

Mutuality and Solidarity – is it possible to solve the crisis in private health insurance in New Zealand?

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Abstract

Public and private health cover in New Zealand are on the brink of a crisis. Private health insurance take-up rates continue to decline across all groups, but particularly in the crucial 50-65 group. New Zealand's current age-rated premiums increase dramatically over this period, driving private health cover to the point where it is unaffordable for many people.

Projections for New Zealand spending on healthcare are sobering. Our ageing population combined with the increasing cost of treatments result in a fast growing proportion of National spending on healthcare. Additionally, a shrinking proportion of this is being covered by the private sector leaving a heavier burden on the taxpayer.

In this paper potential options are explored to address this crisis, ranging between mutuality and solidarity. Originally defined for actuaries by David Wilkie, mutuality is the principle of private, commercial insurance with individuals paying according to estimates of the risk they bring to the pool. Solidarity is the principle of social insurance – sharing risks and costs with payment related to income or some other scheme. The focus of this paper is on a range of solutions that address the role and profitability of private insurers and the need for equity in the public sector.

An attempt is made to move beyond current industry and government thinking and consider whether it is possible to develop a sustainable approach to health cover. Options are put forward for both the public and private sectors with a focus on how these can work together to ensure that all New Zealanders receive appropriate healthcare.

Acknowledgments

I would like to acknowledge the contribution of Prof Heather McLeod, of Heather McLeod & Associates Ltd. Heather's wealth of knowledge and resources on the health sector, particularly public health provision and funding, have been invaluable in the preparation of this paper.

1 Introduction

The paper begins with some definitions and an overview of the international frameworks and thinking about health systems and healthcare financing. Section 2 deals with why both public and private health cover are on the brink of a crisis. Section 3 considers options for private health insurance that continue to be based on mutuality thinking, while section 4 considers what solidarity options might look like. Finally, in section 5, the arguments are synthesised and a way forward is suggested.

1.1 Two worldviews: mutuality and solidarity

Actuaries trained in the tradition of the Institute and Faculty of Actuaries tend to think there is one way to organise insurance, without explicitly declaring the paradigm within which they operate. Writing in 1997, David Wilkie, an actuary and prolific academic, brought the distinctions between mutuality and solidarity to actuarial attention (Wilkie, 1997). At the time he thought that few British actuaries would be familiar with these terms and that is probably true of actuaries in New Zealand today.

The actuarial paradigm of mutuality

David Wilkie wrote (Wilkie, 1997):



“Mutuality is the normal form of commercial insurance, whether or not it is run by a mutual insurance company or one owned by shareholders. Applicants contribute to the pool through a premium that relates to their particular risk at the time of the application, perceived as well as it can be at that time on the basis of all the facts that are available and relevant The pooled funds then pay those insured who suffer losses in accordance with the scale of their losses for things like fire, household and marine insurance, or in accordance with the agreed sum assured for life insurance.”

Wilkie used the development of smoking/non-smoking rates to illustrate the typical actuarial approach to risk factors: “first, suspicion of the relevance of a rating factor is raised, preliminary investigations are carried out, social changes allow insurance companies to introduce relevant questions, commercial pressures lead insurance companies to discriminate and, finally, substantive evidence, which justifies the discrimination, is produced.”

It is important to note that social changes or social acceptance are usually needed to allow insurers to discriminate on the basis of particular risk factors. There may be public consultation and explicit political acceptance of the risk factors or the ability to include new factors may result from a lack of oversight of insurers.

The paradigm of solidarity

Solidarity is the more usual paradigm for economists and social scientists. Wilkie wrote (Wilkie, 1997):

“Solidarity is a concept that has some similarity to mutuality, but also a profound difference. The similarity is that losses are paid according to need, and the difference is that contributions are made not in accordance with the risks that each applicant brings in with him, but perhaps according to ability to pay, or just equally. Solidarity is the basis of what goes under a variety of names, such as social security, social insurance or national insurance. The word insurance is often borrowed, but in each case it is modified by a word like social or national, which implies some measure of universality and some measure of compulsion.”

He noted that defined benefit pension schemes have many features of solidarity, in particular solidarity between generations. He warned “It is important not to get the concepts of mutuality and solidarity mixed up. Both involve the sharing of losses, but only mutuality involves the assessment of risks. Solidarity requires comprehensiveness or compulsion; a private commercial insurance market requires mutuality.”

