Challenges and Choices

New Zealand's Long-term Fiscal Statement

October 2009

THE TREASURY
Kaitohutohu Kaupapa Rawa

New Zealand Government

Presented to the House of Representatives Pursuant to Section 26N of the Public Finance Act 1989.

URL on Treasury website at October 2009: http://www.treasury.govt.nz/governmentfinances/longterm/fiscalposition/2009
Persistent URL: http://www.purl.org/nzt/o-1243 ISBN: (Print) 978-0-478-33087-8 (Online) 978-0-478-33089-2

Photo courtesy of Taranaki Daily News

Contents

Statement of Responsibility under Section 26N of the Public Finance Act (1989)

The Treasury has used its best professional judgements about the risks and the outlook in preparing this *Statement* on the New Zealand Government's long-term fiscal position.

This *Statement* on the New Zealand Government's long-term fiscal position relates to a period of at least 40 consecutive financial years, commencing with the 2009/10 financial year.

John Whitehead
Secretary to the Treasury

29 October 2009

Forecasts and projections

In this *Statement*, the term forecasts refers to data from *Budget 2009* that were our best attempts to predict economic and fiscal variables out to 2013. The best data available at the time, various modelling and forecasting tools, and the expertise and experience of many individuals were all used to produce these forecasts. They attempted to factor in the impacts of any policies or events that, while not in existence at the time, were planned to occur over the next five years.

Projections refer to extensions of the forecast base into the longer term out to 2050. They apply assumptions, often based on long-term averages, to grow forward variables from their forecast base. Generally, assumptions are based on current policies. Future policies or events beyond those incorporated in the forecast base are not normally introduced. Unlike forecasts, projections should not be thought of as the best current view of likely future outcomes. Rather, they simply represent potential outcomes in the post-forecast years, which are entirely dependent on the assumptions lying behind them.

1 Introduction

This *Statement* is about New Zealand's long-term fiscal outlook – the government's spending and revenue – and what drives it. It is also about the country's future and the big issues the public and government are going to have to think about if we want to maintain or improve our living standards and public services.

This document shows we simply can't keep doing what we have done without significantly increasing taxes or debt. We need to look at how to avoid unnecessary costs and what policies make sense for the long term – which means considering the impact of population ageing and what will work across generations.

New Zealand has a good record of governments providing information that allows the public to debate and judge the quality of fiscal policy and actions. Requiring the Treasury to publish this *Statement* is another of these mechanisms, and an attempt to make us focus on a much longer timeframe.

That long-term perspective is something all countries are considering as the developed world faces major demographic change. New Zealand's shift to an ageing population will accelerate soon, as the first baby boomers begin to retire from 2011 – and then live more than a further two decades on average. That is a great outlook for most individuals. However, it simply magnifies the major fiscal challenge facing government – spending that is a lot higher than revenue, and rising debt.

Our experience of the past 12 months shows that there is a lot we need to think about. The global financial crisis and the worldwide recession have reminded us that economic shocks do and will occur. Economic growth, increasing government revenue and operating surpluses cannot be taken for granted. When the first *Statement on the Long-term Fiscal Position* was produced in 2006, it reported that there was time to consider any policy response as the starting point was "the strong current fiscal position of the New Zealand Government." In 2006, the demographic and fiscal pressures meant that, 25 years from that date in around 2030, the government's accounts might move into deficit.

Three years and one recession later, we are facing that future now. The government's accounts are already in significant deficit and these are forecast to last for a few more years yet. A lot of the headroom we had, financially and just as importantly in time, has disappeared.

So looking at the big issues of government spending, public debt, the tax we need to pay for it – and of course our ageing population – is suddenly much more relevant.

This is the Treasury's document. It contains our projections, based on our knowledge of government finances, policy trends and core statistics on population and it reflects our assumptions. Governments make policy decisions and what is set out here is not government policy.

But having already produced one of these documents and set out the limitations of what economic modelling can do 40 years out, we want this *Statement* to help this and future governments and the New Zealand public to think about what the major fiscal challenges are and what some different ways of dealing with them might be.

It does this by looking at a range of indicators of overall fiscal management such as the operating balance, debt and tax levels, and the government's balance sheet – and also by looking at a representative "basket" of public services that are provided to taxpayers. These are different ways of looking at the same picture and trying to make the issue of government financial management over time more understandable and real to people. While the modelling is technically rigorous, our scenarios are illustrative and simply show the possible impact of different choices, actions or inaction.

We therefore don't want readers to focus too much on the details. This really is a case where the bigger picture is important. After all, we know that just as households cannot continually spend more than they earn, too much government spending inevitably means higher debt or higher taxes and that is the issue this *Statement* examines.

And behind all of the numbers we recognise that these are major issues about the way we live and work, the public services we want as a nation, the lifestyle we aspire to and how New Zealanders and their governments can provide and pay for these.

I know people will react to the information in this document; they will not like some of the scenarios and options described. I'm sure most of us would like a more positive outlook. But rather than wish the problems away, what the *Statement* does is bring together information about what is happening now, and then projects forward to describe what could happen from here. It also sets out what can be done so that projections of public debt rising to 223% of Gross Domestic Product (GDP) do not occur.

Three key points come through.

We need to make choices about what the government buys, total spending and taxes. Managing long-term fiscal challenges will require tough choices and trade-offs to be made about government spending and taxation. In the end, it is the aggregate cost of everything we are doing that matters. Some areas can have more funding and some less – but we have to control the growth in new spending each year if we do not want high debt or taxes. This is particularly important as demographic change is permanent and the ageing population will place increasing pressure on government spending.

Growth helps, but it will not completely solve the problem. Economic growth helps raise national wealth and individual incomes, and is an important goal in itself. Policy reforms that support higher productivity and faster economic growth will be an element of dealing with the long-term fiscal problem, and improving public sector productivity is particularly important. However, relying on growth alone will not be enough. Some government spending is linked to increased growth, through wages and pensions. And more economic growth will not provide all the tax needed to deal with the level of public spending.

Early, gradual changes can help. Planned and incremental change is far more likely to be positive and successful than a drastic reaction that is forced on New Zealand. All of the projections of exploding debt start with small fiscal problems that grow rapidly larger. But this same pattern – like compounding interest – also occurs in reverse with positive fiscal actions. And strong fiscal settings, like having debt under control, provide more flexibility when things do go wrong. As we've been reminded by recent history, negative shocks do happen.

The choices we make as a country about what the government provides, and how, are critical. What we spend now on education, roads, superannuation, prisons, health, benefits and long-term care is the result of decisions taken by policy makers. The choices about spending and revenue we make now will determine not only the services currently provided and how they are paid for, but will also shape New Zealand's future.

This *Statement* does not attempt to provide advice on which specific policies governments should adopt to address New Zealand's long-term fiscal situation. However, in the interests of stimulating debate, under various sector headings we do canvass some ideas that could be considered.

The impact of the economic shock means New Zealand, like most countries in the developed world, has had to make important decisions to deal with recession and rising unemployment, and deficits and rising debt. On top of those challenges, the government has the enduring task of doing what it can to raise living standards and improve social outcomes and of continually making choices about what public money should be spent on, how services should be provided and how much tax is raised and in what way.

That's a difficult task. I hope this document helps frame the issues, generates discussion and debate and perhaps begins to provide the shape of some answers.

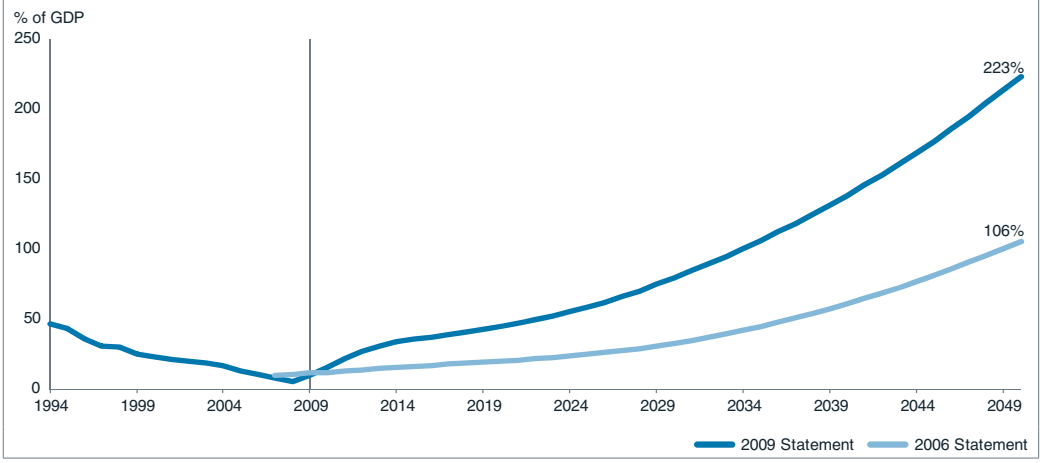
John Whitehead
Secretary to the Treasury

Part A – the issues

2 Key issues

- The long-term fiscal outlook has deteriorated significantly since 2006. In 2006, when the first *Long-term Fiscal Statement* was produced, net public debt was projected to reach just above 100% of GDP in 2050. Now, if government spending returns to historic patterns, it is likely to reach more than 220% of GDP midway through the century.
- The major change between 2006 and 2009 has been that the government's budget is already in deficit (by $5.9 billion in the *Crown Financial Statements*). In 2006, it was projected to remain in surplus for roughly another 25 years.

Figure 2.1 – Net debt[1]

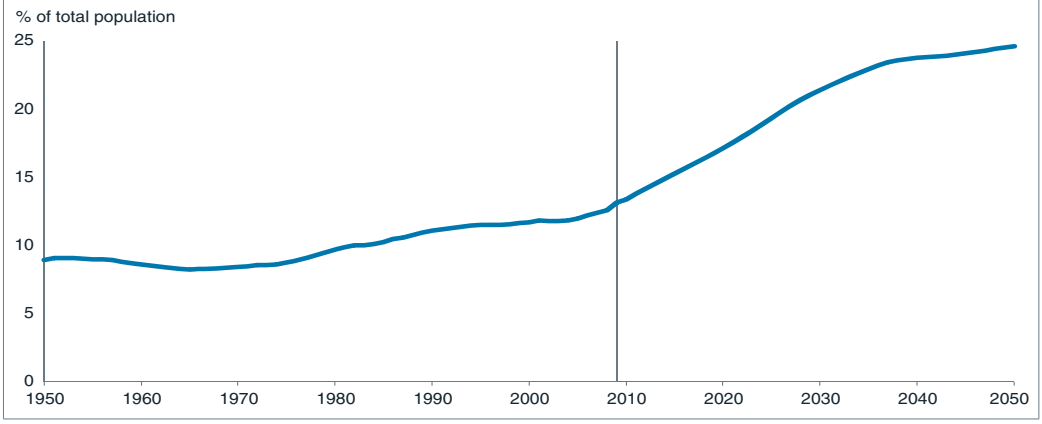


Source: The Treasury

- Around half of the difference between the 2006 and 2009 projection is due to the lower revenue and increased expenses associated with the 2008/09 recession and the downward revision to economic growth and revenues over the next few years. The remainder is due to increased costs in existing programmes and changes to government policy over the past three years.
- New Zealand's nominal (including inflation) economic growth averaged 5.2% a year over the past 15 years. Spending increased 6.3% a year in that period. Health spending increased 7.6% a year, justice 7.0% and education 7.2%.
- Dealing with budget imbalances means spending less, taxing more or borrowing. Government deficits require borrowing and increased debt to finance them – debt builds debt. The long-term fiscal problem is "solved" if governments have budget surpluses over time.
- The government is currently issuing around $250 million a week in debt.

- Tax and debt can be used to manage fiscal challenges, but both can increase long-term fiscal pressures:
  - Debt transfers costs to future taxpayers, adds interest costs and means the country is less well placed to deal with shocks.
  - Higher taxes can limit growth – meaning a smaller economy and lower revenue.
- Achieving higher economic growth means a larger economy and higher national incomes, but on its own growth will not solve fiscal problems because of the linkages between growth and spending.
- Demographic change adds to the long-term fiscal pressures. We are facing a permanent change from a younger to older population as people live longer and have smaller families. The baby boomers do not cause this trend, but they do accelerate it.
- By 2050, the total population is projected to have grown by around 25%, while the number of people aged over 65 is projected to have increased by around 150%. By mid-century, the number of people 85 and older will have grown by about 400% – to 330,000 from 67,000 now. These changes will accelerate over the next few years.

Figure 2.2 – People aged 65 years and over



Source: Statistics New Zealand, Series 5 projection

- There has been a major change in life expectancy at birth over recent decades. Over the past 55 years it has increased by about two years every decade. Although this rate is projected to slow, a person turning 65 in 2050 would still expect to live an additional 24 years, 4.4 years more on average than a 65-year-old in 2008.
- Population ageing is important fiscally because 25% of government spending is currently spent on the 12% of the population aged over 65.
- The first baby boomers will receive New Zealand Superannuation (NZS) from 2011 and the numbers of new superannuitants will peak in the late 2020s.
- Population ageing is likely to cause a slowdown in economic growth because of the shift to a relatively smaller working-age population.

3 The fiscal outlook

When the first *Statement* was produced in 2006, the environment was relatively benign. The domestic economy had been growing for seven years, there was strong economic growth in Asia and our other trading partners were doing well, and the major features fiscally were government surpluses and decreasing levels of debt. Three years ago we faced around 25 years of surpluses in which to begin to make adjustments to manage the longer-term spending pressures that would emerge and the resulting shift to deficits and debt. While the 2006 *Statement* said there was a problem with the long-term outlook, it was hard to reconcile that message with what was happening at the time.

Now, the impact of the world financial crisis and five quarters of domestic recession makes the longer-term fiscal task more difficult and more urgent. The recession has highlighted a structural imbalance between spending and tax. We already have *Budget* deficits – a $5.9 billion deficit in the year to June 2009 – and deficits are forecast to continue for the next few years. This means mounting debt. While the Government's 2009 *Budget* included decisions that would stop debt rising as dramatically as was projected pre-*Budget*, debt is still getting higher. *Budget* forecasts showed net debt rising to $62.6 billion in 2013 (31% of GDP) and peaking at 36% of GDP in 2017.

Table 3.1 – Fiscal position

June years	2006	2009
Surplus/deficit *(core Crown operating balance)*	$6.2b 3.9% GDP	-$5.9b -3.3% GDP
Net government debt	$16.2b 10.2% GDP	$17.1b 9.5% GDP

Source: The Treasury

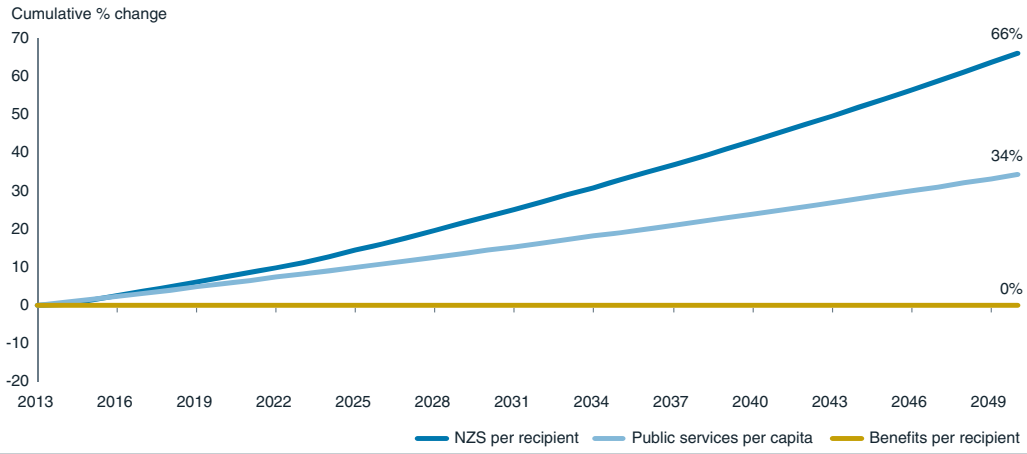
In projecting the long-term fiscal position, our starting point is the 2009 *Budget* forecasts out to 2013. The actual outturn for the year to 30 June 2009 shows net debt around $17 billion, about $1.5 billion larger than was forecast in the May *Budget*. However, recent indicators suggest that economic growth and the fiscal outlook for the next few years will be stronger than forecast. Nevertheless, the significant thing to note for this *Statement* is that the present Government has adopted an operating allowance for new spending of $1.1 billion (plus inflation) each year over the forecast period. This is significantly less new spending in each *Budget* than previously – for example, the allowances (excluding revenue initiatives) in *Budget 2007* were around $3.3 billion and $2.4 billion in *Budget 2008*.

The major change between the projections in this *Statement* and the *Budget* forecasts is that, beyond 2013, we assume that governments resume historic trends in spending and provide new public goods and services at similar rates to those over the past 20 years. The following graph illustrates this by breaking government spending into three main components – superannuation, working-age benefits and then all the other goods and services (a notional "basket" of public

services) that are provided to New Zealanders. This basket includes a wide range of goods and services including health, justice, education and defence. We separate out NZS and working-age benefits from publicly-funded services because they are transfers and traditionally sit outside the *Budget* process. By this we mean that the total spending on benefits and superannuation are set by the number of recipients and how these payments are linked to wages or inflation; even if spending increases, this is not considered part of the Government's new spending allowance.

Each line in Figure 3.1 represents the real value of each of these three parts of government spending on a per person basis. As most working-age benefits are adjusted against inflation (Consumers Price Index (CPI) indexed), the real spending power of the average working-age benefit recipient is projected to remain unchanged. Those getting superannuation will get growth in their spending power, because NZS is indexed to wages and we assume wage growth of 1.5% above inflation. This results in a cumulative 66% increase in the spending power of NZS recipients over the next 40 years – the same as the increase projected for the average worker over that period. Finally, the basket of publicly-funded goods and services, which is provided across the whole population (including NZS and welfare benefit recipients) is calculated on a per person basis and increases by 34% over the next 40 years. This is consistent with the estimated average annual growth in the basket of about 0.8% over the past 20 years. We therefore refer to this scenario as the historic trends scenario. Further details on this and the other scenarios in this *Statement* are outlined in Appendix 1 – key assumptions, and will be discussed in more detail in an accompanying technical paper.

Figure 3.1 – What individuals receive from the Government – inflation-adjusted



Source: The Treasury

Overlaying these per-person projections with changing demographics and our assumptions for public sector productivity and per-unit cost increases (such as wages), total government spending excluding finance costs is projected to increase from 34.5% of GDP now to 36.6% in 2050.

The historic trends scenario projects taxes rising along with spending for some time. Consistent with the Government's 2009 *Fiscal Strategy Report*, we assume that current tax settings remain in place

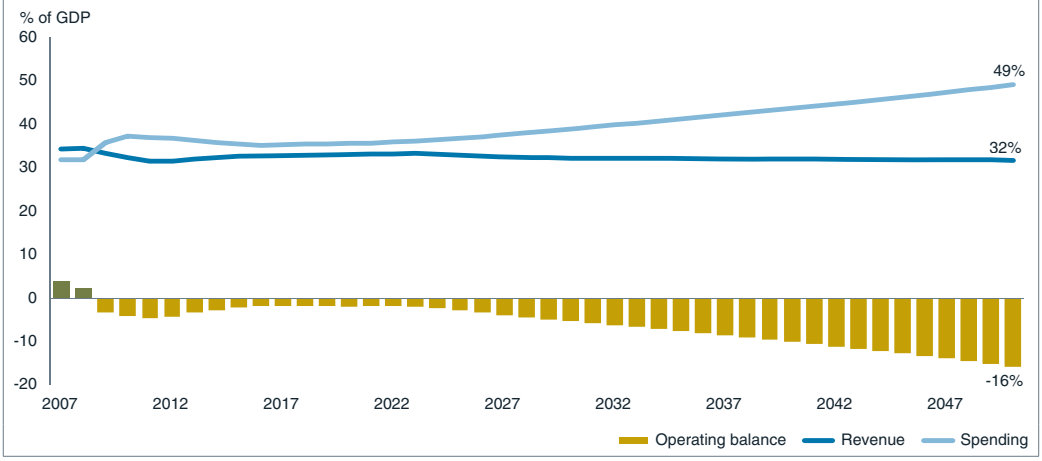
until 2023. The structure of income taxes means that, if tax thresholds are not adjusted in line with real income growth and inflation, all salary and wage earners pay higher tax as their incomes rise – what is called "fiscal drag". Consequently, our historic trends scenario shows tax-to-GDP increasing to 30.9% by 2023 from around 29.5% now, mainly through fiscal drag. This would mean an average wage earner, who is projected to earn more than $70,000 by around 2023, would be facing the top tax rate of 38%.

