

Ageing and the Long-Term Fiscal Position

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Introduction

Many government spending programmes, government revenue and, indeed, the level of economic activity are influenced by the age structure of the population. Changes in the structure thus have a marked effect on the fiscal position, especially over the long term.

A sustainable fiscal position is important to the wellbeing of all New Zealanders. This is recognised by the Public Finance Act 1989, which requires the government to operate within a set of principles of responsible fiscal management. These principles ensure that, over the medium to long term, the level of government debt is kept at prudent levels, the fiscal risks facing the government are managed prudently and there is a reasonable degree of predictability about the level and stability of tax rates for future years.

The Public Finance Act was amended in 2004 to require the Treasury to publish, at least every 4 years, a statement on New Zealand's long-term fiscal position. The first statement, *New Zealand's Long-Term Fiscal Position*, was published on 27 June 2006 (Treasury, 2006).²

This chapter discusses the impact of ageing on the government's long-term fiscal position. It explains how the demographic projections outlined in Chapter 2 have been used to derive projections of economic activity and of the major spending and revenue categories.

The chapter begins with a discussion of the approach used in the statement to generate long-term fiscal projections. We then present details of projections for revenue and the main spending categories of health, education, superannuation and welfare.

We then present the results of these projections and draw conclusions about what they mean for future policy. The first conclusion is that the government's current fiscal position is very strong and thus New Zealand is well placed to face the fiscal challenges presented by an ageing population. Those challenges are real and, if unaddressed, would eventually lead to a deteriorating fiscal

position. But a series of small policy adjustments, starting early, will be sufficient to maintain the fiscal position.

Purpose of the statement on the long-term fiscal position and the approach used

The statement on the long-term fiscal position is a continuation of work since the early 1990s by the Treasury and other agencies that have studied the effects of population ageing on publicly funded retirement incomes and the fiscal position.

The common approach in these studies is to examine the long-term implications of continuing with existing policies. This approach is not straightforward. First, there is the challenge of projecting forward the costs for different policy areas. Second, in addition to separate policy intentions, governments also have fiscal objectives (constraints on overall levels of debt, expenditure and taxes), which may not all be consistent with the aggregated projections.

The statement uses the Treasury's Long-Term Fiscal Model (LTFM) to generate projections of gross domestic product (GDP), government spending, taxes, assets and liabilities.

The modelling starts with projections of the population and combines these with assumptions of future productivity growth and labour force participation to produce projections of GDP.

The statement looks at the future fiscal position from two perspectives. The first is to carry on growing separate expenditure categories, assuming no constraints, and see where it takes us. This is called the 'bottom-up' approach. The second is to decide where we want to be and see how we can get there. This involves rolling forward current fiscal objectives and looking at how spending and taxes would need to be changed in order to remain within the fiscal limits of the objectives. This is called the 'top-down' approach.

Both of these approaches use the same modelling framework for calculating the future fiscal position, but give different insights into the fiscal challenges that may lie ahead.

The addition of a top-down approach is an advance on previous reports on New Zealand's long-term fiscal position. A particular attraction of the top-down approach is that it is closer to what happens in the actual budget-setting processes that governments have been using since the mid 1990s.

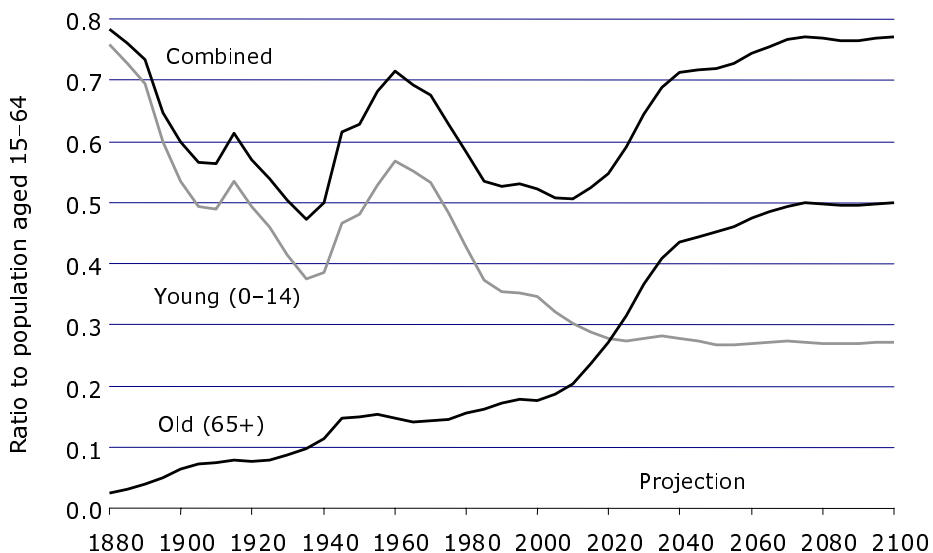
Changes in population age structure

In common with many other OECD nations, New Zealand is experiencing a shift in the structure of its population.³ The developed world (and increasingly the developing world) is in a transition from a high fertility–high mortality state to a low fertility–low mortality state. This is commonly referred to as ‘population ageing’ and is the result of more people living into old age (defined here as 65 and over) and very old age (85 and over).

This transition is not a demographic bulge that will reverse in the future. It will bring about a permanent change in the population’s age structure.

The combined ratio of ‘youth’ and ‘aged’ to the remainder of the New Zealand population will be similar to levels seen in the past, but the composition will be different, with a larger proportion of people 65 and over (Figure 4.1). This change is likely to be significant for the government’s fiscal position because, under current policy settings, large components of public expenditure are focused on the ‘young’ and the ‘old’. However, these two groups involve different levels of fiscal cost. The basic costs are essentially ‘private’ for the young, because their families support them, and ‘public’ for the retired, because their needs for income support and health and other services are largely paid for by government.

Figure 4.1: Ratio of people aged 65 and over to people aged 15–64, 1880–2100



Source: Statistics New Zealand.

Labour force and gross domestic product growth reflects demographics and participation

Labour force projections combine projections of the population and participation rates. The population share of the traditional working-age group (15–64) declines to mid century, while the share of the population aged 15 and over continues to grow to mid century then begins to decline. Furthermore, participation rates tend to rise for each age group as younger cohorts pass through them. Therefore, the labour force tends to rise for some years but eventually the age structure starts to dominate the cohort participation effect. As a result, the aggregate participation rate eventually declines, as does the size of the labour force as a proportion of the population.

The LTFM projections of nominal GDP begin with the 2006 Budget forecasts for the period to 2010. The model then projects GDP forward using the labour force growth, labour productivity growth assumed at a constant 1.5% (the same growth rate as real wages) and inflation at 2% a year. The resulting nominal GDP growth slows, tracking labour force growth, from 5.2% in 2010 to around 3.5% in 2050. Over the 45 years to 2050, the level of nominal GDP grows by about five times. In real terms, GDP increases by a factor of two. The projections that follow are expressed as a proportion of nominal GDP. This simplifies the presentation, as it is not necessary to distinguish between growth in GDP and growth in the spending item. However, one cost of this simplification is that it is easy to lose sight of the significant gains in incomes that are inherent in our projections. We are projecting average income to more than double in real terms.

Fiscal projections of major spending areas and tax revenue

The chapter now turns to the potential implications of these developments for some of the key components of public finances, taxation and the expenditure components of health, education, superannuation and welfare, using assumptions drawn from current policy settings, history and judgments.

