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New Zealand Superannuation's real costs – looking to 2060

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The Treasury's latest estimates of the long-term cost of New Zealand Superannuation were released on 11 July. Despite often-gloomy predictions about the 'unaffordable' NZS, what is the scale of the affordability problem? We update *PensionBriefing 2010-4* 'How much will New Zealand Superannuation really cost?' The long-term picture now looks better than it ever has in the last 13 years.

In summary

The Treasury has released a slew of papers[1] giving its and others' views on some of the fiscal challenges that New Zealand faces over the next 50 years. The Treasury does this kind of review on a regular basis – the last was done in 2009. The RPRC analysed aspects of the 2009 review in *PensionBriefing 2010-4 How much will New Zealand Superannuation really cost?* That is accessible here.

The main 2013 report is called *Affording Our Future: Statement on New Zealand's Long-term Fiscal Position* (New Zealand Treasury, 2013a). Although New Zealand's fiscal environment has improved in the last four years, the Treasury is justifiably concerned about our fiscal future. New Zealand has an ageing population and the costs associated with ageing (pensions, healthcare and long-term care) are expected to more than double over the next 50 years, if current settings persist.

Put simply, the older groups in our population will be making larger claims on the country's economic output. That should put New Zealand's expected growth at the centre of the discussions we need to have, for example, about the size of the New Zealand Superannuation pension, the age from which it becomes payable (the 'state pension age'), the qualification conditions and the basis on which it is protected against inflation. Those are not the only things New Zealand needs to discuss in relation to future retirement incomes. Some think New Zealanders should be compelled to save for retirement or that the government should itself pre-fund New Zealand Superannuation[2].

When discussing the future affordability of, for example, expenditure on the old, we should be concerned if New Zealand's economic output grows insufficiently to support the increasing claims of the growing aged population. Showing expected costs as a proportion of New Zealand's future economic output is one way of expressing that connection. That presents a less alarming picture than many might expect.

New Zealand Superannuation in brief

New Zealand Superannuation (NZS) is a universal, taxable pension, funded largely on a 'pay-as-you-go' (PAYG) basis from general taxation. It is paid to nearly all New Zealanders who are age 65 and over and who have completed relatively modest residence

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[1] A total of 41 reports and spread sheets are involved including 19 pieces of "externally commissioned research", including one by the RPRC's Susan St John (St John 2012).

[2] A future *PensionBriefing* will analyse *The Future Costs of Retirement Income Policy, and Ways of Addressing Them*, a report from the Treasury (New Zealand Treasury 2013b) published with *Affording Our Future*.

requirements. The net married couple's rate is set between 65-72.5% of net average 'ordinary time' earnings and is currently 66%.

The NZS amounts depend on whether the person is married, single or living alone. From 1 April 2013, NZS at the married rate is $16,138 p.a. before tax or $32,275 in total for the couple. For a single person living alone, the annual before-tax pension is $21,337 a year. NZS is taxed on an individual basis at, effectively, the pensioner's top marginal rate and is paid without reduction for other income[3] or assets.

The New Zealand Superannuation Fund (NZSF) was established in 2001 to partially pre-fund future payments of NZS. The government has temporarily suspended contributions to the NZSF and intends to resume those when the net Crown debt falls below 20% of GDP. On current projections, that should be in the year 2020/21.

The presence of the NZSF does not affect the cost of NZS, the topic of this *PensionBriefing*, but will very modestly affect the incidence of that cost. The latest estimate (New Zealand Treasury, 2013b, p.51) suggests that "up to about 8% of the expected cost of NZS in 2050" will come from the NZSF. The other 92% will come from tax revenues at the time.

This generation of taxpayers has effectively set aside some financial assets in the NZSF to help meet the future NZS outgo[4]. There can be no assurance that the NZSF will actually lower future taxes during the drawdown. That will depend on political decisions at the time. Taxes will be higher when contributions to the NZSF resume; there is no guarantee they will be lower during the drawdown than would otherwise have been the case in the absence of the NZSF. A future government could simply raise overall taxes.

The cost of New Zealand Superannuation will increase

As the baby boomers move beyond the state pension age (age 65), NZS will cost taxpayers more. About 612,000 New Zealanders now receive NZS at an after-tax cost in 2013 of $8.8 billion[5].

The number of pensioners is expected to be 1.5 million by 2060 (New Zealand Treasury 2013c).