The evidence is that people try to avoid additional tax liabilities – for example, by changing the way they earn their income, or engaging in tax avoidance activities – when taxes are perceived as high.[2]

From 2024 onwards (via a combination of threshold increases and rate reductions) our historic trends scenario gradually reduces the extra revenue generated by fiscal drag, so that the tax to GDP ratio returns to a more average level over the remainder of the projection.

Even with this tax assumption, and with fiscal drag over the next 14 years, core Crown revenue is below spending throughout the projection, resulting in deficits for the next 40 years.

Figure 3.2 – Spending, revenue and operating balance



Source: The Treasury

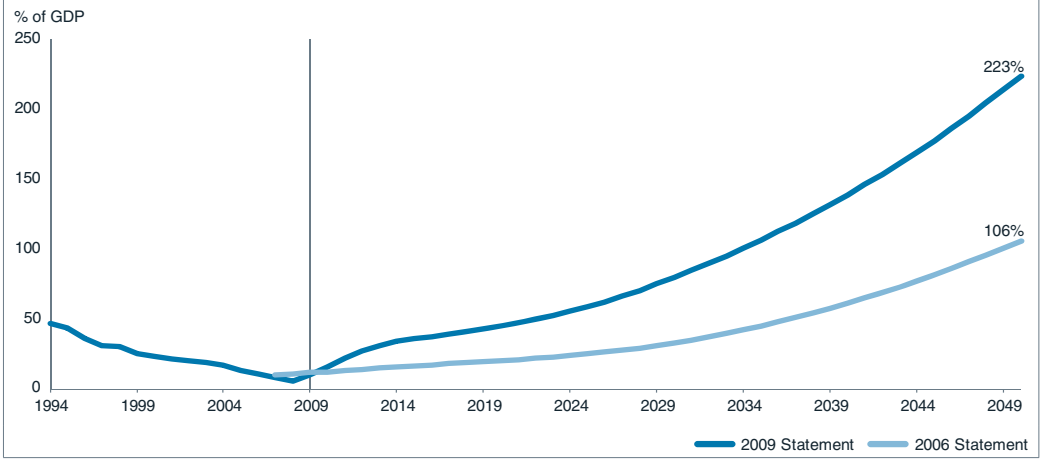
Overall, this means debt is now projected to be markedly higher in 2050 than it was in the 2006 *Statement* – net debt would be 223% of GDP in 2050. Around half of the difference between the 2006 and 2009 projections is due to the lower revenue and increased expenses associated with the 2008/09 recession and the downward revision to economic growth over the next few years. The remainder is due to increases in government spending and lower revenue not explained by the changed economic outlook. This includes revised forecasts for existing policies as well as new policies implemented over the past three years, such as the introduction of KiwiSaver, the 2008 and 2009 business and personal tax cuts and increased Working for Families entitlements.

Combined, the economic and fiscal policy changes mean that we start in deficit, and then debt deteriorates further over time because of increased spending, reduced tax revenue and spiralling

debt-servicing costs. This highlights how changes to the economic outlook and fiscal policies, even in the near term, can have a marked impact on the long-term fiscal position. However, as discussed in section 4, while changes in the economic outlook can have a marked impact on the long-term fiscal outlook, unless there is an extraordinary improvement in New Zealand's economic performance, difficult policy choices will have to be made to ensure a sustainable long-term fiscal position.

Revised demographic projections since 2006 have had very little effect. On balance, modelling improvements since the last *Statement* have resulted in a lower 2009 net debt projection than would have been the case using the 2006 approach.

Figure 3.3 – Net debt

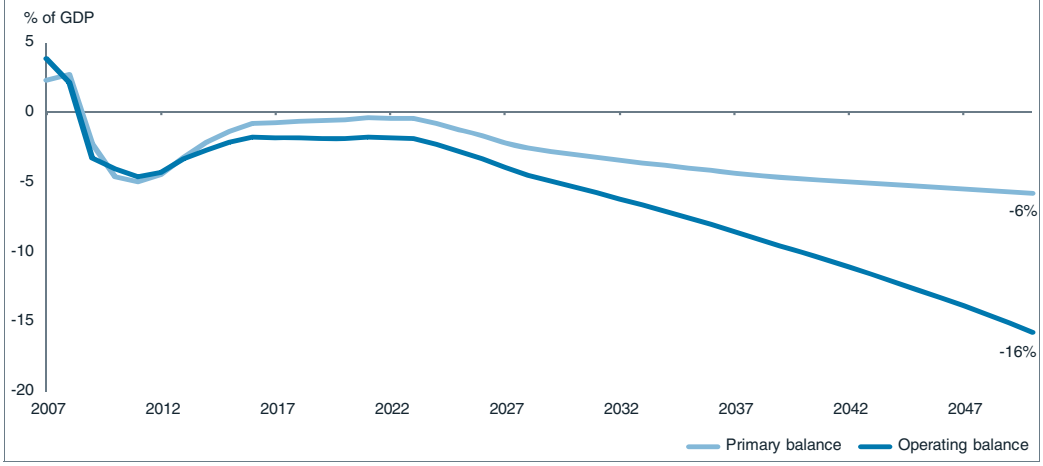


Source: The Treasury

The effects of high debt

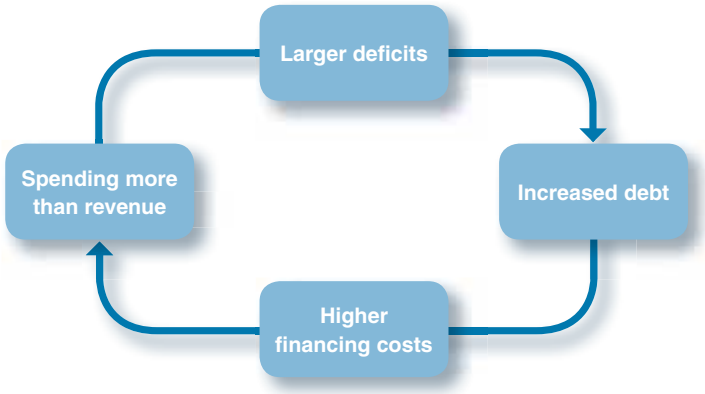
The reason the historic trends scenario results in such a sharp increase in net debt is because spending – even excluding finance costs – is higher than tax revenue, resulting in permanent primary deficits and increased debt. The primary balance is the operating balance less net finance costs,[3] and isolates the underlying gap between policy-related spending and revenues from the effects of debt servicing (Figure 3.4). Increased debt results in increased financing costs, which feeds into ever-increasing operating deficits.

Figure 3.4 – Primary balance and operating balance



Source: The Treasury

Figure 3.5 – The debt spiral



Source: The Treasury

Using debt to finance increased government expenditure in this way means that future taxpayers will be paying for the government services enjoyed today. With net debt projected to increase so sharply, debt financing costs increase over time, using a larger and larger share of future government income. In 2050, debt servicing would be around $110 billion (13% of GDP) annually.

The fact that New Zealand typically has higher interest rates than many other developed economies means that our financing costs are higher for a given level of debt. Furthermore,

because net debt continues to increase indefinitely in the historic trends scenario, financing costs also increase exponentially.

In addition to the increased financing costs, funding the deficits through increased debt means future generations are burdened by greater debt than we currently have; it will impair New Zealand's national debt position and our access to capital at a reasonable cost; and it leaves a smaller buffer against further economic and fiscal shocks – which are almost certain to occur over a 40-year period.

4 Could things be different?

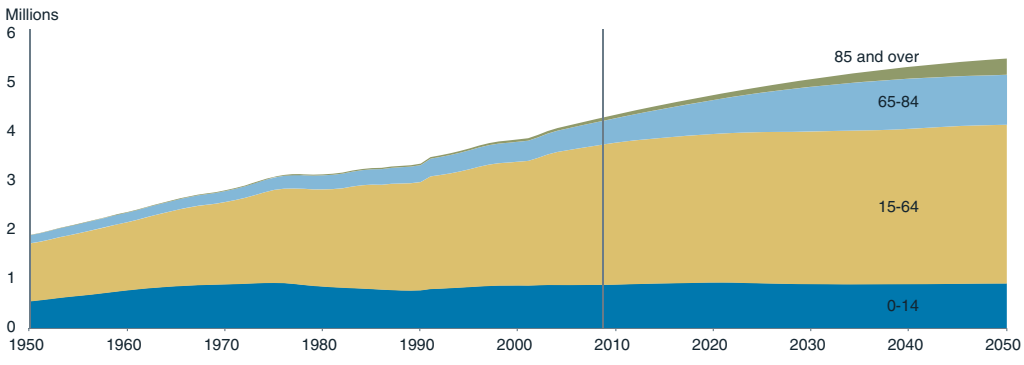
This *Statement* uses modelling to illustrate the effects of various factors like economic and population changes, and government policy and spending decisions, on the long-term fiscal outlook. The scenarios in this document are based upon a number of assumptions, including economic growth, public sector productivity and demographic changes around fertility, mortality and migration. While we think all of these assumptions are plausible, it is easy to come up with different plausible assumptions that change the long-term projections. This section examines those assumptions and looks at what effect different factors may have on the fiscal position.

Demography

- New Zealand's future population will have a rising proportion of older people, a falling share of people in the prime working years and relatively fewer children. The impending retirement of the baby boomers brings this change forward.
- The number of people over 65 is projected to grow two and a half times by 2050, while those 85 and over will grow five-fold.
- Population ageing is likely to cause a slowdown in economic growth because of the shift to a relatively smaller working-age population. It will also have major effects on government spending and revenue.
- Already, 25% of government spending is on the 12% of the population aged over 65.
- The first baby boomers will receive NZS from 2011 and the number of new superannuitants will peak in the late 2020s.

Population ageing is a long-term international trend driven by people living longer lives and having smaller families. In New Zealand, as in many other countries, the post-World War II baby boom overlays this ageing trend.

Figure 4.1 – Population by age



Source: Statistics New Zealand, Series 5 projection, produced for the Treasury, March 2009

Projections prepared for Treasury by Statistics New Zealand show the working-age group (those aged from 15 to 64) growing steadily for the next 50 years so that it is 13% larger in 2050. Under this baseline projection, the number of people aged 65 and older climbs from 553,000 to 1.35 million. This elderly group is also ageing: by mid-century, we will have about 330,000 people 85 and older, compared with just below 67,000 now.

These numbers highlight the second driver of an ageing population – the major increase in life expectancy. A person turning 65 in 2050 would expect to live another 24 years, 4.4 years more on average than a 65-year-old in 2008.

The latest estimate of life expectancy at birth for males is 78 years and for females is 82.2 years. In the early 1950s, these numbers were 67.2 and 71.3 years respectively. Looking ahead, Statistics New Zealand assumes that male life expectancy at birth moves to 84.5 years in 2050, while female longevity rises to 88 years (medium case).

The unprecedented demographic trends mean the old-age dependency ratio – the ratio of people aged 65 and older relative to the working-age population aged 15 to 64 – rises from 19% in 2009 to 42% in 2050. The following table shows that the ratio of people 65 and older to those between 15 and 64 more than doubled in the 100 years to 2000, and will do so again in the next 50 years.

Table 4.1 – People 65 and older for every 100 aged between 15 and 64

1900	1950	2000	2050
			
8	14	18	42

Source: Statistics New Zealand

These population shifts in New Zealand are already underway. But they are about to accelerate, with the first baby boomers retiring in 2011; most of the change in the population will occur over the next 20 years.

Labour market

Clearly, people living longer and healthier lives is a good thing. The issues with demographics are the impact on the economy of having relatively fewer people of what is currently working age and the fact that a significant part of government spending is on services (mainly health spending) and support (mainly superannuation payments) for older people. In short, there will be relatively fewer people to drive the economy and more people requiring government services and support.

Part of the solution to both issues will be for people to continue working later in life. The changes to population age structure will mean that extra workers will be demanded. As life expectancy will

continue to increase steadily and we expect the incidence of disease will also reduce steadily, more people will live healthy, active lives into what was once considered "old age".

We know a lot about what workers and superannuitants are likely to do over the next 20 years – they are alive now and the majority are already in New Zealand. The trend is for people to work more years after 65, and not simply retire, and for them to work fewer hours. Workforce participation rates for people over 65 rose through the 1990s and have continued moving upwards to be among the highest in the Organisation for Economic Co-operation and Development (OECD). However, there is still a sharp fall in the proportion of people who continue to work either full- or part-time after reaching 65.

International policy responses to ageing

There is considerable diversity in the extent of population ageing around the world and the policy responses to it. Japan, for instance, is likely to have 74 people aged 65 and over for every 100 aged 15 to 64 by 2050, and its population will be shrinking. Conversely, the United States could have only 34 older people for every 100 between 15 and 64 by mid-century.

France and the Nordic countries are addressing low birth rates with cash transfers to families, ensuring the availability of part-time work and formal child care and their flagging fertility rates have returned to replacement levels. Countries have begun changing spending programmes that were most affected by ageing. Pension schemes with defined benefits were closed or converted earnings indexation to inflation indexation. Several governments have announced that the age for receiving pension payments would rise and are attempting to close down early retirement pensions.

Others are looking at grants to adapt housing to keep older people living longer in their own homes and out of costly care, or paying families to provide care for elderly relatives. Germany, the Netherlands, Luxembourg and Japan have introduced mandatory long-term care insurance schemes.[4]

Different demographic and labour market outcomes

Migration

The baseline projection assumes long-term annual net immigration of 10,000. The annual average from 1990 to 2008 was 11,400, though there have been occasional peaks between 30,000 and 40,000. Initially, migrants add to the workforce and so to GDP and government net revenue (ie, in excess of the extra demands on education and health). However, eventually the younger migrants age and add to the demands for government services. Overall, our model shows increasing the level of migration permanently has a positive but not major impact on the fiscal outlook.

Fertility rates

The long-term fertility rate is assumed to be 1.9 children per woman for the baseline projection. Perhaps surprisingly, a higher rate would likely lead to a slight deterioration in the fiscal position by 2050. This is because there is higher expenditure on health and education in the early years of children's lives, and then a period where as workers they create higher tax revenues. However, this cycle of increased government spending followed by increased government revenue from the higher birth rates would not be complete by 2050. Further out, the overall impact on the fiscal position is likely to be positive.

Labour force participation

New Zealand's labour force participation is already high, but further increases could be attained – particularly for those during the middle years of their working lives. Higher aggregate labour force participation relative to the gradual downward trend that we are projecting would generate higher GDP and tax revenue, helping the fiscal outlook.

Average hours worked

Average hours worked per worker in New Zealand have been trending down in recent years, so that we are now just above the average of the OECD. Our baseline projection assumes that average hours worked stabilise around the current level. If we were to assume that average hours continued to decline – something that seems more likely in a world where older people constitute a larger share of the workforce – then the fiscal outlook would likely deteriorate further. The lower hours would result in lower GDP and tax revenue, offset slightly by lower NZS entitlements (because they are indexed to average weekly wages).

Economy-wide productivity

Labour productivity – the amount of output produced per hour of work – is the key long-run determinant of New Zealanders' incomes. Our projections assume that New Zealand's labour productivity performance evolves in line with the historical trend of 1.5% growth per year. This growth trajectory would see GDP per person, on an inflation-adjusted basis, increase by around 80% between now and 2050.

Lifting New Zealand's productivity performance, and hence reducing the gap in living standards between New Zealand and other OECD economies, is arguably New Zealand's biggest economic challenge. The most important benefit of greater productivity growth for the long-term fiscal position is in the expanded choices and opportunities it gives people. As will be discussed shortly, the long-term fiscal pressures create difficult trade-offs between government spending and tax. Faster productivity growth can help people adjust to policy change because increased incomes can offset the costs of reduced government spending or increased taxes.

Lifting national productivity performance will also help the fiscal position because the government's revenue base rests on New Zealanders' capacity to earn. Since productivity growth is the main determinant of real wage growth, higher productivity growth means more tax revenue.

Table 4.2 – The effect of an extra $1 of GDP from higher labour productivity on the fiscal position[5]

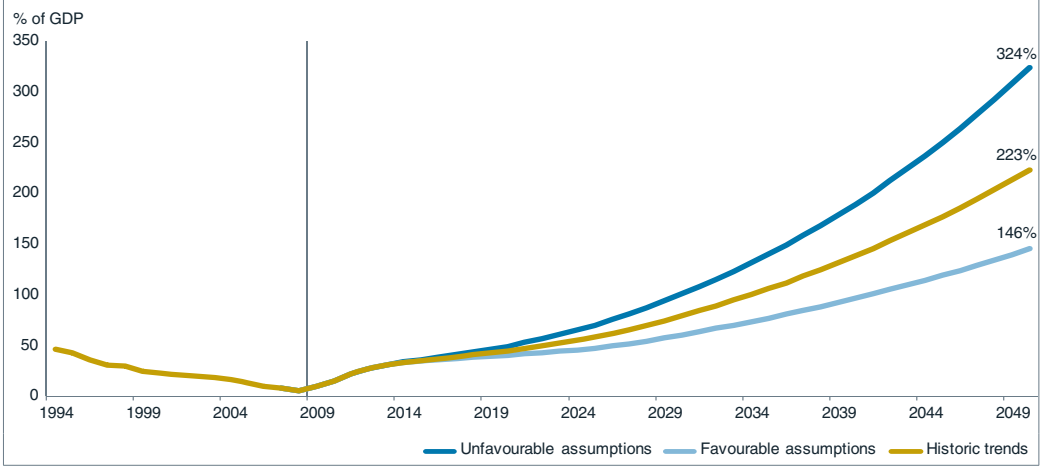
Additional GDP	$1.00
▸ Extra tax revenue	$0.33
▸ Extra NZS cost	-$0.04
▸ Extra public sector wage cost	-$0.16
Fiscal dividend	$0.13

Source: The Treasury

But higher labour productivity growth cannot be a solution in itself. This is because there are also links between economy-wide wage growth and government expenditure, both formally and informally. The formal link is to NZS, which current legislation links to the average wage. There is also an informal link in the case of public sector wages, which generally maintain relativity with the private sector because workers are mobile between sectors.

To demonstrate the effects of changing some of these assumptions, we consider a couple of scenarios. For example, taking more favourable, but still plausible, assumptions about some of these variables – annual economy-wide productivity growth of 2% instead of 1.5% in the baseline, aggregate labour force participation rate around 3 percentage points higher than in the baseline and net migration numbers rising to 15,000 – results in net debt in the historic trends scenario increasing to 146% of GDP instead of the 223% in the baseline. Even so, this is still an unsustainable fiscal position, with debt projected to be about 40 percentage points higher relative to GDP than it was in the 2006 *Statement*.

Figure 4.2 – Net debt



Source: The Treasury

However, it is just as easy to come up with less favourable plausible assumptions – annual economy-wide productivity growth of 1.0%, aggregate labour force participation rate being around 3 percentage points lower and net migration numbers falling to 5,000 – that result in a materially worse long-term fiscal position, with net debt increasing to 324%.

This emphasises that economic growth and income from tax are only one side of the fiscal equation. No matter what level of income a government receives, the fiscal position will deteriorate if spending is higher than taxes.

