

How does the Treasury's Long-Term Fiscal Model work, and what is our initial analysis showing?

Speech delivered by Girol Karacaoglu
Chief Economist, the Treasury

Affording Our Future Conference 2012
Victoria Business School, Wellington

10.30-10.50am
10 December 2012

Good Morning.

It is with pleasure that I address this morning's session following Professor Bob Buckle and the Government Statistician, Geoff Bascand.

As the Secretary indicated in his opening, Bob Buckle has been an outstanding Chair of an independent Long-Term Fiscal External Panel the Treasury established earlier this year to test and challenge our initial modelling assumptions and analysis.

Geoff has been an extremely valued member of that Panel and I am grateful to both for giving their precious time and expertise to assist the Treasury meet its Public Finance Act reporting requirements to produce a *Statement on the Long-Term Fiscal Position* before the end of October next year.

I think it is fair to say that sustainability is a concept that many people are much more familiar with these days than they were 40 or 50 years ago.

In the context of the Crown's finances, Bob has outlined ways of thinking about what is and isn't *fiscally sustainable*. Geoff has focused on projections relating to the structural changes occurring in New Zealand's population, labour force and productivity in the decades ahead.

I will seek to tie together some of the critical, broad threads arising out of these two presentations. In doing so, my aim is to assist a better understanding of how the Treasury goes about putting together a set of very long term projections for the Crown's finances.

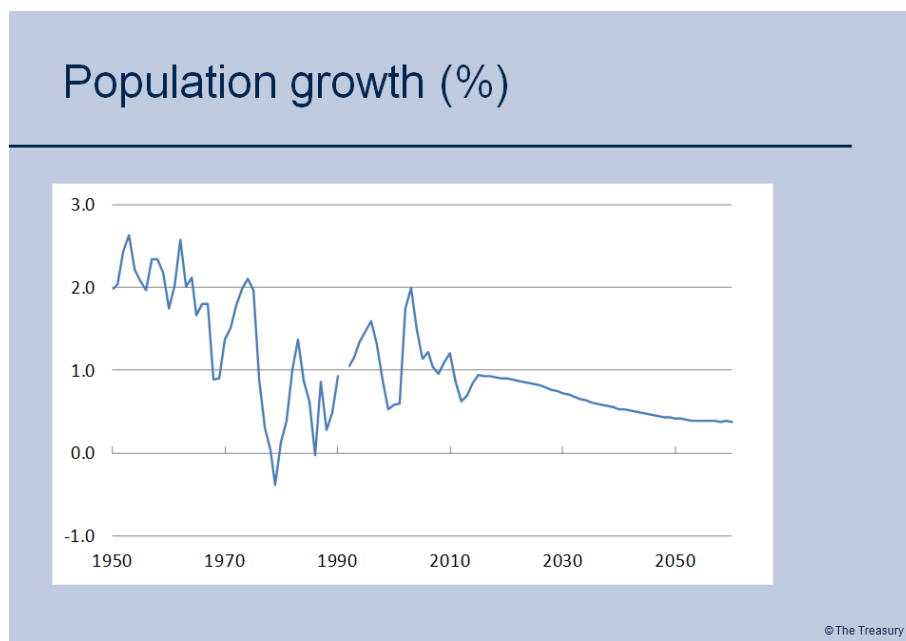
What is the Long-Term Fiscal Model?

It won't surprise anyone to know that the Treasury has a Long-Term Fiscal Model.

And it won't surprise anyone either that the quality of what comes out of the model is constrained by the quality of what gets fed into it.

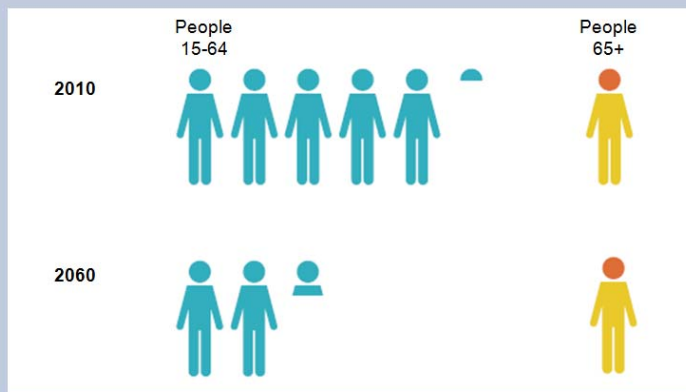
So let me outline to you some of the critical assumptions that we put into our model.