1.2 The World Health Organization and Universal Health Coverage

So why discuss solidarity in the context of health insurance and not, say, motor or property insurance? Some jurisdictions around the world do impose solidarity principles in motor insurance (for example Compulsory Third Party schemes in Australia) but this is generally where there is cover for bodily injury. In New Zealand ACC is based very much on solidarity principles.

It is useful to briefly introduce the thinking of the World Health Organization (WHO) on healthcare financing and universal health coverage, to consider the goals of the health system and outline the role of private health insurance (PHI). This is largely the domain of health economists although an increasing number of actuaries now participate in this work^a.

The functions and purpose of healthcare financing

The first major publication from the WHO on healthcare financing was in 2000 (World Health Organisation, 2000), with a follow-up a decade later in 2010 (World Health Organization, 2010). The purpose of healthcare financing is “to make funding available, as well as to set the right financial incentives for providers, to ensure that all individuals have access to effective healthcare” (World Health Organisation, 2000). A critical reason is to reduce or eliminate the possibility that a

^a The Health Committee of the International Actuarial Association (IAA) liaises with the WHO, the International Social Security Association (ISSA) and other supra-national bodies.

person will be unable to pay for care, or that the family will be impoverished as a result of trying to do so.

The WHO's focus on ensuring healthcare access for all individuals is typical of the solidarity principles employed when considering healthcare and public/private interactions. Sekhri and Savedoff present arguments for market failures in private health insurance that have led to the need for regulation of the sector (Sekhri & Savedoff, 2006). These include:

- Medical advances changing the definition of the risk insured
- Adverse selection due to information asymmetries
- Moral hazard – in this case insureds using more services than they would if they were not insured

The difficulties faced by private insurers tend to result in a diminishing pool of insureds and this has certainly been the case in New Zealand (see Section 2.1 below). But perhaps the most important argument presented by Sekhri and Savedoff is that society values the provision of healthcare; access to healthcare services are considered a merit good. Unregulated health insurance is simply unaffordable or unavailable for most people over a certain age and for those currently in bad health or with excluded conditions.

New Zealand's private health insurance market is largely unregulated (aside from solvency regulation) and makes up under 5% of expenditure on healthcare in New Zealand, according to the national health accounts (Ministry of Health, 2012). Without considerable changes in the PHI market that figure is likely to continue to decrease.

The movement for universal health coverage

Member states of the WHO committed themselves in 2005 (World Health Organization, 2005) to developing their health financing systems so that all people would have access to services in order to reduce poverty from catastrophic healthcare expenditure. This goal is called universal coverage, and more recently, universal health coverage (UHC). In the WHO annual report of 2010 (World Health Organization, 2010) the definition of universal health coverage was further defined, as illustrated below.