The Treasury has been publishing regular estimates of the rising cost of NZS since 2000. Chart 1 plots the results of 14 different versions of the estimates taken from the Treasury's NZSF model. They show the estimated net cost of NZS, expressed as a percentage of Gross Domestic Product (GDP) in the year of payment. Similar numbers can be seen in the 'Long-Term Fiscal Model' (LTFM). Both the costs of NZS and GDP estimates are based on a lot of guesses about the future[6].

Chart 1 shows the projections through to 2060 for all 14 versions.

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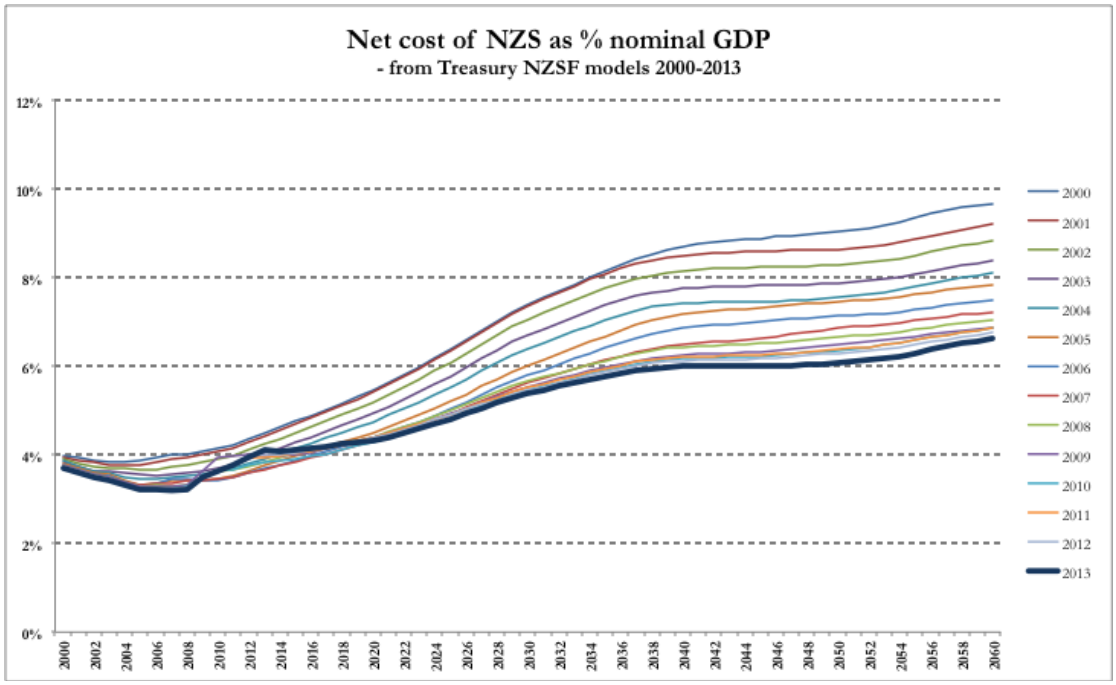
[3] Except where there is an analogous pension paid by another government.

[4] Whether the NZSF has been effective to date, or even whether it is an appropriate strategy for the country to adopt should be the subject of review: see Littlewood (2010).

[5] Because NZS is taxable income to pensioners, the after-tax cost is the only one that matters. The pre-tax cost is $10.2 billion.

[6] For example, near-term fiscal and economic forecasts come from the 2013 Budget Economic & Fiscal Update (BEFU); demographic projections come from Statistics New Zealand; aggregate labour force data come initially from BEFU 2013 and are "[p]rojected using growth rates of Statistics New Zealand's 2009-base aggregate Labour Force projections." Medium-term estimates of GDP come from the Treasury's Fiscal Strategy Model that is accessible here.

Chart 1: Cost of NZS as percentage of GDP – 14 Treasury models 2000-2013



Note: the cost for years before the year a model was run are 'actuals'; for years after the model was run, the costs are estimates expressed as a percentage of the nominal GDP in those years.

Between 2000 and 2013, the 2060 point fell from an estimated net 9.7% of GDP in 2000 to 6.6% in 2013, an apparent reduction of 32% in 13 years. The most recent 2013 estimates are lower than all previous 13 estimates from 2021 onwards.

These estimates take no account of any draw-downs from the NZSF. As mentioned, the cost of NZS in each year is the total of NZS payments in that year. For this purpose, it does not matter from which 'pocket' the government takes the amount required.

Comments on the Treasury's NZSF model

Given the uncertainties that accompany a projection of only one or two years in the government's annual Budgets, looking 40 or more years out seems ambitious, to say the least. However, for the reasons discussed below, the government's policy advisers attach considerable significance to these kinds of projections so they (and their limitations) need to be understood.