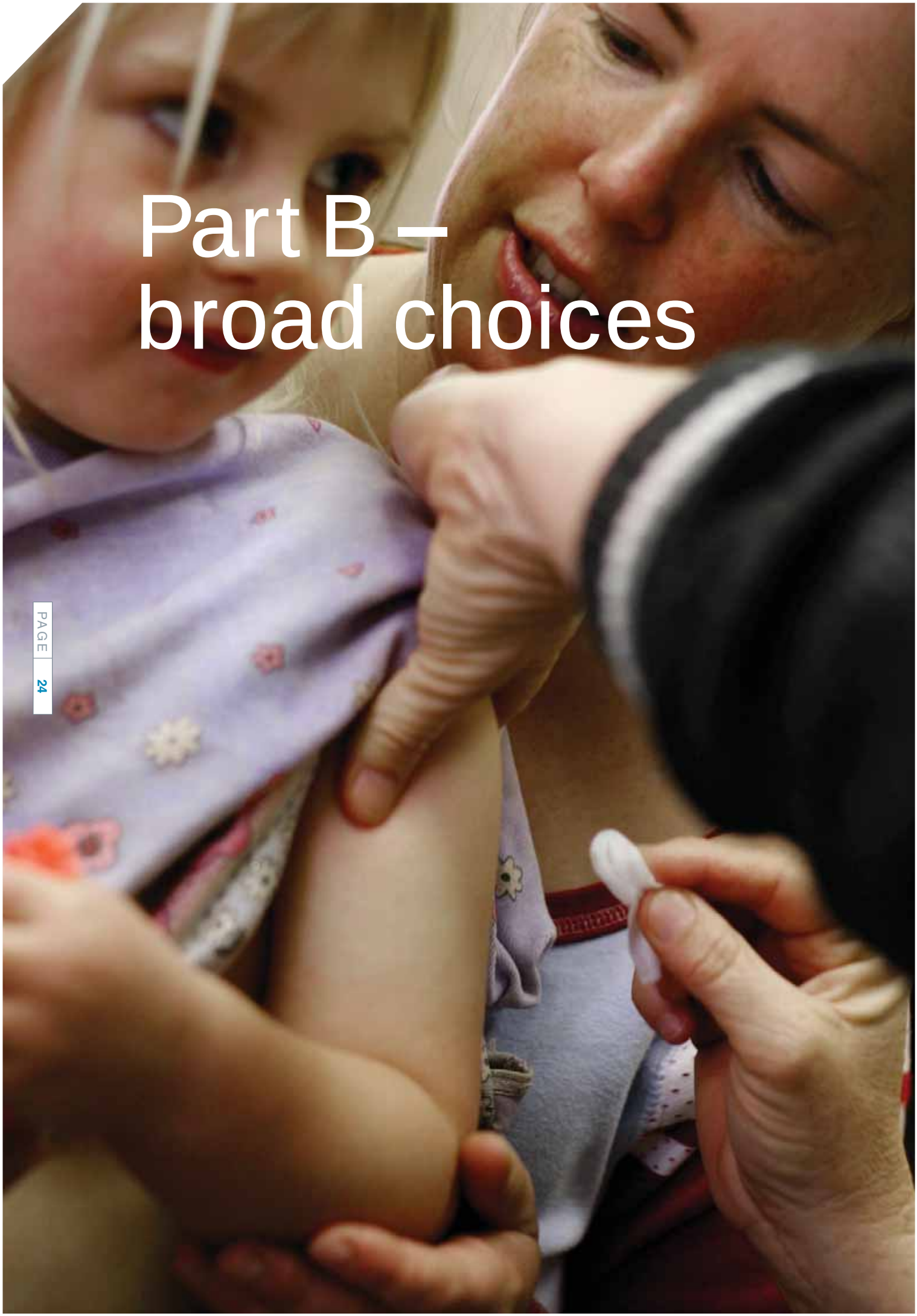
Fiscal policy and growth

Just as different growth scenarios affect the fiscal position, fiscal policy settings also impact on the economy's productivity growth. Such feedbacks (from policy to economic growth) are not incorporated into our main projections, because their precise nature is too uncertain.

Maintaining a sustainable fiscal position is a key contributor to a stable macroeconomic environment, which supports growth. Government deficits put pressure on interest rates, divert investment flows away from the private sector and can lead to a more vulnerable economy with larger current account deficits. In addition, ensuring the government's balance sheet is resilient to shocks supports the ability of the government to have smooth tax and spending paths over the economic cycle, creating a degree of certainty for those looking to invest. This is one reason for the 2009 *Fiscal Strategy Report* objective of government net debt of 20% of GDP in the long term.

The level and structure of tax and spending affect growth through their effects on people's incentives to innovate, work and invest. Over coming decades, there may be opportunities for structural reform that supports growth. Elsewhere in this *Statement* we discuss how the tax system could be made more growth-friendly; for example, by taxing land and consumption more heavily, and reducing the tax burden on income. Nevertheless, higher aggregate tax is likely to result in lower income growth overall. Government expenditure may also need to be targeted to areas that are conducive to economic growth, such as infrastructure and education policies that underpin a more highly skilled workforce. Globalisation and the increased mobility of people and capital create added impetus for New Zealand's policy settings to be internationally competitive.

The Government has recently announced a desire to close New Zealand's income gap with Australia by 2025. Based on Australia's historical growth performance, closing the income gap would likely require labour productivity growth in New Zealand of around 3.3% every year for the next 15 years. If this were achieved, it would significantly improve the long-term fiscal position, resulting in net debt being around 100% of GDP in 2050. Achieving sustained labour productivity growth rates at this level would require a strong commitment by governments to significantly reform many aspects of New Zealand's tax and regulatory frameworks.



Part B – broad choices

5 What role could tax play?

- Current tax revenue is not sufficient to cover the current level of spending.
- Left unchanged, the income tax system will raise more revenue by pushing more and more taxpayers into higher income tax brackets – an average wage earner is projected to earn more than $70,000 by around 2023, and so face the top rate of 38%.
- Although increased tax revenue could help achieve a more sustainable long-term fiscal position, higher taxes are likely to result in slower economic growth and lower incomes for New Zealanders.
- There are serious issues around the current design of the tax system: the effect of different taxes on economic growth; international competition for people and capital; and the coherence and fairness of the tax system.

The tax system is a critical part of any discussion of the long-term fiscal situation because taxes provide the bulk of the revenue used for government spending.

Currently, we do not raise enough tax to cover spending – which produces budget deficits – and this has to be covered by government borrowing. Although a portion of the deficits and resultant borrowing is attributable to the downturn in GDP, the key fiscal issue is the persistent gap between government expenditure and revenue. If New Zealand does not want increasing debt, then increased taxes could play a role. But just as high public debt is recognised as unsustainable, because it becomes an increasing economic burden, higher taxes also come at a significant cost.

The largest of these costs is that higher taxes limit economic growth. There is not a large amount of empirical evidence on the effects of taxation in New Zealand, but a recent study in the United States shows that increasing tax revenue by 1% of GDP could result in 3% lower GDP after three years.[6] The long-term effects of higher taxes on growth are unlikely to be this large in New Zealand – perhaps around a tenth of this – particularly if other countries are also raising taxes to address their long-term fiscal outlooks. However, in a world competing for skills and investment, tax rates are also important factors in whether New Zealand will keep or attract the skilled people, capital and businesses it needs. And tax rates can drive people's domestic behaviour – for example, in choices around whether they innovate and invest, save or spend, improve their skills and work harder or invest in a business, equities or property.

Current issues

At the end of the 1980s, New Zealand was seen as having a well-designed tax system, built around a broad base and low rates, and an income tax system that was the least distortionary in the OECD. This is no longer the case.

From an economic growth perspective, New Zealand's tax mix is unhelpful. Income taxes (both corporate and personal) have a detrimental impact on growth, while consumption taxes like GST, or property taxes have a less adverse impact. The GST rate of 12.5% is low by international standards and in comparison to our income tax rates. There are no central-government property taxes, nor is there a comprehensive capital gains tax.

We have the third-highest proportion of tax revenue raised from company tax in the OECD and our company tax rate of 30% is higher than the average of 26% for small OECD countries. Our top personal tax rate begins at the relatively low level of NZ$70,000. Australia, for example, has a higher top tax rate, although it does not start until someone earns AU$180,000. Under the existing personal income tax regimes in both countries, Australians pay less tax than their New Zealand counterparts until they reach an annual income of $210,000. Fewer than 1% of New Zealanders are at this income level or higher.

New Zealand has a higher percentage of its skilled workforce living overseas than any other country in the OECD – nearly one in four highly skilled Kiwis is offshore.[7] Relatively higher wages in Australia for many jobs makes migration there a particular issue for New Zealand. The competition for people, companies and business investment means we need to be sensitive to how salaries and profits are taxed elsewhere. The extent to which we can close the income gap with Australia, and how each country taxes its workers, could be important in people's decisions to stay in New Zealand – and pay tax here. Similarly, our attractiveness to new immigrants will be influenced by our tax rates.

The tax system

Total tax revenue is the product of what is taxed (the tax base) and the rate at which taxes are levied on that base. New Zealand's main taxes are:

- personal income tax, levied using a progressive rate structure (raised $28.5 billion in 2009, 53% of the tax take)
- GST, levied at 12.5% on virtually all domestic consumption (raised $11.6 billion in 2009, 21% of the tax take)
- company tax, levied at a flat rate of 30% (raised $9.3 billion in 2009, 17% of the tax take), and
- a range of excises on petroleum, tobacco and alcoholic products, some tariffs on imports, road-user charges and stamp duties (raised $4.8 billion in 2009, 9% of the tax take).

Issues with the tax system include:

- Households (with children) in the bottom half of the income distribution effectively pay no income tax or receive tax credits, because of the interaction with the income support system.
- The top 10% of income earners (those earning more than $70,000) pay more than 40% of all income tax revenues and about 20% of GST revenue.

Changes over the past 20 years have created some important linkages between the tax system and benefits. For example, low-to-middle-income families in New Zealand typically face high effective marginal tax rates on their incomes, relative to those in many other OECD countries, due to the combined effect of income taxes and the Working for Families tax credit system.

There has also been substantial growth in tax avoidance behaviour.[8] This reflects that the amount of tax people pay varies according to how they make their money. For someone earning more than $70,000 a year, if their income is earned from working it will be taxed at the personal income tax rates of up to 38% (and any savings will be taxed at the same rate), but if it is derived from selling property or shares at a capital gain, it will normally attract no tax at all. Where the self-employed can operate under a company structure, or receive income through a trust, marginal tax rates can be reduced from a top rate of 38% to 33% or 30%.

Trends towards this type of tax avoidance have increased over the last decade, with a large rise in the number of companies and trusts – and a dramatic slowing in the number of high-income salary earners.

Population ageing and taxation

Obviously, an ageing population means more people will be dependent on NZS and private pensions for their income; and older and younger people tend to differ in the amount of their income they spend and what they spend it on. This could affect both the amount and type of tax revenue they pay.

A recent Treasury study focused on this demographic change.[9] While it might be expected that this analysis would show a fall in income, as older people on lower incomes like NZS replace younger earners with higher incomes, this does not appear to be what will happen. Most people's incomes rise from when they first enter the labour force until they reach 45 to 55 years of age, and then tend to decline towards and into retirement. With the average age of the New Zealand adult population expected to rise from around 45 currently to 51 by 2050, it turns out that rising incomes for those currently under 50 are expected to approximately balance the declining incomes of those currently over 50.

An important change, however, is that more income, and therefore more income tax, GST and excise revenue, will be dependent on NZS payments. Because the number of people aged 65 and over is expected to double by 2050, the effect of ageing doubles (from around 6% to 12%) the share of income tax and GST that will be raised from NZS payments. As this redistribution of the overall tax take occurs because of higher spending on NZS, it will not result in a more favourable revenue to expenditure balance. An increased contribution from a source of tax revenue not linked to any government spending will do much more to help balance future budgets.

Personal income tax rates are also important when demographic change means we will want increased labour market participation – whether by encouraging immigration, discouraging emigration or by having more New Zealanders enter the workforce or stay in paid work longer; for example, by delaying full-time retirement. For this reason, it is especially important that the future tax system encourages rather than discourages paid work, particularly among older age groups. As high average and marginal income tax rates discourage participation, the process of population ageing is likely to require a shift away from a reliance on such income taxes.

The prospect of higher taxes to pay for increased spending raises a different issue. Today's workers pay taxes to fund current public services, including superannuation. This is sometimes referred to as a social contract between younger and older generations. As younger people age, they will expect their retirement pensions to be funded by the next generations of workers. This kind of social contract would be put under greater pressure if young workers face rising tax rates to pay for other people's pensions, while other publicly-provided services diminish.

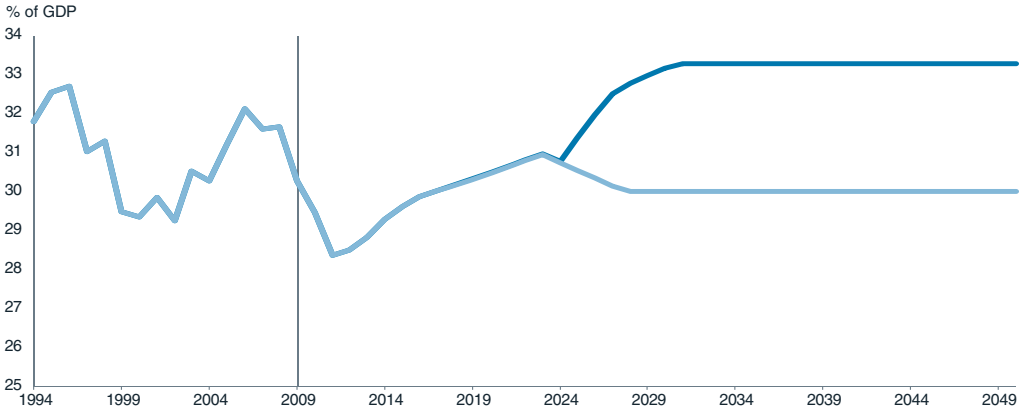
The future tax system

As discussed earlier, in the historic trends scenario, the tax-to-GDP ratio is projected to increase steadily (largely due to fiscal drag) from a trough of 28.4% in 2011 to around 31% by 2023, before returning to a more average 30% thereafter. Because this is not large enough to cover the projected increase in government spending, net debt is projected to grow indefinitely. Figure 5.1 shows the increase in tax that would be required to finance the increased government spending and stabilise net debt at around 20% in the long run. The long-run tax-to-GDP ratio would need to increase by more than 3 percentage points.

This would mean for individuals that, if this tax increase were to be achieved via increased personal tax, there would be across-the-board tax rate rises of 5.5 percentage points – ie, instead of someone on the average wage paying an average tax rate of around 19% now, they would face an average rate of 24.5%. Alternatively, if the increase were funded entirely through raising the rate of GST, it would need to increase from its current 12.5% to about 20%.

This increase in the overall tax take would also likely result in lower GDP. This would mean lower incomes overall and less money for individuals to spend. If other countries were also increasing tax to finance increased government spending, or if our taxes are really targeted at less mobile factors like land, then the effect could be less. Nevertheless, it would be unlikely that such a shift would help achieve the Government's objective of closing the income gap with Australia by 2025.

Figure 5.1 – Tax revenue



Source: The Treasury

Irrespective of the role that taxes play in achieving a sustainable long-term fiscal position, New Zealand's future tax system should:

- encourage economic growth
- enhance New Zealand's competitiveness, and
- raise the necessary revenue in the most cost-effective way by minimising avoidance; minimising transfers that increase the economic cost of tax; and ensuring the coherence of the system – ie, that people with similar income share a similar tax burden.

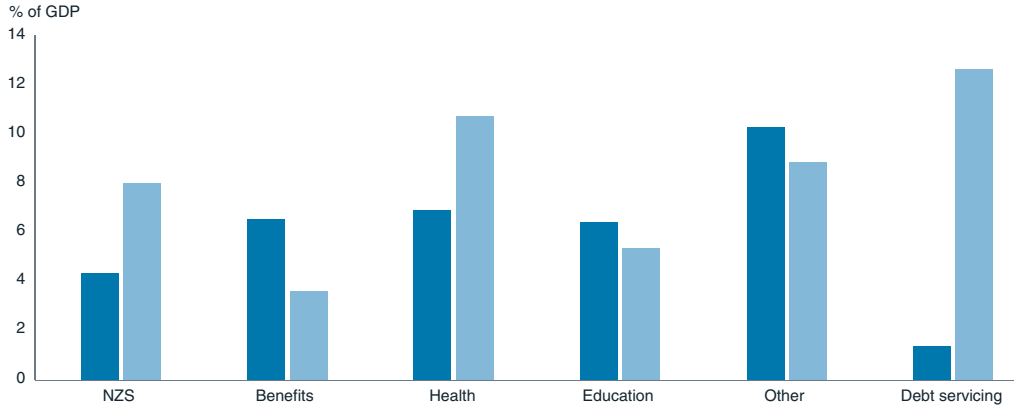
6 How would spending have to change?

An alternative to using higher taxes to achieve a sustainable fiscal position is to slow the rate of growth in government spending.

Where does the money go?

Figure 6.1 shows the main areas of government spending now, and in 2050, in the historic trends scenario. The areas that grow the most are NZS, because of the ageing population and wage indexation of NZS; health, reflecting changing demographics, increased costs and demand for new services; and debt servicing. Benefit spending is projected to decline as a share of GDP because of the way it is indexed. Spending on education declines as a share of GDP, as changing demographics offset increased costs. The "Other" category includes spending on justice, defence and transport, as well as specific policies, such as KiwiSaver and the Government Superannuation Fund. This category declines slightly as a share of GDP between 2009 and 2050. The individual spending areas of health, justice, education, NZS and benefits are discussed in more detail in section 7.

Figure 6.1 – Spending – historic trends

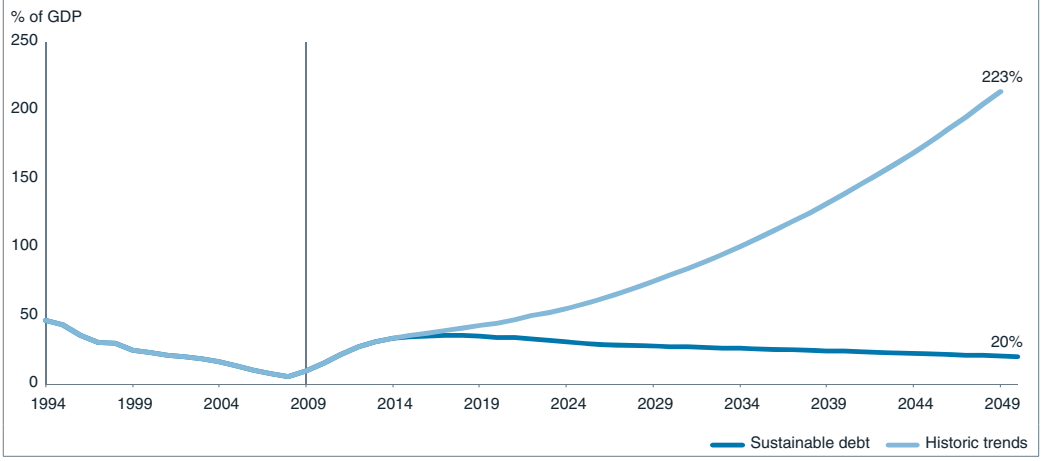


Source: The Treasury

The Government's *Fiscal Strategy Report* in *Budget 2009* sets out a medium-term spending approach where debt is constrained and that results in net debt peaking at 36% of GDP in 2017, and trending lower thereafter. The *Fiscal Strategy Report* projection was based on new spending in each budget being limited to $1.1 billion (growing at 2% a year) from 2010 until 2023.

This forms the basis for our second main scenario – the sustainable debt scenario. Beyond 2023, and consistent with the Government's *Fiscal Strategy Report*, this scenario projects net debt declining to around 20% of GDP in 2050.

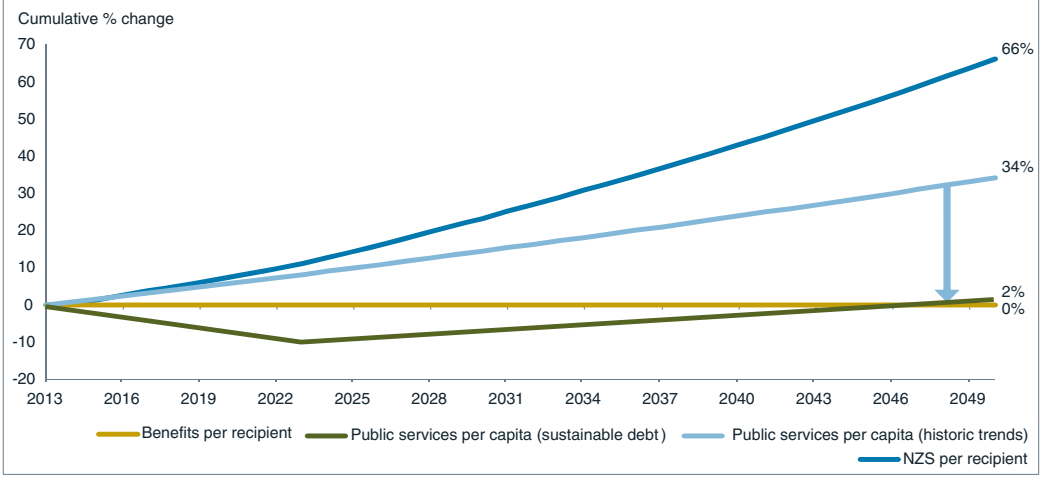
Figure 6.2 – Net debt



Source: The Treasury

But achieving this level of debt – or any other fiscally sustainable target – is not simply a matter of drawing a line on a graph. Living with the $1.1 billion operating allowance over the next 15 years means reducing some public goods and services. We illustrate this by looking at the basket of publicly-funded services in Figure 6.3.