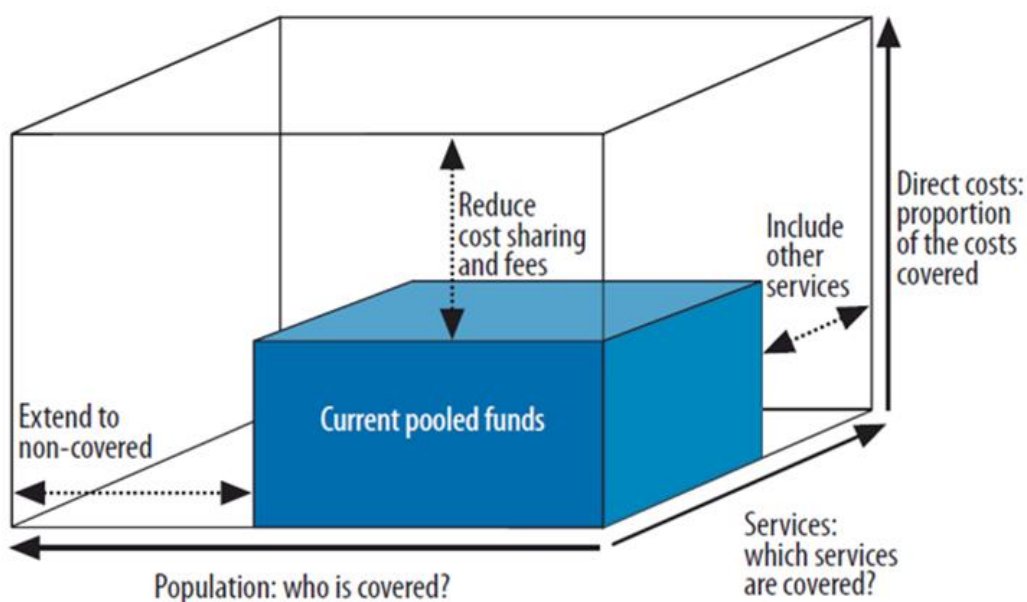


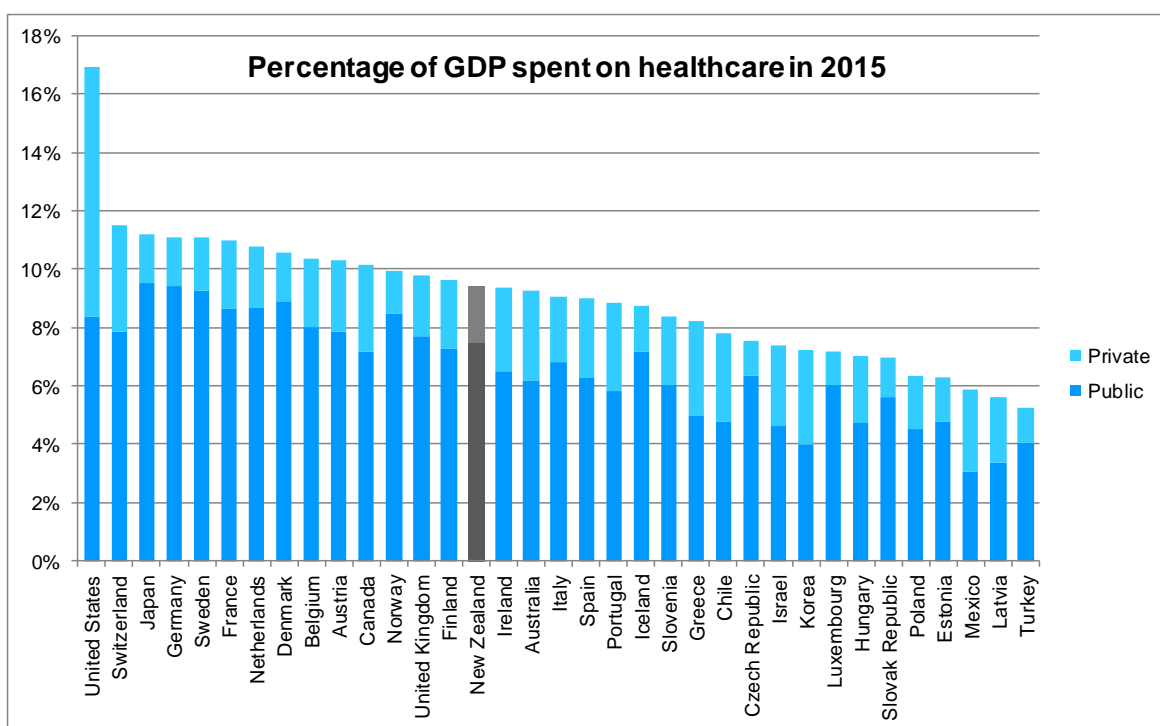
Figure 1: The Concept of Universal Health Coverage (World Health Organization, 2010)

Universal coverage is not, as sometimes simplistically presented, that everyone is covered. The definition requires a reference to who is covered, for what package of healthcare and to what degree (taking into account rationing mechanisms such as co-payments, limits and deductibles).

The WHO sees UHC as the “single most powerful concept” that public health has to offer. Momentum towards UHC was rapid with a large and vocal community of policymakers, practitioners, researchers, international development partners and grass-roots organisations that supported and promoted UHC.

The possible roles for private health insurance

The role of PHI in health systems varies substantially across countries and has been extensively studied in OECD^b countries (Organization for Economic Co-operation and Development, 2004). The chart below shows public and private expenditure on healthcare in OECD countries in 2015. The private component includes all private expenditure i.e. PHI as well as other out-of-pocket expenditure.



