



DRAFT

He Tirohanga Mokopuna 2021

Consultation on the draft content of the
Treasury's combined Statement on the Long-term
Fiscal Position and Long-term Insights Briefing



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He Tirohanga Mokopuna was first used in the title of the 2016 Statement. It conveys the sense of a future outlook and taking a long-term view. The term mokopuna is used conceptually to signify a new generation; our mokopuna are the future and we have the responsibility today to leave New Zealand a better place for them in the decades ahead. He Tirohanga Mokopuna also underscores the unique relationship between the Crown and Māori under the Treaty of Waitangi as an imperative in lifting living standards for New Zealanders.

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Foreword

Kia ora Koutou

Welcome to this consultation draft of the 2021 Long-term Insights Briefing, which has been combined with the Statement on the Long-term Fiscal Position (Long-term Fiscal Statement).

The Treasury's Māori name, Te Tai Ōhanga, represents the role we play in overseeing the 'tides' of the New Zealand economy. Charting the 'tides' of New Zealand's fiscal position over the coming 40 years is the role of the Long-term Fiscal Statement.

This year we have combined the Long-term Fiscal Statement with the Treasury's first Long-term Insights Briefing. This has provided us with the opportunity to analyse key trends and their potential long-term fiscal impacts directly alongside a range of policy options available to address them.

The impacts of the COVID-19 pandemic cast a shadow over the fiscal position of the government and will do so for years to come. There is still considerable uncertainty about its future effects. We still don't know when the world's borders will re-open and the new 'normal' our economies will return to. Where possible we have incorporated the impacts of COVID-19 on key economic variables such as interest rates, labour productivity, migration and trend growth.

However, it is not only the COVID-19 pandemic that we must consider. Climate change and population ageing must also be factored into the long-term fiscal position of New Zealand. This draft report has sought to provide insight and analysis on critical factors that influence our fiscal position but is in no way a complete list. Between now and the release of the final report in September, the Treasury will be publishing a set of background papers that underpin the analysis.

In preparing this report we sought input and submissions from key subject matter experts on topics such as superannuation, demographics and climate change to help shape its contents and our analysis. Now, with this

consultation draft, we are seeking further feedback on our analysis and the conclusions we have formed.

As in previous Long-term Fiscal Statements we have applied the Living Standards Framework to ensure we take a broad and rigorous view of how fiscal sustainability contributes to wellbeing now and in the future. For this Statement, we have complemented this analysis by introducing a te ao Māori perspective, drawing from He Ara Waiora. Through ongoing engagement with Māori and external stakeholders, we aspire to improve and deepen the quality of this analysis over time and ensure its relevance for all New Zealanders.

The Long-term Fiscal Statement and Long-term Insights Briefing are part of a broader suite of stewardship reports the Treasury is responsible for delivering. Others include the Wellbeing Report and the Investment Statement. Through the development of these reports, we aim to evolve, deepen and enrich our understanding of the long-term drivers of better living standards for current and future generations of New Zealanders.

We now welcome your feedback. We know that your input can only deepen the analysis and grow the relevance of this report and our future stewardship work.

Ngā mihi nui



Caralee McLiesh
Secretary to the Treasury

Acknowledgements

We thank submitters and those we met with as part of our consultation on the scope of this document. A summary of the feedback we received can be found on our website: www.treasury.govt.nz/news-and-events/reviews-consultation/long-term-fiscal-challenges

A note on this consultation draft of He Tirohanga Mokopuna 2021 – the Treasury's combined Statement on the Long-term Fiscal Position and Long-term Insights Briefing

The analysis and conclusions in this consultation draft will be finalised after new data releases have been incorporated and the modelling updated. Additionally, we will review and consider all feedback we receive through the consultation. As a consequence the analysis and conclusions presented in the final version in September may differ slightly from those presented in this draft version.

Underpinning the analysis and conclusions are a number of background papers. We intend to publish these papers between now and the end of September 2021:

- How fiscal strategy affects living standards.

- Golden years – understanding the New Zealand Superannuation Fund.
- The economic impacts of an ageing population in New Zealand.
- Demographic, economic and fiscal assumptions and logic in the 2020 Long-term Fiscal Model (LTFM).
- Long-term projections of the New Zealand Government's interest rate.
- Shocks and scenarios analysis using a stochastic Neoclassical Growth Model.

Executive Summary

The COVID-19 pandemic has demonstrated the importance of a strong and sustainable fiscal position

New Zealand was well positioned to respond to COVID-19. Prior to the pandemic, net core Crown net debt was 19% of GDP. This strong fiscal position allowed the Government to respond to the COVID-19 pandemic with significant fiscal stimulus, which has been critical to maintaining relatively low unemployment and enabling a swift economic recovery. This complemented the national health response and monetary policy stimulus.

While New Zealand's health and economic responses to COVID-19 have supported living standards, the economy has still faced a significant shock and some groups have been more negatively affected than others. Sectors such as retail, trade and accommodation have been the most impacted by pandemic-related labour market disruption. This affected a disproportionate number of young people, Māori, Pacific Peoples and women, exacerbating pre-existing inequities in labour market outcomes.

While the fiscal response to the COVID-19 pandemic has caused net debt to increase significantly, the Treasury views this response and current debt levels to be prudent

Net debt is now forecast to peak at 48% of GDP in 2023, with further years of fiscal deficits. However, this fiscal response has helped prevent a deeper and longer lasting recession, which could have had long-term impacts on New Zealand's wellbeing.

The Treasury's judgement is that there is currently no need to reduce debt levels. The fiscal response to COVID-19 is largely temporary. Deficits will shrink as the temporary support measures introduced since March 2020 end, putting less upward pressure on net debt. Current debt levels are also unlikely to limit our ability to borrow further if required. New Zealand's debt level remains low relative to its peers and the interest rate and composition of debt are much more favourable than when net debt peaked at 55% of GDP in 1992.

New Zealanders are, on average, living longer and healthier lives. This is a good thing, but combined with ongoing increases in health spending it is likely to put pressure on public finances over the long term

Driven by lower average fertility rates and improvements in life expectancy, 26% of the population is projected to be over 65 years old by 2060, compared to 16% in 2020. This is expected to increase superannuation expenditure under current settings. In addition, we expect healthcare costs will likely continue to grow over time, with an ageing population projected to make up around a quarter of the increase.

This ageing population will also change the demographics of New Zealand as ageing varies considerably by ethnicity and geography. Māori and Pacific Peoples are on average significantly younger than other New Zealanders. By 2038, Māori are projected to account for 20% of the total population and only 10% of the 65+ population.

Net debt is likely to be on an unsustainable trajectory if expenditure and revenue follow historical trends

Our projections indicate that the gap between expenditure and revenue will grow significantly as a result of demographic change and historical trends, in the absence of any offsetting action by the Government. This will cause net debt to increase rapidly as a share of GDP by 2060. For the first time, the Treasury has also modelled the economic impact of alternative scenarios where governments take action to stabilise net debt instead of allowing it to increase. This modelling can help inform the policy trade-offs future governments will face.

Any long-term projections are uncertain, and there will be shocks in the future

Uncertainty about the path of the economy post-COVID heightens the already significant uncertainty associated with long-term projections. The projections are sensitive to many factors, including the future path of interest rates and the starting point for economic and fiscal projections. Built up over time, small initial differences in demographic, social and natural trends can lead to very different future economic and fiscal positions. Additionally, governments will change policies and technological advances will surprise us, and some factors will eventuate that we are not aware of, like the COVID-19 pandemic.

Therefore, the long-term projections in this Statement should be viewed as an illustration of the trajectory of the fiscal position under a set of assumptions rather than a forecast. Even optimistic changes to those assumptions do not change the fact that New Zealand will face significant long-run fiscal pressures. However, lower interest rates will provide more time to make adjustments as debt-financing costs will be lower (and these adjustments would be relatively smaller).

New Zealand will face shocks in the future such as recessions, earthquakes, and further pandemics. They are likely to add to fiscal pressures in the long-term. By ensuring that enough capacity exists in the public finances to respond to these shocks, the wellbeing of the future populations that have to manage them can be supported.

Climate change is one long-term trend with significant economic and fiscal impacts – although the scale is uncertain partly because some policy decisions are still to be taken

Climate change will impact the fiscal position through the impacts of more frequent and severe weather events and transitioning to a net zero emissions economy by 2050. However, due to the range of policy decisions yet to be taken on climate policy the long-run impact is uncertain.

More frequent and severe extreme weather events and the gradual increase in temperatures and sea levels will have economic and fiscal impacts in the future, which adaptation policy today could minimise. Governments will also face trade-offs when choosing the pace of emissions reduction and the policy levers to achieve it.

The Government has choices about the level of debt to target in the future, and when it makes policy adjustments to achieve this

While the Treasury's judgement is that there is currently no immediate need to reduce debt, policy action will be necessary to achieve and maintain a sustainable debt trajectory over time. This will ensure that New Zealand is resilient to future shocks, and that future generations do not face an unduly large burden of debt. Governments will need to decide how large an adjustment is necessary, and at what time. Both judgements are complicated by uncertainty in the near-term due to COVID-19, the future path of interest rates and international debt levels, while

fiscal policy will need to be flexible to be able to respond to a range of scenarios.

The Public Finance Act 1989 requires governments to 'reduce debt to prudent levels' and maintain it at those levels. Defining 'prudent' requires both analytical and value judgements, including considering the value of additional expenditure, how much fiscal resilience New Zealand needs to respond to future shocks, and the impact of higher debt on future generations. The Government views current debt levels as prudent, an assessment the Treasury supports. However, long-term expenditure trends mean that, without any policy adjustments, net debt will likely breach the prudent upper limit for debt at some future point either within or beyond the projection period.

Although the increased uncertainty as a result of COVID-19 makes it difficult to calculate the exact speed of adjustment, considering changes to improve the long-term fiscal position now is likely to be beneficial. Small and gradual changes in the near-term could help minimise the cost of fiscal pressures across generations, preventing higher debt and a larger, relatively more costly adjustment in the future.

Policy choices on the level of debt, speed of adjustment, and policy measures present trade-offs for current and future wellbeing in several ways

The Treasury's Living Standards Framework, which recognises that environmental, social, human, and physical and financial capital need to be developed and sustained in order to achieve wellbeing, and He Ara Waiora are useful frameworks for considering the wider wellbeing implications of fiscal objectives and the means of achieving them.

These frameworks consider the distributional impact of policies on different groups. They help ensure that policies are fair and consistent with tikanga Māori. This is achieved by working in the spirit of kotahitanga (unity) with those most affected by any policy changes, and by considering the intergenerational impact of the choices we make to support our tiakitanga (stewardship) or mana whanake (intergenerational prosperity).

Future governments could manage the growth in expenditure over time, supported by a drive to improve the quality of public spending

We have considered options to manage the growth of health expenditure or to change the policy settings for New Zealand Superannuation (such as increasing the age of eligibility and changing the rate at which payments are increased). Both would contribute to a more sustainable trajectory for debt, and could have broader macroeconomic benefits, but would come with trade-offs particularly for groups of the population who already face challenges accessing health services or an adequate income in retirement.

Health reform underway provides an opportunity to improve fiscal sustainability over the long-term through improved productivity and efficiency, although the extent of this is uncertain. It is unlikely, however, to achieve a permanent and significant reduction in healthcare spending growth given the upfront investment required, the ambitious focus of reform (for example, improving equity of access) and the underlying drivers of health expenditure.

The context for retirement income policy has now changed given, for example, COVID-19, home ownership patterns over the past decade, and the changing nature of work. This needs to be taken into consideration when analysing the costs and benefits of New Zealand Superannuation options. Further, any changes to settings cannot be implemented immediately and would benefit from being signalled in advance.

Reforms to our public finance system will give future governments more tools to improve fiscal management and sustainability. While these tools are unlikely to deliver significant fiscal savings, they will help governments focus on the quality of expenditure and value for money through better collaboration, multi-year Budget cycles and spending reviews. Maximising the quality and value of expenditure will be critical to enhancing social capital in an increasingly constrained fiscal environment.

There are options to increase tax revenue, although the impact would depend on the tax lever chosen

The Treasury has considered options to increase tax revenue, and modelled the impact of increasing revenue from the personal income tax system. Raising additional revenue has economic costs, as it affects decisions to work, save, and invest in the economy or ourselves. The net impact on New Zealand's wellbeing depends on who ends up paying and how additional revenue is spent.

There are many ways in which governments could seek to raise additional revenue from existing and new tax bases beyond personal income tax. All have trade-offs; there is no 'perfect' way to raise revenue, and different levers have different economic and social impacts.

A comprehensive package will be necessary over time to stabilise net debt, but the balance of policy measures are largely value judgements for governments

Changing tax rates or restricting expenditure growth can help close the growing gap between revenue and expenditure. However, analysis in this Statement shows that one policy change by itself is unlikely to stabilise debt over the long-run. This means that future governments will likely need to draw on multiple levers and consider trade-offs across different policy options in responding to our fiscal challenges.

1 New Zealand's long-run fiscal position

1.1

New Zealand's current fiscal position

- New Zealand's strong fiscal position when the COVID-19 pandemic hit allowed the Government to support the wellbeing of New Zealanders through an extraordinary shock, which has prevented a deeper and longer-lasting hit to living standards.
- While the impact of COVID-19 on annual borrowing is largely expected to be temporary, net core Crown debt (net debt) in New Zealand has increased substantially and is expected to peak at 48% of GDP in 2023.
- Increasing net debt was an appropriate policy response to COVID-19, and while the Treasury considers there is currently no need to reduce the level of net debt, governments will need to ensure that it is on a sustainable trajectory in the long term.

In June 2019 net debt was 19% of GDP. This was a strong fiscal position and allowed the Government to respond to the COVID-19 pandemic with a significant fiscal response that has been critical to minimising the rise in unemployment, and has supported a swift economic recovery.

New Zealand's fiscal response was large by international standards (see figure 1).¹ Discretionary COVID-19 fiscal measures totalled \$62 billion. Automatic fiscal stabilisers and existing discretionary fiscal policy initiatives have also provided support to the economy.²

That fiscal support complemented the health response and action taken by the Reserve Bank of New Zealand (RBNZ) to support the economy. New Zealand's elimination strategy resulted in generally fewer movement restrictions after May 2020 than those seen in many other parts of the world, and the RBNZ eased monetary policy to support the economy using both existing and new monetary policy tools. As a result, New Zealand's health and economic responses to COVID-19 have helped support living standards.³ Consistent with this, most New Zealanders continue to enjoy high levels of life satisfaction.⁴

Nevertheless, some groups have been more negatively impacted by the pandemic than others. Individuals working in retail, trade and accommodation have been the most impacted by pandemic-related labour market disruption. This affected a disproportionate number of young people, Māori, Pacific Peoples and women, which has exacerbated pre-existing inequities in labour market outcomes.⁵ In addition, house prices have increased sharply. This has exacerbated housing affordability challenges, particularly for those seeking to buy their first home.

1 While New Zealand's fiscal spending has been large by international standards, the scale of equity loans and guarantees has been at the low end.

2 Spending and forgone revenue from automatic fiscal stabilisers is forecast to total around \$5.8 billion over the three years to June 2022, and the Government had committed to \$12 billion of infrastructure-based fiscal stimulus (the New Zealand Upgrade Programme) in January 2020, shortly before the impacts of COVID-19 became apparent.

3 See: <https://www.treasury.govt.nz/sites/default/files/2020-08/dp20-02-covid-19-impacts-on-wellbeing-v2.pdf>

4 See: <https://www.stats.govt.nz/information-releases/wellbeing-statistics-december-2020-quarter>

5 See the box on distributional impacts of COVID-19 in the labour market: <https://www.treasury.govt.nz/system/files/2020-12/hyefu20.pdf>

There is a risk that COVID-19 may have longer-lasting economic costs. A growing body of evidence shows that recessions can have a long-lasting effect on the earning and employment potential of workers – particularly those who lose their job – and reduce investment and innovation in the economy.⁶ The size of the long-run impact is uncertain; however the relatively small increase in unemployment and the fast economic recovery following lockdowns provide reasons to be optimistic.

In the absence of a strong fiscal response to COVID-19, the economic and fiscal position and outlook could have been much worse, and those permanent impacts more likely. Lower spending, lower investment and lower employment could have fallen in a vicious cycle, resulting in a deeper and longer lasting recession.⁷ Fiscal policy needed to play a larger than usual role in supporting the economy given both the nature of the shock, and the limits on monetary policy. A smaller fiscal response may have required the RBNZ to use new monetary policy tools more aggressively to meet their economic objectives, which would be more difficult to target and would not have supported the economy as quickly as, for example, the Wage Subsidy Scheme.

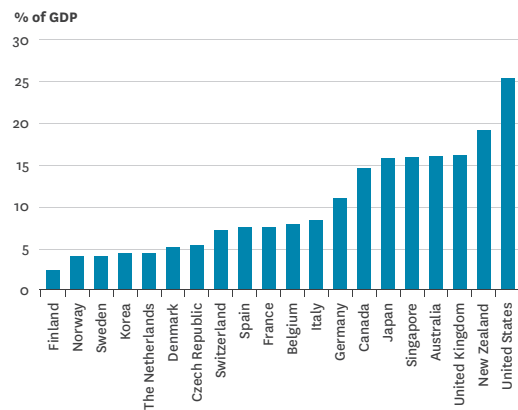
However, the fiscal response has shifted New Zealand’s debt position significantly – net debt is now forecast to peak at 48% of GDP in 2023 (see figure 2). The change in net debt-to-GDP following COVID-19 is largely attributable to the increase in debt, rather than changes to forecast GDP. Net worth, another measure of government balance sheet strength, has also deteriorated.

The fiscal response to COVID-19 is largely temporary. Current and future forecast deficits are largely being caused by one-off COVID-19 expenditure or revenue measures. Deficits will shrink as the temporary support put in place since March 2020 ends (see figure 4), putting less upward pressure on net debt.

The Treasury views this temporary increase in borrowing and the increase in net debt as an appropriate response to the significant shock that COVID-19 represented. Furthermore, compared to the previous debt peak in 1992 (at 54.8% of GDP), interest rates and the composition of debt are much more favourable:

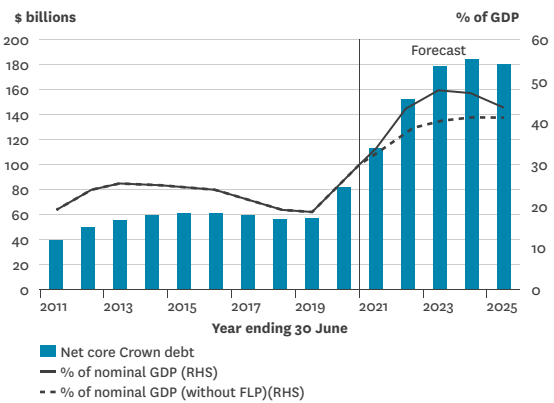
- Interest rates are at near historical lows, with the 90 day yield at 0.32% (as at June 2021) compared to nearly 7% in 1992.
- All long-dated debt is New Zealand dollar denominated (NZD), with only a small amount (just under NZD \$2 billion or 1.5% of total debt) of short-dated United States dominated debt at end January 2021, whereas in 1992 foreign currency denominated

Figure 1: Discretionary public spending and forgone revenue in response to COVID-19 (% of GDP)



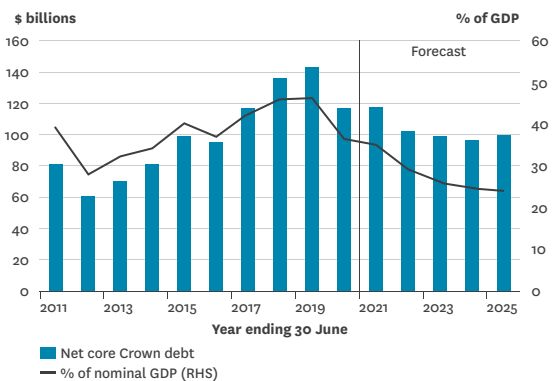
Source: <https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19>

Figure 2: Net core Crown debt⁸



Source: The Treasury’s 2021 Budget Economic and Fiscal Update

Figure 3: Total Crown net worth



Source: The Treasury’s 2021 Budget Economic and Fiscal Update

6 See, for example: http://motu-www.motu.org.nz/wpapers/17_12.pdf

7 This cycle would see households’ reluctance to spend reduce demand for goods and services produced in New Zealand; this makes the outlook more challenging for businesses, who then become more reluctant to hire new staff or retain existing employees. This, in turn, makes households even more reluctant to spend as they face lower incomes and more uncertain employment prospects.

8 Excluding the Funding for Lending Programme (FLP), the level of net core Crown debt is lower across the forecast period and is expected to increase to \$171.5 billion (41.4% of GDP) in the final year of the forecast.

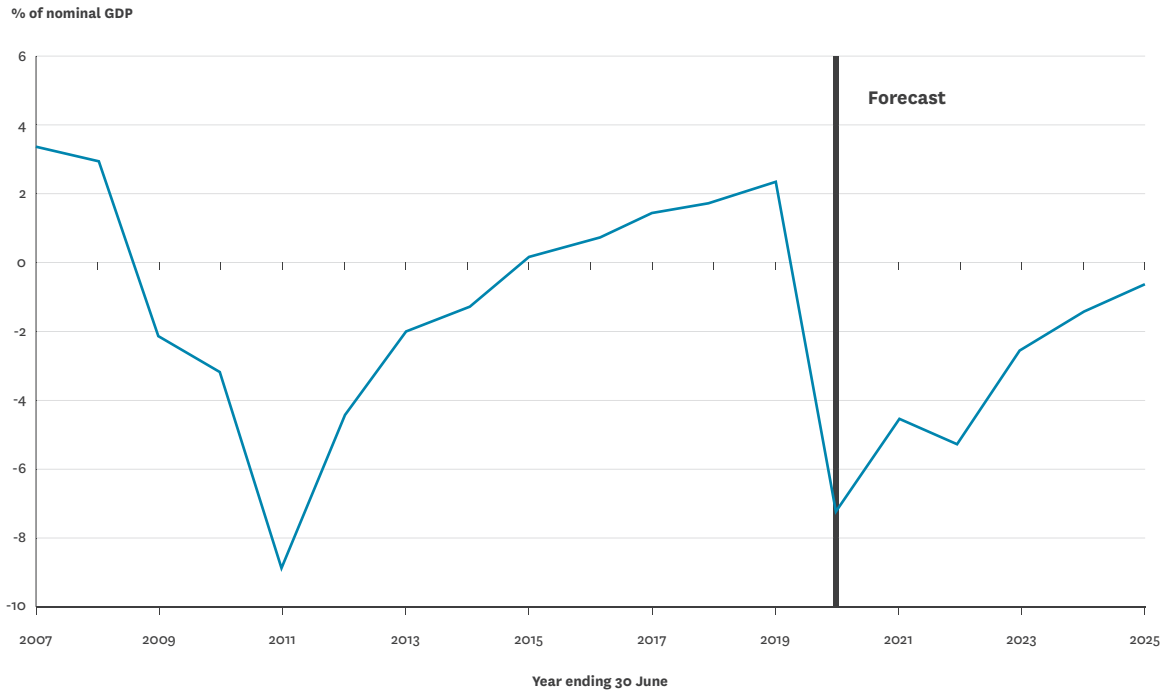
debt comprised around 40% of total debt based on the best data we have available. NZD denominated debt has a lower exposure to exchange rate changes.

- New Zealand's debt is relatively low compared to its peers (figure 5).

These factors inform the Government's view that current levels of debt are prudent, as articulated in the Budget 2021 Fiscal Strategy Report. The Treasury supports this assessment, and considers that there is currently no need to reduce debt levels, and as appendix one shows, there could be significant economic costs to reducing debt from its current level too quickly.

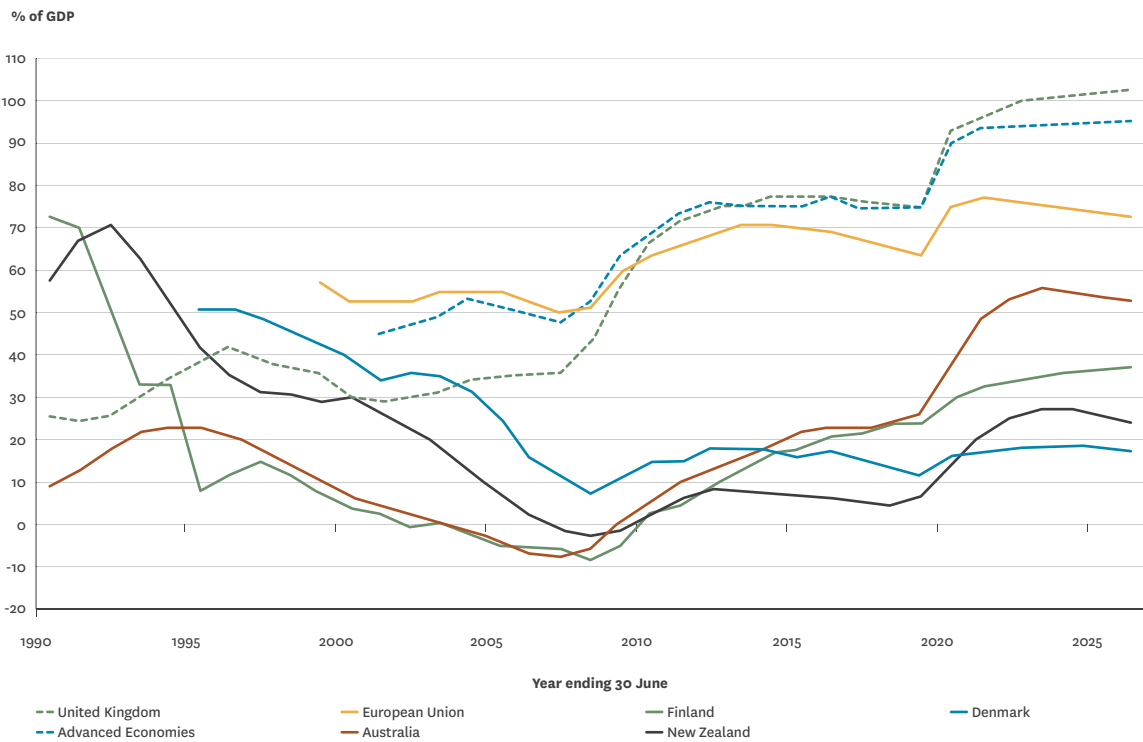
However, that does not mean that higher debt today, and long-term fiscal trends, are not important or that they will not require policy action in the future. Sections 1.3 and 1.4 describe how those trends could develop under different policy scenarios. Section 2 of this report explores how we could respond to those trends, including how the Treasury views prudent debt and fiscal sustainability, and the potential scale of policy adjustment required. The remainder of section 2 sets out policy options for governments to make that policy adjustment and achieve fiscal sustainability.

Figure 4: Operating balance before gains and losses (OBEGAL)



Source: The Treasury's 2021 Budget Economic and Fiscal Update

Figure 5: IMF general government net debt⁹



Source: IMF

Note: Forecasts are included in the graph.

9 The IMF's general government net debt definition is different to the net core Crown debt measure that the Treasury produces. The difference reflects variations in accounting frameworks, entity coverage, and the financial assets included within the respective net debt measures. For example, the IMF measure includes the financial asset portfolios held by ACC and the NZ Superannuation Fund. This produces a relatively lower net debt figure. The financial assets coverage attributes a large portion of the difference between the two measures.

1.2

Demographic change

- Stats NZ projects that people aged 65+ will make up 26% of the population in 2060, compared to 16% in 2020. This is partly because people are, on average, living longer and are in better health. This is a positive thing for New Zealand.
- These population projections differ by ethnicity and region and so will change the demographics of New Zealand. Despite longevity also increasing for Māori and Pacific Peoples, their average age will increase more slowly than European and Asian ethnic groups, largely because of higher fertility rates and lower life expectancy.
- There is uncertainty about how an ageing population will affect the economy. One of the more certain outcomes is that, on average, labour supply growth will be lower, although by how much is less certain. As people get older, they are less likely to work, and if they do work, it is generally for fewer hours. However, this may be partly offset by an increase in labour force participation by women and if elderly people work more than expected. We make assumptions about these effects in the projections.

The New Zealand population is growing and ageing. New Zealand's population is expected to reach 6.5 million by 2060, and people aged 65+ are projected to account for more than a quarter of the total population by 2060, compared to 16% in 2020.

This demographic change is an important driver of long-term fiscal trends. This section analyses the drivers and impacts of New Zealand's ageing population.

1.2.1 Drivers of demographic trends in New Zealand

The three key factors driving these projections are **fertility**, **mortality**, and **net migration**.

- **Fertility – people are having fewer children.** New Zealand's fertility rate has been falling since the 1960s and has been below the 'replacement rate' of 2.1 since 1978.¹⁰ Stats NZ assumes the fertility rate will stabilise at 1.65 from 2021.
- **People are living longer, healthier lives.** Since the 1950s, New Zealand's life expectancy at birth has increased by around 12 years for both males and females. Stats NZ projects that it will continue to increase gradually, reaching 89 for females and 86 years for males by 2060, up from 84 and 81 years respectively in 2021.
- **The effect of migration.** New Zealand had relatively high rates of migration before COVID-19. We expect that this could slightly slow down population ageing, but the impact is unlikely to be significant. While migrants tend to be younger and have more children than native-born New Zealanders, they also age and there is international evidence that over time migrant populations tend to shift towards having similar numbers of children as native-born populations.

Fertility and life expectancy differ by ethnic group.¹¹ Therefore, not all population groups in New Zealand will age at the same pace. In particular, Māori and Pacific Peoples have higher fertility rates than European and Asian ethnic groups, and while Māori and Pacific Peoples' longevities are increasing, they remain below those of other ethnic groups.^{12, 13} This is likely to change the demographics of New Zealand over time:

¹⁰ Replacement level fertility is the average number of children every woman must theoretically have in order for the population to exactly replace itself from one generation to the next. In most countries, the replacement fertility level is roughly 2.1, as not everyone reaches child-bearing age, but the exact number depends on gender ratios at birth and infant and child mortality rates. Migration trends are not taken into account.

¹¹ Ethnic groups are not mutually exclusive, since some people identify with more than one ethnicity.

¹² In 2020, Māori life expectancy was approximately 7 years less than European New Zealanders and for Pacific Peoples life expectancy was approximately 5 years less than European New Zealanders. In 2038, Stats NZ is projecting these gaps to reduce to approximately 5 and 3 years respectively.

¹³ Some of these differences in life expectancy are driven by inequities in health outcomes; for example obesity rates are particularly high for Pacific Peoples and Māori. If these can be improved, this will lead to lower mortality rates, as well as having other positive economic and social impacts.

- By 2038, Māori are projected to account for 20% of the total population and 10% of the 65+ population. Pacific Peoples are projected to account for 10% of the total population and 5% of the 65+ population.
- European New Zealanders are projected to have a substantially greater proportion of their population aged 65+ relative to the 15-64 year age group compared with other New Zealanders (figure 6).

The social and economic impacts of these trends in Māori and Pacific Peoples demographics – and of their divergence from trends in the rest of the New Zealand population – are explored in the interviews with Māori leaders and experts that we conducted as part of this work.¹⁴ These trends have implications for labour market dynamics and policy settings to make the most of this relatively youthful part of the population.

Table 1 provides a breakdown of population projections by ethnicity and some key economic variables under historical trends.

1.2.2 Economic impacts of an ageing population

Understanding the potential economic impacts of an ageing population is an important part of the long-term fiscal sustainability story given that tax revenue is closely linked to economic growth. An ageing population can affect the economy in four main ways:¹⁵

1. **Reduction in labour supply growth.** As people get older, they are less likely to participate in the labour force, and if they do participate, they generally work fewer hours. For this reason, the labour force participation rate is projected to fall by around 5 percentage points between 2020 and 2060.¹⁶
2. **Changes in labour productivity.** The impact of an ageing population on productivity is ambiguous. Hourly earnings tend to decrease as people get older, which suggest that their productivity declines. However, studies on this subject provide ambiguous results and the declining wages for older workers could be driven by other factors such as prejudice against older workers or older workers stepping out of higher-paying jobs.¹⁷
3. **Shifts in demand for different types of goods and services.** Both the level and composition of consumption will look different as New Zealand's population ages. Sectors that might grow their shares of GDP as the population ages include health, old-age care, financial services, and retail trade. On the other hand, there might be a decline in the contributions of education, manufacturing, and primary industries.
4. **Changes in savings and investment decisions.** As more of the population moves into retirement, this may lower overall savings rates and shift savings towards lower-risk investments. However, as outlined in section 1.4.1 there is a high level of uncertainty about what savings and interest rates will be in the long-term.