Chart 1 plots each NZSF model's projections based on:

- The 'numerator' being estimates of the after-tax amounts of NZS payable to the estimated number of New Zealanders then aged over 65, based on further estimates of the then after-tax national average wage (on which NZS is based);
- The 'denominator' being estimates of New Zealand's economic output (GDP) in each of the years concerned.

There is a connection in this analysis between the numerator and the denominator used in each year to calculate the estimated cost of NZS. In 2009, approximately 46% of New Zealand's GDP was represented largely by the wages that are then used to calculate NZS. As the wage share of the denominator in the equation changes, so too does the numerator (NZS). If, for example, the proportion of GDP represented by wages grows then, because NZS is linked to wages, the proportion of GDP represented by NZS will also grow.

In fact, employees' compensation as a proportion of GDP has fallen from about 55% in the early 1980s to about 45% in the 2000s - 46% in 2009 (Statistics New Zealand, 2009). Based on the 2009 proportion, guesses about the other 54% of the economy have considerable potential to change the shape of Chart 1.

The 14 versions of the NZSF model illustrate significant changes in both the possible costs of NZS and the size of the New Zealand economy.

The models' estimates of the cost of NZS – the numerator

Table 1 shows the cost of NZS in ten-year intervals from each of the 14 versions of the NZSF model.

Table 1: The net cost of NZS measured in dollars of the NZSF model's version year

	2010 bn	**2020 bn**	**2030 bn**	**2040 bn**	**2050 bn**	**2060 bn**	**Change: 2010-2060**
V1 - 2000	$6.61	$12.02	$21.37	$33.26	$45.76	$63.45	9.6x
V2 - 2001	$6.59	$12.18	$21.85	$33.83	$46.14	$64.18	9.7x
V3 - 2002	$6.49	$12.00	$21.53	$33.32	$45.46	$63.23	9.7x
V4 - 2003	$6.51	$12.65	$23.83	$38.75	$55.53	$81.13	12.5x
V5 - 2004	$6.61	$12.81	$24.21	$39.67	$57.27	$84.30	12.8x
V6 - 2005	$6.48	$12.65	$24.26	$40.95	$60.78	$89.08	13.7x
V7 - 2006	$6.43	$12.55	$24.06	$40.62	$60.92	$88.36	13.7x
V8 - 2007	$6.47	$12.34	$23.47	$39.23	$59.28	$87.32	13.5x
V9 - 2008	$6.97	$13.13	$25.06	$41.93	$63.22	$95.34	13.7x
V10 - 2009	$6.92	$12.46	$23.49	$39.28	$59.40	$89.70	13.0x
V11 - 2010	$6.96[7]	$13.29	$24.77	$40.87	$61.46	$95.26	13.7x
V12 - 2011	$6.96	$13.64	$25.31	$41.78	$62.82	$97.36	14.0x
V13 - 2012	$6.96	$13.33	$24.58	$40.58	$61.01	$94.56	13.6x
V14 - 2013	$6.96	$12.70	$24.30	$40.45	$60.85	$97.05	13.9x
% change 2000-2013 – **nominal $**	+5.3%	+5.7%	+13.7%	+21.6%	+33.0%	+53.0%	-
% change **2000-2013:** 2013 dollars	See footnote 7	-23.8%	-18.7%	-18.0%	-4.1	+10.4%	-

Note: Projections in 2000, 2001 and 2002 all assumed future inflation at 1.5% p.a., while all projections after this assumed 2% p.a. This explains why projections in dollars of the Version's year, of both net NZS and nominal GDP (see Table 2), changed more between V3-2002 and V4-2003 than between any other consecutive updates.

Each of the 14 versions of the NZSF model shows the nominal dollar cost of NZS increasing by about 10-14 times over the 50 years to 2060 (the final column in Table 1). However, those levels of increase need not alarm. That's because each year's NZS actually represents a claim on New Zealand's total economic production in that year. So, regardless of the nominal dollar cost of NZS in any year, what really matters is the size of the economy in that year because that will determine the *relative* cost of NZS and so, whether or not New Zealand can really afford NZS on its current basis.

It's important to emphasise that the dollars in Table 1 are not comparable between each year's version of the NZSF model. Each row of the table is expressed in dollars of the year in which that Version was run, adjusted by inflation from that starting point. For example, V1–2000 gave the then-expected cost of NZS in 2020 (20 years after the calculation) as $12.02 billion.