Figure 6.3 – What individuals receive from the Government – inflation-adjusted



Source: The Treasury

Because we assume that NZS and benefit policies remain unchanged – as explained previously, these traditionally sit outside the budget process – the fiscal constraint reduces the amount of all other public services. Through to 2023 these would decline by around 10%. Put differently, the $1.1 billion operating allowance is not enough to cover increased public service costs and increased demand created by the growing and ageing population, so the amount of publicly-provided services to the average New Zealander would have to decline.

Beyond 2023, we project an increase in the operating allowance, to bring the annual increase to over $2 billion. The allowance is then projected to grow with GDP rather than inflation (2%). As a

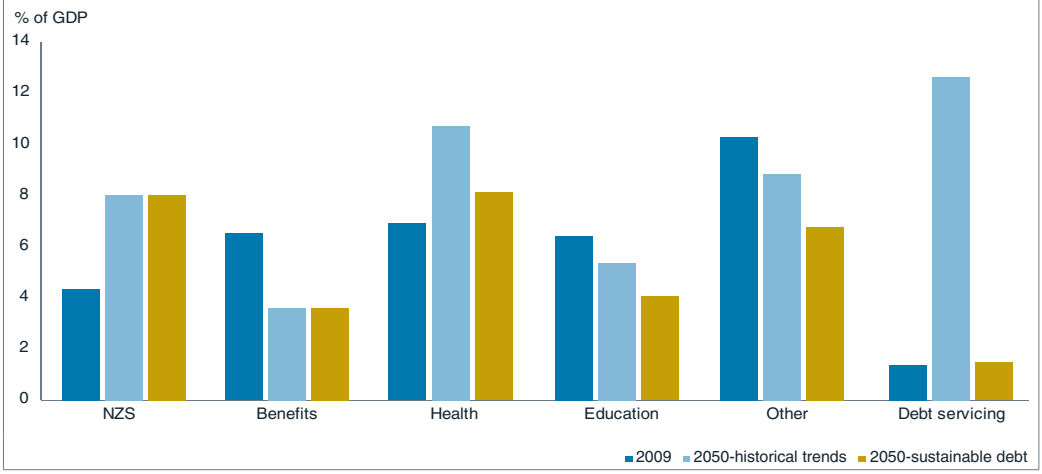
result, the basket of services starts to grow again, but it does not return to its 2013 level until just before 2050.

Having a slightly higher net debt target (say 40% of GDP) does not materially change the picture, with the basket of services increasing only a further 6% by 2050. This is because the higher debt level results in higher financing costs, leaving less money to spend on goods and services.

Achieving this sort of change in spending patterns is certainly possible, but realistically it would need to involve changes in the mix of services provided by government as well as delivering current services better.

Figure 6.4 shows how spending across the sectors changes under the two scenarios. Our assumptions about NZS and benefits mean that these components are the same in both scenarios. This means that growth in the other components under the sustainable debt scenario is more constrained than in the historic trends scenario. For illustrative purposes, we continue to let the different demographics affect the various components, but scale back the services per person in each spending area by the same proportion relative to the historic trends scenario. Our assumption is that future governments would apply constraints across spending areas relatively equally, apart from demographic pressures. Future governments may choose to allocate available funds differently due to changes in societal preferences or as-yet unknown factors affecting the cost of services.

Figure 6.4 – Spending – sustainable debt and historic trends



Source: The Treasury

Under the sustainable debt scenario, education and other spending decline as shares of GDP, relative to 2009. Health increases as a share of GDP, due to the relatively larger impact of demographic changes on health care, but the growth is much lower than under the historic trends scenario. Debt servicing costs remain stable, reflecting the constraint on debt over the long term. The conclusion is that, given current policy settings, NZS continues to grow at the expense of other public services, such as health and education. This raises questions of intergenerational fairness, given that services for other age groups will decline over the next 15 years and grow only slowly thereafter – and as mentioned, the projections assume rising tax rates through to 2023.

Public sector productivity

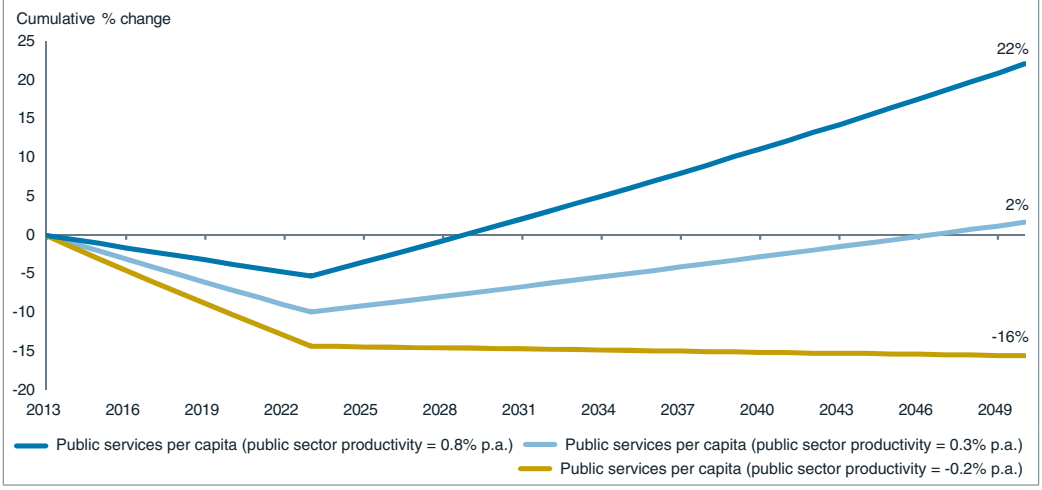
The cost to deliver a given level of public services is determined by input costs (eg, wages, physical assets, technology systems and consumables) and productivity – how efficiently inputs can be converted into outputs such as hospital operations. Public sector productivity is poorly measured in New Zealand and around the world. Better information on public sector productivity would make it easier to identify less effective policies. Nevertheless, based on the information we do have, our baseline assumption is that annual productivity growth in the public sector (0.3%) is about one-fifth of economy-wide labour productivity growth (1.5%). This relatively low rate of public sector productivity growth is due to both the nature of the services (which tend be labour intensive with less scope for technological advances) and the operating environment (one without competitive market pressures).

If public service productivity is lower than economy-wide productivity, then public services will become more expensive relative to other goods and services in the economy. This is because, over the long run, wage rates are likely to be similar across both the private and public sectors, with those wages growing in line with economy-wide productivity.

A more productive public sector could be an important part of the solution to our long-term issues, by getting more for the money that is spent; but this would mean significant change. The sustainable debt scenario implies, because spending across government is constrained, that the state sector workforce will have virtually no growth over the next 40 years. The challenge for the State sector is to deliver better public services without more resources.

A lift in public sector productivity would have a positive impact on the notional basket of services that could be delivered to the average New Zealander for a given level of spending. A 0.5 percentage point increase in our baseline assumption for annual public sector productivity growth, if sustained, would result in around 20% more public services per person after 40 years.

Figure 6.5 – What individuals receive from the Government – inflation-adjusted



Source: The Treasury

To have a significant impact, most improvements in the fiscal position will need to come from the major spending areas such as health, education, justice and superannuation. How such gains might be achieved in these main spending areas is discussed in more detail in section 7. But even in the core public sector there is potential to think about how to deliver more, for less. This includes government departments which account for around 18% of core government spending and employment (with $12 billion in annual operating expenditure and 44,600 employees in 2009).

The international management consultancy McKinsey suggests there is potential for public sector productivity improvements in various countries of 15% in the next 10 years from doing the same tasks in new ways, learning from the private sector and overseas experience.[10] It suggests benefits can be realised without major system changes through operational and business process improvement and shared services, such as streamlining finance, payroll and administration functions across government. In most cases, these solutions have not been employed in New Zealand, but the impact they can have is significant. For example, an initiative of the Canadian Government merged more than 70 services from a number of agencies into a single, customer service organisation. Savings of around $500 million per year were realised by finding efficiencies.[11]

But achieving these gains is difficult, requiring full backing from the government and wide application across the State sector. This could mean greater centralisation or collaboration and a shift in the way the public sector management system has operated, as the current structure tends to provide public sector chief executives with considerable freedom to manage their departments. Making a difference over the long term would require additional productivity gains to be found year after year, and productivity to be in focus over a long time horizon.

Another major way the government can lower the cost of public services is to focus on what is delivered and to test policies and programmes more rigorously for their effectiveness – and to stop those programmes that are not shown to be cost-effective. This may involve looking at who receives services – for example, whether they are targeted or not – and whether the government is best placed to provide them.

We have choices about such things. In the end, what services are delivered, and how, are the result of policy decisions. For example, the government used to provide telecommunications services and now there are several private sector providers instead.

But policy choices and the public debate do not necessarily focus on improving productivity. This is because too often the public debate does not sufficiently differentiate between what is spent on purchasing inputs, and the outputs and outcomes that result from this spending.

7 Specific policy areas

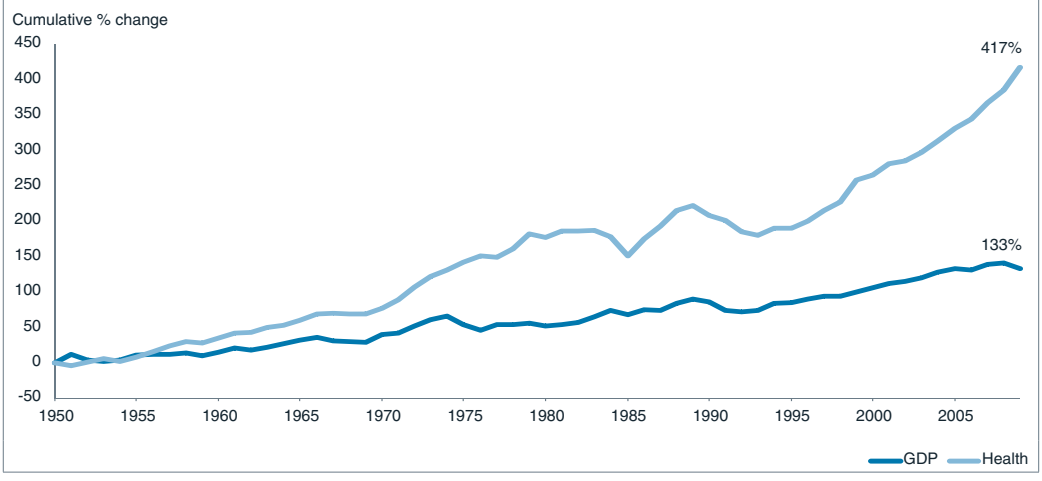
The previous sections outlined the aggregate long-term fiscal issues. This section looks into the main spending areas in more detail.

Health

- The government spent $12.4 billion on health in 2009 – around 20% of core Crown expenditure or 6.9% of GDP.
- Since 1994, spending on health care has grown at an average of 7.6% a year, in nominal terms.
- Around half of public health spending is on public hospitals. The remainder goes to a range of services, including primary care, pharmaceutical prescriptions, residential care, disability support, mental health and public health services – many of which are provided by a range of privately-owned providers.
- Since the early 1990s, 80% of all health spending has been publicly funded. Private spending such as patient copayments for GP visits, prescriptions or insurance, accounts for the remainder.[12]

Over the past 60 years, publicly-funded spending on health care has more than doubled as a share of GDP, rising from around 3% in 1950 to 6.9% in 2009. In dollars per person, the amount spent by the government has risen from $550 per person in 1950 to $2,870 per person in 2009 (2009 dollars). Figure 7.1 shows how health spending per person has grown faster than GDP per person over this period – particularly since the mid-1990s.

Figure 7.1 – Health spending and GDP per person – inflation-adjusted



Sources: Statistics New Zealand, The Treasury

Figure 7.2 shows that, although total spending on health care (public and private) has been growing faster than GDP in the majority of OECD countries (ie, above the solid diagonal line), New Zealand is one of a minority of countries where total health spending has been growing at more than twice the rate of GDP (ie, above the steeper dashed line). However, New Zealand spends less per person on health care than many OECD countries in absolute terms, reflecting our relatively low national income per person.

Figure 7.2 – Health spending (public and private) and GDP – inflation-adjusted 1997 to 2007

Source: OECD

The variation in the level and the rate of growth of health spending, both through time and across countries, suggests both are partly the result of choices about what is delivered through health systems, and how it is delivered.

Drivers of health spending

Population ageing affects health spending as older people tend to need more health care, but the effects of population ageing on health spending have been relatively modest in recent decades – accounting for no more than 10 to 15% of the real increase in spending per person since 1970.[13,14] Although this ageing effect will become progressively more important through the 2020s and 2030s, it is not projected to become the dominant driver of spending growth. The main drivers of health spending have been and will continue to be income growth and technological change – both of which affect the demand for, and the cost of supplying, health care.

Economy-wide productivity growth drives the long-run cost of labour, which is the major input in health care services. Since productivity gains tend to be relatively low in labour-intensive service industries, such as health, the real cost of delivering health care rises. Higher incomes also tend to be accompanied by higher public expectations of the range and quality of health services.

Public expectations of the health system increase as technology progressively extends the range of possible treatment options. For example, treatments for heart disease have evolved from bed rest and aspirin in the 1950s, to a range of treatments that include coronary bypass surgery and angioplasty now. New treatments provide real benefits to patients but tend to involve new spending with relatively high unit costs. Although technological innovation can lead to a decline in the cost of a service, overall spending can rise if the use of the service increases.[15]

In recent years, government policy choices to expand services and increase existing entitlements have been a major driver of the growth in health spending. For example, discretionary policy initiatives between 2002 and 2008 accounted for at least half of the increase in health spending – in addition to increases to manage price and volume pressures – and increased the overall cost of labour.[16]

The institutional arrangements within the health system – how services are funded, and how and where they are delivered – also matter for spending growth. The government relies on agents at all levels of the health system, including District Health Boards (DHBs), Pharmac and clinicians, to allocate resources and manage cost pressures. The way these people are organised and motivated affects how efficiently resources are used, and how spending pressures are managed.

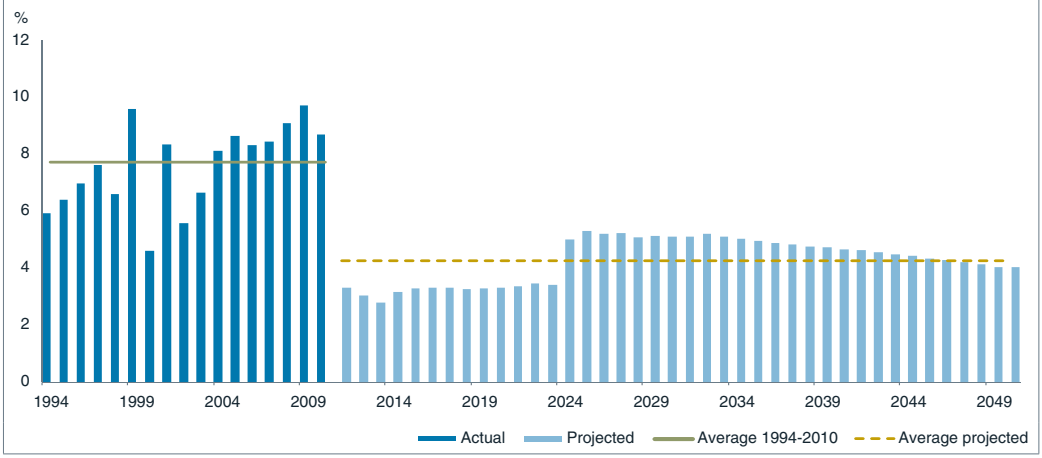
These factors suggest that much of the growth in spending lies within government control. Health systems are complex and there is no simple solution, but along with the key decision about how much new money is allocated to health each year, the Government has significant control over how the system is organised and how resources are used.

Health spending scenarios

Under the historic trends scenario, health spending would grow by 5% a year, increasing from 6.9% of GDP ($12.4 billion) in 2009 to 10.7% of GDP in 2050. This projection illustrates the need to address the strong underlying spending pressures in health care – in both the short and long term. For example, if health care spending continued to receive recent increases of at least 7% per year, it would consume over three-quarters of the total $1.1 billion allocated for new spending over the next few budgets. Clearly, the rate of spending growth observed over the past decade is unsustainable given the fiscal constraints facing the government.

Under the sustainable debt scenario outlined earlier, spending on health care grows at an average of 4.3% a year, reaching 8.1% of GDP by 2050. Figure 7.3 shows that these increases would be much lower than recent spending increases.

Figure 7.3 – Annual nominal growth in health spending – sustainable debt



Source: The Treasury

Options for managing spending growth

The government, as the dominant payer, has the ability to set the budget for health spending – an essential part of a strategy for managing spending growth. But living with a lower rate of spending growth would require improvements in system performance, including ongoing productivity gains. It would also mean managing demand for services. This need not mean poorer health outcomes, since international comparisons indicate that using resources well can be just as important for the effectiveness of health care as the overall level of spending.[17]

System performance improvements

An important part of securing more health care from the limited resources available involves the allocation of those resources. Funding decisions need to be consistently based on evidence of the relative cost-effectiveness of an intervention. The government may choose to make greater use of agents to weigh up difficult choices about which treatments to fund – in the same way that Pharmac is charged with maximising health outcomes within the pharmaceutical budget. This would require improvements in information, analytical capability and clinician engagement.

Contractual arrangements should incentivise service providers to develop and implement more cost-effective ways of delivering care, and thereby secure productivity gains. The OECD has identified scope to improve the contractual relationships that DHBs have with their hospitals and their primary care providers.[18] That the health system has secured significant productivity gains in the past also suggests this is possible – for example, technological developments and administrative practices in hospitals enabled the average length of stay to be halved between 1989 and 2001.[19] Cross-country comparisons also show the sorts of improvements that are possible and how we might do things better, as do the differences in performance between districts within New Zealand.[20,21]

Work force constraints mean that the skill mix used to deliver services will have to change, as will the location of some services. The increasing specialisation of hospital services means that some DHBs struggle to afford to maintain certain skills. Uncertainty about the financial and clinical sustainability of some specialist areas will require hospital services to be increasingly planned on a regional and national basis. This raises questions about the best way to coordinate regional and national service planning, and about where such decisions should be made. A recent report by a Ministerial Review Group has advocated some of these planning responsibilities being centralised. It also identified opportunities to secure efficiency gains through increased joint procurement among DHBs, including clinical supplies and back office services.[22]

Getting more for the health dollar and using resources more wisely is also linked to improvements in the quality of care that patients receive. For example, a greater focus on safety initiatives would benefit patients, while potentially saving the resources used to treat adverse medical events.[23] Similarly, minimising the wasteful use of resources will involve addressing inefficient processes, which could mean, for example, that patients are less likely to find that their medical records or test results are not available at the time of appointment.[24]

Managing demand

The government can also actively manage the demand for public health services. To begin with, it can encourage better use of community-based primary care – through contractual arrangements with providers – with the aim of reducing unnecessary, and relatively expensive, hospital admissions.

Dealing with future demand pressures will also require the government to manage public expectations as to what the publicly-funded health system can do for people. This will involve a debate around the range of care that the public system provides, versus areas where individuals will need to finance their own health care. A greater role for the private financing of health care could mean higher patient copayments for some services, with public funding being increasingly targeted on the basis of need and ability to pay. Greater private financing could lead to greater use of private insurance. However, subsidies to private insurance have not been associated with lower costs or fiscal savings in other OECD countries, and are unlikely to help manage the growth in health spending in New Zealand.[25]

Spending more on the prevention of illness can improve individual and societal health outcomes, but evidence suggests that it does not help restrain demand or overall spending. This is because preventive measures tend to be delivered to more people than would ever develop the targeted condition, and because people living longer generally develop other ailments that increase lifetime health care costs. Some forms of prevention, such as childhood immunisations, can provide good value for money. But the cost-effectiveness of prevention depends on how interventions are designed, in particular whether the focus is on people with the greatest potential to benefit. Preventive measures still need to be assessed alongside other possible interventions, so that the benefits and costs can be compared within the context of budget constaints.[26]

Justice

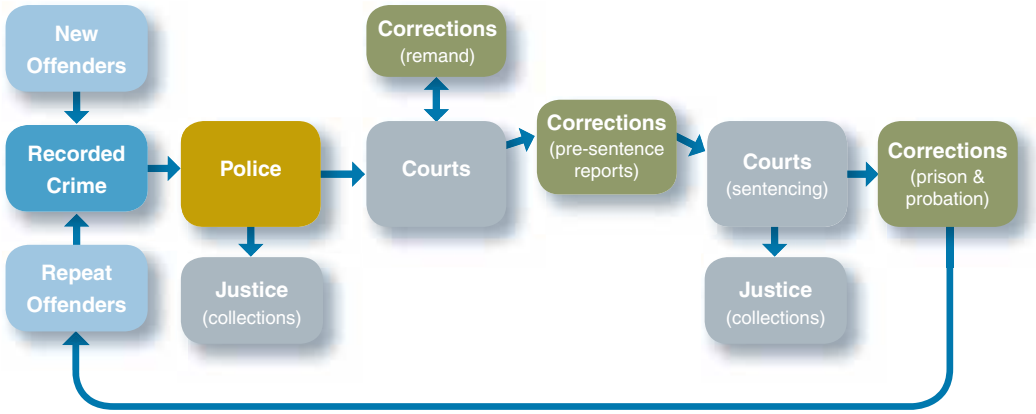
- The government spent $3.1 billion on the justice sector in the year ended June 2009.
- This is 4.8% of core Crown spending and 1.7% of GDP.
- The main justice sector agencies are:
  - New Zealand Police – about 40% of total justice sector spending in 2009
  - Ministry of Justice (including Courts and the Judiciary) – about 30%, and
  - Department of Corrections – about 30%.
- The justice sector has been one of the fastest growing areas of major spending – averaging 7% a year from 1994 to 2009.