Table 1: Population (million) and economic variable projections

| Variable | 2020 | 2030 | 2045 | 2060 |
|---|------|------|------|------|
| Population total | 5.1 | 5.6 | 6.1 | 6.5 |
| Māori population ¹⁸ | 0.9 | 1.0 | - | - |
| Pacific Peoples population | 0.4 | 0.5 | - | - |
| Asian New Zealander population | 0.9 | 1.2 | - | - |
| European New Zealander population | 3.5 | 3.7 | - | - |
| Working-age population | 4.1 | 4.6 | 5.2 | 5.6 |
| Labour force participation rate ¹⁹ | 70% | 68% | 67% | 65% |

Source: Stats NZ

Note: Ethnic groups are not mutually exclusive.

¹⁴ <https://www.treasury.govt.nz/publications/research-and-commentary/rangitaki-blog/conversations-about-future>

¹⁵ The background paper: *The economic impacts of an ageing population in New Zealand*, which will be published before the final Statement will provide additional analysis.

¹⁶ Working-age population is the resident population aged 15 years and over.

¹⁷ In addition the impact of population ageing on labour productivity will be affected by investment, technology and innovation over time. These impacts are uncertain, and as result when making its long-term projections the Treasury assumes that ageing has no effect on productivity.

¹⁸ Projections by ethnicity only go to 2038.

¹⁹ The Long-term Fiscal Model (LTFM) used to prepare some of the graphs and data shown in the consultation draft uses the Stats NZ labour force projections that were released in December 2017. This is because the model was completed before the recent release of updated labour force projections by Stats NZ on 10 June. The final Statement will use projections from an updated LTFM that uses these updated labour force projections.

The economic impacts of an ageing population will also differ across the population

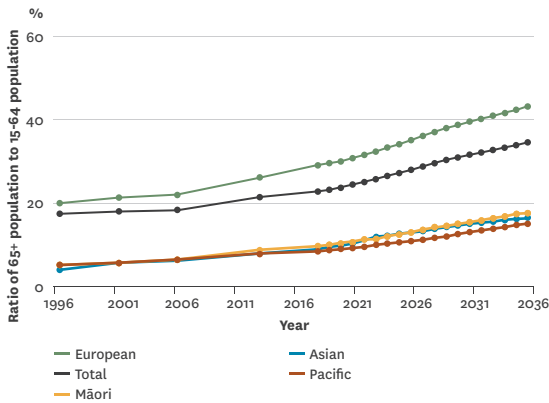
In particular, it is likely that the labour force participation rates will differ across ethnicities. However, these economic impacts may also differ owing to historical inequality among ethnic groups. For example, labour force participation rates tend to be lower and unemployment higher among Māori and Pacific Peoples compared to other New Zealanders.

1.2.3 Fiscal impacts of an ageing population

Section 1.3 of this Statement provides our projections on how an ageing population could affect the long-term fiscal position. This shows three trends:

- **Rising NZ Superannuation expenditure.** The number of people eligible to claim NZ Superannuation will increase, and so expenditure will increase.
- **Rising healthcare expenditure.** Older individuals will require more healthcare services than younger individuals, on average. Therefore an ageing population will increase the cost of a healthcare system providing an equivalent level of service to today. However, this is only around a quarter of expected growth in healthcare spending in the future, as general increases in demand for, and cost of, healthcare services are also projected to rise.
- **Reduced tax revenue.** Lower labour force participation will likely reduce real GDP growth, which will place downward pressure on tax revenues.

Figure 6: Ratio of 65+ to 15-64 population by ethnicity



Source: Stats NZ

1.3

New Zealand's long-term fiscal position

- To illustrate the scale of potential changes to New Zealand's long-run fiscal position, we present spending growing at historical rates assuming no response from the government or individuals, which shows net debt rising unsustainably.
- The most significant spending pressures come from a combination of healthcare and NZ Superannuation, which we project will increase by 6.3% of GDP by 2061.
- We examine the macroeconomic effects of illustrative policy choices to stabilise net debt, which can help inform trade-offs that governments will need to make between the economic and social impacts of tax and spending choices.

1.3.1 Our approach to projecting the public finances

In alignment with previous Statements, we present projections for key classes of government spending and revenue based on historical trends (the *historical trends* scenario). In addition, this Statement for the first time introduces a new model where we more explicitly model behavioural and policy responses of governments to stabilise debt, households, and businesses and how their decisions might affect the economy as a whole (the *alternative scenarios*).²⁰

These approaches are complementary. Simply projecting forward historical trends summarises the scale of the fiscal pressures we face – but it is an illustrative scenario. Alternative scenarios inform the economic trade-offs that governments will face in the future by looking at the impact of stylised adjustment scenarios that differ in the type of adjustment – spending or tax – and the timing of adjustment. In the final version of the report, we expect to provide further analysis to understand the economic and fiscal trade-offs of the pace of adjustment.

Both the *historical trends* scenario and *alternative scenarios* are projections that illustrate the broad fiscal trends that could happen in the future. They are underpinned by up-to-date information and near-term forecasts. However, they are not detailed forecasts of what we expect to happen. Section 1.4 sets out how these projections may change if some of our key assumptions about the future turn out differently to illustrate these uncertainties.

²⁰ The *historical trends* scenario uses the Treasury's Long-term Fiscal Model (LTFM). A background paper titled *Demographic change, economic and fiscal assumptions and logic in the 2020 Long-term Fiscal Model*, which explains the LTFM in more detail, will be published by the end of September. The *alternative scenarios* uses the new Neoclassical Growth Model (NCGM) – see appendix two for a technical summary of this model. A background paper titled *Shocks and scenarios analysis using a stochastic Neoclassical Growth Model*, which explains the NCGM in more detail, will be published by the end of September.

Box 1: How do these projections compare to those presented alongside the Government's fiscal strategy?

The Government has recently published projections of the fiscal position over the next 15 years (see Wellbeing Budget 2021, p49), meeting the requirements of section 26L of the Public Finance Act. Aside from the time period covered, those projections differ in some important aspects from the scenarios shown in this section. This leads to different results: the Budget projections show net debt falling steadily to reach 28% of GDP in 15 years, and OBEGAL returning to surplus by 2026/27.

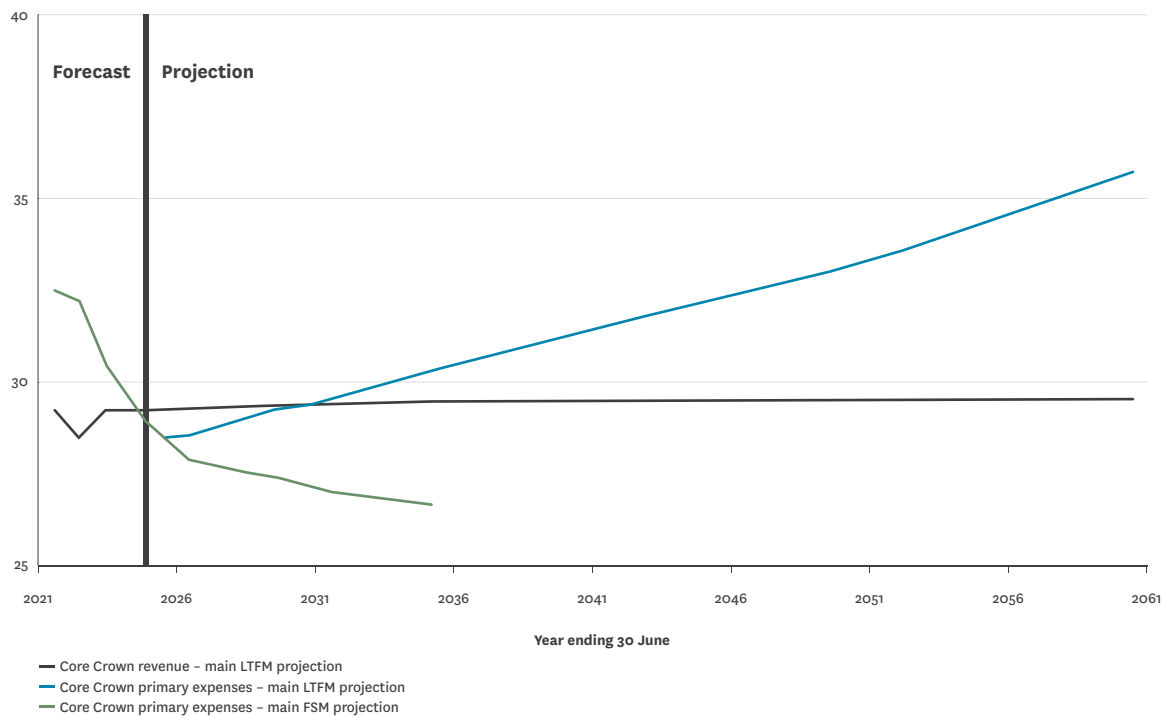
The modelling approach used in the Budget projections is very similar to that used in the historical trends scenario. Both projections use the 2021 Budget economic and fiscal forecasts as a starting point. Both projections use the same long run economic and tax revenue assumptions based on historical trends or levels, and assume a gradual transition towards those levels from the end of the forecast period. In neither model is there any feedback loop between the level of government expenditure and economic growth.

They differ in that, while the projections presented here assume that government spending grows in line with historical trends, the Budget projections assume that the majority of government expenditure will be

constrained by an annual allowance. In the Budget projections, only New Zealand Superannuation and indexed welfare expenditure is assumed to grow as the economy and population grow over time, and interest costs grow as a function of debt levels and interest rates. All other growth in operating expenditure – including health, education, and most other government services – is assumed to be met from within an operating allowance which begins at \$2.0 billion in Budget 2025 in the central projection, growing at 2% per annum thereafter.

The projections follow different approaches because they serve different purposes. The projections in this Statement aim to neutrally present the likely impacts of current and future governments acting (or not acting) in certain ways to inform policy choices now and in the future. This is the same methodology used in previous Statements. The projections published in Budget 2021 are intended to demonstrate how the current Government intends to achieve its fiscal strategy – in this instance, by controlling non-welfare expenditure growth to remain below its historical rates. The impact of these different assumptions on core Crown primary expenses (expenses excluding debt-financing costs) is shown in figure 7 below.

Figure 7: Core Crown revenue and primary expenses (LTFM and 2021 Budget projections) as a share of GDP²¹



Source: LTFM, Fiscal Strategy Model (FSM)

Table 2: Key assumptions in long-term fiscal projections

| | Historical trends scenario | Alternative scenarios |
|--|---|---|
| Real interest rate on government borrowing | Transitions to 2.3% by 2053/54 | Model determines rate that ensures the demand for government debt meets the supply of government debt |
| Labour productivity growth | 1% per year | Model determines based on households’ willingness to work/invest and response to taxes |
| Labour supply | Based on population projections and assumed participation per age | Model determines based on workers’ preference between work/leisure, based on returns to labour net of taxes |
| Real GDP | Grows each year in line with labour supply and productivity | Model determines stock of capital and hours worked based on inputs (e.g. tax rates) |
| Government policy | Health and New Zealand Superannuation (NZS) spending grow in line with historical and demographic trends. Other spending is kept constant at its historical level as a % of GDP | Government adjust tax rates or spending to stabilise net debt |

21 For more information on how the projections in this Statement differ from the Budget projections see: <https://www.treasury.govt.nz/publications/fsm/fiscal-strategy-model-befu-2021>

1.3.2 Historical trends scenario

In the *historical trends* scenario, we project the fiscal position over the next 40 years assuming that expenditure and revenue follow historical trends and legislative settings remain unchanged.²² The most significant fiscal impacts come from health and NZS expenditure:

- NZS expenses increase from 5.0% of GDP in 2021 to 7.6% by 2061, due to demographic change.
- Health expenditure increases from 6.9% of GDP in 2021 to 10.5% in 2061. Demographic change accounts for around 25% of the projected increase, with increasing demand for healthcare, rising prices for health services, and wage growth making up most of the remainder.

As a result, we project that the gap between expenditure and revenue will grow significantly (figure 8). If this continues, net debt will start increasing exponentially. Increases in debt to higher levels will make achieving fiscal sustainability more challenging as higher debt levels put upward pressure on interest rates and subsequently debt-financing costs, as shown in previous Treasury working papers.²³ In addition, higher debt levels are also likely to lower longer-term welfare as economic growth is constrained by crowding out private investment and the higher future taxes required to meet debt-financing costs. The *historical trends* scenario, which assumes no adjustment, is unlikely to play out; however it usefully illustrates the magnitude of policy adjustment governments may need to manage if historical trends persist.

Table 3: Fiscal projections in the historical trends scenario (% of GDP)

| | Historical trends scenario | | | |
|--|----------------------------|--------------|--------------|----------------|
| | 2021 | 2030 | 2045 | 2061 |
| Healthcare | 6.9 | 6.8 | 8.5 | 10.5 |
| Gross New Zealand Superannuation (NZS) | 5.0 | 5.6 | 6.5 | 7.6 |
| Education | 4.7 | 4.9 | 5.1 | 5.6 |
| Debt-financing costs | 0.6 | 1.2 | 3.4 | 7.6 |
| Other expenses | 15.9 | 12.1 | 12.1 | 12.1 |
| Total expenses | 33.1 | 30.6 | 35.6 | 43.4 |
| Total revenue | 29.3 | 29.4 | 29.5 | 29.6 |
| Operating balance | -2.6 | 0.2 | -4.3 | -11.7 |
| Primary balance | -3.5 | -0.1 | -2.9 | -6.5 |
| Net debt | 34.0 | 41.6 | 77.1 | 177.3 |
| Net worth | 11.7 | 9.0 | -23.4 | -117.6 |
| Nominal GDP (\$ billion) | 334.4 | 509.6 | 876.4 | 1,481.5 |

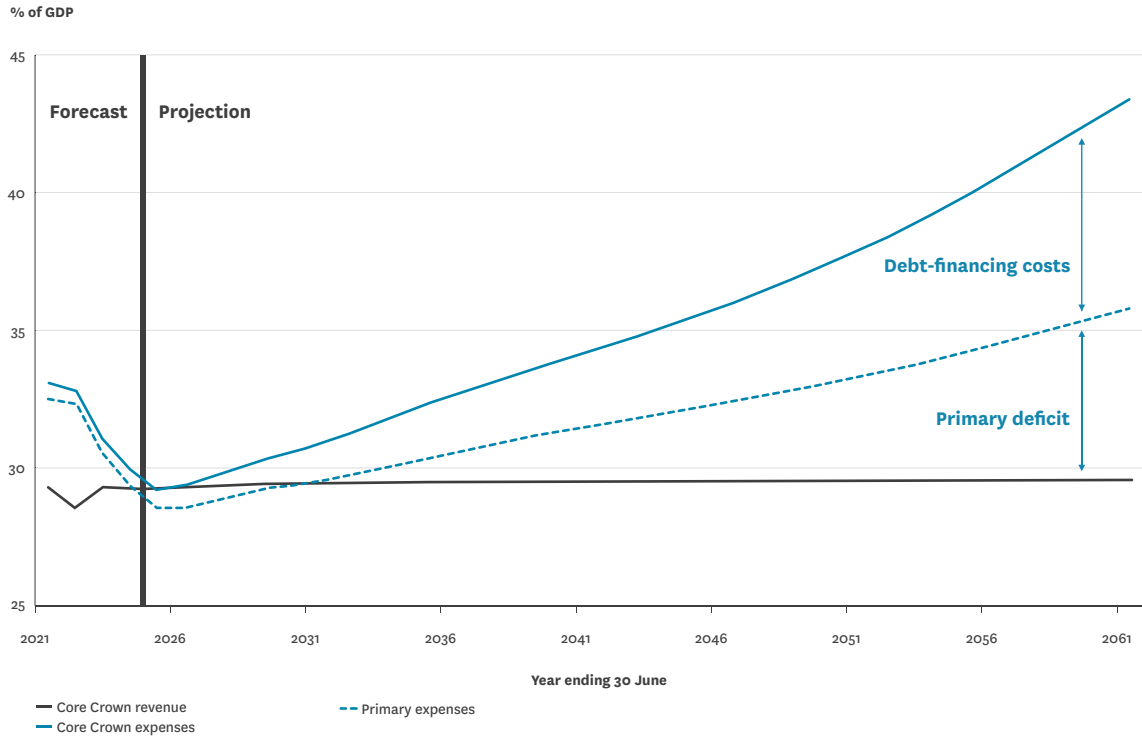
Source: LTFM

Note: All fiscal variables are on a core Crown basis; bracketed numbers represent negative values. Totals may not add up due to rounding. The primary balance is the difference between revenue (excluding interest revenue) and expenses (excluding debt-financing costs). Appendix one provides a more detailed breakdown.

22 This includes holding tax revenue constant as a share of GDP over the longer term, which assumes that governments adjust tax settings to compensate for the effects of rising prices and wages, which move people into higher tax brackets (so-called 'fiscal drag'). Without these compensating adjustments, tax-to-GDP would increase.

23 <https://www.treasury.govt.nz/publications/wp/long-run-fiscal-projections-under-uncertainty-case-new-zealand-html>

Figure 8: Core Crown revenue, expenses and primary expenses as a % of GDP



Source: LTFM

1.3.3 Alternative scenarios

In these *alternative* scenarios, the government doesn't allow debt to rise substantially above current levels. Rather, the government is continuously trying to stabilise debt around a specific target by adjusting tax rates or expenditure to accommodate the fiscal pressures illustrated in the *historical trends* scenario.²⁴ The scenarios are being presented relative to a world where government spending and taxation are kept to within historical levels and the economy continues to grow at the long-run trend rate we see today.

We have modelled three *alternative* scenarios, the outputs of which are summarised in table 4.

Table 4: Projections in the alternative scenarios (% of GDP)^{25, 26}

| | 2021 | Increase tax rates | | | Contain transfers growth | | | Contain services growth | | |
|--|-------------|--------------------|-------------|-------------|--------------------------|-------------|-------------|-------------------------|-------------|-------------|
| | | 2030 | 2045 | 2061 | 2030 | 2045 | 2061 | 2030 | 2045 | 2061 |
| Healthcare | 6 | 6.8 | 8.6 | 10.6 | 6.8 | 8.6 | 10.6 | 6 | 6 | 6 |
| Gross New Zealand Superannuation (NZS) | 5 | 6.2 | 7.2 | 8.3 | 5.1 | 5.2 | 5.3 | 6.2 | 7.2 | 8.3 |
| Debt-financing costs | 1.6 | 1.5 | 1.5 | 1.4 | 1.5 | 1.4 | 1.4 | 1.6 | 1.6 | 1.5 |
| Other expenses | 17.5 | 17.6 | 17.8 | 18.4 | 24.4 | 26.4 | 18.3 | 23.6 | 23.8 | 18.4 |
| Total CC expenses | 30.1 | 32.1 | 35.1 | 38.7 | 31 | 33 | 35.6 | 31.4 | 32.6 | 34.2 |
| Total CC revenue | 29.1 | 31.3 | 34.6 | 37.9 | 30.4 | 32.4 | 34.9 | 30.4 | 32 | 33.5 |
| Operating balance | -1 | -0.8 | -0.5 | -0.7 | -0.7 | -0.7 | -0.8 | -1 | -0.6 | -0.7 |
| Primary balance | 0.5 | 7 | 0.9 | 0.7 | 0.8 | 0.7 | 0.7 | 0.6 | 1 | 0.8 |
| Net Debt | 48 | 48.1 | 47.1 | 46.6 | 46.9 | 45.1 | 46.3 | 49 | 48.6 | 47.5 |
| Real GDP (relative to trend) | 1 | 0.98 | 0.95 | 0.93 | 0.98 | 0.97 | 0.95 | 0.98 | 0.96 | 0.94 |

Source: NCGM

Note: All variables are on a core Crown basis. The primary balance is the difference between revenue (excluding interest revenue) and primary expenses. Totals may not add up due to rounding. Government Investment equals Gross Fixed Capital Formation for government.

24 We assume that net debt stabilises at its peak across the forecast period. In the 2021 Budget Economic and Fiscal Update debt-to-GDP peaked at 48%. It is important to emphasise that this is not the Treasury's view of where debt-to-GDP should or should not stabilise over the long-run.

25 The starting point for the government expenditure categories in *historical trends* and *alternative* scenarios does not exactly line up because the models use slightly different accounting definitions as source data. However, the changes in expenditure over the projection period, which drive the long-term trends, are equal.

26 The starting point for net debt-to-GDP in the *alternative* scenarios does not match up with the current level of net debt-to-GDP. The starting point we have chosen to illustrate the impact of stabilising net debt over time is for net debt to remain at around its peak of 48% of GDP in 2021. This approach requires less judgement and therefore produces more robust results. As the scenarios are largely looking at changes to debt and expenditure, this does not materially affect the applicability of the results.

Increase tax rates

In the first scenario (increase tax rates) future governments raise tax rates to contain net debt, raising Core Crown revenue to over 38% of GDP by 2061, which would require significant increases to taxes on labour, capital²⁷ and consumption taxes.

Tax changes of this magnitude would have a significant impact on the wellbeing of both current and future generations, with different impacts across different groups of the population, but the precise impacts would depend on the mix of taxes chosen. Section 2.5 sets out these trade-offs in more detail as applied to specific policy options.

In this alternative scenario we can also model the impact that demographic and tax changes would have on the economy. As figure 9 shows, consumption, investment, and GDP are all projected to be lower in the future than their historical trends would suggest. In this scenario, around half of this impact on GDP (or around 3.4% by 2061) is because higher tax rates alter the economic incentives faced by households and businesses, which in turn affect economic decisions, such as how much to work or invest. Around half of the impact on investment and most of the consumption impact is due to higher taxes.

The overall impact that taxes have on our country's wellbeing depends both on the tax changes made (as some changes will cause less economic distortion than others), and on the wellbeing, including economic growth, generated by the government expenditure it allows to happen. These projections simply illustrate some of the trade-offs governments will face, rather than offering a full cost-benefit analysis of any particular option.²⁸

Contain expenditure growth

The second two scenarios contain the growth of NZS expenditure and healthcare expenditure respectively to around their current levels as a share of GDP, with the remaining adjustment to contain net debt filled by tax.

The key difference in these scenarios is that the projections suggest that the long-run level of GDP relative to trend would be higher by around 1-2 percentage points than in the increased tax rates scenario by 2061. That reflects the fact that tax rates – and therefore disincentives to work or invest – would not need to rise as much.

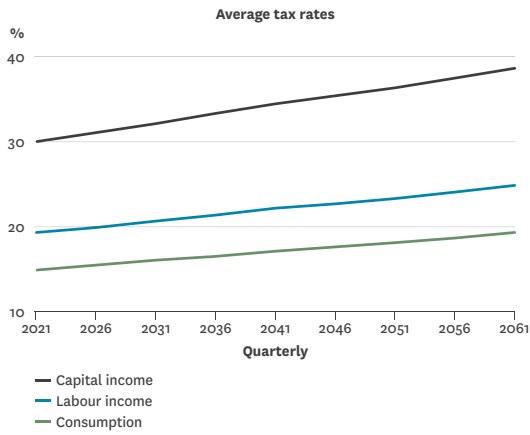
As noted above, these scenarios illustrate the macroeconomic impact of alternative tax and expenditure choices in the future. The ways in which those choices could be achieved, the overall impact that they have on individuals' wellbeing, and on our wellbeing as a country, is a question we explore in more detail in section 2.

²⁷ This tax structure is a simplification. In reality, New Zealand's income tax system seeks to tax all forms of income comprehensively, with labour and capital income being taxed according to the same schedule. However, capital income tends to be concentrated among higher earners – and is therefore subject to higher average tax rates than labour income.

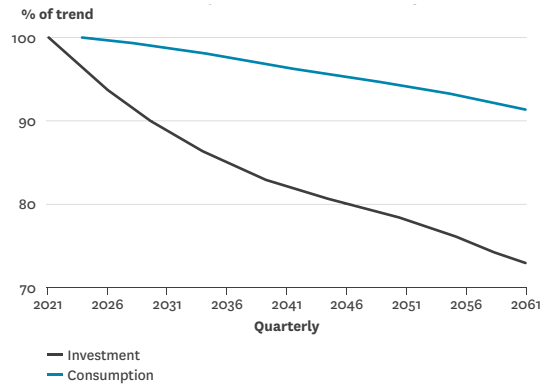
²⁸ Academic literature supports the modelling assumption that tax has a distortionary economic impact (see appendix two). However, there is less certainty around the size of the impact. Therefore, it would not be unreasonable to assume a larger or smaller distortionary impact which would have an impact on the modelling results.

Figure 9: Increase tax rates alternative scenario – key economic variables²⁹

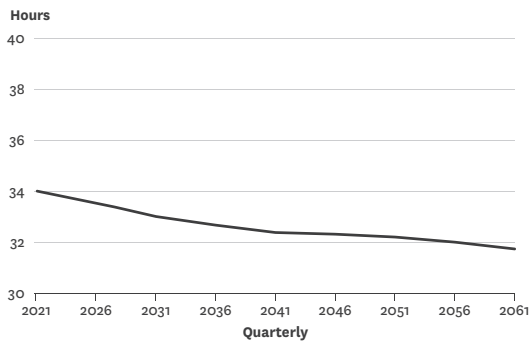
Average tax rates



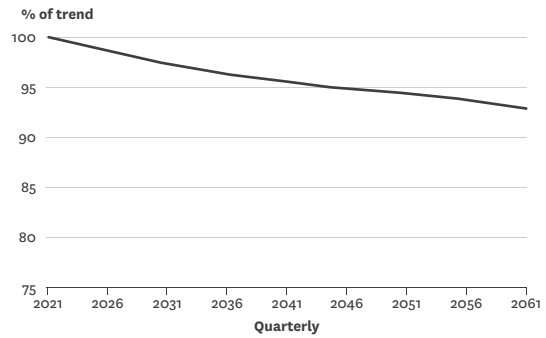
Consumption and investment relative to trend



Hours worked



GDP relative to trend



Source: NCGM

29 In this scenario, a number of economic variables are displayed relative to trend. This means that the scenario is being presented relative to a world where government spending and taxation are kept to within historical levels and the economy continues to grow at the long-run trend rate we see today. This comparison is in percentage form, so the interpretation of the top right panel of figure 9 would be that consumption is projected to be around 91% of our long-run trend amount (or 9% lower) by 2061. Similarly, investment is projected to be around 73% of the long-run trend level (i.e. 27% lower) by 2061.

1.4

Uncertainties and risks in the long-term fiscal position

- Long-run fiscal projections are, by their nature, very uncertain, and should be viewed as an illustration of the trajectory of the fiscal position rather than a forecast.
- However, even optimistic changes to the assumptions we make on growth or interest rates do not change the central conclusion that New Zealand will face challenging fiscal pressures in the next 40 years.
- Like all economies, New Zealand will face economic shocks and natural disasters such as earthquakes. We have modelled their potential fiscal impact, which would add to longer-term fiscal pressures.
- Ensuring that fiscal space exists to prepare for and respond to these uncertainties and shocks would support the wellbeing of future populations that have to manage them.

This section sets out the impact of some key long-run uncertainties and risks to our long-term fiscal projections, using both of the modelling approaches set out in section 1.3.

1.4.1 The impact of different interest rates

The interest rate on government debt, and the gap between this and the rate of nominal GDP growth, is one of the key determinants of debt sustainability in the long-term. If the nominal rate of GDP growth is higher than the interest rate, then the stock of debt can fall as a share of GDP even if the government is running a small deficit. The larger the gap, the larger the deficit the government can run while debt continues to fall as a share of GDP.

Economists have tended to assume that in the long-term, the interest rate will be higher than the growth rate. However, in recent years the interest rate has fallen significantly. The Treasury's most recent forecasts suggest that it will remain below the nominal GDP growth rate for the forecast period.

Our *historical trends* scenario assumes that the interest rate will remain below the growth rate until the 2030s, but will gradually increase to a steady-state rate of 4.3%.³⁰ There are upside and downside risks to that assumption. It is possible that interest rates will remain low and below nominal GDP growth for a much longer period. It is also possible they will increase further. Therefore we consider a scenario where interest rates rise to around 5.5%.³¹ Figure 10 shows these interest scenarios compared to the *historical trends scenario* projection for nominal GDP growth.

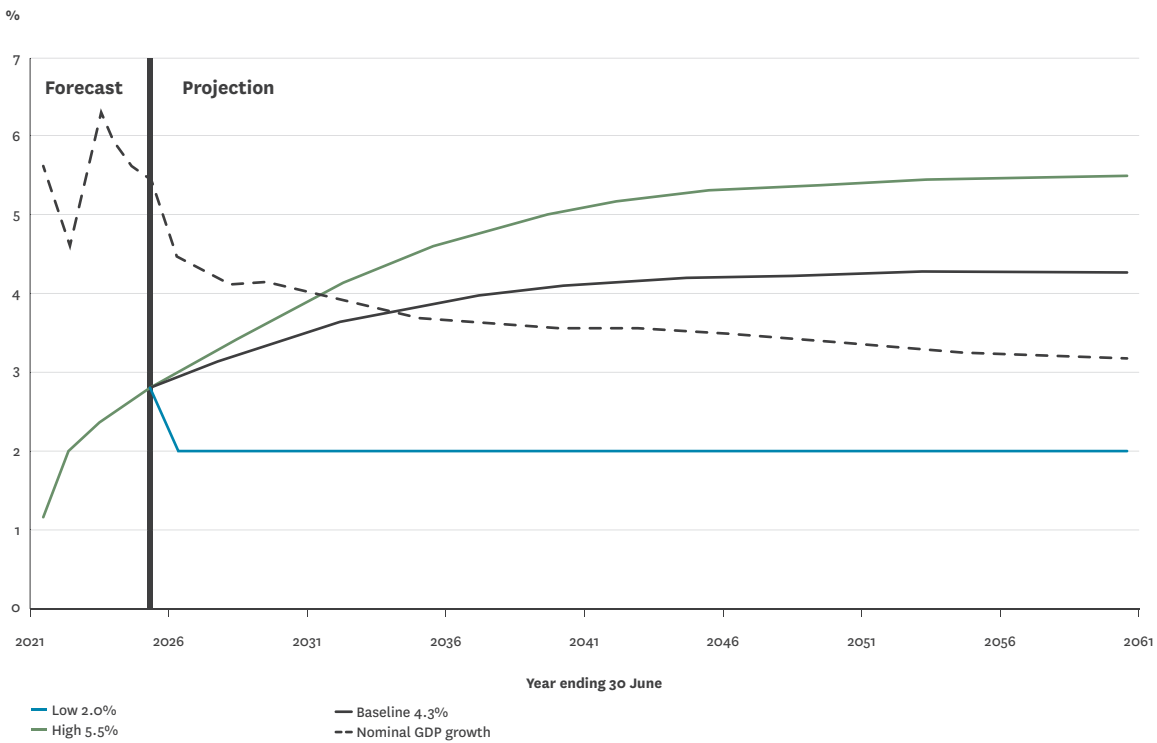
Scenario analysis shows that the interest rate has an impact on the level of debt but does not fundamentally change its trajectory over the next 40 years. As shown in figure 11, the debt-to-GDP ratio increases significantly as a share of GDP from the 2030s onwards under different long-run interest rate assumptions. However, debt-financing costs to the Crown – and therefore the costs of this debt to future generations – diverge to a greater degree depending on the interest rate assumptions. For example, a difference of 350 basis points in the long run interest rate adds about 87% of GDP to debt by 2061, or an increase in the debt stock of about two thirds. However, as shown in figure 12, the same increase in the long-run interest rate results in a quadrupling of annual debt financing costs from 3% of GDP each year to 12% of GDP in the high interest rate scenario. Though these debt trajectories may be similar, they will have different costs to society depending on the interest rates the Crown faces.

³⁰ The background paper: *Long-term projections of the New Zealand Government's interest rate*, which outlines the logic behind the 4.3% interest rate assumption, will be published by the end of September.

³¹ 30-year average.

Even if interest rates remained low for an extended period, New Zealand would remain vulnerable to a reversal back to higher rates, particularly if debt is at higher levels. Historical experience shows that interest rates can remain below growth rates for prolonged periods, but they can also vary significantly over time and can be difficult to predict.³² Figure 13 illustrates the challenge of accurately forecasting variables heavily influenced by international financial markets.

Figure 10: Nominal GDP growth projection and interest rate scenarios



Source: LTFM

³² Mauro and Zhou (2020).

1.4.2 The impact of long-run economic growth

If the economy performs better or worse than expected in the future, that will affect tax revenues and, therefore, how affordable any given level of expenditure is, and how affordable our existing stock of debt is in the future.

Labour productivity

While economic growth driven by labour productivity generates additional income and tax revenues, it is also likely to increase government expenditure. There are three reasons for this. First, some of this is automatic: if higher labour productivity causes wages to rise, that will automatically increase the rate and expenditure of NZS. Second, there is an informal link between public services and wage costs. Over time, public sector wages tend to move with private sector wages because workers are mobile between the two sectors. Third, historical experience shows that demand for public services such as healthcare tends to increase as incomes increase. Therefore, when we project public finances, we assume that governments increase expenditure in line with economic growth.

