes in pension fund arrangements, a higher reliance of government finances on revenues from natural gas, the reclassification of parts of health care from the private to the public sector, and a downward adjustment in the future development of female labour participation, though this has been in part alleviated by reforms to disability schemes.

FIGURE I.2. Australian Intergenerational Report, 2007:
Comparison of IGR1 and IGR2 projections of primary balances



NOTES: Since IGR1, there have been some changes in projection methodologies incorporating new data and modeling approaches.

FIGURE I.3. Australian Intergenerational Report, 2007:
Comparison of IGR1 and IGR2 projections of Australian government spending



NOTES: Some of the differences in total real spending per person will reflect changes in GDP projections since a component of spending is linked to GDP. Since IGR1, there have been some changes in projection methodologies incorporating new data and modelling approaches.

FIGURE I.4. Australian Intergenerational Report, 2007:
Fiscal pressures adjusted for superannuation payments

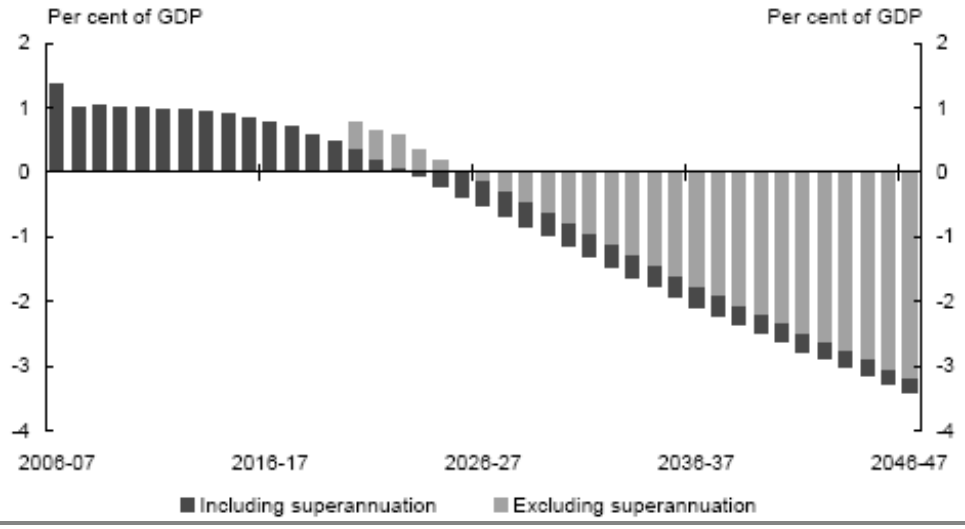


TABLE I.7. Netherlands' Ageing and the Sustainability of Dutch Public Finances, 2006:
Main contributors to deterioration in sustainability (percent of GDP)

1. Increase in sustainability gap	1.9
Due to:	
2. Lower pension fund return / discount rate	3.3
a. More austere pension funds arrangements	3.3
b. Lower discount rate	0.4
c. Lower cost of servicing initial debt	-0.3
3. Increase in temporary revenues (gas)	0.6
4. Transfer of private health care to public sector	0.5
5. Lower increase in female labour participation	1.2
6. Reform of disability schemes (including beneficial effects on labour participation)	-3.0
7. Other factors	-0.7

Sensitivity assessments provide a means of illustrating the impact of changes in the assumptions upon underlying projections. Furthermore, sensitivity analysis serves to illustrate that projections are only projections and subject to uncertainty. Conducting more sensitivity analysis is not necessarily better and it may, adversely, detract from the main analysis of fiscal sustainability. Equally important, however, is the rationale and justification for sensitivity analysis of the selected variables, as well as the changes in the values underpinning the analysis and whether alternative assumptions have changed relative to previous reports.

In examining sensitivity analysis, attention can focus on the types of assumptions that are changed, whether analysis is done for one or more assumptions simultaneously, and the types of fiscal indicators for which change is ultimately assessed. Assumptions may relate to either demographic or labour participation, macroeconomic (*e.g.* productivity, inflation, interest rates) or microeconomic assumptions related to the particular expenditure categories (*e.g.* the growth of health input costs or the income elasticity of consumption of health services). Moreover, it may be conducted for individual assumptions or alternative scenarios (*e.g.* changes in groups of assumptions together). Finally, where multiple fiscal indicators are presented in one report, sensitivity analysis can be presented for some but not all indicators. Or, sensitivity analysis can be presented for components of the projections (*e.g.* expenditure types) but not the fiscal indicators *per se.*

Eight of the fiscal futures reports surveyed present sensitivity analysis for demographic and macroeconomic assumptions (see Table I.6 above). In a further five countries sensitivity analysis is conducted for changes in the microeconomic assumptions built into the modelling approach, *e.g.* using different health costs. In the US, CBO and GAO do not present sensitivity analysis, only policy options.

In Australia, New Zealand and the US (OMB) sensitivity analysis is done for changes in individual parameters; Germany and the UK, on the other hand, do so using different scenarios or composites parameters relating to demographic and labour force assumptions. In the UK sensitivity analysis is based on different scenarios prepared by the Office of National Statistics: "low population" (low fertility rate, low migration, low life expectancy); "low life expectancy" (principal fertility rate, principal migration rate and low life expectancy); "old" (low fertility rate, low migration and high life expectancy); and "low migration" (principal fertility rate, principal life expectancy and low migration) (see Table I.8).

In Germany, in particular, sensitivity analysis is embedded into the projections itself. Two scenarios are presented ("relatively favourable" and "relatively unfavourable") each capturing different demographic, labour market (*e.g.* life expectancy, immigration, fertility, working life/retirement age, unemployment) and economic (*e.g.* labour productivity) factors. Moreover, the sensitivity analysis is not presented separately but embedded into the fiscal projections through using a "corridor" or band spanning between the relatively favourable and relatively unfavourable positions (see Figures I.5 and I.6).

Finally, some countries present sensitivity analysis only for expenditure and revenue projections but not fiscal indicators. In Australia, for example, sensitivity analysis is used to show the impact of changes in participation, productivity and population upon the labour force, real GDP, the dependency ratio and government health, aged care, social security, and education spending. The impact on the primary balance and net debt is not shown.

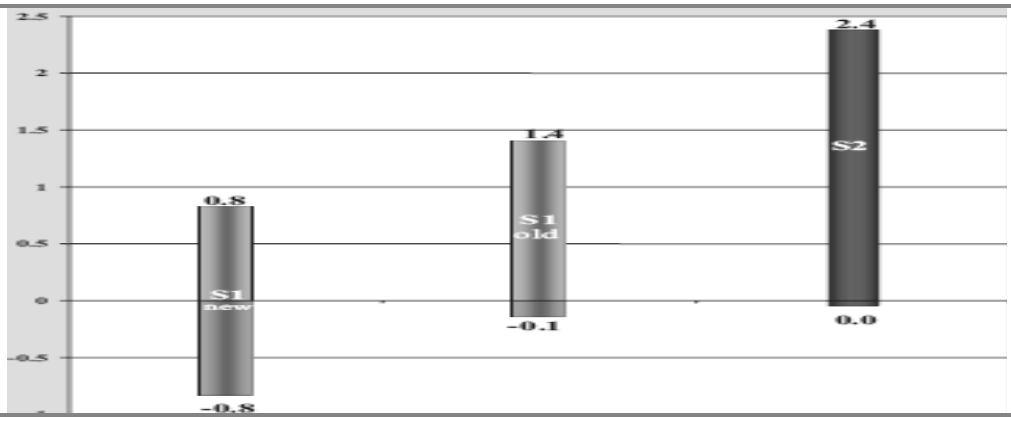
TABLE I.8. United Kingdom's Long-term Public Finance Report, 2008: Assumptions for principal and selected variant population projections

	Assumptions				
	Principal	**Low population**	**Low life expectancy**	**Old**	**Low migration**
Fertility rate[1]	1.84	1.64	1.84	1.64	1.84
Life expectancy at birth in 2031					
Males	82.7	80.7	80.7	84.7	82.7
Females	86.2	84.9	84.9	87.5	86.2
Long-term average annual net migration	190,000	130,000	190,000	130,000	130,000

NOTES:

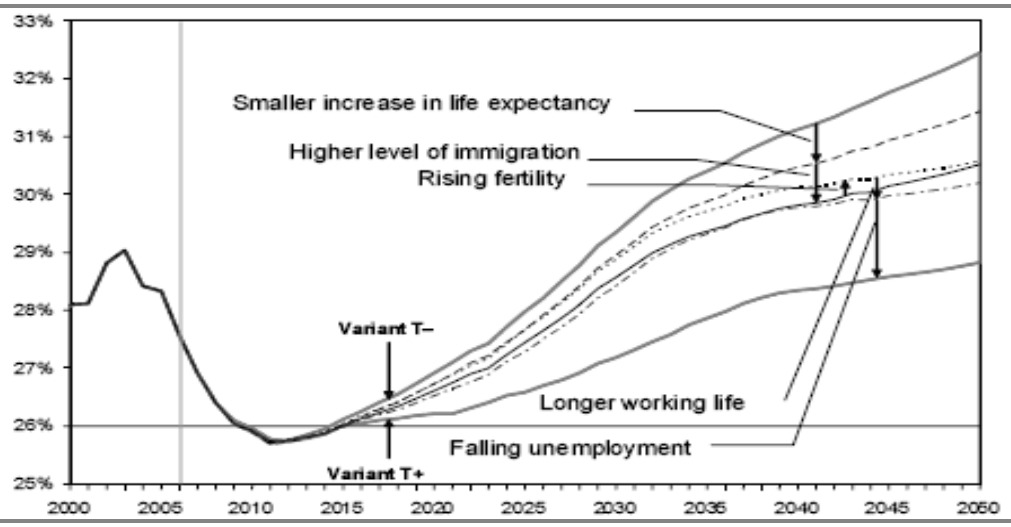
1. Long-term average number of children per women

FIGURE I.5. Germany, Second Report on the Sustainability of Public Finances: Long-term sustainability gaps, percent of GDP



NOTES: Necessary increases in primary net borrowing (percentage of GDP) using different measurement methods, ifo examines sustainability using three different criteria.

FIGURE I.6. Germany, Second Report on the Sustainability of Public Finances: Cumulative expenditure ratio – sensitivity analysis, percent of GDP



I.C.3. Disclosure of underlying assumptions and methodologies

Expenditure projections may be decomposed into a variety of different categories. Table I.9 provides an illustration of how projections of government spending are decomposed and modelled separately. It focuses on six categories in particular: health and old-age care, education, public pensions, interest expenditures as well as fiscal risks associated with climate change and government contingent liabilities. Within these categories, however, countries may themselves break each down even further into different programs modelled upon different assumptions reflecting their individual characteristics. While almost all countries include information on health and old-age care, education and public pensions, only Australia and Denmark include a discussion of any costs associated with climate change and none include a discussion of any long-term fiscal risks associated with government contingent liabilities. While this is perhaps less surprising because of the uncertainties associated with climate change and government contingent liabilities, it contrasts with much of the literature that advocates the benefits of fiscal projections.

Australia's IGR2 provides a discussion of the illustrative fiscal costs if the government was to purchase emissions reductions under different scenarios of coverage and efficiency instead of adopting a market based mechanism to meet its international obligations. The associated cost of this exercise are presented as a supplement to Australia's projections but are not factored into the baseline projection (much in the same way as sensitivity analysis is conducted in the IGR2 --- see discussion above). Denmark's Convergence Program includes the government's energy and climate change strategies in its Convergence Program projections, a discussion of which can be found in an annex to the report. This relates to reduced energy consumption, increased use of renewable energy sources, and the associated fiscal costs associated with the non-emissions trading scheme sectors under the European Union proposed objectives. Moreover, Denmark includes a separate discussion of the additional costs were higher carbon emission reductions required.

TABLE I.9. Decomposition of fiscal costs within country's projections

Country	Report	Demographic change			Non-demographic fiscal costs and risks	
		Health & old-age care	Education	Public pensions	Climate change	Contingent liabilities
Australia	2007	●	●	●	●	○
Canada	2002	●	●	●	○	○
Denmark	2008	●	●	●	●	○
Korea	2006	○	○	○	○	○
Germany	2008	●	●	●	○	○
Netherlands	2006	●	●	●	○	○
New Zealand	2006	●	●	●	○	○
Norway	2008	..	..	..	..	..
Sweden	2008	●	●	●	○	○
Switzerland	2008	●	●	●	○	○
United Kingdom	2008	●	●	●	○	○
United States (OMB)	2008	●	○	●	○	○
United States (CBO)	2007	●	○	●	○	○
United States (GAO)	2008	●	○	●	○	○
Total		12	9	12	2	0

NOTES:
● = Presented; ○ = Not presented; .. = Information not available

On the revenue side, decomposition varies between countries---reflecting different country contexts. For example Denmark, the Netherlands, Norway and Sweden discuss revenue sources coming from large revenue streams coming from natural resources. These differences aside, there are

two main approaches to model revenues: on demographic and economic factors; or as a constant share of GDP. Within this first group are countries such as the Netherlands, Sweden and the United Kingdom. Others, such as Australia, Denmark, Germany and Switzerland make general statements about the growth of revenues as constant share of GDP. In the case of Australia, it notes that the rationale for this is because projections internationally focus on expenditures rather than the way that they are financed.

Disclosure of the key assumptions is important because of the inherent uncertainty of the long-term and the sensitivity of any assessment to even small changes in any underlying key parameters. The disclosure of the assumptions surrounding key parameters provides one means of *ex ante* assurances of the analytical quality of projections. Table I.10 provides an overview of the disclosure of key parameters. Presenting key assumptions in a table, though, may not be essential—a textual discussion of the assumptions may be sufficient. What is important is to clearly signal where significant judgements have been made in producing assumptions and to clearly illustrate whether assumptions have been held constant or changed between projections. While not explicit, a number of countries have gone further to identify where changes in the methodology and data sources have occurred since the last projection. The challenge is how to distil a very complex process into an explanation that is succinct and understandable, but that does not oversimplify and therefore diminish the reliability of the information.

The majority of countries surveyed include a table or list of the key assumptions related to demographic and macroeconomic factors; fewer do this for the assumptions underlying the microeconomic factors. Most importantly, most countries do not provide a comparison of these assumptions relative to the previous fiscal projection. This is particularly important for the macroeconomic and microeconomic assumptions. Macroeconomic assumptions such as productivity and interest rates have a significant impact on long-term fiscal projections, as can be seen through sensitivity analysis of these variables.

TABLE I.10. Disclosure of assumptions of key parameters

Country	Report	Demographic and macroeconomic assumptions / methodology		Microeconomic (expenditure) assumptions / methodology	
		Table of key assumptions or method	Comparison to previous projections	Table of key assumptions or method	Comparison to previous projections
Australia	2007	●	●	●	○
Canada	2002	○	○	○	○
Denmark	2008	●	○	○[1]	○
Germany	2008	●	●	○	○
Korea	2006	●	n/a[2]	○	n/a[3]
Netherlands	2006	●	○	●	○
New Zealand	2006	●	○	●	○
Norway	2008	..	○	..	○
Sweden	2008	●	○	○	○
Switzerland	2008	●	n/a[4]	●	n/a[5]
United Kingdom	2008	●	●	○	○
United States (OMB)	2008	○[6]	○	○	○
United States (CBO)	2007	○[7]	○	●	○
United States (GAO)	2008	○[8]	○	●	○
Total		9	3	6	0

NOTES:

● = Presented; ○ = Not presented; .. = information not available

1. **Denmark:** Table of key microeconomic assumptions not presented but available upon request from the Ministry of Finance.

2 - 5. **Korea, Switzerland**, Only one fiscal projection prepared to date.

6 - 9. **United States**, demographic assumptions based upon Social Security and Medicare actuarial projections assumptions but not presented in the OMB, CBO or GAO reports.

I.C.4. Institutional Linkages and Outcomes of Fiscal Projections

While the previous section has focused on the analytical quality of fiscal projections, this section focuses on their outcomes. There is some anecdotal evidence that suggests that fiscal projections are effective. In Norway, for example, fiscal projections are seen to provide a common reference to create awareness and the basis to discuss the long-term fiscal challenges. This applies not only to the projections themselves but also their modelling tools that can be used to assess the long-term fiscal consequences of proposed reforms in pension and immigration policies. In other cases, like Korea, the production of fiscal projections may have raised public awareness and expectations towards fiscal sustainability.

This section adopts two parallel approaches to examine the issue of effectiveness of long-term projections: the use of long-term assessments to evaluate new government initiatives and the reforms of existing initiatives (particularly related to mandatory/entitlement spending); and the use of budget triggers should the government's fiscal position be considered unsustainable. An alternative view may be to interpret the effectiveness of fiscal projections in terms of the extent that they are supported and/or linked to other budget practices and procedures targeted at maintaining fiscal stability in the short- and medium-term, namely fiscal rules.

Presentation of projections together with the budget and supporting documentation. Fiscal projections are presented together with the budget in only four of the countries surveyed: Norway, Sweden, Switzerland, and the US (see Table I.11). Among these the level of depth of analysis varies, however. In Australia, IGR1 was presented together with the budget as a standalone Budget Paper. However the IGR2 was presented outside of the Budget process. However, the 2007-08 and 2008-09 Commonwealth budgets include a 15-20 year projection of the underlying cash balance based on a similar methodology to IGR2 together with the medium-term fiscal outlook. In both Sweden and the US, fiscal projections are presented with the budget documents. Sweden's Spring Fiscal Policy and Budget Bills include the fiscal projection as part of the annex discussing the fiscal framework. The US OMB Long-run Budget Outlook is presented in the Economic assumptions and analysis section of the Analytical Perspectives accompanying the President's Budget. Scenarios based on the Switzerland's fiscal projection are included in the budget to focus on certain areas of public expenditures and discuss policy options.

Long-term assessment for new initiatives and reforms. Consideration of the long-term fiscal consequences when evaluating existing and new government programs and entitlement spending is perhaps best demonstrated by Australia. Operation Sunlight It requires that all new programs subject to significant demographic risk be assessed and reported over a 40 year horizon consistent with the Intergenerational Report, and extends the length of forward estimates presented together with the budget from three to six years (including the budgeted fiscal year) for programs likely to be subject to demographic pressures. As part of the Australian government's response to its review of budget transparency, known as Operation Sunlight, the government noted that as part of the cabinet decision-making process, demographic analysis is undertaken on relevant proposals and all new policy proposals must advise the government where the long run costs of a proposal are expected to be significantly different to the forward estimates. In addition, programs with longer term financial implications beyond the forward estimates period are also reported in the Budget Papers (see Box I.7).

TABLE I.11. Comparison with past analysis, sensitivity analysis and policy options

Country	Report	Presented with annual budget	Assessment of long-term costs for proposed initiatives & reforms	Illustrates impact of past reforms	Illustrates impact of possible policy options	
					Impact of proposed policies	Impact of timing of change
Australia	2007	○[1]	○[2]	●	●	○
Canada	2002	○	○[3]	●	●	●
Denmark	2008	○[3]	○	●	○	○
Germany	2008	○	○	●	○	●
Korea	2006	○	○	○	○	○
Netherlands	2006	○	○	●	○	●
New Zealand	2006	○	○	○	○	○
Norway	2008	●	●	○	○	○
Sweden	2008	●	●	○	○	○
Switzerland	2008	●	○	○	○	○
United Kingdom	2008	○	○	○	●	○
United States (OMB)	2008	●	○	○	●	○
United States (CBO)	2007	n/a	n/a	○	○	●
United States (GAO)	2008	n/a	n/a	○	○	●
Total		4	2	5	4	5

NOTES:

● = Presented; ○ = Not presented; n/a = not applicable

1. **Australia,** IGR1 presented with the annual budget, IGR2 was not. Commonwealth budgets since 2007/08 have included a 15-20 year projection of the underlying cash balance based on a similar methodology to IGR2 together with the medium-term fiscal outlook
2. **Australia**, Announced in Operation Sunlight
3. **Canada**, A long-term assessment of reforms of Canada Pension Plan are mandated in legislation
4. **Denmark,** 2008 fiscal projections were presented together with the annual budget; normally it is presented one month before.

BOX I.7. Operation Sunlight and the Government's Response

On 16 April 2006, the then Shadow Minister for Finance released a discussion paper entitled "Operation Sunlight – Enhancing Budget Transparency" setting out recommendations to enhance budget transparency and accountability. The report, revised in 2008, proposes that the Australian government, among other things:

- Produce an Intergenerational Report every three years with greater disaggregation of expenditure information at the program level;
- Investigate the utility of a whole-of-government triple-bottom line (economic, environment and social) chapter in the Intergenerational Report;
- Make it mandatory for all new programs subject to significant demographic risk be assessed and reported over a 40 year horizon consistent with the Intergenerational Report; and
- Extend the length of forward estimates presented together with the budget from three to six years (including the budgeted fiscal year) for programs likely to be subject to demographic pressures.

On 9 December 2008, the Australian government responded by, amongst other things:

- Agreeing to produce an Intergenerational Report every three years;
- Noting the importance of including emerging pressures such as key environmental and social impacts in future IGRs;
- Noting that demographic analysis is already required on all new policy proposals where the long run costs of a proposal are expected to be significantly different to the short-run estimates; and
- Noting that programs with long-term financial implications, such as those subject to demographic pressures, are already reported in the Budget.

Illustration of past and possible initiatives and reforms. While the decision to include policy scenarios seeks to provide an illustration of the policy options available to government, their choice can be viewed as problematic. The organisation responsible for preparing the projections may fear being seen in participating in policy making or at the very least endorsing particular policies. In Germany, policy simulations include retrospective and prospective policy changes and the timing efforts are made to close the fiscal gap (see Table I.12). The 2008 report included both retrospective policies (e.g. 2004 and 2007 pension reforms) and prospective reforms (long-term care insurance and civil service pensions) on the core fiscal measure. These represented a continuation from the previous 2005 Report, which illustrated the impact on both the S_1 and S_2 fiscal measures of: reforms to statutory health insurance and statutory pension insurance and to the statutory retirement age of 67; curbs on health expenditures; more resources for education and training; and faster or slower reductions of other expenditures. In the US, the OMB's projections included changes in the growth of age- and gender-adjusted per-beneficiary growth, the impact of proposed entitlement savings, and alternative revenue shares. In the CBO and GAO long-term projections, "Alternative fiscal scenarios" incorporated widely-expected changes and those that have been regularly made in the past (specifically, in relation to taxation).

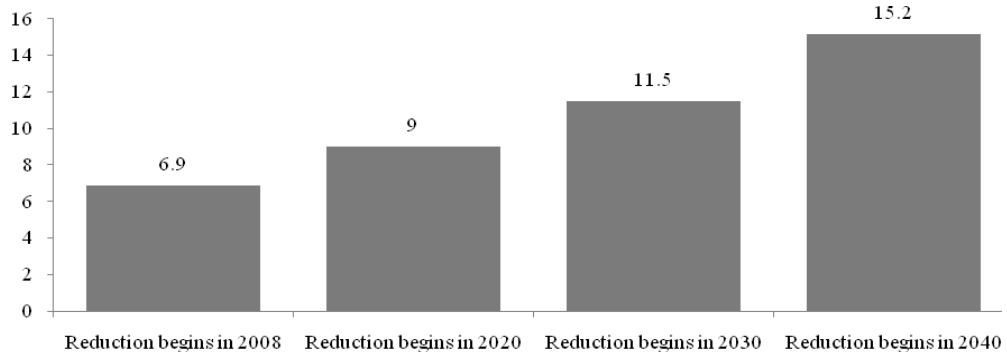
In addition, both Germany and the CBO direct attention to the timing of "The cost of delayed action on the budget" to reducing non-interest spending to close fiscal gap in different years under the alternative fiscal scenario (See Figure I.7). The CBO projections look at the cost for every additional 10 year delay.

TABLE I.12. Germany, Second Report on the Sustainability of Public Finances: Sustainability gaps as a percentage of GDP, results based on different assumptions

	Variant T- (relatively unfavourable)	Variant T+ (relatively favourable)
Retrospective policy simulation[1]	3.6	1.2
Status-quo scenario[2]	2.4	0
Prospective policy simulation[3]	1.8	-0.6

NOTES:
1. Excluding the pension reforms of 2004 (sustainability factor) and 2007 (raising the retirement age to 67).
2. On completion of ifo's calculations, includes pension reforms but not yet the latest changes in the field of long-term care insurance / civil service pensions
3. The latest changes in the field of long-term care insurance / civil service pensions are also taken into account.

FIGURE I.7. US CBO, The Long-term Budget Outlook, 2007: Reductions in non-interest spending needed to close the fiscal gap in various years under CBO alternative fiscal scenario, percentage of GDP



Linkage between fiscal projections, fiscal targets and fiscal triggers. Many of the countries surveyed have fiscal rules, in one form or another, to constrain spending over the short- and medium-term and fiscal triggers to stabilise pension funds (see Table I.13). A number of countries, such as Australia and New Zealand have principle-based rules that commit the government to prudent management and that require fiscal objectives (including deficits and debt) to be articulated in the government's fiscal strategy. In Australia, the Charter for Budget Honesty requires the government to spell out objectives and targets but places no constraints on their nature, and requires the government to prepare an annual fiscal strategy statement outlining long-term fiscal policy objectives and fiscal targets for the following three years. New Zealand attempts to maintain debt and net worth at "prudent" levels and run operating surpluses on average over a "reasonable" period of time. The government of the day sets its own numerical targets consistent with these principles. The European Union member countries have additional numerical targets set and monitored at a supranational level.

A smaller number of the countries surveyed have triggers or an automatic stabilizing mechanism on their respective pension funds. In Canada and Sweden, automatic triggers mechanisms are activated in when the pension fund is considered unsustainable over a predetermined period (see Box I.8). In Germany, a sustainability factor linked to the national dependency ratio is applied to the rate of indexation of benefits—the balancing mechanisms may only be deactivated by an act of parliament—until the social security pension is sustainable under a determined contribution rate.