Crime is costly to society, both in terms of the cost of crime to victims, and the cost of the response to crime. The burden of crime also falls disproportionately on different parts of society, particularly Māori.[27] Policy decisions in the justice sector take into account objectives that are beyond the economic and fiscal, such as punishment and rehabilitation. However, given the fiscal constraints faced by the government, increasing consideration will need to be given to whether policies meet the government's objectives in the most cost-effective way.

The justice sector agencies form a system or "pipeline" in which policy or operational changes in one part of the system can have a major impact on the other parts. While the main agencies in the sector are separate, costs are driven by the way that police operations, sentencing policy and the decisions of independent actors (such as judges and the Parole Board) interrelate.

One of the challenges of managing justice sector spending is that the agency which has the biggest influence over the number of people entering the system (Police) does not bear the fiscal consequences of sending more people into the system (which are primarily borne by Corrections). If the volume of offenders in the justice sector increases, the agencies that are earlier in the pipeline can pass these increased volumes onto the next agency with little immediate consequence for their own operations. This can result in agencies seeking extra resources for volume increases, rather than aiming to reduce the volume of people coming into the sector.

Figure 7.4 – Criminal justice sector – main agencies

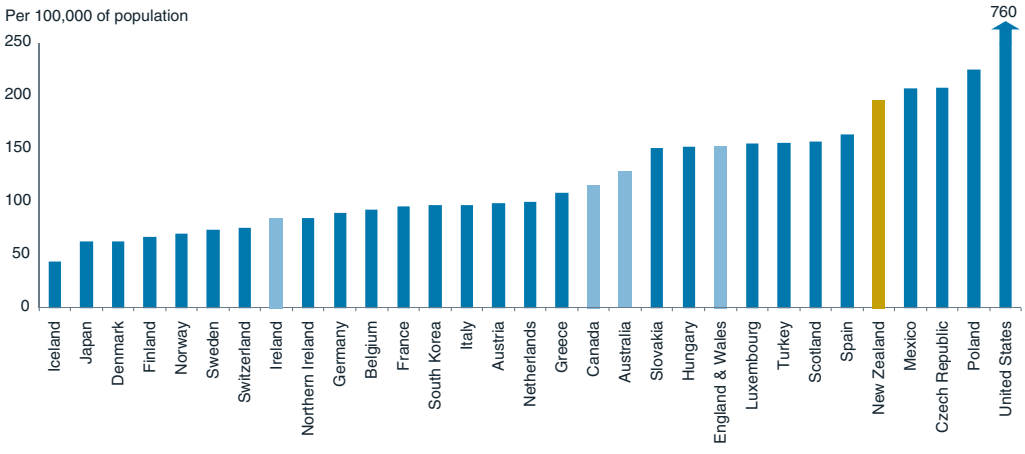


Source: The Treasury

Spending in the justice sector doubled in inflation-adjusted terms, from 1994 to 2009. The increase in spending has not been linked to recorded crime rates, which have been broadly stable over the same period. Rather, cost growth has been driven primarily by the decisions of governments.

In 1999, New Zealand imprisoned 150 people per 100,000. In 2009, the imprisonment rate has increased to 195 people per 100,000, and under current policy settings this rate is forecast to reach 225 per 100,000 by 2017. Our imprisonment rate is the fifth highest in the OECD and is significantly higher than rates in Australia, England, Ireland and Canada.[28]

Figure 7.5 – Imprisonment rates



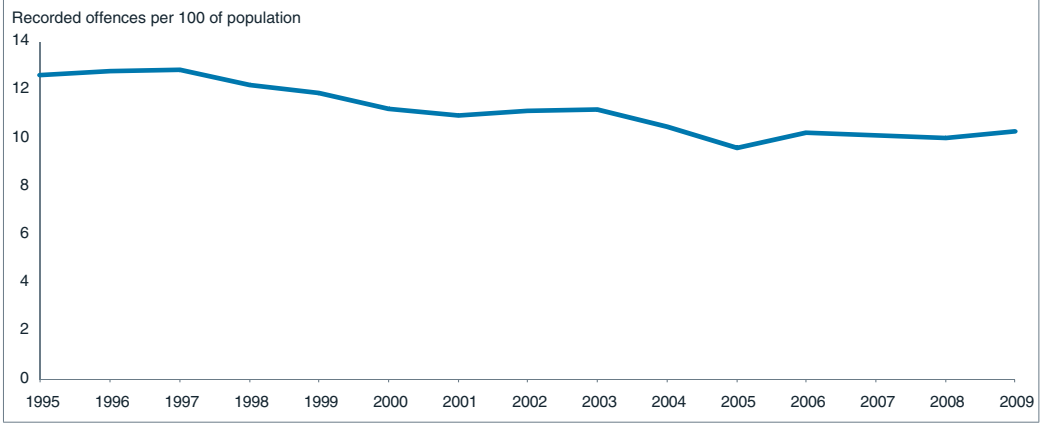
Source: King's College London – International Centre for Prison Studies

The cost of imprisonment

- It costs just over $90,000 a year to keep a person in prison. This compares to:
  - $18,000 a year for a person on a home detention sentence, and
  - $7,000 a year for a person on a community detention sentence.
- Building prisons is currently projected to cost about $915 million over the next decade. Running those prisons once they are built will have an ongoing cost of up to another $150 million a year.

These recent increases in spending have occurred while crime rates have remained broadly stable. The stability in the overall crime rate masks trends in specific types of crime. For example, recorded violent offences have been increasing over time, largely due to family violence offences.[29]

Figure 7.6 – Crime rate



Source: Statistics New Zealand

If justice sector spending were to increase by another 7% in 2011, it would take $230 million of the total $1.1 billion allocated for new spending in *Budget 2009*. This is more than 20% of the new spending allocation, when the sector represents only 5% of core Crown spending.

The sustainable debt scenario suggests that the justice sector would have to grow by an average of 3.6% per year over the next 40 years – about half the average growth rate in recent years.

Options for managing spending growth

It is not clear that further increasing our imprisonment rate would be the most effective way to reduce crime. Studies of the impact of imprisonment rates on crime rates have produced mixed results. Some studies have shown that, while imprisoning more people can reduce crime, the size of that impact diminishes as imprisonment rates increase. Other studies suggest that, when imprisonment rates reach a certain level, further increases can lead to *increases* in crime rates.[30] Given that New Zealand's imprisonment rate is already one of the highest in the OECD, and

recent increases have had little impact on recorded crime rates, it is unlikely that further increases in our imprisonment rate will be the most cost-effective way to achieve lower crime rates.

There are steps that we can take to minimise spending pressures in the justice sector in the short to medium term. As imprisonment rates are a major cost driver, one step could be a review of sentencing practices to ensure that we are not increasing the rate at which low-level offenders are imprisoned. The justice sector is also looking at ways to use courts, police and prisons more effectively.

In the long term, investing in reducing the number of people who enter the criminal justice system would likely provide better value for money – and better societal outcomes – than locking up more people. The Ministry of Justice has already undertaken to address the drivers of crime. Potential areas to focus on to reduce crime include the impact of alcohol on offending, and interventions for at-risk children.

Some level of public and political consensus about the future direction of New Zealand's criminal justice sector could reduce growth in spending. Political consensus has been a significant factor in both Finland's and Canada's success in reducing their imprisonment rates.

Education

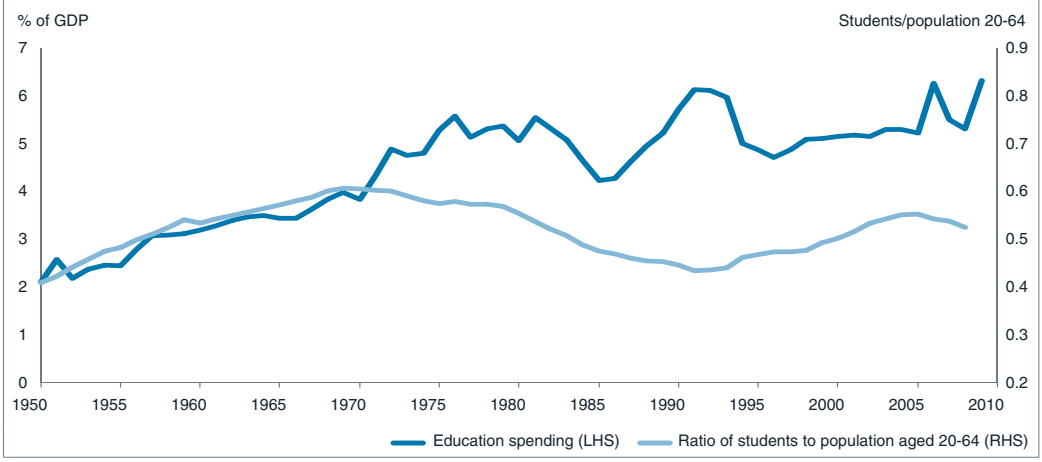
- In 2009, the Government spent $11.5 billion on education.
- That is about 18% of core Crown spending, and 6.4% of GDP. This is divided into:
  - early childhood education – about 10% of the total in 2009
  - primary and secondary schooling – about 45%
  - tertiary education about 40%, and
  - departmental and other expenses – about 5%.[31]
- Since 1994, education spending has grown at an average rate of 7.2% per year.

Education is important to New Zealand's long-term economic and fiscal outlook, both as a major area of government expenditure, and for the significant role skills and research can play as a driver of long-term productivity growth.

If education expenditure is effective, it can help boost New Zealand's future workforce skills, and labour force participation rates. Education can help drive innovation and build international connections that create new economic opportunities.[32] The challenge in education policy is to balance the potential long-term pay-offs from well-designed government expenditure against the immediate costs and ongoing need to improve the cost-effectiveness of spending.

Government spending on education has grown faster than the New Zealand economy and total government revenue over the long term. This is shown in Figure 7.7, as education spending has increased from just above 2% of GDP in 1950, to just above 6% in 2009. Education spending has also grown quickly over the past decade, particularly in the early childhood area. After adjusting for inflation, spending on education almost doubled from 1994 to 2009, rising from $5.9 billion to $11.5 billion (in 2009 dollars).

Figure 7.7 – Education spending and ratio of students to workers



Sources: The Treasury, Ministry of Education

As shown in Figure 7.7, demographic trends have not always played a large part in the long-term trends in education spending. Despite a recent increase in birth rates that will push school rolls back up somewhat in the next 15 years, the number of people under the age of 25 will remain relatively stable over the next 40 years and the proportion of young people in the population will decline steadily. However, participation rates in education have been increasing over time, and if this were to continue it would contribute to cost pressures. Managing these costs is important to the long-term fiscal outlook as slower spending growth in areas such as education and benefits, which do not face demographic pressure, could help to offset pressures in other areas.

The policy choices that governments make are a major driver of education spending because these policies can affect participation rates, average per-student costs and the share of total costs that is paid by the government. For example, policy decisions in recent years have:

- increased inflation-adjusted per-student or per-child costs in all sectors of the education system – driven mainly by real wage increases for teachers and other staff, lower staff/student ratios and group/class sizes and increased funding for other costs such as property and overheads, and
- shifted costs from individual learners and their families to the government – eg, the 20 hours free early childhood education policy and interest-free student loans.

After accounting for participation growth and inflation, education spending per student has increased by around 27% since 2001.

Countries tend to spend more on education as their economies grow. At around 6% of GDP, government spending on education is higher than most OECD countries because we have a relatively young population and high participation rates in education at all ages. Comparing countries' per-student spending relative to per-capita GDP, New Zealand sits around the OECD average.[33]

Early childhood education

Participation in high-quality early childhood education (ECE) can have measurable positive effects on children's long-term development, educational achievement and future economic success. This is true especially for children from low-income families and children whose parents have low levels of education.[34]

Between 2001 and 2009 government spending on ECE increased by more than 220%. While participation has increased, the growth in government spending has largely been to fund quality improvements (eg, higher numbers of registered teachers), and to shift costs of participation from parents to government (eg, the "20 Hours Free ECE" policy introduced in 2007). The average per-child cost of ECE to the Government has risen sharply. From 2001 to 2009, inflation-adjusted spending per full-time enrolment increased by about 75%.[35]

Schooling

Inflation-adjusted spending per student in schools has increased by more than 20% since 2001. This has been driven by increases in wages for teachers and other school sector workers, and increases in staff numbers to enable additional non-contact time for teachers. A minor driver of average per-student costs has been the growth in student numbers in the more expensive senior secondary school years.

For extra expenditure to improve outcomes, it must be aligned with system improvements. Many expensive attempts around the world to improve schooling have failed to deliver increases in students' skills. International comparisons show little, if any, relationship between per-student expenditure and the overall quality of schooling and student achievement. This does not mean that money does not matter, but that the amount of funding seems to matter less than the quality of the system into which it is channelled.[36]

It is difficult to measure productivity in education, as outcomes for students can be hard to measure and difficult to attribute to particular causes. Education outcomes depend on many factors both inside and outside institutions over long time periods. In terms of measurable changes in learning outcomes in recent times (ie, student achievement) we can show a marked improvement in school leavers' qualifications following the introduction of the new National Certificate of Educational Achievement (NCEA) system.[37] The NCEA involves a new set of rules, measures and incentives, which has offered students more flexibility and opportunity to complete qualifications. Arguably, introducing the new qualifications system has had a greater impact on the measure of student achievement than any increase in education spending.

International achievement studies at school age show a fairly stable pattern over time. New Zealand students perform around the international average levels in earlier years of schooling. In secondary school, the average score of New Zealand 15-year-olds has been near the top of the OECD since 2000 in the three measured areas of reading, mathematics and science. The proportion of students achieving at the highest levels is amongst the best in the OECD. But we also have one of the highest levels of variability in student achievement – with students from low-income families being over-represented in our "long tail of underachievement".[38]

Tertiary education

The number of students in tertiary education has grown by more than 20% from 2001 to 2009. Almost all this growth has been in wānanga, polytechnics and industry training programmes offering sub-degree-level qualifications. Counting funding to institutions, as well as funding to students (student loans and allowances), inflation-adjusted expenditure per full-time student has risen by around 30% since 2001.[39,40]

Options for managing spending growth

Over the past 15 years, education spending has grown by an average of 6.3% per year. In the sustainable debt scenario, to avoid increases in tax or debt, or reduced growth in other spending areas, we assume education spending grows at 2.8% per year.

Because government policy choices are a major driver of education costs, there is a wide range of options available to adapt to a lower rate of spending growth. In doing this, there are difficult trade-offs between different education objectives (eg, economic, social and cultural).

If government education spending is to be constrained without compromising student achievement and the future skills and productivity of New Zealand's workforce, we will need to:

- improve the productivity of the education system – using limited funding more efficiently to achieve the same or better results, and/or
- reduce the quantity of publicly-funded education services – by shifting more of the cost of education services from the government to individual students and families, and targeting government support to those who will benefit most.

A mix of both options is likely to be needed.

There is potential to make better use of limited resources while maintaining or improving education results by learning from international experiences, and drawing on the growing body of research about what makes a difference to student achievement. However, productivity gains will be difficult to achieve where education providers' inputs (staffing, time, property and other resources) are tightly regulated and/or continually increased in inflation-adjusted terms. Greater productivity requires increasing flexibility around these areas, strengthening performance incentives and improving institutional design.

Reducing the quantity of publicly-funded education does not need to compromise overall educational achievement. A more targeted approach could improve access and equity while reducing costs. This may mean more targeting of ECE subsidies, tertiary student support and tuition subsidies and possibly having higher subsidies for students who will progress and complete their studies. Because untargeted subsidies drive up overall demand, they can mean that those from more disadvantaged backgrounds are "crowded out". For example, while the untargeted 20 Hours ECE policy has led to increased overall demand for places in early childhood centres, there is little evidence that this programme has improved access and outcomes for those who would benefit more over the long term.

Productivity options

Flexible resourcing

- Reducing constraints on staffing ratios, class sizes, staff deployment and the structure of teaching programmes. For example, research shows that smaller class sizes are a relatively expensive and ineffective option, although there can be benefits for disadvantaged children in the early years of schooling if very small classes can be sustained for several years.
- More flexible remuneration systems – that allow providers to reward high-quality teaching and allow wages to reflect differences in the balance of supply and demand across different parts of the teaching workforce.
- Enabling greater mobility of students and staff between providers and sub-sectors (eg, between early childhood education and primary schooling or between high school and tertiary education providers).

Strengthening performance incentives

- Having accountability and funding systems that recognise and reward providers for retention, achievement and completion rates.
- Recognising and rewarding innovation in the delivery of education programmes.
- Providing better information and choice for students and their families about education providers and the range of options available.

Institutional design

- Improving efficiency in operations and the uses of assets across the education sectors, by strengthening governance and management systems, and allowing providers to combine for staffing, procurement, capital investment and planning.

Benefits

- Over $11 billion (6.5% of GDP) was spent on benefits and transfer payments in 2009. This figure excludes NZS but includes Working for Families (WFF) tax credits.
- In June 2009, around 298,000 people were receiving one of the four main income-tested benefits. This represents 6.8% of the total population or 11.0% of the population aged 18 to 64.
- Over the past decade, the total number of people receiving these benefits has dropped. The number of unemployed has declined significantly, but there has been steady growth in Sickness and Invalid's Benefit numbers. More recently, the number of people unemployed is increasing because of the recession, but should fall again as the economy recovers.
- Over 384,000 families were recipients of the more than $2.5 billion spent on WFF tax credits for the entitlement year ended March 2008.
- Between 1994 and 2009 the average annual growth in the expenditure on non-NZS benefits and transfers was 4.7%. As a share of GDP, the figure has slightly declined over this period, from 7.0 to 6.5%. A major factor behind this reduction is that benefits are indexed to inflation by convention.

The benefit system comprises the following main income-tested benefits:

- the Unemployment Benefit (UB), for people who are able to work but do not have a job
- the Domestic Purposes Benefit (DPB), mainly paid to sole parents caring for children
- the Sickness Benefit (SB), either for those with short-term conditions that prevent them from working now or for those with longer-term health problems that limit the number of hours they can work, and
- the Invalid's Benefit (IB), paid to people who are unable to work because of permanent and severe health restrictions.

Table 7.1 – Recipients of the four main income-tested benefit types

	End of June 1999	End of June 2004	End of June 2009	Growth 1999 to 2004	Growth 2004 to 2009
Unemployment	150,706	69,771	51,036	-53.7%	-26.9%
DPB	109,516	109,526	105,182	0.0%	-4.0%
Sickness	33,022	44,128	54,892	33.6%	24.4%
Invalid's	51,173	72,342	87,158	41.4%	20.5%

Source: Ministry of Social Development

As well as these benefits, a number of transfers are provided to assist those in financial need. The most significant of these, outside of those delivered mainly via the tax system, is the Accommodation Supplement.

Targeted financial assistance via tax credits is provided to people with dependent children through WFF tax credits. The total cost of WFF was around $2.7 billion in the year to 30 June 2009.

Transfers via tax credits to families with dependent children have become larger in value and more widespread in recent years. In 1998, an earlier form of payments, also mainly delivered via the tax system and which targeted the same groups as WFF does, went to 280,000 families, with an average annual receipt of $3,500. In 2008, WFF was received by more than 384,000 families at an average annual amount of $6,500. Over the intervening decade, the number of recipient families grew by 37% and their average receipt by 84%. Currently, a working family with three children, all aged under 13 years, would still receive some amount of WFF tax credits provided their annual income is below $106,000.[41]

There have been quite different trends around the main income-tested benefit types. UB numbers have dropped sharply in recent years. From a peak above 160,000 at the beginning of the decade, numbers fell steadily over the ensuing years to around 18,000 by the middle of 2008. They have since climbed to around 59,000 at the end of August 2009, reflecting the impact of the economic recession.