Taxes

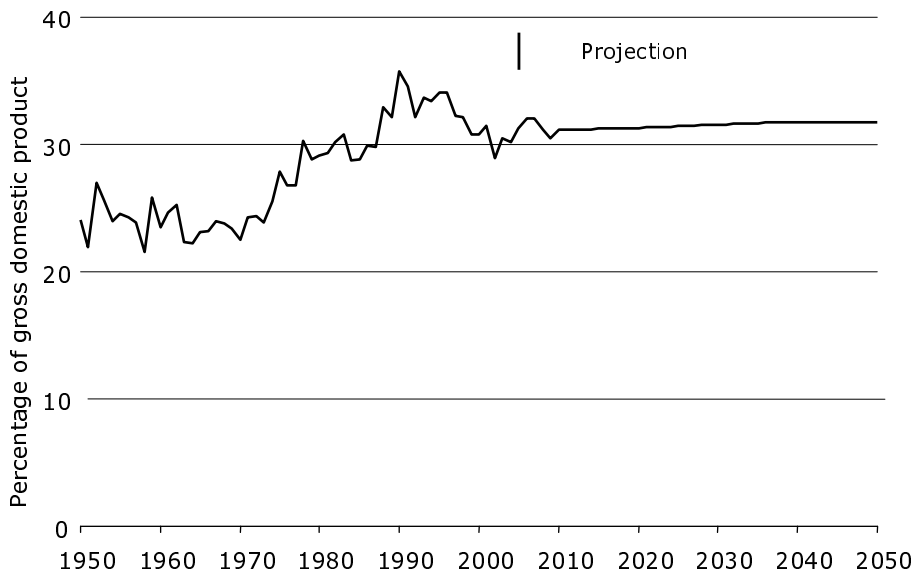
Tax revenue in any year is the product of the tax base and the rate at which taxes are levied on that base. For many taxes, the base is simply projected to grow in line with GDP, since this is either explicitly (for example, with income tax and goods and services tax) or implicitly (in the case of excises) the tax base. Tax rates are assumed constant. In the case of the personal tax system,

however, the progressive nature of the rate scale adds a complication. Under the progressive rate scale, marginal rates of tax increase with income. Traditionally, the thresholds at which the different rates apply have been fixed in nominal terms, giving rise to ‘fiscal drag’. This occurs when increases in nominal incomes result in people moving up the income tax scale, lifting the average tax rate.

Under the assumption that wages grow on average at 1.5% a year above increases in prices, nominal wages will increase significantly over the projection period. The average nominal wage (from the Quarterly Employment Survey) will rise from the current level of around \$42,900 to over \$200,000 by 2050. Keeping the current rate scale in place would mean people on the average wage paying tax at the top marginal tax rate. The average tax rate on this average wage would increase from 21% to 35%. Traditionally, New Zealand governments have addressed fiscal drag by adjusting the tax scale in an ad hoc manner. In the 2005 Budget, the government announced the introduction of an automatic system of adjusting the tax thresholds for price inflation.⁴ This change has yet to be legislated.

The base case projection assumes a largely flat tax to GDP ratio from 2011 onwards, as shown in Figure 4.2.

Figure 4.2: Tax revenue, 1950–2050



Source: The Treasury, Statistics New Zealand (long-term data series).

Because the LTFM is an aggregate model, it is not possible simply to alter the tax scales: taxes are estimated at too high a level of aggregation. It is possible, however, to estimate the effect of assuming degrees of fiscal drag on the fiscal position using tax elasticities.

The first scenario models the effect of fiscal drag and assumes an elasticity of personal taxes to income of 1.3.⁵ Under this fiscal drag scenario, the tax to GDP ratio in 2050 is 2.4 percentage points higher than in the base case. The second scenario models the impact of adjusting the brackets in the personal tax scale from 2011 by the assumed rate of inflation (2% a year). The tax elasticity estimated in this case is 1.14 for personal income. The result is a tax to GDP ratio lying between the no indexation ratio (full fiscal drag) and the largely flat ratio. In 2050, the tax to GDP ratio for the inflation-indexed case is 1.1 percentage points higher than the base case.

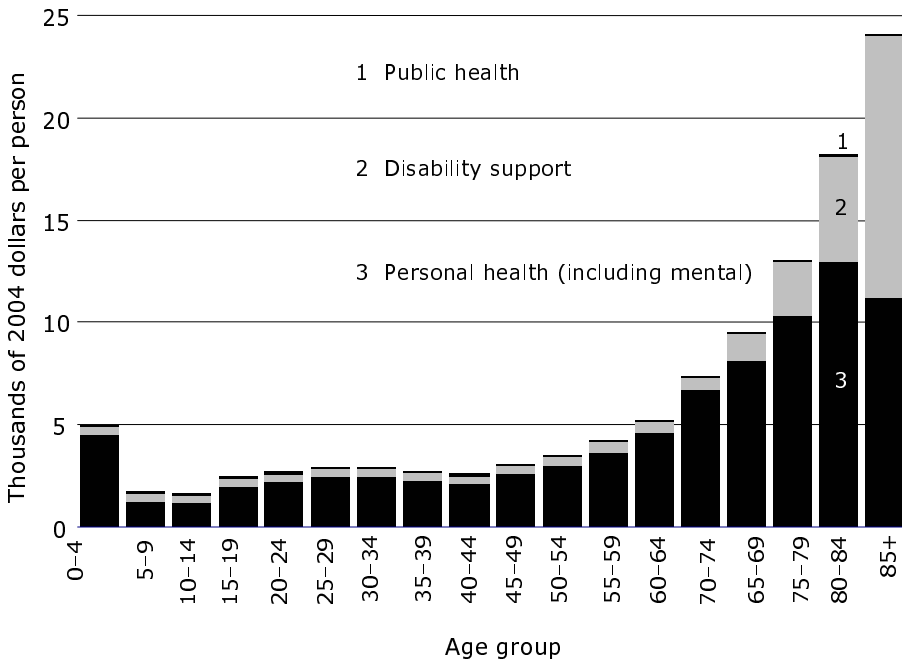
Health

Government expenditure on health services as a proportion of GDP has doubled from about 3% in the 1950s to about 6% in 2005.⁶

Understanding the future course of the population's health status is key to modelling health spending and assessing how population change will affect health spending. Health care costs in OECD countries increase with age (Figure 4.3 shows this for New Zealand) and many people conclude that population ageing will inexorably lead to large and rapid increases in health expenditure.

International research, however, has produced uncertainty about the link between population ageing and health expenditure (O'Connell, 1996). More fundamentally, the focus on age structure may be misplaced, because underlying health status, rather than age, may be the real determinant of the demand for health care. More technically, it is 'time until death' that determines the cost of health care, not age itself. Miller (2001) studied the pattern of annual spending by Medicare, the United States government's health programme for the elderly. He showed that the average annual Medicare cost of 95-year-old Americans who were 9 years from death was \$2,100. In contrast, the average cost of Medicare for a 75-year-old in their last year of life was \$13,500.

Moreover, the relationship between age and health status varies over time. In many countries, what it means to be 'old' is changing. Not only are we seeing many more people survive into very old age, we are seeing many more active, healthy old people. While the evidence available is inconclusive, some researchers suggest that gains in longevity will translate into lower health-care costs in the future.

Figure 4.3: Annual government health expenditure by age and service group (males and females combined), 2003/04

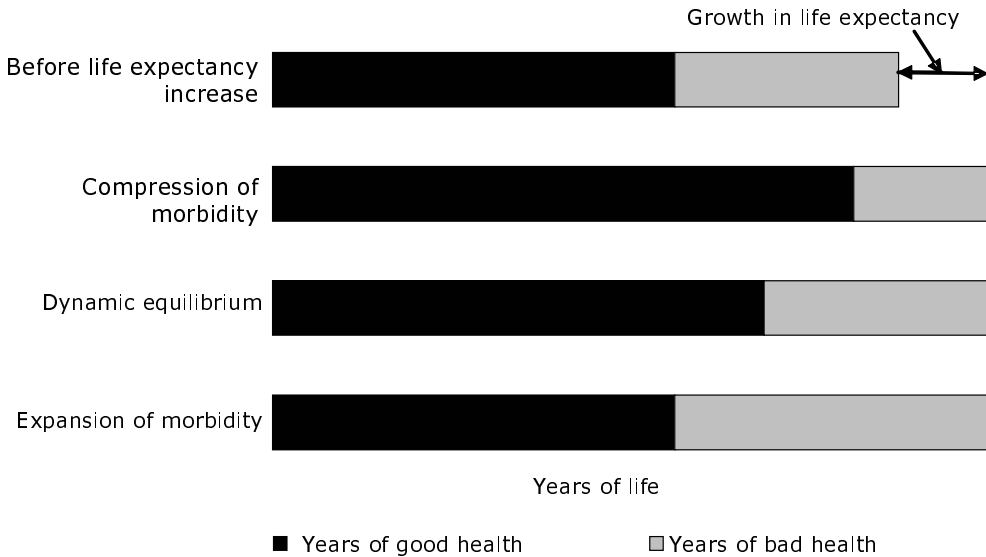
A consensus has yet to emerge about where mortality and the incidence of disease (or morbidity to give it its technical name) are headed. Like many countries' official population projections, Statistics New Zealand assumes the recent trends in mortality reduction will eventually taper off. There are, however, studies that question whether this will be the case. Oeppen and Vaupel (2002, p. 1031), for example, are at the optimistic end: they predict no decline in the rate of increase in life expectancy for the future, with a continuation of a rate of increase of about 2.4 years per decade. This would see life expectancy at birth reach 97.5 years by the middle of the 21st century and 109 years by 2100. By contrast, Statistics New Zealand's preferred projections of population have life expectancy at birth reaching 85 in 2050.