Source: OECD

The main roles for PHI in the OECD are described as follows (Organization for Economic Co-operation and Development, 2004):

- **Primary:** provides access to basic health cover for those who do not have public health insurance. Found in the United States, the Netherlands, Germany, and for some groups in Belgium, Spain and Austria.
- **Duplicate:** provides cover for health services already included under public health insurance. Australia and Ireland are the most significant examples in OECD countries^c.
- **Complementary:** provides cover for all or part of the residual costs not otherwise reimbursed (such as co-payments, amounts above limits or below deductibles).
- **Supplementary:** provides cover for additional health services not covered by the public scheme (such as elective care, superior hotel and amenity hospital services, dental care, pharmaceuticals, rehabilitation or complementary medicine).

^b Organization for Economic Co-operation and Development, of which New Zealand is a member.

^c South Africa also has significant duplicate PHI and hence Australia, Ireland and South Africa are often compared.



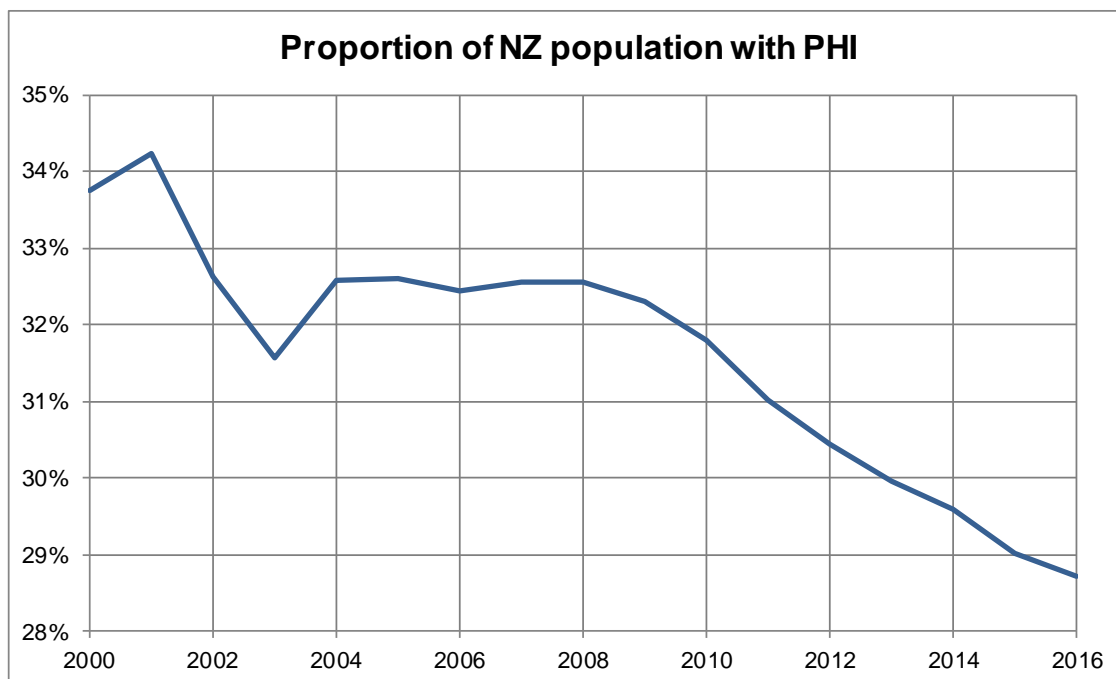
Of particular interest are the countries where mandatory cover is provided through competitive insurance markets: The Netherlands, Germany, Belgium, Switzerland and Israel (Van de Ven, et al., 2003), (van de Ven, Beck, Van de Voorde, Wasem, & Zmora, 2007). In these cases, private insurance schemes, or segments in the PHI market, are extensively regulated in a manner similar to public health cover. Three countries have considered similar roles for PHI but have opted for voluntary PHI in competitive markets: Australia, Ireland and South Africa (Armstrong, McLeod, & Van de Ven, 2010).

