8 Superannuation

New Zealand Superannuation, the tax-funded, universal pension scheme, is currently the largest single item of government expenditure. How expenditure on this scheme changes in the future is, therefore, one of the key drivers of the overall long-term fiscal position.

The current legislative basis for New Zealand Superannuation is the New Zealand Superannuation and Retirement Income Act 2001.

The basic structure of New Zealand Superannuation is summed up in the slogan "65 at 65"; that is, a married couple receives a combined pension equal to at least 65% of the average after-tax wage, payable from age 65.

More precisely, to qualify for New Zealand Superannuation, a person must be 65 or older, live in New Zealand when applying and have spent at least 10 years in New Zealand since turning 20 and at least five years since the age of 50.

The rates of New Zealand Superannuation (after deduction of tax at the standard rates) currently payable are:

- a single person living alone: $263.90 a week
- a single person not living alone: $243.60 a week
- a person who is married or in a civil union: $203.00 a week.

New Zealand Superannuation Fund

In 2001, the New Zealand Superannuation Fund was established. Annual contributions by the Government to the Fund are calculated over a 40-year rolling horizon. This smoothes financing the cost of New Zealand Superannuation over successive annual budgets. It is a form of tax smoothing or partial pre-funding, with the objective of assisting the Crown’s finances as a whole in adjusting to significant pressures over the next few decades, mainly as a result of population ageing. 48

Comley and McKissack (2005) have recently reviewed pre-funding strategies in OECD countries. They define a pre-funding strategy as one that involves an increase in a government’s net financial asset (or net debt) position. Such a strategy raises more taxes than are required for current needs, resulting in greater financial resources in the future to deal with any additional expenditure needs. Comley and

48 See McCulloch and Frances, TWP 01/02
McKissack identify two categories of pre-funding: “strong pre-funding countries” display evidence of past pre-funding (which would include declining net debt) and a forward-looking commitment to further pre-funding; “mild pre-funders” show less pre-funding in the past, or a forward-looking pre-funding policy that implies less pre-funding, or weaker compliance with their own policy.

Based on their analysis of net debt paths, primary balances and stated policies, New Zealand is in the strong pre-funding group, along with Belgium, Canada, Denmark, Finland, Luxembourg, Norway and Sweden. Mild pre-funders comprise Australia, Iceland, Ireland, Italy, Korea, the Netherlands and Spain.

Establishment of the New Zealand Superannuation Fund did not involve any changes to the parameters of New Zealand Superannuation payments to individuals. Hence, no effect of the New Zealand Superannuation Fund is included in these projections of levels of future New Zealand Superannuation payments, because the fund is concerned with the timing of the financing of those payments.

These timing effects should not, however, be underestimated. Part of the current strong fiscal position is the result of the build-up of the New Zealand Superannuation Fund, because current revenue is being saved (via the Fund) to be used to finance future costs. In the government accounts and in the Long-Term Fiscal Model, the gross earnings of the New Zealand Superannuation Fund are recorded as investment income to the core Crown. These flows represent a large element of the non-tax revenue discussed in Chapter 5. Part of this income is returned each year to the Crown as income tax and is available to meet spending needs. The after-tax earnings are retained in the Fund for the future benefit of the Crown.

**Projecting future expenditure on New Zealand Superannuation**

Assuming that the parameters of New Zealand Superannuation stay the same, it is possible to project the level of expenditure on this programme.

New Zealand Superannuation is modelled in the Long-Term Fiscal Model as follows:

\[ B_t = B_{t-1} \times (1+n), \]

where

\[ B = \text{the married benefit, and} \]
\[ n = \text{nominal wage growth (3.53\% per annum after 2010).} \]

If \( E_t \) is spending on New Zealand Superannuation in year \( t \), then

\[ E_t = E_{t-1} \times (1+b) \times (1+r) \]
where

\[ b = \text{the growth of } B \text{ (nominal wages)}, \text{ and} \]

\[ r = \text{the growth of the population aged 65 and over}. \]

In line with the doubling of the numbers of people aged 65 and older between now and 2050, it is not surprising that spending on superannuation relative to GDP grows by 2¼ times (the growth of eligible population between now and 2050 divided by the growth of the labour force). Figure 8.1 shows how expenditure on New Zealand Superannuation would grow, as a percentage of GDP, if current policy settings (essentially the “65 at 65” rule) were to apply into the future.

Superannuation as a share of GDP is driven by the ratio of older people to the working-age population (the aged ratio of Chapter 4). This can be seen as follows. The annual payment of superannuation is roughly proportional to the average nominal wage times the number of people 65 and over. On
the other hand, nominal GDP is proportional to nominal labour productivity (average wage) and the labour force (proxied by people aged between 15 and 64). Hence the ratio of superannuation to GDP is driven largely by people 65 and older divided by people 15 to 64: the aged ratio. In 2005, there were 469,000 people receiving New Zealand Superannuation.

Drivers of expenditure

There are two aspects of demographic change that are important for superannuation spending. One is the number of people reaching the age of eligibility and the other is how long they survive after they have become eligible.

As we noted in Chapter 4 (on demography), the structural change in New Zealand’s population is due to the combination of declines in both fertility and mortality. The effects of demographic change are often referred to as “population ageing” because the median age of the population is increasing. Another way of thinking about population change is in terms of survival: how many people live to what age.