TABLE I.13. Existence of complementary budget practices and procedures

Country	Fiscal targets, both numerical rules and principle-based				Triggers on public pension funds
	Expenditure	Budget balance	Debt	Revenue	
Australia*	○	●	●	○	○
Canada	●	●	●	●	●
Denmark#	●	●	○	○	○
Germany#	○	●	●	○	●
Korea	○	○	○	○	○
Netherlands#	●	●	○	●	○
New Zealand*	○	○	●	○	○
Norway#	●	○	○	○	○
Sweden#	●	●	○	○	●
Switzerland	●	○	●	○	○
United Kingdom#	○	○	●	○	○
United States	○	○	○	○	○
Total	6	6	6	2	3

NOTES:

* **Australia, New Zealand:** use principle- not numerical target-based rules. Principles are translated into rules through government's fiscal strategy.

\# **Denmark, Germany, the Netherlands, Sweden, the UK:** also adopt European Union deficit (3 percent GDP ceiling on general government net borrowing) and debt rule (60 percent gross government debt-to-GDP ratio norm) under the Stability and Growth Pact.

While many of the countries have fiscal rules their linkage to fiscal projections are generally unidirectional. Many countries surveyed use link their benchmark for sustainable debt in their projections to current debt targets outlined in fiscal rules and principle-based fiscal strategies. More commonly, however, most EU member countries surveyed use the SGP debt target. Most countries base their fiscal projection upon at the end of their medium-term and thus factor in their respective expenditure and budget balance rules. After the medium-term other expenditure and budget balance rules are subsequently disregarded. Furthermore, a number of countries such as Canada build their revenue rules into the policy options scenarios, *i.e.* what if they don't pay back debt. However, fiscal

projections as they currently appear are not seen as resulting in any triggers, either hard or soft. They have not been seen to explicitly shape fiscal rules or cuts (sequestering), nor have they been seen to result in studies concerning the sustainability of countries fiscal futures with an objective of resulting in some clear actions (soft triggers).

BOX I.8. Automatic balancing mechanisms in Canada, Germany and Sweden

In Canada, an automatic balancing mechanism was introduced in 1998 and mandates action if:

- An actuarial projection concludes that the Canada Pension Plan is not financially sustainable; and
- An agreement between the central government and the provinces on necessary course of actions cannot be achieved.

Financial sustainability is defined relative to the ability to maintain a specific level of contribution over a period of 75 years. Should the level of contributions exceed a figure established by law (the "steady state", currently 9.9 percent), the automatic balancing mechanism would affect changes in both contributions and pensions. Under this situation, the contribution rate would be increased by half of the excess of the steady state subject to maximum annual increase (currently, 0.2 percent each year). The remainder would be covered by a freeze of pensions payable over a three year period.

In Sweden, an actuarial income statement and balance sheet of the non-financial defined, pay-a-you-go, contribution scheme has been made every year since 2001. In addition, an automatic balancing mechanism can temporarily abandon the indexation of pension rights and current benefits to average wage growth if the stability of the scheme is threatened. Stability of the system is defined by a balance ratio that relates to the scheme's assets and liabilities. A balance ratio of less than one means that the scheme is out of balance (*i.e.* liabilities exceed assets), and earned pension rights and current benefits are reduced according to the balance ratio rather than the average wage. This will continue as long as the balance ratio is less than one.

In Germany, a sustainability factor linked to the national dependency ratio that is applied to the rate of indexation of benefits was introduced in 2005. In contrast to the triggers in Canada and Sweden, it is permanently activated---and may only be deactivated by an act of parliament---until the social security pension is sustainable under a determined contribution rate. Moreover, beginning in 2008 the German government must report once every four years on how to meet the targets for replacement and contribution rates.

I.D. LESSONS AND APPLICABILITY FROM SUCCESSFUL COUNTRIES

Although a growing number of countries prepare them, cross country analysis of fiscal projections has been limited and an assessment of their effectiveness has been altogether absent. This paper seeks to explore three issues: first, how countries have reformed their budget processes and decision-making institutions to help them cope more effectively with the long-term fiscal pressures and risks; second, what evidence is there about the effectiveness of fiscal projections to manage the political incentives that have resulted in a projected mismatch between obligations and revenues; finally, to what extent, and in what ways, is the experience of successful countries relevant for other countries exposed to similar fiscal pressures and risks. The study focuses on 12 OECD countries: Australia, Canada, Denmark, Germany, Korea, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the UK, and the US.

From this study, a number of summary observations can be made regarding fiscal projections:

- Most countries surveyed publish fiscal projections to assess the government's fiscal future over a 40-50 year time horizon, and around half also over an infinite time horizon. Only half of all countries prepare their analysis annually. The practice remains relatively new in most countries, introduced in the last decade.
- Although many factors, such as the fiscal consequences of population ageing, global climate change, and contingent liabilities, pose risks to fiscal sustainability, most projections focus solely on population ageing.
- A combination of projected fiscal aggregates and synthetic indicators are the most common measures of fiscal sustainability; generational accounting is prepared only in a couple of the countries surveyed. Few countries provide an assessment of how and why their fiscal futures have changed since the last projection.
- While sensitivity analysis of demographic and macroeconomic assumptions are common in many country's fiscal projections, sensitivity analysis of the microeconomic assumptions relating to the cost of government services is not common. Analysis is typically used to assess a country's fiscal future rather than to highlight policy options.
- While the methodology and assumptions underlying fiscal projections are disclosed in many reports, none clearly present how assumptions have changed over time and the reasons underlying the changes.

The recommendations of this paper cover both the presentation and disclosures of fiscal projections and the linkages of projections with other budget practices and procedures.

- Fiscal projections should be prepared on an annual basis to draw attention to the long-term fiscal consequences of current policies, and to eliminate discretion over when projections are produced. Periodic and/or *ad hoc* projections, as well as those out of sync with the electoral cycle, can give rise to the possibility that issues of sustainability can be temporarily shelved and to gaming as to when to prepare such analysis. While political pressures mean that governments may not be able to avoid preparing budget projections, frequent reporting supports policy and process changes.
- Fiscal projections should incorporate comparisons with past government assessments to highlight trends regarding sustainability. While many countries prepare fiscal projections on a regular basis, most do not provide a comparison with previous projections. Australia and the Netherlands are two notable exceptions: Australia publishes trends in spending by type and the primary balance; and the Netherlands uses a synthetic indicator and decomposes the cause of any change.
- Fiscal projections should include sensitivity analysis (or "alternative scenarios") of demographic, macro- and micro-economic, and other assumptions to illustrate the exposure to fiscal risks caused by exogenous developments. Sensitivity analysis serves to illustrate that projections are only projections and subject to uncertainty. Equally important is the rationale and justification for sensitivity analysis of selected variables, as well as the changes in the values underpinning the analysis and whether alternative assumptions have changed relative to previous reports.
- Fiscal projections should clearly present changes in the methodology, key assumptions, and data sources to provide a means of assurance and credibility of their quality. Projections are by their very nature subject to uncertainty and are sensitive to the assumptions underlying them. Disclosure and justification of changes in the underlying assumptions are one means to provide assurance about the quality of the projections and a basis for an independent review of a country's fiscal future.

- **Countries should use fiscal projections to illustrate the fiscal consequences of reforms or policy options.** It is necessary to carefully review the types of simulations used to ensure that policy options are not presented as prescriptions or means of circumventing political consultation about the types and specifics of reforms. These may serve to highlight the impact of already approved reforms (*e.g.* Denmark, Germany) or more general examples of reductions of expenditures or increases in taxation (*e.g.* Australia, the United State's Office of Management and Budget).
- Finally, although fiscal projections should be directly tied to the annual budget, they also should be linked to other budget practices and procedures to ensure adequate attention is given to the fiscal projections prepared. This may be accomplished through linking the results of fiscal projections to fiscal targets, medium-term budget ceilings, or entitlement benefit formulas through either hard or soft budget triggers.

The expanding use of fiscal projections in countries with very different governmental and budgetary systems seems to support that these recommendations should be relevant to a broad range of OECD and non-OECD countries alike.

PART II. DESCRIPTIONS OF COUNTRY'S FISCAL PROJECTIONS

This part of the paper provides descriptions of fiscal projections in the 12 OECD countries surveyed. Among these countries, only the US prepares multiple projections, by the OMB, CBO, and GAO.[10] Each country description presents a review of the analytical and institutional quality of its fiscal projections in three sections.

1. An overview of the country's fiscal futures (or sustainability) reports that present fiscal projections, including: the time horizon and frequency of reporting; the coverage of different levels of government; the responsibility for the preparation of reports and data assurance (if applicable); and the legal requirements for reporting.

2. A discussion of the analytical quality of fiscal projection including;

   - The types of sustainability analysis used to assess the affordability of current public policies, including: the fiscal indicators used; how sensitivity analysis of the underlying assumptions is used; the impact of different policy options (including the timing of policy actions); and any comparisons of country's fiscal futures relative to the previous projection.

   - Explicit disclosures of the methods, assumptions and other supporting information used to help provide assurances of the quality of projections. This information can include the disclosure of modelling approaches, key assumptions, and source of data used in projections, and any accompanying textual discussion explaining the methods, assumptions and any changes therein since the previous report.

3. A discussion of the institutional linkages of fiscal projections to other budget practices and procedures targeted at maintaining fiscal stability in the short- and medium-term. These practices and procedures can include: deficit and debt rules; medium-term budget ceilings; revenue rules; the use of long-term assessments to evaluate new government initiatives and reforms of existing initiatives (particularly related to mandatory/entitlement spending); and the use of budget triggers should the government's fiscal position be considered unsustainable.

[10] Descriptions of fiscal projections have been prepared based upon a survey conducted by the authors. Individual country descriptions been shared with the respective countries for comment and elaboration. Additional comments and elaborations, if any, will be incorporated if at all possible.

II.A. AUSTRALIA: INTERGENERATIONAL REPORT

II.A.1. General Characteristics

- Fiscal projections span 40 years, updated within five years of the last report, prepared by the Treasurer and presented to the House of Representatives and publicly released as required under the Charter of Budget Honesty Act 1998. Projections are based on the Commonwealth government's current policies up to the time of the report.
- Fiscal indicators focus on projected government spending per capita; the projected primary balance and net government debt; as well as the "adjusted primary balance" (the size of an immediate increase in taxes or reduction in government spending, as a percentage point of GDP, maintained over the entire projection period at the current level of net debt). The report also compares government spending per capita and the projected primary balance from the previous report is also prepared.
- Sensitivity analysis is conducted for demographic and macroeconomic assumptions and a single policy scenario (combining lower unemployment, higher migration, and higher labour force participation) is presented for a gradual reduction in government spending. Sensitivity analysis presents changes in projected expenditure categories but not the projected primary balance, net debt, or adjusted primary balance. There is no sensitivity analysis for non-demographic-driven components of different spending categories.
- Methodology and key assumptions for demographic-sensitive spending is presented in an annex of the report and substantiated by textual discussion.
- The release of fiscal projections have also underlined a number changes to budget practices and procedures. These include: the inclusion of demographic analysis on all new programs where the long-term costs of a proposal are expected to be significantly different to the (short-term) forward estimates; the reporting in the budget of all programs with long-term financial implications, such as those subject to demographic pressures; and the inclusion of a shortened fiscal projection in the medium-term fiscal outlook of the annual budget.

II.A.2. Overview of the Intergenerational Report

Australia's "Intergenerational Report" (IGR) presents a 40 year fiscal projection of the Commonwealth government's current policies, as required under the Charter of Budget Honesty Act, 1998.[11] The Charter directs projections to take account of the financial implications of demographic change, and to be publicly released and presented by the Treasurer[12] to the House of Representatives (the lower chamber of the national legislature) within five years of the preceding report. The projections are based on current policies up to the time of the report.

[11] It is noted that although some Australian state governments have produced their own intergenerational reports, the focus of this write up is on the Commonwealth (central) government.

[12] In Australia, the functions of the central budget authority are shared between the Department of the Treasury and the Department of Finance and Deregulation. The Department of the Treasury's main responsibilities centre upon the formulation of fiscal policy, taxation, and structural adjustment polices. The Department of Finance and Deregulation focuses on general expenditure control. The Charter of Budget Honesty gives the responsibility for the IGR to the Treasurer. As such, Treasury is the lead agency with responsibility for preparing the Intergenerational Report and the projections therein, and for that purpose in the lead-up to the release of an IGR it establishes a small team within the Budget Policy Division to bring together that work. In between IGRs, Budget Policy Division acts as the contact point for all inquiries relating to fiscal projections.

Two Intergenerational Reports have been produced to date: the first in 2002; and the second in 2007. Each covers the Commonwealth government's budget, including transfers to state governments but not public non-financial corporations. Both Reports are available on the Treasury's website.[13]

II.A.3. Sustainability analysis

Fiscal sustainability is defined in both Intergenerational Reports as maintaining prudent levels of debt, as per the Charter, and framed in terms of the wellbeing of successive generations relative to economic, social and environmental conditions. This is further articulated in IGR2 to focus on the stability of government spending (per capita) in terms of GDP (per capita) and its implications on net Commonwealth government debt.

Fiscal indicators used in IGR2 focus on the projected primary balance and net government debt as well as the "adjusted primary balance" (a synthetic indicator). A single baseline projection of the Commonwealth government's primary balance, primary balance adjusted for superannuation payments, and net debt is presented (see Figures II.A1 – II.A3). It is accompanied by a comparison of the projected primary balance from IGR1 and government spending per capita adjusted for 2007 prices (see Figures II.A4 and II.A5). IGR2 labels the projected primary balance (*i.e.* the gap between spending and revenue excluding net interest payments and Future Fund earnings) in the end year of the projection as the "fiscal gap". This differs from the fiscal gap as defined by Auerbach (1993), *i.e.* the immediate and permanent increase in revenue or reduction in expenditure as a percent of GDP over the long term.

Projections of the primary balance and net debt were accompanied in IGR2 for the first time by a discussion of the "adjusted primary balance", or the size of an immediate increase in taxes or reduction in government spending, as a percentage point of GDP, maintained over the entire projection period to maintain the current level of net debt. A variation of this method, the "lower spending growth" scenario, is also presented to show the required annual reduction in the growth of government spending as a constant percentage point of GDP over the entire projection period to maintain the current level of net debt (see Figure II.A4).

IGR2 presents a sensitivity analysis of changes to different demographic and macroeconomic assumptions on different government spending categories. It shows the impact of changes to one underlying assumption (*e.g.* labour force participation rates, unemployment, productivity, migration, fertility or life expectancy) upon growth, dependency ratios and changes in spending by category of expenditure. It does not, however, estimate the net impact of changes associated with these alternative scenarios on the projected primary balance, projected net debt and adjusted primary balance.

II.A.4 Specific disclosures

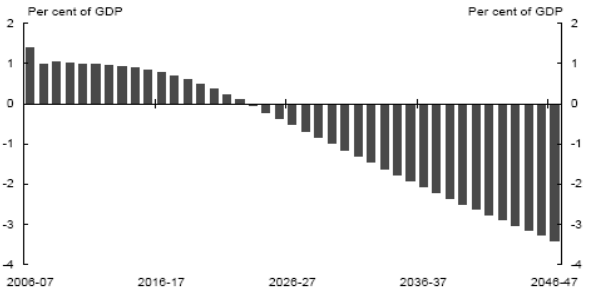
The modelling of fiscal projections is decomposed into tax and non-tax revenues, four demographic-sensitive expenditure and one "other" spending categories. There is no single high level summary of key assumptions associated with revenue and expenditure projections and the handling of exceptions to current policies (*i.e.* proposed policies expected to have a significant impact on demographic related spending). Each expenditure category modelled is discussed with information on its coverage, and modelling approach for both demographic and non-demographic elements.

Revenue projections capture both tax and non-tax (*e.g.* the sale of goods and services by the government, interest and dividends, petroleum royalties, and seigniorage from circulation coin

[13] The two intergenerational reports are available online,
- IGR1 http://www.budget.gov.au/2002-03/bp5/html/index.html
- IGR2 http://www.treasury.gov.au/igr/IGR2007.asp

production). In discussing revenue projections, IGR2 states that it does not present revenue projections based on modelling of particular revenue sources or on an analysis of demographic or economic factors that may influence revenue collection. This is because the emphasis of the analysis of the report, and in intergenerational fiscal analyses around the world, focuses on pressures that demographic change are likely to impose on future government spending, rather than the way this spending is financed. Consistent with this, the analysis assumes revenue is held at a constant proportion of GDP (22.1 per cent in IGR2) from the end of the budget forward.

FIGURE II.A1. Australian Intergenerational Report, 2007: Projected Australian government balances



NOTES: The projections of the primary balance excluding net interest payments and Future Fund earnings.

FIGURE II.A2. Australian Intergenerational Report, 2007: Fiscal pressures adjusted for superannuation payments

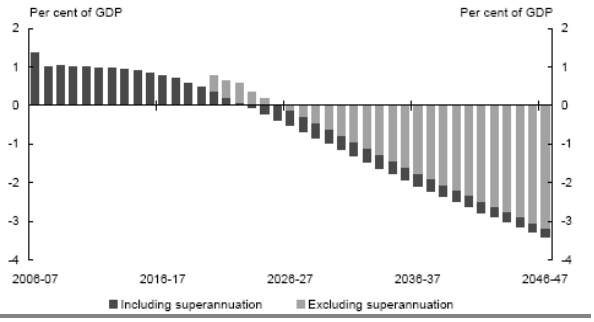
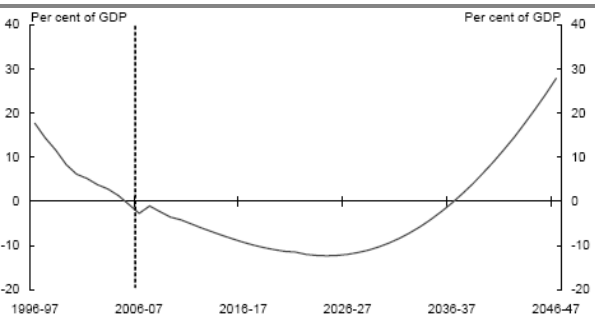
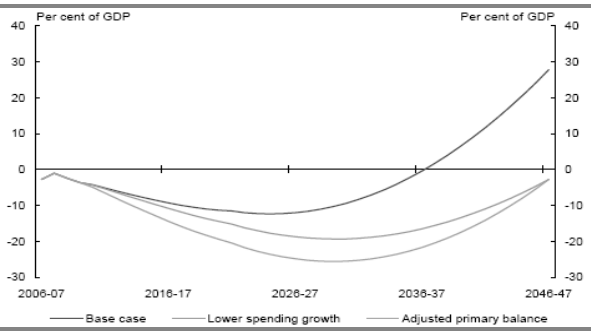


FIGURE II.A3. Australian Intergenerational Report, 2007: Projected path of net debt



NOTES: The projections of net debt include net interest payments. The small increase in Australian Government net debt in 2007-08 reflects the expected changes to the financial asset composition of the Future Fund as it moves towards a portfolio allocation consistent with the benchmark return specified in the Australian Government's investment mandate.

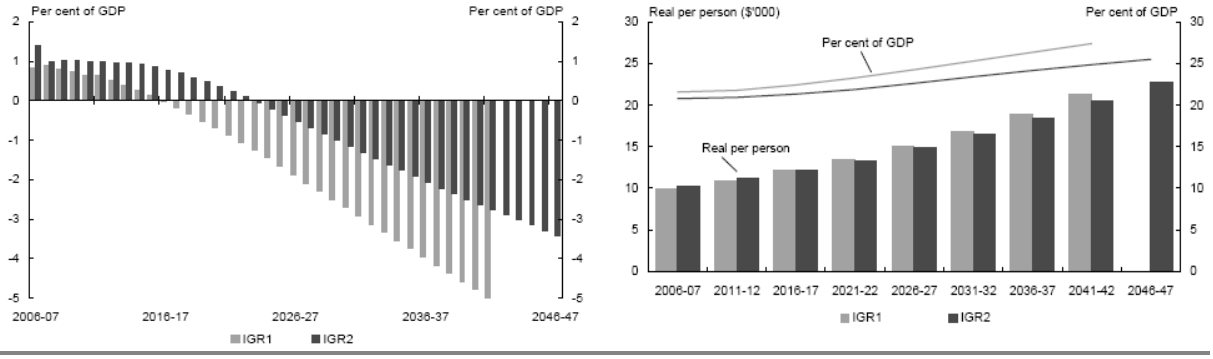
FIGURE II.A4. Australian Intergenerational Report, 2007: Projected path of new debt under alternative spending scenarios



NOTES: The base case projects average annual spending growth around 5½ percent. The lower spending growth scenarios assumes that from 2006-07, spending grows each year by around one-fifth of a percentage point less than projected under the base case. The adjusted primary balance scenario assumes an immediate improvement in the primary balance of ¾ of a percentage point of GDP, maintained over the entire projection period.

FIGURE I.A5. Australian Intergenerational Report, 2007: Comparison of IGR1 and IGR2 projections of primary balances

FIGURE I.A6. Australian Intergenerational Report, 2007: Comparison of IGR1 and IGR2 projections of Australian government spending



Expenditure projections are disaggregated into four key demographic-sensitive expenditure categories (health, aged care, payments to individuals, and education). Each of the categories is disaggregated into subcategories and modelled separately.[14] A discussion of key trends and drivers and their projections (both as a percent of GDP and in real spending per person) in the current and previous IGR is presented in the body of IGR2. Detailed information on the methodology, assumptions and data source for each expenditure category - including changes in methodology and newly available data - is available in an annex. An "other" spending category (of spending areas that do not have a clear link with demographic factors, including defence and national security, the environment, transportation and communications infrastructure, public order and safety, core government services) is projected using the rate of nominal GDP growth.

Demographic and macroeconomic assumptions are provided for population, participation, productivity, and inflation. Assumptions are discussed in text along with a justification for their values and a comparison to the values in the previous IGR. A summary table presenting the key population, participation and productivity assumptions is presented, together with their values used for a sensitivity analysis (see Table II.A1).

TABLE II.A1. Australian Intergenerational Report, 2007. Assumptions underlying sensitivity analysis

	Base case	Lower	Higher
Participation			
Total labour force participation rates (population aged 15 and over) (percent)	57.1 by 2046-47	55.0 by 2046-47[1]	59.9 by 2046-47[2]
Older workers participation rates (aged 50-69) (percent)	58.1 by 2046-47		62.0 by 2046-47[3]
Unemployment rates (percent)	5.0	4.0	6.0
Productivity			
Labour productivity growth (percent)	1.75	1.2[4]	2.0
Population			
Net migration (no. of people each year)	110,000	90,000	130,000
Fertility (total fertility rate)	1.7	1.5	1.9
Life expectancy at birth (years)			
Males in 2046-47	86.0	82.9[5]	89.5[6]
Females in 2046-47	89.8	88.0[5]	92.3[6]

NOTES:

1. Males and female age specific participation rates are held constant at 2006-07 levels from 2010-11
2. All male and female age specific participation rates are adjusted to achieve an increase of 5percent in total participation rates for population aged 15 and over.

[14] Expenditure categories are broken down into:

- Health: Medicare Benefits Schedule; Pharmaceutical Benefits Scheme; Hospital and health services; and Other.
- Aged care: Residential care; Community care.
- Payments to individuals: Age pensions; Disability Support Pension; Parenting Payment Single; Unemployment allowances and Parenting Payment Partnered; Youth Allowance; Career Payment and Wife Pension; Family Tax Benefit; Child Care Benefit; Maternity Payment.
- Education: Schools; Higher education; Vocational education and training; and Other.

3. Growth in age specific participation rates is increased by 10 percent for workers in the age cohorts of 50-54, 55-59, 60-64, 65-69, giving a total participation rate (15+) of 58.2 percent in 2046-47.
4. Represents the average productivity growth rate in the 1980s
5. Uses IGR1 life expectancy projections
6. All improvement factors are scaled by 1.625 for men and 1.5 for women.

II.A.5. Institutional linkages

Fiscal projections constitute one component of Australia's Charter for Budget Honesty, a principles-based approach for fiscal policy. The provisions of the Charter can be divided into two groups: a regime for setting fiscal objectives, and an extensive system of fiscal reporting to monitor the consistency of the government's fiscal actions with its stated fiscal objectives. Setting fiscal objectives is a two-step process involving certain legislated "Principles of Sound Fiscal Management" and an annual "Fiscal Strategy Statement" prepared by the government.

Australia reports that one of the key advantages of the principles-based approach towards fiscal management as provided for in the Charter is that it provides flexibility for government to accommodate exogenous shocks and changing economic conditions. This is seen to be advantageous in times of economic volatility where the government may need the capacity to deliver economic policy in a timely manner without having to change the law or wait for the next election for a mandate to vary a fiscal rule.

Australia does not have explicit annual expenditure targets, either for the government as a whole or for individual portfolios. The Treasury and the Department of Finance and Deregulation provide an updated economic and fiscal outlook showing the amount of revenue available and baseline expenditures. An "informal" expenditure target (*i.e.* outside of legislation) can be said to exist. The main reason for the lack of discussion of an annual expenditure target is the surplus environment over the past nine years. The government also is currently undertaking a review of the Charter including, among other things, the need for explicit fiscal targets.

BOX II.A1. Australia's Medium-term Fiscal Strategy, 2009

In its Updated Economic and Fiscal Outlook of February 2009, the Australian government announced a medium-term fiscal strategy of:

- Achieving budget surpluses, on average, over the economic cycle;
- Keeping taxation as a share of GDP on average below the level for 2007-08; and
- Improving the government's net financial worth over the medium term.

Consistent with this, the Australian government also committed to a two-part short-term fiscal strategy. To support the economy through the economic downturn, the government committed in 2008-09 and 2009-10 to:

- Allow a temporary underlying cash budget deficit; and
- Use additional spending to deliver a stimulus, with budget priorities and new policy proposals being met through a re-prioritisation of existing expenditures.

As the economy recovers and growth returns above trend, the government has committed to return the budget to surplus by:

- Allowing the level of tax revenue to recover naturally but still maintain taxation as a share of GDP below the 2007-08 level (24.6 percent of GDP); and
- Holding real growth in spending to 2 percent a year until the budget returns to surplus.

The IGR is presented as a Budget Paper together with the budget. IGR2 was released in April 2007, one month before the federal budget. Moreover, since the 2007-08 Commonwealth budget, a 15 - 20 year fiscal projection of the underlying cash balance (including net interest payments and Future Fund earnings) based on a similar methodology to IGR2 has been presented in the medium-term fiscal

outlook.[15] The 2008-09 projection also provides a comparison to the 2007-08 projection to highlight whether the government's fiscal position has improved or deteriorated.