2 The approaching crisis in healthcare funding in New Zealand

2.1 Private health insurance issues

Coverage rates

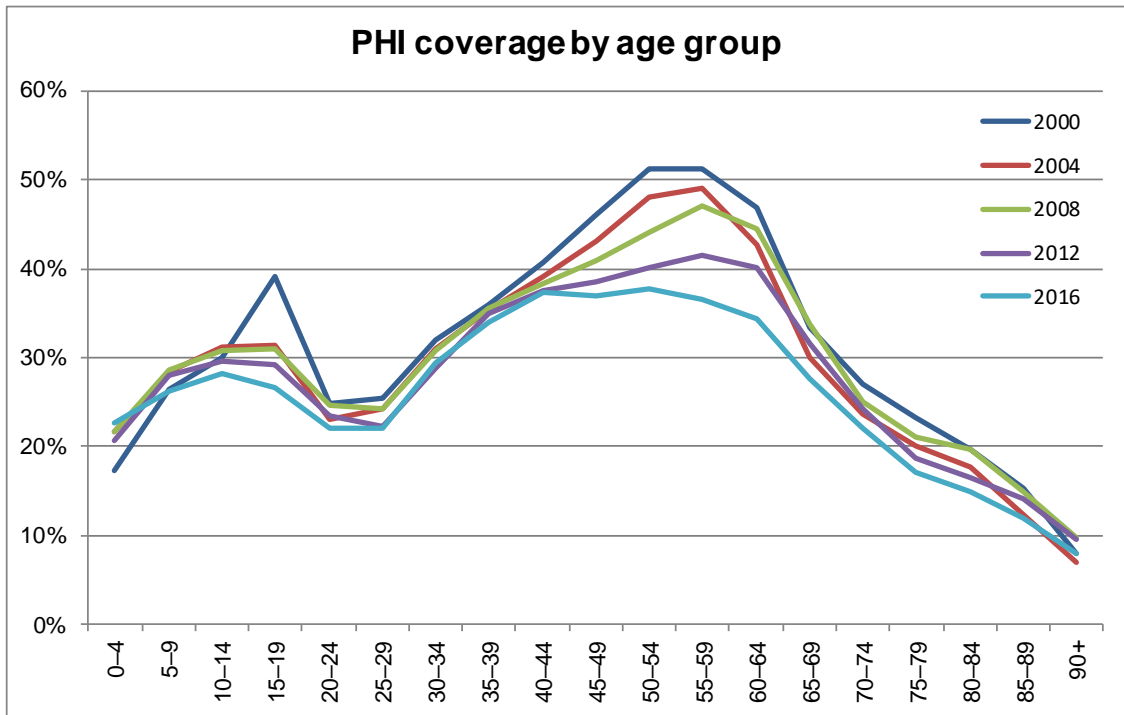
Private health insurance take-up rates are in decline in New Zealand. The chart below shows changes in overall PHI coverage rates since 2000. The rates were derived by the Health Funds Association of New Zealand (HFANZ) by combining policy counts with population data.



Source: HFANZ

The decline in the proportion of the population with PHI is clear. Additionally, the increase in lower value products (for example general practitioner only coverage) means that the proportion of the population purchasing comprehensive medical cover is likely to be decreasing even faster.

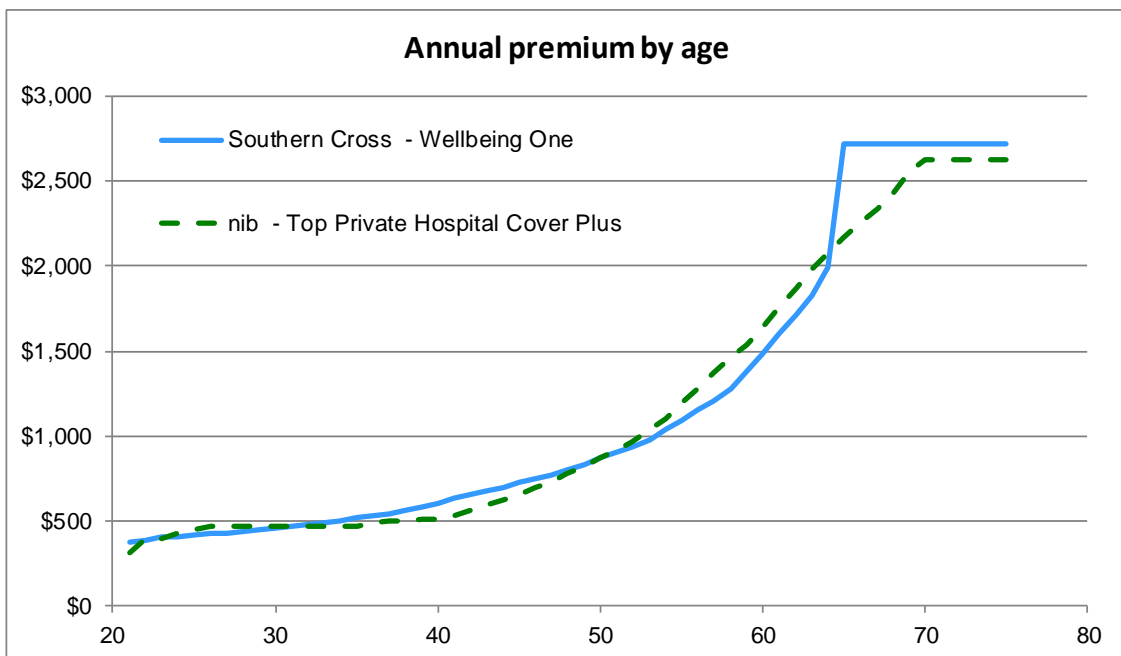
Looking at coverage by age group (chart below) shows that PHI take-up peaks at around 50-60 years old. However, where this peaked at above 50% in 2000 it now peaks at less than 40% and starts to decline at an earlier age.