What is happening in New Zealand, and the rest of the world, is that rates of survival are increasing. That is, the effect we are observing is that more people are living into old age. There has not been much increase in the oldest age to which humans can live, but there have been substantial increases in the number of people living into very old age.

This effect is illustrated in Figure 8.3, which shows the survival rates from the 1893 and 2003 New Zealand life tables. It shows, for a cohort of 100,000 people, how many are still alive at a given age.

![Figure 8.3: Survival patterns have changed over the past 110 years](image)
The increase in the number of people surviving to age 65 is the cumulative result of the reductions in death rates that are occurring across all younger ages. While infant mortality rates have fallen significantly, there have also been substantial reductions in mortality at all ages up to age 65 (Figure 8.4).

Life expectancy

Another consequence of the fall in mortality is an increase in life expectancy. Life expectancy is related to survival because “average life expectancy” as calculated by demographers for a group of people born in a particular year is the total number of life-years that group will experience, divided by the number of people in the group, based on mortality rates in that year.\(^49\) Thus, while “life expectancy” is the average age to which the population cohort will live, it must be remembered that it is the average of all the ages, including those who die young.

Importantly, the increase in life expectancy being experienced in New Zealand and other countries does not mean that there has been a large increase in the oldest age to which people live. Rather, what we are seeing is more people living to old age.

“Life expectancy at birth” is the most commonly quoted figure and it includes the whole population. However, it is also possible to calculate a figure for remaining years of life for any age. This is the average age to which people who have already survived to a specified age might be expected to live. Calculating life expectancies at different ages demonstrates the effect of early deaths on life expectancy at birth.

\(^{49}\) For the technically-minded, average life expectancy at birth is the area under the survival curve, divided by 100,000.
In Sweden in 1751, life expectancy at birth was 38.44 years, while the expected years of life remaining for those who survived to age one was 46.71. These figures are different because the rate of infant mortality was so high in 18th century Sweden: almost 20% of babies born died before their first birthday.

In New Zealand in 2003, life expectancy at birth was 79.26 years (males and females combined), while life expectancy at age one was 78.65, meaning that those who survived to age one could expect to live a further 78.65 years (giving a total expected life of 79.65 - 78.65 plus 1).

The effect that increasing survival is having on life expectancies at birth in New Zealand is shown in Figure 8.5.

Similarly, and in some cases even more dramatically, increases in life expectancy are occurring in much of the world and have been for many years. Oeppen and Vaupel (2002) point to 160 years of history of the female life expectancy in the record-holding countries increasing at a steady rate of three months per year.

Age of eligibility

The current age of eligibility for New Zealand Superannuation is 65, the same as the age of eligibility for the first New Zealand age pension, introduced in 1893.

In 1891, the life expectancy for non-Māori males at age 65 was 13.08 years and 14.73 for non-Māori females.50 By 2005, the life expectancy of a non-Māori male aged 65 had risen to 17.4 years and, for a non-Māori female, to 20.39 years.

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In terms of New Zealand Superannuation, this increase in life expectancy means that, on average, each person receives the pension for a far longer period. And, as noted above, increasing numbers of people are expected to live beyond 65 in the future.

It is the combination of these effects that is driving the projected increase in spending on New Zealand Superannuation.

A recent proposal by the Turner Commission illustrates the size of these effects. This Commission was appointed by the United Kingdom Government to inquire into the future of pension policy in that country.

The Turner Commission’s proposal was that the age of eligibility for the age pension should be linked to life expectancy. Specifically, they suggested that, in future, one third of any increase in life expectancy should be taken in employment and two thirds in retirement. In May, the United Kingdom Government announced that the state pension age for men and women would increase to 66 in 2024, 67 in 2034 and 68 in 2044. Each rise will be phased in over two years.

As can be seen later in Figure 8.7, the United Kingdom-type approach does have a significant impact on the timing of the increase in expenditure on New Zealand Superannuation. However, the shape of the spending track in Figure 8.7 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. Changing New Zealand Superannuation payments will feed through to changes in the New Zealand Superannuation Fund.

Sensitivity of superannuation payments to changes in the age of eligibility

As discussed above, this section examines the possible effects of indexing the age of eligibility to projected changes in life expectancy, using the formula that is gaining some currency in Europe: one third of the gain in average life expectancy is taken in work, two thirds in leisure. If the gain in
longevity in New Zealand were almost six years between now and 2050, under this policy shift, older people would work for an extra two years, on average.

The changes during the 1990s that lifted the age of eligibility from 60 in 1992 to 65 in 2001 led to rising labour participation by people aged 50 and over through this period (Hurnard 2005).

Figure 8.7 illustrates the impact of two assumptions about when and how quickly the eligibility age might be raised to 67. The slow track lifts the eligibility age to 65.5 in 2010 and then by six months every five years. The fast track lifts the age from 65.5 in 2010 to 67 in 2016 at the rate of six months every two years (the same pace as in the 1990s).
Lifting the age of eligibility results in a reduction in spending on New Zealand Superannuation of 0.7 percentage points of GDP by 2050. Because of the cumulative effect on debt, the two tracks have different effects on debt by 2050. The fast track reduces the base-case debt by 22 percentage points in 2050, while the slow track lowers debt by 17 percentage points.

Indexation

New Zealand Superannuation is currently indexed by changes in prices (as measured by the CPI), but is constrained for a married couple to the equivalent of 65% to 72.5% of average weekly earnings. This policy was formally adopted in 1993.