As a result of labour productivity improvements leading to increased government expenditure, improvements in labour productivity growth (one of the inputs into economic growth) make very little difference to our *historical trends* projection. For example, a 50% improvement in annual labour productivity growth to 1.5% would reduce net debt in 2060 only slightly from around 177% to around 167%.

Of course, higher productivity growth and incomes still mean that New Zealand is wealthier, likely has more government services, and has higher overall wellbeing. Thus, when productivity is higher, it is highly likely that the trade-offs the government faces would be relatively less challenging than if growth were lower. For example, it may be possible for expenditure on public services to grow more slowly than economic growth without compromising the quality of services, or New Zealanders may be more willing to pay a greater share of our higher incomes in tax.

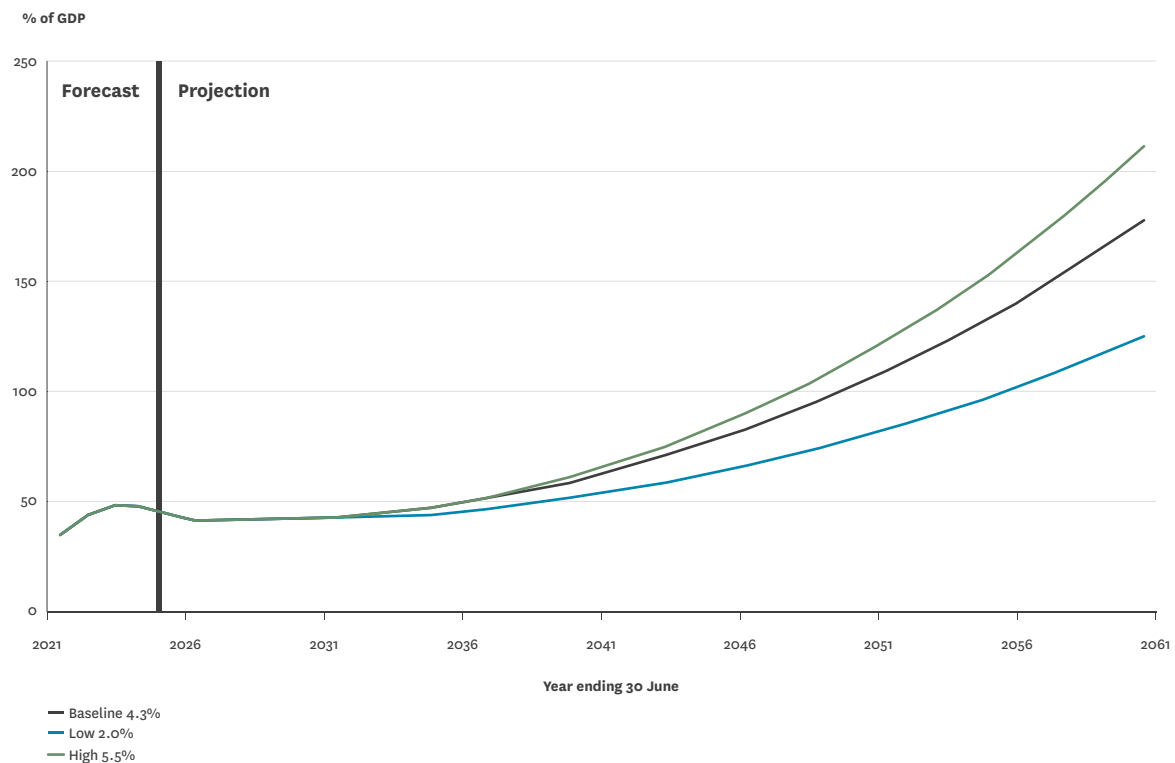
Labour supply

The other input into economic growth is labour supply.³³ This input depends on the proportion of the population that are of ‘working age’, the share of that group who participate in the labour market, the extent to which they are employed, and the hours they work per week.

Higher than expected population growth and labour force participation has led to higher than expected economic growth. In 2006, labour force participation was projected to reach 65.6% in mid-2019, but by 2013 this had been revised up to 68.5%. The labour force has continued to grow faster than anticipated, with participation reaching 70.5% in June 2019. Appendix four explains how the LTFM results have changed since 2016.

These factors resulted in higher than expected tax revenue, which improved the fiscal position. Migration has contributed to the increased labour supply. Initially, migrants add to the workforce, which improves GDP and government net revenue over and above the extra demands on education and health. However, eventually younger

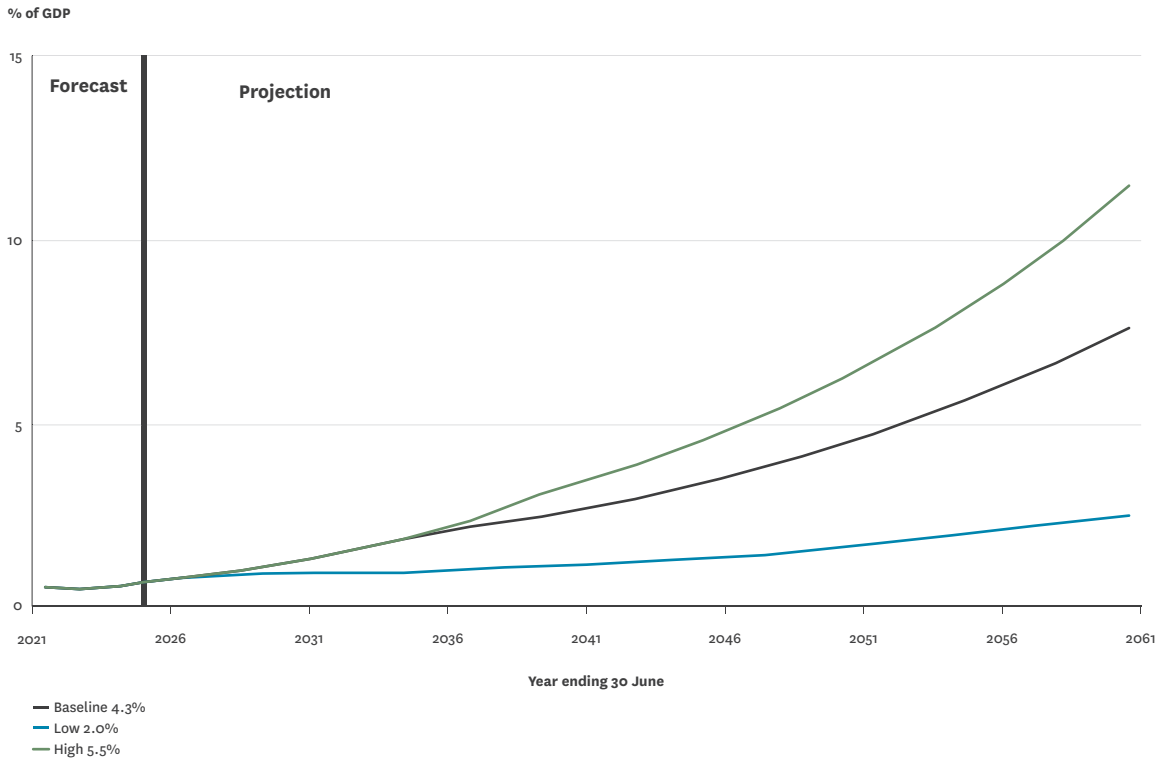
Figure 11: Net core Crown debt as a % of GDP under different interest rate scenarios



Source: LTFM

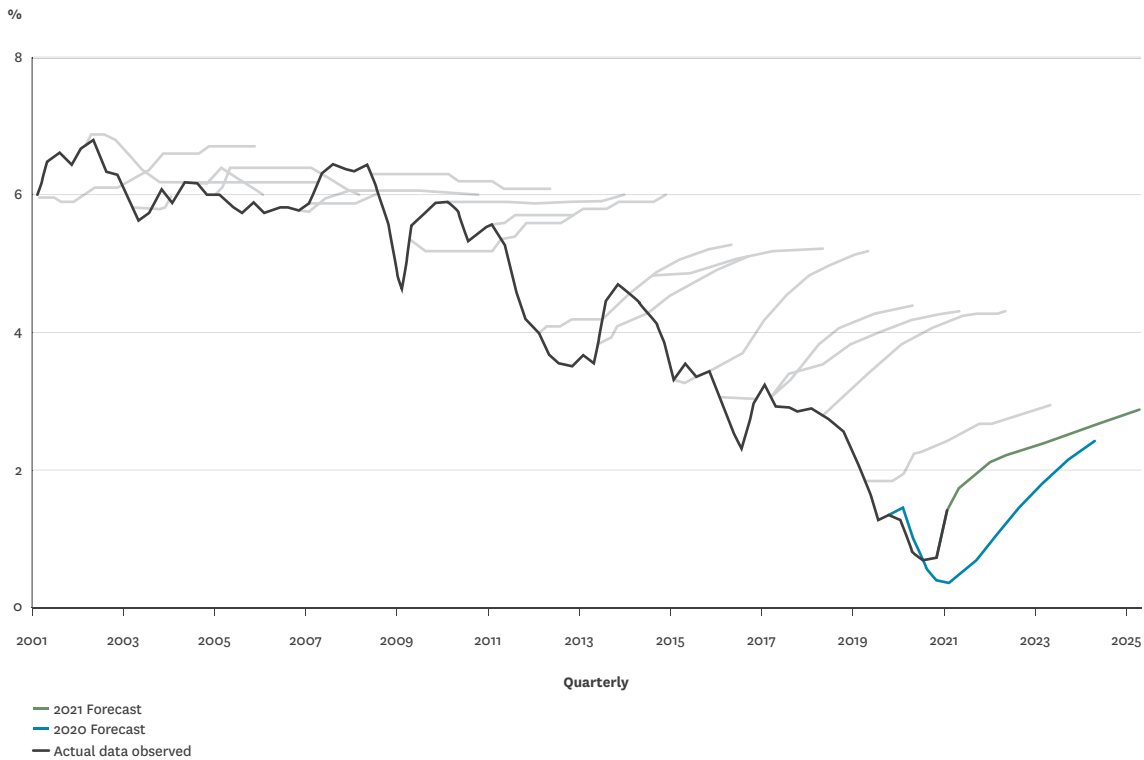
33 See: New Zealand Productivity Commission (2021) Productivity by the numbers. Available from www.productivity.govt.nz/research

Figure 12: Core Crown debt finance costs as a % of GDP under different interest rate scenarios



Source: LTFM

Figure 13: New Zealand's 10 year government bond yield and Treasury forecasts each year



Source: The Treasury

Note: This chart shows the Treasury's forecasts of the 10 year New Zealand government bond yield from each Budget Economic and Fiscal Update, and how these compared to the actual 10 year rate that eventuated.

migrants age and add to the demands for government transfers, services and infrastructure.

In the *historical trends* scenario, increased labour supply does not flow through to higher wages and consequently government expenditure growth. As a result, economic growth that is driven by labour supply, all else equal, improves the fiscal position more than productivity growth. Compared to higher-than-expected labour productivity outcomes, higher aggregate labour force participation than we are projecting would generate higher GDP and tax revenue. Where increased participation reflects people’s choices, this can improve wellbeing. However, increased labour productivity has the advantage of giving people more choices overall, including over work and leisure.

1.4.3 Economic shocks

Unanticipated economic shocks create fiscal pressures. In response to unexpected shocks governments typically increase spending to stimulate economic activity: via automatic fiscal stabilisers (e.g. Jobseeker Support benefit) and discretionary spending (e.g. bringing forward

infrastructure projects). At the same time, tax revenues may fall with lower incomes, profits and consumption.

This section analyses the impact of a single recession (an economic shock) in isolation, as well as a sequence of recessions. Both of these are presented ‘on top of’ the ‘increase tax rates’ *alternative* scenario where taxes have already been adjusted to stabilise net debt. Table 5 sets out the key assumptions underlying these illustrative shocks, which are set to be similar to recessions that have occurred over New Zealand’s post-war history.³⁴

Given these assumptions, **each recession increases net debt by around 10 percentage points** (relative to the date the recession occurs). Net debt peaks at between 10 and 13 percentage points above the counterfactual case where the recession does not occur. The results from the recession scenarios are presented in figure 14.

Further details on the assumptions for this section can be found in the forthcoming background paper detailing the Neoclassical Growth Model and the scenarios presented in this Statement.

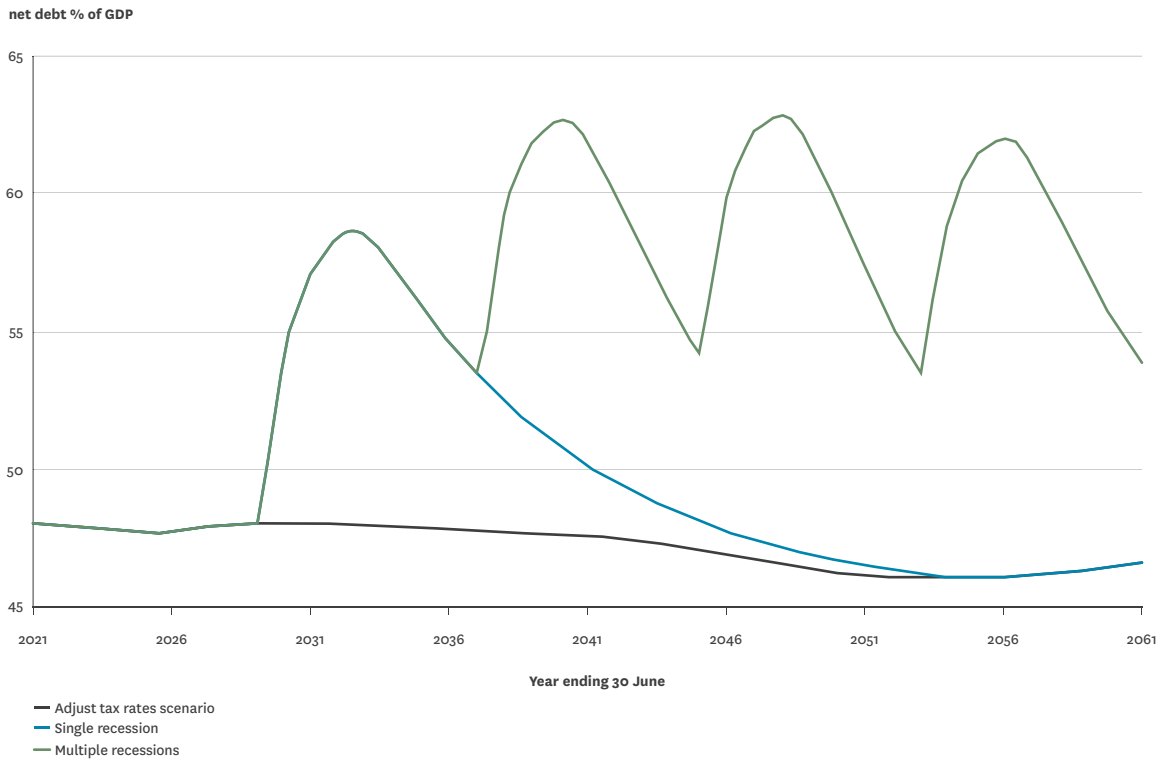
Table 5: Key assumptions in economic shocks scenario

| | |
|--------------------------|---|
| Demand and labour market | 43% fall in private consumption and nearly 18% fall in investment over 4 quarters. Total hours worked falls by around 5%. |
| Productivity | The productivity rate falls by 0.75% per quarter for 4 quarters, resulting in a 3% fall in total factor productivity (peak to trough), before the productivity rate resumes its 1% growth rate. |
| Government policy | Temporarily allow debt to rise. Increase government spending and investment by 0.5% of GDP and transfers by 0.75%. Look to reduce debt after recession over the business cycle. |
| Frequency | Single recession, and further recessions every eight years. |
| Fiscal consolidation | The government increases tax revenue following each recession to bring debt back down to its pre-recession level. ³⁵ |

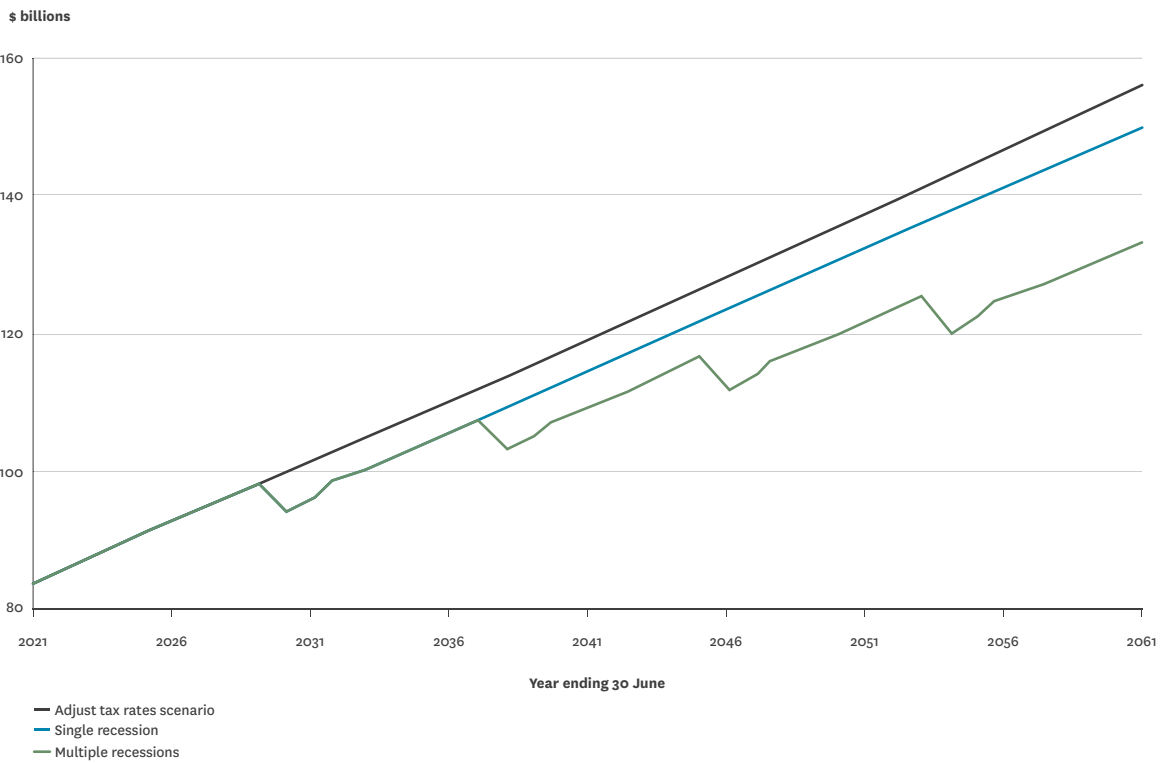
³⁴ Hall and McDermott (2016) and evidence from the three most recent recessions.

³⁵ This is a modelling assumption for illustrative purposes. The prudent fiscal response might instead be to accept a higher level of debt following a recession(s).

Figure 14: Impact of a single recession and repeated recessions on net debt and real GDP



Source: NCGM



Source: NCGM

1.4.4 An earthquake

In this section we model the potential economic and fiscal impacts of an earthquake. This tests New Zealand's fiscal resilience as well as the Government's capacity to respond to disasters.³⁶

We have modelled a significant earthquake that occurs in Wellington in 2028, causing 50% more damage than the Canterbury earthquake.³⁷ A significant Wellington earthquake is generally regarded as one of the most damaging potential earthquakes for New Zealand.³⁸

Our modelling is intended to test New Zealand's economic and fiscal resilience. This does not capture that such an earthquake would have significant and wide-ranging impacts on wellbeing, including potential loss of life, impacts on physical and mental health, and wider social consequences across our communities.

Table 6 sets out our assumptions for this scenario, which are informed by the response to the Christchurch earthquake. The assumptions and results should be viewed as merely indicative because the actual impacts of a future disaster will vary. More information on these assumptions is available in appendix five.

Figure 15 below provides the key results from our modelling. The earthquake causes a sudden decrease in capital stocks, which spurs a lengthy period of investment and rebuilding. Compared to the other economic shocks we have modelled, the earthquake causes a shallower recession followed by a faster rebound. Despite these differences the long-run fiscal impacts are broadly similar. The government's fiscal response to the earthquake causes net debt to increase by approximately 12% of GDP.

Table 6: Assumptions in earthquake scenario

| | |
|----------------------|---|
| Size of shock | Earthquake destroys 3% of New Zealand's capital stock, and GDP is permanently 3% lower. |
| Investment | Private and public investment increase in response by around 3% of GDP at its peak before falling back to pre-earthquake levels. |
| Fiscal response | The government significantly increases spending and reduces tax revenue in response to the earthquake. The spending is a mix of public investment and increased transfers (including EQC payments). |
| Fiscal consolidation | The government increases tax revenue following the disaster to bring debt back down to its pre-earthquake level. ³⁹ |

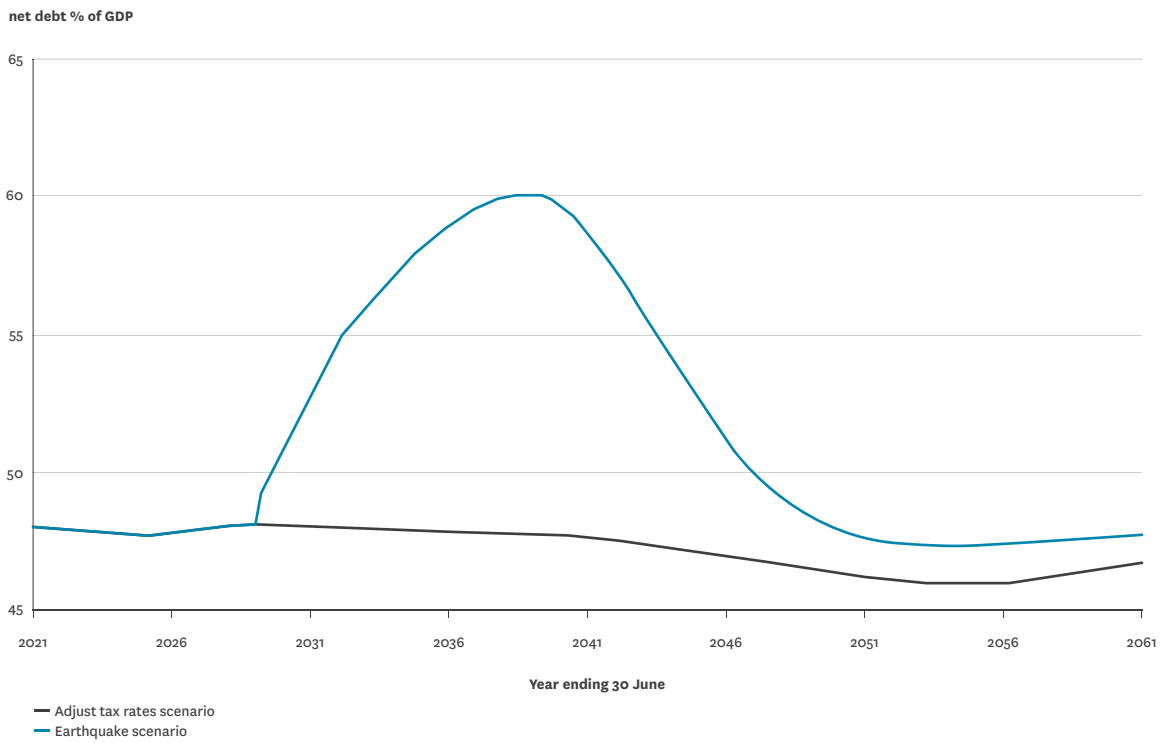
³⁶ While low debt levels support financial resilience to shocks, increasing debt can build resilience in other ways. For example, increasing debt to invest in more earthquake-resilient buildings is costly now, but can reduce the negative impacts of earthquakes in the future. The background paper: *How fiscal strategy affects living standards* discusses these issues further.

³⁷ Previous modelling by GNS has indicated that a significant earthquake in Wellington would cause damage broadly similar to this. This GNS modelling is based on a series of earthquakes, a main shock and some aftershocks.

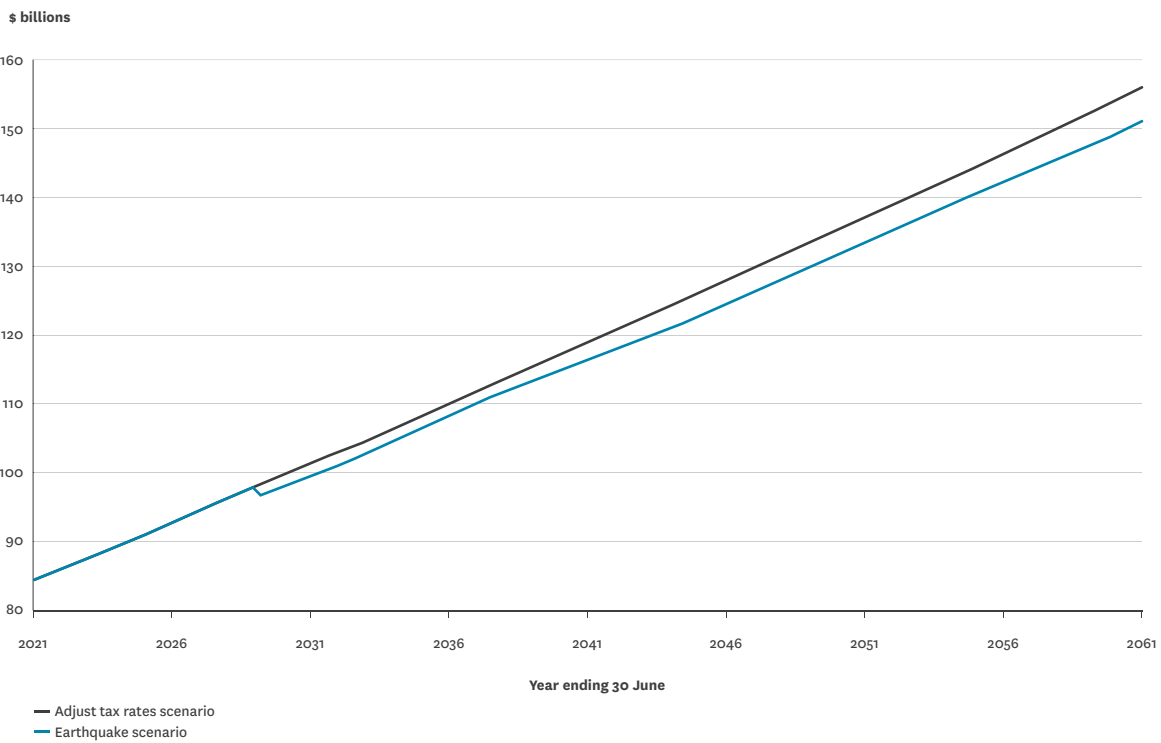
³⁸ We have chosen a Wellington-based earthquake as this is a common standard used by insurance and geological modellers for major earthquake events. 1 in 1000 year earthquakes in other regions would likely have less damage than the one we have modelled. For example, the 2010-11 Christchurch earthquakes are considered some of the most severe potential earthquakes for Christchurch. A severe earthquake in Auckland is less likely and also potentially less damaging due to Auckland CBD being further away from known active faults.

³⁹ This is a modelling assumption for illustrative purposes. The prudent fiscal response might instead be to accept a higher level of debt following an earthquake.

Figure 15: Impact of earthquake scenario on net debt and real GDP



Source: NCGM



Source: NCGM

Note: The blue line shows the net debt to GDP and real GDP trends projected without an earthquake. The black line shows the net debt to GDP and real GDP change with the earthquake.

1.4.5 What do shocks and uncertainty mean for our projections?

The future is inherently uncertain, both in terms of trends and in shocks to those trends. As this section has shown, uncertainty about the future does not change our analysis of the long-term fiscal trends that governments will need to manage.

The significant impact of frequent shocks on the fiscal position makes it important that governments have the fiscal space to support the economy through shocks and support the wellbeing of the populations that have to manage them. As explained in section 1.1 and discussed in more detail in section 2.2.1, there is currently no need to reduce the debt-to-GDP ratio today, and there is sufficient fiscal space to manage these shocks at current levels of debt. However, it is important to maintain fiscal resilience to manage the likelihood of repeated shocks over time.

This is particularly important because it is possible that fiscal policy will have to play a larger role in supporting the economy in the future – in ‘normal times’ and in response to negative shocks. Declining real interest rates have compressed traditional monetary space, fiscal policy has proven highly effective in responding to both the Global Financial Crisis and COVID-19, and fiscal policy has offered policy-makers a means of targeting support to those most affected by shocks. A larger role for fiscal policy in the future places an even greater premium on an adequate fiscal buffer to allow governments to respond to shocks. Understanding and adapting our economic and fiscal frameworks to this new reality will take time.

1.5

The fiscal impacts of climate change

- Climate change will have significant impacts on our wellbeing across all domains – directly affecting our natural capital, and indirectly affecting our economy and fiscal metrics.
- Natural disaster events are likely to become more common and add economic and fiscal costs on top of the costs of more gradual temperature and sea level changes. Policy action today on adaptation could minimise some of those costs in the future.
- The fiscal costs of transitioning to a low-carbon economy are not yet fully known, and depend on the speed of emissions reduction and the tools used. Governments will face trade-offs, including between fiscal and economic impacts of the emissions trading scheme, and the cost of domestic action versus entering the international emissions credit market.

This section focuses on the impacts of climate change on the government's finances, including those impacts that result from the wider impact of climate change and climate change policy. The size and distribution of those impacts depend on New Zealand's approach to *adaptation* (preparing for, managing, or controlling the physical impacts of climate change), and *mitigation* (efforts to reduce emissions and so the magnitude of climate change).

Many key choices are still under consideration, such as the Climate Change Commission's advice on emissions budgets⁴⁰ and decisions on a National Adaptation Plan 2022.

1.5.1 Adapting to the impacts of climate change

Climate change could have very significant impacts on New Zealand's physical environment, which are summarised in table 7. Most of these impacts – some of which are already being observed – will not be distributed evenly across New Zealand.

To give a more detailed picture of one potential negative impact, table 8 illustrates how sea level rise in New Zealand will expose more people and assets to a large coastal flooding event that at present-day mean sea level has a 1% chance of happening in any given year – known as ESL1.

⁴⁰ Inaia tonu nei: a low emission future for Aotearoa (2021). Retrieved from: <https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/inaia-tonu-nei-a-low-emissions-future-for-aotearoa/>

Table 7: Selected physical impacts of climate change in New Zealand⁴¹

| Variable | Change in 2040 | Change in 2090 |
|---|--|---|
| Mean temperature will increase overall, with greatest changes at higher elevations and in summer and autumn | +1.0 deg | +3.0 deg |
| Extreme rainfall event intensity will increase everywhere | A 1 in 10-year event up +11% for 1-hour events, up 5%+ for 5-day events | A 1 in 10-year event up +34% for 1-hour events, up 15%+ for 5-day events |
| Drought will increase in severity and frequency, especially in already dry areas | A wide range, including: <ul style="list-style-type: none"> 5-10% additional time spent in drought in certain regions⁴² Time spent in drought in eastern and northern NZ projected to double or triple⁴³ | <ul style="list-style-type: none"> Drought probability up 50-70%. Time spent in drought increases by 5-10% Up to 50mm or more increase in PED (potential evapotranspiration deficit) per year, on average, in July-June |
| Sea level rise | Median sea level +0.28 to +0.33m | Median sea level +0.79 to +0.89m |

Source: Summarised from the National Climate Change Risk Assessment, Ministry for the Environment, 2020

Table 8: Additional population and assets exposed to a large coastal flooding event (ESL1), at sea level rise of 0.2m and 0.5m⁴⁴

| | 0.2m rise, increase from now | 0.5m rise, increase from now |
|-------------------------------------|------------------------------|------------------------------|
| People | 16,935 | 48,917 |
| Buildings | 12,618 | 36,085 |
| Roads | 266.6km | 711.1km |
| Railways | 16.9km | 45.3km |
| Electricity transmission lines | 15.1km | 36.3km |
| Electricity structures, e.g. pylons | 34 | 85 |
| Three-waters pipelines | 720.5km | 1972.4km |
| Built-up land | 11km ² | 31.4km ² |
| Production land | 103.5km ² | 257.4km ² |
| Natural/undeveloped land | 25.3km ² | 64.1km ² |

Note: The figures in the table are over and above the people and assets already at risk from ESL1 at current sea levels.