There are also pessimists. Olshansky et al (2005) are critical of those studies that simply extrapolate life expectancy on the basis of the past. They prefer an approach that relies on trends in health and mortality that can be observed in the current adult population, which they suggest will lead demographers to revise downwards their estimates of life expectancy at birth.

An increase in life expectancy must mean mortality is falling. There is an unsettled debate in the literature on what is happening, and is likely to happen, to health status. There are three broad possibilities for changes in health status

(Figure 4.4). Each case takes as given an increase in life expectancy: people are, on average, living longer. The question they seek to answer is whether those extra years of life are, to put it crudely, lived in ‘good’ or ‘bad’ health.⁷

Figure 4.4: Possible future health states in years of life



The first, and most optimistic, scenario is that health is improving across the board. This is known as a ‘compression of morbidity’: people both live longer and have fewer years of bad health. The second is a ‘dynamic equilibrium’ (also known as ‘healthy ageing’): the absolute period of bad health stays the same, but falls in relative terms as the absolute period of good health increases. The final and most pessimistic scenario is known as an ‘expansion of morbidity’: the absolute period of good health stays the same, with all the increased years of life expectancy being in poor health. A severe expansion of morbidity would see the absolute period of good health reducing.

It is difficult to predict the net effect of medical progress on age-specific disability rates. Some new technologies have led to increased disability rates. The standard example is coronary care, which has reduced the fatality of heart attack, but in so doing has created an ‘epidemic’ of heart failure. However, other technologies, such as drugs to reduce hypertension (the major risk factor for stroke), have helped to reduce disability rates. Similarly, it is difficult to predict the net effect on disability of conflicting population health trends such as increasing obesity and declining smoking rates. The only way to resolve the uncertainty is to look at longitudinal data on disability.

For New Zealand, Graham et al. (2004) use data from 1981 and 1996 to evaluate the evidence for the three theories of health change. They find that the dynamic equilibrium scenario provides the best fit to the New Zealand data. Bryant et al. (2004, Appendix 3) report on a systematic review of international longitudinal studies. Census data from Australia appear to imply that disability rates have risen. The highest-quality studies, covering the longest periods, however, have been conducted in the United States. These studies all suggest that significant declines in disability rates have been occurring.

From these competing theories and the data from New Zealand and overseas, it is reasonable to assume that in the future, the incidence of disability will decline as the population ages, meaning people will be living longer and healthier lives.

Projections of health expenditure

Projections of health spending are driven by three factors: demographics, growth due to increases in income and a residual growth factor.

While there will be more older people, the statement on the long-term fiscal position assumes they will be healthier, and that this, in turn, will reduce demand for some health services and push out the timing of others.

Local and international experience suggests there is a one-to-one ratio between increases in income and health spending: a 1% increase in income leads to a 1% increase in health spending. When this factor is combined with projected increases in real incomes, it means higher spending can be expected in the future.

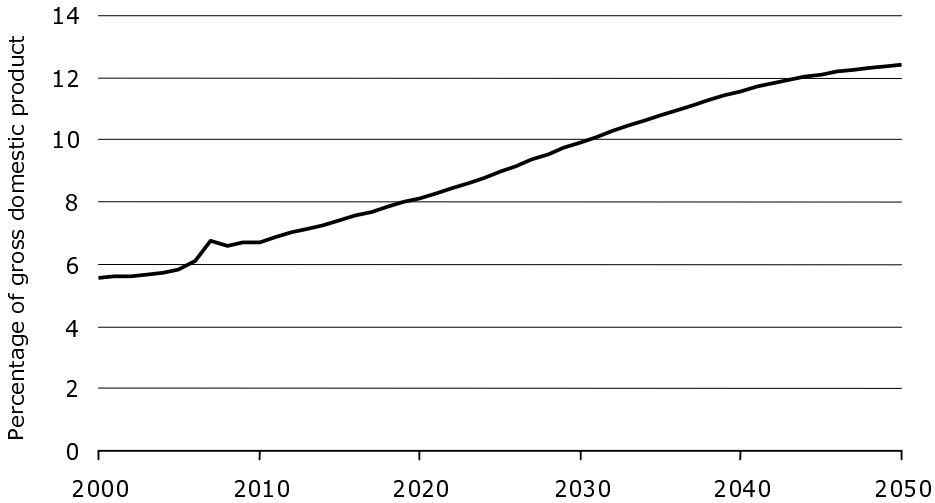
The residual growth factor accounts for about a third of historical growth, far larger than growth due to population ageing. This can be thought of as a proxy for decisions around the 'cost and coverage' of the public health system. The projection assumes that cost containment reduces the size of the residual growth factor over time.

The combined effect of these three factors is a projected doubling of government spending on health as a proportion of GDP.

For the base case projection, the average annual real per capita growth between 2005 and 2050 is around 3%, much as it was in the previous half century. The contribution to this from the changing age mix (moderated by changing health status) is about 0.8% on average (with fixed weights this growth is 0.9%). Therefore, ageing effects are larger in the projection period than historically, but they are not dominant. In fact, if the assumed income and residual growth effects are omitted, demographic and health status by themselves serve to lower the proportion of health spending to GDP by more

than 3 percentage points than would be the case if all the drivers are included. The bulk of the growth in spending, therefore, comes from cost and coverage growth. This produces a rise in the ratio of spending to GDP of 6.6 percentage points between 2005 and 2050 and average nominal growth of 5.6% (Figure 4.5).

Figure 4.5: Base case health spending, 2000–50



Source: The Treasury.

The statement on the long-term fiscal position includes a range of alternative scenarios of health expenditure. One common feature of the scenarios is that they all see health expenditure increasing as a proportion of GDP; the differences are in the rate of growth and its trajectory. This is, in part, a product of the modelling technique used: health spending in New Zealand (and the industrial world) has been increasing steadily in the past and the model of future spending is based, in part, on the historical trend. We do, however, think that it is highly likely that health expenditure will increase through time. It is certainly difficult to see why New Zealanders would want to spend less of our national income on health care as income increases. The real question is *how fast* spending increases, not whether it will increase.

While some evidence supports the notion that continued improvements in life expectancy will translate into lower health spending, via improvements in health status, the proportions of the population aged 65 and older and even 85 and over are set to increase markedly over the next 50 years. It would be surprising if this did not, at least to some extent, lead to increased spending,

given the relationship between age and health expenditure we see today. Finally, the history of medicine has been one of substantial increases in the range of procedures and treatments available (coverage) and their cost. Again, it is difficult to see why this trend might suddenly end.

Health: conclusions

The largest driver of spending above GDP growth is the residual growth factor, which can be thought of as a proxy for decisions around the ‘cost and coverage’ of the public health system. As a result, the greatest impact on future spending patterns is likely to come from non-demographic factors. In the short term, there are particular challenges around:

- continuing to seek ongoing improvements in the performance of the health system and in the quality of services, that is, continually looking for better value for money;
- managing the adoption of new technology (that is, linking the demand for newer, more complex technology to evidence about its impact on health outcomes and the trade-offs involved); and
- improving the coverage of, and access to, services, and, in particular, seeking better health outcomes thorough earlier and simpler interventions.

The longer-term debate should focus on the relationship between health outcomes and health spending (at the macro level), and the relationship between the quality and cost of health services (at the micro level). No simple relationship exists between total spending and health outcomes: more does not necessarily mean better (the United States is the prime example, where a high-cost health system has not produced superior health outcomes).