The Australian government considers that the IGR has been influential in framing public debate on economic policy, focusing attention on intergenerational consequences of current policies and practices. More particularly, the reports are used widely by the executive, ministers and the cabinet to inform government consideration of policy proposals across a wide range of public policies – health, education, family benefits, welfare, superannuation and pensions. For example, the Treasurer uses projections of the fiscal gap and net debt to consider fiscal implications of policies that will have a long-run budget impact.

Economic and demographic projections are also used in developing policy across a broad range of ministries. For example, in promoting population growth, the government has used IGR analysis of fertility, mortality and migration rates to inform the development of policies such as the Baby Bonus and increasing net migration with a shift in favour of skilled immigrants. Moreover, by focusing on population, participation and productivity (the 3 P's), the IGR provides a framework for government to maintain economic growth over time.

There are no specific committees within the Parliament that focus on the IGR nor does the Parliament produce its own projections. However, the Parliament may question the Treasurer and officials on the IGR, including the methodology and implications under existing parliamentary procedures. In 2002, for example, the Treasury was questioned by the Economic Legislation Committee of the Senate regarding IGR1.

The obligation to produce fiscal projections every five years corresponds to the release of a national population census, but not to the electoral cycle. Operation Sunlight, released in 2006 and revised in 2008, proposed a number of changes to government budget practices and procedures to support fiscal sustainability (see Box II.A2).

Since its release, a number of changes have been introduced, including:

- Preparing demographic analysis on all new programs where the long-term costs of a proposal are expected to be significantly different to the short-term estimates;
- Reporting in the budget of all programs with long-term financial implications, such as those subject to demographic pressures; and
- Producing the IGR every three years.

In its response, the government noted that the frequency of the release of future IGRs needs to balance the importance of ensuring up-to-date and relevant information is available to inform policy formulation against the risks of undermining the credibility of fiscal projections by trying to capture short-term economic and budget developments. Moreover, the government noted the utility of examining emerging pressures, such as environmental and social sustainability, in future IGRs. The government already has released modelling on climate change.

It should be noted that since the introduction of fiscal future reporting, the government has launched a number of policies to support fiscal sustainability:

[15] The two budget papers are available online

- 2007-08 budget presents the projection in Statement 2 (Fiscal Outlook) of Budget Paper No. 1 (Budget Strategy and Outlook, 2007-08), see http://www.budget.gov.au/2007-08/index.htm
- 2008-09 budget presents the projection in Statement 3 (Fiscal Outlook) of Budget Paper No. 1 (Budget Strategy and Outlook, 2008-09), see http://www.budget.gov.au/2008-09/index.htm

- It established a Future Fund to alleviate the fiscal pressures on the government arising from its public servant superannuation liabilities. Given the size of these costs (now around AUD100 billion and projected to increase to around AUD214 billion in 2046-47), these would have imposed a heavy burden on future generations in the absence of the Future Fund.
- To support increased labour force participation of women and older workers, the government has introduced reforms to the superannuation system, increased funding to promote childcare availability and a cut in personal income tax rates.
- To support productivity, the government has increased funding dramatically for infrastructure and education measures, which drive long-run growth. Additionally, the government also has reached agreements with State governments to reduce regulation, reform federal financial relations, and increase the quality and effectiveness of services across all levels of government.

BOX II.A2. Operation Sunlight and the Government's Response

On 16 April 2006, the then Shadow Minister for Finance released a discussion paper entitled "Operation Sunlight – Enhancing Budget Transparency" setting out recommendations to enhance budget transparency and accountability. The report, revised in 2008, proposes that the Australian government, among other things:

- Produce an Intergenerational Report every three years with greater disaggregation of expenditure information at the program level;
- Investigate the utility of a whole-of-government triple-bottom line (economic, environment and social) chapter in the Intergenerational Report;
- Make it mandatory for all new programs subject to significant demographic risk be assessed and reported over a 40 year horizon consistent with the Intergenerational Report; and
- Extend the length of forward estimates presented together with the budget from three to six years (including the budgeted fiscal year) for programs likely to be subject to demographic pressures.

On 9 December 2008, the Australian government responded by, among other things:

- Agreeing to produce an Intergenerational Report every three years;
- Noting the importance of including emerging pressures, such as key environmental and social impacts, in future IGRs;
- Noting that demographic analysis is already required on all new policy proposals where the long run costs of a proposal are expected to be significantly different to the short-run estimates; and
- Noting that programs with long-term financial implications, such as those subject to demographic pressures, are already reported in the Budget.

In addition to the work of the Treasury's Budget Policy Division to prepare the IGR, a number of other units both within the Treasury and the Department of Finance and Deregulation work on issues of fiscal sustainability from a sectoral perspective:

- The Retirement Income Modelling Unit (Treasury) is engaged in long-term projections for a range of expenditure programs, and as such it plays a central role in formulating many of the projections that underpin the IGR.
- The Health Policy Unit (Treasury) formulates long-term projections of health expenditures including Medicare, the Pharmaceutical Benefits Scheme, private health insurance, aged and community care, and veterans' affairs.

- Long-term Budget Policy Unit (Department of Finance and Deregulation) monitors and provides advice on economic circumstances, the expenditure side of the budget from a high-level budget management, not an accounting, perspective.
- The Funds and Superannuation Division (Department of Finance and Deregulation) is broadly responsible for management of public sector pensions. Among other things it is responsible for the policy aspects surrounding the adequacy of the Future Fund, which was established to fund, over time, the government's unfunded superannuation liability. (The investment management of the Future Fund is with the Future Fund itself).

The Australian government has quite a number of public sector superannuation schemes, not just a single one. There are two large (closed) defined benefit funds for civilian employees, an open defined contribution fund for new civilian employees, and two large defined benefit funds for military personnel. There are a range of other schemes for specific purposes, such as judges and parliamentarians, and an old defined benefits scheme for civilian employees and one for defence personnel but these are relatively smaller.

Long Term Cost Reports (LTCRs), containing actuarial projections of defined benefits schemes, are undertaken every three years. The actuarial projections of the estimated value of public sector pension payments and the unfunded liability are undertaken by actuaries appointed by each of the departments with policy responsibility for the respective superannuation schemes, *i.e.* the Department of Finance and Deregulation for the civilian superannuation schemes such as the Public Sector Superannuation Scheme (PSS) and the Commonwealth Superannuation Scheme (CSS), the Department of Defence for the military schemes, the Office of Prime Minister and Cabinet for the Governor-General scheme, and the Attorney-General Department for the judge's scheme.

There is no requirement to use the Australian Government Actuary within the Department of Treasury for this task. The Australian Government Actuary does work for the Department of Defence, Prime Minister and Cabinet, and the Attorney-General's Department, while a private firm is responsible for estimating the unfunded liability for the civilian schemes.

There are no automatic stabilisers. The Future Fund has been established, as noted above, to accumulate assets out of which to make payments of unfunded superannuation. The Fund's legislation requires its adequacy to be assessed periodically. The government has already "deposited" a significant amount of money in the Fund out of past budget surpluses and the proceeds of the partial sale of the government owned telecommunications company (Telstra). The government had intended to deposit further amounts out of current and future budget surpluses, although this was prior to the global financial crisis. At the time the Future Fund was established, the target was for full adequacy by 2020, and this is built into its legislation.

II.B. CANADA: DEPARTMENT OF FINANCE INTERNAL STUDIES

II.B.1. General Characteristics

- There is no legal requirement for fiscal projections, however, a number of Department of Finance studies have examined the issue of fiscal sustainability for general government since the early 1990s, though none on a regular basis. This section focuses upon the most recent Department of Finance internal study.
- The primary fiscal indicator is the net debt-to-GDP ratio, though there is no comparison of this ratio to those in previous studies. Sensitivity analysis is conducted for alternative elderly benefits and health spending on net debt. Policy scenarios are presented as to whether anticipated budget surpluses are used to reduce net debt, and on past actions, excluding previous tax reductions.
- The method and assumptions to project program spending and intergovernmental transfers are presented and discussed in the text. As program spending is based solely on broad demographic and economic assumptions, there is no discussion of past trends and key cost drivers. There is also no comparison to the assumptions in previous studies.
- Long-term (75 year) actuarial projections are prepared for the Canada Pension Plan since 1964 following reforms to the Plan and, since 1997, every three years. An automatic stabilizing mechanism also exists should the Plan be considered unsustainable and there is no agreement on a necessary course of action by the federal and provincial/territory governments.

II.B.2. Overview of fiscal projections

There is no legal requirement for fiscal projections for the central government and none is made on a regular basis. A number of government and internal Department of Finance studies have examined the issue of fiscal sustainability since the early 1990s. For example, a 1992 joint federal-provincial working group study focused on the cost of government and expenditure management until the year 2025 under various economic and demographic assumptions. This study was commissioned at the request of Canada's federal and provincial/territory finance ministers and treasurers. However, it focused on cost drivers of government spending and not revenue, the deficit or debt. Since then, a number of internal studies by the Department of Finance have also been prepared to look at the fiscal implications of aging. (King and Jackson, 2000; Jackson and Matier, 2003).

The Office of the Auditor General (OAG) has paid attention to issues of fiscal sustainability. In particular, an April 1998 OAG Report included a fiscal projection until 2031 to draw attention to Canada's fiscal future and a perceived inadequacy of information provided by the government to Parliament and the public on this subject. The Report drew upon Statistics Canada's economic and population data, official actuarial projections of the Old Age Security/Guaranteed Income Support and the Canada Pension Plan, as well as internal studies by the Department of Finance. The OAG also noted that the Department of Finance had developed an economic model that, coupled with a fiscal component, would enable the Department to also prepare baseline projections of budget balances and debt levels.

In response to the 1998 OAG report, the government stated that it believed presenting fiscal projections to Parliament every year would serve only to detract attention from the important goal of debt reduction. Rather, the government commented that its fiscal planning was based on a simple strategy: to achieve long-run goals by setting and meeting realistic short-run targets. It also cited its proposed reforms to the Old Age Security and Guaranteed Income Supplement programs and Canada Pension Plan to illustrate its awareness of the fiscal implications of population aging and its impact of fiscal policy. Acknowledging the

government's efforts, however, a 2000 OAG report stated that there was still a need for the government to prepare fiscal projections and to report them to Parliament, either as part of the annual budget presentation or during pre-budget consultations in the fall.

At a sub-national level, some governments have produced their own fiscal projections. The Ontario has published its projections; Saskatchewan, Yukon, Alberta, Newfoundland and Labrador have not. Although these projections demonstrate the interest of sub-national government in long-term sustainability of their public finances, the focus of this case study is the federal government.

The remainder of this section focuses upon the most recent fiscal projection prepared by the Department of Finance, *i.e.* King and Jackson (2000) and Jackson and Matier (2003), because of their similar approach. However, as per the other country descriptions, emphasis is placed upon the latter.

II.B.3. Sustainability analysis

In the 2003 study, fiscal sustainability is implicitly defined as the net debt ratio that "does not rise considerably" on the assumption of current policies. Current policies are defined as per the 2000/01 federal and provincial/territorial budgets and budget updates. Two policy options are presented: anticipated surpluses being used to reduced net public debt (a tight fiscal regime) and no reduction in the reduction of net public debt (a loose fiscal regime; see Figure II.B1 and II.B2 respectively). In the case of the latter, anticipated surpluses are used for reducing taxes and/or increasing program spending on a one-time basis.

Sensitivity analysis is conducted for alternative elderly benefits and health spending assumptions in both Department of Finance studies. There are two scenarios: no real per capita age-adjusted growth (see Figure II.B3); and annual real per capita growth 2.0 percent (enriched growth). Finally, the 2003 study included an assessment of a past policy change (tax reductions) is presented (see Figure II.B4). There is, however, no explicit comparison of projected net debt to previous Department of Finance working papers examining issues of fiscal sustainability (*i.e.* King and Jackson, 2000).

In contrast to the 2000 study, two variations are noted. First, the 2000 study included a third option to allocating surpluses in equal proportions to spending increases, tax relief and debt reduction as necessary to achieve different debt-to GDP targets (0, 10 and 20 percent; a middle fiscal regime). Second, the 2000 study included an additional scenario for elderly benefits and health spending of 1.0 percent age-adjusted growth.

II.B.4. Specific disclosures

In 2003, revenue and program spending are decomposed into federal or provincial/territorial categories (see Table II.B1). The method and assumptions for projecting revenue, program spending and federal intergovernmental transfers is presented and discussed in the text. With the exception of health spending, revenue and program spending are projected based upon demographic change and economic assumptions. Intergovernmental transfers are modelled separately and discussed in text.

Demographic assumptions are based on Statistics Canada's medium-term population scenario along with the figures for fertility, life expectancy, immigration and interprovincial migration --- extended beyond Statistics Canada's 25 year projections by assuming demographic changes per age group remain constant at their 2026 levels.[16] Economic assumptions are based on the midpoint of Bank of Canada's inflation

[16] Statistics Canada's population projections span for 25 years, updated every five years. In 2001 projections span until 2026; in 2005, projection span until 2031.

target, and an assumption of real income per capita growth. Statistics Canada's medium-term scenario and the Bank of Canada's inflation target did not change over this period.

FIGURE II.B1. Jackson and Matier, 2003: Projected debt-to-GDP ratio, Anticipated surpluses used to reduce net public debt, Federal government

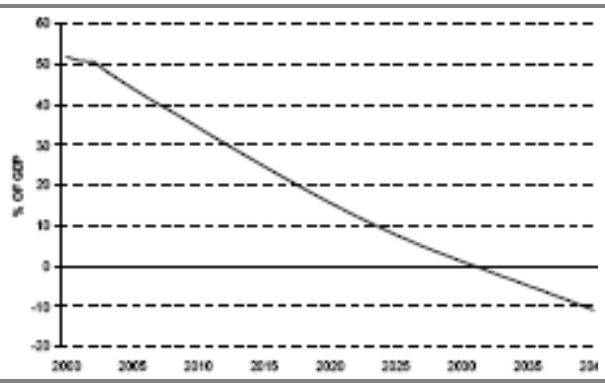


FIGURE II.B2. Jackson and Matier, 2003: Alternative projected debt-to-GDP ratio, Anticipated surpluses not used to reduce net public debt, Federal government

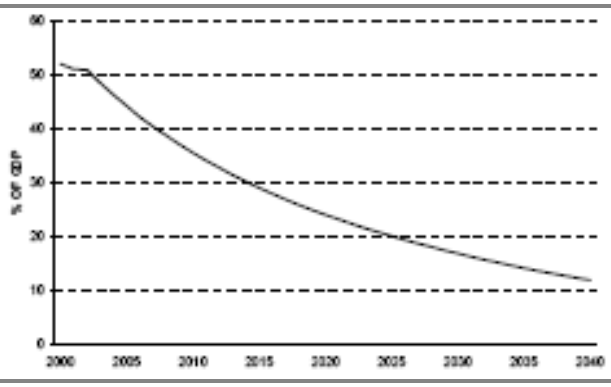


FIGURE II.B3. Jackson and Matier, 2003: Projected debt-to-GDP ratio, Alternative assumptions for elderly benefits and health spending, Federal government

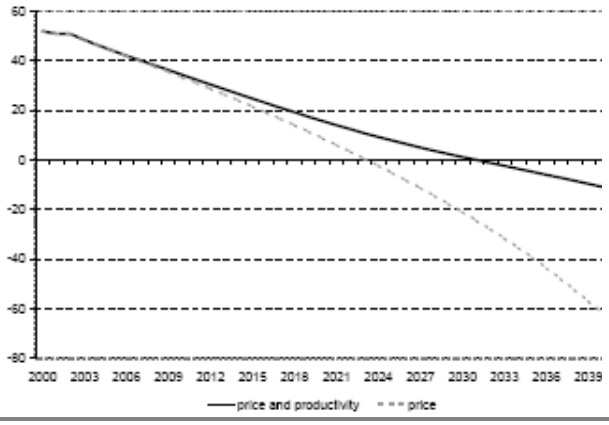


FIGURE II.B4. Jackson and Matier, 2003: Projected debt-to-GDP ratio, Excluding tax reductions after 2000/01, Federal government

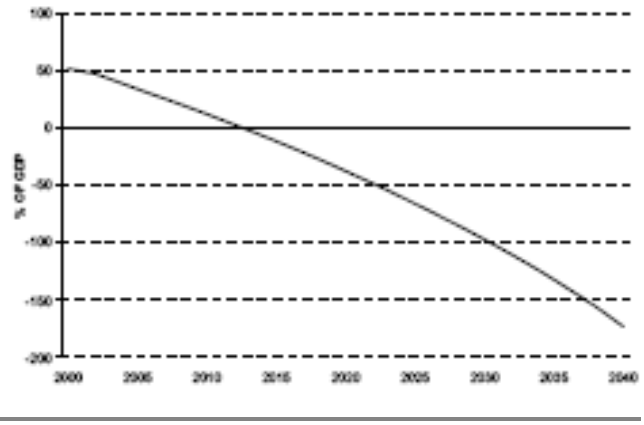


TABLE. II.B1. Jackson and Matier, 2003: Decomposition of revenue and expenditure categories, baseline assumptions

Federal revenue categories, announced tax changes included	Provincial / territorial revenues categories
Personal income tax incl. announced tax changes	Personal income tax, incl. announced tax changes
Corporate income tax, incl. announced tax changes	Corporate income tax, incl. announced tax changes
Employment insurance premium	Retail sales tax
Goods and services tax	Other revenues, incl. natural resource revenue
Other revenues	Federal transfers (see federal program spending)
Federal program expenditure categories	**Provincial / territorial program expenditure categories**
Elderly benefits	Health
Employment insurance benefits	Education
Other program spending	Social security
Canada Health and Social Transfer, payments rise to CND21 billion in 2005/2006, then grow at annual rate of 3.5 percent	Other program spending
Equalization, model-consistent projection with ceiling determined by nominal GDP growth	
Alternative payment for standing programs, grow in line with national nominal GDP	
Territorial formula finances, grows in line with national nominal GDP	

NOTES: Unless otherwise noted, future values of the revenue and program spending categories (as well as GDP) are projected to evolve according to an identical algebraic term, where growth in a particular category is determined by inflation, population growth, population composition and an assumed real per capita/per age group growth component. The real per capita/per age group growth component is set equal to the rate of real income per capita growth for most revenue/expenditure categories. Annual inflation and real income per capita growth rates are assumed constant at 2.0 percent and 1.5 percent respectively.

II.B.5. Institutional linkages

While fiscal projections have not been made on a regular basis, the government has made a number of policy commitments to support fiscal stability in the short- and medium-term. The government's long-term economic plan "Advantage Canada: Building a Strong Economy for Canadians" includes a number of policy commitments regarding fiscal policy, including:

- To contain the growth of spending and keep the rate of growth of program spending, on average, below the rate of growth of the economy;
- To reduce nominal debt-to-GDP ratio to 25 percent by 2012-13 and eliminate government net debt by 2021 (*i.e.* in less than a generation) with annual debt reductions of C$3 billion;
- To use any surpluses recorded by the federal governments in excess of C$3 billion will be used to accelerate the elimination of government net debt; and
- To dedicate the effective interest savings from debt reduction each year to personal income tax reductions ("Tax Back Guarantee").

Also supporting this, the government outlined a new "expenditure management system" including limiting the use of the federal spending power; and introducing long-term predictable funding for infrastructure and post-secondary education and training.

In addition, actuarial projections assess the sustainability of the Canada Pension Plan together with an automatic balancing mechanism. To date, 23 actuarial reports have been prepared since 1964, though their frequency and time horizons have varied over this period. Since 1997 reporting within these reports has been standardized to cover 75 years and to be published every three years. The methodology and disclosure of information in these actuarial projections is similar to fiscal projections in other countries. It includes a clear indicator of sustainability, disclosure of assumptions and changes within these assumptions since the last projection.

Reforms introduced in 1998 established an automatic stabilizing mechanism for the Plan. If the actuarial projections conclude that the Plan is not financially sustainable, and an agreement between the central and provincial governments on the necessary action cannot be reached, an automatic balancing mechanism is triggered affecting both the contribution rate and benefits. Legislation defines unsustainability as occurring if a stable contribution rate exceeds 9.9 percent over the next 75 years. Under such circumstances, the automatic trigger requires that the contribution rate be increased by half of the difference between the necessary contribution rate and the stable contribution rate for the next three year period until a new actuarial study is carried out, though it is capped at a maximum annual increase of 0.2 percent. The remainder is to be covered by a freeze in pensions-payable over the same three year period.

Box II.C1. Reporting under the Canada Pension Plan Act

The Canada Pension Plan (CPP) Act mandates a periodic review every three years of the Canada Pension Plan and a Report of the Chief Actuary projections.

Section 113.1 of the Act requires the Minister of Finance and ministers of the Crown of the provinces shall review the state of the CPP once every three years, and may consequently make recommendations to change the benefits or contribution rates, or both. If possible, the review in each three year period must be completed in time to permit the Minister of Finance to make recommendations to the Governor in Council before the end of the second year of the three year period. It identifies the factors they consider in their review, including information to be provided by the Chief Actuary.

Section 115.1 of the Act requires the Chief Actuary of the Superintendent of Financial Institutions to prepare during the first year of the three year period of the CPP reporting period an actuarial examination of the operation of this Act based on the state of the CPP Account and the investments of the Investment Board.

II.C. DENMARK: CONVERGENCE PROGRAM REPORTS

II.C.1. General Characteristics

- Fiscal projections covering the general government until 2050 and over an infinite time horizon are published in the Convergence Program Report to the European Commission every year by the Ministry of Finance. Projections are based upon current policies under the government's medium-term fiscal strategy until 2015 together with policies already approved but that take effect after this period. Fiscal projections are, however, produced for internal purposes until 2100 and over an infinite time horizon on a more frequent basis.
- The key policy objective is to achieve fiscal sustainability in the context of ageing and the primary fiscal indicator is the equivalent of the European Commission's S2 Indicator (i.e. the intertemporal government budget constraint), while projections of expenditure, revenue and structural primary balance are also presented. The fiscal policy plan reflects targets regarding public consumption expenditures, the structural budget balance and labour supply. There is an explicit comparison within Denmark's Convergence Report of the fiscal indicator to that of the previous report.
- The content of sensitivity analysis has varied between reports. In 2007, sensitivity analysis of demographic, labour market, macroeconomic and healthcare and elderly spending. In 2008, sensitivity analysis focused on changes in oil price assumptions. Analysis is also included to illustrate the impact of the 2006 Welfare Reforms on fiscal sustainability in both 2007 and 2008.
- A table of key demographic and macroeconomic assumptions is presented together with baseline projections in an annex of the Convergence Report. Assumptions for projected individual expenditure and revenue categories are described in the report and data are made available upon request.

II.C.2. Overview of Denmark's Convergence Reports

Denmark publishes fiscal projections for the general government sector spanning until 2050 and over an infinite time horizon as part of its Convergence Program Report to the European Commission. The figures reported in the Convergence Program Report are based on annual internal Ministry of Finance projections spanning until 2100 (and over an infinite time horizon). Fiscal projections are prepared and published by the Macroeconomic Policy Center within the Ministry of Finance and are based upon the government's eight-year medium-term fiscal strategy, presently "Towards New Goals – Denmark 2015: Sustainable Welfare and Growth". The Convergence Report is available on the Ministry of Finance's website.[17] Fiscal projections have been considered by the government as a corner stone in fiscal planning since the early 1990s, and have been presented in Denmark's Convergence Program Report since 1998.

In addition, competing projections were developed by the Welfare Commission in 2004 and by the independent Danish Economic Council on several occasions. The 2004 Welfare Commission's projections, until 2040 and beyond, focused specifically on the effect of changes in the basic tax rate, private employment or public savings between 2011 and 2021. The 2004 Danish Economic Council's projections focused on sustainability under the budget surplus targets and assuming unchanged welfare spending relative to those prepared by the Welfare Commission.

II.C.3. Sustainability analysis

Denmark's Convergence Program Report defines fiscal sustainability as implying that the tax and expenditure priorities already decided up until 2015 can be sustained and financed without reducing public

[17] The 2008 Convergence Programme Report is available online: http://uk.fm.dk/Publications/2009/1723-Denmarks%20Convergence%20Programme%202008.aspx

service delivery standards, raising the tax burden, given the restriction that the net public debt-to-GDP ratio is stable in the long-term. In this regard, fiscal projections are described as "consistency check" as to whether the government's current policies are sustainable beyond the government's eight-year medium-term fiscal strategy. The plan incorporates the broad policy objectives and priorities that have been decided politically until 2015. Beyond this date projections are based on technical and not political assumptions with respect to fiscal policy. While it notes that no political decisions have been made in regard to fiscal priorities beyond the plan, projections include and explicitly list policies already approved but that take effect (or end) after 2015. In the 2008 Report these included: Welfare Reform from 2019; the Quality Fund for public investment until 2018; and energy and climate policies until 2020 and beyond.

Denmark's Convergence Report automatically adopts the equivalent of the European Commission S_2 Indicator as the primary indicator. The value of the S_2 fiscal indicator is presented in a table decomposed into central and local structural primary balance, interest of public net debt, and increases in contributions from increases in net expenditures (see Table II.C1). This is accompanied by projections of revenue and expenditure in tables (see Table II.C2) and the structural primary balance in figures (not presented).