For modelling the long-term fiscal cost of New Zealand Superannuation, payments are assumed to be set at the level of 65% of average wages. This is because New Zealand Superannuation is currently close to the floor (rates from 1 April 2006 are about 66%) and wages are assumed in the modelling to be always, on average, increasing faster than prices.

Indexation by prices means that 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 that the bundle of goods and services that can be purchased can be increased each year.

Put another way, and based on the proposition that it is increases in productivity (economic growth) that lead to increased wages, wage indexation means that (part of) the national dividend from economic growth also accrues to the retired. Price indexation, on the other hand, means that few, if any, of the gains from growth go to the retired.\(^{51}\)

Thus, the decision whether to index by wages or prices can be seen as one about to whom the benefits of economic growth should accrue.

Given the long-term nature of this Statement, the cumulative effects of different indexation arrangements can be marked. Indexing New Zealand Superannuation to prices, not wages, over a 50-year period 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 New Zealand Superannuation even further towards meeting 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 notion proposed by the 1972 Royal Commission of Inquiry into Social Security, which still seems current, that the objective of the welfare system was to allow recipients of government income support to “belong and participate.”

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51 Retirees would benefit from any technological change that led to lower prices of any particular good or service, for example.
Sensitivity of superannuation payments to changes in the indexation regime

Two alternatives to the base wage indexation case are growing superannuation payments by the rate of CPI inflation and by CPI inflation plus 1%. Other options could include mixed indexation: increasing the payments for first-time recipients by the growth of the average weekly wage, but then growing those payments by CPI inflation. Figure 8.9 illustrates the large effects of changes in indexation from 2011 onwards. Changing from wage to CPI indexation lowers spending by 4 percentage points of GDP, while CPI+1% reduces it by 1.6 percentage points.

![Figure 8.9: Changes in the path of New Zealand Superannuation payments under different indexation regimes](chart.png)

Source: The Treasury
9 Other Benefits

The Government currently spends about $7.5 billion in transfer payments and other benefits to New Zealanders.

From the 1846 Destitute Persons Ordinance, which required the near relatives of destitute persons to make provision for their up-keep, to today, New Zealand has developed an elaborate social welfare system. In March 2006, New Zealand had 283,584 people aged 18 to 64 years who were receiving an income-tested benefit.52 A further 470,000 received New Zealand Superannuation, which is the subject of Chapter 8.

Main types of income support

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 current system comprises the following main income-tested benefits:

- the Unemployment Benefit, for people who are able to work but do not have a job
- the Domestic Purposes Benefit, paid to parents caring for children without the support of a partner
- the Sickness Benefit, for those with short-term medical conditions that prevent them from working
- the Invalid’s Benefit, paid to people with long-term disabilities that prevent them from working.

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 a Sickness Benefit or Invalid Benefit, compared with 116,075 in March 2005.

The number of people receiving the Domestic Purposes Benefit has decreased over the last eight years, after peaking at 114,665 in March 1998. In March 2006, figures show that 103,362 working-age clients were Domestic Purposes Benefit recipients.

The Government also operates a system of targeted financial assistance to working people with children, currently under the rubric of the Working for Families scheme.

52 All figures on beneficiary numbers in this section are from the Ministry of Social Development’s 2006/07 Statement of Intent.
Modelling welfare spending

Projections of spending on non-superannuation benefits are driven by beneficiary numbers, which are calculated from assumptions about unemployment and other benefit take-up rates, population growth and an indexation regime.

Spending on the Unemployment Benefit is given by the formula:

\[ N = s \times l \times u, \]

where

\( N \) = numbers receiving Unemployment Benefits,
\( s \) = Unemployment Benefit recipients as a share of those seeking employment,
\( l \) = labour force, and
\( u \) = unemployment rate.

Here \( s \) is fixed at the last forecast rate (77.1%). If \( E_t \) is spending on Unemployment Benefits in year \( t \), then:

\[ E_t = E_{t-1} \times (1+n) \times (1+i) \times (1+b), \]

where

\( n \) = growth of Unemployment Benefit numbers, \( N \),
\( i \) = the inflation rate, and
\( b \) = real benefit growth.

In line with current policy, \( b \) is assumed to be zero, meaning that benefits are indexed only for increases in prices (via the CPI). Hence the growth of the Unemployment Benefit equals the growth of the labour force (as the other factors in the Unemployment Benefit equation are constant) plus inflation.

In the long run, this means that spending as a proportion of GDP steadily falls.

For other benefits such as the Domestic Purposes Benefit,

\[ E_t = E_{t-1} \times (1+i) \times (1+b) \times (1+b), \]

where

\( E_t \) = spending on benefits,
\( i \) = the inflation rate,
\( b \) = real benefit growth, and
\( c \) = growth of \( \sum_s \) benefit proportions \( a \) x age groups \( s \).

This will tend to grow more slowly than nominal GDP, as the proportions of Domestic Purposes Benefit going to each age group are fixed and the population is ageing (proportionately fewer people require the Domestic Purposes Benefit).
Key drivers and assumptions

The key assumption underlying the projections is the regime for indexing social welfare benefits. Under current law, benefits are adjusted annually in accordance with movement in the CPI. This has been the policy since the early 1990s. As Figure 9.2 shows, the clear trend in New Zealand since the early 1970s has been for the level of benefits to be maintained in real terms (i.e., price indexed) apart from the discrete changes in the late 1970s and 1991. Since 1991, benefits have been CPI-indexed and thus have retained their real level.