[7] In each case, the figures shown for years on or before the NZSF model was run (in this case, the 2010 number in 2010) is a historic cost rather than a future estimate. That explains why, in Versions 11 to 14 for 2010, the dollar cost is unchanged. The real cost in 2010 was 19.0% less than the V1-2000 estimate.

Based on the Reserve Bank's *New Zealand Inflation Calculator*[8], $12.02 billion in mid-2000 (V1-2000) is the same in real terms as $16.66 billion in mid 2013 when V14-2013 was run. Despite what the dollar estimates in Table 1 suggest (an apparent 5.7% increase from $12.02 billion to $12.70 billion), the *real* cost of NZS in 2013, measured against changes in the Consumer Price Index over the 13 years to 2013, has fallen by 23.8% over that period (from $16.66 billion in 2013 dollars to $12.70 billion).

It is only in the 2060 column that the expected cost for V14-2013 exceeds the real cost of the V1-2000 estimate (+10.4%).

The NZSF models' estimates of the size of GDP – the denominator

Because the 'affordability' of given dollar values of expected NZS benefits will be driven by New Zealand's capacity to pay retirees those benefits (in other words, New Zealand's economic output), we next need to understand what the NZSF models have said about expected estimates of output over the 13 years since 2000.

Table 2 shows the NZSF models' estimates of Gross Domestic Product or GDP. The table gives ten-yearly GDP numbers from each of the 14 NZSF model versions. Again, the dollar values in each row of Table 2 are expressed in dollars of the year in which that version was run.

Table 2: GDP measured in nominal dollars of the Version year

	2010 $bn	2020 $bn	2030 $bn	2040 $bn	2050 $bn	2060 $bn	Change: 2010-2060
V1 - 2000	$159.26	$219.94	$289.16	$382.27	$506.39	$655.30	4.1x
V2 - 2001	$161.91	$224.81	$297.03	$397.48	$533.61	$697.28	4.3x
V3 - 2002	$166.30	$230.84	$305.13	$408.32	$548.16	$716.29	4.3x
V4 - 2003	$175.68	$256.20	$355.56	$499.76	$704.71	$967.25	5.5x
V5 - 2004	$182.78	$269.71	$378.03	$533.92	$757.47	$1,040.66	5.7x
V6 - 2005	$186.70	$281.02	$402.76	$570.95	$814.76	$1,137.37	6.1x
V7 - 2006	$187.58	$286.63	$414.94	$591.52	$845.18	$1,181.07	6.3x
V8 - 2007	$186.99	$286.52	$417.86	$603.04	$864.07	$1,207.63	6.5x
V9 - 2008	$192.13	$298.25	$442.91	$650.97	$949.20	$1,353.07	7.0x
V10 - 2009	$175.05	$283.41	$424.04	$627.30	$914.21	$1.307.66	7.5x
V11 - 2010	$189.53[9]	$308.92	$453.30	$661.51	$964.53	$1,387.15	7.3x
V12 - 2011	$189.12	$310.00	$458.76	$672.03	$983.88	$1,418.07	7.5x
V13 - 2012	$189.02	$304.09	$451.43	$661.72	$968.50	$1,398.19	7.4x
V14 - 2013	$191.80	$293.81	$451.46	$673.74	$1,001.84	$1,460.88	7.6x
% change 2000-2013: **nominal $**	+20.4%	+33.6%	+56.1%	+76.2%	+97.8%	+123%	-
% change **2000-2013**: 2013 dollars	See footnote 9	-3.6%	+12.6%	+27.2%	+42.7%	+60.8%	-

Note: as explained in the note to Table 1, the inflation assumption changed from 1.5% p.a. to 2.0% from 2003 onwards and that explains the significant shifts in nominal values between V3-2002 and V4-2003.

A number of observations can be made about the results in Table 2:

a) **GDP up in each Version:** As a whole, the results across all of the NZSF model versions show that New Zealand's GDP in 2060, in nominal terms, is expected to be between 4-7 times the 2010 values (the final column in Table 2).

[8] http://www.rbnz.govt.nz/statistics/0135595.html

[9] As with Table 1, the 2010 figure for V12-2011 is a historic figure rather than a future estimate. The changes shown for 2010 in V13 and V14 result from subsequent revisions to the 2010 GDP number. The real value in 2010 was 8.5% less than the V1-2000 estimate.

b) **Not necessarily in real terms across Versions:** Whereas across all 14 Versions there was a significant increase in the nominal values from 2000 to 2013, again what matters is the change in inflation-adjusted dollars.