TABLE II.C.1 Denmark Convergence Program, 2008: Fiscal sustainability in 2007, percent of GDP

	Annuity (S_2)
1. Central and local government primary budget balance, structural	3.0
2. Interest burden on public net debt	0.0
3. Contribution from increase in net expenditures, structural	-3.1
4. Sustainability indicator (1-2-3)	-0.1

TABLE II.C2. Denmark Convergence Program, 2008: Long-term sustainability of public finances

	2000	2005	2010	2020	2030	2050	2060	2070
Total expenditure (percent of GDP)	53.0	51.9	52.8	51.8	52.5	53.4	52.4	50.7
Of which:								
Age-related expenditure	27.1	28.4	29.5	30.6	30.7	30.6	29.3	27.9
Pension expenditure	9.4	9.4	9.6	10.4	10.0	9.3	8.4	7.7
Social security pension	9.4	9.4	9.6	10.4	10.0	9.3	8.4	7.7
Old-age and early pensions	7.0	7.3	7.6	8.5	7.9	7.2	6.3	5.4
Other pensions	2.4	2.2	2.0	1.9	2.1	2.1	2.1	2.3
Occupational pensions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Health care	6.0	6.4	6.8	7.1	7.6	7.9	7.8	7.5
Long-term care	1.1	1.1	1.2	1.3	1.6	1.8	1.9	1.8
Education expenditure	6.2	6.6	6.9	6.8	6.6	6.7	6.6	6.6
Other age-related expenditures	4.4	4.8	5.0	4.9	5.0	4.9	4.6	4.3
Interest expenditure	4.3	2.6	1.9	1.0	1.3	2.3	3.0	2.8
Total Revenue (percent of GDP)	55.3	56.9	51.5	50.7	49.6	50.0	49.3	49.2
Of which:								
Property income[1]	1.9	1.5	1.7	1.2	0.7	0.5	0.3	0.2
Revenue from pension payouts net	-0.7	-1.1	-0.8	-1.1	-1.1	-0.1	0.1	0.6
Pension reserve fund assets	115.9	138.9	125.8	152.9	181.6	201.8	203.6	197.5
Of which:								
Public pension fund assets[2]	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0

Demographic and economic assumptions (percent)	2000	2005	2010	2020	2030	2050	2060	2070
Labor productivity growth	3.7	0.4	2.6	1.6	1.4	1.5	1.7	1.6
Real GDP growth[3]	3.5	2.4	0.7	1.8	2.5	2.4	2.5	2.2
Participation rate males (aged 20-64)	84.1	84.8	84.9	85.9	88.6	89.4	89.4	89.4
Participation rate females (aged 20-64)	75.3	76.1	75.6	77.3	80.3	81.7	82.0	82.1
Total participation rate (aged 20-64)	79.8	80.5	80.3	81.6	84.5	85.5	85.7	85.8
Unemployment rate	4.8	4.9	3.6	3.5	3.5	3.5	3.5	3.5
Structural unemployment	5.8	4.6	3.6	3.5	3.5	3.5	3.5	3.5
Population aged 65+, 1,000 persons	791	818	916	1.136	1.312	1.430	1.390	1.499

NOTES: Figures are based on national account principles

1. Includes public revenues from interest income and dividends.
2. Public funds assets is adjusted downward by almost DKK 300 billion in 2005 due to the changed classification of the ATP fund due to the revision of national accounts.
3. In some years after 2025 GDP growth is effected by the regulation of early- and old age person ages in line with longevity.

Sensitivity analysis of changes to the S_2 fiscal indicator due to different underlying assumptions is presented in the Report, although the variables changed do vary between years. In previous years, sensitivity analysis of the S_2 fiscal indicator for changes in demographic, labour market, macroeconomic, health and elderly care assumptions have been presented (see Table II.C3). In 2008, sensitivity analysis focused on changes in oil price assumptions (see Table II.C4). In addition, the 2007 Report included a more general illustration of how changes in different variables may strengthen and weaken public finance (see Table II.C5). Analysis is also included to illustrate the impact of the 2006 Welfare Reforms on fiscal sustainability in both 2007 and 2008. The Convergence Report does, however, present and discuss the impact of a past policy change – the 2006 Welfare Agreement – in relation to the structural primary balance but not the S_2 Indicator.

TABLE II.C3. Denmark Convergence Program, 2007:
Effect on the sustainability indicator in scenarios with and without the Welfare Agreement, percent of GDP[1]

	Without Welfare Agreement	With Welfare Agreement
Demographics		
Mean life expectancy at birth gradually increases by 1 year[2]	-0.35	-0.09
Remaining life for 60 year olds gradually increases by 1 year[2]	-0.43	-0.10
Fertility is increased corresponding to 5,000 children per year	-0.25	-0.25
Immigration from more developed countries increases by 5,000 persons per year	0.01	0.00
Immigration from less developed countries increases by 5,000 persons per year	-0.29	-0.28
Labour market		
Employment is 20.000 lower by 2015 (no requirement)	..	-0.27
Working hours follow demographics etc. to 2015 (no requirement)	..	-0.53
Higher working hours when retirement age thresholds are increased	..	0.31
Assumptions about expenditures on healthcare and elderly care etc.		
Ageing related expenditures not adjusted for improved health	..	-0.82
Extended correction for improved health (5 more years to death considered)	..	0.38
Growth in health-spending 0.4 percentage points higher p.a.	..	-1.44
Growth in collective consumption 0.4 percentage points lower p.a.	..	1.07
Key assumptions		
Nominal interest rates higher by ¾ per cent (as in 2010-plan)	1.18	0.29
Nominal interest rate lower by 1 per cent (as in DREAM and DEC)	-2.21	-0.43
Equity risk premium of app. 4 per cent. (as in DREAM and DEC)	..	1.92
Less than full crowding out of other/free savings (85 percent)	..	0.08
Reduced ”free savings” as a consequence of the Welfare Agreement	..	-0.50

NOTES:
1. A negative value indicates a worsening of the fiscal sustainability.
2. Through 2080

TABLE II.C4. Denmark Convergence Program, 2008:
Convergence Program 2008-scenario and scenario under IEA November 2008 crude oil price projections

	Convergence Program 2008 scenario	Convergence Program 2008 scenario incl. IEA oil price projections
Sustainability indicator	-0.1	0.1
Structural fiscal balance in 2015	-0.1	0.2

TABLE II.C5. Denmark Convergence Program, 2007:
Examples of factors that may affect the sustainability of public finances

May weaken public finances	May strengthen public finances:
Greater demand for public services, increased coverage (take-up) of services, or for instance new costly treatments in health care may lead to higher public consumption than anticipated	Lower costs or efficiency gains within the public sector may enable the provision of given services at a lower cost. Spending on e.g. collective public consumption may grow at a lower rate than anticipated.
Higher life expectancy and more elderly than anticipated may imply higher spending on health and long-term care.	The demographically-induced demand for health and long-term care may increase less than anticipated due to improved health.
The employment effect of reforms towards 2015 and of the Welfare Agreement may be smaller than assumed.	Retirement reforms may be associated with higher working hours in the affected age groups than assumed.
The requirements for non-declining working hours until 2015 and a lasting increase in employment of 20,000 persons are not met.	Structural employment today may be higher than currently assumed. This may increase the level of employment permanently.
An overvaluation of the fiscal starting point (the structural balance) may imply that the margin available to meet future challenges is too small.	Revenue from the extraction of oil and gas in the North Sea may be higher or last longer than anticipated, for instance due to higher oil prices or an improvement in extraction technology beyond what is assumed.
Increased immigration from less developed countries may – given the current employment rates of immigrants – cause spending on public services and income transfers to rise by more than the positive contribution from higher tax revenues.	Increased immigration of highly qualified labour may cause the positive contribution from tax revenues to exceed the expenditure on income benefits and public services. The same effect may be attained through improved integration of immigrants in the form of higher participation rates and lower unemployment.
Increased internationalization may result in increased pressure on mobile tax bases.	The revenue from corporate taxes may continue at a high level, as has been the case since 2001.
Interest rates may be lower over the long-term than anticipated.	Higher returns on equity than on bonds, e.g. for pension savings, may result in higher revenues from the pension yield tax and from income taxes, when increased pension wealth is paid out in higher pensions.
Reduced savings among younger generations as the Welfare Agreement extends working life and reduces the need to save up for retirement.	Less marked growth in household debt and interest payments than in the baseline, owing e.g. to liquidity constraints or because higher pension savings (after tax) may not fully lead to a corresponding reduction in "free" savings.

II.C.4. Explicit disclosures

Revenue and expenditure projections are extended from the last year of the government's medium-term fiscal strategy. Fiscal projections are decomposed into direct and indirect taxes and non-tax revenues, and the main expenditure aggregates of the national accounts. Non-tax revenues include North Sea oil and gas revenues, as well as pension contributions. The report assumes that tax burden is unchanged (*i.e.* tax rates remain constant and excise duties are indexed to prices), and for its North Sea activities, projections are based on the Danish Energy Authority's long-run forecast of oil and gas production and oil price

projections from the IEA from 2007. Expenditure is decomposed into the national account's main aggregates total public consumption and total public investment.

The fiscal policy plan is based on updated demographic and macroeconomic assumptions every year. The various assumptions are based on own estimates and other sources, including the Danish Rational Economic Agent Model (DREAM).[18] Labor participation rates, and the propensities at which various income benefits are received, are assumed constant by age, gender and country of origin. Key demographic and macroeconomic principles are included in the text, and the resulting assumptions included in the annex of the Convergence Program Report.

Revenue and expenditure projections are estimated in the Ministry of Finance. Key assumptions underlying tax and non-tax revenues and public consumption, public investment, income benefits, public subsidies and net foreign transfers after 2015 are included in a textual discussion within the report.

A table of key demographic and macroeconomic assumptions is presented together with baseline projections in an annex of the Convergence Report. Assumptions for projected individual expenditure and revenue categories are described in the report and data are made available upon request.

II.C.5. Institutional linkages

The government considers that the 2015 (medium-term) strategy serves as a key guideline in the political-decision process within the government and the Parliament, and the fiscal projections as a "consistency check" as to whether the government's current policies are sustainable beyond 2015. The 2015 strategy forms the basis for the annual setting of fiscal policy, including the scope for total public consumption growth in the annual negotiations on the fiscal bill and on the economy in local governments. Annual budgets are prepared, and most major policy initiatives are discussed, in line with the medium-term fiscal strategy.

The projections factor Denmark's fiscal rules into their assessment. Denmark has three domestic fiscal rules:

- An expenditure rule targets real public consumption growth rate at a maximum of 1 percent per year in 2010-2012 and ¾ percent per year in 2013-2015;
- A budget balance rule targets a structural budget surplus or at least balance towards 2015; and
- A "tax freeze" (revenue rule) covering both central and subnational government.[19]

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[18] The DREAM-group is an independent institution with the main purpose of developing, maintaining and performing economic analysis with the economic model Danish Rational Economic Agents Model, DREAM. DREAM is a dynamic computable general equilibrium (CGE) model with overlapping generations of households that plan their behavior consistent with rational expectations. The DREAM-group has also developed a model for population forecasting for long-run evaluations of fiscal policy. See http://www.dreammodel.dk/default_en.html

[19] The tax freeze was introduced in 2002 and is based on the principles that:

- No tax or duty rate can be raised. If the rate is set in percentage terms, the percentage cannot be raised; if the rate is set in kroner per unit, that amount cannot be raised.
- If there is compelling environmental or other reasons to introduce or increase a tax or a duty, the extra revenue must be used to reduce another tax or duty. If decisions in the European Union or international agreements require Denmark to lower a tax or a duty, the corresponding loss of revenue can be offset by raising other taxes or duties to keep the total effect on revenue neutral.
- A nominal ceiling is imposed on residential property value tax so that an increase in the value of property will not lead to higher tax payment for the homeowner. A fall in the property value will reduce the tax payment accordingly, but subsequent rises cannot lead to tax payments exceeding the level corresponding to the value of the property on 1 January 2001 plus 5 percent, or the value on 1 January 2002, whichever is lower.
- It applies to local governments in which tax rates set either by municipalities or counties cannot on average exceed the level in 2002. Fees with a fiscal element (*i.e.* fees that exceed the costs associated with the service in question) are

In addition, Denmark is obliged to follow the European Union deficit and debt rules, though owing to Denmark's own budget balance rule, only the debt rule really applies. The debt rule is explicitly built into Denmark's sustainability indicator, and the expenditure, budget balance, and revenue rules into the assumption methodology.

The government's multi-year expenditure ceilings provide a means to support fiscal stability in the medium-term and sustainability in the long-term. Ceilings span for a period of four years (*i.e.* the budget fiscal year plus three years) at the level of spending ministries and are divided into two categories: a maximum for operating expenditures; and a maximum for transfer (non-mandatory) expenditures. Shifting money from between these categories is not permitted. Within these ceilings, each ministry has responsibility for reallocating any funds. However, within the operating category, a sub-ceiling is set for salaries. Money may be transferred from salaries to other expenses, but not from other expenses to salaries. Expenditure ceilings generally are the same as the ones presented as the year-2 ceilings the previous year, taking into account changes made by parliament in its approval of last year's final budget proposal and any necessary technical adjustments. The Ministry of Finance maintains the capacity to analyse ministry's expenditure programs and may intervene if ministries do not keep within their respective ceilings.

Although only published in the Convergence Program Report since 1998, internal fiscal projections have been reportedly used by the government as a corner stone in fiscal planning since the early 1990s. In 2008, fiscal projections were presented together with the central government's budget in December. Normally, however, projections are released in November or one month before the presentation of the budget to the Parliament. The government adopts the Convergence Program Report and it is presented and discussed by Parliamentary Committee on European Union Affairs, but not the budget committee. Furthermore, the 2015 projections are discussed by the media and other institutions who participate in the public debate on economic policy issues.

Public pensions in Denmark are financed on a PAYG-basis and there is no asset accumulation in public pension funds. "Public pension funds" in the Convergence Report tables refers primarily to the funds that pay out unemployment benefits and Voluntary Early Retirement Pension (essentially also on PAYG basis). The impact of these funds with respect to asset accumulation is very limited, but they are included in the projection as well.

similar to taxes and are included in the tax freeze. User charges, *i.e.* non-fiscal fees that partly or fully cover the cost of producing a service, are not taxes and hence not included in the tax freeze.

II.D. GERMANY: REPORT ON THE SUSTAINABILITY OF PUBLIC FINANCES

II.D.1. General Characteristics

- Fiscal projections covering the general government sector span until 2050 and in perpetuity, published at least every four years by the Federal Ministry of Finance.
- Projections in the two Reports prepared to date have been prepared by an independent research institute commissioned for the work.
- The primary fiscal indicator is the European Commission's S2 Indicator (i.e. intertemporal budget constraint), although it also presents as assessment against the European Commission's S1 Indicator (i.e. gross debt target of 60 percent of GDP in 2050). However, no comparisons are made to projections in previous reports.
- Sensitivity analysis of demographic and macroeconomic assumptions is built into the projections using a "sustainability corridor" of plausible scenarios. Sensitivity analysis of microeconomic assumptions (e.g. wage indexation, technical progress) is also done for health spending. All sensitivity analysis is compared to the S2 Indicator.
- Policy scenarios of past ("retrospective") and proposed ("prospective") policies have been included in both Reports (2005 and 2008) and measured against the S2 Indicator under both favourable and unfavourable demographic and macroeconomic assumptions.

II.D.2. Overview of the Report on the Sustainability of Public Finances

Germany publishes fiscal projections for the general government sector spanning until 2050 and in perpetuity in its Report on the Sustainability of Public Finances. The Report is produced at least once every four years. Two Reports have been produced to date: in 2005 and in 2008. Each has been based upon the results of an independently commissioned research institute, the ifo Institute.[20] Both are available on the Federal Ministry of Finance website in German and English.[21] The methodology is not published in the Report but is available by request.

The remainder of the discussion focuses on the 2008 Report.

II.D.3. Sustainability analysis

Germany refers to an internationally accepted definition that "public budgets are sustainable if current and future government revenue – extrapolated on the basis of currently valid law – is sufficient to cover all current and future expenditure as well as the accumulated debt inherited from the past". There is no source provided for this international definition.

The Report adopts the sustainability indicators used by the European Commission: the Maastricht criterion on the debt position is met by 2050 (S_1 Indicator); and the intertemporal budget restriction (S_2 Indicator). The S_2 Indicator is identified as the primary indicator of fiscal sustainability because of its theoretical

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[20] *The Ifo (Information and Forschung* (research)) Institute was founded in January 1949. Its legal form is that of a registered, non-profit association.

[21] The two reports are available online,
- 2005 Report: http://www.bundesfinanzministerium.de/nn_4312/DE/Wirtschaft__und__Verwaltung/Finanz__und__Wirtschaftspolitik/001.html?__nnn=true
- 2008 Report (direct link to English report) http://www.bundesfinanzministerium.de/nn_4544/DE/Wirtschaft__und__Verwaltung/Finanz__und__Wirtschaftspolitik/Finanzpolitik/Weitere__Informationen__Links/0810201a1001,templateId=raw,property=publicationFile.pdf

framework. In addition, the second Report specifies notes that the methodology for the S_1 Indicator as defined by the European Commission had changed between the two reports.[22] It projections were prepared using both the old and new definition of the S_1 Indicator.

The Report does not provide a single baseline projection. Rather, the sustainability indicator based on a "sustainability (central) corridor" of plausible scenarios ranging between "relatively favourable conditions" (T+ variant) and "relatively unfavourable condition" (T- variant). Demographic, labour market and overall economic assumptions underlying both scenarios are included within the report, and the impact of each decomposed within the report.

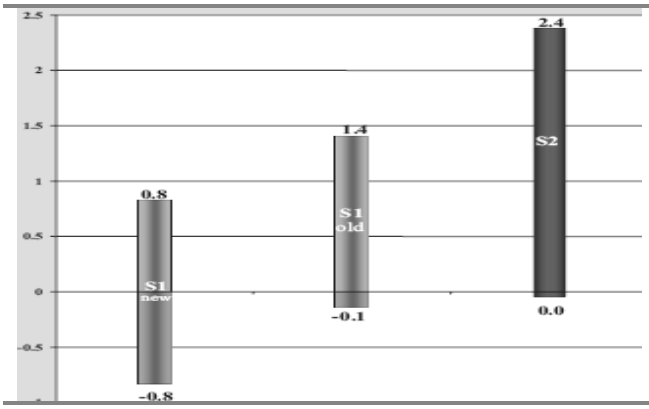
Part 2 of the Report (titled "model calculations of long-term sustainability of public finances") also includes: sensitivity analysis of the microeconomic assumptions used in preparing the health expenditure projections; policy scenarios of past ("retrospective") and proposed ("prospective") policies; and the cost of delay. All changes are compared to Germany's primary indicator of fiscal sustainability, *i.e.* the S_2 Indicator, under both favourable and unfavourable demographic and macroeconomic assumptions.

- Sensitivity analysis of microeconomic assumptions include: wage-indexation above that of per capita GDP; falling age-specific morbidity; medical/technical progress; and falling age-specific morbidity together with medical/technical progress.
- Policy simulations include the 2004 and 2007 pension reforms (retrospectively) and changes already implemented in relation to long-term care insurance and civil service pensions (prospectively).
- Cost of delay: if necessary, the cost of not carrying out budget adjustments immediately (within a period of five years) is shown.

In explaining the relatively more sustainable public finances, a list of the reforms made that have supported the improved position grouped by "preparing public budgets for demographic change", "strengthening growth and employment", and "improving overall demographic conditions" is prepared. However, there is no discussion of the link between these reforms and the improved position beyond that of raising the retirement age to 67 and introduction of the "sustainability factor" for pensions (as discussed in the policy simulations above).

[22] The definition of indicator S1 has changed over time. Initially, the yardstick was a debt position calculated on the assumption that the budget is balanced over the entire period of the projection. It could therefore vary from country to country. Now the definition is based on the same figure for all EU member countries: the Maastricht target.

FIGURE II.C1. Germany, Second Report on the Sustainability of Public Finances: Long-term sustainability gaps, percent of GDP



NOTES: Necessary increases in primary net borrowing (percentage of GDP) using different measurement methods, ifo examines sustainability using three different criteria.

FIGURE II.C2. Germany, Second Report on the Sustainability of Public Finances: Cumulative expenditure ratio – sensitivity analysis, percent of GDP

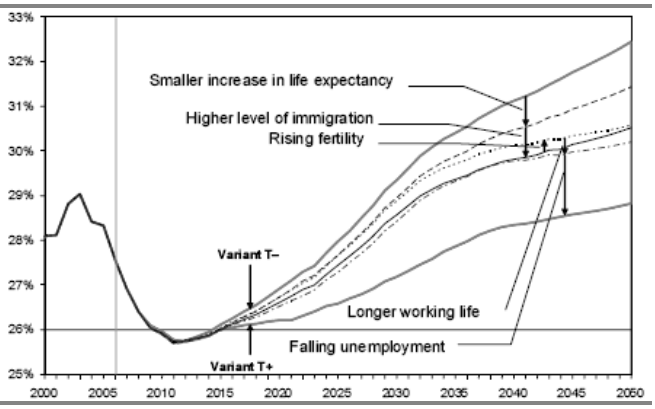


FIGURE II.C3. Germany, Second Report on the Sustainability of Public Finances: Cumulative debt position – sensitivity analysis, percent of GDP

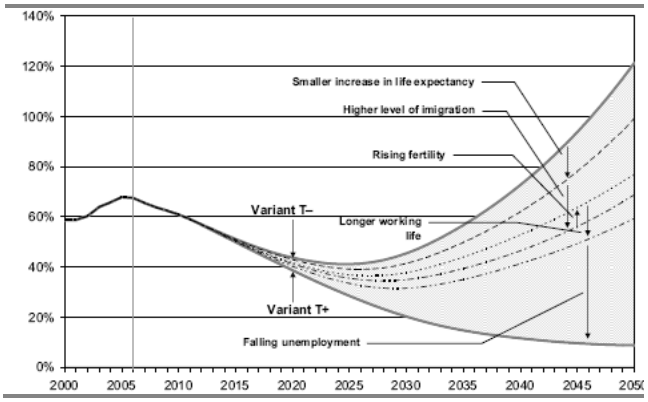


TABLE II.C2. Germany, Second Report on the Sustainability of Public Finances: Changes in the sustainability gap (S2) in the event of an alternative development of health spending

Wage indexation	+0.2 to +0.7
Falling age-specific morbidity	-1.2 to -1.3
Cost effects of medical / technical progress	2.4
Falling age-specific morbidity and medical / technical progress	+0.8 to +1.0

NOTES: All figures describe the projected increases (+) or reductions (-) in the S2 sustainability gaps (expressed as a percentage point of GDP) compared to the two basic variants

TABLE II.C3. Germany, Second Report on the Sustainability of Public Finances: Sustainability gaps as a percentage of GDP, results based on different assumptions

	Variant T- (relatively unfavourable)	Variant T+ (relatively favourable)
Retrospective policy simulation[1]	3.6	1.2
Status-quo scenario[2]	2.4	0
Prospective policy simulation[3]	1.8	-0.6

NOTES:

1) Excluding the pension reforms of 2004 (sustainability factor) and 2007 (raising the retirement age to 67).
2) On completion of ifo's calculations, includes pension reforms but not yet the latest changes in the field of long-term care insurance / civil service pensions
3) The latest changes in the field of long-term care insurance / civil service pensions are also taken into account.

II.D.4. Explicit disclosures

The Report assumes that general government revenue ratio will remain unchanged over the long term, with parallels drawn to EU Commission sustainability, though the German projections do not decompose revenues into different categories.

The Report presents only the projected expenditure changes in the two different scenarios. It states that the ifo Institute's final report on the research project provides detailed information on the exact procedure followed for the individual budget components and the assumptions made specifically for the extrapolation of costs. It does, however, note the inclusion of new expenditure categories that are modelled for the first time in the Report (*e.g.* education spending, family related benefits and tax allowances).

Demographic assumptions come from Federal Statistics Office and state (regional) statistics offices. Unlike previous calculations a general "middle variant" in population projections was not specified. Rather they use the basic assumption, with two scenarios of population aging comparatively quickly ("2-W1") and ageing more slowly ("3-W2"). A comparison to the previous projections is only made in relation to life expectancy, and not other demographic variables.

Labour market assumptions, such as participation rates, unemployment, productivity, and real GDP growth, are provided in the report, although there is no justification for the figures or changes compared to the previous report. Interest rates are not discussed.

II.D.5. Institutional linkages

German legislation outlines two fiscal rules: a "golden rule" and a balance budget rule. In addition, Germany also follows the requirements of the European Union Stability and Growth Pact regarding the budget balance and gross debt. All rules apply annually to the central government, are based in legislation, and are monitored by the supreme audit institution.

A four year medium-term budget framework is prepared annually. Both medium-term ceilings and expenditure estimates are presented on an aggregate level. While multi-year expenditure estimates are prepared by ministries/agencies on line-item level, only aggregate figures are presented as the official documentation submitted to parliament. In practice, the Parliament can get information of the amounts on line-item level.

II.E. KOREA: VISION 2030

II.E.1. General Characteristics

Fiscal projections covering the central government sector were prepared in 2006 by a Joint Task Force Team and presented in Vision 2030, an *ad hoc* policy document prepared separately from the budget process.

II.E.2. Overview of Vision 2030

There is no explicit legal requirement for fiscal projections in Korea. Vision 2030, published in 2006, presents a long-term goal for Korea in 2030 and the strategies considered necessary to achieve it. The report was prepared by a Joint Task Force Team consisting of government officials and other experts. Government officials were mainly from Ministry of Finance and Economy, Ministry of Planning and Budget, and the Ministry of Health and Welfare. Other experts were involved from the Korean Development Institute and the Korean Institute of Public Finances. Vision 2030 was published as a stand-alone report unrelated to the annual budget process. Largely absent from the strategy document, however, was an explicit discussion of the country's fiscal future.

II.E.3. Sustainability analysis

Vision 2030 focuses on necessary increases in government spending, measured as a percentage of GDP, to achieve the goals outlined in the report. The projection was not based upon current policies. It was further broken down into two time periods: 2006-10 and 2011-30 (0.1 and 2.1 percent nominal annual spending growth, respectively, as a percent of GDP). There was no discussion of revenues or measures of fiscal balance and/or debt; rather it indicated that decisions on financing would need to be discussed for the 2011 period. No baseline projection or sensitivity analyses based on changes in underlying assumptions were presented.

II.E.4 Explicit disclosures

Estimates of economic growth and demographic changes were presented briefly in the Vision report. Estimates of economic growth were based on the Joint Task Force Team; demographic assumptions were based upon National Statistics Office projections.

II.E.5. Institutional linkages

While concern has been voiced over the fact that Vision 2030 was an *ad hoc* document and one closely associated with one particular administration, the production of fiscal projections may have raised public awareness and expectations towards fiscal sustainability. The National Fiscal Act (NFA), 2007, requires the government to prepare and submit to the national legislature a National Fiscal Management Plan (NFMP) for a period covering at least five fiscal years beginning with the current fiscal year. These fiscal forecasts are, however, currently interpreted as the five-year medium-term budget framework (*i.e.* current budget year plus estimates spanning four years).