DPB numbers have also declined in recent years, from a high around 115,000 in early 1998, to around 97,000 in the middle of 2008. However, they have recently increased to around 107,000 in August 2009, reflecting a combination of a temporary rise in the number of young women having children and the impact of the recession. Like the UB, it is probable that DPB numbers will fall again as the economy recovers and more jobs become available.

SB numbers were around 10,000 (0.3% of the population) in the mid-1980s, but have risen markedly since then. While SB numbers appeared to stabilise during the latter half of the 1990s, this proved to be a temporary lull in growth and numbers have grown steadily to around 55,000 (1.3% of the population) by the middle of 2009.

Growth in IB recipients has been ongoing for more than 30 years. From around 10,000 (0.3% of the population) in the mid-1970s, numbers receiving this benefit have increased, as a percentage of the population, by nearly eight times to more than 87,000 by mid-2009.

There are many factors that have contributed to the growth of both SB and IB, such as the impact of an ageing population, increasing recognition and treatment of a wider range of conditions and removal of older age group work test exemptions from UB. Due to these factors and others, addressing the growth of SB and IB will not be easy. However, given they are two of the major factors driving up non-NZS welfare expenditure, it is an issue that could be considered among the mix of options to reduce overall spending.

Options for managing spending growth

This section considers two possible options for reducing benefit expenditure: changes to the rates and coverage of WFF tax credits, and reducing SB and IB recipient numbers and their subsequent growth. This would potentially allow more to be spent in areas like health and education.

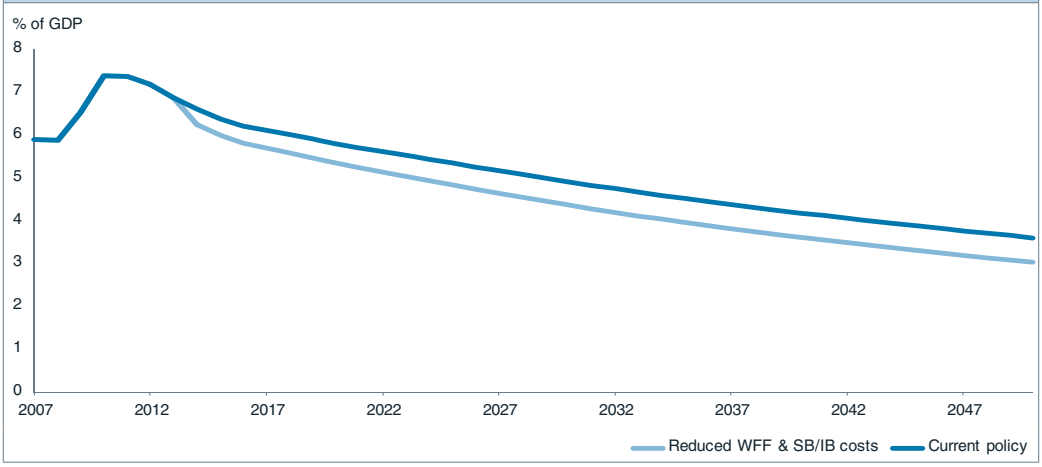
The rationale for including changes to WFF as one of the potential options examined is that stopping the inflation indexing of the abatement threshold would mainly impact families around the centre of the income distribution, rather than those on the lowest incomes.

The SB and IB option has been chosen because these two benefit types have displayed continual growth in numbers well in excess of overall population growth. If the numbers on these benefits could be reduced, or even if the growth in numbers could be reduced, more than just cost savings would be achieved. Getting people off benefit and into work will help those individuals, possibly in more ways than just financially. It will also boost the labour force at a time when an ageing population may see labour force participation and the average number of hours worked declining.

Projections of benefit expenditure are driven by recipient numbers, population growth and the indexation regime for benefit payments. Assuming these income-tested benefits are adjusted annually for inflation, as they have been, at least since 1991, their cost is shown in Figure 7.8. This is our assumption in both the historic trends and sustainable debt scenarios. This figure also depicts a scenario, applying the same drivers, where the costs of both WFF tax credits and SB and IB are reduced from 2013 onwards. For WFF, this is achieved by ceasing inflation indexation of both Family Tax Credit rates, the biggest of the WFF tax credits, and the WFF abatement threshold.

Reducing SB and IB numbers is more challenging. The scenario assumes that combined numbers are reduced, from around 140,000 now, to around 100,000 by 2013 (about where they were in June 2002). After that, they grow in line with the population. Achieving this would involve a complex mixture of changes to policy, services and employment support and training.

Figure 7.8 – Benefit spending[42]



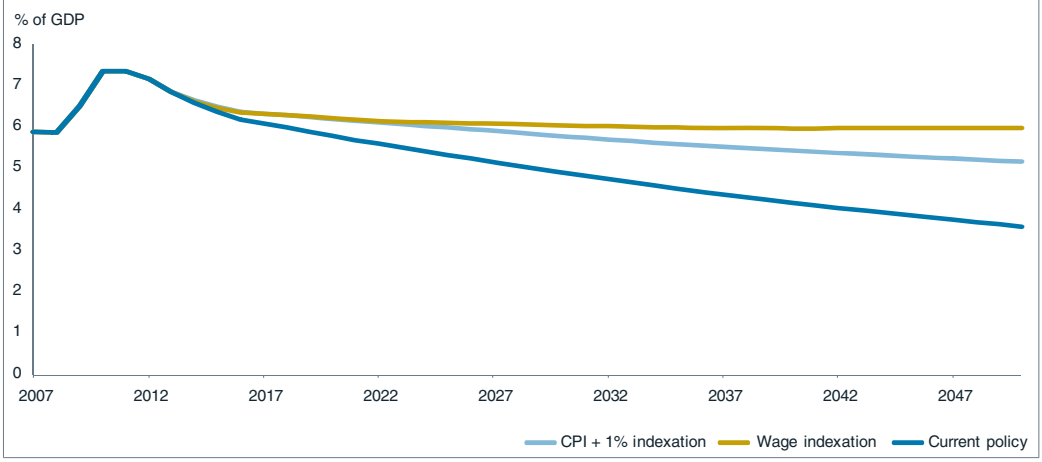
Source: The Treasury

Alternative indexation options

Inflation indexation of benefit rates, using annual growth in the CPI, maintains the real purchasing power of beneficiaries. This enables them to buy the same bundle of goods and services as prices rise. However, it does not allow them to increase their overall consumption over time, as is the case for workers, whose wage growth will generally be higher than inflation, or for superannuitants, whose public pension is indexed to the average wage.

While simply maintaining the real purchasing power of beneficiaries is not out of line with what has happened in New Zealand over the past decade, it is worth considering the fiscal impacts of alternative, higher-indexation regimes. Figure 7.9 shows projections of benefits under two alternative indexation options, along with the current inflation-indexation regime.

Figure 7.9 – Benefit spending



Source: The Treasury

Nominal wage growth indexation could be applied to benefits, in the same manner as for NZS. This results in the real spending power of beneficiaries being around 66% higher than its 2013 level by 2050. This compares to no growth in spending power under the existing CPI indexation assumption. Another option, lying between the indexation options of inflation and wage growth, is to apply a rate 1% higher than inflation growth to benefit rates each year. As a consequence, while spending on benefits still falls relative to GDP, beneficiaries do not fall as far behind workers and superannuitants as under the current regime, with the real spending power of beneficiaries being around 45% above its 2013 level by 2050.

There is a fiscal cost if the rate of indexation is increased. This cost could be in terms of letting debt rise, or increasing taxes to pay for the extra spending. An alternative is to reduce spending in other areas. Indexing benefit payments to CPI inflation + 1% or indexing to nominal wage growth would result in the basket of publicly-funded services being respectively around 10% and 14% lower than in the sustainable debt scenario.

Superannuation

- Spending on NZS was $7.7 billion in 2009.
- Demography is a key driver of superannuation spending. There are 522,000 people receiving NZS now. This is projected to grow to 1.3 million in 2050, causing the cost to rise from 4.3% of GDP in 2009 to 8% in 2050.
- Much of this shift occurs in the next 20 years.
- Our public pension system is unique in the OECD, particularly in its universality.
- NZS's present structure has focused on preventing poverty in old age. A couple receives 66% of the net national average wage (33% each = $14,229 each before tax); there are variations around this depending on a person's circumstances.

Compared with publicly-funded retirement schemes internationally, NZS is simple and easy to understand and efficient, with a low administration cost. The flat rate aspect of NZS means that lower-income earners are assured of post-retirement incomes comparable to their pre-retirement earnings. For higher-income earners, it provides a certain baseline from which they can plan further saving. It is a protection against lack of income due to increased longevity: if you outlive your savings, you will still receive a base income.

NZS differs from public pension schemes in almost all other countries in several ways:

- paid to all residents aged 65 and over (subject to a relatively short residency test)
- indexed annually, effectively to average weekly earnings
- taxed along with all other income
- no income test
- no requirement to retire from paid work
- no asset test
- unrelated to past earnings' history
- not contributory, and
- almost impossible to access before 65.

Most importantly, given long-term issues about the labour market, a person can receive superannuation and still remain in work. Since the late 1990s, NZS has not been income- or asset-tested, which means there is no extra tax on earnings beyond age 65. As a result, NZS tends to discourage early retirement, and since 1999, it has been unlawful for an employer to require the retirement of an employee solely on the basis of age. Participation rates of those older than 65 rose through the 1990s and have continued moving upwards to among the highest in the OECD. Nevertheless, while there are few formal impediments to working beyond 65, participation rates for both males and females tend to halve at 65.

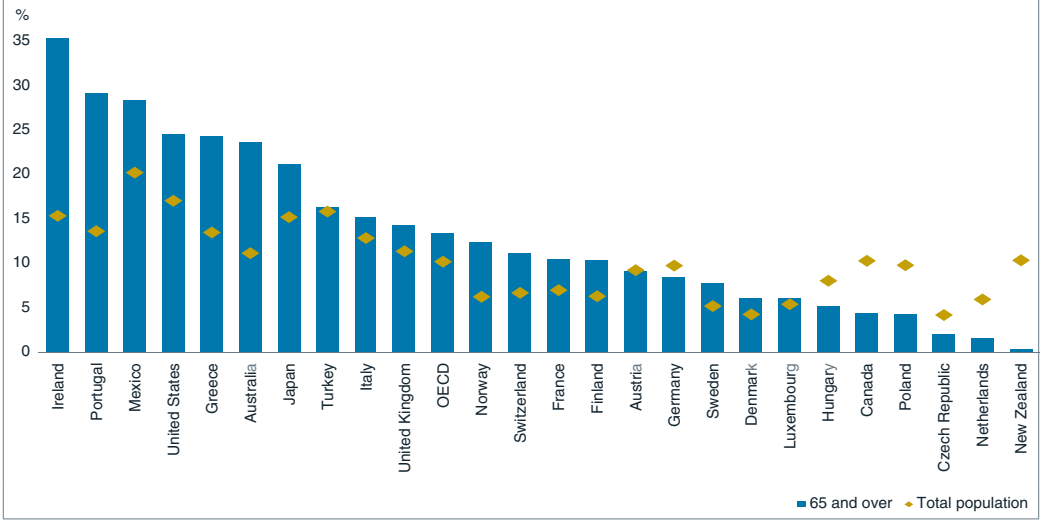
The main issue with NZS is its long-term affordability. Shortly after the present pension system was introduced in 1977 (accompanied by a lowering of the eligibility age from 65 years to 60 years, and a rise in the payment from 65% of the average wage to 80%), the fiscal cost rose to around 8% of GDP. The subsequent lowering of the relativity with wages and raising of the age of eligibility through the 1990s, fewer retirees and a growing economy have brought the ratio of total payments of NZS to GDP closer to 4%. But the accelerating ageing of the population suggests that by mid-century the ratio will return to 8%, or more. Unless there is policy change or an acceptance that this would mean increasing public debt, funding this would require cutting other expenditure, or lifting tax rates.

Role of the New Zealand Superannuation Fund

In 2001, the government created the New Zealand Superannuation (NZS) Fund, and until this year had added about $2 billion a year to the NZS Fund. The Fund was designed to help smooth the future cost of NZS over time. Current tax dollars have been placed in the Fund, where they earn investment returns. The Fund will eventually be used to help cover some of the cost of paying NZS – about 8% of the net cost of NZS in 2050. The Government's decision to suspend contributions to the Fund (as outlined in the 2009 *Fiscal Strategy Report*) does not change the level of NZS payments. The contribution holiday means that when payments to the Fund resume they will likely be larger, the point where the Fund is drawn down starts a few years later and more of the NZS payments will need to be covered by tax at the time it is needed. Without the contribution holiday, the Fund would have covered about 11% of the net cost of NZS in 2050.[43]

For many New Zealanders, NZS (along with the similar Veterans Pension) is the major source of retirement income, so the adequacy of this income also needs to be considered. International and national reports rate NZS highly in achieving the objective of the prevention of poverty in old age. Using the 50% of median threshold, Figure 7.10 shows that the poverty rates for New Zealanders aged 65 years and older are lower than other OECD countries. This is because the 50% median is below the value of NZS.

Figure 7.10 – Poverty rates[44]



Source: OECD – Society at a Glance, Social Indicators (2005)

Based on this measure, the OECD has noted that New Zealand has "successfully erased poverty among the elderly".[45] A more comprehensive assessment, however, requires comparisons at other thresholds. With poverty rates using a 60% threshold for 20 European countries and New Zealand, New Zealand goes to the opposite end of the spectrum, reporting the highest poverty rate at 34% for those aged 65 and over.[46]

A 2007 report released by the Ministry of Social Development suggest that older people in New Zealand generally have adequate incomes that provide them with a reasonable standard of living.[47] This assessment varies with population subgroups and is not so positive for older Māori and single people, especially single women. The adequacy of NZS payments is reflected in the low levels of poverty and hardship among the older population. The report says this conclusion also depends on the high levels of mortgage-free home ownership among current retirees. It is important, the report notes, that future generations of older people enter retirement as home-owners – either mortgage-free or with small mortgages – because mortgage-holders and those who live in rental accommodation are among the most disadvantaged.

Options for managing spending growth

Earlier sections have discussed the kinds of adjustments that are likely to be required in other government spending areas to ensure a sustainable long-term fiscal position. Some of these changes will require significant shifts in the way government services are provided and in expectations about what services will be provided. Changes to eligibility and entitlements for NZS that reduce its total cost would reduce the extent to which other public services would have to adjust.

Many countries have reacted to the fiscal effect of ageing on publicly provided pensions by announcing or introducing changes to the age of eligibility and indexation regimes in their

pensions. These reflect similar debt, spending and demographic pressures we are facing in New Zealand.

This section looks at three aspects of NZS – the age of eligibility, indexing, and targeting – to illustrate possible types of changes and their relative effects on the balance between the affordability of superannuation and income adequacy for older people.

The eligibility age

When New Zealand's old age pension was introduced in 1898, the average person might have expected to start working at 15 years, life expectancy was around 60 and the retirement age was 65. In 2009, we typically do not start working until 20 years or so, have a life expectancy of 80 and a pension age of 65.

Table 7.2 – Life expentancy and pension age

	1898	1977	1990	2009	2030	2050
Life expectancy	60	74	76	80	83	85
Pension age	65	60	60	65	65	65

Sources: The Treasury, Statistics New Zealand

Many countries are lifting their pension ages beyond 65 years: Australia and Germany to 67; the United Kingdom to 68; and Denmark to 67. Along with Norway, Iceland and the United States, that brings to seven the number of OECD countries that already have or plan to have pension ages above 65.

The Danish system

Denmark is the only country so far to enact legislation indexing the eligibility age to increases in life expectancy. This change takes effect with a long delay. One old-age scheme in Denmark is a universal old-age pension that has a residence test, but no work history requirement. The eligibility for this pension will rise by six months each year from 2024 to 2027, so that the pension age increases from 65 to 67 years. Thereafter, increases in the eligibility age will be tied to increases in life expectancy, with any increase required to be announced five years in advance. By 2045, the age is expected to reach 68.3 years. Similar changes are planned for an early retirement pension, where the present eligibility age is 60. The goal is for the early retirement age to be raised so that life expectancy from that age, measured at age 60, will be 19.5 years. Thus, the Danish reform does not split the increased life expectancy between the working years and the retirement years, but fully raises the eligibility age for increases in life expectancy.[48]

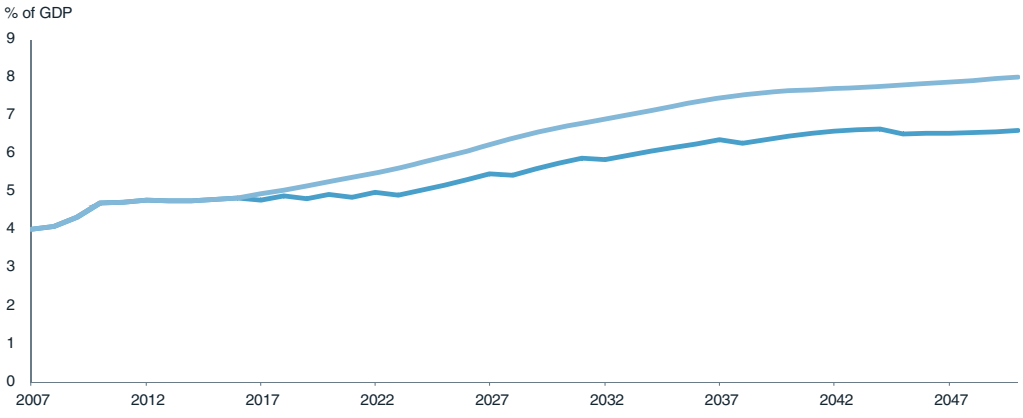
In its 2009 *Budget*, the Australian Government announced that it would move the age for receiving the pension from 65 to 67 between 2017 and 2023, giving future superannuitants at least eight years to adjust their saving and working patterns. We model the effects of a similar

change here that also includes an additional six-month lift in the eligibility age each time life expectancy at 65 rises by six months. This would mean the eligibility age would reach 69 by the late 2040s.

A rising pension age may encourage more people to work a bit longer – they may work shorter hours or do a couple of part-time jobs. This means more output, more tax dollars and more time to save for retirement. The effect on GDP is relatively small but growing through time so that by 2050 GDP is 2.5% higher.

The modelled rise in pension age to 69 by 2050 produces a fall in the ratio of NZS to GDP by 1.5 percentage points. While this scenario reduces the potential number of NZS recipients, the size of the weekly NZS payments to people is not changed and the overall affordability of the programme is improved.

Figure 7.11 – NZS spending



Source: The Treasury

Adopting these changes would mean that the basket of publicly-funded services in 2050 would be about 11% above 2013 levels, instead of 2% in the sustainable debt scenario.

An argument against proposals for lifting the pension age is that it is unfair on people with lower life expectancy (for example, Māori, or males in general). This depends on views of what the universal pension is about – social insurance to prevent poverty in old age, an entitlement or income replacement. Life expectancy and other demographic indicators for males and Māori have been converging to those of non-Māori females over the long run. Despite the recent slowing of this convergence it is assumed that these long-run trends will continue.

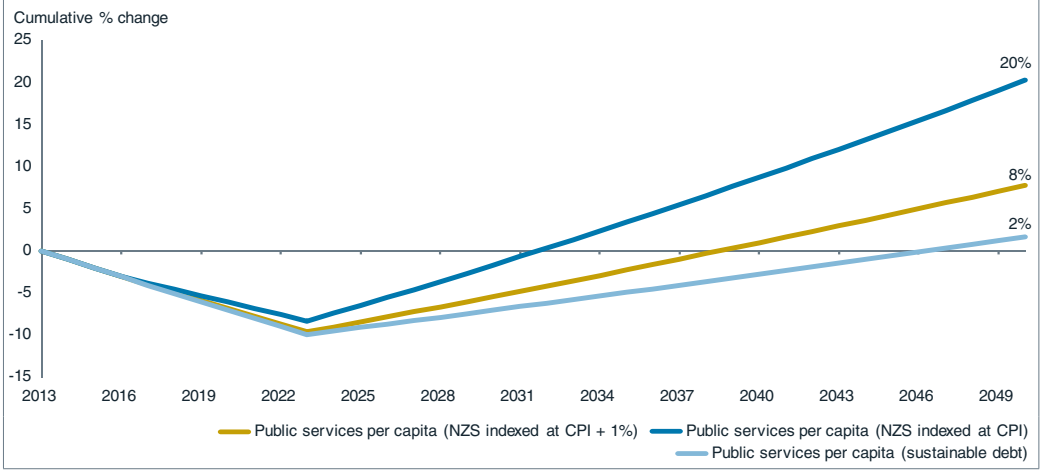
Superannuation indexing

Any change to labour productivity growth (output for each hour worked) will typically feed through to GDP growth and wage growth and then to NZS payments. This is a feature of the current system – retired people receive rising NZS payments because of the link to wages. If NZS

payments were instead indexed to inflation only, then recipients would be able to buy the same bundle of goods and services, but not an increasing one.