41 National Climate Change Risk Assessment (2020) Figures presented here are based on the “Representative Concentration Pathway 8.5”, a scenario of rapidly increasing greenhouse gas concentrations through to 2100 considered to be a plausible upper limit of risk, prepared by the Intergovernmental Panel on Climate Change (2014). Lower concentration pathways may have lesser physical impacts. Retrieved from: <https://environment.govt.nz/publications/national-climate-change-risk-assessment-for-new-zealand-main-report/>

42 Clark et al, (2011) in Ministry for the Environment 2020. Retrieved from: <https://environment.govt.nz/publications/national-climate-change-risk-assessment-for-new-zealand-main-report/>

43 IPCC (2014a) in Ministry for the Environment, 2020. Retrieved from: <https://environment.govt.nz/publications/national-climate-change-risk-assessment-for-new-zealand-main-report/>

44 Data sourced from Paulik, R. B., Stephens, S., Wadhwa, S., Bell, R., Popovich, B., & Robinson, B. (2019). Coastal Flooding Exposure Under Future Sea-level Rise for New Zealand. Wellington: National Institute of Water & Atmospheric Research.

These physical effects will have a range of economic impacts, both from extreme events and from gradual changes. That includes damage to property, droughts' impact on agricultural production, and biosecurity incursions. While many of these effects will be negative for New Zealanders' wellbeing, some gradual changes in climate could have positive impacts, such as better crop conditions in some areas, or tourism demand.

The impacts on the primary sector are particularly relevant for the Māori economy, because of its heavy investment in natural resources. For example, Māori interests own or control 50% of fishing quotas, and own or control 50% of exotic forests.⁴⁵

These economic impacts then have flow-on fiscal effects. Tax revenues could be affected; government will need to replace and repair its own assets, and government will need to spend money on disaster preparedness, response, recovery, and health and welfare for those affected.

Economic and fiscal impacts of droughts, storms and floods

In early 2020 the Treasury created some illustrative scenarios involving natural disasters that grow in intensity and frequency over the next 40 years, and looked at their impact on net debt and GDP. This is not a prediction of the future, but an analysis of how some of the shocks associated with climate change could affect the economy and public finances.

This modelling was undertaken before COVID-19; however the results remain relevant: while our net debt position has changed, our understanding of how disasters could affect it hasn't.

Table 9 sets out the assumptions underlying this modelling.

Based on these assumptions, the Treasury ran a number of simulations, which are summarised in figures 16 and 17. The median of these simulations suggested that more frequent and severe droughts could lead to net debt being 1.5% of GDP higher, and increasing storms and could add 0.5% of GDP to net debt (or 2% of GDP at the median if droughts and storms are combined). However, as these figures also illustrate, there is a significant range, with larger economic and fiscal effects possible.

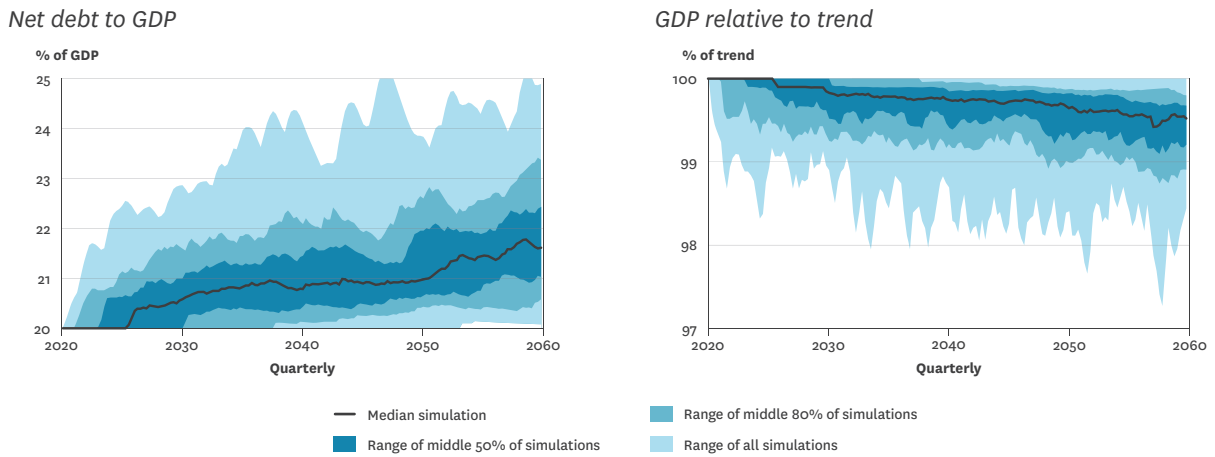
These results indicated, in 2020, that the New Zealand economy and the government's fiscal position were relatively resilient to natural disasters. However, these events tend to be highly localised, and so there are likely to be much larger impacts on particular communities. Furthermore, this does not reflect the full cost of climate change – it covers just two types of extreme weather events, and does not include other impacts such as gradual sea level rise or temperature increases. In addition, the climate may respond to increasing emissions in unexpected or non-linear ways. Given the lifetime of greenhouse gasses in the atmosphere, larger cumulative effects over a longer period than 40 years are likely.

Table 9: Assumed changes in the frequency and severity of severe weather for modelling the macroeconomic and fiscal impact of climate change

| | Moderate drought | Severe drought | Severe storms/floods |
|-------------------|--|--|--|
| Frequency | Initially a 1 in 10-year event, gradually increasing to approximately 1 in 3 years by 2060 | Initially a 1 in 20-year event, gradually increasing to approximately 1 in 7 years by 2060 | A 1 in 10-year event, unchanging |
| Impacts/magnitude | Productivity shock: GDP falls by 0.5% before recovering | Productivity shock: GDP falls by 1.0% before recovering | Capital destruction event: An event in 2020 destroys 0.2% of the capital stock. This increases over time so that an event in 2060 destroys 2% of the capital stock |
| Fiscal policy | Government spending increases by 1.5% (annualised) over 3 quarters | Government spending increases by 2.5% (annualised) over 3 quarters | Government spending increases by 2.5% (annualised) over 3 quarters |

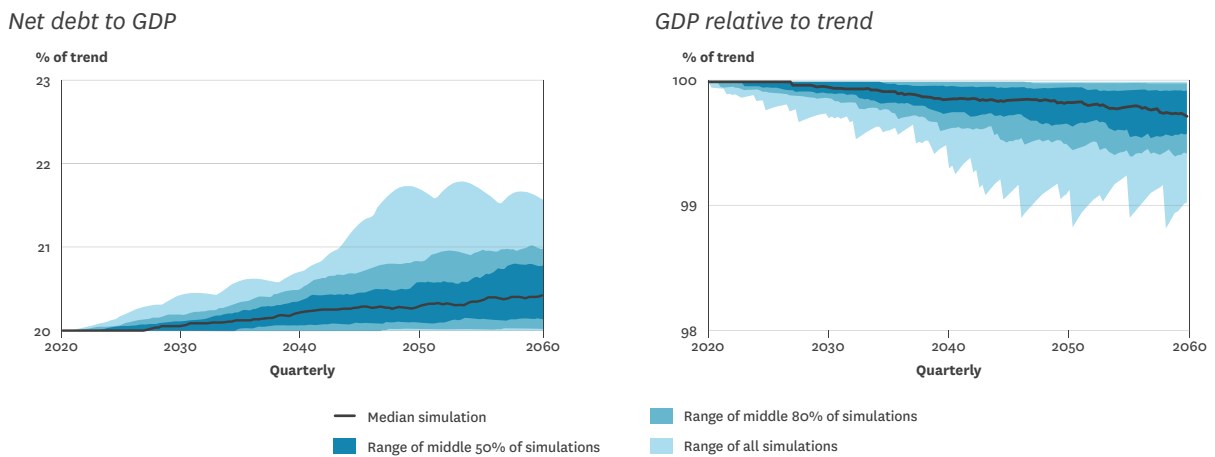
45 Insley, C. (2010). Māori issues and opportunities arising out of the ETS. Primary Industry Management. v.14 n.3:p39. Retrieved from: https://www.nzipim.co.nz/Folder?Action=View%20File&Folder_id=120&File=PIM%20Sept2010%20lowres%20with%20cover.pdf

Figure 16: Impact of increasing frequency of severe and moderate droughts on net debt and GDP



Source: NCGM

Figure 17: Impact of increasing storms and/or floods on net debt and GDP



Source: NCGM

Note: These results are an indication of New Zealand’s possible fiscal and macroeconomic exposure to storms and/or floods in the future, under a specific set of assumptions – they are not a statement of what the Treasury expects to happen.

Adaptation policy choices

Adaptation efforts may involve upfront costs, but also have the potential to reduce the total costs from climate change over the long term.

A large proportion of adaptation decisions are decentralised. People and businesses decide, for example, where to live, what crops to grow, where to do business, what type and level of insurance to buy, and so on. Government can set adaptation policies that influence those choices and so the scale of fiscal costs in the longer term. That could include:

- Providing information and funding research on climate change impacts;
- Ensuring that government policies do not incentivise overly-risky behaviour; and
- Ensuring that the regulatory framework in areas such as land use, building standards and insurance remains appropriate.

The government has an important role in managing climate change risks to its own assets – such as schools, hospitals, police stations, and prisons – and to the services it provides (including conservation and biosecurity). At least some of these costs will rise in the future.

Another significant choice for government is whether to take on some of the costs of adaptation that would otherwise fall on the private sector or on local government, so as to redistribute costs in way that is considered fairer, or to recognise national benefits arising from others' decisions.

While not a specific government choice, it is important to acknowledge that the unique ownership characteristics of Māori land present some special challenges for climate adaptation. Māori have an enduring connection with their ancestral lands, which are held in communal ownership, and some of which are subject to regulatory restrictions on the sale, leasing and mortgaging of land. These characteristics may limit the ability of many Māori land owners to respond to climate change policy in a timely way.

1.5.2 The transition to a low-emissions economy

New Zealand has made international and domestic commitments to reduce its emissions and transition to a low-emissions economy.⁴⁶ Because New Zealand's emissions are only 0.17% of global emissions,⁴⁷ the long-term impact of climate change on New Zealand's natural capital stocks depends heavily on the actions of other nations. One of the benefits of New Zealand reducing its emissions could be to help influence other nations to reduce their emissions.

The fiscal and economic impacts of reducing emissions depend heavily on the policy choices that governments

make. The main levers that the government has to achieve that are:

1. **Setting the overall speed of emissions reductions, as expressed in the total permitted volume of emissions in each successive emissions budget under the Climate Change Response Act. The independent Climate Change Commission has provided advice on the first three emissions budgets to 2035, and the government will take decisions on these this year.**
2. **The mix of policy instruments used to achieve each emissions budget, which includes emissions pricing (mainly through the Emissions Trading Scheme) and complementary measures that address different market or regulatory failures, including:**
 - Improving public and business information about action they can take;
 - Setting regulation and building infrastructure appropriate for a low-carbon economy;
 - Support for research and application of low-emissions technology;
 - Regulatory signals and change, such as phasing out certain fuels and/or subsidies for cleaner fuels or activities; and
 - Government's own procurement decisions.
3. **Purchasing or trading international emissions reduction units. The government may decide to purchase emission reductions from other jurisdictions, or to allow New Zealand emitters to trade internationally in emission reduction units. Currently, there is no mechanism for the New Zealand Government or emitters to do this, but this could change in future.**

The government faces various trade-offs within and between these levers. These trade-offs include:

- More ambitious reductions early may have larger economic and fiscal cost in the short term, particularly if it means investing ahead of a cheaper set of policy levers or technologies becoming available. But starting earlier is likely to reduce transition costs by requiring less dramatic reductions later on, smoothing economic adjustment.⁴⁸
- More intensive regulation and/or tighter emissions allowances under the ETS could reduce economic growth with knock-on fiscal and economic impacts that the government may then need to offset by spending.
- Using the ETS as a tool to reduce emissions will generate revenue for the government. Some complementary measures, such as subsidies may come at a fiscal cost. Regulatory measures on the

46 The Climate Change Response (Zero Carbon) Amendment Act 2019 set a 2050 target of net zero for all gases except methane (which will reduce by 24-47% compared to 2017). New Zealand is also a party to the multilateral Paris Agreement including a commitment to reduce emissions by 30% by 2030 compared to 2005 levels.

47 Stats NZ (2018). Retrieved from: <https://www.stats.govt.nz/indicators/global-greenhouse-gas-emissions>

48 Source: Westpac New Zealand. (2018). Climate Change Impact Report. Westpac NZ modelled delayed versus early transition and found significant additional economic costs from delay. Retrieved from: <https://www.westpac.co.nz/assets/About-us/sustainability-community/documents/Climate-Change-Impact-Report-April-2018-Westpac-NZ.pdf>. Climate Change Commission's 2021 modelling found higher impacts on GDP if action in key emitting sectors (agriculture and transport) is delayed.

other hand, will generally have less fiscal cost because they push the cost of adjustment to the private sector.

- Whether – and how much – to use international emissions reductions to meet a given target instead of domestic action, and the balance of government versus emitter purchase of international units, would have a direct impact on the fiscal cost⁴⁹.
- Balancing distributional impacts i.e. how the costs and benefits of mitigation should be shared across households, firms or communities, and between generations.

There are also costs associated with inaction. Not proceeding with a given action to reduce emissions implies that other actions – with their own costs or benefits – will be needed if New Zealand is to achieve its emission reduction targets. The Treasury has introduced initial shadow pricing values in guidance on cost-benefit analysis, in order to start factoring in the cost of future emissions, or the value of avoided emissions, in investment or policy decisions⁵⁰.

Table 10 illustrates the government's policy levers and some of the first-order impacts on New Zealand's fiscal and economic position, as well as distributional considerations.

Table 10: Fiscal, economic and distributional impacts of climate policy levers

| Policy lever | Fiscal impact | Economic impact | Distributional impact |
|--|---|---|--|
| | Relative to no action | | |
| Emissions Trading Scheme | Positive. | Negative | Moderate regressive impact on households. |
| • Domestic only | ETS proceeds | | |
| Emissions Trading Scheme | Positive | Negative. | Moderate regressive impact on households, less than domestic only scheme |
| • International units allowed into existing ETS | ETS proceeds (possibly less than domestic only ETS) | Probably less impact than domestic only ETS | |
| Government purchase of international units | Negative | Negative | Socialised cost |
| | Increased expenditure | (Probably greater impact than ETS or complementary measures, due to allocative inefficiency.) | |
| Regulation that overcomes barriers to emissions reductions | Neutral | Positive | Neutral |
| | | Possible increase in economic efficiency | |
| Funding for innovation to unlock long term emissions reductions or improve energy efficiency | Negative | Uncertain | Socialised cost |
| | Increased expenditure | (May increase economic efficiency if lower costs are unlocked for firms or households.) | |
| Subsidies for lower-emission activities | Negative | Negative | Socialised cost, specific industries receive subsidy |
| | Increased expenditure | (Possibly larger impact than ETS, depending on design) | |
| Emissions standards and bans on high-emission activities | Neutral | Negative | Increased input costs borne by emitter |
| | | (Possibly larger impact than ETS) | |

Note: The Government has a legislative commitment to its 2050 targets; the 'no action' counter scenario is illustrative only.

The impacts are first order; they do not account for second order effects including long run fiscal or economic benefits from avoiding dangerous climate change (or the long run costs of no action). Nor do they capture every policy choice, such as recycling of ETS proceeds.

49 Under the Climate Change Response (Zero Carbon) Amendment Act (2019) domestic emissions budgets are to be met, as far as possible, through domestic reductions and removal.

50 Source: <https://www.treasury.govt.nz/publications/guide/cbax-tool-user-guidance>

Approximate scale of economic impact

A number of studies have looked at the possible economic impacts of a transition to a low-emissions economy in New Zealand. They generally find that the transition to a low-emissions economy results in lower GDP growth than would otherwise have been the case, including:

- In May 2021, the Climate Change Commission's advice included modelling that estimated that meeting the 2050 target by their preferred demonstration pathway would incur a net cost to the economy each year (1.2% of projected GDP in 2050)⁵¹.
- NZIER provided modelling to support the Climate Change Response (Zero Carbon) Amendment Act (2019)⁵². The average rate of GDP growth ranged from 1.58% per annum to 2.03% per annum, depending on the scenario, compared to a status quo of 2.15%.
- A summary of international modelling found economic costs ranging from 1% to 5% of GDP depending on the goal and time period. However OECD modelling has suggested a positive 'green growth' effect on GDP of 2.8% in 2050 across G20 countries, relative to a continuation of existing policies⁵³.

The constraint on GDP growth arising from climate change mitigation will have flow-on effects to the Government's fiscal position, including lower tax revenue.

Approximate scale of fiscal flows for mitigation

The net fiscal impacts of emissions mitigation over the 40 year period of the LTFS are difficult to forecast or predict. This is because of the wide range of factors at play including:

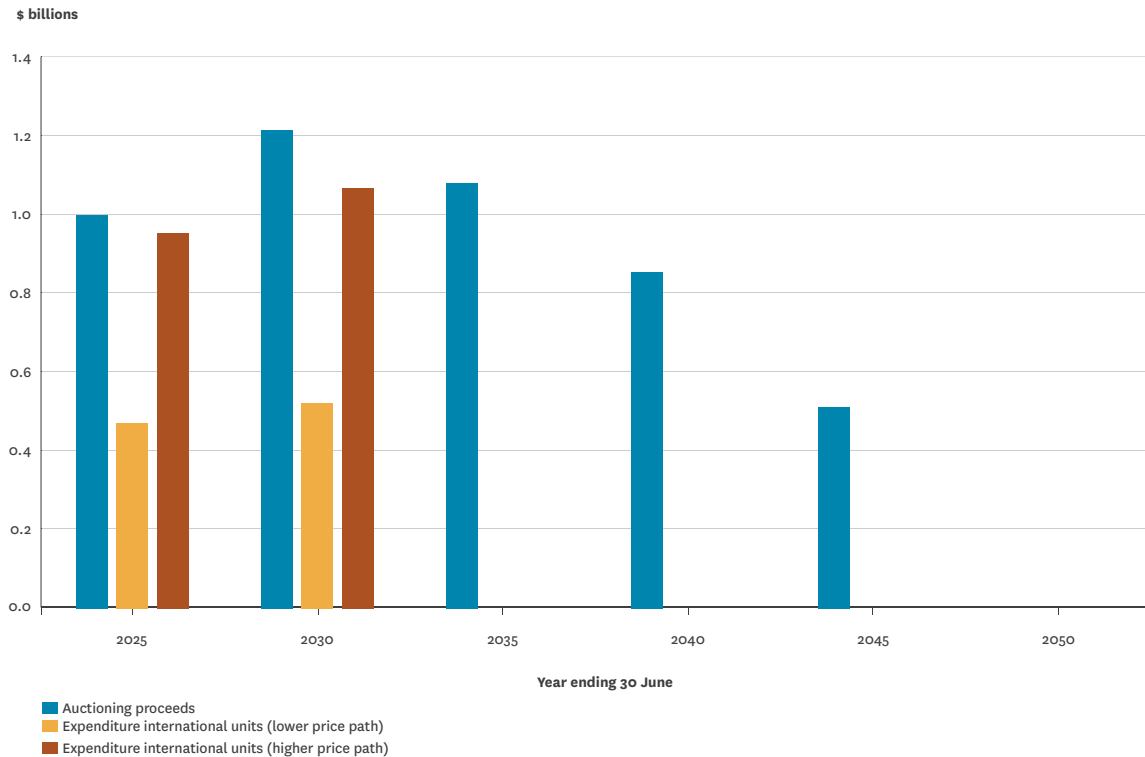
- a) Revenue and expenses from the Emissions Trading Scheme.
- b) The Government's ETS liability will vary as ETS prices change, altering the Government's net worth.
- c) Any fiscal costs of complementary measures.
- d) Any fiscal costs of purchase or trade in international units.
- e) Any fiscal costs of supporting communities to adjust to the transition to a low-carbon economy.
- f) The interplay between all of the above.

In Budget 2021 the Government made an in principle decision that proceeds from the sale of units in the ETS would be hypothecated (recycled) into emissions reduction programmes. Figure 18 gives an indicative scale for the ETS proceeds that may be available to 2050. However, these proceeds are highly uncertain and sensitive to a range of variables that could deviate from our assumptions. Figure 18 also illustrates the possible fiscal expense should the government decide to purchase international emissions reduction units, under two different price scenarios. New Zealand's domestic emissions reductions are unlikely to fully meet our commitment under the Paris Agreement to reduce net emissions by 30% by 2030. Consequently, the government may decide to purchase international units to make up the shortfall.

⁵¹ Retrieved from: <https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/inaia-tonu-nei-a-low-emissions-future-for-aotearoa/>

⁵² Retrieved from: <https://environment.govt.nz/publications/economic-impact-of-meeting-2050-emissions-targets-stage-2-modelling/>

⁵³ Macroeconomic and financial stability: Implications of climate change. Retrieved from: https://www.ngfs.net/sites/default/files/medias/documents/ngfs-report-technical-supplement_final_v2.pdf

Figure 18: Scenarios of selected fiscal flows: ETS auctioning and purchase of international units

Key assumptions

- Government ETS auction volumes reduce from 2024/25 levels in BEFU 2021 to zero in 2050, in line with falling net emissions.
- ETS price path is based on the mid-point between the Climate Change Commission's marginal abatement cost path to 2050 and the Commission's proposed ETS price floor, in current (2020) prices.
- International units lower price path is the lower bound price range derived from the Commission on Carbon Pricing (2017).⁵⁴
- International units higher price path is the mid-point of the price range derived from the Commission on Carbon Pricing (2017).
- No international units are purchased after 2030.

Source: Treasury calculations drawing on Climate Change Commission draft advice (2021), High Level Commission on Carbon Pricing (2017).

54 Retrieved from: <https://www.carbonpricingleadership.org/report-of-the-highlevel-commission-on-carbon-prices>

2

Responding to long-term fiscal trends

Section 1 showed the size of the fiscal challenge we face in the future and the risks to it, owing to factors such as demographic change and rising costs of Government services. There are options for how we respond to these trends that we explore in more detail in this section.

This Statement considers the following broad areas:

- **How we consider the trade-offs between key policy choices (section 2.1)** using the Living Standards Framework (LSF) and He Ara Waiora (HAW).
- **What a “prudent” level of debt is (section 2.2):** what level or trajectory of debt the government could target in the future, and what does that mean for the size of the fiscal gap and how quickly it needs to be addressed?
- **Reducing the growth in health expenditure (section 2.3):** what are other alternative levels of health expenditure that can help restrict spending growth relative to historical rates?
- **Responding to demographic change (section 2.4):** what settings can we change for New Zealand Superannuation to reduce the growth of expenditure related to demographic change and higher life expectancy rates?
- **Increasing tax revenue (section 2.5):** how can we increase revenue in the future by changing tax settings?
- **Getting more value from public expenditure (section 2.6):** how can we get more value from existing and new government expenditure, which can minimise fiscal pressures on top of existing trends in the future?

There are also other policy choices that are relevant to considering fiscal sustainability. This document is not intended to provide an exhaustive list of all these options but rather present illustrative examples of the kinds of choices and trade-offs future governments can make to close the fiscal gap.

The document does not make policy recommendations on the ‘optimal’ policy option or package of options required to manage our fiscal sustainability challenge. This is something that will require careful consideration and analysis by future governments.

2.1

How we consider trade-offs

Fiscal impacts are not the only factor that governments will consider through their policy choices in the future. All policy choices involve a degree of trade-offs between different groups, generations, and objectives.

The Treasury has two analytical frameworks to consider these trade-offs more holistically (relative to considering fiscal trade-offs alone). Section 2.1.1 sets out the He Ara Waiora framework⁵⁵, which looks to bring the te ao Māori perspective to New Zealand’s wellbeing, and section 2.1.2 sets out the Living Standards Framework⁵⁶. Combining these perspectives brings as broad a view as possible, and places greater emphasis than traditional economic analysis on natural and social capital, te taiao (natural environment) and ira tangata (the people).

2.1.1 He Ara Waiora

He Ara Waiora is a waiora (wellbeing) framework built on te ao Māori knowledge and perspectives of wellbeing. It takes

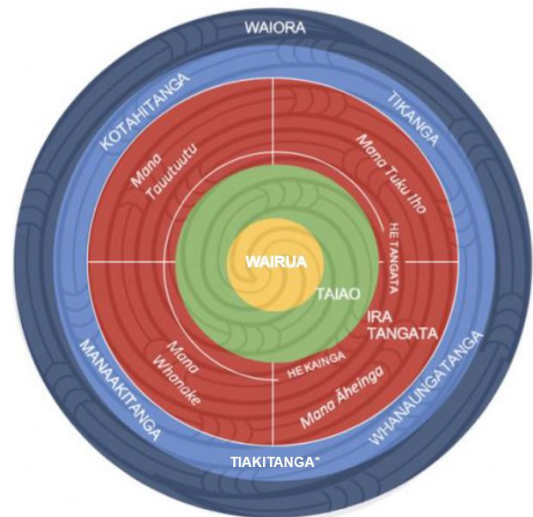
a holistic approach that sees people as part of a system of wellbeing which is predicated on the health of the natural environment, as the natural environment provides the resources for wellbeing. This system extends across generations, as our actions have intergenerational consequences and an ongoing impact on wellbeing. For example, a sustainable level of debt today minimises the burden that we place on future generations, and allows them more opportunities to prosper.

He Ara Waiora is a way to approach the Treasury’s vision of lifting living standards for all through a uniquely Aotearoa lens. It departs from the Living Standards Framework, which is based upon an OECD understanding of wellbeing, by considering not just stocks of capitals related to wellbeing, but a set of values that represent what it means to be well in New Zealand. As the Māori and Pacific⁵⁷ Peoples populations grow as a percentage of the population, an emphasis on an interconnected system of wellbeing is more relevant than ever.

He Ara Waiora Model

| Key concepts in He Ara Waiora | | |
|-------------------------------|--|--|
| Wairua | Spirit | |
| Taiao | Natural world, environment | |
| Ira tangata | Human domain, including activities and relationships between generations | |
| ENDS | Mana tuku iho | Mana deriving from a string sense of identity and belonging |
| | Mana tauutuutu | Mana found in participation in and connectedness to one’s community, including knowing and fulfilling one’s rights and responsibilities |
| | Mana āhienga | Mana in the individual’s and community’s capability to decide on aspirations and realise them in the context of their own unique circumstances |
| | Mana whanake | Mana in the power to grow sustainable, intergenerational prosperity |
| Kotahitanga | Working in an aligned, coordinated way | |
| Tikanga | Making decisions in accordance with the right values and processes, including in partnership with the Treaty partner | |
| MEANS | Whanaungatanga | Fostering strong relationships through kinship and/or shared experience that provide a shared sense of belonging |
| | Manaakitanga | Enhancing the mana of others through a process of showing proper care and respect |
| | Tiakitanga* | Guardianship, stewardship (e.g. of the environment, particular taonga or other important processes and systems) |

*Under discussion for inclusion in framework.



55 For more information on the He Ara Waiora Framework see <https://www.treasury.govt.nz/information-and-services/nz-economy/higher-living-standards/he-ara-waiora>
 56 For more information on the Treasury’s Living Standards Framework see <https://www.treasury.govt.nz/information-and-services/nz-economy/higher-living-standards/our-living-standards-framework>
 57 The Pacific model of wellbeing is the Fonofale model. This is also an interconnected system of wellbeing which resonates with the values of He Ara Waiora. While one should not stand in place for the other, many of the analytic contributions are comparable.

2.1.2 Living Standards Framework

The Living Standards Framework represents a more traditional way of considering trade-offs among policy choices. It recognises four key domains of wellbeing: environmental capital, social capital, human capital, and financial and physical capital. These capital stocks need to be developed and sustained in order to achieve wellbeing, and each policy decision has the potential to impact the stock of particular capital(s). The trade-off is then about looking across the capitals to achieve the greatest balance that will enhance wellbeing outcomes for New Zealanders.

2.1.3 How are these frameworks being applied?

The Living Standards Framework and He Ara Waiora have been used throughout the policy chapters (sections 2.3 to 2.5) to consider the distributional impacts of policy choices. This includes both demographic implications of choices and how trade-offs between policy options can be considered from both a capitals and te ao Māori perspective.

For example, we consider the policy option to raise the age of New Zealand Superannuation through multiple perspectives. From a distributional impact approach alone, we know that it is likely to adversely impact groups such as Māori and Pacific Peoples, who have lower life expectancies (particularly if the growth in life expectancy for these groups is different to other groups). From a capitals perspective we can consider this as potentially adding to the stock of human capital over time through changes to labour force participation rates. From a te ao Māori perspective, we can view New Zealand Superannuation as a form of manaakitanga and mana tauutuutu, where the use of tax revenue to support kaumātua is a social obligation and form of intergenerational care, and this might put more weighting on higher taxation relative to changing New Zealand Superannuation settings.

Overall, the use of these frameworks helps us to come to a more holistic understanding of what these trade-offs materially mean for New Zealanders (using different perspectives) and therefore help better inform decision-makers on their policy choices.

The Treasury's Living Standards Framework



2.2

How much, and when, should we adjust fiscal policy?

- The Government has choices about the level of debt to target in the future. To do this it needs to balance the costs of reducing debt (such as wellbeing implications of cutting government spending) with the benefits that lower debt has on the wellbeing of future generations and on our fiscal resilience to economic shocks.
- Uncertainty in the near-term makes defining a “prudent” level around which debt should stabilise in the future challenging. While we do not know exactly how large a policy adjustment will be necessary for stable, prudent debt in the long term, the scale of the long-term fiscal challenges will make a significant adjustment necessary.
- New Zealand needs to start thinking about these changes now. Small and gradual changes in the nearer-term would help to minimise the cost of fiscal pressures across generations, preventing higher debt and a larger adjustment in the future.

This section sets out the choices the government has on the scale and timing of any adjustments to fiscal policy to respond to long-term trends. Section 2.2.1 sets out the key considerations the government should take into account when considering the right level and trajectory of debt. Section 2.2.2 sets out what that means for the size of the adjustment that the government might need to make in the future. Section 2.2.3 concludes by setting out the trade-offs between making an adjustment quickly, or over time.

2.2.1 Fiscal sustainability and prudent debt

Fiscal sustainability is the ability for the government to continue to fund the services and transfers it provides on an ongoing basis into the future without requiring major adjustments in expenditure or revenue settings. This is important because:

- it is one of the components of our tiakitanga (stewardship) for mana whanake (intergenerational prosperity). An unsustainable level or trajectory of debt today would impose costs on the wellbeing of future generations that could reduce the quality of the public services they receive, or increase the taxes they pay; and
- as section 1.4 set out, New Zealand will face shocks and natural disasters in the future. Incurring an unsustainable level or trajectory of debt today could prevent the populations at the time from managing those shocks as effectively as possible, imposing additional costs on them at what would already be a challenging time.

There are lots of measures that can indicate whether the fiscal position is sustainable or not. The debt-to-GDP ratio is generally the preferred measure of long-run sustainability, as it reflects both the amount of debt and the ability of the government to service it. This is reflected in the Public Finance Act 1989, which requires governments to reduce debt to a “prudent” level and thereafter sustain it at that level.

There is no explicit definition of what a “prudent” level of debt is. That is because that level may vary over time, is more likely to be a range, and the decision involves both value judgements and analytical judgements.

However, as is common with international practice, the Treasury has tended to advise on a “prudent” level of debt on the basis of an “upper limit” with a buffer to manage economic shocks. There are three main ways to consider the “upper limit” for debt:

1. The **debt sustainability** approach, which considers the level above which the government could default on its debt;
2. The **market access** approach, which considers the level and trajectory of debt beyond which creditors are no longer willing to lend on reasonable terms; and
3. The **wellbeing** approach, which considers the level of debt beyond which taking on more debt would generally reduce current and future wellbeing more than it enhances it. This is the preferred, but most judgement-heavy, approach and involves considering, for example, whether spending is likely to have long-term benefits that outweigh the long-term debt servicing costs and reduced fiscal resilience.⁵⁸

Prior to COVID-19, the Treasury recommended a prudent upper limit for net debt of 50% to 60% of GDP based on the wellbeing approach, with a buffer of around 20% of GDP to respond to shocks.⁵⁹ The net debt-to-GDP ratio at which New Zealand would risk default or be unable to access markets would be substantially higher than this.

COVID-19 has changed the judgements involved in setting an upper limit under the wellbeing approach. As discussed in section 1, the benefits of spending to support the economy through the border closure and other restrictions were very high, and the costs of additional borrowing relatively low. It is uncertain how long these conditions will persist.

As a result, it is challenging to judge whether the levels of debt shown in the projections are below the 'upper limit' under the wellbeing approach. For example, the level of debt reached under the *historical trends* scenario (around 180% of GDP) could potentially be maintained without default or market access issues. However, there would be a higher risk of such events than at lower debt levels. Debt reaching these levels would also have large living standards impacts through higher debt-financing costs and reduced fiscal resilience to future shocks. These costs, risks and reduced resilience would need to be evaluated against the outcomes achieved by higher spending.

Conversely, the *alternative scenarios* showed a much stronger fiscal position where debt was stabilised at around 48% of GDP, resulting in increased fiscal resilience and minimising risk of market access issues or default. However, this required large tax increases and reductions in expenditure which would have significant living standards impacts.