Assessments of fiscal sustainability are routinely done for the Korean National Pension Scheme and on an *ad hoc* basis for mandatory spending programs. Since 2003, actuarial projections of the Korean National Pension Scheme are to be prepared every five years. The introduction of actuarial projections represents one of the major changes in the 1998 amendment to the National Pension Act. To date, two actuarial projections have been prepared: in 2003 and in 2008. On occasion, line-ministries have also been required to submit fiscal projections up to 75 years in addition to their budget requests for new/revised mandatory spending programs. However, the extent to which this occurs is not known.

II.F. NETHERLANDS: AGEING AND THE SUSTAINABILITY OF DUTCH PUBLIC FINANCES

II.F.1 General Characteristics

- Fiscal projections of the general government sector span until 2100, updated on an ad hoc basis, prepared by the independent Central Planning Bureau and publicly released. Current policies are based on the most recent budget, factoring in several policy reforms and assuming constant tax rates, government spending indexed to either wage growth or GDP growth, constant expenditure preferences (fiscally neutral projections), and an unchanged composition of the economy.
- Fiscal indicators include the projected budget balance, primary budget balance, debt, and a sustainability gap. A comparison to the previous (2000) fiscal projection is made against the sustainability gap and the effects of main factors decomposed. Sensitivity analysis is conducted for both demographic and economic assumptions on the required primary surplus and sustainability gap. In addition, a calculation of lifetime welfare by population cohort is presented using the current projection.
- Four policy reactions are presented: raising indirect taxes or personal income taxes in 2006; delayed reductions in government material consumption in 2040 rather than 2006; abolishing tax privileges on pensions; and raising the statutory retirement age by two years using a one year step in 2015 and 2025. The analysis of the different policy reactions are presented against the primary budget balance, government debt, and lifetime welfare by birth cohort.
- The executive summary of the report includes a "Question and Answers" section that addresses definitional questions about sustainability, the projections, individual assumptions, and policy options.

II.F.2 Overview of Ageing and the Sustainability of Dutch Public Finances

There is no legal requirement for fiscal projections. The Netherlands Central Planning Bureau publishes fiscal projections for general government on an irregular and low frequency basis focus solely on the costs of an ageing population. Two reports have been prepared to date. The 2000 "Ageing in the Netherlands" makes projections until 2080; and the 2006 "Ageing and the Sustainability of Dutch Public Finances" makes projections until 2100. Although the reports terminal years differ, a more intermediate focus on 2040 is given in both reports. Both reports are available online on the Netherlands Bureau for Economic Policy Analysis (CPB) website.[23]

Fiscal projections are included in the annual Netherlands' Stability Program Report to the European Commission since 1999. This projection is adjusted to reflect the medium-term economic outlook but does not correspond with a revision in the CPB projections (or those prepared by for the EU Ageing Working Group) *per se*. Thus, a discrepancy may arise between the projections with the Stability Report and those published by the CPB.

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[23] The Netherland's Central Planning Bureau provides forecasts are considered "independent in content" from the executive, and its independence has earned it trust from all political parties as well as the public. While a government entity funded under the budget of the Ministry of Economic Affairs, several factors are given as indicative of its independence. First, the Board of Directors is appointed by the Economic Planning Commission comprised of members from business and science. Second, the Central Planning Bureau work plan is prepared following advice from the Central Planning Commission; the Commission for Economic Affairs, comprised of official representatives of the ministries most closely involved in economic policy, is also engaged. Third, the Central Planning Commission commissions an independent evaluation of the policy relevance of the Central Planning Bureau work every five years or so. Fourth, there is substantial mobility of personnel between the Bureau, universities, ministries, trade unions, politics and the press (Bos, 2008).

The two reports are available online in both Dutch and English,

- *Ageing in the Netherlands* http://www.cpb.nl/eng/pub/cpbreeksen/bijzonder/25/
- *Ageing and the Sustainability of Dutch Public Finances* http://www.cpb.nl/nl/pub/cpbreeksen/bijzonder/61/

II.F.3. Sustainability analysis

The 2006 CPB Report defines current policies as sustainable "if they can be maintained in the future without incurring financial problems". Sustainability is achieved if tax rates do not have to be raised in the future to finance the increasing burden of ageing (efficiency); and that future generations will not be burdened by the cost of ageing in a disproportionate manner (Intergenerational equity). Current policies are based upon the 2006 budget and factoring in several specific policy reforms. Tax revenues are assumed to be constant; government spending is indexed to either wage growth or GDP growth expenditure preferences and the composition of the economy are also assumed constant. The projection does not impose the government's fiscal rules as a constraint in its modelling.

Three fiscal indicators are presented within the Report: a baseline projection of fiscal aggregates; a sustainability gap (and associated projection of sustainable policies under this scenario); and a calculation of lifetime welfare according to population cohort. Baseline projections include the structural budget balance, primary structural budget balance, gross government debt, and total government wealth. Two baseline projections are prepared: the first reflects current policies without any budgetary measures; the second reflects sustainable policies, *i.e.* smoothing budget policies over all generations starting from the present point in time. The results of both projections are presented (see Tables II.F1 and II.F2 respectively) and discussed within the text with specific reference to the period 2006-2040. In addition, a calculation of lifetime welfare by population cohort is presented using the current projection (see Table II.F3).

The sustainability gap (a synthetic indicator) is the change of expenditure on material public consumption (*i.e.* public consumption of goods and services provided by the private sector) as a percentage of GDP that renders policies sustainable. Consumption of publicly provided goods is excluded from this definition. The focus on material consumption is selected for technical reasons: it does not have behavioural effects (unlike altering the tax burden); cutting back on material government consumption (unlike cutting back on government investment) does not affect labour productivity; and it does affect the labour supply available to businesses, unlike a reduction in employment in the public sector. Such a measure is intended as a useful benchmark but not a policy prescription.

The sustainability gap is linked to the fiscal framework using an illustrative size of the required primary balance in 2011 (see Table II.F4). The primary balance is decomposed into its main determining factors in items 2 through 7, distinguishing between the impact of the initial debt position (item 2) and budgetary developments after 2011 (items 3 through 7). In addition, a comparison is made of the 2006 sustainability gap with the previous (2000) one, decomposed into main contributors underlying the deterioration, including returns on the pension fund, temporary gas revenues, female labour participation, and changes in disability benefits schemes (see Table II.F5).

Among these three types of indicators, sensitivity analysis is conducted for changes in both demographic and economic assumptions on the primary budget balance in 2011 and the sustainability gap (see Table II.F6). Four policy reactions are also presented: raising indirect taxes or personal income taxes in 2006; delayed reductions in government material consumption in 2040 rather than 2006; abolishing tax privileges on pensions; and raising the statutory retirement age by two years using a one year step in 2015 and 2025. The analysis of the different policy reactions are presented against the primary budget balance, budget balance, government debt and lifetime welfare by birth cohort. An illustration of increasing indirect taxes is presented in Table II.F7.

TABLE II.F1. Ageing and the Sustainability of Dutch Public Finances: Public finance without budgetary measures in the baseline projections

	2006	2011	2020	2040	2060	2100
Expenditure						
Social security	12.0	12.4	13.5	15.5	14.5	14.9
Public pensions	4.7	5.3	6.6	8.8	7.8	8.2
Disability benefits	2.0	5.3	6.6	8.8	7.8	8.2
Unemployment benefits	1.2	1.0	1.0	1.0	1.0	1.0
Other benefits	4.1	4.0	4.0	4.1	4.1	4.1
Health care	8.8	9.3	10.3	13.1	12.5	12.6
Education	5.4	5.5	5.4	5.8	5.7	5.8
Other expenditure excl. interest payments	19.2	18.5	18.4	18.2	18.3	18.3
Primary expenditure	45.3	45.7	47.8	52.5	51.0	51.5
Interest payments	2.5	2.0	1.5	2.5	4.2	7.2
Total	47.8	47.7	49.3	55.0	55.2	58.7
Revenues						
Income tax and social security contributions	21.8	23.1	23.7	25.3	24.9	25.2
Of which on pension income	1.8	1.9	2.5	3.6	3.4	3.6
Indirect and other taxation	14.9	15.6	15.9	17.3	16.7	16.8
Of which on consumption by population aged 65 and older	1.9	2.2	2.9	4.2	3.6	3.7
Corporate income tax	2.6	2.6	2.5	2.4	2.3	2.3
Natural gas revenues	1.6	1.2	0.8	0.1	0.0	0.0
Other incomes	5.2	5.3	5.2	4.9	4.	4.4
Total	46.1	47.9	48.1	50.0	48.6	48.8
Structural budget balance	-1.7	0.2	-1.1	-5.1	-6.6	-9.9
Primary structural balance	0.7	2.2	0.4	-2.6	-2.4	-2.7
Gross debt[1]	54.4	47.4	41.0	74.5	126.4	213.3
Government total wealth[1]	60.3	64.2	61.0	17.6	-37.0	-125.0

NOTES:
1. Value at end of the year:

TABLE II.F2. Ageing and the Sustainability of Dutch Public Finances: Public finance on the basis of sustainable policies in the baseline projection

	2006	2011	2020	2040	2060	2100
Expenditure						
Social security	12.0	12.4	13.5	15.5	14.5	14.9
Public pensions	4.7	5.3	6.6	8.8	7.8	8.2
Disability benefits	2.0	2.1	1.9	1.6	1.6	1.6
Unemployment benefits	1.2	1.0	1.0	1.0	1.0	1.0
Other benefits	4.1	4.0	4.0	4.1	4.1	4.1
Health care	8.8	9.3	10.3	13.1	12.5	12.6
Education	5.4	5.5	5.4	5.8	5.7	5.8
Other expenditure excl. interest payments	1.65	15.9	15.8	15.6	15.7	15.7
Primary expenditure	42..7	43.1	45.2	50.0	48.4	49.3
Interest payments	2.5	1.5	0.1	-0.7	-0.4	-0.4
Total	45.2	44.6	45.3	49.3	48.0	48.6
Revenues						
Income tax and social security contributions	21.8	23.1	23.7	25.3	24.9	25.2
Of which on pension income	1.8	1.9	2.5	3.6	3.4	3.6
Indirect and other taxation	14.9	15.6	15.9	17.3	16.7	16.8
Of which on consumption by population aged 65 and older	1.9	2.2	2.9	4.2	3.6	3.7
Corporate income tax	2.6	2.6	2.5	2.4	2.3	2.3
Natural gas revenues	1.6	1.2	0.8	0.1	0.0	0.0
Other incomes	5.2	5.3	5.2	4.9	4.	4.4
Total	46.1	47.9	48.1	50.0	48.6	48.8
Structural budget balance	1.0	3.3	2.9	0.6	0.7	0.2
Primary structural balance	3.4	4.8	3.0	-0.0	0.2	-0.2
Gross debt[1]	51.7	31.6	0.6	-19.4	-12.9	-10.2
Government total wealth[1]	63.0	80.3	101.4	111.4	102.4	98.5

NOTES:
1. Value at end of the year

TABLE II.F3. Ageing and the Sustainability of Dutch Public Finances: Generational accounting on the basis of sustainable policies

	Generations born in				
	2006	2020	2040	2060	2100
Lifetime income (percent of lifetime welfare)	92.8	93.2	93.3	93.3	93.4
Net benefits from the government (percent of lifetime welfare)	7.3	6.9	6.6	6.5	6.3
Net benefits from pension funds (percent of lifetime welfare)	-0.2	-0.1	0.0	0.2	0.3
Lifetime welfare (1000 euro)	843.8	1062.4	1488.5	2087.7	4105.9

TABLE II.F4. Ageing and the Sustainability of Dutch Public Finances: Decomposition of the sustainability primary balance in 2011, Percent of GDP

1. Sustainable cyclically adjusted balance in 2011	4.8
Due to	
2. Serving initial debt	0.4
3. Net effect of ageing	2.0
Increase in public pensions	2.5
Increase of taxes on pensions (-)	-2.5
Increase in health care	2.9
4. Depletion of revenues from natural gas	1.1
5. Decreasing revenues from financial assets	0.7
6. Decrease of expenditure on disability (-)	-0.5
7. Other factors (on balance)	0.2
8. Actual structural primary balance in 2011 after unchanged policy	2.2
9. Sustainability gap (=1. – 8.)	2.6

TABLE II.F5. Ageing and the Sustainability of Dutch Public Finances: Main contributors to deterioration in sustainability (percent of GDP)

1. Increase in sustainability gap	1.9
Due to:	
2. Lower pension fund return / discount rate	3.3
a. More austere pension funds arrangements	3.3
b. Lower discount rate	0.4
c. Lower cost of servicing initial debt	-0.3
3. Increase in temporary revenues (gas)	0.6
4. Transfer of private health care to public sector	0.5
5. Lower increase in female labour participation	1.2
6. Reform of disability schemes (including beneficial effects on labour participation)	-3.0
7. Other factors	-0.7

TABLE II.F6. Ageing and the Sustainability of Dutch Public Finances: Primary surplus 2011 and sustainability gap (percent of GDP)

	Primary surplus 2011	Sustainability gap
Baseline projection	4.8	2.6
Change in assumption versus baseline projection		
1 percentage point increase in discount rate	4.4	0.9
½ percentage point stronger growth in labour productivity	5.7	3.6
2 percentage points higher labour market participation by women1	4.7	2.3
5 percentage points higher labour market participation by people aged 55-652	4.8	2.3
10 percent higher fertility rates	4.9	2.8
3.4 years extra increase in life expectancy	6.2	5.1
0.5 percentage point higher growth in health care expenditure up to 2046	6.7	4.9
Full indexation of supplementary pensions	4.7	2.6

NOTES:

1. This participation rises for 10 years from 2006 by 0.2 percentage points per year.
2. This participation rises for 10 years from 2006 by 0.5 percentage points per year.

TABLE II.F7. Ageing and the Sustainability of Dutch Public Finances: Effects of realising sustainable public finances in 2006 by raising indirect taxes, compared to reducing government consumption

(Percent of GDP)	2006	2020	2040	2060	2100
Government consumption	2.6	2.6	2.6	2.6	2.6
Income taxes	-0.4	-0.4	-0.4	-0.4	-0.4
Indirect and other taxes	2.0	2.1	2.3	2.3	2.3
Primary structural balance	-0.5	-0.3	0.1	0.1	0.1
Structural balance	-0.7	-0.6	-0.3	-0.4	-0.4
Gross debt	3.6	7.6	10.2	9.9	10.6
(Percent)					
Employment (in full time equivalent)	-0.8	-0.8	-0.8	-0.8	-0.8
GDP at base prices	-0.8	-0.8	-0.8	-0.8	-0.8

II.F.4. Explicit disclosures

The modelling of fiscal projections is decomposed into revenues and expenditures. Revenues include direct taxes, social security contributions, indirect and other taxes, corporate taxes, and revenues from government assets including natural gas. The growth of these is modelled based upon: labour market participation and maturing of pension system; the evolution of income, savings, consumption and investment over the household life cycle; investment by firms; and corporate profits. The holdings of government finance assets are assumed to be constant in real terms (i.e. their share in terms of GDP will fall over time). Primary expenditures are decomposed into age-related and non-age-related spending categories. Age-related spending is defined (social security, health care and education), and its broad assumptions and exceptions are explained. The assumptions underlying non-age-related expenditures are also disclosed. (See Table II.F8).

Demographic assumptions are sourced from Statistics Netherlands, including development of fertility, mortality and immigration patterns---noting that extensions beyond Statistics Netherlands projections until 2100 are based upon the CPB estimates, and are summarised in a table by age group together with the elderly dependency ratio (see Table II.F9). This is also done noting the change in labour participation (percent of population aged 20-64) for both men and women (20-54, 55-64).

TABLE II.F8. Ageing and the Sustainability of Dutch Public Finances: Parameters GAMMA

Rate of labour-augmenting technological progress (percent)	1.7
Substitution elasticity labour and capital	0.5
Rate of time preference (percent)	1.3
Intertemporal substitution elasticity	0.5
Rate of inflation (percent)	2.0
Nominal rate on government bonds (percent)	3.5
Real discount rate	3.0
Substitution elasticity leisure and consumption	0.25

TABLE II.F9. Ageing and the Sustainability of Dutch Public Finances: Population and its composition in 2006-2100, in thousands

Age group	Years				
	2006	2020	2040	2060	2100
0-19	3976	3752	3831	3824	3940
20-64	10036	9828	9188	9513	9694
65+	2345	3244	3983	3557	3841
Total	16358	16825	17003	16895	17462
Elderly dependency ratio	23.4	33.0	43.4	37.4	39.6

II.F.5. Institutional linkages

The Netherlands has adopted "Trend-based budgeting" since the mid 1990s to keep public spending on a path of stable and controlled growth, and insulate spending from political changes, revenue windfall gains, or attempts to fine tune the business cycle. The framework differs from fiscal rules commonly adopted in other countries in that it primarily caps public spending in real terms, rather than the nominal budget deficit. Multi-annual ceilings for public expenditures are established at the start of new coalition governments for the entire political term (four years) based on expected revenues, and few changes to the ceilings are subsequently allowed. The limits are based on cautious macroeconomic projections produced by the CPB.

For historical reasons, the Dutch budget is divided into three separate sectors. These are: i) the "core" budget sector; ii) the health care sector; and iii) the social security and labor market sector, each with its own dedicated financing source.

Should the economy perform better than expected, specific rules are outlined in the Coalition Agreement to deal with revenue windfall gains. Presently, if the budget situation is turning out to be more favorable than the government anticipated, *i.e.* higher economic growth, then the following applies: if the deficit is greater than 0.75 percent of GDP, 75 percent of windfall goes to reducing the deficit and 25 percent on tax cuts; if the deficit is less than 0.75 percent of GDP, then 50 percent of windfall goes on reducing the deficit and 50 percent on tax cuts. Moreover, a requirement is in place that new tax measures must be off-set by compensating revenue measures to secure a neutral impact on the budget balance. This set up has been consistently endorsed by successive governments.

II.G. NEW ZEALAND'S LONG-TERM FISCAL POSITION

II.G.1. General Characteristics

- Fiscal projections of the general government sector span a 40 year horizon, are updated at least every four years, and are presented to the House of Representatives together with an account of all significant assumptions underlying any projections included in the statement as required under the Public Finance Act 1989 as amended in 2004.
- Fiscal indicators include baseline projections of fiscal aggregates and a sustainability gap. While the Statement was first released in 2006 there is no comparison to fiscal indicators in past budget documents. Sensitivity analysis is provided for demographic and economic variables. No policy scenarios are presented, however.
- Key economic and fiscal assumptions are presented as an annex to the Statement.

II.G.2. Overview of New Zealand's Long-term Fiscal Position

The New Zealand Long-term Fiscal Position (hereafter "Statement") provides a budget projection spanning 40 year as required under the Financial Responsibility Act of 1994 and subsequently included within the Public Finance Act of 1989 as amended in 2004. While not explicit about the coverage of budget projections, it appears that the Statement refers to general government because of the inclusion of state-owned enterprises and Crown entities in the "other spending category". The statement is presented every four years to the House of Representatives, together with an account of all significant assumptions underlying any projections included in the statement. The Statement must be accompanied by a statement of responsibility, signed by the Secretary of the Treasury, attesting that the use of the Department's best professional judgments about the risks and the outlook (see Box I.G1). There is no justification for the time horizon or the frequency of reporting. New Zealand elections generally occur every three years.

BOX II.G1. Legal requirements for long-term projections in New Zealand Public Finance Act

Article 26N Statement on long-term fiscal position

(1) Before the end of the second financial year after the commencement of this section and then at intervals not exceeding 4 years:
  (a) The Treasury must prepare a statement on the long-term fiscal position; and
  (b) The Minister must present each statement to the House of Representatives.

(2) The statement must:
  (a) Relate to a period of at least 40 consecutive financial years commencing with the financial year in which the statement is prepared; and
  (b) Be accompanied by
    (i) A statement of responsibility signed by the Secretary stating that the Treasury has, in preparing the statement under subsection (1), used its best professional judgments about the risks and the outlook;
    (ii) A statement of all significant assumptions underlying any projections included in the statement under subsection (1).

SOURCE: http://www.legislation.govt.nz

One Statement has been produced to date, in 2006. The Statement is available on the New Zealand Treasury website.[24] The Treasury's Fiscal Strategy Model (FSM) used to prepare the long-term projections is also available on the Treasury's website. The Statement is produced by the Macro policy 2 (Sustainable)

[24] See http://www.treasury.govt.nz/government/longterm/fiscalposition/2006

cluster within the Macroeconomic Group. The Group is responsible for preparing macroeconomic and tax forecasts, monitoring economic situation and providing advice on macroeconomic policy, particularly fiscal policy. It is also responsible for preparing the Budget for the Government.[25]

Long-term projections, however, were first prepared in 1993 as part of the *Briefing to the Incoming Government* (55 years) and again in 1996.

II.G.3. Sustainability analysis

In the 2006 Statement, describes both a bottom-up and top-down approach. For the bottom-up approach two figures are presented and discussed.

- Core Crown spending changes between 2005 and 2050;
- Core-Crown primary spending, revenue and primary operating balance; and
- Gross and net debt (see Figure I.G-1 and I.G.-3);

For the top-down approach the long-term debt objective, *i.e.* gross debt at around 20 percent of GDP, is articulated as the constraints in top-down approach (see Figure I.G-4). While the Statement does not present a traditional measure of fiscal gap *per se*, it illustrates the required change against three variables:

- "Other spending" over time – and for adjustment from time that operating balances go into deficit;
- Tax-to-GDP ratio; and
- Growth in health spending to achieve this target.

Although the Public Finance Act speaks of total net worth, it is not discussed in the Statement.

Sensitivity analysis is presented for four variables underlying demographic-sensitive expenditures and economic growth discussed in the bottom-up projection:

- Fertility rates;
- Life expectancy
- Productivity; and
- Participation rates (see Table I.G-2 through Table I.G-5).

In each case, the impact of the change is presented both in terms of the operating balance as a percent of GDP and gross sovereign debt as a percent of GDP.

II.G.4. Explicit disclosures

The modelling of long-term budget projections is decomposed into tax and non-tax revenues, and three categories of demographic-sensitive expenditure categories and another spending category. The major assumptions associated with revenue and expenditure projections are presented in Annex 1 of the Statement.

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[25] New Zealand Treasury is structured in four groups. In addition to the Macroeconomic Group there are three other groups:

- Economic Performance Group assesses the impact of different sectors and policies (*e.g.* international, tax strategy, enterprise and innovation, infrastructure) on economic growth;
- State Sector Performance Group assesses the efficiency and effectiveness of priority government sectors and entities, helps ministers set and measure performance, analyses and advises on value-for-money and new spending; and
- Organisational Performance Group provides advice on desired organisational results and appropriate corporate policies and practices for the Treasury itself.
- In addition the Crown Company Monitoring Authority Unit is a stand alone unit within the Treasury.

Revenue projections capture both tax and non-tax revenues. The latter is defined as profits from state-owned enterprises, investment income from funds operated by crown entities, income on foreign reserves, and New Zealand Superannuation. As taxes are modelled at a high level of aggregation, sensitivity analysis using tax elasticities to illustrate the effects of different tax scales (no indexation, CPI-indexation) is performed to explore any fiscal drag on the government's fiscal future.
Expenditure projections are disaggregated into three demographic-sensitive expenditure groups (public health, education and payments) and a residual. The Statement does not differentiate between health spending and aged-care spending as both largely funded through Vote Health. Each of these groups is further disaggregated into various subcategories. Assumptions are accompanied with a discussion of the types of spending, the cost drivers, the formula for generating projections and data source.

Other spending (*e.g.* core government services, transport and communication, defence, capital spending, Core Crown property, plant and equipment, State-owned enterprises and Crown entities, Core Crown investments and advances) are projected to follow nominal GDP growth.

- ***Demographic assumptions*** are based on "Series 5" (middle of 9 projections) from Statistics New Zealand National Population Projections (2004).
- ***Participation*** uses a cohort model, holding the unemployment rate and hours worked constant after 2010.
- ***Productivity*** is calculated assuming median growth in output per hour worked between 1980 and 2003.
- ***Inflation and interest rates*** are assumed to be constant. Inflation is taken as middle of central banks' target range. Interest rates are set equal to real government 10 year bond rates.
- ***Real GDP growth*** uses a model and projections presented in nominal terms and per capita terms.