Source: HFANZ

Premium rates by age

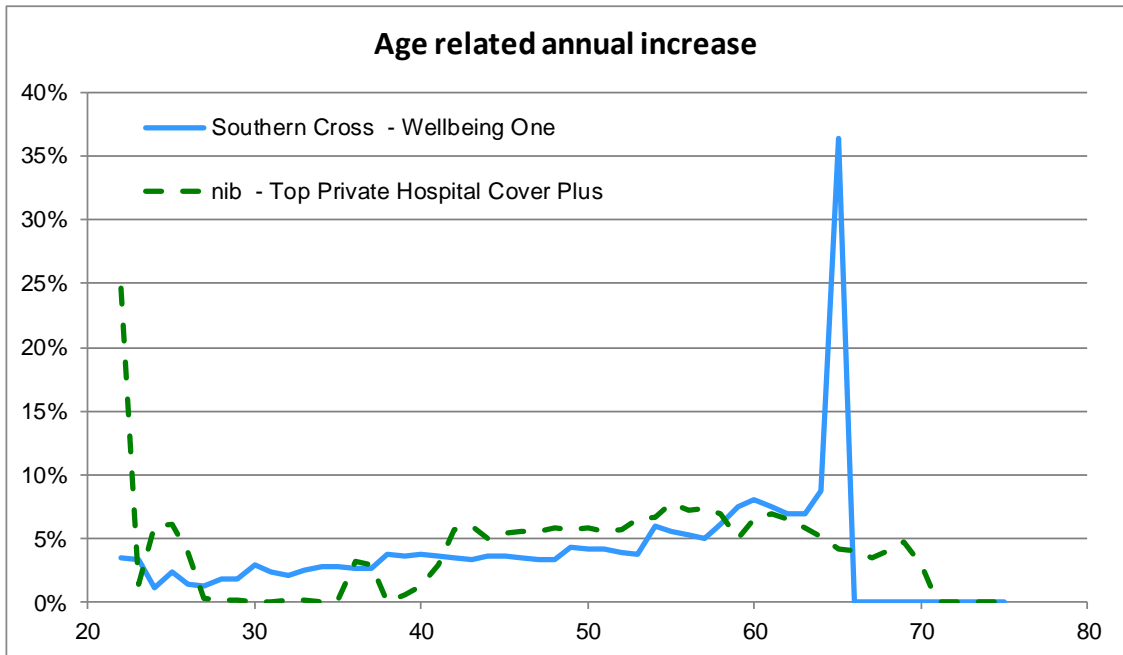
An analysis of premiums by age puts the reductions in PHI cover in context; premiums increase substantially after age 50. The chart below shows how premiums vary by age for two broadly similar products for New Zealand’s two largest insurers – Southern Cross and nib.



Source: Southern Cross, nib online calculators

When viewed as year-on-year increases (chart below) one observes that premiums increase at a slightly increasing rate i.e. faster than exponential growth. It is important to note that the chart below only quantifies age-related increases. The actual increases that policyholders face each year will be greater as they will include inflation as well.