First, we incorporate Statistics New Zealand projections for **population growth**, **population ageing** and **labour force participation rates**.



Geoff has outlined the official projections for **population growth**: Our population of 4.4 million is anticipated to reach around 6 million by 2060 but, as the overhead shows, the rate of population growth is expected to slow.

Dependency ratio 65+ to 15-64



© The Treasury

Because people are, on average, living longer, and because fertility rates are, on average, lower than they used to be, the projections are for a rising proportion of the total population to be aged 65 years and higher. The overhead captures that ratio over time – it shows the ratio of those aged 65 years and older, compared with those aged 15-64 years at two points in time: 2010 and 2060.

Changing balance between work/ remaining life for males turning 65



© The Treasury

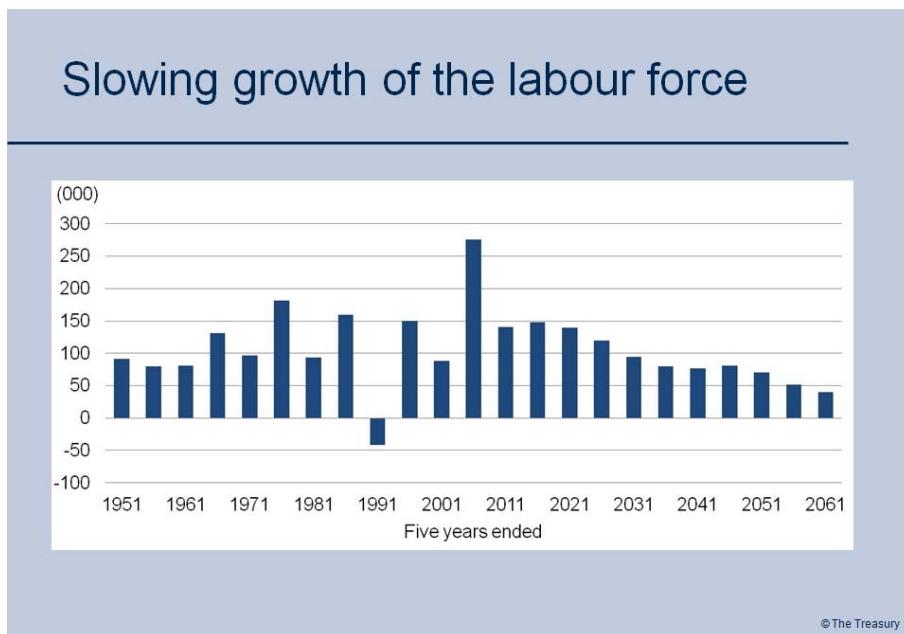
The overhead illustrates how **population ageing**, *the fact that people are living longer*, interacts with people's **participation in the labour force** – *that is the period of time that a person is either in employment or is actively seeking work*.

- The first set of scales captures your typical working man turning 65 in 1960. Statistically speaking, he would have been expected to live a further 13 years, having worked for 50 years.

I've picked a man for this example because in those days it was much more likely that a man would have had no time away from paid work (let's say for the purposes of raising a child) from the time that he started working, perhaps at the age of 15. The slide shows the 65-year-old man retiring in 1960 at the average of 65, and, on average, expecting to live another 13 years.

- The second set of scales looks at 2010: Here a 65-year-old man might count on 20 more years of life, after 43 years in the workforce (having starting at 22, after some tertiary study and, perhaps, a period of overseas travel).
- A person turning 65 in 2060, captured in the third set of scales, might expect to live for another 26 years after that age – after having had around 42 years in the labour force.

What this illustrates is that in the century to 2060, the lifespan after one's 65th birthday is expected to have doubled from approximately 13 years to about 26 years, while the amount of time spent in the workforce may have contracted by nearly a decade - from around 50 years to 42 years.



A society's labour force participation rate is the total labour force (*the number of employed or actively seeking work*) expressed as a percentage of the working-age population (*the resident, non-institutionalised, civilian population aged 15 and over*).