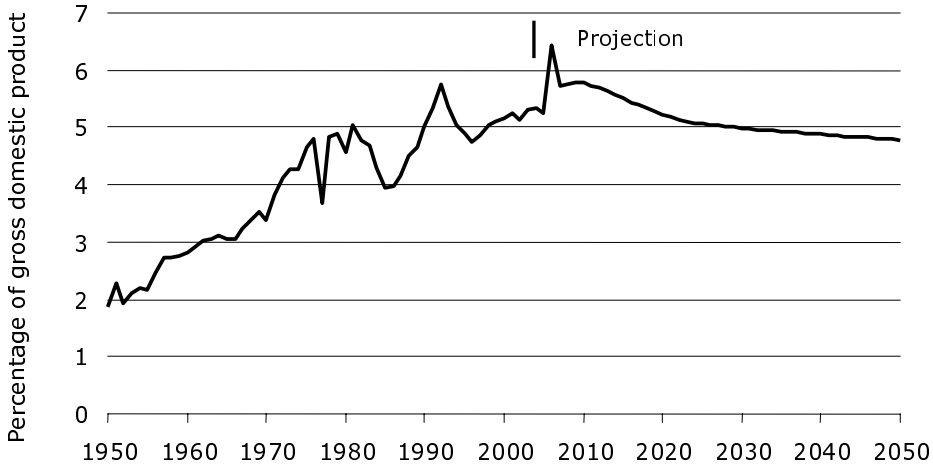
Education

Public spending on education since World War Two has been occupied first in educating the baby boomers and building schools in which to teach them, and then in catering for the growing participation of people of before- and after-school age in our education system.

Over the next 50 years, with demography still an important driver, declining proportions of the young in the population could mean that the quality of the education system could be maintained, while at the same time freeing up resources to help pay for the growing demands for health and superannuation. Whether there will be such a fiscal dividend from education is far from certain as, for example, more adults could be seeking educational opportunities financed by the government.

Over the past half century, public spending on education has grown two and a half times as a share of GDP (Figure 4.6). Annual growth has averaged 10.9% a year (although this may include some capital spending), about 1.7 percentage points faster than nominal GDP growth. Over the past decade, total education operating spending has grown by an average of 6.2% a year.

Figure 4.6: Education spending, 1950–2050



Note: The spike in 2006 is the write-off of student loans.

Source: The Treasury.

Future public spending is just the expected cost per student times the projected number of students.

Student numbers depend on present enrolment rates and their evolution in the projection period. The numbers in early childhood education (1–4-year-olds) are expected to fall by 11% between 2005 and 2050, in primary education by 10%, secondary by 9%, while tertiary numbers (here modelled by 18–29-year-olds) return to 2005 levels after the early 1990s ‘baby blip’ students have completed their studies.

The general form for modelling each subsector is:

$$\text{Spending} = (\text{total costs/teachers' labour costs}) \times \text{average wage} \times (\text{teacher/student}) \times \text{enrolment rate} \times \text{population for sector}$$

The base case assumes that enrolment rates from each of these age groups remain as they are now. Tertiary has an extra growth driver, which allows for choice between working and studying. For those aged 16 and over, working is

an alternative to attending upper secondary and tertiary education, and so rising demand from the labour market will reduce tertiary enrolment.

The base case shows that demographic change could produce a reduction in the GDP share spent on education over the next half century. However, even small changes in some of the parameters can reduce potential savings. For example, a 20% fall in the student–teacher ratio would increase the spending to GDP ratio by half a percentage point.

The projections assume a sudden turnaround in the trend in spending growth. While it is undoubtedly true that the population base for the school and pre-school sectors will fall with population ageing, we can be less certain about the base for the tertiary education sector. With a decreasing proportion of the population in the work force and an increasing dependant population (especially dependants aged 65 and over), whether education will be primarily driven by demography is an open question.

New Zealand Superannuation

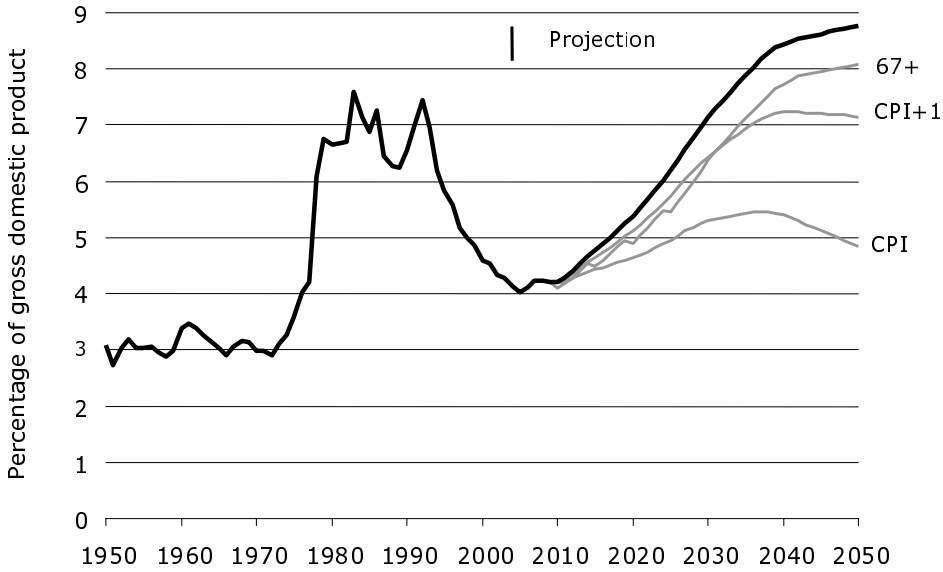
New Zealand Superannuation (NZS) payments total 4% of GDP and 470,000 people received NZS in 2005. Under the present age qualification and assuming prevailing pension rates grow at the same rate as average after tax nominal weekly earnings, total NZS payments are expected to grow to just under 9% of GDP by 2050.

The path for NZS as a GDP share is shown in Figure 4.7, for both the recent past and the future.

The steep increase in spending in the early 1970s is largely policy driven, reflecting the increases in the rate of payment introduced around that time. The steep decline in the 1990s is the result of a combination of policy and demographic changes. Policy changes involved the increase in the age of eligibility, while the demographic changes involved the fall in fertility in the 1920s and 1930s having an echo 60 years later in a fall in the number of retirees becoming eligible for NZS. The base case projections of future spending are driven by demography: we are assuming that the current formula for calculating benefits and the age of eligibility remain the same as at present.

It is thus hardly surprising that the shape of this ratio of spending to GDP is similar to that of the ratio of the population aged 65 and over to that aged 15–64. The annual payments are roughly determined by the average nominal wage and the number of people aged 65 and over. Since the former is determined by labour productivity and since labour productivity and the labour force determine GDP, the ratio of NZS to GDP will tend to mirror the shape of the age ratio curve.

Figure 4.7: New Zealand Superannuation payments, 1950–2050



Note: CPI = Consumer Price Index; CPI+1 means superannuation payments are grown at the rate of CPI inflation plus 1%.

Source: The Treasury.

In 2001 the government established the New Zealand Superannuation Fund (NZSF) to help fund the future costs of NZS. The NZSF shifts contributions through time but does not change the amount of benefits expected to be paid, so does not have any effect on the base case profile of superannuation spending in Figure 4.7. The process of placing revenue in the NZSF will, however, affect the estimates of gross sovereign-issued debt, interest payments on debt and the government operating balance (but not the level of net debt where net debt includes assets held by the NZSF).

The current age of eligibility for NZS is 65, the same as the age of eligibility for the first New Zealand age pension introduced in 1898. In 1891, the life expectancy for non-Māori males at age 65 was 13 years and for non-Māori females at age 65 was 15 years.⁸ By 2005, the life expectancy of a non-Māori male aged 65 had risen to 17 years and of a non-Māori female aged 65 to 20 years. In terms of NZS, this increase in life expectancy means that, on average, each person receives the pension for far longer. And, as noted in Chapter 2, life expectancy continues to increase. It is the combination of these effects that is driving the projected increase in spending on NZS.

Scenario 1: indexing eligibility age to life expectancy

Figure 4.7 also shows the possible effects of indexing the age of eligibility to projected changes in life expectancy, using the formula that is gaining currency in Europe: one-third of the gain in average life expectancy is taken in work, two-thirds in leisure.

If life expectancy in New Zealand at age 65 increases by almost 6 years between 2005 and 2050, under this policy shift older people would work for an extra 2 years on average. A phased rise from 2010 in the age of eligibility from 65 now to 67 (labelled '67+' in the figure) reduces spending on superannuation by 0.7 percentage points of GDP from 2025 onwards. However, the shape of the spending track in the figure is still linked to the changing nature of the population. The only way to break the demographic link would be to change the basic nature of the scheme, for example, by increasing the number of old people who are 'self-financing' their retirement.