   On this measure, the V14-2013 estimate of 2020 economic output ($293.81 billion) is expected to be about 4% lower than was expected by V1-2000 to be in 2020 ($219.94 bn in 2000; $304.8 bn in 2013 dollars). That reduction in the value of the denominator potentially makes NZS in 2010 look relatively more expensive than the V1-2000 NZSF model expected.

c) **Simplified assumptions:** The NZSF model simplifies projections about both net NZS per pensioner and GDP itself. Both are expected to grow in line with average real increases in wages. However, a stronger expected growth in the labour force, in particular higher labour force participation rates at older ages (by comparison with earlier versions of the NZSF model tends to increase GDP and also make net NZS seem less expensive in real terms. However, GDP will be affected by more than real wages.

d) **GDP expected to be higher from 2030:** The long-term GDP estimates are expected to be higher in real terms between V1-2000 and V14-2013 from 2030 onwards: +12.5% in 2030 and as much as +60.8% in 2060.

Drawing the estimates together

The results shown in Chart 1 show the combined effect of changes in the estimated costs of NZS expressed as a proportion of the estimated size of New Zealand's future economy. In *Affording Our Future*, the Treasury expressed concerns about the effect of demographic changes on New Zealand's future economy:

> "Over time, NZ Super payments will consume an increasing share of government spending if current legislative settings are retained. This leads many to question whether the legislative settings are the right ones for the future. The environment is also changing – in future more over-65s will be better placed to support themselves, both through better health and as a result of accumulating wealth through KiwiSaver and other voluntary saving. Over-65s are also more likely to be still working than they were in the past."

In this context, the Treasury illustrated two main options for the future of NZS:

- lifting the state pension age to age 67 (currently age 65). The increase could start in the 2019/20 financial year and would increase by six months in each year.
- shifting the annual review from increases that are based on changes in wages to reviews based on inflation, starting in the 2019/20 year.

Other papers, released with *Affording Our Future*, looked at other related issues, such as compulsory private provision, 'communally' pre-funded NZS (effectively a significantly larger NZSF) and income-testing NZS (St John 2012). A later *PensionBriefing* will examine these options.

Whether or not these are issues that New Zealand should discuss, it is clear from Chart 1 that the expected future real cost of NZS measured in the 13 years covered by the NZSF models' calculations has actually fallen, benchmarked against future estimates of GDP. In fact, the 2060 estimate of the expected net cost of NZS has reduced from 9.7% of GDP in V1-2000 to 6.6% of GDP in V14-2013 (a reduction of 32%). Most of that is attributable to the improvement in real GDP (+60.8% in 2060, as shown in Table 2).

Part of that change can be attributed to changes in demographic data; also to improvements in forecasting techniques. However, Table 2 shows the direct impact that changes in the real value of GDP have on the *relative* costs of NZS (measured against

GDP). Part of that change is affected by recent and expected changes in labour force participation rates of the over-65s themselves.

This analysis emphasises the importance of economic output and, for the security of today's and tomorrow's pensioners, the importance of increasing that output at a faster rate than the latest version of the NZSF model presently projects. For many more reasons than just the affordability of NZS, how to make New Zealand more productive should be at the centre of discussions about the economic implications of an ageing population.

NZS not the only concern

NZS is not the only significant cost issue presented by an ageing population. The Treasury's 2013 Long Term Fiscal Model estimated the likely future increases in health costs. The government's expenditure on health is expected to increase from 6.5% of GDP ($13.8 billion) in 2013 to about 10.7% of GDP in 2060. A lot of that expenditure is naturally related to older people.

"*Affording Our Future*"

An ageing population presents challenges for future governments but the information presented in the Treasury's 2013 report is not new and indeed is somewhat more comforting in 2013 than it was in 2000. This continues the trend that Chart 1 illustrates for all 13 of the NZSF models after the first in 2000.

On the issue of NZS, not much has changed since the report of the Task Force on Private Provision for Retirement nearly 21 years ago (Task Force on Private Provision for Retirement, 1992). The expected expenditure patterns shown in Chart 1 echo the 'back half' of what the Task Force called 'the wavy blue line' (the chart shown at page 37 of the report).

What has not changed is an unwillingness to talk about the implications of the expected, and now closer, outcomes. That is certainly the government's position. Much political blood has been spilt on this issue over the last nearly 40 years so we should not be surprised at this official reticence, at least for the 2014 election. However, based on the present government's statements, probably not much will change in the next few years.

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