Inflation indexation from 2017 would reduce the fiscal cost of NZS to 5% of GDP in 2050 and the ratio of NZS to the average wage would fall to almost half of what it is now. The NZS payment in 2050 with CPI indexation would be around 23% of the average wage, down from around 40% now. This is about the same proportion of the average wage as universal pensions in a group of other OECD countries such as the United States, Denmark and Germany (some of these are means-tested). Again, these changes would free up significant resources to provide publicly-funded services across the entire population. CPI indexing would see the basket of services grow steadily from 2023, so that by 2050 it would be nearly 20% higher than the 2013 level. Indexation of CPI + 1% would see the basket of services grow 8% above the 2013 level by 2050.

Figure 7.12 – What individuals receive from the Government – inflation-adjusted



Source: The Treasury

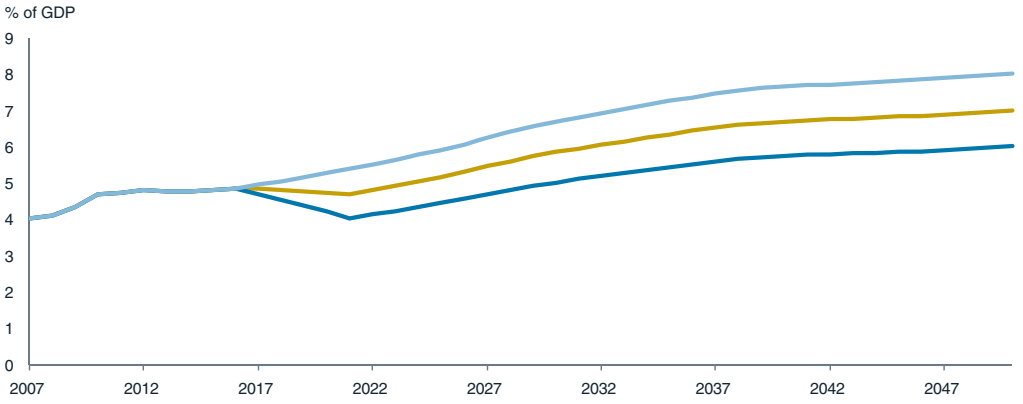
Targeting superannuation

The final scenarios deal with income or asset testing around NZS payments. Abandoning universality would complicate the superannuation system and encourage people to shelter income so that it was not included in the pension calculation. It is, however, only in the past 30 years that we have not had some form of income or asset testing, and even then the surcharge from the mid-1980s to the late 1990s was a form of income testing. Targeting is a feature of public pensions in most of the OECD countries such as Australia, Canada and the United Kingdom. A robust abatement regime would provide the opportunity to target payments towards people with more limited resources, or direct more money elsewhere.

In this scenario, those with higher income are paid less NZS. For three-quarters of the people 65 and over, NZS made up more than 80% of their weekly income in 2007.[49] For the remaining top quarter of income earners, NZS was only 20% of their income. Here we model scenarios in

which superannuitants in the top income quartile will either have half or all of their NZS payments reduced by an income test. This is phased in over five years, starting in 2017.

Figure 7.13 – NZS spending



Source: The Treasury

Reducing half the NZS of people in the wealthiest quarter of those aged 65 years and over has a similar effect on the basket of publicly-funded services as the CPI + 1% indexing scenario, as the basket is 8% above the 2013 level in 2050. If the wealthiest quarter of retirees were to forgo all of their NZS entitlement, then the fiscal savings could be used to increase the basket by 16% above its 2013 level.

The scenarios show that far greater gains in NZS affordability are achieved in moving indexation to inflation than by the changes to the age of eligibility we have modelled. Conversely, labour market gains (and tax revenue) are likely to be higher with changes to the age of eligibility.

The latest change to the New Zealand pension and savings system, the automatic enrolment KiwiSaver scheme of private individual accounts, may eventually play a significant role in providing retirement income for middle-income earners. By 30 June 2009, it had 1.1 million members, or about half of the labour force under 65. A New Zealand study showed that 23% of workers had private pensions in 1990. By 2004, only 14% of the labour force was covered by private schemes.[50] This fall may be a consequence of the success of NZS at poverty prevention over the past three decades and of changes to the taxation of pensions.

If KiwiSaver ensures that more people have greater private savings (and for some this is debatable), this could allow changes to both indexation and the eligibility age. A greater level of private provision for retirement would provide governments with an opportunity for restructuring NZS to reduce its fiscal cost. This could enable NZS to maintain its role in providing an adequate income floor for keeping poverty in old age at a low level.

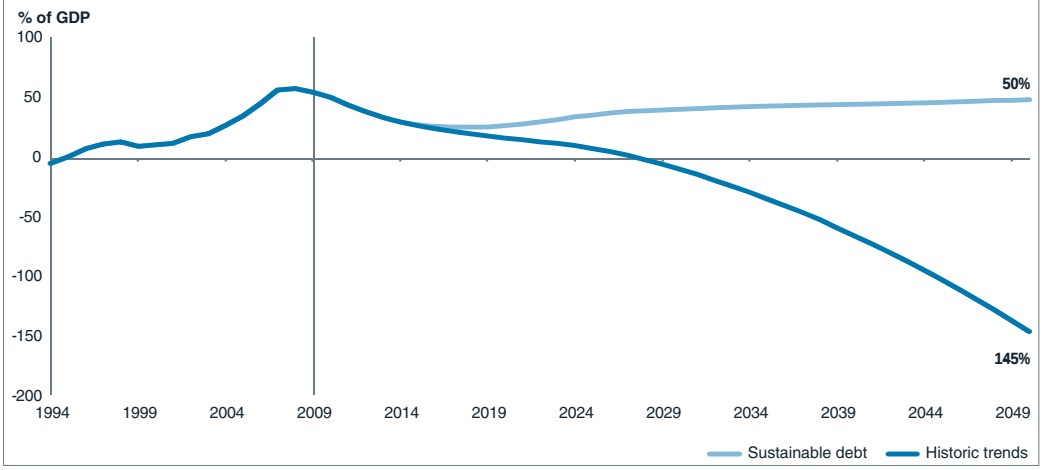
Assets and liabilities

- The government's balance sheet comprised $217 billion in assets and $118 billion in liabilities, as at 30 June 2009.
- The government's net worth is projected to fall from 56% of GDP in 2009 to 31% in 2013, reflecting the impact of the recession.

While the fiscal outlook is primarily driven by taxation and spending flows, changes in asset and liability values also matter for the Government's fiscal position.

A broader measure of the Government's fiscal position than net debt is net worth, the difference between the assets and liabilities on the balance sheet. The balance sheet is made up of assets, debt and non-debt liabilities such as obligations to people under the accident compensation scheme. The Government's net worth is projected to almost halve as a percent of GDP over the next five years, due to rising debt as the Government absorbs much of the impact of the recession on its balance sheet.

Figure 7.14 – Total Crown net worth



Source: The Treasury

Maintaining a net worth buffer over time enables the government to absorb future shocks. The government holds assets for a variety of reasons, but these need to be managed in a manner consistent with achieving the government's fiscal objectives.

Some assets have largely commercial objectives. State-owned enterprises comprise $45 billion of assets and Crown financial institutions (such as the NZS Fund and Accident Compensation Corporation) hold $34 billion of financial assets such as share market investments. Managing these commercial and financial assets to achieve commercial rates of return will be beneficial to the long-term fiscal position, as well as the performance of the New Zealand economy.

New spending on capital initiatives, just like operating expenditure, will be constrained by long-term fiscal pressures. Planned new capital expenditure allowances are projected to be $1.65 billion until 2015, reflecting the Government's infrastructure investment policy. After that, the capital allocation, under both main scenarios, is projected to reduce to $950 million a year and grow with inflation beyond that. This compares with new capital spending allowances averaging $2.1 billion in the *Budgets* from 2000 to 2008.

The available amount of new capital spending will impact on the level of capital assets that the Government holds for non-commercial purposes, such as prisons and hospitals. This emphasises the importance of disciplined capital investment decisions and, where appropriate, learning from the private sector to most effectively manage those capital assets. Capital-intensive sectors may require wider institutional reforms to manage to a constrained capital expenditure growth path (for example, criminal justice policies impact on the need for new prisons).

Managing future shocks to the balance sheet

The recent global financial crisis and subsequent global economic recession have had dramatic impacts on the balance sheets of governments across the OECD. It is likely that another sharply negative economic shock will occur at some point over a 40-year horizon, particularly given that many of the global and domestic imbalances that existed prior to the current shock still remain. Providing a buffer against such potential future shocks is one rationale for ensuring that the Government's debt is managed down to prudent levels.

The projections assume that the rate of economic growth reaches and remains at trend over the period from 2016. This implies that macroeconomic shocks are symmetric – upturns and downturns average out. Even if this is the case, the response of policy makers may not be. Increased spending (and lower taxes) in downturns to smooth economic activity may not be matched by spending restraint (and higher taxes) during upturns.

Furthermore, the risks for the New Zealand economy could be weighted to the downside. For example, the New Zealand economy has vulnerabilities stemming from high levels of external debt. If these imbalances do not unwind smoothly, adverse economic scenarios could be envisaged where a sharp and painful current account reversal occurs as foreign investors withdraw their capital.

The Crown's balance sheet is exposed to a wide array of other risks – for example, the market volatility of its financial assets and liabilities, as well as off-balance sheet exposures such as explicit and implicit contingent liabilities. An explicit contingent liability is the government's deposit guarantee scheme which, in the event of failure of financial institutions, could represent a call on the Crown of some portion of the $130 billion facility. Implicit liabilities include risks that governments could be expected to take on the liabilities from other parts of the economy, such as natural disasters.

Climate change

- The economic and fiscal effects of climate change are uncertain and are not explicitly modelled in these projections.
- The Emissions Trading Scheme (ETS) is assumed to be broadly fiscally neutral over time.

Climate change represents a key area of uncertainty. Potentially, climate change could affect New Zealand in two main ways: the effects of physical change in the global climate; and the effects of New Zealand's international climate change commitments and domestic policy.

The physical effects of climate change could be significant. International models predict the consequences for New Zealand will be temperature increases and more marked seasonality, including increased rainfall in the west and drier conditions in the east during winter and spring. Climate change will, by and large, not create new risks, but may change the frequency and intensity of existing risks and hazards.[51] The 2007 *Stern Review* indicated that 2 to 3°C warming could result in the equivalent of around a 0 to 3% loss in global GDP, though the relative effects on New Zealand's economy from physical climate change are likely to be less.[52] Physical climate change in other countries may have an impact on New Zealand; for example, by increasing migration, or shifting trade balances.

New Zealand ratified the Kyoto Protocol in 2002, committing to an emission target of 1990 levels for the first commitment period of 2008 to 2012. Current negotiations for future climate change commitment periods could have significant economic and fiscal implications. The economic implications include the direct costs of meeting an emission target through mitigating emissions or purchasing carbon credits, and the wider growth implications for different sectors of the economy. Economic modelling by the New Zealand Institute of Economic Research (NZIER) and Infometrics has indicated that the total economic costs of a 2020 target of between a 10 and 20% reduction below 1990 emission levels could be around 2.5% of GDP from 2020.[53] There may also be expectations for government to provide additional funding to mitigate emissions and adapt to climate change, both here and in aid for developing countries. In the long term, the Government has a goal of a 50% reduction in net emissions below 1990 levels by 2050.

The ETS is the government's primary mechanism for achieving emissions reductions domestically. Recent ETS amendments are likely to leave the Government with a net fiscal cost over the first commitment period (2008 to 2012), although the Government has indicated an intention to make the scheme fiscally neutral over the medium to long term.

The introduction of an ETS, and hence a price on carbon into the economy, is expected to have different impacts on different sectors in the economy. There could be significant adjustment costs under certain circumstances, particularly if areas of traditional strength in the New Zealand economy (eg, agriculture) are particularly affected. Overall, the net costs of adjustment will depend on the degree of innovation in the economy, which a price on carbon should stimulate.

Part C – options

8 Combined scenarios

In the following combined scenarios we look at the impact that various policy changes could make to the long-term fiscal outlook. There are numerous policies or options that could be looked at, and different ways of measuring the effects of change. For simplicity, the three options we look at are all measured in terms of changes to the sustainable debt scenario, which is referred to below as the base case. At one level, this assumes that governments will continue to follow the principles of responsible fiscal management contained in the Public Finance Act (1989), meaning that they will act to ensure that debt remains manageable. At another, it is useful as this scenario highlights that there are significant discussions to be had and choices to be made about what sorts of things, and how much, the government provides.

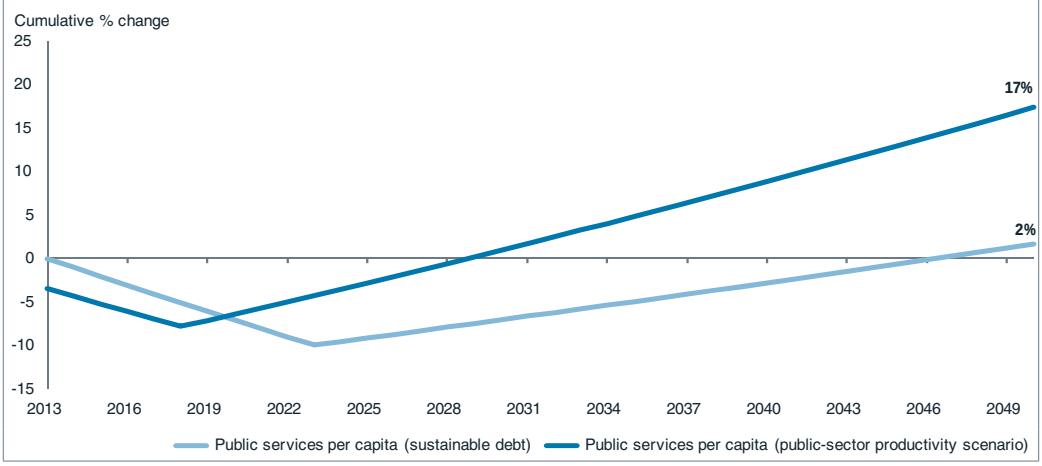
As with the other scenarios in this document, these are illustrative examples of changes that could be made, not policy proposals.

The public sector productivity scenario

This scenario projects how the basket of services to the average New Zealander could be increased by broad-level changes to government policies and the way services are delivered through the public sector. It shows the effect of spending an average $2.3 billion (3.1% of core Crown expenses, excluding debt financing costs) less per year than in the base case over the next decade by stopping less effective programmes, and doubling productivity growth across the public sector from the base case assumption of 0.3% a year to 0.6%.

As discussed in section 6, higher public sector productivity growth – if it can be achieved – has a marked impact on the level of publicly-funded goods and services that can be provided for a given level of spending. In addition, while the lower government spending over the next decade means a lower level of services initially, it results in lower debt and hence reduces debt servicing costs – resulting in even larger gains over the medium term. Overall, the basket of goods and services is 17% higher than its 2013 level by 2050, compared to just 2% in the base case.

Figure 8.1 – What individuals receive from the Government – inflation-adjusted



Source: The Treasury

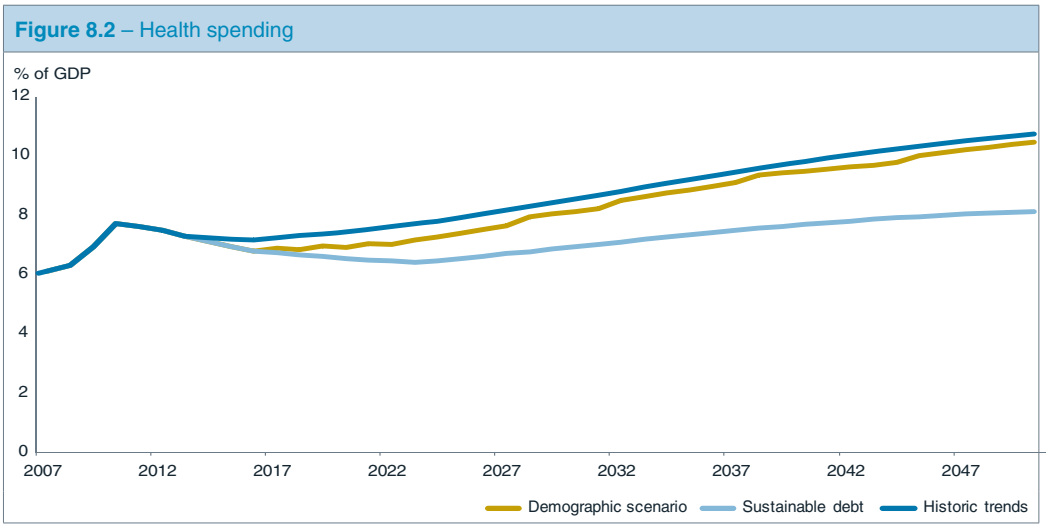
Achieving the doubling in public sector productivity growth projected in this scenario would be a significant challenge. It would require sustained effort by government to rigorously test the quality of its expenditure. It would also require system improvements, so that institutions making spending decisions on delivering services are incentivised to ensure resources are used efficiently.

The demographic scenario

This scenario projects what would happen if the cost of the demographic changes was redistributed between the two areas most affected by population ageing – health and superannuation. In the base case we model that superannuation policy continues as at present and maintaining stable debt is achieved by allowing tax to increase through fiscal drag over the next 14 years, and by reducing the amount of other public services delivered to New Zealanders.

In this demographic scenario, we project what would happen if one aspect of that basket, health services, was to receive extra spending through an adjustment to the age of eligibility (increased to 67 by 2023 and then indexed to longevity) for NZS as well as indexing the entitlement to 1% above inflation (CPI + 1%), instead of the average wage. This still slightly increases the purchasing power of NZS each year.

Figure 8.2 – Health spending



Source: The Treasury

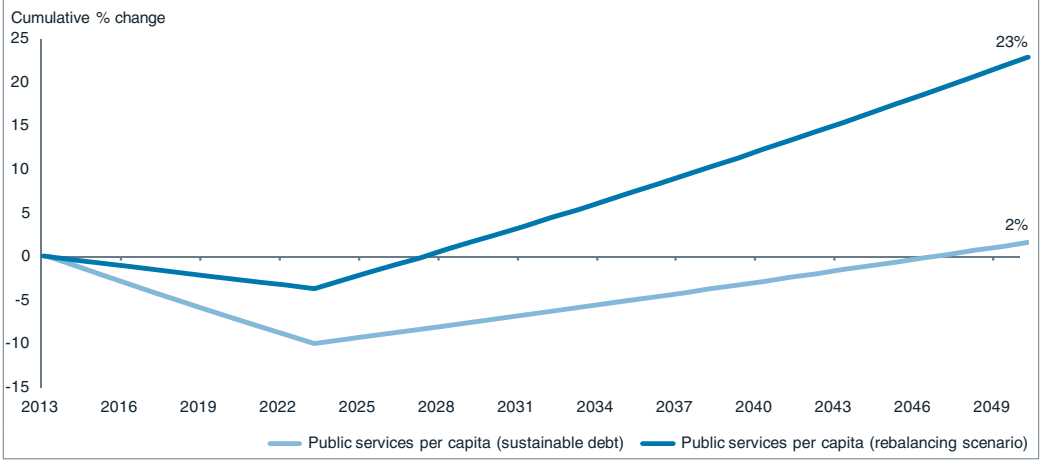
As a result of these policy changes, the cost of NZS is 2.3% of GDP lower by 2050 than in the base case. As Figure 8.2 shows, transferring the savings from NZS to health means that the level of health spending would be significantly higher than the base case, and almost as high as it is in the historic trends scenario. This does not mean that the historic trends scenario is a target level of health spending, but shows the effect of this type of policy change. Although this change represents NZS recipients receiving a lower overall entitlement at a slightly later age, these same recipients also benefit from a relatively higher level of health services because health spending per person tends to be higher among older age groups.

The rebalancing scenario

Aside from the partial pre-funding provided by the NZS Fund, NZS is largely a pay-as-you-go system, whereby NZS costs at any point in time are funded from taxes at that time. As shown in the tax section, using just taxes to fund the increased government spending associated with population ageing would require a significant increase in taxes, and would be likely to have significant negative consequences for growth, which would mean reduced incomes for people and less revenue for government spending.