Scenario 2: varying superannuation indexation

The modelling of the long-term fiscal cost of NZS assumes that the benefit, in effect, is always set at the level of 65% of the net average wage. This is because NZS is currently close to the floor (rates from 1 April 2006 are about 66%) and wages are assumed in the modelling to be increasing faster than prices. Indexation by prices means the retired can continue to purchase the same bundle of goods and services as they did when they retired. Indexation by wages, on the other hand, means the bundle of goods and services that can be purchased can be increased each year. Price indexation means few, if any, of the gains from growth go to the retired.

Given the long-term nature of this study, the cumulative effects of different indexation arrangements can be marked. Indexing NZS to prices and not wages, over the period to 2050 would result in the combined married rate falling from the current 66% of average weekly earnings to about 32%.

Indexation to prices over such a long period would shift NZS toward having only a poverty-relief objective. It is an open question whether such a marked reduction in relative standards of living between those in employment and those retired would be acceptable, especially given the proposal by the Royal Commission on Social Security (1972, p. 65) that the objective of the welfare system was to allow recipients to 'belong and participate' in society.

Two alternatives to the base wage indexation case are increasing superannuation payments by the rate of Consumer Price Index (CPI) inflation and by CPI inflation plus 1% (labelled 'CPI+1' in the figure).

Other options include mixed indexation: increasing the initial payments by the growth in the average weekly wage, but then raising these payments by CPI inflation.

Figure 4.7 illustrates the marked effects of changes in indexation from 2011 onwards. Changing from wage indexation to CPI indexation lowers spending by 4 percentage points of GDP in 2050, while 'CPI+1' indexation reduces it by 1.6 percentage points.

Welfare benefits

The government spends about \$7.5 billion in transfer payments and other benefits to New Zealanders. From the Destitute Persons Ordinance 1846, which required the near relatives of destitute persons to make provision for their upkeep, to today, New Zealand has developed an elaborate social welfare system. In March 2006, New Zealand had 283,584 people aged 18–64 receiving an income-tested benefit.

The current system of social welfare benefits in New Zealand dates, in large measure, from the work of the 1972 Royal Commission on Social Welfare, although core elements do date back to earlier periods.

The number of working-age sickness and invalid beneficiaries has been increasing since the mid 1990s. In March 2006, 120,473 working-age people were receiving these benefits, compared with 116,075 in March 2005. The number of people receiving the Domestic Purposes Benefit has decreased from 1998 to 2006 after peaking at 114,665 in March 1998. In March 2006, figures show that 103,362 working-age people were Domestic Purposes Benefit recipients. The government also operates a system of targeted financial assistance to employed people with children, the Working for Families scheme.

These benefits are also modelled using age profiles (some are age dependant), demographic projections and a growth indexation factor. Since 1991, benefits have been CPI indexed, so have maintained their real level. During this period, however, real wages have increased steadily. This means benefits have been falling as a percentage of wages. It is, therefore, a strong assumption to continue to index benefits only for prices, especially over as long a period as covered by this study, even though there is support in history for this assumption.

Alternative scenarios

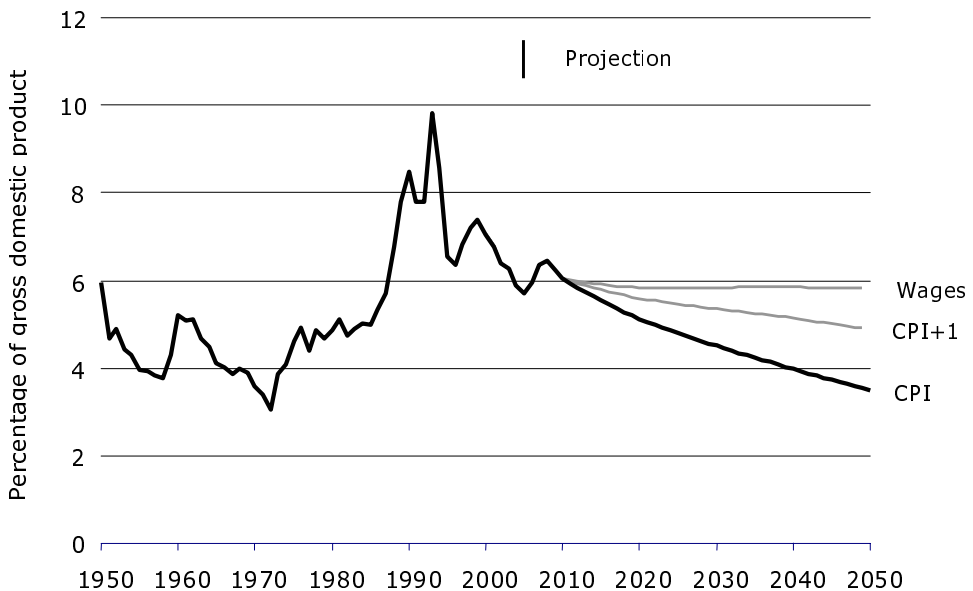
The first scenario uses the indexation regime that applies to NZS, which is in effect wage indexation. The projections assume benefits are increased at the same rate as wages are assumed to grow, namely 1.5% per year more than the rate of inflation. Figure 4.8 shows that this alternative would have a substantial

fiscal effect: rather than falling steadily as a proportion of GDP, spending remains broadly constant.

A middle course assumption is to increase benefits by more than the CPI, but not as much as wages.

The alternative modelled here is CPI plus 1% (labelled 'CPI+1' in the figure), where benefits are increased by one percentage point more than the rate of CPI inflation; this lifts the spending on benefits 1.4 percentage points above the price-indexed case.

Figure 4.8: Welfare benefits projections as a share of gross domestic product, 1950–2050



Note: CPI = Consumer Price Index; CPI+1 means benefit payments are grown at the rate of CPI inflation plus 1%.

Source: The Treasury.

Overall results: unconstrained and constrained scenarios

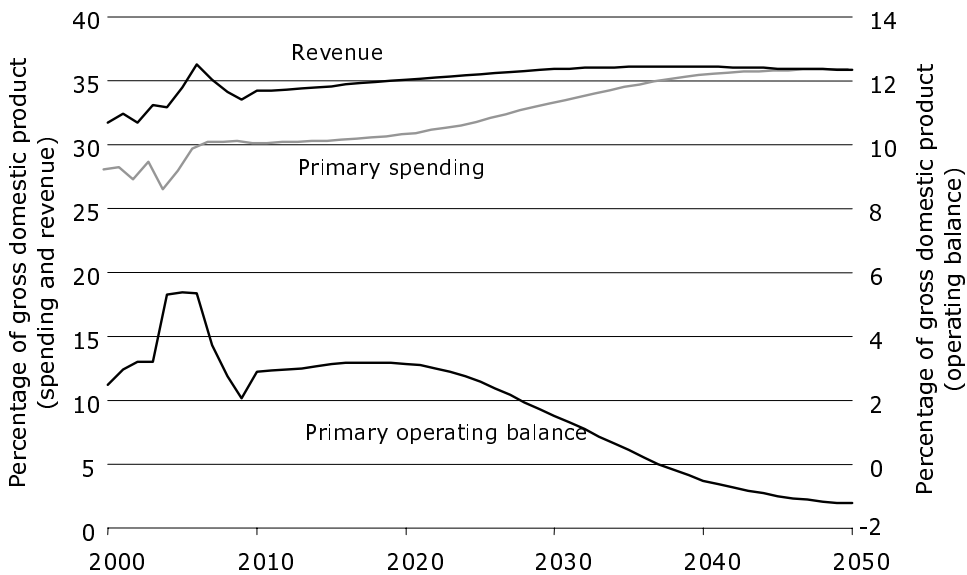
A range of different scenarios of the overall long-term fiscal position is presented in this section, reflecting the fact governments have many choices about how they meet their policy objectives. The section also contains illustrations of the sensitivity of the fiscal position to some of the underlying assumptions. The starting point for these projections is the New Zealand government's strong fiscal position. Debt is low, assets are being built up to

provide a buffer against future events and tax and spending rates have been stable and predictable.

Bottom-up approach: unconstrained scenarios

The first approach to projecting the long-term fiscal position simply involves adding the projections of the individual spending programmes. Spending is projected to rise by around 7 percentage points of GDP to 37% in 2050. Until 2020, spending is relatively flat before rising steadily as the demographic changes really begin to bite in the following decade. Combined with the projection of revenue (incorporating a broadly constant tax to GDP ratio), the primary operating balance (excluding financing costs) is expected to move from surplus to deficit in the late 2030s (Figure 4.9).