During this period, however, real wages have steadily increased. This means that benefits have been steadily falling as a percentage of wages.
Put another way, price indexation maintains the real purchasing power of beneficiaries, meaning that they can continue to buy the same bundle of goods and services in the face of changing prices. What it does not allow them to do is expand their consumption through time, as is the case with workers, whose wages grow.

It is, therefore, a strong assumption to continue to index benefits only for prices, especially over as long a period as covered by this Statement, even though there is support in history for this idea.

Alternative indexation regimes

Presented below are the fiscal effects of some alternative indexation regimes.

The first is to use the regime that applies to New Zealand Superannuation, which is CPI indexation, but within a wage-related floor and ceiling. The projections assume that benefits are increased at the same rates as wages are assumed to grow, namely 1.5% per year more than the rate of inflation.

Figure 9.3 shows that this alternative would have a substantial fiscal effect: rather than falling steadily as a proportion of GDP, spending remains largely 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 + 1%”, where benefits are increased by one percentage point more than CPI growth.
10 Other Spending Areas

This chapter contains projections for all other areas of operating expenditure, together with a discussion of capital spending. The general approach taken for other spending areas is to leave them constant as a share of GDP at their 2010 levels.

Core government services

Core government services expenditure includes the costs of running departments, such as Inland Revenue, State Services Commission, Ministry of Foreign Affairs, the Treasury and Statistics New Zealand, and other spending such as Overseas Development Assistance. This area of spending has no clear relation to demographics.

Spending on core government services is modelled so that it depends on the number of public servants times the average nominal wage. The number of public servants is assumed to be a fixed proportion of total employment. Because total employment tracks the labour force, the ratio of spending to GDP is fixed.
\[ E_t = E_{t-1} \times (1+i) \times (1+w) \times (1+n_t), \]

where

\[ E_t \quad \text{spending}, \]
\[ i \quad \text{the inflation rate}, \]
\[ w \quad \text{real wage growth, which is fixed at 1.5\% per annum}, \]
\[ n_t \quad \text{growth in employment}. \]

**Transport and communication**

Until 2002, operational spending on transportation and communications had been trending down as a share of GDP for the past half century. More recently, it has boosted its share of GDP. In the projection period, the assumption is that it grows essentially by nominal GDP (as the real growth rate is the same as labour productivity growth) and hence the ratio to GDP is constant.

\[ E_t = E_{t-1} \times (1+l) \times (1+i) \times (1+g), \]

where

\[ E_t \quad \text{spending}, \]
\[ l \quad \text{growth in the labour force}, \]
\[ i \quad \text{the inflation rate}, \]
\[ g \quad \text{real expense growth, which is fixed at 1.5\% per annum}. \]
Defence

The share of GDP spent on defence fell to around 1% in the 1990s after hovering around 1.7% over the previous three decades. This share is projected out by a nominal rate of 3.5% a year (which settles down to the growth of nominal GDP, making the ratio to GDP eventually constant, as growth of the labour force slows).

\[ E_t = E_{t-1} \times (1+i) \times (1+g), \]

where

- \( E_t \) = spending,
- \( i \) = the inflation rate, and
- \( g \) = real expense growth, which is fixed at 1.5% per annum.

These projections include the Defence Sustainability Initiative (operational spending) for the years 2006 to 2015 as announced in the 2005 Budget.

Law and order

A reverse pattern occurs in this spending area. Spending on law and order rose as a share of GDP until the 1990s, held at around 1.3% until 2005 and, based on the 2006 Budget, is forecast to climb to 1.6% of GDP by 2009. In the projection period, it is modelled to grow with total population growth, inflation and a real growth factor. This produces a small rise in its share of GDP (as population growth is faster than labour force growth because of the ageing population).
$E_t = E_{t-1} \times (1+p) \times (1+i) \times (1+g)$,

where

$E_t = $ spending,

$p = $ population growth,

$i = $ the inflation rate, and

$g = $ real expense growth, which is fixed at 1.5% per annum.

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**Capital spending and other significant balance sheet assumptions**

Transport, defence, and law and order have capital spending aspects that are discussed in this section. This section also describes the assumptions behind other drivers of significant balance sheet components across the projection period.

**Core Crown property, plant and equipment**

This component of the balance sheet covers core Crown physical assets, including prisons, courts, police stations, defence equipment, conservation estate and some educational property. It is grown with inflation and a growth factor (currently set to labour productivity growth). This is a simplifying assumption as, over a 50-year period, the actual path of capital expenditure on property, plant and equipment will be “lumpy” and alternate between different priorities (e.g., between defence equipment and courts) through time.

The growth in this component should be viewed in the context of a large proportion of the assets’ value (in particular, the conservation estate and other assets) remaining constant (this part would increase only by revaluations, which are not forecast). This means that, as a percentage of GDP, this part of property, plant and equipment would decrease slightly over time.
In the modelling of property, plant and equipment, the Long-term Fiscal Model does not include depreciation. The model assumes that depreciation will be fully used to replace existing asset bases and the growth in property, plant and equipment represents the growth over and above depreciation.

**State-owned enterprises and Crown entities**

A large portion of the initial asset value is in areas where future investment by the core Crown is not likely. These include the start-up capital for state-owned enterprises, which is modelled to keep capital expansion such that their borrowing will remain a constant proportion of their net worth. Growth in state-owned enterprises' net worth comes from their operating balance (growing with GDP).