FIGURE II.G1. New Zealand Long-term Fiscal Position: Core Crown spending changes between 2005 and 2050

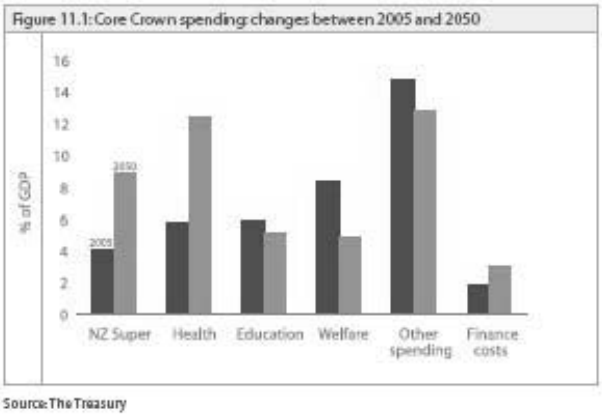

FIGURE II.G2. New Zealand Long-term Fiscal Position: Core Crown primary spending, revenue and primary operating balance

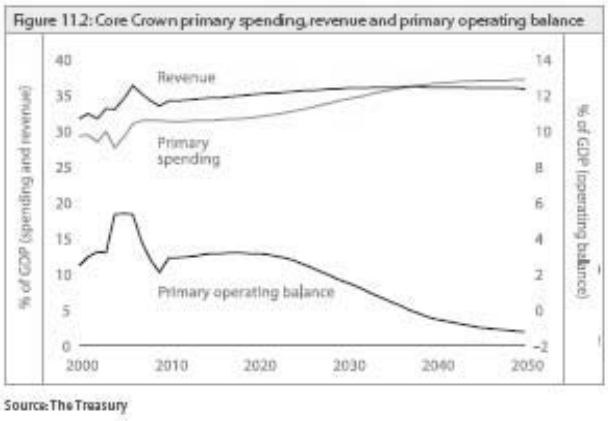

FIGURE II.G3. New Zealand Long-term Fiscal Position: Gross and net debt in a long-run perspective

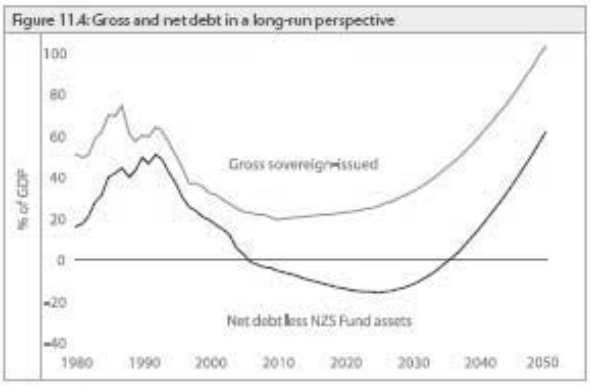

FIGURE II.G4. New Zealand Long-term Fiscal Position: Gross sovereign-issued debt constrained at around 20 percent of GDP

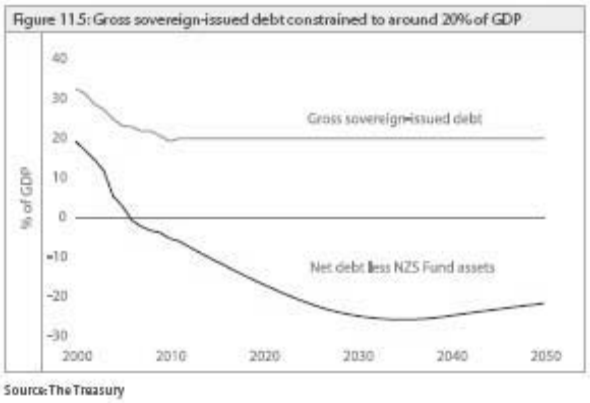

TABLE II.G2: New Zealand Long-term Fiscal Position: Differences of high (2.10) and low (1.60) fertility cases from the base (1.85)

(Percentage points of GDP)		2010	2020	2030	2040	2050
Education	Low	-0.0	-.02	-0.3	-0.4	-0.4
	High	0.0	0.2	0.3	0.4	0.4
Primary spending	Low	0.0	-0.4	-0.6	-0.5	-0.2
	High	0.0	0.2	0.2	0.1	-0.1
Operating balance	Low	0.0	0.6	1.2	1.7	2.1
	High	0.0	-0.2	-0.5	-0.6	-0.6
Gross-sovereign issued debt	Low	0.0	-1.9	-9.2	-17.4	-28.4
	High	0.0	0.0	2.2	5.4	8.8

TABLE II.G3: New Zealand Long-term Fiscal Position: Differences of high (87.5) and low (83.0) life expectancy, cases from the base (85.2)

(Percentage points of GDP)		2010	2020	2030	2040	2050
Superannuation	Low	0.0	-0.1	-0.2	-0.4	-0.5
	High	0.0	0.2	0.3	0.4	0.5
Primary spending	Low	0.0	-0.3	-0.6	-1.1	-1.5
	High	0.0	0.0	0.3	0.7	1.0
Operating balance	Low	0.0	0.3	0.9	1.8	2.2
	High	0.0	0.1	-0.2	-0.8	-1.8
Gross-sovereign issued debt	Low	0.0	-2.8	-8.0	-16.8	-30.9
	High	0.0	0.8	2.0	5.2	11.9

TABLE II.G4: New Zealand Long-term Fiscal Position: Differences in productivity between high (2 percent) and base case (1.5 percent)

(Percentage points of GDP)		2010	2020	2030	2040	2050
Superannuation	High	0.0	0.0	0.0	0.0	0.0
Health	High	0.0	0.0	0.0	0.0	0.0
Welfare benefits	High	0.0	-0.2	-0.4	-0.5	-0.5
Primary spending	High	0.0	-0.2	-0.4	-0.5	-0.5
Tax	High	0.0	0.0	0.0	0.0	0.0
Operating balance	High	0.0	0.2	0.4	0.7	1.1
Gross-sovereign issued debt	High	0.0	-0.5	-2.7	-6.9	-14.1

TABLE II.G5: New Zealand Long-term Fiscal Position: Differences of cases if static and higher rates for older workers from base case

(Percentage points of GDP)		2010	2020	2030	2040	2050
Primary spending	Low	0.0	0.3	0.5	0.7	0.7
	High	0.0	-0.3	-0.6	-0.6	-0.6
Tax	Low	0.0	0.0	0.0	0.0	0.1
	High	0.0	0.0	0.0	0.0	0.0
Operating balance	Low	0.0	-0.2	-0.7	-1.2	-1.8
	High	0.0	0.3	0.8	1.2	1.7
Gross-sovereign issued debt	Low	0.0	2.0	6.7	14.2	23.7
	High	0.0	-1.7	-7.5	-14.7	-23.5

New Zealand has a principal based fiscal rule under the Fiscal Responsibility Act, 1994. Since 2004 this has been integrated into the Public Finance Act, 1989 as amended. It outlines the principles of responsible fiscal management as:

- Governments are required to follow a legislated set of principles and publicly assess their fiscal policies against these principles. Governments may depart temporarily from the principles but must do so publicly, explain why they have departed, and indicate how and when they intend to conform to the principles. The five principles of responsible fiscal management are: Reducing total Crown debt to prudent levels so as to provide a buffer against factors that may impact adversely on the level of total Crown debt in the future, by ensuring that, until such levels have been achieved, the total operating expenses of the Crown in each financial year are less than its total operating revenues in the same financial year.
- Once prudent levels of total Crown debt have been achieved, maintaining these levels by ensuring that, on average, over a reasonable period of time, the total operating expenses of the Crown do not exceed its total operating revenues.
- Achieving and maintaining levels of Crown net worth that provide a buffer against factors that may impact adversely on the Crown's net worth in the future.
- Managing prudently the fiscal risks facing the Crown.
- Pursuing policies that are consistent with a reasonable degree of predictability about the level and stability of tax rates for future years.

Definitions such as "prudent" level of debt, or "reasonable" degree of predictability are not specified in the Act. It is left to the Government of the day to interpret the relevant fiscal terms.

Importantly, although a Government can depart from the principles, the FRA requires any such departure to be temporary and that the Minister of Finance specify the reasons for departure, the approach to be taken to return to the principles and the period of time this is expected to take.

II.H. NORWAY: LONG-TERM PERSPECTIVES FOR THE NORWEGIAN ECONOMY

II.H.1. General Characteristics

- Fiscal projections span 50 years, updated every four years, prepared by the Ministry of Finance and presented to the *Storting* (Parliament). There are no legal obligations to prepare projections, however.
- Fiscal indicators focus upon the financing gap for the non-oil deficit as well as an assessment of the generational accounts. While there is no comparison to previous projections for the financing gap, historic comparisons do exist for the generational accounts.
- Sensitivity analysis is conduct for alternative assumptions in productivity, average hours worked, labour force participation rates, and the oil-price. Policy options are also discussed in relation to income taxes, public consumption and public savings.
- The assumptions are briefly described in the English summary version of the White paper, but treated in more detail in the full length Norwegian version.
- Fiscal projections are considered to have resulted in the current formulation of the government's fiscal rule and been used as a means for discussion of pension reforms.

II.H.2. Overview of Long-Term Perspectives for the Norwegian Economy

Norway's "Long-term Perspectives for the Norwegian Economy" (hereafter the Long-term Perspective) presents a 50 year projection of general government finances every four years. The projections are prepared by the Ministry of Finance, presented to and discussed by the parliament. There is, however, no formal legal requirement to prepare fiscal projections and there is no specific body within the legislature that examines the projections. The Long-term Perspectives illustrates the fiscal challenges associated with developments in macroeconomic drivers in line with demographic projections from Statistics Norway and historical trends in labour-market participation and productivity. The Ministry of Finance describes the "unchanged policy" nature of the macroeconomic and associated fiscal and CO_2 emissions projections as in line with the approach adopted in the European Commission's 2006 Ageing Report.

Two Long-term Perspectives have been prepared to date: the first in 2004; the second in January 2009.[26] Fiscal projections have, however, been prepared since 1973 as part of the government's "Long-term Program" presented once every four years.[27] Initially, projections focused on the development of government expenditures compared to projected GDP over a 20 year time horizon. In 1993 projections were extended to between 40-50 years and their focus broadened to include government income and net lending projections. The present sustainability indicator (financial, or tax, gap) presented in the current Long-term Perspectives was introduced in 2004. The financial gap is measured by the changes in tax revenues as a share of mainland GDP in order to keep non-oil fiscal deficit in line with the fiscal rule provision that non-oil structural deficit over time is kept in line with an expected 4 percent real return from the Government Pension Fund–Global. Long-term fiscal challenges are also discussed regularly in the annual budget and an updated fiscal projection (and financing gap calculation) was presented in the 2007 budget documents (*i.e.* released in autumn 2006).

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[26] The English summary of the 2009 Report is available from:
http://www.regjeringen.no/upload/FIN/perspektiv_2009/engelsk_persp.pdf

The full version of the 2009 Report (in Norwegian) is available from:
http://www.regjeringen.no/pages/2142458/PDFS/STM200820090009000DDDPDFS.pdf

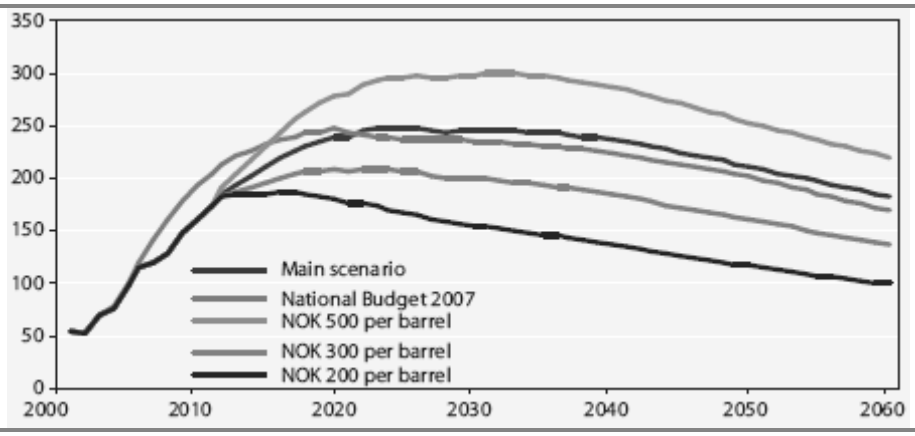
[27] Between 1954 and 1973 the Long-term Programme only covered a four year period.

II.H.3 Sustainability analysis

Norway's fiscal sustainability indicator focus on the projected developments in the Government Pension Fund–Global reserves and associated developments in a measure of a non-oil financial gap (see Figures II.H1 and II.H2). This is supplemented by an assessment of the generational accounts, which is regularly updated in the annual national budgets. While maintaining the assumption of unchanged policy in the financial gap calculations, the generational accounts do not provide information on the timing of expenditure increases due to ageing and other macroeconomic drivers. Moreover, the generational accounts calculations are based on simpler (less accurate) assumptions regarding relative prices on government expenditure items.[28] For generational accounting, reference is made to previous fiscal projections. Moreover, in the 2009 national budget all of the estimates for the generational accounts from 2001 until the present are also given.

In the 2004 and 2009 editions of Long-Term Perspectives, sensitivity analysis was prepared using alternative assumptions for a variety of parameters including productivity, average hours worked, labour force participation rates, and the oil-price (see Figure II.H3). Similar analysis has also been done for increased standards in healthcare and a healthier elderly population (*i.e.* higher longevity) in the past. The impact of different policy options are also discussed on the projected deficit under the main scenario. Differences are then given under three alternative approaches to the fiscal guidelines: changes to tax policies to increase and decrease income taxes; increased public consumption; or increased savings in years that the projected deficit is lower than the government's target non-oil deficit.

FIGURE II.H1. Government Pension Fund – Global, percent of GDP for Mainland Norway



[28] It applies an overall productivity and wage growth rate for the growth adjusted discounting factor. This overestimates the net present value associated with purchases of goods and services from the private sector.

FIGURE II.H2. Long-term trends in public finance, percent of GDP for Mainland Norway

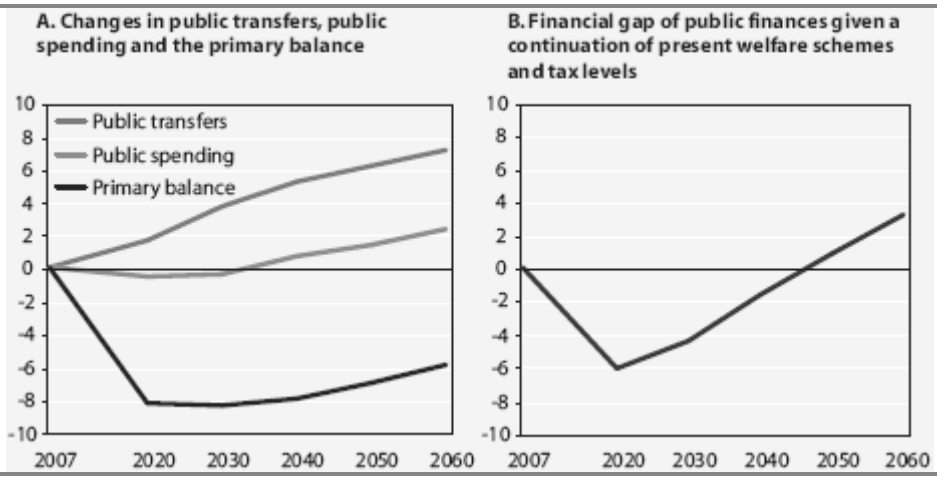
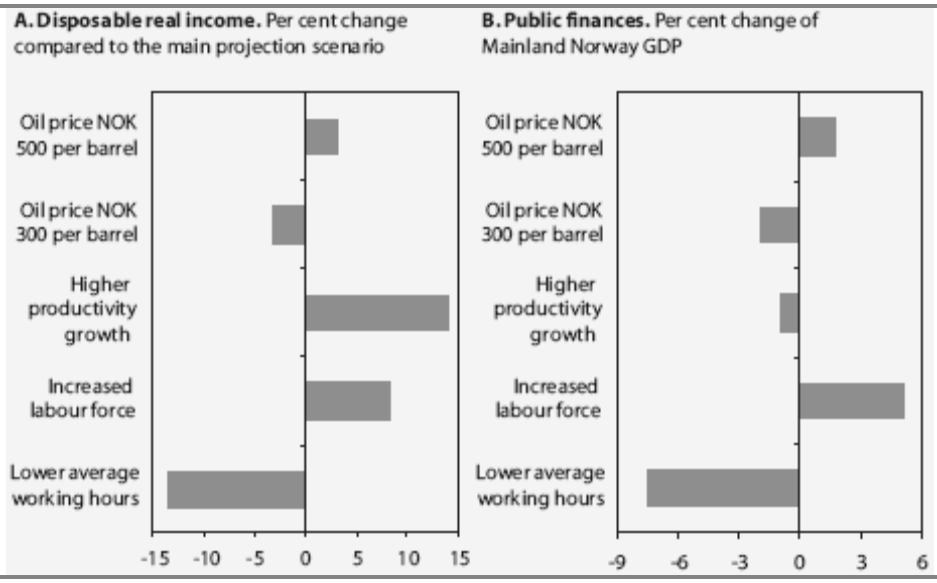


FIGURE II.H3. Significance of alternative assumptions for disposable real income and public finances, 2060[1]



NOTES:

1. Measured by the reduction in the financing gap

II.H.4 Explicit disclosures

Fiscal projections include projections of both revenues and expenditures. Tax revenues are assumed to be constant in 2004 levels, as per the government's earlier policy commitments. There is no discussion of the methodology to settle other revenue sources. Expenditures are differentiated into public consumption and total transfers. The historic drivers such as health and education for public consumption are discussed separately in detail. The different transfers such as unemployment allowances, sickness allowances, disability compensation and early retirement compensation are discussed on historical bases. Most data is from Statistics Norway but special surveys and research reports are also used.

Demographic assumptions are based on projections by Statistics Norway with alternative assumptions for birth rates, immigration and longevity. Some new surveys are introduced otherwise there are at the present

no such large differences in the preparation of the Long-term Perspective reports. Macroeconomic assumptions driving the fiscal projections are based on historical trends in labour-market participation, productivity and international developments. The assumptions are briefly described in the English summary version of the White paper, but treated in more detail in the full length Norwegian version.

II.H.5 Institutional linkages

Fiscal projections are seen by the government provide a common reference to create awareness and to discuss Norway's long-term fiscal challenges. This applies not only to the reports themselves but also the modelling tool itself. The same model is used to do the projections of the long-term fiscal consequences of the proposed reforms, *e.g.* pension and immigration policies. Fiscal sustainability, as measured by the country's generational accounts and the need to reduced public sector finances as a share of GDP, is also one of 18 indicators of sustainable development that is published annually together with the budget.

The Ministry of Finance considers that the long-term fiscal challenges identified in the long-term fiscal projections were a primary motive for introducing the current formulation of the fiscal rule in 2001. The expenditure rule sets the limit of how much of the petroleum revenues may be spent each year while keeping the real value of the financial assets of the Norwegian Pension Fund (previously the Norwegian Petroleum Fund) constant at the beginning of the fiscal year. *I.e.* it transfers only the increase in the real value, which is estimated at 4 percent each year. The rule is flexible, however. Large increases in the fund may be gradually smoothed over a number of years; and fluctuations in economic activity shall be countered in order to ensure high capacity utilisation and low unemployment.

II.I. SWEDEN: SPRING FISCAL POLICY BILL AND THE BUDGET BILL

II.I.1. General Characteristics

- Fiscal projections span 50 years and over an infinite period are presented together with the Spring Fiscal Policy Bill and Budget Bill as prepared by the Ministry of Finance. In addition, projections are presented in Sweden's Convergence Program to the European Commission annually.
- Fiscal indicators include the European Commission's S2 Indicator and the Maastricht (debt) Criteria. There is no comparison to previous projections. Sensitivity analysis is conducted for a number of scenarios including higher employment, higher productivity, higher government consumption, higher government spending, and better labour force integration of migrant populations.

II.I.2. Overview of fiscal projections

Sweden's Spring Fiscal Policy Bill and Budget Bill present fiscal projections of the whole of government administration until 2050 and over an infinite period. The Bills are prepared and presented by the Ministry of Finance to the parliament on 15 April and 20 September respectively. The Spring Bill presents the government's macroeconomic assessment and the development of public finances, and outlines fiscal policy and budget policy in the medium- to long-term. This document corresponds to what is sometimes labelled as a pre-budget statement. Fiscal projections were first published in the Spring Bill in 2001 and Budget Bill in 2003. There is, however, no legal requirement to prepare fiscal projections in either of these bills.

In addition, fiscal projections have been published in Sweden's Convergence Program Report (CPR) since 2000. The projections in the Budget Bill and in the CPR are identical. The Spring Bill and Budget Bill contain more details about the methodology, underlying assumptions and even a longer time period (2051-2099) compared to the CPR.

Although prior to the mid-1990s, Sweden presented a "long-term budget" once a year to the parliament, this is different from fiscal projections as discussed in this paper. The long-term budget, as it was called, spanned five years but did not serve as an input into the budget and little discussion of the sustainability of government finances (Ljungman, 2006).

The following discussion is based on the 2008 CPR and 2008 Budget Bill.

II.I.3. Sustainability analysis

Sweden's 2008 CPR defines fiscal sustainability as a situation in which current policies do not lead to uncontrollable debt. The 2008 Report was the first, however, that articulated the notion of fiscal sustainability. Previously, the 2006 and 2007 Reports focused on the distribution of the financial burden of medical and health care provisions between generations.

The 2008 CPR adopts the European Commission's S_2 Indicator and the Maastricht (debt) Criteria. Its analysis is based on an assumption of unchanged policies from the end of the 2008-2011 budget estimates. It assumes that the government's surplus target is applied until 2015, and thereafter it fluctuates according to revenues and expenditures. The fiscal indicators are not compared with the indicators in the previous year's long-term projections

The 2008 Budget Bill included a sensitivity analysis of the government's debt path and the S_2 Indicator under a high employment scenario, offsetting the 1 percent surplus target with tax cuts to permanently increase the labour supply and employment. The 2008 CPR, however, presents additional analysis for a further four scenarios.

- ***A productivity scenario***: Productivity growth is assumed to be three-tenths higher than in the base scenario during the period 2011-2020 and then over the next 10 years gradually decline to two-tenths before remaining unchanged.
- ***A care scenario:*** General government consumption is assumed to grow more rapidly than assumed in base scenario. This is based on historical development of general government consumption between 1980 and 2007.
- ***A care and employment scenario:*** This combines both care and employment scenarios as described above.
- ***An integration scenario:*** Differences in labour force participation and employment ratios that existed in 2007 between Swedish-born and non-Swedish-born people are assumed to gradually decline by one-third over a 10-year period starting from 2012 (see Figure II.I1 and Table II.I1).

FIGURE II.I1 General government consumption, percent of GDP

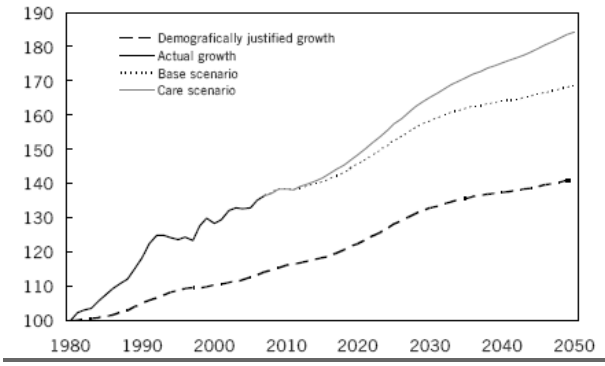
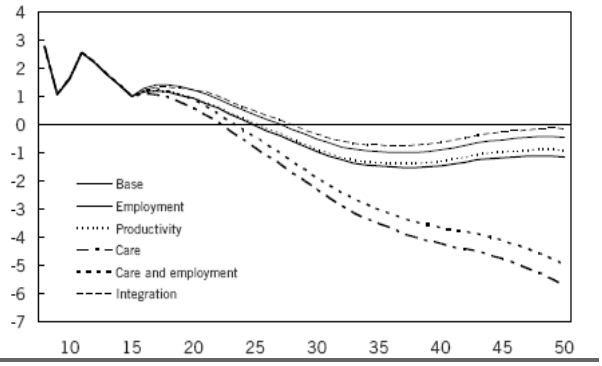


FIGURE II.I2 Net Lending, percent of GDP



TABLEII.I1 S_2 Indicators in various scenarios

	S_2 Indicator	Difference with base scenario
Base scenario	-0.1	0.0
Employment scenario	-0.3	-0.2
Productivity scenario	-0.3	-0.2
Care scenario	4.6	4.7
Care and employment scenario	4.3	4.4
Integration scenario	-0.4	-0.3

II.I.4. Explicit disclosures

The modelling of fiscal projections is decomposed into primary revenues and expenditures. Revenues include both taxes and charges and others. General government revenues are largely dependent on employment growth (through income taxes and consumption growth). Expenditures include transfer

payments, consumption and investment expenditures (see Table II.I2). In addition, the 2008 CPR decomposes government expenditures into age- and non-age-related categories, and taxes and charges into household direct taxes and charges, corporate direct taxes, indirect taxes and employer contributions, and self-employed social security contributions. General government consumption is broken down into childcare, primary and secondary education, adult education, health care, aged-care, and other activities. Transfer payments are broken down into old-age, disability, child/student and labour market transfers, along with transfer payments to firms and payments abroad. Revenues, expenditures, net lending and net financial assets of the old-age pension system are also provided. These are decomposed as per the structure recommended by the European Commission.

The Budget Bill includes presentation of the economic and labour force assumptions (see Table II.I2). In addition, the 2008 CPR includes a comparison of the Sweden government projections and those prepared by the European Commission's Economic Policy Committee. This is done for the underlying assumptions (population, employment, unemployment, productivity, and growth) as well as expenditure projections (pensions, health care, long-term care, education, and unemployment transfers).

TABLE II.I2 General government finances

	2007	2010	2015	2020	2030	2040	2050
Primary revenue							
Taxes and charges							
Other revenue							
Primary expenditure							
Transfer payments							
Consumption							
Investment							
Technical adjustment							
Primary net lending							
Net capital income							
Net lending							
Financial position							
Central government debt							
Consolidated gross debt							
Net debt							
Economic conditions							
Percentage change							
Population age 20-64							
Employed							
Hours worked							
Productivity in the business sector							
Productivity in the total economy							
GDP per capita							
GDP, constant prices							
GDP deflator							
CPI							
Real hourly wage							
Percentage							
Regular employment rate, age 20-64							
Open unemployment							

II.I5. Institutional linkages

Sweden's fiscal projections are presented together with the Spring Fiscal Policy Bill (prebudget statement) and Budget Bill. Moreover, the Standing Orders of Swedish Parliament requires compulsory reporting on expected long-term effects of proposals under consideration. New proposals have to include an analysis of

economic consequences. It is not stated that these should be in the long-term, but it is assumed that if long-term fiscal consequences are different from short term ones, it should be noted (Tarschys, 2002).

Fiscal projections are complemented by multi-year expenditure ceilings, a surplus rule, and a pension system with built-in automatic stabilisers. The expenditure rule covers both central and local government and targets a nominal expenditure ceiling of three years (*i.e.* Sweden's medium-term budget framework).[29] It covers all expenditures financed by the central government (*e.g.* administrative and investment expenditures, Sweden's contribution to the European Union, grants to local governments, and transfer payments). The exception is interest payments on government debt because such payments are volatile and difficult to forecast and are largely outside of the influence of government policy in the short-term. The balance rule covers general government finances and targets two percent of GDP over a business cycle. Both fiscal rules represent a political commitment of the executive.

The public pension system has a built in stabilizer based upon an annuity factor and the notional interest rate. The annuity factor, which depends mainly on cohort life expectancy, is adjusted every year to prevent increased longevity from destabilising the system. The notional interest rate depends on the growth of real wages. In addition, an automatic balancing mechanism (ABM) applies to the system of notional accounts. The ABM is based on a comparison of the present value of the assets of the system and its liabilities. It is equal to the present value of contributions plus a buffer fund (the latter being similar to a social security trust fund), divided by the present value of future benefit payments (or liabilities). If this ratio is less than one, the interest rate paid on accumulated balances is reduced, as is the indexing of the pensions of those already retired. This system has replaced automatic indexation of benefits introduced in 1972. Prior to 1972, adjustments in the benefits formula required parliamentary approval.