In 2008, New Zealand had the fourth highest participation rate in the OECD and, at last count, it stood at 68.4%. But population ageing means that the ratio of people that are in the labour force, relative to those that are of working age but not in the labour force, is projected to decline. For the *2013 Statement*, Treasury will be using the official statistics agency's median projection which is that the labour force participation rate will ease down toward 65% by 2061.

This overhead captures anticipated slowing growth in the labour force. It shows growth in the labour force in the five years ending in 2016 of almost 150,000. This is projected to fall to 40,000 in the five years to 2061.

Having plugged in projections for population growth, population ageing and labour force participation rates, the next series of assumptions are for labour productivity growth, weekly hours worked, the rates of inflation and unemployment.

Key economic assumptions

- Trend productivity assumption of 1.5% growth in output per hour worked per annum from 2020 (versus 1.1% for the last 40 years)
- Average weekly hours worked assumed at 33.2 hours (compared with 34.6 hours over the last 35 years)
- Assumes an average annual consumer price inflation rate of 2% (the midpoint of the current inflation range target)

© The Treasury

While an easing in hours worked and participation rates may contribute to society's future fiscal challenge, the main sources of pressure to the Crown's finances in the decades ahead are expected to come from an anticipated rise in expenses in particular areas of state-funded activity.

We mix the underlying economic assumptions, discussed already, with the projected trends for spending in the various policy areas of state-funded services.

We do this by working out historic spending patterns in the specific policy areas, assuming no changes to current legislative settings and entitlements, and project the costs forward in time as these interact with changes in the structure of the population and those other assumptions that I've identified.

To illustrate the extent to which the sources of fiscal pressure are affordable we assume that the Crown's revenue stream will remain fixed as a ratio to the size of the economy from 2020.

Long-term fiscal projections – cost pressures

% of nominal (GDP)	2010	2020	2030	2040	2050	2060	Δ (% points)
Health	6.9	6.9	7.9	9.1	10.1	11.1	4.1%
Superannuation (NZS)	4.4	5.3	6.5	7.2	7.3	8.0	3.6%
Education	6.2	5.2	5.1	5.1	5.1	5.2	-1.0%
Other Op. Allow. Covered (eg. Justice)	8.3	7.4	7.4	7.5	7.5	7.6	-0.7%
Non-NZS Welfare	6.8	4.9	4.6	4.3	4.1	3.9	-2.9%
Debt-financial Costs (DFC)	1.2	1.9	2.6	4.3	7.1	11.4	10.2%
Total Expenses	33.9	31.6	34.1	37.5	41.2	47.2	13.4%
Revenue (majority tax)	30.2	32.3	32.6	32.5	32.5	32.6	2.4%
Operating Balance (R-E)	-3.7	0.7	-1.6	-5.0	-8.7	-14.7	-10.9%
Balance excluding DFC "Primary Balance"	-2.5	2.6	1.0	-0.8	-1.7	-3.2	-0.8%

© The Treasury

So, assuming that the Crown's tax revenue is kept as a stable ratio to GDP from 2020, and assuming existing legislative entitlements are kept unchanged, what this indicates is that the Crown would run growing budget deficits (negative operating balances) from 2030, increasingly driven by rising debt-financing costs (to pay the interest on the growing Crown debt levels that all these figures imply).

We know in reality that the above will never happen. Crown debt levels won't be permitted to rise to above 100% or 200% of GDP.

What would happen in practice is that governments would balance the budget by reducing spending settings and/or by raising their revenue as time progresses, so significantly reducing the extent of the debt-financing cost (DFC) line in the table.

So, what is our initial modelling showing?

As you can see, healthcare costs and retirement income policy are two significant drivers of the fiscal gap through the projection period. As indicated, two implications of Treasury's projections are:

- Publicly-financed health costs could rise from around 7% of national income or GDP in 2012, to around 11% by 2060;
- Gross NZ Superannuation costs could rise from over 4% to 8% of GDP.