Growth in the net worth of Crown entities comes from their operating balance, primarily driven by the surpluses of the Earthquake Commission, Accident Compensation Corporation and Transit New Zealand. In addition, net worth is also grown by the increase in core Crown investments. The growth in net worth then generates increased property, plant and equipment in the Crown entity segment.

The transport component is different to the other Crown entity components, as all transport funding is received as operating revenue by Transit New Zealand and the surplus of this entity reflects the level of capital spending undertaken. The Transit surplus is assumed to grow with inflation, whereas the transport expense is growing with GDP (see above). This assumption means that, over time, a higher proportion will be spent on road maintenance rather than on capital spending. Over a 50-year period, the split between operating and capital is likely to fluctuate. However, while this split could affect the final operating balance, it does not affect gross sovereign-issued debt, as the amount spent in total on both operating and capital is the same.

**Core Crown investments and advances**

The core Crown investments category covers the investment into Crown entities including Tertiary Educational Institutions, Housing Corporation and District Health Boards. The growth factor applied to this category is an average of the increase over the forecast horizon (which is affected by the scenario allocation of the capital allowance within the forecast horizon) and grows with GDP.

The core Crown advances category covers student loans and advances to Housing Corporation and District Health Boards. This category is mainly driven by the student loan track as per the forecasts contained in the 2006 *Budget Economic and Fiscal Update*. The remaining advances grow with inflation to keep them constant in real terms. This growth represents debt funding of Crown entity capital; the rest is funded through equity via “investments in Crown entities” described above. Both are recorded as assets for the core Crown and hence the mix is not important for projections of gross sovereign debt and the operating balance. The initial level of advances for Housing Corporation and District Health Boards is determined by the allocation of the capital provision through the scenarios allocation.
11 Overall Results

This chapter presents projections of the overall long-term fiscal position. A range of different scenarios is presented, reflecting the fact that governments will have many choices about how they meet their policy objectives. The chapter also contains illustrations of the sensitivity of the results to some of the underlying assumptions.

The chapter focuses on the results for the core Crown (as distinct from Total Crown), because the core Crown more closely reflects government budget decisions and captures funding to areas such as health and education. The projections assume that the current institutional form is maintained over the projection period. The drivers of the state-owned enterprises and Crown entities components are detailed in Chapter 10. In the main, these are projected to evolve in a manner that would see figures for the Total Crown mimic developments in the core Crown.

The starting point for these projections is the New Zealand Government’s current 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.

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53 The core Crown part of the state sector covers government departments, the Reserve Bank and the New Zealand Superannuation Fund. Total Crown includes the core Crown but also includes Crown entities (such as councils, commissions, boards, Television New Zealand and tertiary institutions) and state-owned enterprises (for example, Mighty River Power, Meridian Energy, Genesis Power, Transpower New Zealand Limited and New Zealand Post Limited).
Two different approaches

Two approaches are used to project the future fiscal position, as outlined in Chapter 3: bottom-up and top-down. The demographic and economic assumptions underpinning these projections are described in Chapter 4, while the details of the spending and revenue assumptions are laid out in Chapters 5 to 10. Both approaches include projections of contributions to, and withdrawals from, the New Zealand Superannuation Fund, as set out in the 2006 Budget Economic and Fiscal Update.

The bottom-up projections

These use the base-case projections of spending discussed in previous chapters. Spending on health and New Zealand Superannuation more than doubles as a share of GDP, while the shares going to education, social welfare benefits and other spending fall (Figure 11.1).

The aggregate primary spending for the core Crown (spending excluding finance costs) is projected to rise by around 7 percentage points of GDP to 37% in 2050. For the next 15 years, spending is relatively flat before rising steadily as demographic change really begins to impact.

Combined with the projection of core Crown revenue outlined in Chapter 5 (incorporating a broadly constant tax-to-GDP ratio), the core Crown primary operating balance is expected to move eventually from surplus to deficit (Figure 11.2). This is projected to take place in the late 2030s.

Under this 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 (this occurs earlier than in Figure 11.2 because of debt-servicing costs).

54 The primary operating balance is defined here as revenue less spending excluding finance costs for the core Crown.
After remaining at around 20% of GDP until 2020, gross debt under these assumptions is projected to rise to about 30% over the following decade and approach 100% of GDP by 2050. This compares with a previous peak in gross debt to GDP of 75% in 1987.

The projected rise in New Zealand Superannuation Fund assets would provide a significant offset to the rise in gross debt, so that 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, in order to stop debt-to-GDP moving onto an ever-increasing path, in part because of the responsible fiscal management aspects of the Public Finance Act discussed in Chapter 3. This is why the top-down approach discussed in the next section represents an important addition to the ways of looking at the future fiscal position.

The top-down approach

The top-down approach asks what might need to happen to spending and taxes, or some mix of them, in order to meet a set of top-down 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.

Because of the many different components that make up total government spending and taxes, the top-down projections have another layer of uncertainty to that of the bottom-up approach: over which categories of spending or revenue should the constraint be placed? This uncertainty is captured here by presenting 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.

Stable debt scenarios

The first set of top-down scenarios look at the options governments would have if they decided to roll out the long-term debt objective set out in the 2006 Fiscal Strategy Report indefinitely. This would mean that 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 11.5.