The *historical trends* and *alternatives* scenarios are illustrative fiscal projections that could happen in the future. In practice, the government will weigh up the benefits of higher expenditure against the costs of higher

levels of debt which will likely result in the long-run path for net debt ending up somewhere in-between the scenarios or on completely different paths.

Consequently, it is useful to consider both the *level* and the *trajectory* of net debt. It may not be possible to specify an exact target for net debt level today. However, the projections in section 1 of this Statement show that, if unchecked, fiscal trends will result in net debt rising on an unsustainable trajectory. Regardless of where the prudent upper limit for net debt is, based on the trajectory of net debt in the *historical trends* scenario, it will likely be breached at some point in the future (either within or beyond the projection period).

In the absence of a long-run target for the level of net debt, governments can still identify and implement policy options that return net debt to a sustainable trajectory.

The remainder of this part considers options for achieving this.

2.2.2 The size of the policy adjustment

Regardless of the level of prudent debt a government ultimately targets, ensuring that level is sustainable will require debt stabilised at that level. That will require reducing the gap between expenditure and revenue to the point where debt is no longer growing as a share of GDP.

One measure of this 'fiscal gap' is the primary deficit, which is illustrated in figure 19. Options that help close the gap will mostly result in reduced expenditure growth or higher taxes. These will have wellbeing consequences which will vary depending on the size and speed of implementation. The Government will need to weigh up the costs of these options against the benefits of helping to close the fiscal gap, which would be higher fiscal resilience and reduced debt-financing costs.

The exact size of the fiscal gap that needs to be closed will depend on the level of debt a government seeks to stabilise at, and the interest rates it faces at the time. All else equal, higher government debt levels and higher interest rates will require larger policy adjustments to place debt on a sustainable trajectory.

2.2.3 The timing of the policy adjustment

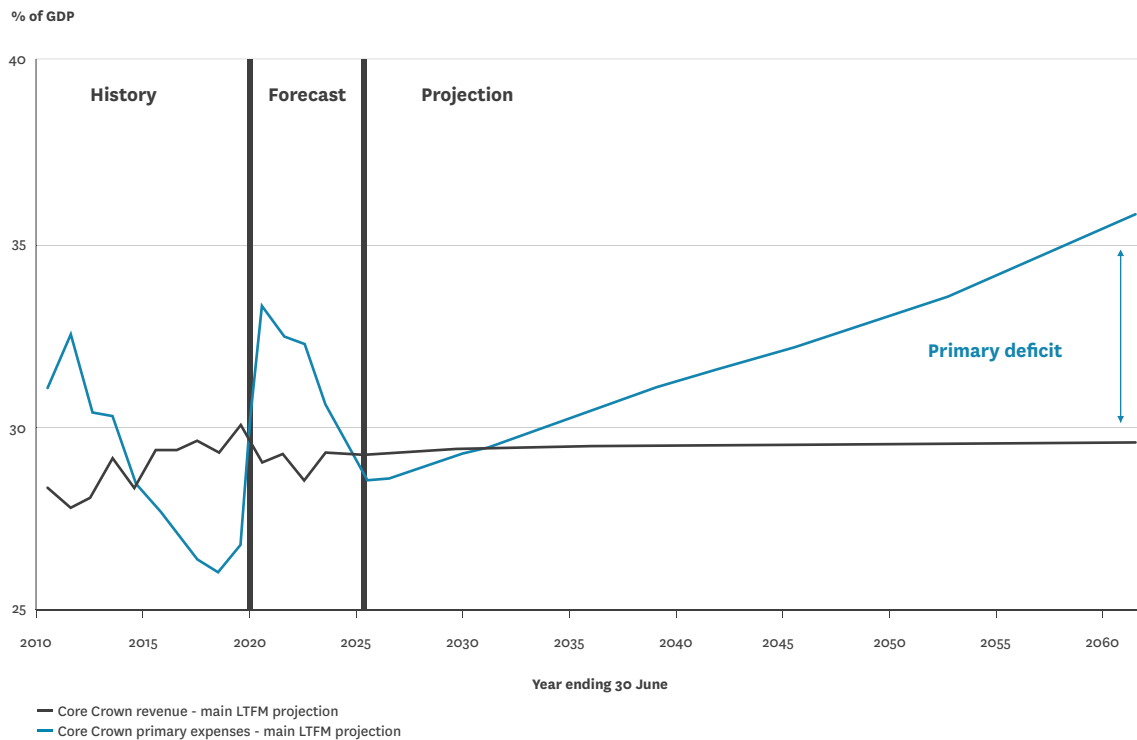
In addition to the size of any policy adjustment, governments have choices about when they make any policy changes to address long-term fiscal trends.

There are different choices at either end of the spectrum. Governments could make significant and immediate changes now that improve the fiscal position and reduce debt. Alternatively, they could take a more phased approach which involves making small and gradual changes to reduce the gap between expenditure and revenue to stabilise debt over time.

⁵⁸ While low debt levels support fiscal resilience to shocks, increasing debt can build resilience in other ways. For example, increasing debt to invest in more earthquake-resilient buildings is costly now, but can reduce the negative impacts of earthquakes in the future. The background paper: *How fiscal strategy affects living standards* discusses these issues further.

⁵⁹ <https://www.treasury.govt.nz/sites/default/files/2019-06/sp-fiscal-lecture-prudent-debt-14jun19.pdf>

Figure 19: Core Crown revenue and primary expenses, % of GDP (historical trends scenario)



Source: LTFM

Governments are faced with more complexity and uncertainty than in previous years in making this choice. For example, we don't know how long the COVID-19 recovery is going to last and whether there may be resurgences which lengthen out the recovery period. In making this choice, governments will also need to consider the broader welfare and other implications of the policy option being used to make the policy adjustment.

Acting sooner rather than later would make a larger impact on our long-term fiscal position for comparatively smaller policy changes, which could support the wellbeing of future generations. However, that would mean additional economic and social costs now, rather than smoothing them over time. As time goes on, we are likely to have more information about some of the big uncertainties that we face in this Statement in particular. But there will never be a time when we have all the information about the future.

Therefore, in making a decision about when to act (and how hard) the following factors require consideration:

- **Where we are in the economic cycle** – making immediate and large spending changes when the economy is recovering from a shock is likely to come with economic costs;
- **What are the broader wellbeing implications of policy options** – policies which have significant impacts on certain groups or behaviours may require careful phasing as this could further exacerbate fiscal sustainability challenges;

- **How long will it take for policies to have an impact** – this is likely to be different depending on the policy areas and the levers available to Government (e.g. the impact of tax changes can be seen immediately); and
- **What are interest rates and growth rates doing** – judgements on what the new long-run debt target is and how much of a buffer we want to rebuild will help determine whether action in the near-term is necessary.

Overall, it is important to think about these changes now given the trajectory of our long-term expenses. Policies often have long lead times and it is important that any changes are signalled in advance, giving time for people to adjust. Small and gradual changes in the nearer-term could help to minimise the cost of fiscal pressures across generations, preventing higher debt and a larger adjustment in the future. There are also likely to be costs to delaying action, particularly if interest rates start to rise (increasing our debt servicing costs).

The policy options discussed in the following sections are all assumed to be implemented from the 2025/26 fiscal year to illustrate their impact, but governments could choose to implement them earlier or later. There are also choices around how these policy options are phased over time.

2.3

Managing healthcare expenditure

- Health expenditure is projected to grow to over 10% of GDP by 2061, up from about 7% today. This reflects both demographic change and the fact that health expenditure tends to grow more quickly than income over time in most economies.
- New Zealand's health system is comprehensive and supports our collective wellbeing. But it is also complex and fragmented. Government has limited levers to control spending. Delivering substantial efficiencies or productivity gains is likely to need reform that improves the underlying incentives and behaviour in the system.
- We have modelled the fiscal impact of health spending growing more slowly over time. Achieving the upper end of those scenarios would likely require tough choices. Governments would need to weigh the impact of those choices against accommodating more significant increases in the cost of healthcare over time. This will involve judgements around what society values the most, which is likely to be different for different generations.

This section sets out how managing the growth in government expenditure could support fiscal sustainability and the impacts that could have on our broader wellbeing. Healthcare spending is central to the long-term fiscal challenge because it is a large and growing part of total government spending.

2.3.1 Healthcare in New Zealand

Health expenditure has been rising significantly and this is likely to continue in the future. The historical trends base scenario shows that health expenditure is projected to increase from 6.9% in 2020/21 to 10.5% of GDP by 2060/61 if there are no changes to current settings. This growth is consistent with international trends as modelled by the OECD.⁶⁰ and illustrated in figure 20 below (noting that the level of government expenditure on health is likely to be different for different countries depending on the nature of their health system).

We have considered two alternative spending pathways for health in New Zealand that allow healthcare expenditure to continue to grow, but at a slower rate than in the historical trends scenario.

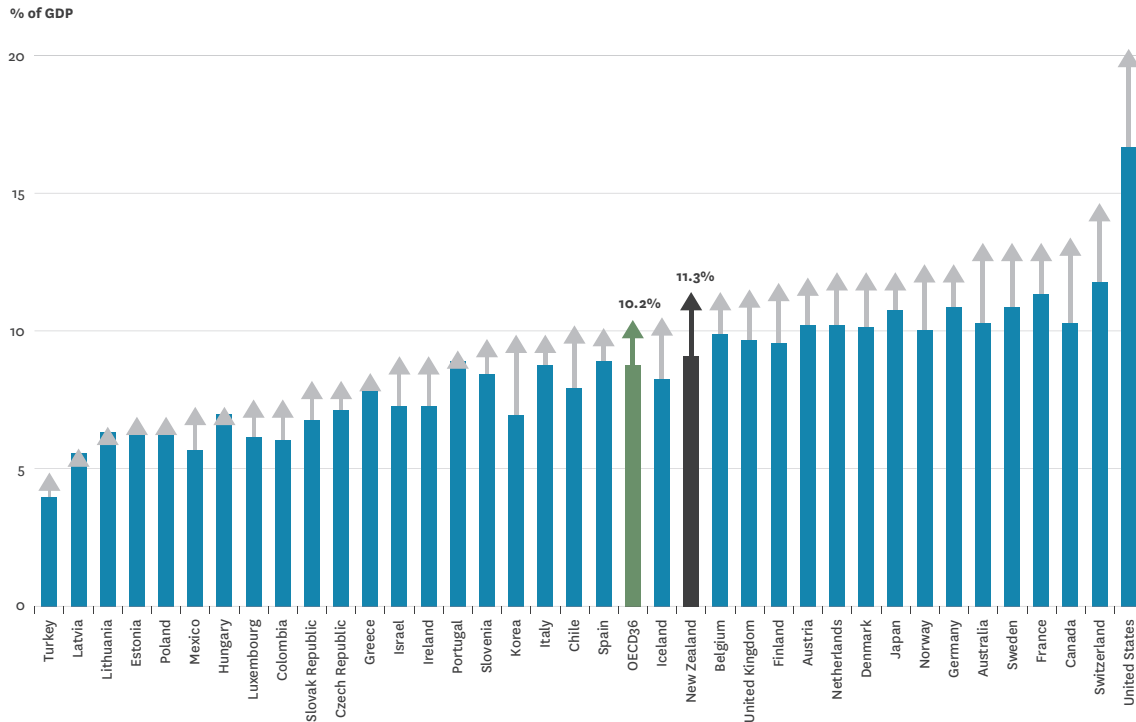
- Scenario 1: reducing the growth of health spending by 0.1% on a cumulative basis to 2060 (health expenditure is 0.3% of GDP lower by 2060 relative to the *historical trends* scenario)
- Scenario 2: reducing the growth of health spending by 0.5% on a cumulative basis to 2060 (health expenditure is 1.7% of GDP lower by 2060 relative to the *historical trends* scenario).

These scenarios align with the OECD's overall approach to illustrating different health spending projections for member countries.⁶⁰

New Zealand has a national healthcare system which is primarily publicly funded and provides a broad coverage of services. These services are delivered by a mix of public and private providers and there are some costs which are passed on to users but still subsidised by the Government (for example, GP visits). Box 2 sets out how this public health system supports our wellbeing as a country.

⁶⁰ Lorenzen, L et al (2019) Health Spending Projections to 2030: New results based on a revised OECD methodology, OECD Health Working Papers, No. 110, OECD Publishing, Paris, <https://doi.org/10.1787/5667f23d-en>

Figure 20: Total health spending as a share of GDP by country (2015 and 2030 projections)



Source: OECD

Box 2: The purpose of New Zealand’s public health system and broader wellbeing implications

Our free (or low cost) at the point-of-need health system reflects an implicit social contract which embodies manaakitanga, an ethic of care, and the expectations that health is fundamental to overall wellbeing/wairua and that all people should be able to access it in the same way. The purpose of the New Zealand Health and Disability System, as set out in legislation, is that it is strong, effective and delivers equitable health outcomes for all New Zealanders.⁶¹ This includes:

- Achieving for New Zealanders the overall improvement, protection and promotion of their health;
- Reducing health disparities by improving the health outcomes of Māori and other population groups (kotahitanga) and working with these groups to do this (tino rangatiratanga/self-determination/sovereignty);
- Providing the best care or support for those in need of services (mana tautuutu/fulfilling rights and obligations to the community); and

- Promoting the inclusion, independence, and social and economic participation of all people, including those with disabilities (mana tuku iho/ inclusion and sense of belonging and mana āheinga/ability to fulfil aspirations).

There are a number of social determinants to good physical and mental health (for example, stable housing, employment and the wellbeing of the environment, taiao) but good health also impacts on other things such as an individual’s ability to fully participate in society and contribute to the stock of human capital over time. In this respect, health is also fundamental to overall economic growth. Analysis shows that health status is strongly correlated with overall subjective wellbeing for New Zealanders⁶², which means that maintaining the health of the population as it ages will be important for sustaining wellbeing and is a key determinant of mana āheinga – the ability to fulfil one’s aspirations.

61 New Zealand Public Health and Disability Act (2000).

62 New Zealand Productivity Commission (2016). Subjective Wellbeing in New Zealand – some recent evidence. See <https://www.productivity.govt.nz/research/subjective-wellbeing>

Controlling spending has historically been challenging in the health sector as the drivers are multiple, difficult to control, and interdependent. These drivers are a combination of volume changes (the health system is expected to do more) and price increases (providing care costs more over time), and include:

- **Demographic change** – our growing and ageing population puts increasing pressure on the health system as there are more people who need care, and more people facing more significant (and more complex) health issues later on in their life.⁶³
- **Increase in expectations** – as incomes increase, people's expectations and demand for what the healthcare system should deliver also increase.⁶⁴
- **Wages and productivity** – the health sector is labour intensive, and so while productivity tends to grow more slowly than the economy as a whole, wages need to rise to keep pace with the economy as a whole.
- **Technological change** – technology has extended the scope of health services, with significant wellbeing benefits, but this often comes at higher cost (for example, more specialised training and resources are required, so that individuals can benefit from the new technology).⁶⁵
- **Socioeconomic factors** – wider determinants of health and wellbeing can affect health costs such as poverty, housing, employment and social support systems.

Health costs can also be influenced by system settings and government decisions around funding levels. Our system is comprehensive, but it is also complex and health services are provided through a mix of government, non-government, and private organisations. Different accountability arrangements and funding mechanisms exist between all of these providers and services often vary depending on where they are provided. For example, in the places where after-hours accident and urgent medical centres are accessible, people can see a specialist outside of work or General Practice hours if needed, and the centres can also reduce pressure on emergency department wait times; however these centres are not accessible everywhere, which means people experience different standards of care in different parts of New Zealand.

While variability in services has an impact on costs, it also has significant implications for equity of access, particularly for groups such as Māori and Pacific Peoples who may also face barriers to accessing other government services. An example of this inequity and variability can be seen in

statistics for hip operations, with the percentage of Māori having an operation for a hip fracture on the same or next day of admission to hospital having decreased steadily since 2013, whereas the percentage for non-Māori has consistently increased.⁶⁶ More generally, there are significant disparities across a wide range of health status indicators between Māori and non-Māori, with varied improvements across time.⁶⁷

2.3.2 Reforms to New Zealand's health system

The Government has announced major reform to the health system to address these issues with a goal to improve the quality, consistency, and equity of care.⁶⁸ This includes making structural changes to how healthcare is delivered to ensure the system is simpler and more coordinated for both those who provide, and those who receive, services.

Current health projections are based on the existing system settings and historical growth rates in expenditure. Over the longer-term these reforms are expected to have an impact on fiscal sustainability and the trajectory of health expenditure (see options presented in section 2.3.3 below on reducing inefficiency); however this is difficult to quantify at this point. More importantly, the focus of the reform is much broader in terms of tackling inequities in the current system, which could lead to further increases in expenditure. The COVID-19 pandemic has also highlighted the importance of managing risks by investing in health protection functions (e.g. public health units), which could involve upfront costs but have an impact on fiscal sustainability over the long-term.

Even in a reformed health system, health spending will still continue to increase given the underlying drivers of expenditure set out above. The key fiscal challenge is how significant spending growth can be managed to a sustainable level while at the same time ensuring consistency, quality, and equity in health outcomes.

2.3.3 Alternative pathways for health expenditure under current settings

This section sets out alternative health spending pathways and discusses the implications and trade-offs of each. These scenarios are illustrative only and are not intended to model what could potentially be achieved from health reform; however they do draw on some of the options and changes recommended through the Health and Disability System Review (HDSR).

63 Relative to the impact this has on New Zealand Superannuation costs, population ageing only accounts for around 25% of the projected increase in health expenditure as outlined in section 1. The projections also assume some level of healthy ageing which offset some of the health costs related to population ageing.

64 Lorenzen et al (2019) measure the income effect using an income elasticity of health spending, which captures the percentage change in health expenditure in response to a given percentage change in income. Current evidence using international panel data shows this income elasticity to be around 0.7-0.8 for OECD/high-income countries.

65 This driver is more complex and there are a number of interdependencies with other drivers. For example, technological change may have an impact on demographic change and life expectancy and shapes productivity and to some extent consumer demand as incomes increase (Lorenzen et al, 2019).

66 Health and Disability System Review: <https://systemreview.health.govt.nz/assets/Uploads/hdsr/health-disability-system-review-final-report.pdf>

67 Wai 2575 Māori Health Trends Report (2019) – <https://www.health.govt.nz/system/files/documents/publications/wai-2575-maori-health-trends-report-04mar2020.pdf>

68 <https://dpmc.govt.nz/sites/default/files/2021-04/health-reform-white-paper-summary-apr21.pdf>

Figure 21 below shows how much difference it would make if the health expenditure growth curve was reduced by 0.1% and 0.5% per annum, respectively. Healthcare spending would continue to grow in the future, but not to the extent that the historical trends scenario (and known trends such as population growth and inflation) suggests.

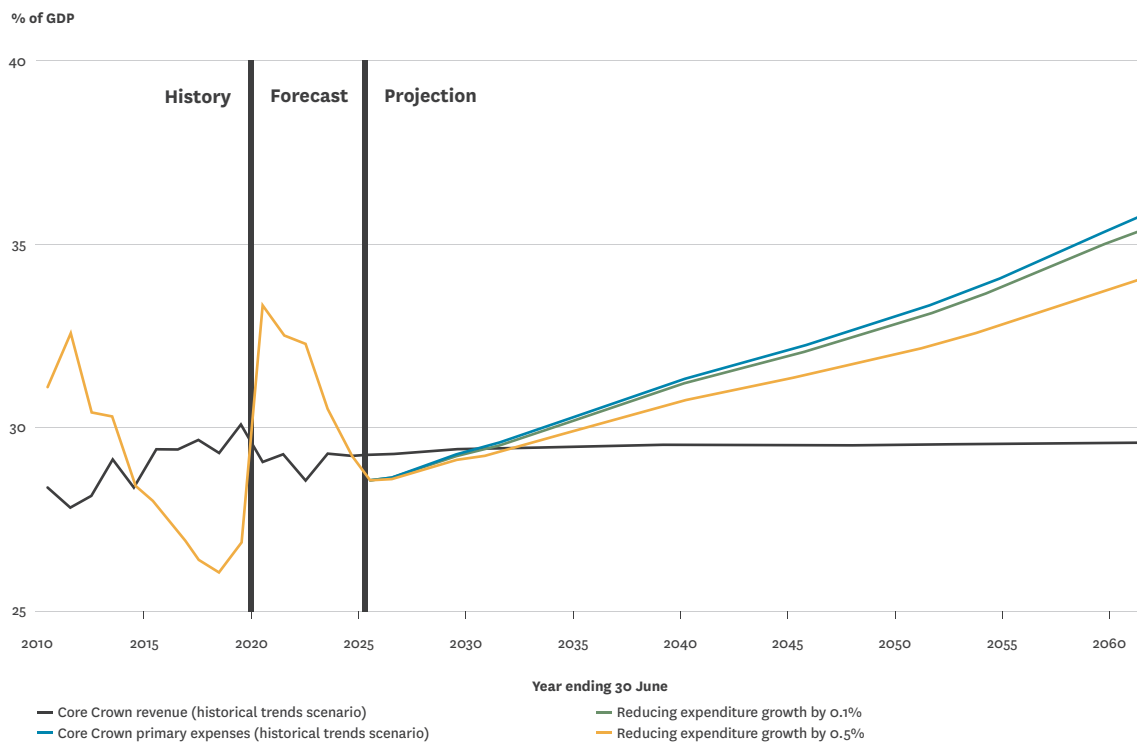
As figure 21 shows, reducing the growth of health expenditure by 0.1% and 0.5% respectively has a small-to-modest impact on reducing the primary deficit. Even a lower projected spending growth track for health still implies that spending will grow faster than the overall economy given the drivers set out in section 2.3.1.

New Zealand’s health system is predominantly publicly funded, so the government can control the funding it receives through the amount of additional funding injected into the system each year. However, as the above historical trends illustrate it would take more than the government’s ability to set budgets to achieve a lower rate of growth.

Some savings in health could be achieved with little impact on service levels, or a change in outcome for the people who receive those services – we might call this ‘reducing waste’, or ‘improving inefficiency’. The HDSR recommendations capture a lot of these options with a focus on where the current system is not delivering outcomes. We know that there is a lot of variability and duplication in the provision of current services, so there could be some opportunities to gain efficiency or productivity savings through:

- **Avoiding unnecessary hospital care** – the OECD⁶⁹ notes that avoidable hospital admissions for conditions that can be managed in a primary care setting “put an important yet avoidable financial burden on healthcare systems”. This puts emphasis on increasing the availability, accessibility and quality of primary care services⁷⁰ (which is likely to involve more upfront investment for longer term gains in health costs and outcomes). Alternatively, greater spending on primary care and community care could also shift costs by uncovering unmet health needs or if services now need to be provided in multiple locations and homes instead of one ward. Another key consideration is how primary care can provide holistic support which addresses not only health issues and inequities but wider social determinants which are critical for overall wellbeing (for example mental health, unemployment and unstable housing conditions).
- **Implementing workforce changes** which allow for better triaging of patients at the community level (for example, nurses and pharmacists playing a greater role in addressing patient needs). Studies show that around half of OECD countries have expanded the scope of practice for non-physicians between 2007 and 2012 and, if managed well, “such changes could produce cost-savings with no adverse effects on quality of care”.⁷¹ The Health and Disability System Review also noted that there is scope to change the role of the paramedic workforce in the future (ambulance

Figure 21: Alternative government spending pathways for health, % of GDP



Source: LTFM

69 OECD (2017) Tackling Wasteful Spending on Health, OECD Publishing, Paris, <https://doi.org/10.1787/9789264266414-en>

70 OECD studies show that there is a negative association between ease of access to primary care and the use of emergency departments. For example, Germany and Netherlands, where more people report easy access to after-hours care, have relatively fewer ED visits. Further, a study of England shows that emergency admissions for ambulatory sensitive conditions could be reduced by between 8% and 18%, producing savings between \$96-\$238 million a year.

71 OECD (2017) Tackling Wasteful Spending on Health, OECD Publishing, Paris, <https://doi.org/10.1787/9789264266414-en>

services) such as providing treatment at home or at the accident location.⁷²

- **Better coordination and consistency of care** (for example, through more digitisation of services such as telehealth), which could help reduce administration costs and increase productivity. One example of this is the use of Health Technology Assessments (HTAs), which will provide a consistent base of evidence on the effectiveness of new technologies and interventions. The capacity for this is currently dispersed in New Zealand compared to, for example, the UK, where there is a dedicated National Institute of Clinical Excellence (NICE).⁷³
- **Exploring efficiencies available through centralisation** – for example, since 1993, Pharmac, a New Zealand government agency, has been the sole purchaser of publicly funded pharmaceuticals. According to Pharmac estimates, based on pharmaceutical prices in 2005 mapped onto actual prescribing activity, joint procurement allowed for cumulative savings of about \$5.1 billion between 2005 and 2015, including around \$1.9 billion in 2014/15.⁷⁴
- **Focusing on health promotion and social determinants** – this includes broader population and public health measures which promote healthy behaviours to curb major risk factors around smoking, alcohol consumption and obesity. For example, the Health and Disability System Review notes that further work is needed to scale up health promotion efforts on non-communicable diseases (e.g. respiratory diseases, cancer, and

diabetes) and implement more comprehensive screening programmes. Much of the health loss and inequities around these diseases are related to the common risk factors mentioned above.⁷⁵ However, it is worth noting that governments will not see immediate pay-off from initiatives investing in prevention, and it is important to take a long term view of the ability of such initiatives to reduce costs in the system.

Although the initiatives above can help to reduce health expenditure growth, they are unlikely to achieve a permanent and significant reduction in healthcare spending growth (at least in the short-to-medium term) and could also involve increased upfront costs.⁷⁶ While they can support a more moderate rate of expenditure growth, the underlying drivers of healthcare spending growth remain.

The changes and options discussed above also assume that the system is already sustainably funded and the government has levers to ensure that lower funding levels lead to providers changing their behaviour. This is not always the case, as demonstrated by provider deficits (as explained in box 3 below). This reinforces the need for reform (including a refresh of system and accountability settings) before productivity and efficiency gains can be expected across the system.

Making any more significant or more immediate fiscal savings in health (as seen in the scenario above, which reduces growth by 0.5%) is likely to have an impact on access and health outcomes. Two examples of this include:

Box 3: Current context – DHB deficits

District health board deficits have become a feature of New Zealand’s health system in recent years. Deficits exist where a DHB has spent more than it has received in revenue in a given year. The majority of revenue received by DHBs comes from the government. In 2019/20, the consolidated deficit across New Zealand’s 20 DHBs was \$1.049 billion (around 6% of total revenue for DHBs⁷⁷). About half of these costs reflected in the deficit relate to one-off (or unanticipated) costs that are difficult to plan for, including statutory remediation and COVID-19 response costs; however, the existence of deficits can be viewed as evidence for the relative lack of control the government currently has over health system

expenditure growth – in other words, in the current system the government cannot control the cost of the health system simply through limiting the funding (revenue) provided.

Because deficits have grown significantly in recent years, additional DHB spending (over and above the revenue received from the Crown) is unlikely to be fully reflected in expenditure projections for Core Crown health, which are based on historical funding trends. If these deficits continue to increase, this has significant implications for financial sustainability in health beyond what is modelled through the historical trends scenario presented in section 1.

72 Health and Disability System Review: <https://systemreview.health.govt.nz/assets/Uploads/hdsr/health-disability-system-review-final-report.pdf>

73 Health and Disability System Review: <https://systemreview.health.govt.nz/assets/Uploads/hdsr/health-disability-system-review-final-report.pdf>

74 OECD (2017), Tackling Wasteful Spending on Health, OECD Publishing, Paris, <https://doi.org/10.1787/9789264266414-en>

75 In 2017, non-communicable diseases were the leading category of health loss in New Zealand and more than a third of health loss (38.6%) is potentially avoidable by reducing modifiable risk factors. Taken from: Ministry of Health (2020). Longer, Healthier Lives: New Zealand’s Health 1990–2017. Wellington: Ministry of Health.

76 This is particularly evident in the case of IT investment, which has significant productivity benefits, but is expensive, and takes time to train to use.

77 <https://www.health.govt.nz/system/files/documents/pages/schedule-ye-30-june-2020-audited.xlsx>. Note this excludes inter-district flows; <https://www.health.govt.nz/new-zealand-health-system/key-health-sector-organisations-and-people/district-health-boards/accountability-and-funding/summary-financial-reports/dhb-sector-financial-reports-2019-2020>

- Rationing services or introducing higher thresholds for access. This could also include introducing higher co-payments for certain services, such as GP visits; and
- Reconsidering the balance of responsibility that the Government takes on relative to the private sector in providing healthcare services. Under this scenario, there would be a widening gap between what is provided free by the public health system and the full range of health services and treatments that New Zealanders will want to access.

2.3.4 Impacts and trade-offs of lower health spending growth

This section looks at the broad impacts of the policy changes mentioned above with a focus on the impacts of increasing co-payments or changing the mix of public-private provision of health services:

- **Macroeconomic impacts:** there are impacts on both financial and human capital from increasing co-payments or changing the mix of public-private provision. Adopting a lower public health spending growth track could lead to more efficient use and delivery of services, which would improve overall productivity. On the other hand, if some people are missing out on services and therefore compromising on their health, this could impact the wider economy through their ability to work as well as participate fully in society and fulfil their aspirations (mana āheinga).
- **Distributional impacts (across different groups and over time):** increases to co-payments as a way of rationing services will have an impact on low-income groups and those who already face significant barriers to access under current system settings. For example, the most recent New Zealand Health Survey found that in 2019/20 more than one in five Māori adults had not visited a GP due to cost barriers and around 12.7% of Māori adults had not collected a prescription due to cost.⁷⁸

If cost is already a barrier, increasing co-payments for primary healthcare could lead to further downstream costs as the demand for hospital care increases and through higher rates of long-term illness if people can't access primary care. We already see evidence of this through high rates of hospital admissions for conditions that would have been treatable in a primary care setting for Māori compared to non-Māori.⁷⁹ Māori and Pacific Peoples are also known to face multiple and complex health issues with higher presentations of, for example, obesity and respiratory illness.

If the government decides to stop publicly providing certain services, this is also likely to have the most impact on those who are on low incomes and have lower savings. This could be seen as undermining manaakitanga, an ethic of care, towards those who require support in accessing health services.

A lower health spending track is likely to have intergenerational impacts. For example, future generations may not be able to enjoy the same level of healthcare as previous generations if the government has to start looking at reducing access or increasing co-payments.

- **Other socioeconomic impacts:** interdependencies exist between health and other social determinants. If people aren't getting good access to healthcare, this could have an impact on their ability to sustain housing or remain in employment and therefore their overall subjective wellbeing (mana āheinga). The causal effect also works the other way, where poor housing can lead to poor health, as we have seen through high rates of rheumatic fever amongst Māori and Pacific children and young adults (primarily due to damp and cold housing as well as overcrowding).⁸⁰

Further, Māori and Pacific Peoples are likely to be a higher proportion of the working-age population in the future, which means it is going to be even more important to consider the wider social determinants that have an impact on their waiora (wellbeing).

Changing the mix of services provided by the public health system could have an impact on social capital. The right to public healthcare is ingrained in our culture and making any significant shifts away from this to improve fiscal sustainability could affect the level of public trust in government.

Overall, the exact impacts will depend on which services are still under public provision and how the costs of these services are distributed. Better targeting public services to those most in need (for example, means testing or progressive co-payments) could help to offset some of the equity impacts described above but would likely involve a higher administrative cost.

78 New Zealand Health Survey (2019/20): <https://www.health.govt.nz/publication/annual-update-key-results-2019-20-new-zealand-health-survey>

79 Between 2002 and 2017 Māori children aged 0-4 years have an approximately 20% higher ASH rate than non-Māori children of the same age group. Taken from: Wai 2575 Māori Health Trends Report (2019) – <https://www.health.govt.nz/system/files/documents/publications/wai-2575-maori-health-trends-report-04mar2020.pdf>

80 <https://www.health.govt.nz/our-work/diseases-and-conditions/rheumatic-fever>

2.4

Responding to demographic change

- New Zealand Superannuation (NZS) expenditure is projected to grow from 5.0% of GDP in 2020/21 to 7.6% of GDP by 2060/61 as a result of demographic change. The NZS Fund smooths this increase but does not fully fund it.
- We have modelled the impact of increasing the age of eligibility for NZS from 65 to 67 and increasing NZS payments in line with inflation rather than wages. Both options would generate substantial long-term savings and could have economic benefits; but they would most affect those least able to work in older age and on lower incomes.
- Any changes to NZS would benefit from being signalled well in advance to enable those affected to make work, saving, investment, and retirement decisions in an informed way.