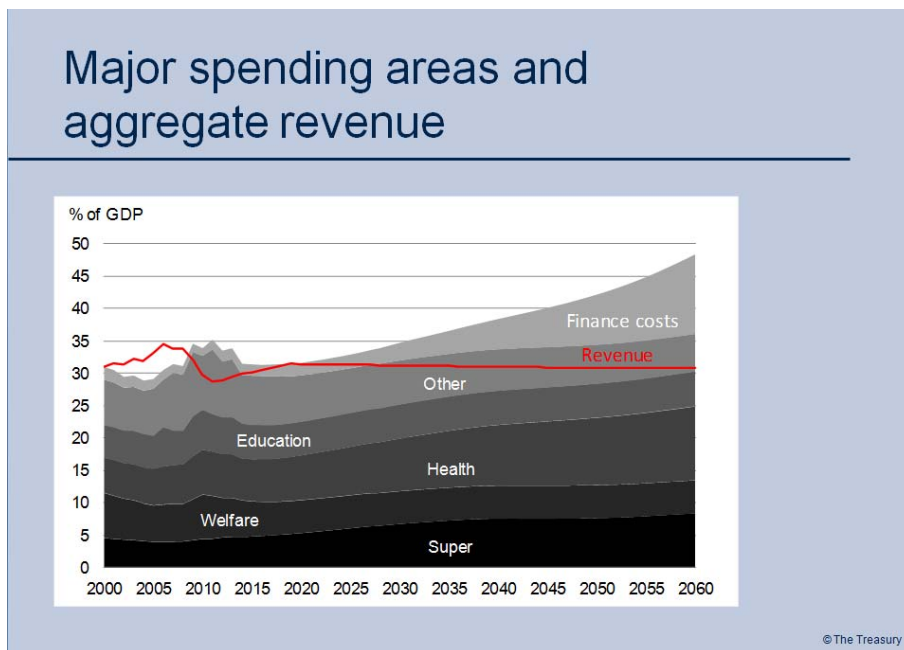
There are different drivers for these projected increased costs of publicly-funded health services and for NZ Super.

In the case of health costs, it is a combination of population ageing plus the development of new medicines and procedures, ever-rising public expectations for the latest services and products available in richer societies, and international competition for skilled health professionals, that combine to elevate health costs.

Crown spending on health care is an important part of our long-term fiscal challenge because it is both large and growing. Vote Health currently makes up about a fifth of core Crown expenditure, and health spending has been increasing faster than our national income for most of the last 50 years – a phenomenon shared with societies across the developed world.

These projections are, of course, highly sensitive to very important assumptions and caveats that will need to be very clearly outlined in the *Long-Term Statement*.

Spending on NZ Superannuation is more certain because it is driven by what is happening to the structure of the population combined with existing legislative entitlement settings - demographic change will push the cost of paying for NZ Superannuation up. The session on retirement income will examine the issues with addresses by Diana Crossan, Susan St John and Andrew Coleman.



One change from our last *Statement* in 2009 is that we will next year likely have non-NZS welfare costs at a higher share of national income throughout the projection period. This is because we accept the feedback we received at the External Panel process that our previous assumption (which was to link future growth of welfare payments solely to the rate of consumer price inflation) is unrealistic. It would mean an ever-rising gap between welfare entitlements and average wages.

In our modelling, education expenditure and welfare spending exclusive of pensions both decline modestly as a ratio to national income in what might be thought of as a “demographic dividend” (even after allowing for the adjusted assumptions for welfare).

At least, this is our current thinking – our final set of projections won’t be done until next year as we continue to test and re-test our assumptions, based on feedback and peer-review, including from this Conference.

What do the numbers mean?

They mean there is no cause for panic.

They mean there is no crisis.

They mean that we have challenges ahead and they are manageable.

Future governments will manage them, just as governments have successfully managed the challenges of the last 20 years.

Treasury's advice is that the most important and appropriate responses in the first instance is to have a strong and credible fiscal strategy for the short and medium-term.

Returning the Crown's accounts to surplus and, reducing the Crown's net debt levels down to a low level as a ratio to GDP over the next decade, is the prudent and sensible approach to protect the interests of New Zealanders now and in the future. The current Government is doing this.

From the mid to late 2020s, there will be many potential options that will be available to address the challenge. And these will be discussed over the next day and a half.

How should we think about our choices?