![Figure 11.5: Gross sovereign-issued debt constrained to around 20% of GDP](source: The Treasury)
Such a debt track would require the operating balance to remain in small surplus over the projection period. This is because the government is also making contributions to the New Zealand Superannuation Fund and other capital investments alongside its operating decisions.

If all the adjustment was to occur on the spending side, one scenario might have spending in the four major areas of health, education, New Zealand Superannuation and social welfare benefits projected as in the bottom-up projections, with other spending (including financial costs) acting as the residual.

This selection of policies has been made for illustrative purposes and does not imply that spending in these four categories should be regarded as unchangeable. 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 11.6).
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% now to around 39% of GDP in 2050.

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 of time. For example, if health spending were to grow each year 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% (Figure 11.8).
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 polices 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 until 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 11.9.

![Figure 11.10: Forward-looking adjustment: reducing other expenditure](image1)

![Figure 11.11: Forward-looking adjustment: taxes](image2)
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 that 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 contrast with the case where an earlier adjustment led to a decrease from the current level of 10% to 5.5% of GDP).

In the final scenario, a late adjustment is made, this time through the tax system. Making a late adjustment 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.

**Sensitivity of results to changed economic assumptions**

Projecting the future is inherently difficult, and there is a high degree of uncertainty around the base projections set out above. They are sensitive to some of the assumptions made. The effects of changes in assumptions about individual spending and tax components are reviewed in earlier chapters. This section looks at the effects of changes to key economic variables on the main fiscal aggregates, using the bottom-up projections from earlier in the chapter.

**Fertility rates**

Fertility rates are assumed in the base case to stabilise at 1.85, below the level of 2.1 required to replace the population. If fertility rates were to continue to fall to much lower levels (as they already have in some countries such as Italy, Japan and Korea), then a more marked ageing of the population would happen. In the short term, the number of school-age children would decline more than projected in the base case. In the medium term, the working-age population would be smaller than the rest of the population, thus reducing the size of the economy and the tax base. Eventually, the number of old people would also decline.

This is illustrated with the cases of fertility converging to 2.10 (replacement, labelled high) and 1.6 (low). The low fertility case has much more ageing than the base case: the ratio of aged to working age reaches 48% in 2050, compared with 45% in the base case, while for the high fertility case, it is 42%.

The table below shows the difference between these two cases and the base for education spending, primary core spending (without finance costs), the operating balance and debt (as percentage points of GDP).
Table 11.1: Differences of high (2.1) and low (1.6) fertility cases from the base (1.85) (Percentage points of GDP)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.0</td>
<td>-0.2</td>
<td>-0.3</td>
<td>-0.4</td>
<td>-0.4</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Primary spending</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.0</td>
<td>-0.4</td>
<td>-0.6</td>
<td>-0.5</td>
<td>-0.2</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>-0.1</td>
</tr>
<tr>
<td>Operating balance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.0</td>
<td>0.6</td>
<td>1.2</td>
<td>1.7</td>
<td>2.1</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>-0.2</td>
<td>-0.5</td>
<td>-0.6</td>
<td>-0.6</td>
</tr>
<tr>
<td>Gross-sovereign issued debt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.0</td>
<td>-1.9</td>
<td>-8.2</td>
<td>-17.4</td>
<td>-28.6</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>0.0</td>
<td>2.2</td>
<td>5.4</td>
<td>8.8</td>
</tr>
</tbody>
</table>

Lower fertility initially reduces spending on education and increases the operating balance. Eventually, lower fertility produces a smaller labour force and a lower GDP track (down by 5.4% in 2050). The overall result in 2050 of these changes is much less debt (again, illustrating the power of debt dynamics). Higher fertility produces higher spending across most areas, and a lower operating balance, but not significantly so. On the debt side, this results in a slightly higher track.

Life expectancy

Assumptions about mortality (or its counterpart, life expectancy) also have effects on GDP growth and public spending.

Higher life expectancy (lower mortality) produces a higher ratio of the old to the working aged and hence higher superannuation costs and higher health spending (the old-to-working ratio reaches 49% in this case). This higher spending feeds through to reductions in the operating balance, compounding to higher debt.

Table 11.2: Differences of high (87.5) and low (83.0) life expectancy cases from the base (85.2) (Percentage points of GDP)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superannuation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.0</td>
<td>-0.1</td>
<td>-0.2</td>
<td>-0.4</td>
<td>-0.5</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Primary spending</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.0</td>
<td>-0.3</td>
<td>-0.6</td>
<td>-1.1</td>
<td>-1.5</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>0.0</td>
<td>0.3</td>
<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td>Operating balance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.0</td>
<td>0.3</td>
<td>0.9</td>
<td>1.8</td>
<td>3.3</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>0.1</td>
<td>-0.2</td>
<td>-0.8</td>
<td>-1.8</td>
</tr>
<tr>
<td>Gross sovereign-issued debt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.0</td>
<td>-2.8</td>
<td>-8.0</td>
<td>-16.8</td>
<td>-30.9</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>0.8</td>
<td>2.0</td>
<td>5.2</td>
<td>11.9</td>
</tr>
</tbody>
</table>
Productivity

One key assumption is about the impact of economic growth on the fiscal outcomes.

Demand for many publicly provided goods and services increases with income, meaning that growth leads to pressure for greater spending, not less. Some programmes are directly linked to economic growth, through things like indexation regimes.