This section sets out how governments could respond to the impact of demographic change on NZ Superannuation (NZS) expenditure. It sets out the key features of New Zealand's retirement income system, and provides two illustrative changes governments could consider: changing the age of eligibility; or slowing the rate at which NZS payments grow.⁸¹

2.4.1 New Zealand's retirement income system

NZS is available from age 65 to residents who have lived in New Zealand for ten years since age 20, with five of those years after age 50. The level of NZS is increased every year to account for increases in inflation and wages. The net rate for a couple is currently set at 66% of the net average wage.

The government supports voluntary savings to supplement NZS income via KiwiSaver, which provides retirement income over and above NZS. It is an auto enrolment scheme with an option to opt out, which is intended to support increased saving for retirement. KiwiSaver members make contributions into a scheme of their choosing. Employers contribute an equivalent amount (up to a set level) and the Government also makes small annual contributions.

Annual NZS is largely funded from annual general taxation, but a "tax smoothing" role is played by the NZS Fund (NZSF). That means that taxpayers today are contributing more than they otherwise would, which is then invested to fund a proportion of NZS in the future, thereby reducing the need for higher taxes on future taxpayers. Box 5 discusses the NZSF in more detail.

The combination of demographic trends and current policy settings sees projected expenditure on gross NZS rising to 7.6% of GDP in 2060/61 in the *historical trends* scenario in section 1 of the Statement.

New Zealand spends less as a share of GDP than most OECD countries on public pensions. This is partly because New Zealand's age structure is younger relative to most other OECD countries, but also because NZS aims to provide a basic income, rather than aiming to replace (or smooth) pre-retirement incomes. In addition, many OECD countries make greater use of fiscal incentives to encourage private saving for retirement.

⁸¹ The New Zealand Superannuation and Retirement Income Act 2001 requires the Retirement Commissioner to review retirement income every three years. The Commission for Financial Capability (CFFC), as the Office of the Commissioner, released its latest review in December 2019.

Box 4: The role of NZS in supporting New Zealanders' wellbeing

The focus of NZS is on social protection rather than earnings replacement. Maintaining standards of living into retirement is left to individuals, who can supplement NZS by continuing to work, relying on family support, or by accessing voluntary savings.

Alongside social protection, we can infer two other principles that have guided pension policy in New Zealand. The first is that individuals are generally best-placed to make decisions about their own financial wellbeing. The second is that all citizens should derive a 'dividend' from their contributions to New Zealand's society and economy over the course of their lives, regardless of how much or how little market income they may have earned.

New Zealand's implied intergenerational contract assumes that people generally pay the most taxes during their working lives, but less at the beginning and end of life, when they are more likely to receive services and transfers funded by other taxpayers. Implicit in this intergenerational contract is a duty of care towards children/tamariki and elders/kaumātua. This aligns well with the principle of manaakitanga or showing proper care and respect. In the case of elders/kaumātua, this is both an acknowledgement of their mana and the contributions they have already made as well as the contribution they can continue to make in guiding future generations.

Older people are often carers, and often volunteer their time, provide community leadership, and facilitate the transmission of culture. This is especially significant for some population groups (e.g. Māori, Pacific and Asian communities). Their ability to do these things is likely closely linked to the income support provided by NZS, and is therefore likely to be affected by changes to it.

Box 5: The New Zealand Superannuation Fund⁸²

The NZSF began investing in September 2003, initially with \$2.4 billion. Since then it has grown to be one of the largest public financial assets, with a 2019/20 closing balance of \$44 billion, or 13.9% of GDP in that year.

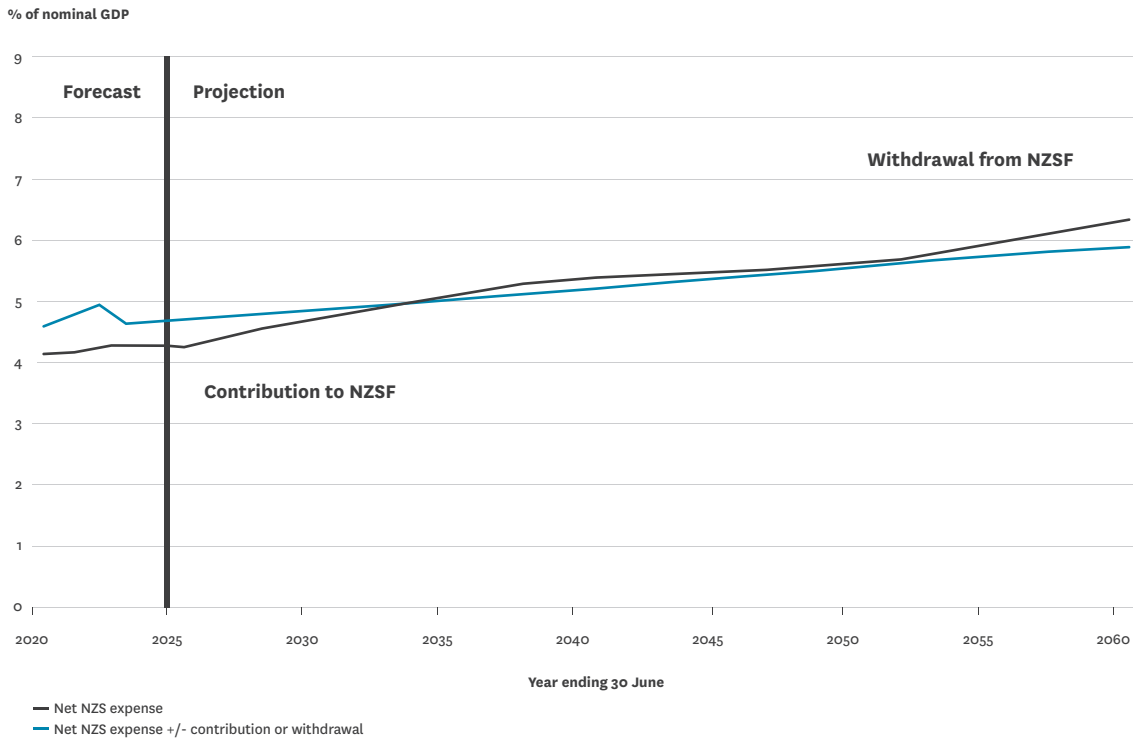
By contributing to the NZSF, taxpayers today are covering more than just current NZS expenses. Once withdrawals from the NZSF begin in future years, that money can be used to help taxpayers at that time cover NZS expenses, which will be higher than now, because of the ageing population. This "tax smoothing" role is illustrated by figure 22, which shows how net NZS expenditure is smoothed over time by the NZSF. In 2060 the NZSF will cover 0.4 percentage points of the 6.3% of GDP net cost, the rest being covered by tax revenue. In other words, in that year the NZSF will contribute around 6.6% of total net of tax NZS costs.

The main variables that affect the degree of tax smoothing by the NZSF are the projected paths, over the 40 years, of the Fund's balance and after-tax return rate, nominal GDP, and total net of tax NZS expenses. By its own estimates, since its inception, the NZSF has outperformed its reference portfolio return in the majority of years and so added significant extra after-tax earnings to its closing balance.

Although the Fund provides a degree of tax-smoothing, there is no explicit intergenerational link between taxes paid and NZS received.

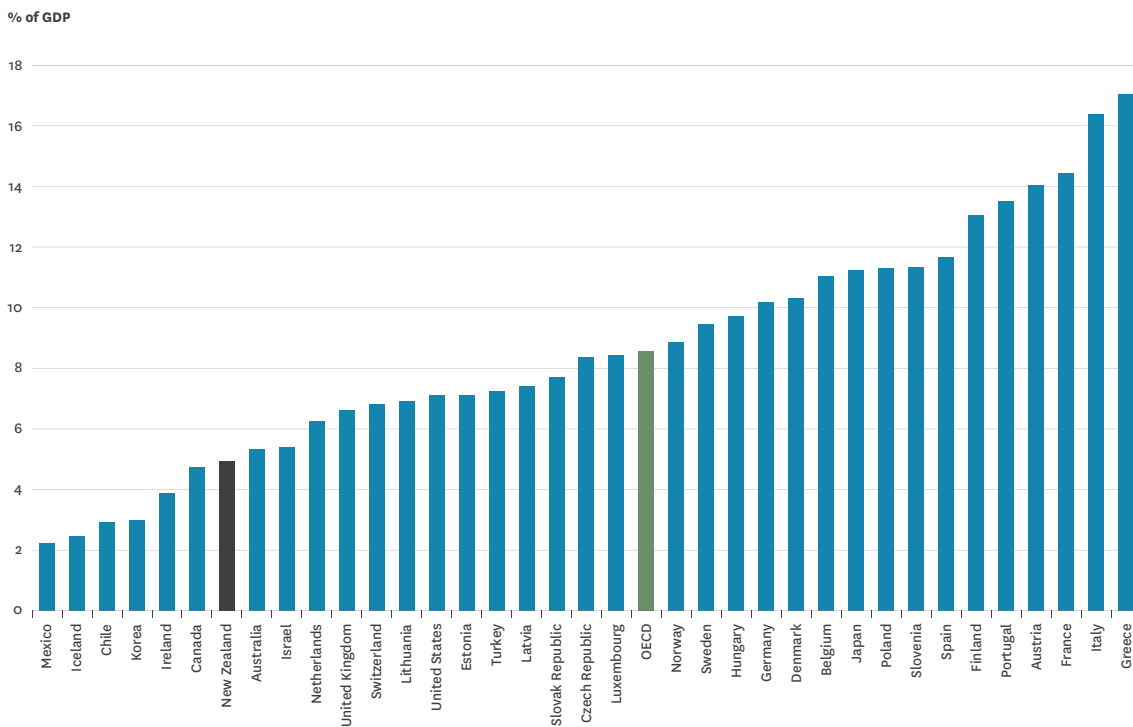
82 For more information see the background paper: *Golden years – understanding the New Zealand Superannuation Fund*.

Figure 22: Net NZS expenses vs net NZS expenses +/- NZSF contributions or withdrawals



Source: LTFM

Figure 23: Gross cost of public pensions (% of GDP)



Source: OECD

The age at which individuals are eligible for retirement benefits differs significantly across the OECD.⁸³ According to the 2019 OECD assessment, four countries had an age of 67 (Italy, Iceland, Israel and Norway). The same OECD assessment indicated that the age would increase from an average of 64.2 to 66.1 in the future, with 15 countries at or above 67 (including Australia). A small number of OECD countries have linked retirement ages to life expectancy (Denmark, Estonia, Finland, Italy, the Netherlands and Portugal).

2.4.2 Raising the age of eligibility for NZS

This section examines the impact of raising the age of eligibility for NZS from 65 to 67 by 2030. In this scenario, the increase commences from 2025/26, the first year of the projection period. The change is phased in over the four years up to 2029/30, with the age increasing by six months every year.

Because this scenario involves a transition to a single new age of eligibility, the fiscal cost eventually settles on a path parallel to and below the current NZS projection. Overall, lifting the age of eligibility to 67 reduces future expected costs by around 0.7%⁸⁴ of GDP once fully in place, but as a “level shift” does not change the fact that NZS expenditures would grow as a share of GDP in the long-term.

This option would have a range of impacts and trade-offs, including:

- **Macroeconomic impacts:** individuals could respond by working for longer, living more frugally, relying more on family support before they access NZS, increasing their savings at younger ages so they can continue to retire at 65, or some combination of these changes. The impacts on saving are difficult to quantify as they require assumptions about how different people will respond. Previous estimates indicated that lifting the age of eligibility from 65 to 67 could yield between 8% and 38% of GDP improvement in cumulative national savings by 2061 depending on how governments use the fiscal benefit.⁸⁵ That could increase the accumulation of physical capital and economic growth in the long-term.

Lifting the age of eligibility encourages higher levels of labour force participation among older people and therefore will have an impact on the stock of human capital over time. All else equal, more people working for longer would increase New Zealand’s level of GDP, and in many cases improve people’s own health and wellbeing.

- **Distributional impacts:** many people may prefer to retire earlier than 67. There are also individuals for whom NZS represents a higher income than they can earn during their working lives. The adjustment will have a greater impact on individuals or groups who have limited opportunities to work in later stages of their lives, especially those in physically demanding jobs who are unable to find other work.

Increasing the NZS age of eligibility also has implications for ethnic groups such as Māori and Pacific Peoples who have lower life expectancies relative to the rest of the population. The difference in life expectancy rates can have distributional impacts if, for example, the growth in life expectancy for Māori is lower than that of non-Māori by 2030 (which is when changes to the age of eligibility will take effect under this scenario). People with shorter life expectancies will receive less over their lifetimes, even though they may earlier have paid broadly similar net taxes and contributed to their elders’ pensions. Figure 25 shows that, although the life expectancies of Māori and Pacific Peoples are converging with the rest of the population, the gap is not expected to close in the next few decades.⁸⁶

NZS entitlements for the generations affected by the change will reduce relative to the status quo. Under this scenario, those presently approaching middle age will face the largest reductions in the length of time they can expect to receive NZS after having reached the eligibility age.

While this is also true of younger generations, Treasury analysis in 2014 found that increases in life expectancy would mean that average 20- and 40-year-olds could still expect to receive NZS for a longer time than those aged 65 years in 2013 in this scenario.⁸⁷ Average years in receipt of NZS will increase further over time unless the age is adjusted for increasing life expectancy on an ongoing basis.

83 OECD (2019) Pensions at a Glance 2019: OECD and G20 Indicators, OECD Publishing, Paris.

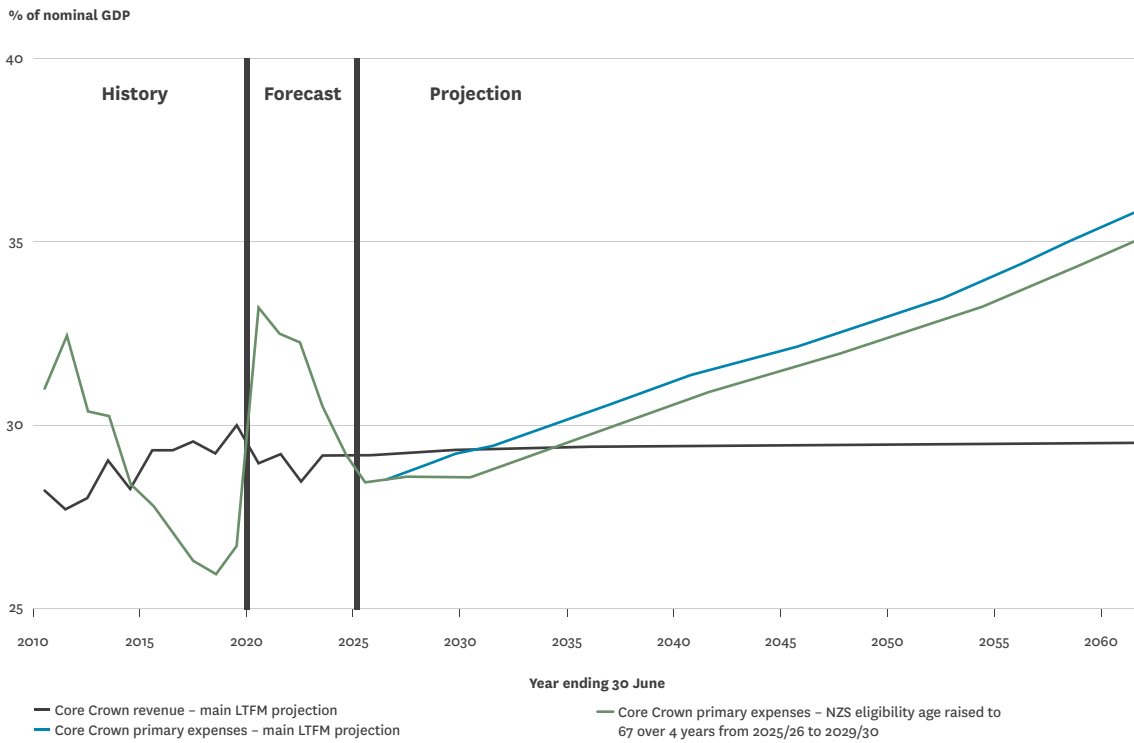
84 Note this does not reflect any flow-on costs to welfare assistance (for example, more people between the age of 65 and 67 seeking a working-age benefit if they are unable to work past 65).

85 See: David Law (2013) Retirement income policy and national savings, New Zealand Treasury Working Paper 13/28. The estimates cover the impact on the flow of national saving and the stock of national savings. The estimates include the effects of the policy on household saving and government saving. Under certain assumptions, improvements in national savings would translate one-for-one to improvements in the net international investment position (NIIP). However, a detailed examination of how the options might affect the NIIP are outside the scope of this paper.

86 Stats NZ. Note that life expectancy for Māori during 1980-1997 are the adjusted figures in Ajwani S, Blakely T, Robson B, Tobias M, Bonne M. (2003) Decades of Disparity: Ethnic mortality trends in New Zealand 1980-1999. Wellington: Ministry of Health and University of Otago. This adjustment is required because Māori mortality was undercounted during this period.

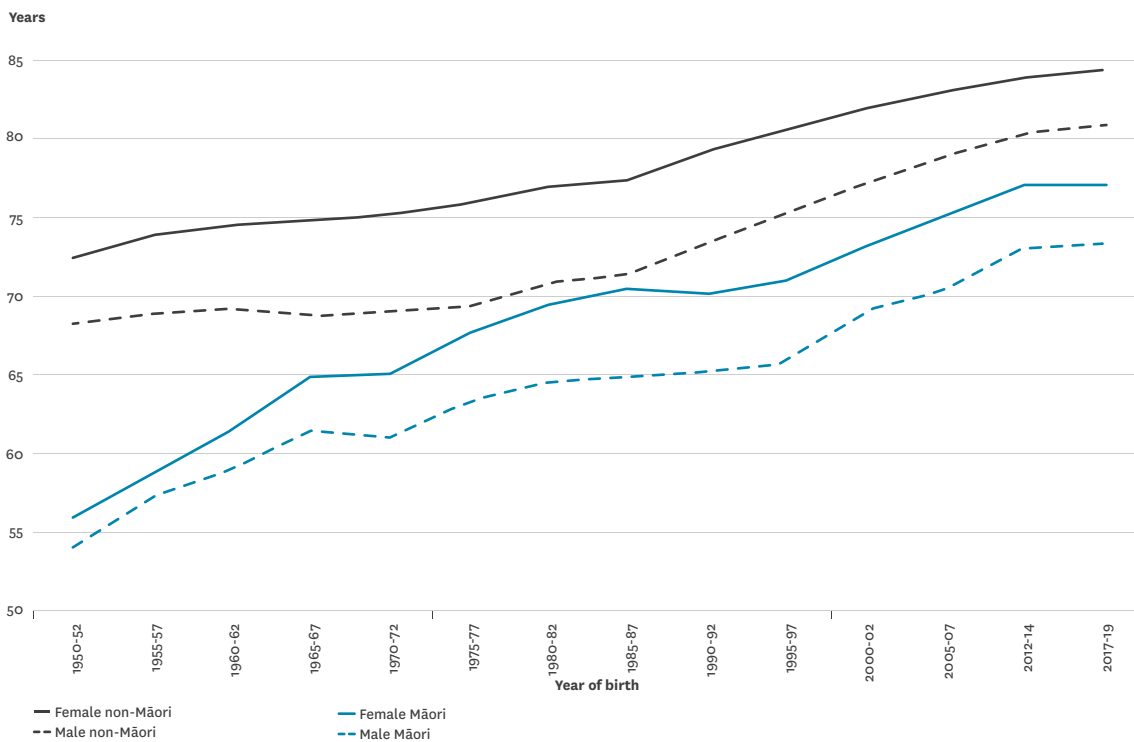
87 A summary, prepared in June 2014, was released in July 2017: <https://www.treasury.govt.nz/publications/information-release/new-zealand-superannuation-information-release>. The policy recommendations reached in 2014 are not indicative of the current Statement.

Figure 24: Impact of increasing the age of eligibility for NZS from 65 to 67



Source: LTFM

Figure 25: Life expectancy at birth, by gender, Māori and non-Māori

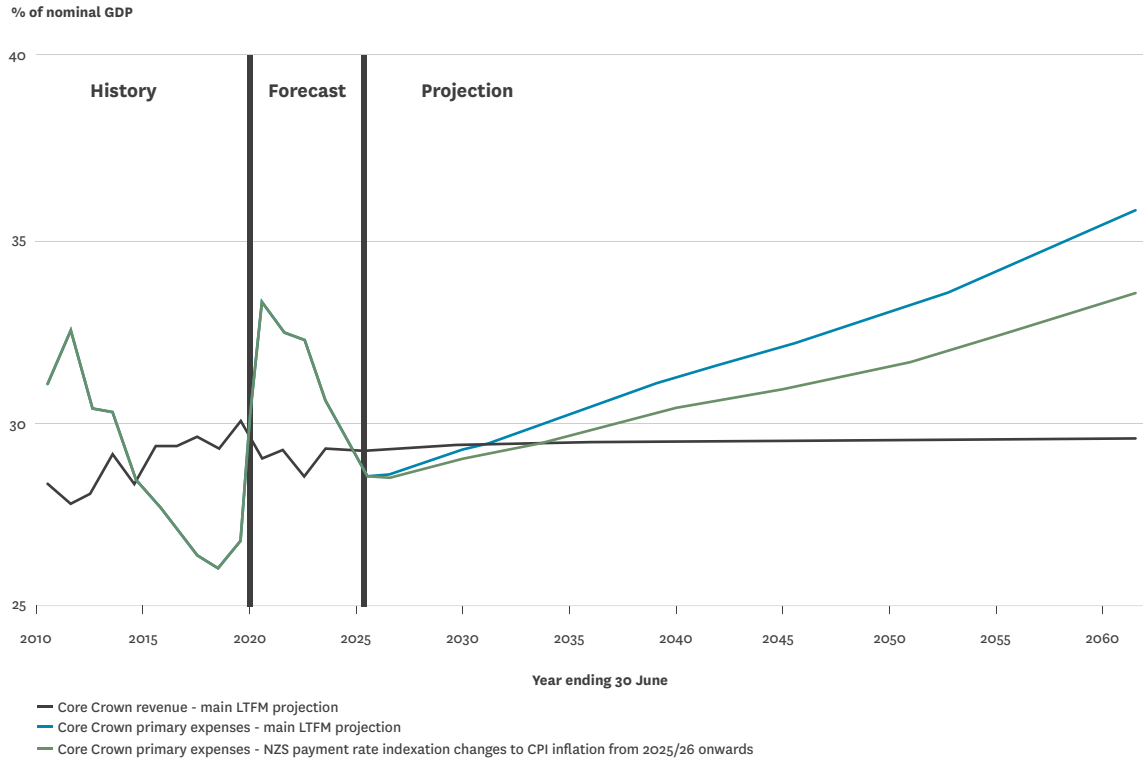


Source: Stats NZ

2.4.3 Reducing the rate at which NZS payments grow

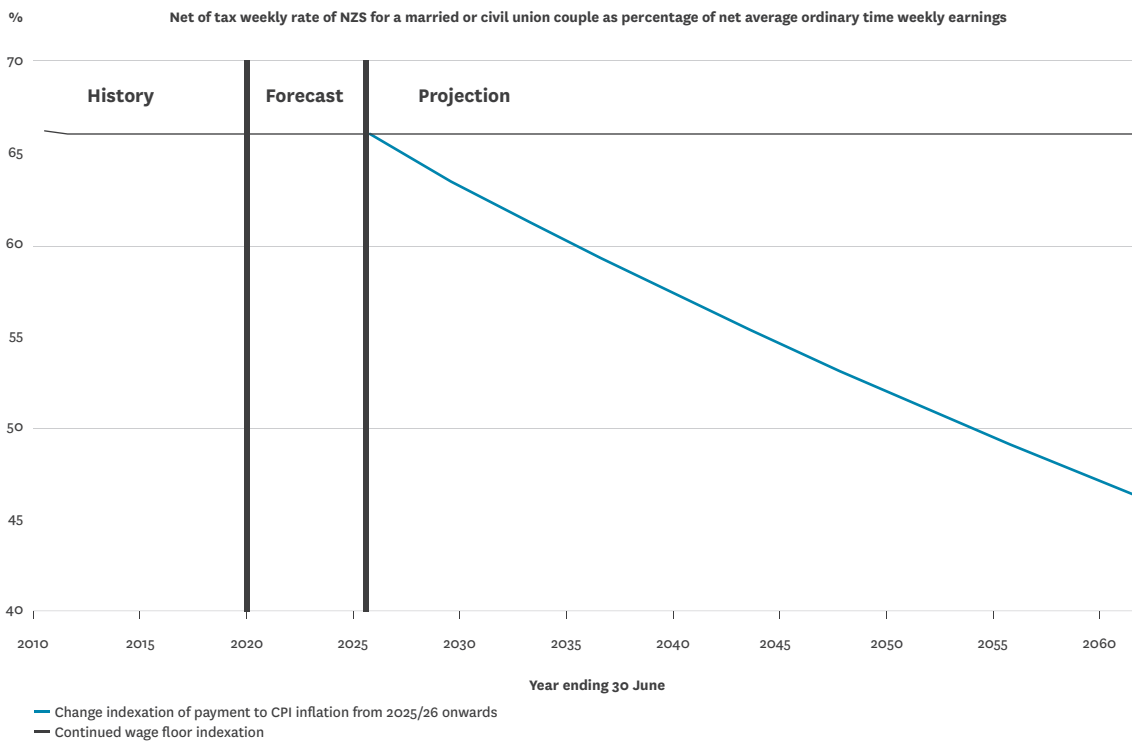
This section examines the impact of reducing the rate at which NZS payments grow to inflation rather than wages from 2025/26 onwards. While NZS would maintain its purchasing power, as a proportion of wages it is falling, and would fall below 50% of the average net wage in the 2050s.

Figure 26: Impact of indexing NZS payments to inflation rather than wages



Source: LTFM

Figure 27: Impact of indexing NZS payments to inflation rather than wages



Source: LTFM

This change would significantly reduce the future growth of NZS expenditure and the primary deficit, which would grow only slowly and peak in the 2030s before remaining relatively stable, and would be 2.3% of GDP lower than the baseline projection.

This option would have a range of impacts and trade-offs, including:

- **Macroeconomic impacts:** changing the indexation of payments could encourage people to save more in order to maintain their desired standard of living in retirement. It could also encourage people to keep working for longer. However, evidence on both these points is limited.

Compared to the lifting the age option, indexing NZS by price inflation is more likely to encourage an increase in saving among working-age people. This is because people are more likely to think that they can work for a few more years to fill the shortfall caused by a delay in their access to NZS, than they are to think that they can work or rely on their families for the whole of their retirement to fill the shortfall created by the lower real value of NZS throughout the period of their life post-eligibility.

Indexing NZS by the average of wage inflation and price inflation was estimated to yield between 30% and 87% of GDP improvement in cumulative national savings by

2061 depending on how governments use the fiscal benefit.⁸⁸ We would expect full price indexation to have an even larger impact. That could increase the accumulation of financial/physical capital and economic growth in the long-term.

This option would reduce NZS entitlements more than the age option (discussed above) and will also expose individuals to greater longevity risk by reducing their NZS entitlements through to the end of life. This option is therefore likely to have an even stronger impact on labour force participation (and therefore the stock of human capital) than lifting the age of eligibility for NZS.

- **Distributional impacts:** the largest impacts will fall in the short-to-medium term and on those who are currently close to, or already in, retirement, since they will have less opportunity to work or save to manage the impact on their standard of living. Unless people respond to the change by voluntarily building up more savings for their own retirement, this approach would be likely to undermine the effectiveness of the present system at preventing poverty in old age and enabling older New Zealanders to share in increases in national income which their labour and investment have helped to create.

88 Law (2013) does not model a price-only indexation option.

Changing patterns of home ownership are likely to add to concerns around old age poverty as we see an increase in the number of people not owning their own home. Given this, more people are likely to find NZS insufficient to live on if they are renting. This will disproportionately impact those on low incomes throughout their working life. Stats NZ data shows that between 1986 and 2013 the proportion of Māori and Pacific Peoples living in owner occupied housing fell at a faster rate than the overall population (down 20% and 34.8%, respectively).⁸⁹

Previous analysis of price indexing NZS has been carried out in the context of policy settings where main benefits in the income support system were at rates generally below NZS and where they were price indexed. Increases in main benefits and the introduction of wage indexation (since 1 April 2020) changes the context of the NZS price indexation option. Although price indexation would maintain purchasing power, if it is maintained over the entire projection period then NZS rates will fall relative to benefits. Currently, rates of main benefits are generally lower than NZS rates.⁹⁰ There may also be flow-on impacts to supplementary assistance (such as the Accommodation Supplement) if NZS payments are insufficient to meet costs of living.

Overall, a comprehensive assessment of the options would require more analysis around distributional impacts and the support role to be played by the income support system. For example, in 1992, the age of eligibility for NZS was increased from 60 to 61, with a further phased increase to

65 during the period 1993 to 2001. A Transitional Retirement Benefit (TRB) was payable to the people who were most financially affected by the increase in the age of eligibility. It was intended to smooth the impact of the increase, and was phased out by 2004.

People with different retirement circumstances, however those circumstances come about, will have different needs. Some of these needs are met through policies around health, accommodation and welfare benefits, or are left to individuals to address.

The 2019 Commission for Financial Capability (CFFC) review, together with the background paper by St John and Dale (2019) covers some of the changing context around retirement incomes and the pros and cons of the two options modelled in this chapter.⁹¹ That changed context includes the effects of the Global Financial Crisis, changes in the labour market and the nature of work, the rising cost of housing, and more recently the effects of COVID-19.

2.4.4 Other options to reduce NZS expenditure growth

There are a number of other options to manage growth in NZS expenditure including changing eligibility requirements for permanent residents, instituting mandatory private savings, and means testing NZS payments.

We have not considered these proposals in this chapter. However, box 6 below summarises previous work on a targeted option.

Box 6: Targeted options

New Zealand's current system provides a universal basic income to all people aged 65 and over, regardless of their circumstances. An alternative option is targeting payments based on those who might need it the most. A range of targeted options are possible. St John and Dale (2019) suggest a tax-based claw back system.⁹² While they provide a detailed assessment of the proposal and its impacts, the key features are to:

- Apply a 'basic income' approach to NZS so that it is paid as a non-taxable grant regardless of other gross income from work or investments. NZS becomes the New Zealand Superannuation Grant (NZSG); and

- Subject other gross income earned by pensioners to an alternative tax regime that is higher than usual tax rates (the proposal and modelling were relative to the tax system in 2019).

A number of scenarios using alternative NZSG rates and tax regimes were modelled by the Treasury on the assumption of no behavioural responses.

A scenario aligning single NZS rates to the married rate and applying a flat tax rate of 39% achieved fiscal savings of 23% (with 8.5 percentage points from rate alignment and the balance from the higher tax rate on other non-NZSG income). Even if the net NZS rates are not changed, the modelling indicated fiscal savings between 9% and 14% under the three tax regimes.

⁸⁹ Stats NZ (2016) Changes in home-ownership patterns 1986–2013: Focus on Māori and Pacific people. Available from www.stats.govt.nz

⁹⁰ An exception is the rate of Supported Living Payment sole parent, which is approximately equal to or higher than NZS rates.

⁹¹ For more detail on the income trends for older New Zealanders see Section I in: Bryan Perry (2019) Household Incomes in New Zealand: Trends in indicators of inequality and hardship 1982 to 2018. Wellington: Ministry of Social Development.

⁹² Susan St John and Claire Dale (2019) Intergenerational Impacts: The sustainability of New Zealand Superannuation, commissioned report for the 2019 Review of Retirement Income policies.

2.5

Raising tax revenue

- Our long-term projections assume tax will remain constant as a share of GDP. However, future governments could choose to raise additional revenue to manage long-term fiscal pressures.
- Raising additional revenue has economic costs, as it affects decisions to work, save, and invest in the economy or ourselves. The net impact on our wellbeing as a country depends on how additional revenue is spent, and who ends up paying the higher taxes. We have illustrated these trade-offs by modelling options to raise income tax revenue.
- There are many ways in which governments could seek to raise additional revenue from existing and new tax bases. All have trade-offs, and there is no “perfect” way to raise revenue, although some could come with smaller economic and social costs than others.

This section sets out how governments could seek to raise more revenue to respond to long-term fiscal pressures. It sets out the current state of New Zealand’s tax system, presents two illustrative options to raise more income tax revenue (through rate increases or so-called “fiscal drag”) and a summary of further options that could be available.

2.5.1 The role of tax in supporting New Zealand’s wellbeing

A well-functioning tax system supports the collective wellbeing of New Zealanders. The whakataukī “nāu te rourou, nāku te rourou, ka ora ai te iwi; with your food basket and my food basket the people will thrive” encapsulates this. Tax provides a source of revenue through which we as a country collectively provide services for one another and redistribute resources in a way that enhances our wellbeing.