Figure 4.9: Spending, revenue and the operating balance, 2000–50



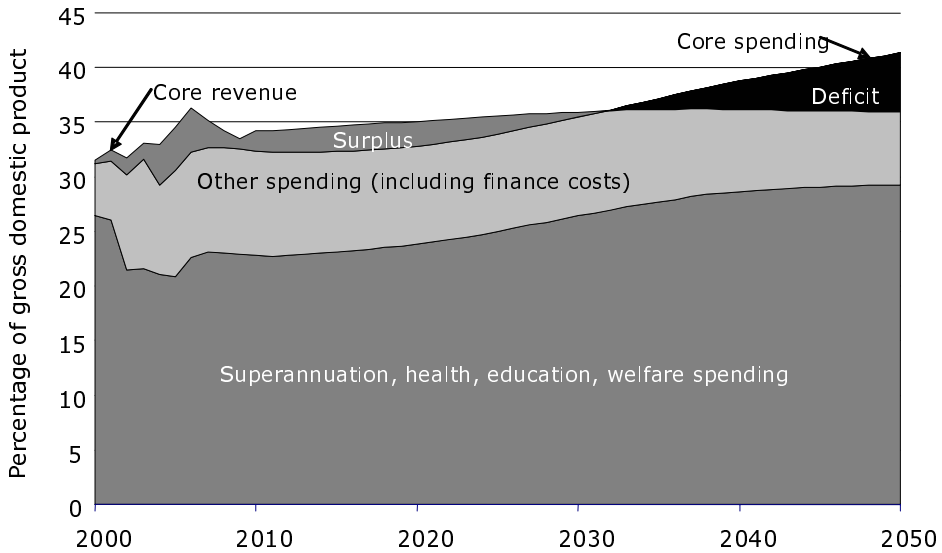
Source: The Treasury.

Under the base set of assumptions, government gross sovereign-issued debt will begin to rise and eventually lead to higher finance costs. The rise in finance costs will reinforce the upward pressure on spending coming from higher primary spending and accentuate the impact on the overall operating balance and the move from surplus to deficit as shown in Figure 4.10 (this occurs earlier than in Figure 4.9 because of debt-servicing costs).

After remaining around 20% of GDP until 2020, gross debt under these assumptions is projected to rise to about 30% by 2030 and approach 100% of

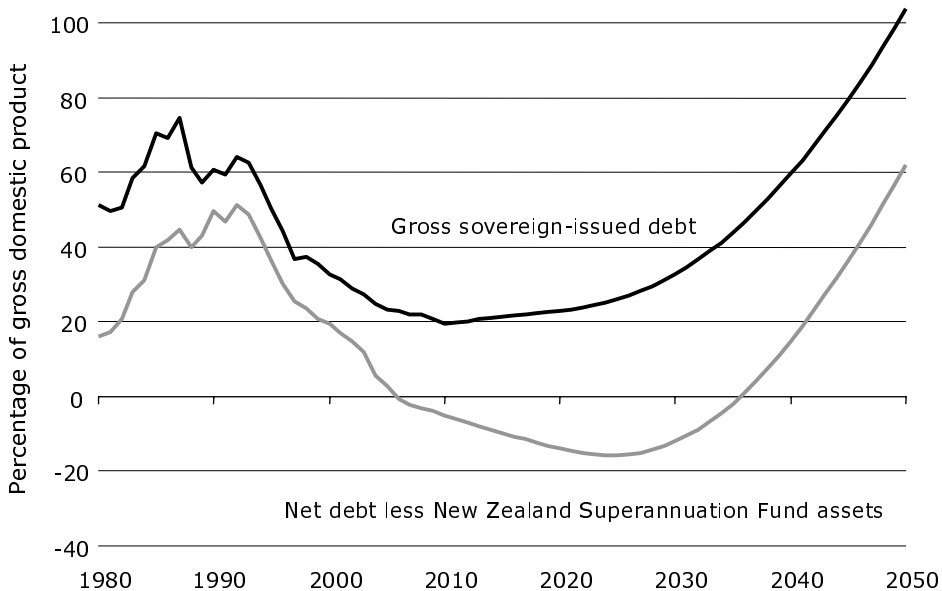
GDP by 2050. This compares with a previous peak in gross debt to GDP of 75% in 1987 (Figure 4.11).

Figure 4.10: Core Crown operating balance, 2000–50



Source: The Treasury.

Figure 4.11: Gross and net debt in a long-run perspective, 1980–2050



Source: The Treasury.

The projected rise in NZSF assets significantly offsets the rise in gross debt, so the net debt position of the government at the end of the projection period would be just above the level it was at in the early 1990s, despite gross debt being higher. The debt position and more particularly its upward trajectory, however, are not consistent with the principles of responsible fiscal management. Moreover, without some policy change, the debt position would continue to deteriorate beyond 2050. Such outcomes are unlikely. Governments will act to adjust spending or taxes, or both, to stop the debt to GDP ratio moving onto an ever-increasing path, in line with the requirements of the Public Finance Act 1989. This is why the top-down approach discussed in the next section represents an important additional way to look at the future fiscal position.

Top-down approach: applying constraints under the Public Finance Act 1989

The top-down approach asks what might need to happen to spending and taxes, or some mix of them, to meet a set of fiscal objectives such as a more stable path for debt. This approach gives some sense of the magnitude of change that could be required to meet such an objective.

Many different components make up total government spending and taxes, so top-down projections must suggest which categories of spending or revenue should be constrained, thus adding another layer of uncertainty compared with the bottom-up approach. This uncertainty is handled here by a range of scenarios, each showing a different way in which governments might adjust overall spending and taxes to meet different long-term fiscal objectives.

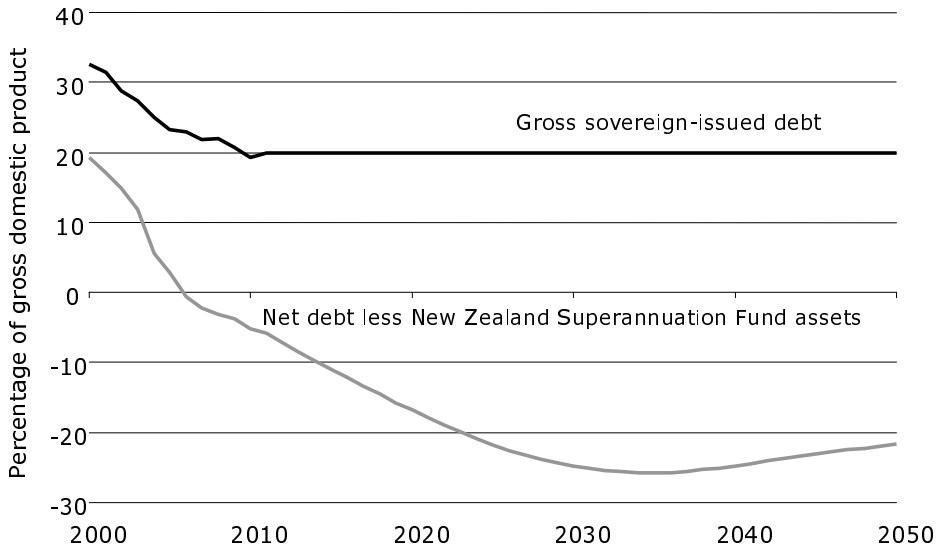
The top-down approach assumes a particular objective for the level of debt and evaluates policy trade-offs for individual spending and revenue programmes when they are confronted by a debt constraint.

Stable debt scenarios

The first set of top-down scenarios looks at the options governments would have, if they decided to always meet the long-term debt objective from the *Fiscal Strategy Report* (Minister of Finance, 2006, p. 50). This would mean gross sovereign-issued debt would be kept broadly stable at around 20% of GDP over the entire projection period. The gross debt path and associated net asset position are illustrated in Figure 4.12.

Such a debt track would require the operating balance to remain in a small surplus over the projection period. This is because the government is also contributing to the NZSF and other capital investments alongside its operating decisions.

Figure 4.12: Gross sovereign-issued debt constrained to around 20% of gross domestic product, 2000–50



Source: The Treasury.