Policies that explicitly or implicitly link spending to economic growth mean that spending as a proportion of GDP remains about the same regardless of the level of economic growth. For example, New Zealand Superannuation is linked to wages and therefore is not affected by growth. In contrast, welfare benefits are linked to prices and therefore will fall (as a proportion of GDP) if growth increases. Health spending, both in New Zealand and in most OECD countries, seems to be strongly linked to economic growth.

The effects of a change in the growth assumption can be seen in Table 11.3, which is based on a full set of bottom-up projections with one assumption changed: that productivity growth is 2% per year, rather than the 1.5% assumed above. This shows that spending on health and superannuation, as shares of GDP, are unaffected by the assumption of higher productivity growth. Primary spending is reduced a little (because of CPI indexation of non-superannuation benefits) and this eventually improves the operating balance and lowers debt’s share of GDP by 14 percentage points by 2050. Figure 11.12 shows the effect of this higher growth assumption on government debt.
Table 11.3: Differences of high (2%) productivity growth case from the base (1.5%)

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superannuation</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Health</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Welfare benefits</td>
<td>0.0</td>
<td>-0.2</td>
<td>-0.4</td>
<td>-0.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>Primary spending</td>
<td>0.0</td>
<td>-0.2</td>
<td>-0.4</td>
<td>-0.5</td>
<td>-0.5</td>
</tr>
<tr>
<td>Tax</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Operating balance</td>
<td>0.0</td>
<td>0.2</td>
<td>0.4</td>
<td>0.7</td>
<td>1.1</td>
</tr>
<tr>
<td>Gross-sovereign-issued-debt</td>
<td>0.0</td>
<td>-0.5</td>
<td>-2.7</td>
<td>-6.9</td>
<td>-14.1</td>
</tr>
</tbody>
</table>

Participation rates

The base case uses age-group participation rates based on the so-called cohort method, which projects age-group participation rates using recent cohort entry and exit probabilities. The result is generally age-group participation rates that are higher than results from holding age-group rates static from about 2014 onwards (labelled “static”).

A further case (“high”) is considered where the participation rates of older age groups are raised above the base case: for age groups 55 to 59 and 60 to 64, from 2015 to 2025, half the gap between the base case and the next younger age group is closed, and for the 65 and older age groups, from 2015 participation is lifted so that by 2025 it is 20% higher than base-case values. This could happen with labour market changes brought about by greater workplace flexibility and changes in attitudes towards the retention of older workers as population ageing slows the growth of the traditional labour force.
These two alternative cases, static and high, respectively lift (and lower) GDP by about 2½% of the base-case level in 2050 and create a rise (and a reduction) in primary spending to GDP. The rising wedge is amplified by debt servicing costs, which are cumulated into a difference in debt of some 24 percentage points by 2050. The increased labour market contribution by older workers, while increasing their own wealth, also benefits the fiscal position through reductions in social spending relative to GDP.

Table 11.4: Differences of cases of static and higher rates for older workers from base-case

<table>
<thead>
<tr>
<th>(Percentage points of GDP)</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary spending</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static</td>
<td>0.0</td>
<td>0.3</td>
<td>0.5</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>-0.3</td>
<td>-0.6</td>
<td>-0.6</td>
<td>-0.6</td>
</tr>
<tr>
<td>Tax</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Operating balance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static</td>
<td>0.0</td>
<td>-0.2</td>
<td>-0.7</td>
<td>-1.2</td>
<td>-1.8</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>0.3</td>
<td>0.8</td>
<td>1.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Gross-sovereign-issued-debt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static</td>
<td>0.0</td>
<td>2.0</td>
<td>6.7</td>
<td>14.2</td>
<td>23.7</td>
</tr>
<tr>
<td>High</td>
<td>0.0</td>
<td>-1.7</td>
<td>-7.5</td>
<td>-14.7</td>
<td>-23.5</td>
</tr>
</tbody>
</table>

Conclusion

The starting point for preparing this Statement of the Long-term Fiscal position is the strong current fiscal position of the New Zealand Government.

Debt is low, by both historical and international standards, and the Government has started to build up assets in the New Zealand Superannuation Fund as a further buffer against future events.

This strong fiscal position has not just happened by chance. Since the early 1990s, and reinforced by the passage of the Fiscal Responsibility Act (now Part 2 of the Public Finance Act), successive New Zealand governments have worked hard to place New Zealand’s public finances on a sound footing. Since 1994, governments have run an operating surplus.

In the 2006 Fiscal Strategy Report, the Government stated its view that, at around 20% of GDP, gross debt had reached prudent levels (one of the principles of responsible financial management), meaning that it was now appropriate to see debt kept at around that level.

This Statement goes beyond the traditional “bottom-up” approach of using current policy as the sole basis of constructing the projections of the long-term fiscal position.

The “bottom-up” approach, which involves projecting future expenditure and taxes on the basis that current policy in each area will continue, is a powerful tool for examining the impact of changes in the population on individual policies. It is the approach that has been used in many studies of the fiscal position in New Zealand. It is also an approach commonly used by other countries; for example, the European Commission has recently published a set of bottom-up long-term fiscal projections for four expenditure categories for all 25 members of the European Union.
In an advance on previous New Zealand studies, the Statement uses projections made on a “top-down” basis. As the name implies, this projection method seeks to impose an overall set of fiscal constraints on the government and then looks at what various combinations of policies might meet these constraints.

The top-down approach more closely mirrors how governments actually prepare their budgets each year, as they seek to meet all the demands upon the revenue, including the requirement to follow the principles of responsible financial management set out in Part 2 of the Public Finance Act.