How taxes are spent is as important for our collective wellbeing as the system that raises them – the net impact on living standards involves consideration of both the costs of taxation and the benefits of expenditure. However, this section will focus on our understanding of the narrower question of how we raise revenue and the impact of taxation in isolation.

Box 7: How raising additional revenue affects New Zealand's wellbeing

By their nature, taxes reduce individuals' or businesses' income. They will affect different communities and generations differently, and different tax levers will have different effects across levels of income and wealth, demographic groups, and generations. These direct effects are important in and of themselves, but their distribution and broader impact are critical to understanding how they affect our collective wellbeing as a country. The LSF and He Ara Waiora are two ways in which we can develop that understanding. Some of the key insights they offer when considering potential ways to raise revenue are:

- Higher taxes could reduce individuals' and businesses' ability or incentives to work, save, or invest in businesses, the economy, themselves, or their whānau, which could reduce financial and human capital. Tax changes could affect manaakitanga for Māori enterprise to the extent it affects their relationship to, and decisions on the basis of, the tax system.
- Ensuring tax changes are considered "fair" by taxpayers and wider society is important to maintain social capital and reflects the concepts of tika and pono. This includes ensuring that we consider how options affect different groups and generations, how options can result in unintended outcomes or avoidance that undermine trust, and whether options have particular impacts on Māori and the Crown-Māori partnership.
- Some taxes have broader objectives than raising revenue. Environmental taxes are a good example, where their primary purpose is to protect the environment and others from activity with large social costs, in doing so protecting the wellbeing of the natural environment (taiao), and could therefore support the tiakitanga of our environment and maintain natural capital.

These insights will often expose trade-offs; for example taxes that achieve more redistribution may come with larger economic costs.

This is not an exhaustive list of the impacts that decisions to increase or introduce new taxes can have on our wellbeing. Particularly from a te ao Māori perspective, there are various additional principles to consider, such as whanaungatanga, which may be relevant for some options but not others; and the impact of the tax and transfer system as a whole on manaakitanga and its different dimensions of fairness.

2.5.2 New Zealand's tax system

New Zealand raises taxes primarily from personal income taxes, GST, and corporate income taxes, which collectively account for nearly 90% of core Crown tax revenue and around 83% of core Crown total revenue.

Our long-term projections assume that core Crown revenue will remain at between 29% and 30% of GDP, but since 1970 that ratio has fluctuated between 25% and 35%. That can reflect the economic cycle, but also changes in Governments' preferences on how much to tax. Our current tax-to-GDP ratio is below the OECD average (figure 28), but New Zealand depends more than most OECD countries on a relatively narrow range of taxes on income and consumption – around 90% compared to an OECD average of around 70%. Provided that current taxes are considered fair and efficient, a relatively narrow range of efficient taxes could be the best choice for New Zealand.

There are other factors that could mean that the government collects a different amount of tax than we expect in the future. Many of those risks are on the downside, and reflect the fact that as the New Zealand and international economy changes, tax bases will change. This could mean that tax-to-GDP would be lower than our projections, requiring additional action to maintain fiscal sustainability. Box 8 explores some of those trends.

Box 8: Economic trends affecting long-term revenue sustainability

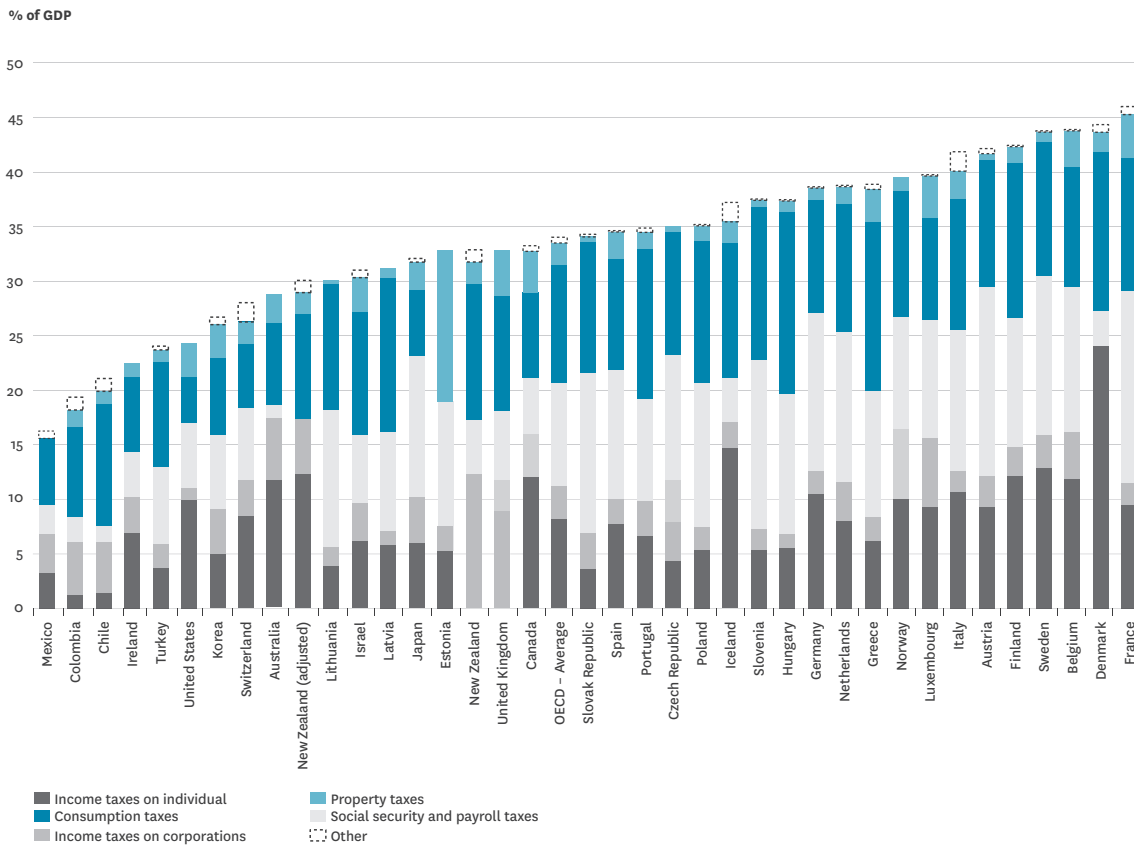
Economic trends may change either the size of the tax bases we tax, or the effective tax rate we are able to apply to them, which could mean that tax-to-GDP does not stay constant over time. Those include:

- Behavioural or technological changes: revenue from so-called “corrective taxes”, such as on smoking and environmental harm may fall over time as a share of GDP as a result of behavioural and technological changes (such as lower smoking rates or reduced environmental harm).
- Globalisation: globalisation has increased the mobility of capital and highly-skilled labour, such that both are responsive to tax (and other) differences between countries. Whether this is

positive or negative for tax sustainability depends on whether this leads to a net inflow or outflow to these tax bases, and the extent to which tax is such a determining factor that it leads to significant international tax competition (and therefore makes sustaining current tax rates difficult).

- Changing nature of work: possible trends towards self-employment and incorporation could create additional compliance pressures for Inland Revenue (IR). In the longer term a trend towards greater automation could lead to a shift in the relative size of tax bases (e.g. a larger capital share in income), which could affect tax revenues if they are taxed at different rates.

Figure 28: Tax as a share of GDP in OECD countries in 2018^{93, 94}



Source: OECD

93 "Property taxes" include local government rates as per OECD definitions.

94 New Zealand's tax-to-GDP ratio looks artificially high relative to its international peers using the OECD's standard methodology as, unlike other OECD countries, GST is charged on public services in New Zealand. GST on public services does not generate additional net revenue but does increase measured GST receipts. The "New Zealand (adjusted)" entry adjusts for this.

If Governments want to raise additional revenue, they could look to:

- Increase revenue from the existing tax system, for example by increasing tax rates;
- Broaden the tax base to which the system applies; or
- Introduce new kinds of taxes.

The options we present in this section are illustrative. Significant changes to the tax system would require a more fundamental look at the structure of the system as a whole so as to avoid significant integrity or structural challenges.

2.5.3 Options to raise additional revenue from income tax

We have modelled two illustrative policy scenarios set out below to show the impact of raising additional revenue from personal income tax, the largest source of Government revenue. Those scenarios are:

- An increase in all personal income tax (PIT) rates by one percentage point; and

- Ten years of “fiscal drag”, where income tax thresholds are kept at their nominal value rather than rising with wages as assumed in the baseline projections, which means that more taxpayers and taxable income would be taxed in higher tax brackets over time.

Table 11 summarises the impact of these scenarios on the tax schedule.

Raising personal income tax rates by one percentage point (while thresholds rise with wage growth) would raise around 0.6% of GDP each year, while 10 years of fiscal drag would build up every year it operates and raise around 1.0% of GDP in steady state, before accounting for any behavioural or economic impacts.

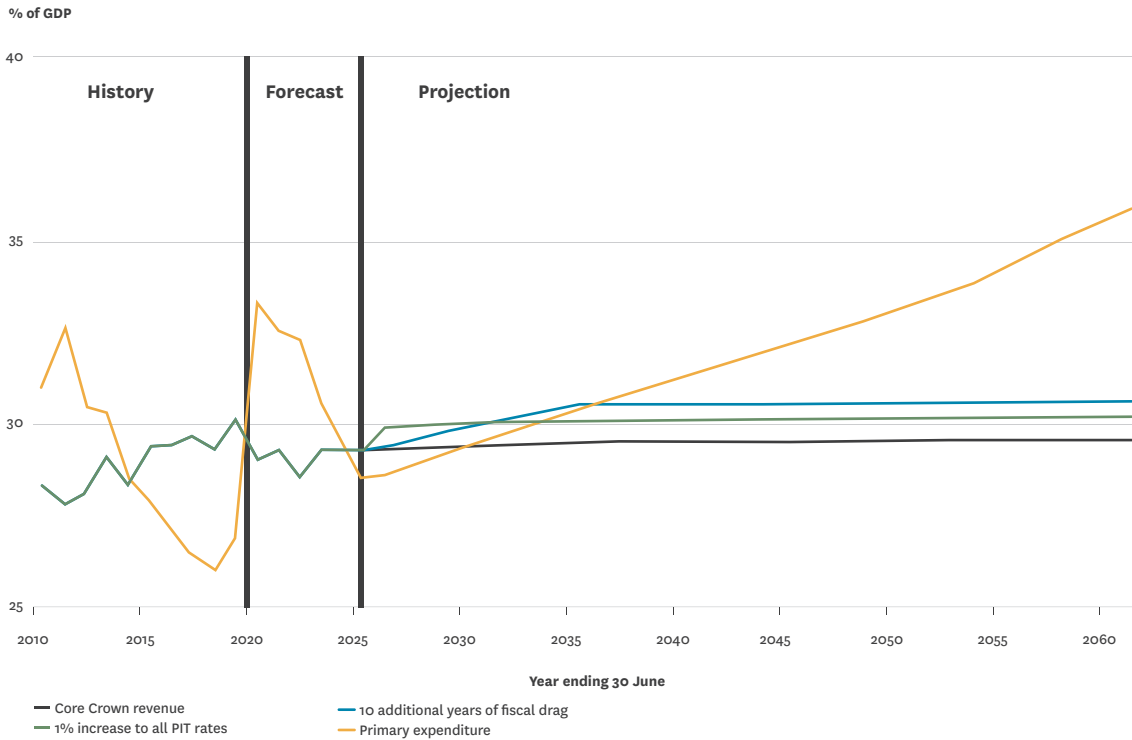
Figure 30 shows the impact of the two options on the average tax rate individuals would pay by 2035.

Table 11: Personal income tax rates and thresholds by 2035

| Current rates and thresholds | | Scenario A – increase all rates by 1% in 2025 | | Scenario B – 10 years of “fiscal drag” | |
|------------------------------|-------|--|-------|--|-------|
| Thresholds | Rates | Thresholds | Rates | Thresholds | Rates |
| \$0 - \$14,000 | 10.5% | Thresholds increase in line with average wages each year from 2025 onwards ⁹⁵ | 11.5% | Thresholds remain at the same nominal value as 2025 while wages grow | 10.5% |
| \$14,000 - \$48,000 | 17.5% | | 18.5% | | 17.5% |
| \$48,000 - \$70,000 | 30% | | 31% | | 30% |
| \$70,000 - \$180,000 | 33% | | 34% | | 33% |
| Over \$180,000 | 39% | | 40% | | 39% |

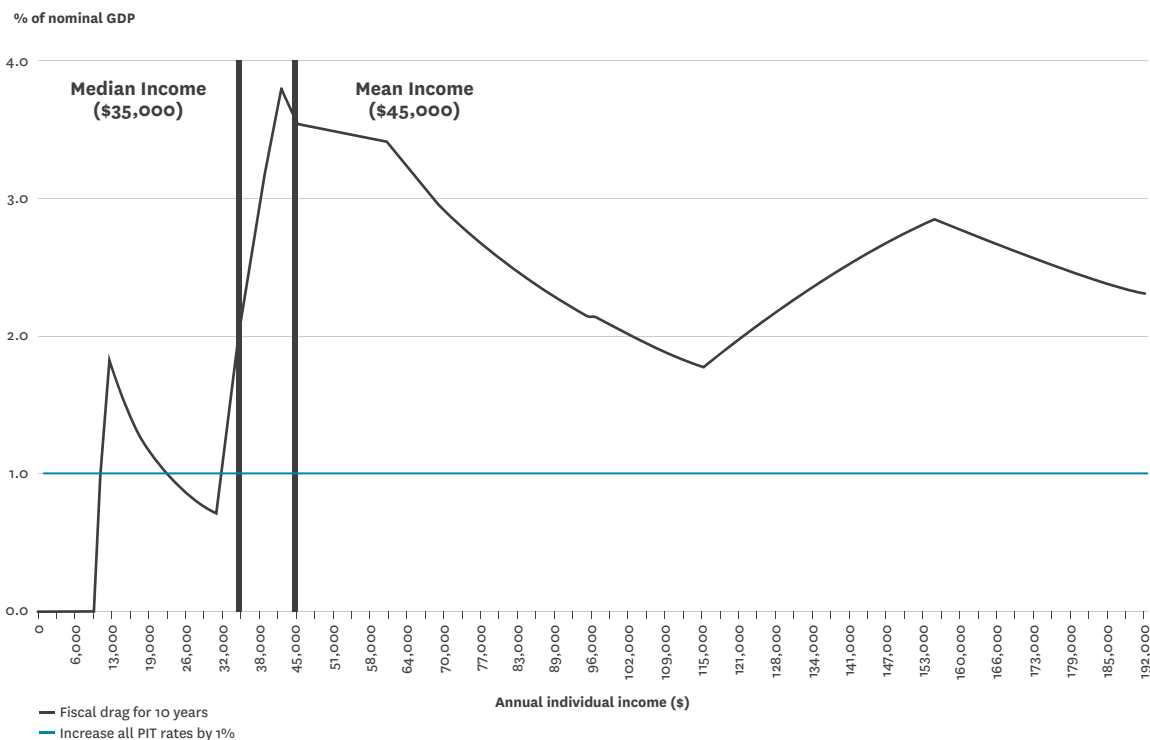
95 The assumptions we make in our historical trends scenario imply that wages will grow by approximately 35% between 2025 and 2035.

Figure 29: Tax and expenditure as a % of GDP under tax option scenarios⁹⁶



Source: LTFM

Figure 30: Impact of policy on average tax rates by 2035 (in 2020 incomes)⁹⁷



Source: Treasury analysis. Average incomes are from Stats NZ.

96 Tax changes may also lead to a modest reduction in expenditure growth in the long-term. This is because NZS and main benefit payments are indexed to after-tax average ordinary time weekly earnings, which may grow more slowly in the presence of fiscal drag.

97 We have calculated the impact of fiscal drag by comparing the tax paid under current thresholds with thresholds updated in line with assumed wage growth in the baseline projections. We have calculated how this would impact someone with a given income in 2020 by assuming that their income increases in line with the average in those projections. This approach is illustrative and does not incorporate a number of important factors such as potential differences in income growth across the population or the interaction of the tax and welfare system.

These options would have a range of impacts and trade-offs, including:

- **Macroeconomic impacts:** both options would reduce incentives for individuals to work, save, and invest compared to no change in tax rates by reducing the post-tax return to those activities. Setting aside the larger scale of fiscal drag, a rate change could be more likely to reduce marginal incentives to save as most saving is undertaken by higher-income individuals, while fiscal drag will have a larger relative impact on incentives to work at the middle of the income distribution where individuals move into higher tax brackets – however the introduction of the 39% rate means that fiscal drag will have a larger impact at higher incomes than it otherwise would have.
- **Distributional impacts:** An increase in the income tax rate has a proportional impact on average tax rates paid across the income distribution, while fiscal drag's impact varies with the largest impact on those whose income is closest to tax thresholds already. At the moment, that means its largest impact is likely to be on those earning slightly above the median wage (figure 30), although taxpayers who cross the \$14,000 threshold by 2035 would see an increase in taxes.

This distributional impact means that the options have different impacts across demographic groups. Because the impact of fiscal drag is currently largest at the middle and upper-middle of the income distribution, it may have a proportionally smaller impact on those groups, including Māori, Pacific Peoples, and women, with lower average incomes (figure 31).⁹⁸

- **Distributional impacts across time:** most income tax is paid by people of working age. To the extent that higher taxes are financing increased expenditure on ageing, this could be seen as a transfer from working-age individuals to government services provided mainly to older generations – however, this calculation is relatively complex.
- **Risk and Social capital:** increasing personal income tax rates with no consequent changes to other rates would create additional rate misalignment at the higher end of the income distribution between the top rate(s) of income tax, the trust rate, the corporate rate, and the rate for Portfolio Investment Entities (PIEs). This would introduce additional incentives for tax planning, which could reduce the tax raised, as well as undermine confidence in the tax system.

While fiscal drag would not raise rates, it would expose more taxpayers to these higher rates of tax over time and to these rate misalignments. In addition, a significant period of fiscal drag could lead to a high proportion of individuals paying tax rates previously paid only by higher-income earners, which could undermine perceptions of fairness in the tax system.

2.5.4 Other options to raise revenue

There are various options to raise additional revenue beyond the personal income tax system, particularly given as noted above New Zealand's tax system currently relies heavily on a small number of tax bases. This section sets out an overview of some of those options but does not provide a full analysis or an exhaustive list of potential tax options available.

- **GST:** raising the equivalent of one percentage point on all personal income tax rates (0.6% of GDP) would require an increase in GST of roughly 1.5 percentage points⁹⁹, before any behavioural change. Increasing the GST rate is generally considered a more economically efficient means of raising revenue than income tax, although as it is ultimately a tax on labour, it will still affect incentives to work. A higher rate could also increase pressure to exempt certain goods from GST, which would reduce the tax's efficiency as well as create compliance costs for IR and for businesses.

Assessing the distributional impacts of GST is complex. When viewed as a percentage of annual income, GST appears regressive. However, the distributional impact of GST will change over people's lifetimes as they will spend more of their total income while young and retired and less while working. When compared against lifetime income, the impact of GST is expected to be roughly proportional. Furthermore, discussions about distributional impact, like all taxes, ultimately depend on how tax revenue is spent.

- **Company tax rate:** raising the equivalent of one percentage point on all personal income tax rates (0.6% of GDP) would require an increase in the company tax rate of roughly 6 percentage points, before any behavioural change.¹⁰⁰ Increases in the company tax rate are likely to have relatively large economic effects, particularly to the extent that they lead to multinational companies restructuring profits away from New Zealand or reductions in investment and the capital stock. Given these broader economic impacts, understanding the distributional impacts of changes to company tax rates is challenging.
- **Capital gains:** governments could consider further extensions of the taxation of capital gains. The Tax Working Group estimated that the full extension of taxation to capital gains could raise around 1.2% of GDP a year¹⁰¹, although that is highly uncertain and likely to be lower given recent increases to the bright-line test. Taxing capital gains comes with an economic cost by increasing the overall tax rate on capital. However, it could improve the allocative efficiency of saving and investment by ensuring more economic income is taxed neutrally, would be progressive, and would improve the integrity of the tax system. Specific consideration would need to be given to the treatment of Māori freehold land¹⁰² and iwi assets.

⁹⁸ The impact across these groups would be more evenly distributed if, over time, incomes became more equal between these demographic groups.

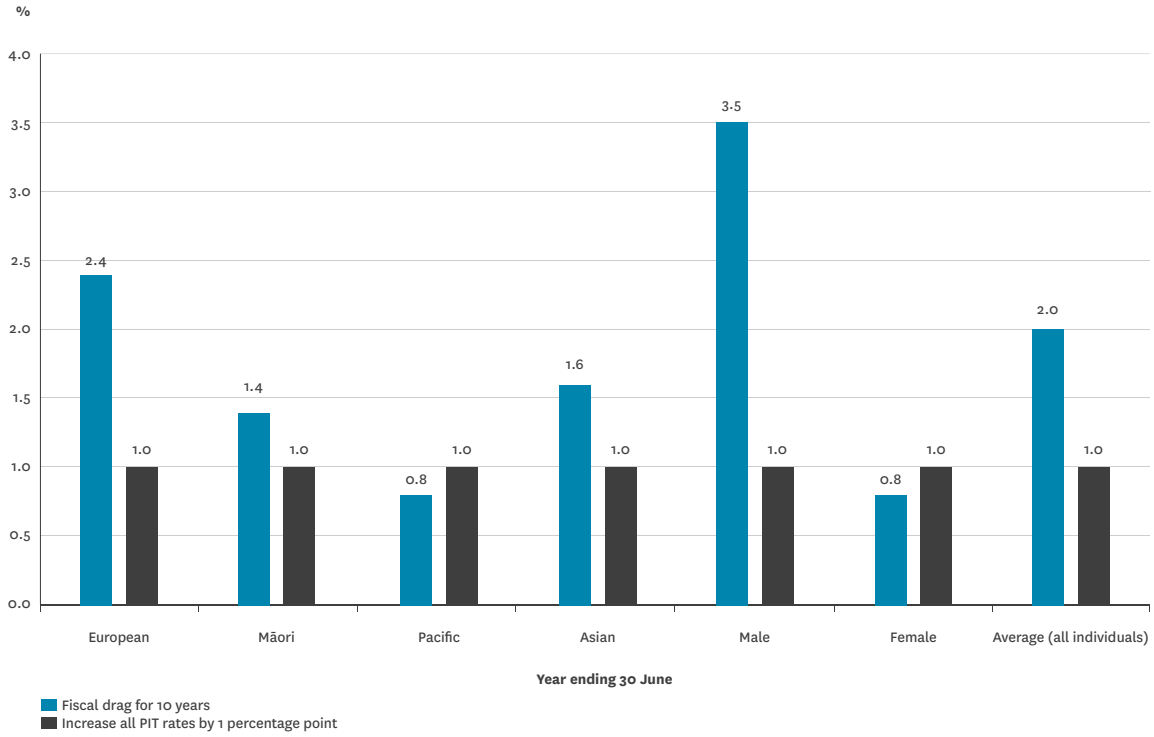
⁹⁹ Based on Treasury estimates published in Budget 2020.

¹⁰⁰ Based on Treasury estimates published in Budget 2020.

¹⁰¹ Future of Tax: Final Report (2019).

¹⁰² Māori freehold land is defined under legislation and is collectively owned.

Figure 31: Increase in average tax rates for median individual by demographic¹⁰³



Source: Treasury analysis based on Stats NZ data

¹⁰³ Based on median incomes in 2020 and using the same methodology as Figure C. This is illustrative, and assumes that the incomes of all groups grows at the same rate out to 2035.

- **Land:** annual taxes on the unimproved value of land are generally considered to be highly efficient, simple to administer, and difficult to avoid. However, they come with challenges, such as their impact on land values, which would affect the initial owners of land irrespective of their actual wealth; and the disproportionate impact that a broad land tax could have on Māori by increasing the cost of holding whenua in trust for future generations, cutting across their mana whakahaere. Previous analysis of a land tax suggested that a 0.7% annual levy would raise 1% of GDP¹⁰⁴.
- **Wealth:** there has been significant additional attention internationally since the beginning of the COVID-19 pandemic on taxing wealth. Common ways in which wealth is taxed internationally include:
 - a. **Net wealth taxes:** some countries including US states levy or have proposed an annual tax on net wealth. While highly progressive, these taxes tend to be subject to a high level of avoidance, exemptions, and raise relatively little revenue while coming with a relatively higher economic cost than other capital taxes. OECD countries with these taxes raise between 0.1% and 1.1% of GDP from them¹⁰⁵.
 - b. **Taxes on inheritance:** many countries levy a tax on large inheritances or gifts. While these often come with significant exemptions and integrity risks, their economic cost is likely to be relatively low although they do raise questions of fairness for those affected. OECD countries with these taxes raise between 0.1% and 0.7% of GDP from them¹⁰⁶.

Like capital gains and land taxes, taxes on wealth would have important implications to consider for Māori, both direct impacts on land owners and on their mana whakahaere.

- **Digital multinationals:** the OECD is actively working towards a multilateral solution to the tax challenges arising from the digitalisation of the economy.¹⁰⁷ If a solution is reached, it is likely to generate a small amount of revenue for New Zealand (with the revenue depending on design). In addition to direct revenue, the solution will also have the wider benefit of supporting New Zealand's relatively high corporate tax rate by reducing the incentive for foreign multinationals to shift profits out of New Zealand.¹⁰⁸ Several countries have implemented, as an interim solution, a Digital Services Tax (DST), which is a flat tax on gross turnover from certain digital platforms.
- **Environmental taxes:** New Zealand raises less from environmental taxes than other OECD countries. At 1.3% of GDP in 2019, New Zealand's environmental tax take was lower than the average OECD country for which data was available, which was 2.1% of GDP¹⁰⁹. Given that these taxes can induce changes in behaviour that reduce the tax base (and are often applied to activities that are in decline), they may not offer a substantial or sustainable additional source of tax revenue in the long term. They could, however, have broader benefits including supporting the accumulation of natural capital (by preventing environmental harm) and improving the wellbeing of the natural environment (taiao).

104 Affording Our Future – Statement on New Zealand's Long-Term Fiscal Position (2013)

105 OECD Revenue Statistics Database.

106 OECD Revenue Statistics Database.

107 The G7 has agreed a proposal that might form a basis for that multilateral solution, and a high level political statement on the key design elements of the solution has been agreed by 130 countries including New Zealand.

108 Our system of imputation credits, which is unusual internationally, makes cross-country comparisons of company tax rates difficult.

109 OECD Environmental Tax Statistics. Latest data excludes data for six OECD countries, but earlier and more complete data shows a similar picture.

2.6

Modernising the public finance system

- The public finance system (PFS) governs the use of public resources, and the means through which we as a country ensure that public spending is having as positive an effect on our living standards as possible.
- It has been 30 years since the system has been fundamentally reformed. While the system has worked well, there are opportunities to improve it to meet new and enduring challenges and maximise the value taxpayers get from public spending.
- Any changes are not likely or intended to generate large fiscal savings, but they can support our management of long-term fiscal pressures by ensuring that public spending is as high-value as possible.

2.6.1 New Zealand’s public finance system

The PFS, which governs the use of public resources, is a key part of New Zealand’s system of government. It influences both the short-term delivery of government services, and their long-term sustainability (figure 32).

The PFS includes the system for:

- How Governments establish what they aim to achieve, including wellbeing objectives, with the money they collect from taxpayers;
- How Governments budget, allocate funding and manage the overall fiscal position to improve the wellbeing of the nation, both now and in the future. This includes expenditure, revenue, and balance sheet management (e.g. the level of assets and liabilities held);
- Checks and balances to ensure that public money is used wisely and for the purposes intended. Parliamentary authorisation of government spending plans is central to this: the government cannot levy a tax, borrow or spend money except with the authority of Parliament; and
- Accountability requirements for government departments and agencies around the use of public resources, including requirements for strategic planning, and performance reporting.

Figure 32: Overview of the public finance system

| | Parliament Authorises | Ministers Govern | Departments/Agencies Administers |
|--------------|---|--|---|
| Role | <ul style="list-style-type: none"> • Approves spending • Scrutinises the Executive • Represents the people | <ul style="list-style-type: none"> • Set priorities and allocate funding • Direct officials • Accountable to Parliament | <ul style="list-style-type: none"> • Manage public money • Deliver services • Accountable to Ministers |
| Rules | <p>Public Finance Act and Standing Orders</p> <ul style="list-style-type: none"> • Estimates of Appropriations and supporting information • Annual review process <p>Office of the Auditor General</p> <ul style="list-style-type: none"> • Supports Parliament scrutiny | <p>Public Finance Act</p> <ul style="list-style-type: none"> • Fiscal responsibility and fiscal strategy requirements • Wellbeing budget priorities • Responsibilities of Ministers <p>Non-statutory</p> <ul style="list-style-type: none"> • Budget and Cabinet processes | <p>Public Finance Act, Crown Entities Act and Public Service Act</p> <ul style="list-style-type: none"> • Role of chief executives and boards • Reporting by departments and agencies to portfolio Ministers • Annual reports and performance information |

Source: The Treasury

The annual Budget process is where the Government makes many spending and revenue decisions, which need to align with its fiscal strategy. These decisions have an impact on New Zealanders' living standards through the way in which resources are distributed – now and across future generations. Fiscal strategy decisions are also one way in which the government can affect the rate at which the four capital stocks outlined in the Treasury's Living Standards Framework (natural, human, social, financial and physical) change over time.¹¹⁰

The Public Finance Act sets out principles of responsible fiscal management which Governments must adhere to when setting fiscal strategy. This includes maintaining debt at prudent levels and considering the intergenerational impacts of spending and revenue decisions. These principles are not intended to be prescriptive and there is flexibility in terms of how each Government interprets and applies these principles.

2.6.2 Modernising New Zealand's public finance system

It has been 30 years since the PFS was last fundamentally reformed. While the system has worked well in many ways, and has continued to evolve, a number of concerns have been challenging to address:

- Public finances are under pressure, which has increased post-COVID 19. There is a need to achieve greater value from baseline spending and improve fiscal management and sustainability. The system currently focuses heavily on options for new spending, with limited attention to the value gained from existing expenditure.
- The PFS does not well support joined up work on cross-sector issues, particularly the response to complex, intergenerational issues.
- The annual government reporting and funding cycle is short, consumes a large amount of time and effort, and can be superficial. It can be hard for departments and agencies to focus on long-term wellbeing and sustainability.

To help address some of these issues, the Treasury is looking at opportunities to modernise the PFS. The objective of this work is to support better fiscal management through improved and more collaborative planning, reporting and funding arrangements.¹¹¹

Over the last few years, the Government has implemented a programme of spending reviews, feeding into the Budget process. Spending reviews allow insight into the performance and value for money of government by assessing the efficiency, effectiveness, sustainability and resilience of current baseline spending.

As a next step, the Minister of Finance has decided to trial a new approach to making budget decisions. This involves agencies with common or overlapping areas of responsibility being brought together to agree on cluster-specific priorities, strategic planning and performance reporting. In Budget 2022, we are testing this model using two pilot clusters – Justice and Natural Resources. The lessons we learn from this experience will help shape a public finance system that can better serve the interests of New Zealanders and manage some of the complex, multigenerational issues that we are facing.

It is important to note, however, that having better tools is only part of the solution to the country's long-term fiscal challenges. While potentially useful, changes to the PFS are unlikely to generate large fiscal savings or change the nature or order-of-magnitude of the significant policy choices and trade-offs Governments face in the future. These changes will, however, help shift the focus to more value for money expenditure, including investing in expenditure that will deliver long-term gains in both outcomes and cost.

¹¹⁰ See LTFS background paper: *How fiscal strategy affects living standards* or more analysis on how fiscal strategy choices affect the living standards of New Zealanders now and in the future.

¹¹¹ This work is intended to complement the initiatives to increase public service collaboration, including new organisational forms to support progress in priority areas, in the Public Service Act 2020.

2.7

Bringing it all together

This section sets out an illustrative set of policy options to respond to long-term fiscal pressures. The population is ageing, and while there is significant uncertainty about the future, it is almost certain that Governments will need to take policy action to manage the growing cost of demographic change and healthcare.

Governments now and in the future face three fundamental decisions:

- What level of debt is prudent in the medium to long term, and how quickly to make any adjustment necessary to achieve that over time.
- The balance between meeting any resulting fiscal gap (or reducing the primary deficit) by increasing revenues, or controlling expenditure.
- The specific means by which they would seek to raise revenue or control expenditure, with some illustrative examples explored in this section.

These choices have trade-offs: there is no simple answer, and most choices will affect all of us and future generations in some way as current or future taxpayers, consumers of health services, and recipients of or contributors to superannuation. Successful public finance system reforms that enable us to achieve as much value as possible for taxpayers' money is a critical part of maintaining social capital in the face of those choices.

The LSF and He Ara Waiora provide a framework through which we can consider these trade-offs across different policy options or packages of options.