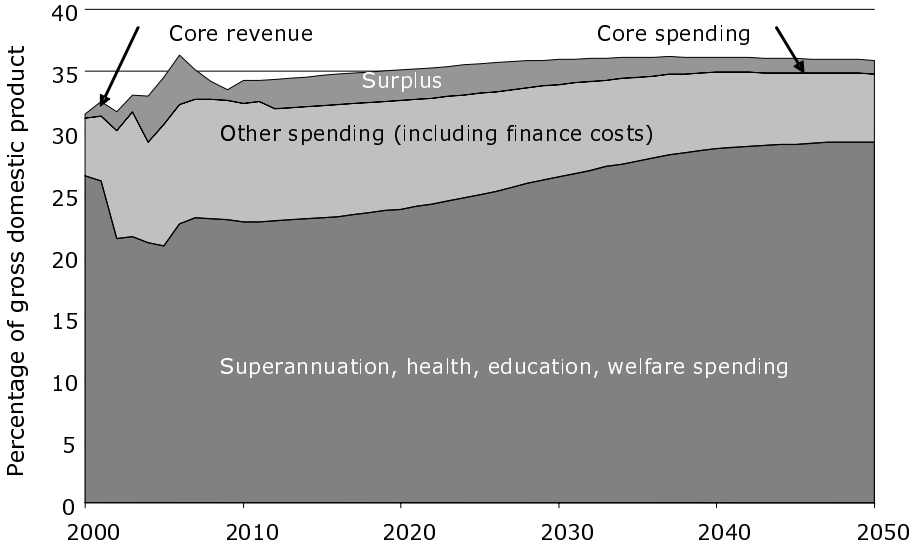
If all the adjustment was to occur on the spending side, one scenario might have spending in the four major areas of health, education, NZS and social welfare benefits projected as in the bottom-up approach, with other spending (including finance costs) acting as the residual. In such a case, other spending would have to decline as a proportion of GDP in the medium to long term, from the current 10% of GDP to 5.5% (Figure 4.13).

If all the adjustment was to occur on the tax side, the tax to GDP ratio would have to increase to about 35% at the end of the projection period, up from the current level of around 32%. Total revenue would rise from about 36% in 2005 to around 39% of GDP in 2050 (Figure 4.14).

The impact of debt is one of the main differences between the bottom-up and top-down approaches. Debt dynamics are such that small, persistent changes to spending or revenue can have very large effects if they accumulate over a long period. For example, if health spending were to grow each year from 2011 at 0.6 percentage points slower than the average 5.6% used in the bottom-up approach, and nothing else changed, then debt would remain at around 20% of GDP. Health spending as a share of GDP would be around 9% compared with 12% in 2050 (Figure 4.15).

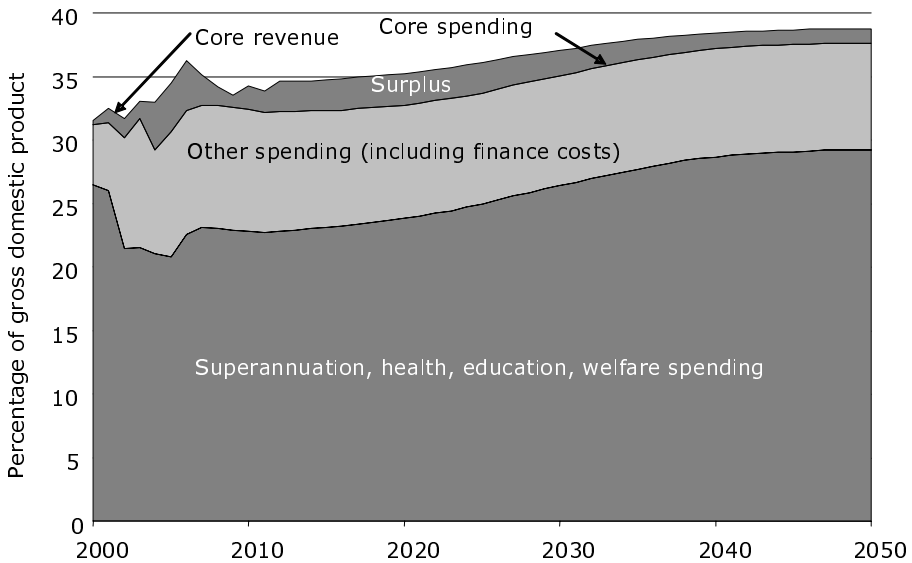
Implications of Population Ageing: Opportunities and Risks

Figure 4.13: Effect of reducing other spending to maintain small surpluses and stable debt, 2000–50



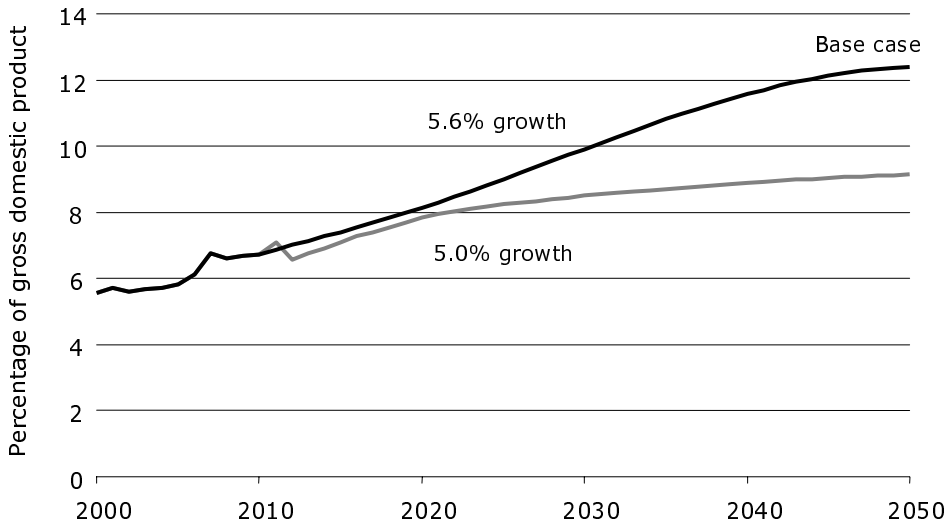
Source: The Treasury.

Figure 4.14: Deficits headed off by small, gradual tax rate rises from 2011 onwards, 2000–50



Source: The Treasury.

Figure 4.15: Health spending slowed to limit debt to 20% of gross domestic product, 2000–50



Source: The Treasury.

Later adjustment scenarios

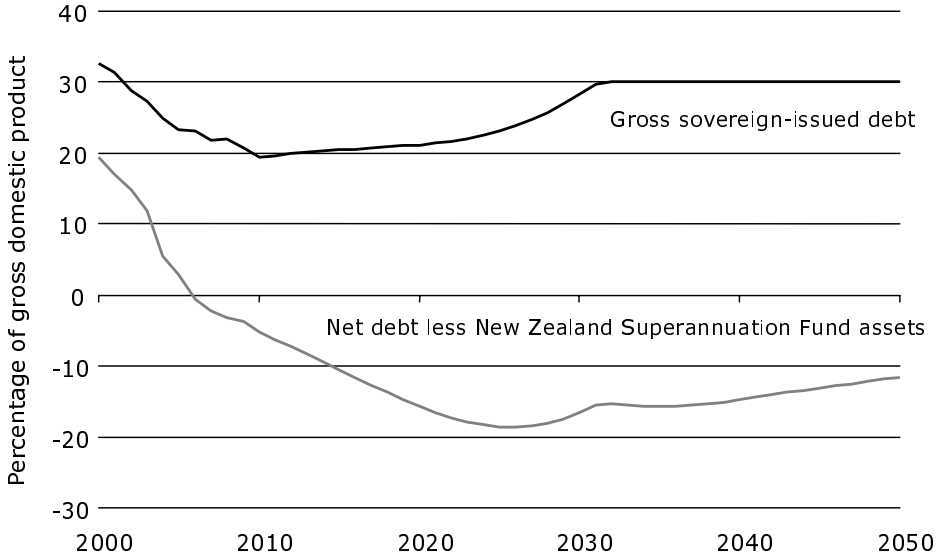
The first group of top-down scenarios involved future governments acting early to keep debt stable as a share of GDP. Governments could, however, wait and start to adjust their fiscal policies only when the fiscal position began to head toward a deteriorating track. The following scenarios show what would happen if the bottom-up projections applied up to the early 2030s, which is about when spending is projected to exceed revenue, and then a policy adjustment was made. This is illustrated in Figure 4.16.