[29] On four occasions since 1997, the government has neglected to present ceilings for the third fiscal year and expenditure ceilings have only covered two years. The government's justification for this has included (i) uncertainties in estimating potential economic growth and thus the resource envelope for government expenditures; and, following the appointment of a new government (ii) insufficient time to make a thorough analysis of the macroeconomic and fiscal developments. While enabling the government to adapt to the prevailing macroeconomic and fiscal conditions, the move reduces the analysis of the sustainability of government programmes over the medium-term (Ljungman, 2008).

II.J. REPORT ON THE LONG-TERM SUSTAINABILITY OF PUBLIC FINANCES IN SWITZERLAND

II.J.1 General Characteristics

- Fiscal projections are prepared until 2050 every four years by the Federal Department of Finance.
- Fiscal indicators include projections of government debt and the fiscal gap. As fiscal projections were prepared for the first time in 2008, there is no comparison to past projections. Sensitivity analysis is conducted for demographic change, different productivity and interest rates assumptions.

II.J.2 Overview of Report on the Long-term Sustainability of Public Finances in Switzerland

Switzerland's Federal Finance Administration, Federal Department of Finance presents long-term budget projections until 2050 every four years in the Report on the Long-term Sustainability of Public Finances in Switzerland. The Report was first presented in 2008 and is publicly available on the Administration's website.[30]

In addition to fiscal projections, Switzerland's has adopted an annual expenditure rule covering central government expenditures and prepares a medium-term four year budget framework (*i.e.* budgeted fiscal year plus three out years). The economic assumptions and their methodology underlying the budget framework are prepared by a panel of representatives of government economic ministries and the central budget. There is no formal independent evaluation of the assumptions underlying the medium-term budget framework, nor is a sensitivity analysis of the economic assumptions prepared.

II.J.3 Sustainability analysis

The Swiss Report presents a definition of fiscal sustainability, the level of debt as a percentage of GDP, the rationale for its selection, its formula, and its time frame. "A fiscal policy is sustainable if the state's intertemporal budget constraint is fulfilled over an infinite time horizon … [*i.e.*] the current debt burden must be covered by future surpluses". They use the internationally recognised concept of fiscal gap (*i.e.* the immediate and permanent change in the budget balance needed to ensure a certain debt target by the end of the given time horizon). The rationale for use of the fiscal gap measure (over generational accounting) is because of the better information requirements and assumptions necessary for its production. The length of projections, until 2050, is stated because of the availability of demographic data from the Swiss Federal Statistical Office. It ignores the debt brake at federal level and similar rules among the cantons and municipalities.

Projections are based on three factors:

- Demographic change;
- Growth and productivity; and
- Non-demographic factors in health care.

The Report explicitly states that it does not address consequences of other phenomenon that will affect expenditures, public funding to offset or prevent such phenomenon, or revenues that might decline through the impact on real GDP. In this regard it specifically states that it ignores climate change, the higher risk of epidemics as a result of climate change, or the increased shortages of oil, and thus, as a consequence, any projections prepared should be considered as incomplete.

[30] 2008 *Report on the Long-term Sustainability of Public Finances in Switzerland* is available online, http://www.efv.admin.ch/e/dokumentation/downloads/themen/wirtschaft/oekonomenteam/OE_Langfristperspektive_en.pdf

Movements in demographic-dependent expenditures and in the level of government (including social security) are presented between 2005 and 2050. Trends are also shown for general government debt and debt ratio of different levels of government.

The choice of the baseline year is discussed and it is explicitly noted that no efforts have been made to distinguish between the temporary and permanent elements in the economic situation in the base year except where correction is taken into account in formulating the macroeconomic parameters of the fiscal plan.

Sensitivity analyses are provided with different levels of productivity (0.5, 1.0, 1.5 percent) and interest rates (1.5, 2.0, 2.5 percent) on the fiscal gap, measured in both nominal and real terms, and on the level of debt.

II.J.4 Explicit disclosures

Although there is not a high level summary of major assumptions associated with revenue and expenditure projections and the handling of exceptions to current policies (*i.e.* proposed policies expected to have a significant impact on demographic related spending), relevant information is found in the textual discussion of the reports.

The projections are based on current legislation and the figures established in the 2009-11 medium-term financial plan of the Federal Council. The report also differentiates where proposed policies are not included (*e.g.* the VAT increase to finance disability pensions: early-retirement old-age benefits; and raising of state pension age for women to 65).

Revenues are expected to grow with nominal GDP for the three government levels, and there is no differentiation between the types of tax and non-tax revenues. Under the assumption of no policy change, revenues are assumed to increase with nominal GDP for the three government levels. This also applies for revenues for social security insurance. Projections of revenues for old-age insurance and disability insurance were taken from the projections of the Federal Social Insurance Office, incorporating the Report's productivity growth rates. Expenditure projections are disaggregated into four demographically-sensitive expenditure groups (old-age and disability pensions, health, long-term care, and education) and a residual. Assumptions are discussed in conjunction with the methodology, though they are not accompanied by a discussion of key trends and cost-drivers. Other expenditures are assumed to grow with nominal GDP given the difficulty in making any quantitative estimates concerning impact of demographic change on such spending.

Population assumptions are taken from the Swiss Federal Statistical Office. While the Office produces three baseline scenarios (labelled A, B, C), the report is prepared on the middle baseline scenario (A-00-2005). The assumptions for birth rates, life expectancy (for men and women), and net migration are included for the end-year of the projections (*i.e.* in 2050) without periodic reporting or trends for these figures. A description suggests that these scenarios are largely set by 2020 and remain fairly stable thereafter.

In addition, the demographic structure and old-age dependency ratio are presented and discussed. Demographic projections are presented in four cohorts (0-20, 21-64, 65-80, 80+) with a baseline of 1991. Two old-age dependency ratios are measured: the "old-age dependency ratio" based upon headcounts; and the "actual old-age dependency ratio" based upon full-time equivalents. Labour force participation rates are discussed generally in the text though there is no discussion of the method or assumptions underlying it.

Economic assumptions are presented for labour productivity, the real interest rate, and inflation, and described as based on past trends and plausible considerations. They are held constant over time and do not take into account any feedback effects. The assumption for labour productivity corresponds to the long-term average, though the period covered is not disclosed. The interest rate corresponds to the average return on 10-year federal bonds for the period 1990-2007. The method for projecting real GDP is based on the FTE labour force and labour productivity.

II.K. UNITED KINGDOM'S LONG-TERM PUBLIC FINANCE REPORT

II.K.1 General Characteristics

- Fiscal projections by the H.M. Treasury span 50 years, updated annually, and are presented to the House of Commons and publicly released as required under the "Code of Fiscal Transparency".
- Fiscal sustainability is defined as meeting the government's two fiscal rules (*i.e.* the golden rule and the sustainable investment rule).
- Projections are prepared for long-term expenditures, revenues, the primary balance, the fiscal gap over the 50 year period, and the intergenerational budget constraint over an infinite period based upon the sustainable investment rule (*i.e.* net debt is maintained at less than 40 percent of GDP).
- Sensitivity analyses are conducted for different demographic scenarios on government spending and revenues, and for different productivity and interest rates.
- Comparison to previous fiscal indicators is done only in textual form for projected government expenditure, revenues and primary balance, but not the fiscal gap and intertemporal budget constraint; there is no discussion of the reasons for the changes in the projected fiscal future.
- The methodology and assumptions for demographic-sensitive spending is presented in the main body of the report.

II.K.2 Overview of the Long-term Public Finance Report

The United Kingdom's "Long-term Public Finance Report: An Analysis of Fiscal Sustainability" presents a 50 year fiscal projection of current policies as required under the Code for Fiscal Sustainability, 1998. The Code requires the government to present illustrative projections based on a range of plausible assumptions for a period of not less than 10 years. The explicit mention of fiscal projections, however, only appears in the "Explanation to the Code". Current policies are defined in two parts: all policies already in place at the time of the previous Comprehensive Spending Review and the Budget; and a constant level of per capita spending and revenue at the end of the government's medium-term.

Long-term Public Finance Reports have been published annually since 2002. Between 2002 and 2006, the Report was presented together with Pre-Budget Report (*i.e.* in December); since 2008 it has been presented together with the Budget (*i.e.* in May). Because of the change in timing for the publication of the report, no Report produced in 2007. Fiscal projections, however, have a longer history in the United Kingdom and have been published since 1999 in Annex A of the Economic and Fiscal Strategy Report (EFSR) that accompanied the budget. Between 2002 and 2007, Annex A of the ESFR continued to publish a summary of the long-term fiscal projection. This ceased in 2008 when the Report was presented together with the Budget.

The Report focuses only upon the fiscal challenges of demographic change in the UK, although there are discussions of long-term challenges and opportunities (such as the environment, globalisation and technical change, global uncertainty) discussed in the 2007 report, "Long-term opportunities and Challenges for the UK: Analysis for the 2007 Comprehensive Spending Review", and in the 2008 report, "The UK Economy: Analysis of Long-term Performance and Strategic Challenges".

The remainder of the discussion on the UK focuses on the 2008 Long-term Public Finance Report.

II.K.3 Sustainability analysis

The Report defines fiscal sustainability as being able to meet the two fiscal rules over the long-term:

- The golden rule: over the economic cycle, the government will borrow only to invest and not to fund current spending; and
- The sustainable investment rule: public sector net debt as a proportion of GDP will be held over the economic cycle at a stable and prudent level, which has been defined as 40%.

The Report specifically states that fiscal sustainability is not synonymous with intergenerational fairness, which has no unique definition.

Three fiscal approaches and types of fiscal indicators are presented within the Report:

- Indicators based on historical data, *e.g.* net debt, net worth, and net liabilities (see Figure II.K.1);
- Bottom-up analysis of future spending, revenue, the primary balance (see Figures II.K.2 through II.K.4), the fiscal gap, and intertemporal budget levels using the sustainable investment rule as a constraint (see Tables II.K.1 and II.K.2); and
- Top-down analysis of spending under the assumption that the golden rule is achieved every year over a 30 year time horizon (see Figure II.K.5). A comparison between the level of government spending as a percentage of GDP under the bottom-up and top-down projection is also provided (see Figure II.K.6).

The Report presents a sensitivity analyses for both the baseline projections of expenditure and revenues, but not explicitly the primary balance, and for the fiscal gap and intertemporal budget constraints. However, the sensitivity analysis for each varies. For the fiscal gap and intertemporal budget constraint, sensitivity analysis is done for different productivity and interest rate assumptions (see Table II.K.1 and II.K.2); for expenditure and revenues, it is done with changes in demographic assumptions under four variant population scenarios based upon those produced by the Office for National Statistics (ONS), with each variant including different assumptions for fertility rates, life expectancy, and long-term average annual net migration (see Tables II.K.3 and II.K.4).

While comparisons of the summary fiscal indicators are presented in the report relative to previous projections these focus only on spending, revenue, and the primary fiscal balance. Comparisons for fiscal gap and intertemporal budget constraints are not presented. Moreover, the comparison is done only through a textual discussion.

Although no policy options are presented, the top-down approach presented within the Report could be interpreted as such. It looks at the growth of government spending as a percentage of GDP under an explicit government policy, *i.e.* over the economic cycle, the government will borrow only to invest and not to fund current spending (the "golden rule").

FIGURE II.K1. United Kingdom's Long-term Public Finance Report, 2008: Public sector net debt, net worth and indicative net liabilities

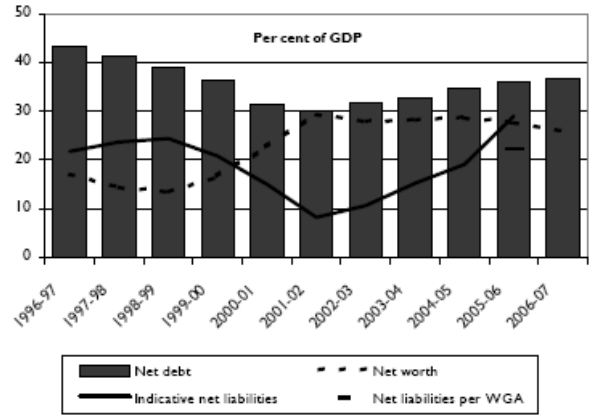


FIGURE II.K2. United Kingdom's Long-term Public Finance Report, 2008: Baseline spending projection

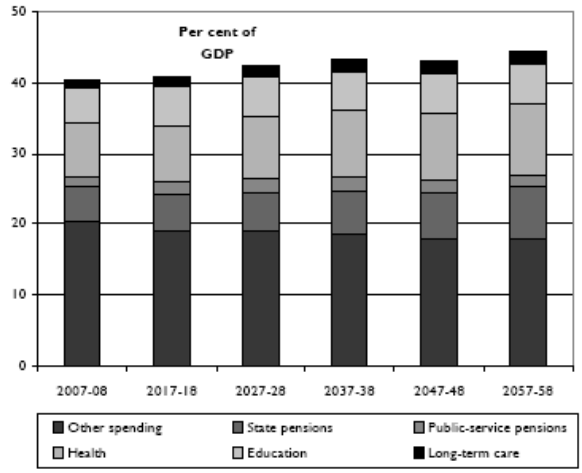


FIGURE II.K3. United Kingdom's Long-term Public Finance Report, 2008: Baseline revenue projections

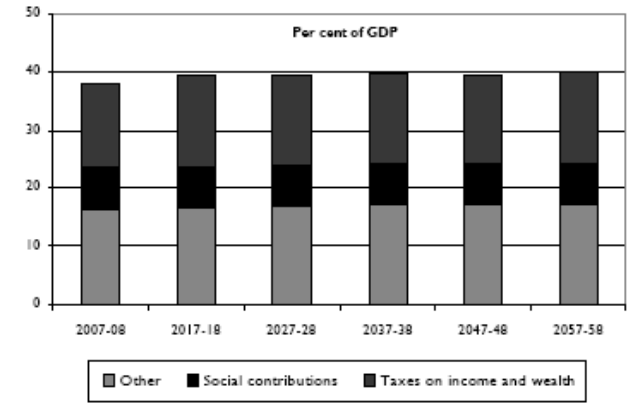


FIGURE II.K4. United Kingdom's Long-term Public Finance Report, 2008: Primary balances in baseline scenario

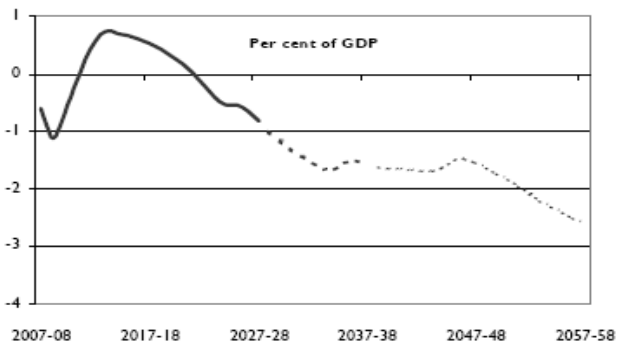


FIGURE II.K5. United Kingdom's Long-term Public Finance Report, 2008: Illustrative long-term fiscal projections

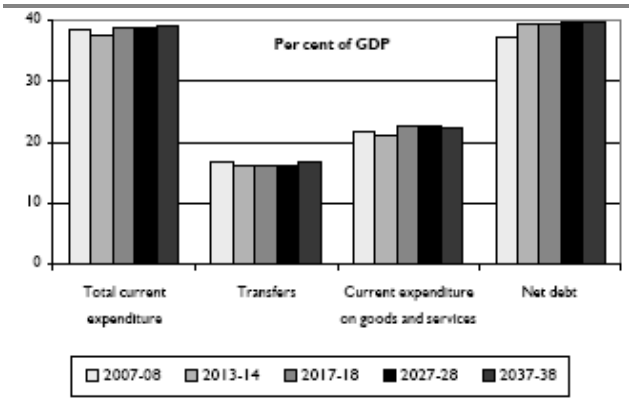


FIGURE II.K6. United Kingdom's Long-term Public Finance Report, 2008: Comparing current spending in top-down and bottom-up approaches

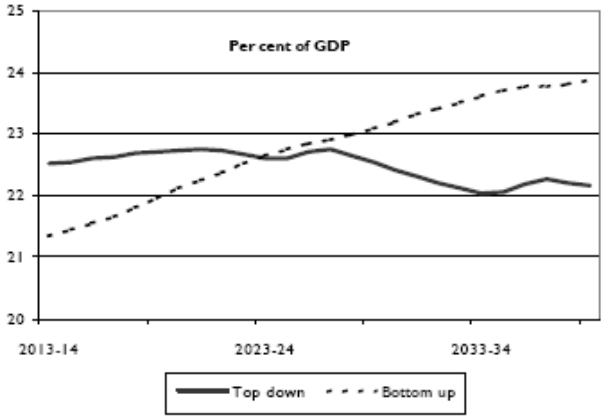


TABLE II.K1. United Kingdom's Long-term Public Finance Report, 2008: Fiscal gaps in baseline and variant productivity scenarios, percent of GDP[1]

Interest rate (percent)	2½	3	3½
Baseline scenario			
2027-28	¼	½	¾
2037-38	¾	1	1¼
2047-48	1	1¼	1½
2057-58	1½	1½	1¾
Lower productivity scenario			
2027-28	½	¾	1
2037-38	1¼	1¼	1½
2047-48	1½	1¾	1¾
2057-58	1¾	2	2
Higher productivity scenario			
2027-28	0	¼	½
2037-38	½	¾	1
2047-48	¾	1	1
2057-58	1	1	1¼

[1] Change to primary balance needed to attain net debt of 40 percent of GDP at end of target year. Rounded to the nearest quarter percentage point. The productivity growth rates are 2, 1¾ and 2¼ respectively

TABLE II.K2. United Kingdom's Long-term Public Finance Report, 2008: Intertemporal budget gap, percent of GDP

Discount rate (percent)	2½	3	3½
Lower productivity (1¾ percent)	3¾	4	4
Baseline (2 percent)	3¼	3½	3½
Higher productivity (2¼ percent)	2¾	2¾	3

Estimated fiscal gap, expressed in terms of an increase in tax revenue, under a range of discount rate and productivity assumptions.

TABLE II.K3. United Kingdom's Long-term Public Finance Report, 2008: Spending projections under variant population projections, percent of GDP

	2007-08	2017-18	2027-28	2037-38	2047-58	2057-58
Low population						
Education	5.0	5.4	5.3	5.2	5.0	5.1
State pensions	4.9	5.1	5.5	6.2	6.2	6.9
Health	7.4	7.9	8.5	9.2	9.5	9.9
Long-term care	1.2	1.2	1.4	1.6	1.7	1.8
Public-service pensions	1.5	1.8	2.0	2.1	2.0	2.1
Total age-related spending	20.1	21.4	22.8	24.3	24.4	25.8
Other spending	20.4	19.0	18.6	18.4	17.8	17.6
Total spending	40.5	40.4	41.4	42.7	42.3	43.4
Low life expectancy						
Education	5.0	5.6	5.8	5.6	5.5	5.6
State pensions	4.9	5.0	5.4	5.9	5.7	6.3
Health	7.4	7.9	8.6	9.3	9.0	10.3
Long-term care	1.2	1.2	1.4	1.6	1.6	1.6
Public-service pensions	1.5	1.8	2.0	1.9	1.8	1.8
Total age-related spending	20.1	21.6	23.2	24.4	24.5	25.7
Other spending	20.4	19.1	18.9	18.4	17.8	17.6
Total spending	40.5	40.7	42.1	42.8	42.3	43.3
Low migration						
Education	5.0	5.6	5.8	5.6	5.5	5.6
State pensions	4.9	5.1	5.6	6.4	6.5	7.4
Health	7.4	7.9	8.6	9.4	9.7	10.1
Long-term care	1.2	1.2	1.5	1.7	1.9	2.0
Public-service pensions	1.5	1.8	2.0	2.0	1.9	1.9
Total age-related spending	20.1	21.7	23.5	25.1	25.5	27.0
Other spending	20.4	19.1	19.0	18.7	18.2	18.1
Total spending	40.5	40.8	42.5	43.7	43.7	15.1
Old						
Education	5.0	5.4	5.3	5.2	5.0	5.0
State pensions	4.9	5.2	5.8	6.9	7.5	9.1
Health	7.4	7.	8.5	9.3	9.8	10.4
Long-term care	1.2	1.2	1.5	1.8	2.1	2.5
Public-service pensions	1.5	1.8	2.0	2.0	2.0	2.0
Total age-related spending	20.1	21.6	23.2	25.3	26.4	29.0
Other spending	20.4	18.9	18.7	18.7	18.5	18.6
Total spending	40.5	40.5	41.9	44.0	44.8	47.7

TABLE II.K4. United Kingdom's Long-term Public Finance Report, 2008: Revenue projections under different population assumptions, percent of GDP

	2007-08	2017-18	2027-28	2037-38	2047-58	2057-58
Low population	38.0	39.2	39.5	40.0	39.7	40.0
Low life expectancy	38.0	39.2	39.3	39.5	39.2	39.4
Migration	38.0	39.2	39.4	39.8	39.7	40.1
Old	38.0	39.2	39.7	40.4	40.5	41.3

II.K.4. Explicit disclosures

Revenues are decomposed into taxes on income and wealth, social contributions and other. Changes in revenues are based on demographic changes under its bottom-up projection. Moreover, sensitivity analysis is performed on revenue projections based on demographic change (i.e. its four population variants of "low population", "low life expectancy", "low migration", and "old"). Population projections are taken from latest ONS population projections for both baseline and sensitivity analysis.

TABLE II.K5. United Kingdom's Long-term Public Finance Report, 2008: Assumptions for principal and selected variant population projections

	Assumptions				
	Principal	Low population	Low life expectancy	Old	Low migration
Fertility rate[1]					
Life expectancy at birth (years) in 2031					
Males					
Females					
Long-term average annual net migration					

NOTES

1. Long-term average number of children per women

General assumptions used:

- Net migration discussed in terms of past trends;
- Assumptions for bottom-up and top-down approaches include population and labour market trends (participation rates, employment under different assumptions, and as a proportion of age cohorts), discount rates, productivity growth, and policy settings; and
- Productivity, employment and real GDP.

Specific to top-down approach used:

- Tax-to-GDP ratio constant after medium-term;
- The golden rule holds every year after the medium-term; and
- The sustainable investment rule is met every year over 30 year projection period.

II.K.5 Institutional linkages

Although definitive linkages between the long-term Report and policies can't be made, the Report has been presented together with the budget since 2008 and since 2002 together with the pre-budget report, and the analyses in the Report are linked to fiscal rules, both in terms of debt targets and for policy options.

II.L. UNITED STATES, OFFICE OF MANAGEMENT AND BUDGET: LONG-RUN BUDGET OUTLOOK

II.L.1 General Characteristics

- Fiscal projections spanning 75 years are updated annually by the Office of Management and Budget (OMB) in the Analytical Perspectives accompanying the President's Budget. Projections have been prepared on an annual basis since at least 1996.
- Fiscal indicators include the primary budget balance, budget balance, and federal debt held by the public for current public policies. None of these is described as the primary fiscal indicator, though the budget balance is used as the basis for sensitivity analysis.
- Sensitivity analyses of the impact of changes in demographic and macroeconomic assumptions (*e.g.* fertility, immigration, mortality and productivity) are routinely presented. Previous projections have also presented sensitivity analyses of different rates of growth of discretionary spending.
- Although not explicitly labelled as a policy option, revenue is routinely discussed as being "allowed" to increase or decrease as a percent of GDP. More recently, in the 2009 Budget, a projection based upon "entitlement savings" was also presented but not explained. However, all scenarios tend to be general and not related to specific policies.
- There have been no comparisons to previous projections in any of the Budget Outlooks to date. This applies to the values of the fiscal indicators, sensitivity analyses, or their underlying assumptions.

II.L.2 Overview Office of Management and Budget: Long-run Budget Outlook

The Office of Management and Budget Long-run Budget Outlook presents a 75 year projection of current federal policies in the "Economic assumptions and analysis" chapter of the "Analytical Perspectives" accompanying the President's Budget. There is no explicit legal basis for the preparation of fiscal projections. Although the five-year budget projections introduced in the 1971 President's Budget were called "long-term projections", these would be considered medium-term estimates today.

II.L.3 Sustainability analysis

There is no explicit definition of fiscal sustainability or fiscal indicators in which to frame analysis in the 2008 OMB Outlook. Fiscal indicators include the budget balance, the primary budget balance, and "federal debt held by the public" (see Box II.L1). However, in interpreting the projections, it is not clear what year is the base year for current policy assumptions. Revenue projections appear to extrapolate based on 2012 figures (*i.e.* the end of the government's five-year medium-term framework). It is unclear whether this is also the case for mandatory and discretionary spending categories. There is no comparison of the baseline projection relative to those in previous years.

Sensitivity analyses are routinely presented for demographic and macroeconomic assumptions on the budget balance but not on the primary budget balance or on federal debt held by the public. Changes in assumptions are discussed in text along with the different values of variant assumptions. However, no justification is provided for the higher and lower assumption values. Previous projections have also included sensitivity analyses of different rates of growth of discretionary spending. In the 1999 and 2000 President's Budget, sensitivity analyses were presented for discretionary spending growth, *e.g.* "current services", "discretionary spending grows with population" (in 2000); "inflation" and "population and inflation" (2001); "inflation" and "GDP" (2003). Between 2004 and 2008, no sensitivity analyses were presented regarding the rate of growth of discretionary spending.

BOX I.L1. Federal debt held by the public

Federal debt may be categorised four ways for reporting purposes: (1) gross federal debt; (2) debt held by the public; (3) debt held by government accounts; and (4) debt subject to statutory debt limit.

- ***Gross federal debt*** is the total amount of federal government debt comprising debt securities issued by the Department of the Treasury and other government agencies. It is the sum of "debt held by the public" and "debt held by government accounts" (*i.e.* intergovernmental debt).
- ***Debt held by the public*** it the gross federal debt held outside of the federal government. This includes any federal debt held by individuals, corporations, state or local governments, the Federal Reserve System, and foreign governments and central banks. It excludes debt held by government accounts (intragovernmental debt). Debt held by the public is not the same as public debt or Treasury debt.
- ***Debt held by government accounts (Intergovernmental debt)*** is the federal debt owed by the federal government to itself. Most of this debt is held by trust funds, such as Social Security.
- ***Debt subject to a statutory limit*** is that debt guaranteed as to principal and interest by the United States.