These projections, which are based on history, current policy and judgements, show that the Government’s strong fiscal position is likely to continue for a long time.

In common with many other countries, New Zealand is experiencing a shift in the structure of the population. We have completed a transition from a condition of high fertility/high mortality to one of low fertility/low mortality.

This transition is not a demographic bulge that will correct itself at some time in the future and is not just the result of the post-Second World War baby boom.

In time, the number of old people will increase as a proportion of the total population and, correspondingly, the number of young and working-age people will fall.

These projections show a continuation of solid economic growth, which means that the tax base also grows through time, giving governments the means to finance expenditures.

The combination of the projected structural change to the population and present policy settings is likely to lead to growing challenges to the fiscal position, and these pressures will accelerate in the 2030s.

These projections also assume that governments will continue to follow the principles of responsible fiscal management contained in the Public Finance Act. This means that they will act before this time to ensure that the fiscal position remains sound.

The largest single driver of the fiscal position is the policy choices governments make and this means that governments have the capacity to make the necessary changes.

The size of any policy adjustment need not be large. A number of small adjustments, starting early, will be sufficient to maintain the fiscal position. We are already seeing governments take a long-term view in setting policy and this trend is likely to continue.

Publishing a Statement on the long-term fiscal position is not an end in itself. What has been done here is present information that will allow readers to develop scenarios consistent with what they define as desirable fiscal results.
Annex 1: Key Assumptions

This annex contains a list of the major assumptions used in the Statement.

Demographic assumptions

The base-case projection uses Statistics New Zealand’s mid-range Series 5 demographic projection (Statistics New Zealand, 2004). It assumes a total fertility rate of 1.85 children per woman from 2016 onwards. Female life expectancy at birth rises at a slowing rate to 87 years, male to 83.5 years in 2050. Net migration settles at 10,000 people from 2009 onwards (Chapter 4).

Economic assumptions

Economic projections follow the medium-term Budget 2006 forecasts to 2010. After that, the following economic trend settings are assumed (Chapter 4).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour productivity growth</td>
<td>1.5%</td>
</tr>
<tr>
<td>Inflation</td>
<td>2.0%</td>
</tr>
<tr>
<td>10-year real government bond rate</td>
<td>4.0%</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>4.5%</td>
</tr>
<tr>
<td>Average hours per week</td>
<td>38.4 hours</td>
</tr>
</tbody>
</table>

Fiscal assumptions

The assumptions used in the base-case are listed in Chapters 5 to 10. The key assumptions are:

» tax-to-GDP is broadly held constant from 2010 onwards

» health status: the “healthy ageing” hypothesis is assumed to hold in the projection period so that longevity gains are translated into further years of good health. Similarly, the incidence of disability is assumed to fall by 0.5% a year

» 1% growth in nominal income results in 1% growth in health spending

» some cost-containment measures apply to health spending from 2010 onwards

» the cost per student grows with the average wage from 2010 onwards

» New Zealand Superannuation modelling assumes the current parameters: “65 at 65” – the pension grows with the average wage and is payable at age 65

» welfare benefits are assumed to grow at the same rate as the CPI

» all other spending areas largely grow at the rate of nominal GDP.
Annex 2: Previous Studies

While the legislative requirement for the Treasury to produce a long-term fiscal statement is new, this is not by any means the first time that the issue has been placed in the public arena.

Many reports by the Treasury and by other agencies over the past 15 years have focused on New Zealand’s long-term fiscal position. Some have focused on the impact of population ageing, while others have looked at a wider range of drivers of the fiscal position.

Some notable examples are:

» the first Todd Taskforce on private provision of retirement incomes, published in 1992. The Taskforce included a section in its report on the long-term affordability of National Superannuation, using their own model

» Treasury’s 1993 *Briefing to the incoming government*, which contained estimates of the long-term fiscal position looking out to 2049

» the New Zealand Institute of Economic Research’s *The Fiscal Impacts of an Ageing Population*, a report to the Office of the Retirement Commissioner, October 1995. This was an update of work the Institute carried out for the Todd Taskforce, looking at the overall fiscal position, not just superannuation


» the second Todd Periodic Report Group’s report on retirement incomes. Its 1997 Interim Report included an extensive discussion on population ageing, modelling the long-term fiscal position and the sustainability of public provision of retirement incomes

» *You and Your Retirement Savings*, the document outlining the proposed compulsory Retirement Savings Scheme, published in 1997, which contained detailed analysis of the government’s long-term fiscal position (not just that relating to public provision of retirement income) with and without the Scheme.

» *Pre-funding New Zealand Superannuation* (Treasury Working Document), June 2000, which discusses the establishment of the New Zealand Superannuation Fund and its fiscal implications and affordability

the Treasury’s *The Fiscal Implications of Population Ageing in New Zealand*. A report to the 2003 Periodic Report Group. This provided a summary of work undertaken by the New Zealand Treasury on the fiscal implications of population ageing, with a particular focus on New Zealand Superannuation.

The common approach of these studies (which is also seen in official studies undertaken in other countries) is to project the path of expenditure and taxes based on some notion of “current policy.” The idea is to investigate the impact of external drivers – often demographic, but sometimes economic, like the cost of health care – on the overall fiscal position. They have commonly indexed social security benefits to wages and have assumed that in the long term, taxes are a fixed proportion of GDP.
References