This scenario assumes that after the core Crown operating balance went into deficit, the government of the day would adjust ‘other spending’ from then onwards to ensure debt did not rise above 30% of GDP. Making this delayed adjustment would result in spending needing to fall in nominal terms (a baseline cut) before then being allowed to rise slowly again. The increase in other spending would be lower than the rate of GDP growth with spending falling from the current level of 10% of GDP to 4% of GDP in 2050 in contrast with the case where an earlier adjustment led to a decrease from the current level of 10% to 5.5% of GDP (Figure 4.17).

In the final scenario, a late adjustment is made, this time through the tax system. This will result in tax revenue increasing to around 34% of GDP in the year of

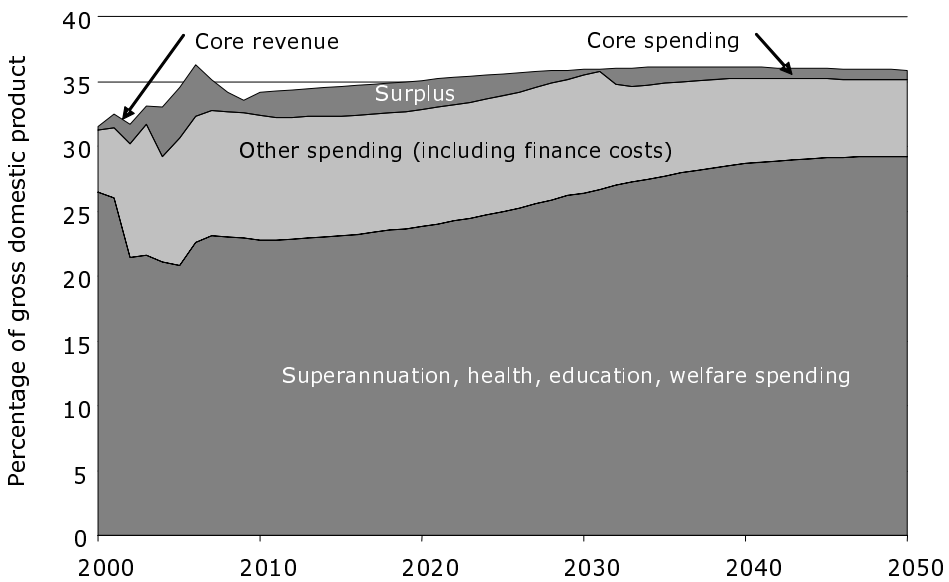
adjustment rather than slowly rising as in the scenario where change was incremental from 2010 (Figure 4.18).

Figure 4.16: Delayed adjustment to debt path, 2000–50

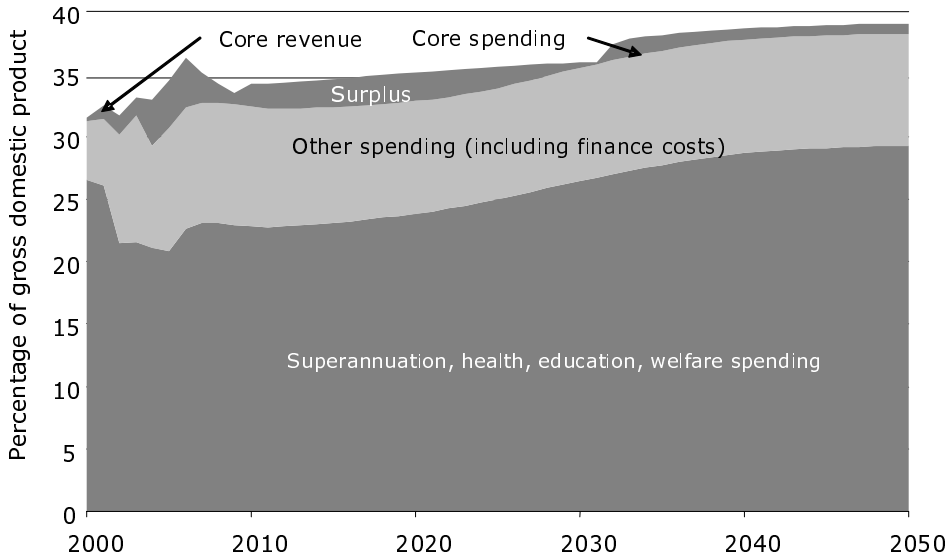


Source: The Treasury.

Figure 4.17: Delayed adjustment: reducing other expenditure, 2000–50



Source: The Treasury.

Figure 4.18: Delayed adjustment: taxes, 2000–50

Source: The Treasury.

Conclusion

The New Zealand government's current fiscal position is sound by historical and international standards. The level of public debt is low, assets are being built up to provide a buffer against future fiscal demands, and tax and spending rates have been relatively stable and at levels around norms for developed countries. This strong fiscal position has not happened by chance. Since the late 1980s, and reinforced by the Fiscal Responsibility Act 1994 (now Part 2 of the Public Finance Act 1989), successive New Zealand governments have worked hard to place New Zealand's public finances on a sound footing. Every year since 1994, governments have run operating surpluses. This is, by both New Zealand and international standards, a remarkably long run of surpluses.

These fiscal projections, which are based on history, current policy and judgments, suggest the current sound fiscal position is likely to continue for a long time. Nevertheless, the combination of structural change in our population and present policy settings is likely to lead to growing challenges to government fiscal positions and these pressures will accelerate in the next few decades. This implies that if future governments continue to follow the principles of responsible fiscal management contained in the Public Finance Act, then policy adjustments will be necessary.

The largest single driver of the fiscal position is the government's choice of policy. This means governments have the capacity to make the necessary changes. We are already seeing governments take a long-term view in setting policy and this trend is likely to continue. New Zealand governments have a window of opportunity of some 20 years to introduce policy changes. This time could be used to introduce early and gradual change if we are to avoid the risk of large policy adjustments in the future. Policy makers will, however, have to balance economic, political and social considerations. A broad range of policy measures may, therefore, be needed to lessen the effects of population ageing and rising incomes on public finances.

The demographic change under way is a powerful force that is likely to bring about a future markedly different from that of our parents' and our grandparents' generations. Those changes, along with others that will come about as a result of, for example, technological change, will pose new fiscal challenges. The work outlined in this chapter is aimed at helping to illuminate some of the key future fiscal challenges and prompt policy developments that help to ensure sound fiscal policy is sustained.

The economic and fiscal effects of population ageing, the policy challenges posed by rising costs of superannuation and health care, the links between the health system, health status and mortality rates are just a few of the issues policy makers are going to have address over the coming decades.

Policies that boost labour participation and productivity are likely to be crucial in meeting the challenges posed by demographic change. For instance, reforms that improve the sustainability of public pension schemes and encourage labour force participation will directly affect government expenditures and broaden the revenue base. Stronger productivity growth will not necessarily alleviate these fiscal pressures, if government spending programmes are indexed to wage growth, as is the case with superannuation, for example. Economic growth may well provide a more favourable environment in which to implement the policy reforms that we expect will be required to maintain sound and sustainable fiscal policy.

Notes

- 1 The authors work for the Treasury. The views expressed in this chapter are those of the authors and do not necessarily represent those of the New Zealand government or the Treasury.
- 2 Further details of the modelling approach used in the statement are discussed in Rodway and Wilson (2006).
- 3 For a summary of the demographic transition, see Lee (2003).

- 4 The details of the policy are that once every 3 years, starting in 2008, the various thresholds in the personal tax scale would be increased by the cumulative increase in the CPI over the previous 3 years.
- 5 This estimate comes from using incomes from a sample of taxpayers and working out each one's tax liability based on today's personal income tax scale. All incomes are then raised by 1% and the tax liabilities recalculated using the same scale (that is, no indexation). The result is a 1.3% increase in personal tax (which is probably an overestimate). All other taxes are assumed to have an elasticity of 1.0.
- 6 The statement on the long-term fiscal position deals exclusively with government health expenditure and makes no attempt to model private health expenditure. Government health expenditure makes up about 80% of total health expenditure in New Zealand. It should also be noted that the definition of government health expenditures used in the statement differs from the definition used in many overseas studies, in that it includes long-term care as well as acute care. In New Zealand, acute and long-term care are funded through the same appropriation, Vote: Health. Health spending includes the government-financed component of spending on New Zealand's statutory accident compensation scheme.
- 7 In Figure 4.4, we have divided a person's life into discrete periods of good and bad health. For many people, this is clearly not the case.
- 8 The Human Mortality Database, University of California, Berkeley, available from <http://www.mortality.org>.

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