SOURCE: GAO (2005)

While not explicitly labelled as policy options, a sensitivity analysis of the budget balance with "allowed" changes in revenues as a percent of GDP have also been a routine component of the Outlook. There is, however, no description in the Outlook of what policy changes would achieve this new tax target. Additional policy options were in the 1997 and 2009 President's budgets: in 1997, two scenarios were presented comparing and contrasting the president's proposal with and without a balanced budget; in 2009, a baseline projection was compared with and without "entitlement savings". As in the case for the revenues, information on how to achieve these outcomes was not described.

II.L.4. Explicit disclosures

Fiscal projections are disaggregated into receipts, discretionary spending, Social Security, Medicare, Medicaid, other, and net interest. A technical note on the methods and sources of data underlying the fiscal projections is included at the end of the "Economic assumptions and analysis" in which the Outlook appears. Revenue projections are extended from the budget estimates and gradually return to their average level, as a share of GDP, from the last 40 years until the end of the reporting period. Mandatory spending follows projections by other authorities, adjusted for the macroeconomic assumptions presented in the President's Budget. Social Security projections are taken from the Social Security trustees; Medicare projections are based on those by the Medicare trustees; Federal pensions are derived from the most recent actuarial forecasts available at the time the budget was prepared.

The macroeconomic assumptions are drawn from the administration's budget for the first 10 years at which point they either converge to an average value or remain constant. Productivity growth is assumed equal to the average rate of growth in the administration's budget. Inflation, interest rates and the unemployment rate remain constant at the levels assumed in the final year of the budget forecast. While other assumptions are briefly mentioned in the discussion of the methodology, many are vague: *e.g.* Medicare includes the estimated long-run effects of the administration's policy proposals; and other entitlement programs are projected based on rules of thumb linking program spending to elements of the economic and demographic projections. Discretionary spending follows the growth of the administration's budget for 10 years before growing at the rate of nominal GDP after. There is, however, no comparison to the assumptions in the previous reports or comparison as to how they may have changed.

II.L.5 Institutional linkages

There is currently formal no institutional linkage between the fiscal projections by OMB, CBO and GAO and fiscal policies or other budget practices and procedures. The US does not currently have any deficit or debt rules, medium-term expenditure ceilings or revenue rules.

BOX II.L2. Past United States experience with fiscal rules and triggers

The Gramm-Rudman-Hollings Act introduced a deficit limit rule between 1985 and 1990 to reduce the size of the budget deficit annually until expenditures were in balance with revenues. Target figures were set, and if the President and Congress could not reach agreement on a budget package that met the target figure for a given fiscal year, then automatic across-the-board reductions (sequestration) were required.

The Gramm-Rudman-Hollings Act was replaced by the Budget Enforcement Act (BEA) of 1990. The BEA shifted attention away from fixed annual targets for the budget deficit to a PAYGO mechanism and caps on discretionary spending, thus exempting the automatic stabilising components of entitlement spending and taxes. Spending caps, or firewalls, on discretionary spending were initially separated into three areas: defense, international, and domestic spending. The caps on discretionary spending were in general set so that they were not allowed to grow as fast as inflation, although there were notable exceptions. The BEA also created a pay-as-you-go (PAYGO) process that required laws governing revenues and entitlement programs to be deficit-neutral in aggregate.

The caps and PAYGO mechanism in the BEA were originally designed with a sunset date of 1995 but were extended twice, first through 1998 and again through 2002. However, Congress and the President in effect abandoned the BEA around 2000 with the appearance of growing surpluses, and the BEA was not extended beyond 2002.

II.M. UNITED STATES, CONGRESSIONAL BUDGET OFFICE: LONG-TERM BUDGET OUTLOOK

II.M.1. General Characteristics

- Fiscal projections of current policies for 75 years are updated every one to two years by the Congressional Budget Office (CBO) in the Long-term Budget Outlook. Projections have been prepared since at least 1991.
- Fiscal indicators include the primary budget balance, budget balance, and federal debt held by the public. In addition, the fiscal gap is also presented, in particular, to illustrate the timing of reductions in non-interest spending at different periods of time.
- The CBO Outlook provides two projections: an extended baseline scenario and alternative fiscal scenario. Each is defined in a summary table and discussed in separate chapters of the CBO Outlook. There is no sensitivity analysis *per se,* or comparisons to previous projections.

II.M.2. Overview of Congressional Budget Office: Long-term Budget Outlook

The CBO's Long-term Budget Outlook provides a 75 year projection of current policies updated every one to two years. In addition, the CBO has produced a number of studies of the fiscal sustainability of proposed policies and policy options.[31] There is no explicit legal basis for the preparation of fiscal projections.

The CBO prepared Outlook projections since at least 1991, which spanned 10 years; in 1996 the projections were extended to 75 years, albeit only for Social Security and Medicare spending (CBO 1991; 1996).[32] More recent projections build on other reports focusing specifically on Social Security and health spending.[33]

II.M.3. Sustainability analysis

There is no explicit definition of fiscal sustainability or fiscal indicators in which to frame analysis within the CBO Outlook. It presents a baseline projection of government expenditure, revenue, the budget balance, the primary budget balance, and federal debt held by the public (see Figure I.M1 and I.M2). There is no explicit net debt target, sensitivity analyses of the projections, or comparisons of baseline projections between reports.

Two projections are made: the "extended-baseline scenario" and "alternative fiscal scenario". The extended-baseline scenario adheres most closely to current policies. The scenario's assumptions of current law imply that many policy adjustments that lawmakers have routinely made in the past will not occur. The alternative fiscal scenario is described as one interpretation of what it would mean to continue today's underlying fiscal policy. This scenario deviates from CBO's baseline, even within the first 10 years, and incorporates changes in policy that are widely expected to occur and that policy makers have regularly made in the past.

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31 See CBO (2008b); CBO (2008c); CBO (2008d)

32 These projections were refined and revised in 1997, 1998, 1999 (*Long-term Budgetary Pressures and Policy Options*), 2000, 2003, 2004, 2005 and 2007 (*The Long-term Budget Outlook*). 2004 projections was titled, Measures of the U.S. Government's Fiscal Position Under Current Law

33 See CBO (2001); CBO (2004); CBO (2005a); CBO (2006); CBO (2007a); CBO (2008).

FIGURE I.M1. The Long-term Budget Outlook, 2007: Revenues and spending excluding interest, by category, as a percentage of GDP under CBO's long-term budget scenarios, percent of GDP

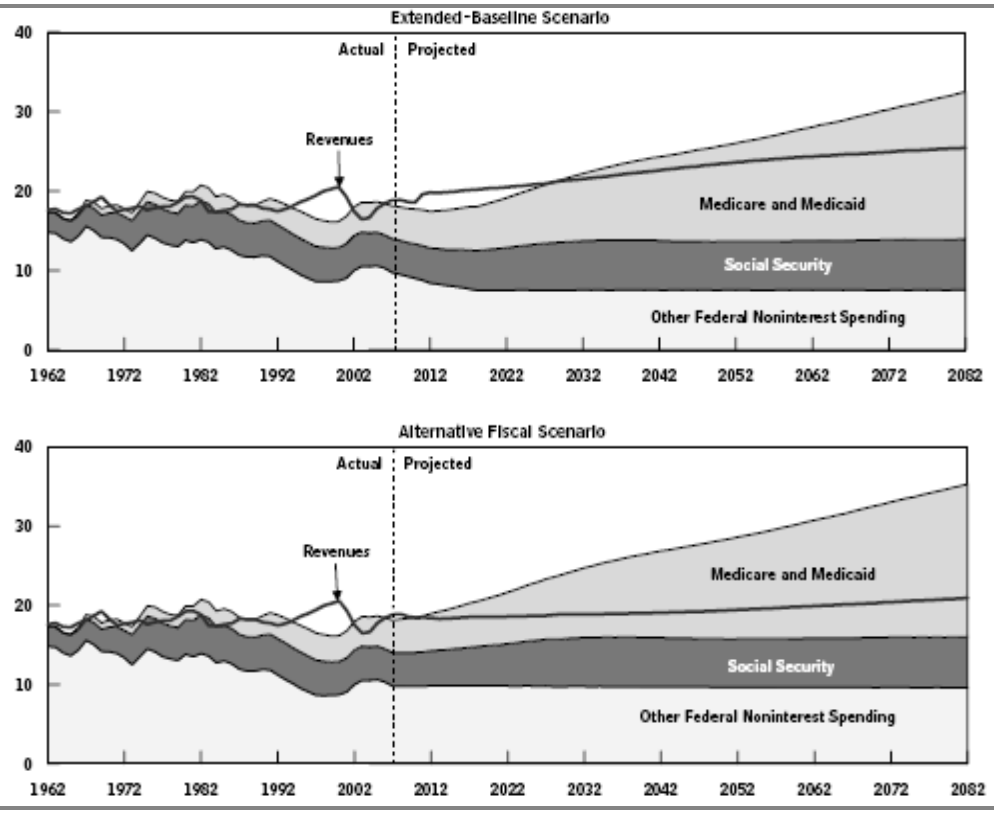


FIGURE I.M2. The Long-term Budget Outlook, 2007:
Debt held by the public as a percentage of GDP under CBO's long-term budget scenarios, percent of GDP

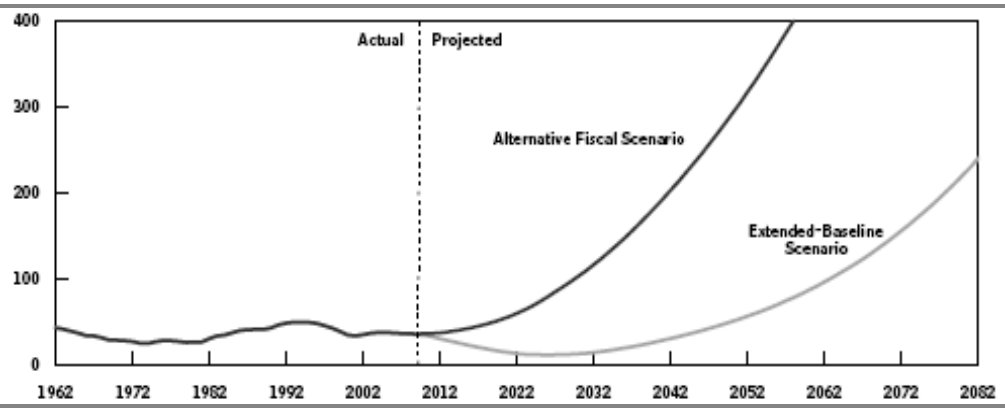
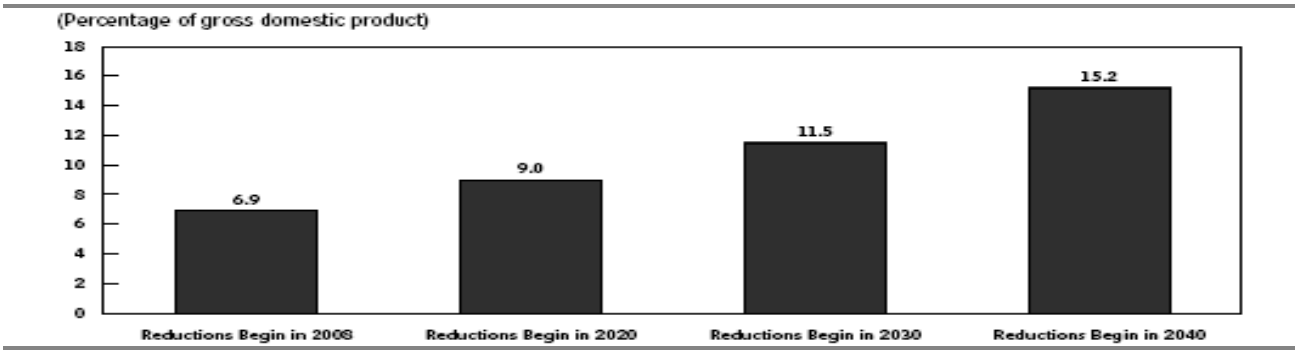


FIGURE I.M2. The Long-term Budget Outlook, 2007:
Reductions in non-interest spending needed to close the fiscal gap in various years under CBO alternative fiscal scenario



II.M.4. Explicit disclosures

Fiscal projections are decomposed into various tax and non-tax revenues, and mandatory and other spending categories. Spending categories are grouped by Medicare, Medicaid, Social Security, and "Other spending excluding interest". Revenue sources are presented for individual income taxes, corporate income taxes, payroll taxes, excise and estate and gift taxes, and other revenues. Assumptions for government revenues and spending used in the fiscal projections are presented in the tabular format for the two scenarios (see Table I.M1), and discussed in separate chapters.

Demographic and macroeconomic assumptions are not, however, presented in the report. Rather, they are presented in two separate reports: The Long-term Outlook for Heath Care Spending (November 2007) and Long-term Projections for Social Security (June 2004).[34]

TABLE I.M1. The Long-term Budget Outlook, 2007:
Assumptions about spending and revenue sources underlying CBO long-term budget scenarios

Assumptions about spending	Extended baseline scenario	Alternative fiscal scenario
Medicare	As scheduled under current law	Physician payment rates grow with the Medicare economic index (rather than using the lower growth rates scheduled under the sustainable growth rate mechanism)
Medicaid	As scheduled under current law	As scheduled under current law
Social Security	As scheduled under current law	As scheduled under current law
Other Spending Excluding Interest[1]	As projected in CBO's 10-year baseline through 2017, then remains at the projected 2017 level as a share of GDP	Remains at the 2007 share of GDP
Assumptions about revenues		
Individual Income Taxes	As scheduled under current law	2007 law with AMT parameters indexed for inflation after 2007[2]
Corporate Income Taxes	As scheduled under current law	As scheduled under current law
Payroll Taxes	As scheduled under current law	As scheduled under current law
Payroll Taxes	As scheduled under current law	Constant as a share of GDP for the entire period
Other Revenues	As scheduled under current law through 2017; constant as a share of GDP thereafter	As scheduled under current law through 2017; constant as a share of GDP thereafter

NOTES:
1. Federal spending on the refundable portions of the earned income tax credit and the child tax credit is not held constant as a percentage of GDP but is instead modeled with the revenue portion of the scenarios.
2. AMT = alternative minimum tax.

[34] Later updated in August 2008.

II.M.5. Institutional linkages

There is currently formal no institutional linkage between the fiscal projections by OMB, CBO and GAO and fiscal policies or other budget practices and procedures. The US does not currently have any deficit or debt rules, medium-term expenditure ceilings or revenue rules.

II.N. UNITED STATES GOVERNMENT ACCOUNTABILITY OFFICE: THE NATION'S LONG-TERM FISCAL OUTLOOK

II.N.1. General Characteristics

- Fiscal projections of central government sector for 75 years are updated three times a year. They have been prepared since at least 1992.
- Fiscal indicators include baseline projections and a fiscal gap analysis of the central government budget. The Outlook assesses each indicator for two scenarios: baseline extended; and alternative. There is no sensitivity analysis *per se.*

II.N.2. Overview of Government Accountability Office: The Nation's Long-term Fiscal Outlook

The GAO Long-term Fiscal Outlook is updated three times a year as new estimates come available from the CBO Budget and Economic Outlook, the Social Security and Medicare Trustee Reports, and the CBO Budget and Economic Outlook An Update.

Fiscal projections have been regularly published by the GAO since at least 1992 in response to a bipartisan request from members of Congress. Projections have steadily increased from 28 years in 1992,[35] to 55 years in 1997 (GAO, 1997), and to 75 years at present.

II.N.3. Sustainability analysis

Two fiscal indicators are presented in the GAO Outlook: the central government unified surpluses and deficits; and the fiscal gap.[36] The Outlook assesses each indicator for two scenarios: the baseline extended and an alternative. There is no sensitivity analysis *per se.* The baseline extended follows the CBO September baseline estimates for the first 10 years and then simply holds revenue and spending, other than for large entitlement programs, constant as a share of GDP. The alternative scenario is based on historical trends and recent policy preferences.

The unified surpluses or deficits are presented as a percentage of GDP, and are decomposed into the main categories of spending (see Figure II.N.1 and II.N.2 respectively for the baseline extended, and Figure II.N.3 and II.N.4 respectively for the alternative scenario). The main categories of spending include Medicare and Medicaid, Social Security, other spending and net interest. On occasion, projections have included a combined federal, state and local surpluses and deficits as a share of GDP. The federal fiscal gap is presented in both current dollar values and as a percentage of GDP. This is accompanied by an assessment of the necessary change in three variables (general revenues, individual income taxes, and non-interest spending) to close the gap (see Table II.N.1).

[35] The report was the second in a series addressing the long-term implications of the federal budget deficit. The first, *The Budget Deficit: Outlook, implications and choices* (September 1990), discussed the dimensions of the deficit problems, policy options that might be adopted to attack the problem and basic budget reform initiatives.

[36] The unified surpluses and deficits measures the amount by which the sum of the government's on-budget and off-budget receipts exceed the sum of its on-budget and off-budget outlays for a given period, usually a fiscal year. It is distinguished from the "Budget Surplus", i.e. the amount by which the government's budget receipts exceed its budget outlays for a given period, usually a fiscal year. Sometimes a deficit is called a negative surplus and is shown in parentheses in budget tables.

FIGURE II.N.1. GAO The Nation's Long-term Fiscal Outlook, September 2008 Outlook: Unified surpluses and deficits as a share of GDP under baseline extended and alternative policy simulations

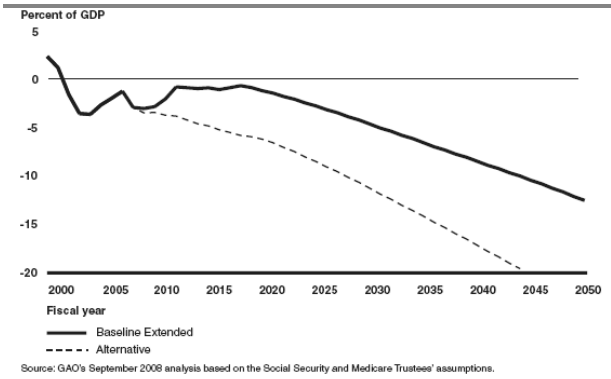


FIGURE II.N.2. GAO The Nation's Long-term Fiscal Outlook, September 2008 Outlook: Potential fiscal outcomes under baseline extended, revenues and composition of spending as shares of GDP

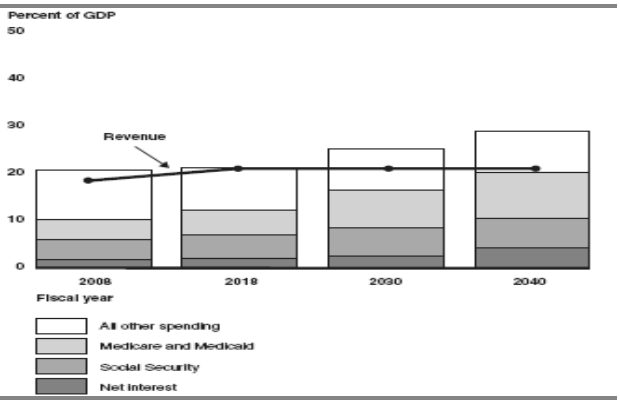


FIGURE II.N.3. GAO The Nation's Long-term Fiscal Outlook, September 2008 Outlook: Potential fiscal outcomes under alternative simulation, revenues and composition of spending as shares of GDP

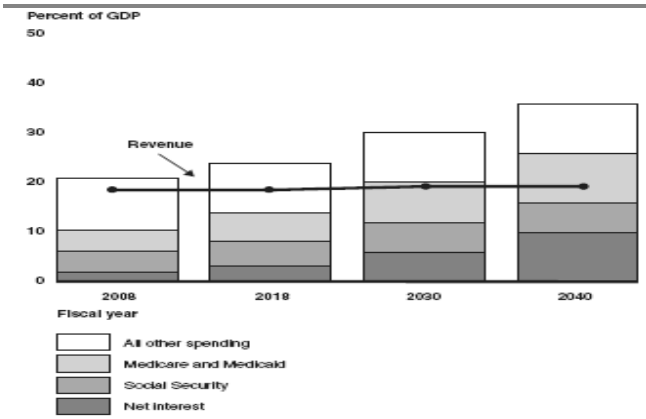


FIGURE II.N.4. GAO The Nation's Long-term Fiscal Outlook, September 2008 Outlook: Federal and combined federal, state and local surpluses and deficits as a share of GDP.

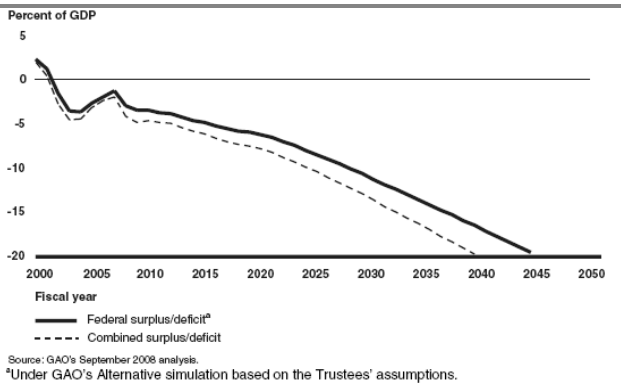


TABLE II.N.1. GAO The Nation's Long-term Fiscal Outlook, September 2008. Federal Fiscal Gap.

	Fiscal gap		Change required to close gap compared to today's levels		
	Trillions of 2008 dollars	Percent of GDP	Percent increase revenue	Percent increase individual income taxes	Percent decrease non-interest spending
Baseline extended	31.3	3.9	21.8	47.7	20.5
Alternative	56.1	7.0	39.1	85.6	36.6

II.N.4. Explicit disclosures

Fiscal projections are decomposed into revenues, mandatory Medicare, Medicaid, Social Security and "Other spending excluding interest". The difference in the assumptions for the GAO baseline extended and GAO alternative projections are compared and contrasted to those in the Trustees' assumptions for Social Security and Medicare; and the CBO baseline extended in a table format (see Table II.N2 and II.N3).

The GAO Outlook also routinely includes discussion of any changes in the methodology for the projections. For example, the January 2007 update notes changes in the baseline treatment of supplementary appropriations for disaster relief and military operations in Iraq and Afghanistan presented in CBO projections. The September 2007 update notes that the supplementary appropriation for Global War on Terror affects assumptions for discretionary spending. The May 2008 notes the change in methodology for Social Security and Medicare Trustee and revision of data related to "other legal permanent resident population" (i.e. undocumented and temporary legal residents).

TABLE II.N2. GAO The Nation's Long-term Fiscal Outlook, September 2008:
Assumptions for Baseline Extended and Alternative Simulation Based on the Trustees' Assumptions for Social Security and Medicate

Model input	Baseline Extended scenario	Alternative scenario
Revenue	CBO's September 2008 baseline through 2018; thereafter remains constant at 20.4 percent of GDP (CBO's projection in 2018)	All expiring tax provisions are extended through 2018; thereafter equal to 40-year historical average of 18.3 percent of GDP plus revenue from tax-deferred retirement plans
Social Security spending	CBO's September 2008 baseline through 2018; thereafter based on 2008 Social Security Trustees' intermediate projections	Same as Baseline Extended
Medicare spending	CBO's September 2008 baseline through 2018; thereafter 2008 Medicare Trustees' intermediate projections that assume per enrollee Medicare spending grows on average 1 percent faster than GDP per capita over the long term	2008 Trustees' intermediate projections adjusted for the Centers for Medicare & Medicaid Services' (CMS) alternative assumption of 0 percent physician payment rate updates in the first 10 years
Medicaid spending	CBO's September 2008 baseline through 2018; thereafter CBO's December 2007 long-term projections adjusted to reflect excess cost growth consistent with the 2008 Medicare Trustees' intermediate projections	Same as Baseline Extended
Other mandatory spending	CBO's September 2008 baseline through 2018; thereafter remains constant as a share of GDP 2.0 percent of GDP (i.e. increases at the rate of economic growth)	Baseline Extended through 2011, then adjusted for extension of certain tax credits through 2018; thereafter remains constant at 2.1 percent of GDP
Discretionary spending	CBO's September 2008 baseline through 2018; thereafter remains constant at 6.8 percent of GDP	Increases at the rate of economic growth starting after 2008 (i.e., remains constant at 7.9 percent of GDP)

TABLE II.N3. GAO The Nation's Long-term Fiscal Outlook, September 2008: Key Assumptions Underlying GAO's Simulations Using CBO's Entitlement Spending Projections[1]

Model input	Baseline Extended scenario	Alternative scenario
Social Security spending	CBO's September 2008 baseline through 2018; thereafter CBO's August 2008 projections that assume full benefits as calculated under current law are paid regardless of the amounts available in the trust funds. These projections are based on the 2008 Social Security Trustees' demographic projections and CBO's own economic assumptions	Same as Baseline Extended
Medicare spending	CBO's September 2008 baseline through 2018; thereafter CBO's December 2007 projections based on current law. Per enrollee Medicare spending grows on average 1.7 percentage points faster than GDP per capita over the long term.	CBO's projections that assume physician payment rates grow with inflation (using the Medicare economic index [MEI])[2]
Medicaid spending	CBO's September 2008 baseline through 2018; thereafter CBO's December 2007 long-term projections based on current law. Per enrollee Medicaid spending grows on average 0.9 percentage points faster than GDP per capita over the long term.	Same as Baseline Extended

NOTES:
1. CBO's projections are from Updated Long-Term Projections for Social Security (August 2008) and The Long-Term Budget Outlook (December 2007).
2. This is slightly higher than the assumption used in GAO's alternative using the Trustees' assumptions. In the Trustees' analysis, expenditures under the MEI-based update are 22.5 percent higher than current law by 2017, whereas expenditures under the 0 percent update are only 16.8 percent higher.

II.5. Institutional linkages

There is currently formal no institutional linkage between the fiscal projections by OMB, CBO and GAO and fiscal policies or other budget practices and procedures. The US does not currently have any deficit or debt rules, medium-term expenditure ceilings or revenue rules.

ANNEX I: LIST OF COUNTRY FISCAL PROJECTIONS

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