Source: Southern Cross, nib online calculators

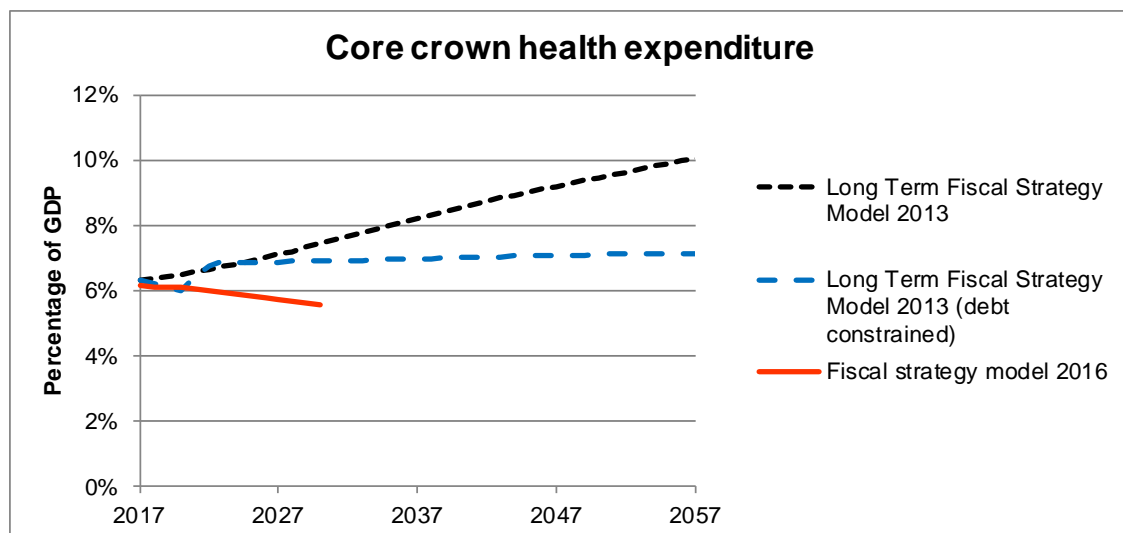
Southern Cross currently charges a flat premium beyond age 65. But to achieve this, a substantial increase is required at this age. This increase comes at a time when, for most people, income decreases as they enter retirement. Southern Cross comprises roughly 60% of the PHI market, so the premium hike at age 65 goes some way towards explaining the significant drop-off in industry-wide coverage between the 60-64 and 65-69 age groups.

2.2 Public sector funding issues

The chart below shows various projections released by the Treasury regarding health spending. Three projection bases are shown:

- **Long Term Fiscal Strategy Model 2013:** A bottom up expenditure growth projection
- **Long Term Fiscal Strategy Model 2013 (debt constrained):** A bottom up expenditure growth projection adjusted so that net debt is constant from 2020
- **Fiscal Strategy Model 2016:** An outworking of the Crown budgeting process

The Fiscal Strategy Model is updated annually in line with the budgeting process. The Long Term Fiscal Strategy Model is updated every four years.



There is a clear disconnect between the Treasury's earlier long term expenditure expectations and the more recent budget projections. Effectively, the amount provided for healthcare in the Crown budget appears out of step with expectations regarding expenditure growth.

In a background paper to the 2013 Long Term Fiscal Strategy Model – Health Projections and Policy Options, the Treasury recognises that there are issues with the current health system although don't see a case for a serious overhaul (New Zealand Treasury, 2013):

We have considered three broad areas for change: improving the performance of the health system, managing the demand on the health system, and making adjustments to what the public health system covers (which has flow-on effects to the balance of public and private financing).

The Treasury recognises the need for a greater role for the private sector in the health system (New Zealand Treasury, 2013):

Given the level of uncertainty around what can be achieved through performance improvements and demand-management initiatives, we will also need to think about the coverage of the public health system. A widening gap between what the public system can deliver and what is medically possible may result in a greater role for private spending and insurance, as people who can afford it choose to purchase additional services themselves.

In spite of the potential downsides of PHI, it is likely to increase as a proportion of total health spending as the public system comes under greater fiscal pressure. Therefore, governments should consider whether regulatory measures may be necessary in future to avoid adverse impacts on the public health system.

Thus is the crisis in the health sector: the Treasury expects healthcare costs to increase in the longer term and also that the private sector will bear a larger proportion of the cost. Yet this is at odds with the current trajectory of PHI coverage discussed earlier. Private insurers are unlikely to fill the gap that the Treasury expects them to, at least not based on the current model.

With a growing portion of an increasing cost being paid for out of consolidated government revenue, corporate and/or income taxes will need to be increased. Alternatively, the quality of the public service may decline and/or public waiting lists may grow, neither of which are desirable outcomes.

Blumberg notes that “private insurance in New Zealand is structured primarily to fill the gaps in the public system, not to substitute for services provided through the government.” (Blumberg, 2006) It is argued that the current system for PHI increases overall national spending on health and may in fact increase public spending by increasing demand for procedures which may not be utilised in the absence of PHI.