We have explored some of these trade-offs in this section, including:

- **Macroeconomic impacts:** higher tax rates affect incentives to save and invest, which could reduce the accumulation of financial capital. Restraining spending growth can have macroeconomic effects too – a less effective health system could degrade human capital, and other areas of spending (such as education) have broader economic benefits;
- **Distributional impacts:** while in general the tax and transfer system is progressive, as noted in this section some tax options would affect those on relatively low

incomes, or from lower-income demographic groups, more than others; and some spending benefits those on relatively higher incomes or higher-income demographic groups; and

- **Social capital:** ensuring that any package of measures to maintain fiscal sustainability is considered fair is an important part of this, as well as in reflecting the concepts of tika and pono. Individual New Zealanders and different communities will have different views on what “fair” means, and those views can change over time.

The intergenerational impacts of ageing and measures to respond to its fiscal impact are an important factor to consider when thinking about how New Zealanders' wellbeing will be affected across generations.

The government (on-net) taxes more from those of working age than it spends on them, and redistributes it to those younger and older than working age¹¹². Policy changes would alter that – for example, higher taxes would increase the net contribution made by those of working age. On an annual basis, therefore, some measures will appear to redistribute income from the working population to the retired population, or vice versa.

If particular demographic groups make up a growing share of the working population (e.g. the Māori share of the New Zealand working population is projected to grow in the future) this could also mean that shifts in those annual intergenerational transfers affect those groups more than others.

However, intergenerational fairness is more complicated than just looking at these annual transfers, and depends on what individuals pay and receive across their entire lifetimes (including welfare transfers).

Given the projected size of the fiscal gap, no single illustrative option presented would be sufficient alone, and therefore some package of policies will be needed over time to maintain fiscal sustainability. Developing such a package will involve thinking about the balance of risk the government takes on collectively and how much is left for individuals to address in areas such as the provision of health services and old age pensions. The size, balance, and details of any policy changes are, however, value judgements rather than having clear analytical answers. It is important that we as a country are thinking about these changes now. Small and gradual changes in the nearer-term could help to minimise the cost of fiscal pressures across generations, preventing higher debt and a larger adjustment in the future.

¹¹² Aziz, Gemmill, and Laws estimate that in 2010 those aged 25-65 are net fiscal “contributors” and those under 25 and over 65 are net “recipients”.

Appendix one

Fiscal consolidation scenario – net debt at pre-COVID levels

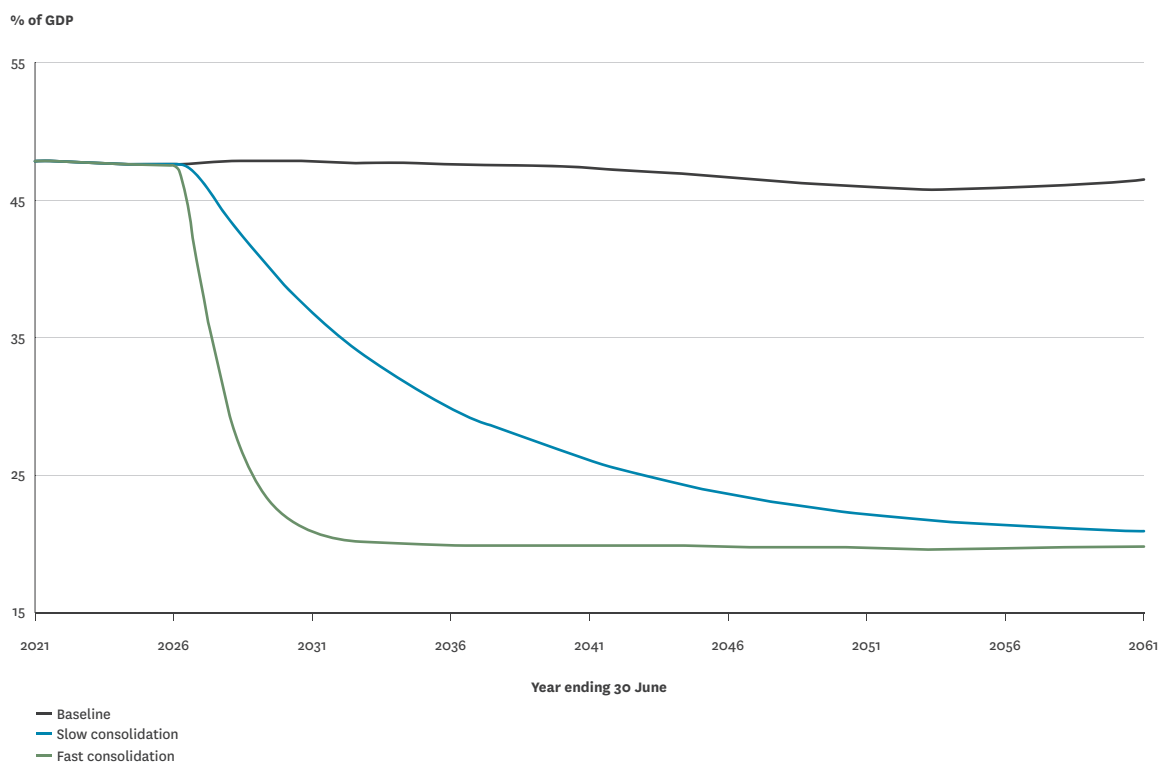
Appendix one builds on the long-run projections presented in section 1.3 to explore the costs and benefits of returning net debt to pre-COVID-19 levels.

In the *alternative scenarios* in section 1.3 the government doesn't allow debt to rise substantially above current levels. Rather, the government is continuously trying to stabilise debt at the peak of the forecast period (48% of GDP in 2024/25) by adjusting tax rates or expenditure to accommodate the fiscal pressures illustrated in the *historical trends* scenario. This assumption isn't based on a view that this is the 'right' level of debt to aim for, but is chosen as a neutral assumption to demonstrate the impacts of maintaining debt at current levels.

The *debt reduction scenarios* in this section build on the *alternative scenario* by demonstrating the impacts of reducing debt instead of stabilising it. Instead of stabilising debt, the government seeks to return to pre-COVID-19 net debt levels of 20% of GDP. This is done through a mixture of increases to average tax rates and spending restraint.

We have modelled two scenarios. The *fast* and *slow debt reduction scenarios* return net debt to 20% of GDP within 5 and 30 years respectively. The fast scenario is for illustrative purposes only since the policy path, particularly for tax, is not credible.

Figure 33: Net core Crown debt under fiscal consolidation scenarios



Source: NCGM

Key results and insights

The choice to reduce or stabilise debt poses trade-offs across time. **In the short-term, debt reduction of any size and speed will negatively impact economic activity and living standards.** Tax increases have a distortionary impact, while spending restraint reduces public services.

Faster debt reduction has a larger near-term impact on economic activity, while slower debt reduction has a more prolonged impact. Faster debt reduction requires larger tax hikes and greater spending restraint, while slower debt reduction requires smaller change but for a longer period. In the absence of any other shocks, the model suggests that the fast debt reduction scenario could cause a technical recession, which is two quarters of negative growth.

Debt reduction can be self-defeating if carried out while the economy is weak and monetary policy space is limited. The negative impact on economic activity tends to be larger when the economy is weak. If the resulting fall in GDP outweighs the fall in debt levels, the debt ratio could rise. Furthermore, debt reduction can be deflationary. If interest rates are very low, the RBNZ may not have the monetary policy space to respond.

In the long-term, debt reduction decreases debt servicing costs and increases fiscal resilience, with flow-on benefits for long-term economic activity. Lower debt financing costs means lower levels of distortionary taxes

are required. This increases levels of economic activity over the long-run.

Lower debt levels increase the government's ability to spend more in the future to respond to future shocks and supports living standards. The benefits of this resilience depend on whether current debt levels are sustainable and if there is space to increase spending while maintaining debt sustainability. Research shows that if fiscal space remains ample, the distortive cost of debt reduction can outweigh the crisis-insurance benefit from lower debt.

These short-term losses and long-term gains have intergenerational trade-offs. In the fast debt reduction scenario the long-term GDP gain outweighs the short-term GDP loss. This is shown by the more positive cumulative GDP gap at the end of the period than when compared to a scenario where debt is stabilised. In the slow debt reduction scenario the long-term GDP gain outweighs the short-term GDP loss, but this happens after the projection period. However, this finding only holds under specific assumptions and is measured by the GDP impact, which is a narrow measure of living standards. Additionally, the costs and benefits are undiscounted, and the model assumes that people live forever. In reality, fast debt reduction means that costs fall heavily on one generation, while slow debt reduction spreads this cost over several generations.

Table 12: Results from the fiscal consolidation scenarios

| | Fast debt reduction scenario | Slow debt reduction scenario |
|---|---------------------------------|---------------------------------|
| Increase in tax revenue-to-GDP ratio at peak | 7.5 ppt | 1.7 ppt |
| Decrease in government expenditure-to-GDP ratio at peak | 4.3 ppt | 1.2 ppt |
| Decrease in quarterly real GDP growth rate at peak | 1.9 ppt | 0.3 ppt |
| Cumulative GDP gap at the end of the projection period | 21.1% | -6.7% |

Appendix two

Neoclassical Growth Model (NCGM)

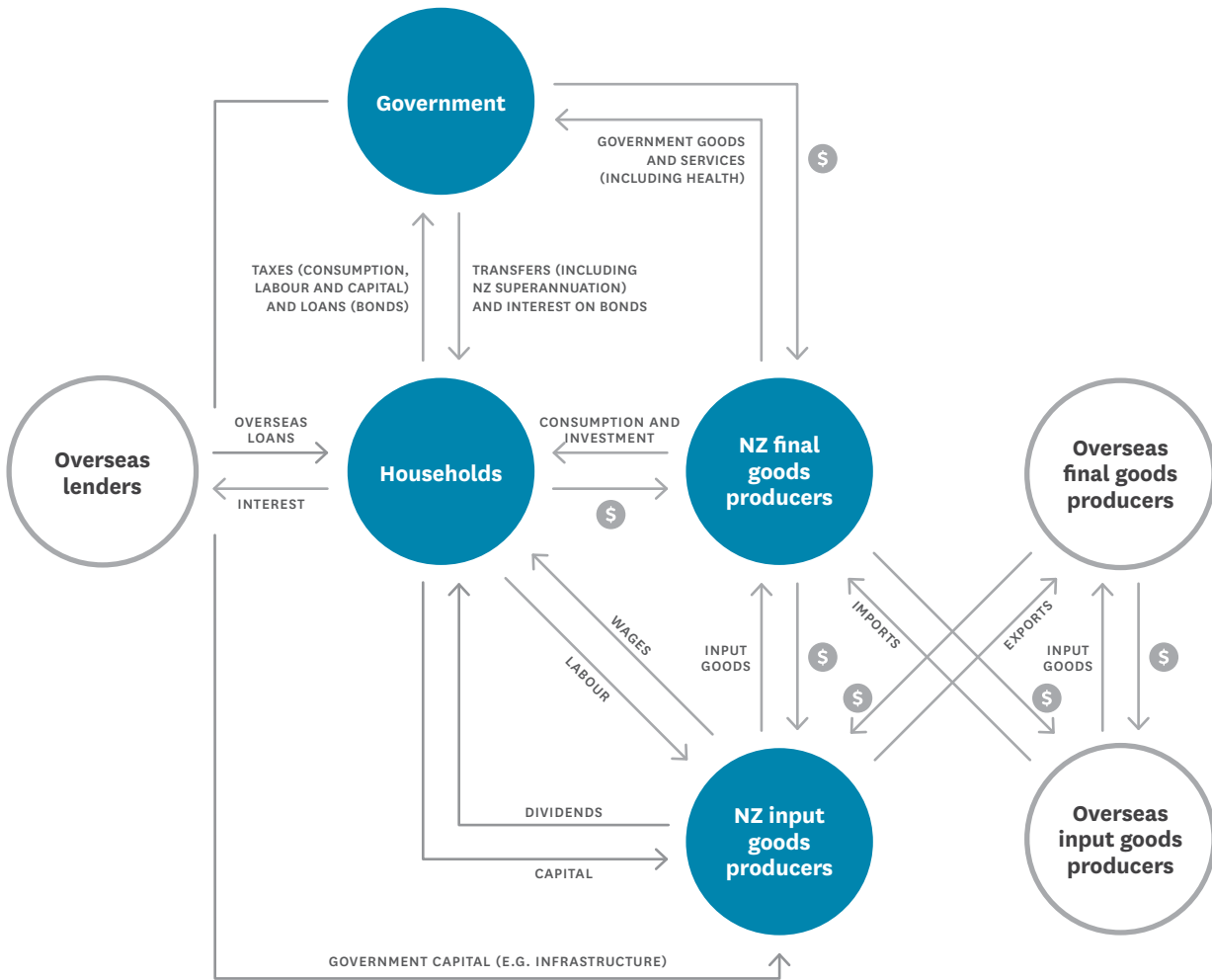
The NCGM explicitly models the behaviour of the government, households, and businesses using assumptions about economic behaviour.

- **Households** choose to allocate their time between work and leisure by balancing their own preferences against market incentives. Income from work (after taxes and transfers) can be either spent now, or set aside as savings by investing in capital or lending to the government. These savings help to finance the household's future consumption spending. Households can also borrow, though any borrowing must be financed with future income.
- **Businesses** aim to maximise profits by hiring labour and capital from households in exchange for wages and dividends, to produce goods and services that are sold to households, the government and the rest of the world. As New Zealand is a small, open economy, it is important for the model to capture trade dynamics with the rest of the world. As such, production in the NCGM is split into the production of an intermediate input good and a final output good. Exports and imports of intermediate inputs between New Zealand and the rest of the world capture trade flows.
- **The government** raises revenue by taxing economic activity – namely consumption spending, labour income and capital income – and by borrowing from the public. The revenue is used to deliver government services and transfers, such as health and NZS, as well as public infrastructure. However, governments face a public finance constraint in that growing expenditure cannot be financed by ever-increasing borrowing. Governments must work to stabilise debt over the long term – either by controlling expenditure or by raising tax rates.¹¹³ In the model, the degree of government responsiveness to fluctuations in debt can be varied, to analyse how different government policies might influence New Zealand's long-term fiscal position.

The relationships between households, businesses and the government are summarised by the model flow diagram over the page.

¹¹³ Ultimately all government expenses (i.e. spending on public services plus debt-financing) must be funded by taxation, present or future.

Figure 34: NCGM flow diagram



- **Equilibrium:** The decisions of households, businesses and governments interact to determine the equilibrium in the economy. All prices (goods prices, wages, interest rates and exchange rates) adjust to balance supply and demand in each market (goods, labour, capital and debt), not just for the current time period, but over the entire course of the projection period.¹¹⁴
- **Economic dynamics:** Any disturbance from this long-run equilibrium, for example, due to fiscal pressures from an ageing population or a sudden shock to infrastructure as a result of a natural disaster, triggers a complex chain of responses throughout the economy. These responses are governed by the behavioural rules and macroeconomic relationships set out above, which ultimately return the economy to trend.
- **Relationships and differences from the LTFM:** The LTFM consists of ‘bottom-up’ projections of a number of key macroeconomic and fiscal variables. As such, the LTFM

can utilise the best available data to construct detailed projections of individual variables. The fiscal variables are then aggregated using accounting relationships to derive projections of the government’s key fiscal indicators such as net debt and the primary balance.

This approach allows for a great deal of detail for modelling individual variables, such as health and NZS spending, but it misses the relationships and feedbacks between economic and fiscal variables. This is the key role of the NCGM: the decisions of households, businesses and government all change simultaneously, and in response to each other – as well as other economic variables. By calibrating key variables in the NCGM to those constructed in the LTFM, we can leverage the advantages of both models to improve our fiscal projections. As such, the NCGM and LTFM can be viewed as complements.

¹¹⁴ Formally, the NCGM is what is referred to as a Dynamic Stochastic General Equilibrium (DSGE) model: ‘dynamic’ as it specifies how macroeconomic and fiscal variables interact and evolve over time; ‘stochastic’ as variables can be subject to unpredictable shocks (rather than being entirely deterministic); and ‘general equilibrium’ as the model is a simplified representation of the economy as a complete system, as opposed to a model of individual markets or sectors in isolation from the wider economy.

Key NCGM assumptions

Expenses

The key expense pressures in this scenario arise from NZS and health spending. The spending paths for these two variables are projections from the LTFM.

Labour supply

The two models – the LTFM and NCGM – differ in their assumptions about how people’s working patterns change over the period. The LTFM assumes that labour force participation falls as the average age of the population increases, whereas the NCGM makes no such assumption. Instead the model leaves hours worked to vary freely in response to changing economic drivers; however, as the population ages, households’ preferences for leisure will increase, making them less willing to work. This difference between these two scenarios must be kept in mind when comparing them directly.

Fiscal policy

As stated, we assume higher spending paths for health and NZS, and try to stabilise government debt by adjusting tax rates on labour and capital income. These tax rates adjust in response to deviations of net debt from its long-run target – which is set at 48% of GDP, the peak of the BEFU forecasts. This is not the Treasury’s view on the long-run prudent level of debt – refer to section 2.2.1 for a discussion about sustainable debt. The adjustments will vary depending on the size of the deviation. If debt is below target the government will reduce tax rates. In other words, the LTFM assumption of holding tax revenue-to-GDP constant does not hold.

In this analysis, the key parameters are how much governments adjust labour and capital tax rates in response to debt deviations. The size of the responses in the model parameters is calibrated by reference to the international literature.

Tax structure

The tax structure assumed in the NCGM is a simplification. Specifically, the 19% and 30% tax rates for labour and capital income represent assumed averages. They are calibrated so that the overall shares of labour and capital income tax revenue relative to GDP match the empirical data as closely as possible. In reality, New Zealand has a progressive income tax schedule which seeks to tax all forms of income consistently irrespective of how that income is earned. So, for example an individual earning \$50,000 per year would be taxed at a rate of 10.5% on the first \$14,000 of their income, 17.5% on the income between \$14,000 and \$48,000 and 30% on the final \$2000 – regardless of whether that income is earned from wages/

salaries (i.e. labour income) or returns on investments (i.e. capital income), or indeed a mixture.

However, capital income is assumed to be more highly concentrated among higher-income earners, and so subject to a higher average tax rate than labour income – even though both forms of income are in fact taxed according to the same income tax schedule.

Taxes are distortionary

A key feature of the NCGM modelling is that taxation has a ‘distortionary’ impact on the macroeconomy. This means that tax rates alter the incentives that households and businesses face when making economic choices. For instance, an increase in income tax rates alters the incentives to work. Therefore, just as we would expect a reduction in tax rates to stimulate economic activity, we would expect an increase in tax rates to dampen economic activity.

Creedy et al (2018) show that small changes in labour supply as a result of higher labour taxes can have large economic costs, and a number of studies have suggested that capital taxes can have important economic costs (for example, Bastani and Waldenström (2020) provide a review). Also implicit within the NCGM is the assumption that the effects of changes to taxation on GDP are non-linear. So for example, the higher the initial tax rate, the greater the economic impact of a proportionate tax increase or tax cut. This assumption is broadly supported by the literature (for example, Creedy 2003 and Auerbach 1985).

That said, the overall impacts of taxation should also take into account the economic impacts of how the revenue is spent. Government spending on goods and services provides a source of demand in the economy, which in turn generates further rounds of spending and income creation for households and businesses. Similarly, government transfers are a direct transfer of resources back to households and businesses, and if appropriately targeted can boost aggregate demand. Furthermore, government investment – for example through the provision of infrastructure – should enable economic transactions in the macroeconomy, thereby raising productivity and output. All of these channels act to offset the distortionary impacts of taxation.

The NCGM captures some, but not all, of these mechanisms. The principal focus of the NCGM is to shed light on the effects of fiscal policy on income and output. Ultimately, the net impact of taxation and spending should be assessed in terms of the wider effects on living standards.

Appendix three

LTFM projection assumptions

| Assumptions | 2016 LTFM | 2021 LTFM |
|--|---|---|
| Demographic | | |
| Base case population projection | 50th percentile 2014-base, 2014-2068 | 50th percentile 2020-base, 2020-2073 |
| Fertility | Falls to 1.9 babies per woman from 2030 | Falls to 1.65 babies per woman from 2021 |
| Life expectancy at birth | Rises to 88.0 (M), 90.7 (F) in 2060 | Rises to 86.1 (M), 89.0 (F) in 2060 |
| Net migration | Reaches and holds at 12,000 per year from 2019 | Reaches and holds at 25,000 per year from 2023 |
| Labour force | Reaches 3.25 million in 2060 | Reaches 3.77 million in 2060 |
| Economic | | |
| Participation rate | 50th percentile labour force (2015); participation rate in 2060: 64.5% | 50th percentile labour force (2017); participation rate in 2060: 67.5% |
| CPI measured inflation rate (annual growth per year) | 2% from 2021 | 2% from 2028 |
| Labour productivity growth per year | 1.5% from 2023 | 1.0% from 2028 ¹¹⁵ |
| Long-term government bond rate per year | 5.3% from 2025 | 4.3% from 2054 |
| Unemployment rate | 4.5% from 2021 | 4.25% from 2028 |
| Average weekly hours worked | 33.08 from 2022 | 33.70 from 2028 |
| Average hourly wage growth | 3.53% from 2023 | 3.02% from 2028 |
| Fiscal | | |
| Revenue as a ratio of GDP | Core Crown taxation revenue building to 28.6% by 2027 and holding there (Historical Spending Patterns) | Core Crown taxation revenue transitioning to 27.6% by 2029 and holding there |
| Expenditure | Growth controlled by operating allowances for five years (to 2020) Bottom-up projections begin in 2021 | Growth controlled by operating allowances for five years (to 2025) Bottom-up projections begin in 2026 |

¹¹⁵ The Treasury's labour productivity growth methodology was changed at the 2019 Half Year Economic and Fiscal Update. For an explanation of the new methodology see: <https://www.treasury.govt.nz/system/files/2019-12/hyefu19-bp-labour-productivity-growth.pdf>

| Assumptions | 2016 LTFM | 2021 LTFM |
|---|---|---|
| Fiscal | | |
| Operating allowance controlled expenditure (excluding health and education expenditure) | Ratio of nominal GDP: Operating allowance controlled expenditure (excluding health and education) is transitioned to a stable percentage of GDP from 2021 (i.e. expenditure is indexed to nominal GDP growth). Expenses reach a combined stable percentage of 6.8% once they all attain their long-term stable rates. A transition rate of 0.05 percentage points from the end of the forecast period is applied. | Ratio of nominal GDP: Operating allowance controlled expenditure (excluding health and education) is transitioned to a stable percentage of GDP from 2026 (i.e. expenditure is indexed to nominal GDP growth). Expenses reach a combined stable percentage of 6.6% once they all attain their long-term stable rates. A transition rate of 0.05 percentage points from the end of the forecast period is applied. |
| Health expenditure (non-demographic growth in spending in projection period) | Spending growth rate of 4.58% per year Healthy ageing effects modelled | Spending growth rate of 4.15% per year Healthy ageing effects modelled |
| Education expenditure (non-demographic growth in spending in projection period) | Spending growth rate of 4.09% per year | Spending growth rate of 4.05% per year |
| Other spending (non-demographic growth in spending in projection period) | Spending growth rate of 3.53% per year | Spending growth rate of 3.02% per year |
| NZ Superannuation (NZS) | Per recipient spending indexed by nominal wage growth | Per recipient spending indexed by nominal wage growth |
| Non-NZS welfare | Ratio of nominal GDP: Main benefits, supplementary benefits and others reach a stable percentage of GDP. Total non-NZS welfare spending reaches a stable percentage of GDP of 4.7% (i.e. payments are indexed to nominal GDP growth). | Main working-age benefits indexed by nominal wage growth. Supplementary benefits and others reach a stable percentage of GDP. Total non-NZS welfare spending reaches a relatively stable percentage of GDP of 4.2 by 2028. |
| Debt finance costs | Average of opening and closing stock for the year multiplied by an effective interest rate. This is transitioned to the 10-year government bond rate by 2027. | Average of opening and closing stock for the year multiplied by an effective interest rate. This is transitioned to the 10-year government bond rate by 2035. |
| NZ Super Fund contributions | Capital contributions resume in 2021; drawdown from the Fund begins in 2033. | Capital contributions resume in 2018 and average \$0.9 billion from 2026; drawdowns from the Fund begin in 2034. |
| Property, plant and equipment | Nominal GDP growth | Nominal GDP growth |

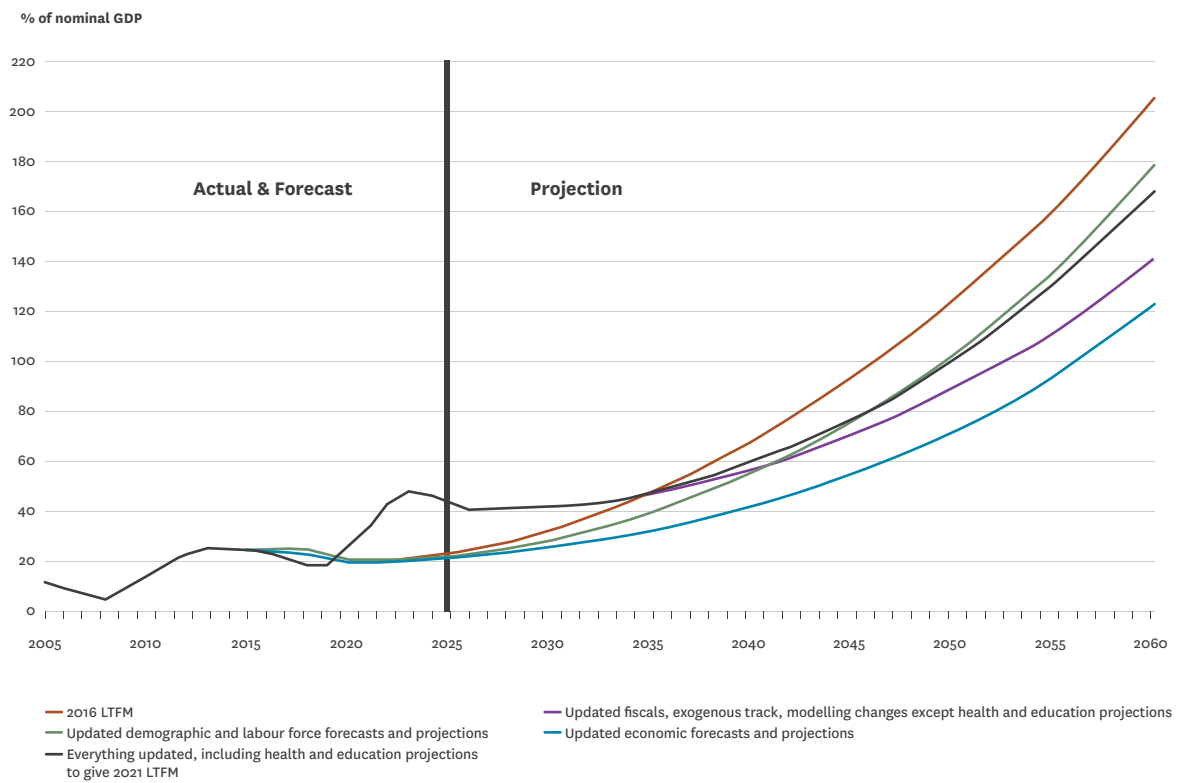
Appendix four

How have the LTFM results changed since 2016?

By 2060 the net debt to nominal GDP projection has reduced from 206% in the 2016 LTFM to 169% in the 2021 LTFM. This reduction reflects the net effect of a number of factors including: updated demographic and labour force information, changes to assumptions, updated economic and fiscal information, and revisions to projection

approaches. Changes to the labour productivity growth methodology were set out in a December 2019 background paper.¹¹⁶ Changes to the interest rate assumption and the overall LTFM will be set out in two background papers to be published in September 2021.

Figure 35: Changes in net core Crown debt to GDP projection from 2016 to 2021 LTFM



¹¹⁶ <http://www.treasury.govt.nz/publications/background/labour-productivity-growth-in-treasurys-fiscal-projections>

The contribution to the net change from the individual factors depends on the order in which they are introduced, because earlier changes are compounded by later ones. For example, updating the labour force projections affects the update of the GDP projection, which is an economic component, and this is also affected by updating the forecast base and economic drivers, like assumed labour productivity growth. The sequence of updating steps used in this analysis aligns with the order in which new data and modelling changes are introduced into the LTFM. The four key updates behind the shifts in figure 35 above are outlined below.

First, updating demographic outturns, forecasts and projections, including higher net migration, reduces the projection of net debt to GDP largely through producing a higher nominal GDP track (from the red track to the green net debt track in figure 35). This is caused by stronger labour force growth, but the population size is also increased. As a result the projections of revenue and expenses rise by similar amounts, which means the nominal dollar values of the operating balance, and consequently debt, remain similar to those in the 2016 LTFM. However, because the update yields higher GDP values, the net debt to GDP track decreases.

Second, assumption changes further reduce the net debt projection (to build the blue track), and this occurs mainly through two channels:

1. The largest channel is the interest rate reduction, with a markedly lower cost of borrowing almost halving interest expenses by 2060.
2. The second channel is the lower labour productivity growth assumption, which is 1.0% compared to the 1.5% applied in the 2016 LTFM. Labour productivity growth is assumed to drive real wages and so real labour costs. Because the 2016 LTFM projection method for health and education expenses involved applying an elasticity to this proxy for real labour costs, reducing the productivity assumption lowers these expense projections. The reduced labour productivity growth assumption also reduces other expense categories, along with tax revenue. However, because it also reduces projected nominal GDP, the impacts on the operating balance and net debt nominal dollar values have little effect on the net debt to GDP track. It is the greater reduction in interest costs and health expenses in particular that lower this track.

Third, updating the fiscal forecast base, the exogenous input tracks and all fiscal projection modelling changes, except for those for health and education expenses, lifts the net debt to GDP track (to the purple track). Most of this rise comes from the higher net debt forecast base, as a result of significantly higher borrowing in response to COVID-19. Net debt to GDP is 22 percentage points higher by 2025, which is the last year of the Budget 2021 forecast base. This gap is largely maintained over the projection, with net debt to GDP in 2060 being 18 percentage points higher, at 141% compared with 123%.

Finally, updating the projection approach for education and health expenses further increases the net debt to GDP projection to 169% by 2060. To better capture the impacts of an ageing population structure on health costs, overall health spending has been divided into more categories, based on the types of health services the Ministry of Health applies in its modelling. In addition, the elasticity approach has been replaced by a non-demographic real growth factor. This factor was based on average growth in health expenditure outturns over the last two decades above that due to recipient growth, inflation and real labour costs. This improved the historical match of modelled outturns to actual outturns, relative to the technique used in the 2016 LTFM. Similar modelling changes were made to projecting education expenses, although these did not markedly alter.

Appendix five

Assumptions for earthquake disaster

The key assumptions we have used in modelling the impact of an earthquake in section 1.4.4 are outlined in table 13 below.

We made these assumptions by looking back at the evidence of how the government and New Zealanders responded to the Canterbury earthquake, including the

investment and fiscal responses. However, there is significant uncertainty regarding some of these investment and fiscal responses, and the total economic impact of a disaster will depend on the severity of the shock as well as wider fiscal and economic conditions.

Table 13: Modelling assumptions for an earthquake scenario

| Assumptions | Modelling assumption |
|--|---|
| The earthquake creates significant short-term and long-term economic damage | <ul style="list-style-type: none"> The earthquake causes a 3% reduction in the total capital stock There is a 3% reduction in total factor productivity |
| Private sector investment increases to rebuild following the earthquake | <ul style="list-style-type: none"> Private investment increases by around 3% of GDP. However, it takes 3 years to slowly increase to this level, where it remains for 7 years, before tapering off |
| The government significantly increases spending in response to the earthquake | <ul style="list-style-type: none"> Public investment increases by 0.5% of GDP. However, this is not done immediately: the government slowly increases investment until it reaches 0.5% of GDP 3 years after the disaster. Investment remains at this level for 7 years before tapering off There is a discretionary increase in transfer spending of approximately 0.7% of GDP to account for EQC payments¹¹⁷ The automatic fiscal stabilisers increase government consumption by 1% of GDP for 3 years and decrease tax revenue temporarily by approximately 0.5% of GDP |
| The government increases tax revenue following the disaster in order to bring debt back down to its pre-earthquake level | <ul style="list-style-type: none"> The government gradually increases tax until 10 years after the earthquake the tax-to-GDP ratio is 2% higher than the level expected without the earthquake 20 years after the earthquake tax revenue to GDP is reduced to the level expected without the earthquake |
| There are some other cosmetic and technical assumptions | <ul style="list-style-type: none"> Real interest rates are 50 basis points lower for two years There are several other technical changes made to smooth out the labour supply and wage responses |

¹¹⁷ For this modelling we have assumed that the EQC fund is depleted and this is funded from government debt.