Obviously anything that is done to address the fiscal challenge in the decades ahead will be primarily framed around the need for fiscal sustainability.

But fiscal sustainability is not the only consideration of the Treasury as it prepares its next *Statement*.

In thinking about potential policy responses to maintain sustainable Crown finances in the decades ahead, the Treasury will examine issues from the perspective of what they imply for economic efficiency, our nation's macroeconomic vulnerabilities and imbalances and how the benefits and burdens of any potential policy response would fall on different groups in society.

The session after morning tea will give you an insight into how this affects our analysis, how we at the Treasury think about the impacts of population ageing, and potential policy responses to it, on intra-generational and inter-generational income distribution across age-groups over time, and on specific communities, such as Māori and Pasifika.

Uncertainty

With perfect hindsight we know with certainty that we have had an ageing population for most of the period since statistics have been gathered in the late 1800s - the exception being the early years after World War II when there was a "baby boom."

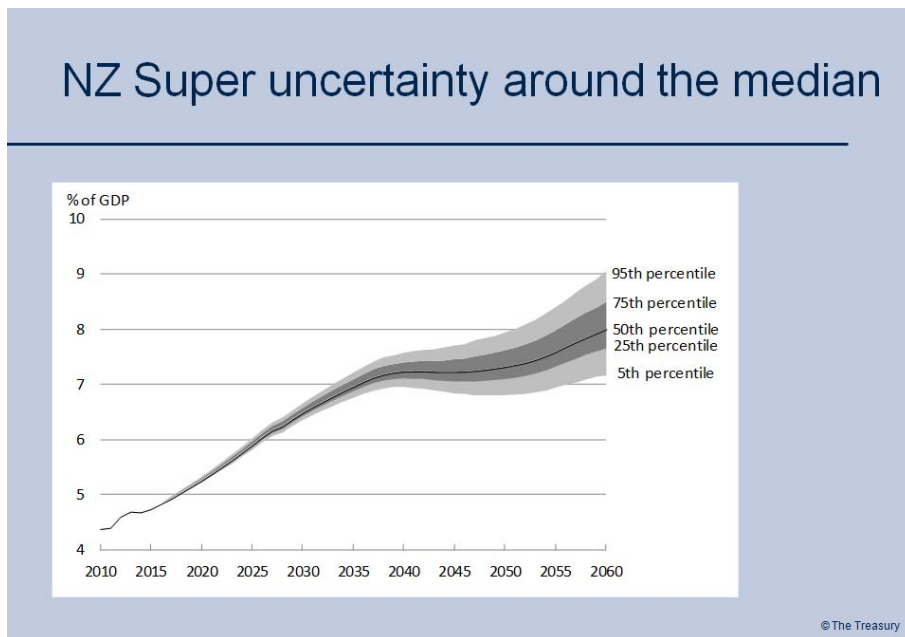
Looking into the future, in contrast, carries degrees of uncertainty.

We have a relatively high degree of certainty that population ageing is entering an accelerating phase, with older people a growing proportion under all plausible assumptions about fertility, mortality and migration trends.

Based on historic variance since 1977, in 2060 there is a 90% chance that total fertility rate will lie between 1.2 and 2.6 babies around the median of 1.9. In 2035, half the potential population outcomes will be above 5.33 million and half below.

If we then add historic variability around the macro assumptions (productivity, inflation, hours paid, unemployment rate and so on) in the Long-term Fiscal Model, then this extra uncertainty shows up in the wobbles in fiscal indicators such as the primary balance or for the gross costs to funding NZ Super as a ratio to GDP.

In 2060, the median value of the NZS ratio-to-GDP is 8.2%. It is very likely (90% certain) that values of this ratio will lie between 7.3% and 9.1%. The value in mid-2012 was 4.6%.



So to conclude, long term projections are not a set of precise predictions. They aren't forecasts.

There are reasonably wide probability bands around some of the assumptions and forward projection tracks that will be published by the Treasury.

We will put together these projections in our *Statement* to Parliament next year in order, we hope, to help New Zealanders think about the broad range of potential challenges ahead so that we can make good public policy choices to both maintain sound Crown finances while raising the living standards of New Zealanders in the decades ahead.

Thank you.