This rebalancing scenario considers a policy mix of increased taxes and reduced NZS and benefit costs to try to meet the fiscal challenges – as an alternative to the base case, where spending on public services is constrained so that debt remains at sustainable levels. It models a situation where people pay slightly more tax overall, and assumes a long-run tax-to-GDP ratio of 31% instead of the 30% projected in the base case. It assumes that the eligibility age for NZS is lifted to 67 progressively from 2017 to 2023 and then linked to longevity thereafter. It also assumes a reduction in the generosity of WFF and tightens the eligibility criteria for sickness and invalid benefits. In particular, we cease the inflation indexation of Family Tax Credit rates and the WFF abatement threshold, as well as reducing total sickness and invalid beneficiary numbers to 100,000 by 2013, down from nearly 140,000 currently.

Figure 8.3 – What individuals receive from the Government – inflation-adjusted



Source: The Treasury

The lower NZS and benefit costs and the higher tax revenue provide more money to be spent on other goods and services. Roughly half the fiscal improvement is from the NZS and benefit changes and half from increased taxes. The result is that the basket of services is projected to be 23% above 2013 levels by 2050. However, while the increase in tax in this scenario is smaller than in the scenario discussed in the tax section, it is still likely to result in lower GDP than in the base case.

9 Conclusion

This *Statement* shows that aggregate spending and revenue determine whether the fiscal position is sustainable, and that various policy mixes can achieve this. At this stage, we do not know the exact mix of policies that will be required by future generations of taxpayers, nor do we know what shocks the economy will experience over the decades ahead. However, some changes are likely to be better than others for our future welfare and fiscal sustainability.

The three combined scenarios in section 8 illustrate the trade-offs implicit in living with lower spending growth than we have previously had. Without significant public sector productivity gains, lower spending growth will mean fewer services per person. Yet, continuing to increase public spending ahead of revenue produces a debt situation that is even more challenging. Similarly, raising taxes to cover the shortfall could have serious economic consequences. While lower spending in some areas may diverge from current public expectations, the alternative of higher levels of public debt would impose costs on everyone through higher debt servicing costs, taxes and interest rates. Ultimately, this spiral will restrict our future prospects and harm the living standards of generations to come.

As a society, we should be discussing the challenges and choices, and associated trade-offs, that must be faced to ensure a sustainable fiscal future. This document provides some general conclusions that can inform these discussions.

- **Make early changes**. The longer adjustments are delayed, the larger those adjustments will need to be in future. A number of adjustments, starting early, would be sufficient to maintain the fiscal position. Making early incremental policy change reduces the risk of eleventh-hour decision-making, and gives people time to adjust.
- **Keep debt under control**. If current policies lead to increasing debt, the resulting financing costs can quickly spiral out of control. Future generations will find it difficult to set their own spending priorities, or meet unforeseen challenges, if a large part of future revenue is required for servicing debt built up by previous generations.
- **Encourage workforce participation**. Demographic shifts mean all developed countries will be competing for labour and skills. Policies that encourage people to enter work, to stay in New Zealand or to return after their overseas experience, will help grow the economy and the tax base. Particularly important will be tax settings that spur employment, and policies that encourage older people to continue paid work that suits them.
- **Focus on growth**. Stronger economic growth means the country and individuals will be wealthier, resulting in a larger tax base. Decisions about fiscal settings should consider the impact on growth – this is particularly relevant for the overall level and mix of spending and tax. Many publicly-funded services contribute to economic activity in the private sector, so ensuring

the right services are delivered as efficiently as possible can contribute to a more productive economy. However, while stronger growth helps, it will not solve the fiscal problem.

- **Keep spending under control and lift public sector productivity**. This would involve governments pursuing an ongoing strategy that includes:
  - Reprioritising within existing spending – discontinuing poor value spending and reprioritising the existing $64 billion spending base towards relatively more cost-effective services. All policies should be open for examination, since excluding some areas reduces flexibility and means that larger changes in spending will have to come from other areas, or from higher tax and debt. Reprioritising existing spending can also reduce demand for new spending.
  - Setting a high threshold for new spending – any new spending being based on clear evidence of cost-effectiveness. It is easier not to introduce a poor-quality programme than to remove an existing one. Public sector chief executives have an important role in ensuring governments receive robust advice on the cost-effectiveness of policy initiatives.
  - Securing a cost-effective mix of price, volume and quality for services – striving to get the same service for a cheaper price, targeting entitlements based on need or ability to pay and ensuring the quality standard is fit for purpose.
  - Looking at institutional arrangements – ensuring that institutions, including those that make spending decisions or deliver services for the government, are incentivised to use resources in cost-effective ways and manage spending pressures within current resources.
  - Managing public expectations – publicly debating what services the government can reasonably afford to provide, and to whom, given the negative economic consequences of higher taxes or debt.

Fundamentally, a sustainable fiscal position requires that spending and revenue not to deviate from each other for long periods. Returning from our current position of deficits to one of surpluses will require tough decisions about reprioritisation, which will then need to be followed by equally hard decisions further out. The trade-offs become harder and the changes required get more severe as each year of inaction passes.

This is not a case for despair, but for beginning to act soon. The largest single driver of the fiscal position is the policy choices governments make on behalf of society, which means that we have the power to make the necessary changes.

Appendix 1 – key assumptions

This appendix contains a list of the key demographic, economic and fiscal assumptions used in the *Statement*.

There are distinct periods of time in the projections, with different underlying assumptions. The forecast period covers 2009 to 2013. The figures in this period are based on the forecasts published at the *Budget 2009 Economic and Fiscal Update*. The figures for the 2009 year have been updated for the 2009 actuals, published by the Treasury in October 2009. The projection period runs from 2014 to 2050. The assumptions listed below apply for the projection period.

Demographic assumptions

The projections use Statistics New Zealand's mid-range Series 5 demographic projection, produced for the Treasury (March 2009), which contains the long-run assumptions of:

- total fertility rate of 1.9 children per woman
- life expectancy at birth rising, at a slowing rate, to 88 years for females and 84.5 years for males in 2050, and
- annual net migration of 10,000 people.

Years gained from longer life expectancy are assumed to result in additional healthy years of life; the incidence of disability is assumed to reduce.

Labour force participation rates are based on these population projections and Statistics New Zealand's long-run labour force projections.

Economic assumptions

The economic assumptions below are applied over the projection period. There is some degree of recovery to these long-term assumptions in the early years of the projections, where the long-term rates or levels have not been reached at the end of the forecast period.

Unless otherwise stated, the long-run values for key economic variables apply to both of the two main modelling approaches – historic trends and sustainable debt.

Variable	Annual value (long-run)
Economy-wide labour productivity growth	1.5%
Inflation	2.0%
5-year nominal government bond rate	6.0%
Unemployment rate	4.5%
Average hours worked per week	38 hours
Public sector input price growth (inflation-adjusted)	1.2%
Public sector productivity growth	0.3%
Non-demographic demand growth, under historic trends (inflation-adjusted)	0.8%

Other long-run economic assumptions include:

- inflation-adjusted wage growth in the private sector matches labour productivity growth, and
- public sector wage growth matches wage growth in the private sector.

Fiscal assumptions

Many of the fiscal assumptions vary between the two main modelling approaches – the historic trends and the sustainable debt scenarios.

Variable	Treatment
Debt	Under the historic trends scenario, net debt is a residual of long-run spending and revenue projections. Under the sustainable debt scenario, the level of net debt is imposed as a fiscal constraint. The level of net debt follows the 2009 *Fiscal Strategy Report* projections, peaking at 36% of GDP in 2017 and falling to 31% of GDP in 2023. Net debt continues to trend lower thereafter, reaching the long-run target of 20% of GDP by 2050.
Tax revenue	Tax revenue is linked to growth in nominal GDP. Under both scenarios, fiscal drag on PAYE tax causes the tax-to-GDP ratio to rise to 31% by 2023. This ratio is then returned to a long-run average of 30% and held at this level for the rest of the projection period.
New Zealand Superannuation	Demographically adjusted and linked to net wage growth, via the "66% wage floor". The latter refers to the net (after-tax) weekly NZS rate for a couple being constrained to lie between 66% and 72.5% of net average weekly earnings.
Benefits	Demographically adjusted and linked to inflation.
Other expenditure	Under the historic trends scenario, other expenditure grows by: ■ demographic growth (growth of the relevant population) ■ inflation ■ inflation-adjusted public sector price growth ■ inflation-adjusted non-demographic demand growth (an estimate of non-demographic volume growth based on historic trends), and ■ partially offset by public sector productivity growth. Under the sustainable debt scenario, new spending (via the operating allowance) is set at $1.1 billion, growing with inflation until 2023 – as outlined in the 2009 *Fiscal Strategy Report*. Thereafter, new spending is set at a level consistent with meeting the long-run debt objective of 20% of GDP, given the revenue assumptions (see above).

Variable	Treatment
Finance costs	A function of debt levels and interest rates.
Capital allowance	$1.65 billion in 2014 to 2016. It then drops to $955 million in 2017, and increases with the rate of inflation over the rest of the projection period.
New Zealand Superannuation Fund	Consistent with the *Fiscal Strategy Report* in *Budget 2009*, contributions to the Fund suspended until 2020. Contributions begin again in 2021, and are consistent with the New Zealand Superannuation and Retirement Income Act (2001).
Emissions Trading Scheme	A fiscally-neutral impact is modelled in the projections. The fiscal impact of the ETS depends on several highly uncertain factors, most notably future carbon prices and New Zealand's emissions targets from future international climate change agreements.

A more detailed outline of the assumptions used in the modelling will be available in an accompanying technical paper.

Endnotes

1 All years in this document refer to the year ended 30 June and fiscal data are from a core Crown perspective unless stated otherwise.

2 Inland Revenue Department (2008) *Briefing for the incoming Minister of Revenue – 2008*. Wellington, Inland Revenue Department, November 2008. http://www.ird.govt.nz/aboutir/reports/briefing/

3 This has been calculated as the difference between core Crown revenue (excluding core Crown investment income) and core Crown expenses (excluding core Crown finance costs).

4 The Economist (2009) "Special report on ageing." *The Economist*, 25 June 2009. http://www.economist.com/specialreports/

5 The fiscal dividend is defined as the change in government revenue minus the change in automatic adjustments to expenditure. The automatic spending adjustments result from the assumption that labour productivity growth is linked to expenditure on NZS and public sector wages. The calculation was done using policy settings for the first year of the projection period (2013/14). It is assumed that nominal tax scales are unchanged (ie, there is fiscal drag). This accounts for the additional tax revenue being 33% of the additional GDP, higher than the overall average tax rate (which is 29% of GDP).

6 Romer, Christina D, and David H Romer (2009) "The macroeconomic effects of tax changes: estimates based on a new measure of fiscal shocks." University of California, Berkeley, April 2009.

7 Dumont, Jean-Christophe and Georges Lemaitre (2005) “Counting immigrants and expatriates in OECD countries: a new perspective.” OECD Social, Employment and Migration Working Papers No.25, Paris, OECD. http://www.oecd.org/dataoecd/34/59/35043046.pdf

8 Inland Revenue Department (2008) *Briefing for the incoming Minister of Revenue – 2008*. Wellington, Inland Revenue Department, November 2008. http://www.ird.govt.nz/aboutir/reports/briefing/

9 Creedy, John, Jamas Enright, Norman Gemmell and Angela Mellish (2009) "Population ageing and taxation in New Zealand." Melbourne, University of Melbourne, Research Paper No. 1078, July 2009. http://www.economics.unimelb.edu.au/research/workingPapers.html

10 Arnum, Hans, Thomas Dohrmann, John Dowdy and Allison Phillips (2009) "Government's productivity imperative." McKinsey & Company, *McKinsey on Government*, 2009(4). http://www.mckinsey.com/clientservice/publicsector/pdf/TG_MoG_Issue4_productivity.pdf

11 Bouvard, François, Thomas Dohrmann and Nick Lovegrove (2009) "The case for government reform now." McKinsey & Company, *McKinsey Quarterly,* 2009(3). https://www.mckinseyquarterly.com/PDFDownload.aspx?ar=2371

12 Ministry of Health (2008) *Health expenditure trends in New Zealand 1996-2006*. Wellington, Ministry of Health, September 2008. http://www.moh.govt.nz/moh.nsf/indexmh/health-expenditure-trends?Open

13 New Zealand Treasury (2006) *New Zealand's long-term fiscal position*. Wellington, New Zealand Treasury, June 2006. http://www.treasury.govt.nz/government/longterm/fiscalposition/2006

14 OECD (2006) "Projecting OECD health and long-term care expenditures: What are the main drivers?" Economics Department Working Papers No.477, Paris, OECD. http://www.oecd.org/dataoecd/57/7/36085940.pdf

15 Congressional Budget Office (2008) "Technological change and the growth of health care spending. A CBO paper." Washington DC, Congress of the United States. http://www.cbo.gov/ftpdocs/89xx/doc8947/01-31-TechHealth.pdf

16 Ministry of Health data on Vote Health initiatives.

17 Nolte, Ellen C and Martin McKee (2008) "Measuring the health of nations: updating an earlier analysis." *Health Affairs* 27(1). http://content.healthaffairs.org/cgi/content/abstract/27/1/58

18 OECD (2009) *OECD economic surveys: New Zealand.* Paris, OECD, Vol. 2009/4. See also: Mays, Nicholas and Gary Blick (2008) "How can primary health care contribute better to health system sustainability?" Wellington, New Zealand Treasury. http://www.treasury.govt.nz/publications/informationreleases/health/primaryhealthcare

19 Ministry of Health (2008) *Health and independence report 2008.* Online appendix. http://www.moh.govt.nz/moh.nsf/indexmh/health-independence-report08

20 OECD (2007) *Health at a glance: OECD indicators.* Paris, OECD.

21 Ministry of Health (2009) "DHB hospital benchmark information: report for the quarter October – December 2008." Wellington, Ministry of Health. http://www.moh.govt.nz/moh.nsf/indexmh/dhb-hospital-benchmark

22 Ministerial Review Group (2009) *Meeting the challenge: enhancing the sustainability and the patient and consumer experience within the current legislative framework for health and disability services in New Zealand.* Report of the Ministerial Review Group, July 2009. http://www.beehive.govt.nz/release/ministerial+review+group+report+released

23 Davis, Peter, Roy Lay-Yee, Robin Briant, Wasan Ali, Alistair Scott and Stephan Schug (2002) "Adverse events in New Zealand public hospitals I: occurrence and impact." *The New Zealand Medical Journal*, Vol 115, No 1167. http://www.nzma.org.nz/journal/115-1167/

24 Schoen, Cathy, Robin Osborn, Michelle M Doty, Meghan Bishop, Jordon Peugh and Nandita Murukutla (2007) "Towards higher-performance health systems: adults' health care experiences in seven countries, 2007." *Health Affairs* 26(6). http://content.healthaffairs.org

25 OECD (2004) "Private health insurance in OECD countries." Paris, OECD, *Policy Brief*, September 2004. http://www.oecd.org/dataoecd/42/6/33820355.pdf

26 Cohen, Joshua T, and Peter J Neumann (2009) "Cost savings and cost-effectiveness of clinical preventive care." Princeton, Robert Wood Johnson Foundation, Research Synthesis Report 18, September 2009. http://www.rwjf.org/pr/product.jsp?id=48508

27 Māori in the criminal justice sector: Māori are disproportionately represented at all stages of the criminal justice system; Māori make up 50% of the prison population, and only 15% of the general population; and Māori are the victims of crime almost twice as often as non-Māori. Source: Māori Strategic Plan 2008-2013, Department of Corrections.

28 Data from the International Centre for Prison Studies, King's College, London. http://www.kcl.ac.uk/depsta/law/research/icps/worldbrief/

29 Data from Statistics New Zealand. http://www.stats.govt.nz/methods_and_services/tablebuilder/recorded-crime-statistics.aspx

30 Stemen, Don (2007) "Reconsidering incarceration: new directions for reducing crime." New York, Vera Institute of Justice, January 2007. http://www.vera.org/content/reconsidering-incarceration-new-directions-reducing-crime

31 This includes education-related expenses outside Vote Education such as student allowances, interest subsidies on student loans and scholarships.

32 New Zealand Treasury (2008) "Working smarter: driving productivity growth through skills." Wellington, New Zealand Treasury, Productivity Paper 08/09, April 2008. http://www.treasury.govt.nz/publications/research-policy/tprp/08-06

33 OECD (2009) *Education at a glance 2009.* Paris, OECD.

34 Heckman, James J, and Dimitriy V Masterov (2007) "The productivity argument for investing in young children." Cambridge MA, National Bureau of Economic Research, Working Paper No 13016, April. http://www.nber.org/papers/w13016

35 A full-time enrolment is defined as 1,000 funded child hours per year.

36 New Zealand Treasury (2008) "Working smarter: driving productivity growth through skills". Wellington, New Zealand Treasury, Productivity Paper 08/09, April 2008. http://www.treasury.govt.nz/publications/research-policy/tprp/08-06

37 Ministry of Education (2009) *2008 New Zealand schools: a report on the compulsory schools sector in New Zealand.* Wellington, Ministry of Education. http://www.educationcounts.govt.nz/publications/series/2523/57149/1

38 Hanushek, Eric A and Ludger Wößman (2007) "The role of education quality in economic growth." World Bank, Policy Research Working Paper No 4122, February 2007. http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2007/01/29/000016406_20070129113447/Rendered/PDF/wps4122.pdf. Hanushek, Eric A, Dean Jamison, Eliot Jamison and Ludger Wößman (2008) "Education and economic growth." *Education Next*, Spring 2008. http://media.hoover.org/documents/ednext_20082_62.pdf

39 This is an approximate figure, as it is difficult to come up with an accurate cost per student for the student loan scheme based on the available data.

40 See also, the Ministry of Education's analysis of future demand for tertiary education in New Zealand and analysis of the relationship between the economic cycle and participation in education. Ministry of Education (2009) *Future demand for tertiary education in New Zealand; 2009 to 2025 and beyond.* http://www.educationcounts.govt.nz/publications/tertiary_education/46677. Ministry of Education (2009) *Ebbs and flows: participation in post-compulsory education over the economic cycle.* http://www.educationcounts.govt.nz/publications/tertiary_education/49254

41 Source of Working for Families data is Inland Revenue Department.

42 The term "benefit spending" refers to social welfare (excluding New Zealand Superannuation).

43 This is drawn from a paper on the Treasury website released at the time of the 2009 Budget: "Impact of an eleven-year contribution holiday on the New Zealand Superannuation (NZS) Fund." http://www.treasury.govt.nz/government/assets/nzsf/contributionratemodel

44 Poverty rates are measured here as the proportion of individuals with equivalised disposable income less than 50% of the median income of the entire population.

45 OECD (2007) *OECD economic surveys: New Zealand*. Paris, OECD, Vol. 2007/8, April 2007.

46 Perry, Bryan (2009) *Household incomes in New Zealand: trends in indicators of inequality and hardship 1982 to 2008.* Wellington, Ministry of Social Development. http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/household-incomes/index.html

47 Ministry of Social Development (2007) *Positive ageing indicators.* Wellington, Ministry of Social Development. http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/household-incomes/index.html

48 Turner, John A (2009) "Social security financing: automatic adjustments to restore solvency." Washington DC, AARP Public Policy Institute, Research Report 2009-01, February 2009. http://www.aarp.org/research/ppi/econ-sec/ss/articles/2009_01_socsec.html

49 Preston, David (2008) "Retirement income in New Zealand: the historical context." Wellington, Retirement Commission, December 2008. http://www.retirement.org.nz/node/521

50 Paul, Sue, Geoff Rashbrooke and David Rea (2006) "Retirement incomes" in Jonathon Boston and Judith Davey (eds) *Implications of population ageing: opportunities and risks*. Institute of Policy Studies, Wellington.

51 Ministry for the Environment (2008) *Climate change effects and impacts assessment*. Wellington, Ministry for the Environment, May 2008. http://www.mfe.govt.nz/publications/climate/climate-change-effect-impacts-assessments-may08/index.html

52 Stern, Nicholas (2007) *The Stern Review report on the economics of climate change*. London, HM Treasury. http://www.hm-treasury.gov.uk/sternreview_index.htm

53 NZIER and Infometrics (2009) *Macroeconomic impacts of climate change policy: impact of assigned amount units and international trading*. Wellington, Ministry for the Environment, July 2009. http://www.mfe.govt.nz/publications/climate/macroeconomic-impacts-of-climate-change-policy/index.html