Any call by private insurers for government incentives towards individuals purchasing PHI will need to be accompanied by solid arguments that such an incentive will in fact reduce costs to the public sector.

3 Mutuality options for private health insurance in New Zealand

New Zealand's current PHI market is one of mutuality; premiums are risk rated in an open competitive market. Coverage is optional and selected by less than a third of the population. New Zealanders face a choice between paying for PHI or potentially joining a public waiting list. As the charts in Section 2.1 show, the cost/benefit argument for PHI starts to wane at around 50-60 years of age.

This wasn't always the case. The Southern Cross Medical Care Society began in 1961 and charged a flat fee of five guineas per adult (Southern Cross Medical Care Society [NZ], 2016). But in an open and voluntary market competitors entered and targeted the younger, cheaper risks. Today, premiums are very much risk rated with only minor elements of community rating surviving.

Southern Cross charges a flat fee above age 65, but even this is set to move towards 75 from 1 November 2016.

In this section some mutuality options are considered for increasing take-up of PHI. The term mutuality is used here in perhaps a slightly broader sense than that defined by Wilkie. Premiums are still risk rated by individual, but the presence of loyalty discounts or capital sharing mean that the premium for a particular year doesn't necessarily reflect the risk for that year.

3.1 Guaranteed renewability and ring fencing

Generally PHI policies in New Zealand are guaranteed renewable. That is, a policyholder will not be re-underwritten at renewal if they develop a condition during the policy term. Effectively risk rating is constrained only in that an insurer cannot rate according to conditions developed during the policy term under a guaranteed renewable policy. For any particular year there is a rating cross subsidy from healthy policyholders to those with conditions. However, when considered over the lifetime of the policyholder/insurer relationship no such cross subsidy exists as individuals were rated according to the risk they presented to the pool at the time of entry.

Van de Ven and Schut consider the effectiveness of guaranteed renewability at making health insurance affordable (Van de Ven & Schut, 2011). A key criticism of guaranteed renewability is the freedom for an insurer to define new product pools to attract healthy policyholders leaving the less healthy individuals in an older pool of worsening risks and rising premiums.

Where this ring fencing occurs in New Zealand the effect is to increase premiums for unhealthy policyholders faster than that due to only age-related increases and inflation. This is likely to hasten the drop-off in cover as policyholders age.

Could PHI take-up be increased by simply banning ring-fencing? Product development may be stifled if insurers are obligated to price existing unhealthy policyholders into the cost of potential new products. And if the impact of ring fencing is to drive out unhealthy policyholders then a ban on ring fencing will increase retention for unhealthy policyholders and increase premiums overall. Higher premiums will then drive people away from PHI and it's unclear whether the net impact of a ban on ring fencing would increase or decrease PHI take-up.

3.2 Tax incentives

Currently there are no tax incentives in New Zealand to encourage the purchase of PHI. Individuals must purchase cover out of after tax income. Where cover is provided by an employer Fringe Benefit Tax (FBT) is payable.

In its simplest form a tax incentive for purchasing PHI might be to allow deductibility for tax purposes. To keep things simple this is treated as a straight 33% discount for all policyholders. The reality is more complex (e.g. policyholders effectively receive a rebate of their premium multiplied by their marginal tax rate, not all of which will be paying the highest rate of 33%) but one should still be able to get a broad indication of the impact of a tax incentive.

3.2.1 Model assumptions

A simple model is put together to project the number of insured lives under different scenarios:

- Baseline scenario (the current system)
- Tax incentive scenario (giving three options for how effective the incentive might be).

To project the number of insured lives under each scenario, two assumptions are necessary:

- The growth in new lives purchasing PHI each year
- The probability that an insured life will not purchase PHI the following year (lapse rate).

Where an insured life does not renew cover this may be due to:

- The policyholder dying or leaving the country
- The policyholder remaining alive in New Zealand but choosing not to renew cover.

Death and emigration rates are estimated and modelled separately from lapses.

To compare between the baseline and tax incentive scenarios the assumptions are adjusted as follows:

- Tax incentive has a one-off impact of increasing the number of insured lives in 2017 by X%.
- Tax incentive reduces lapse rates at each age by Y% e.g. 5% lapse rate become $5\% \cdot (1 - Y)$.

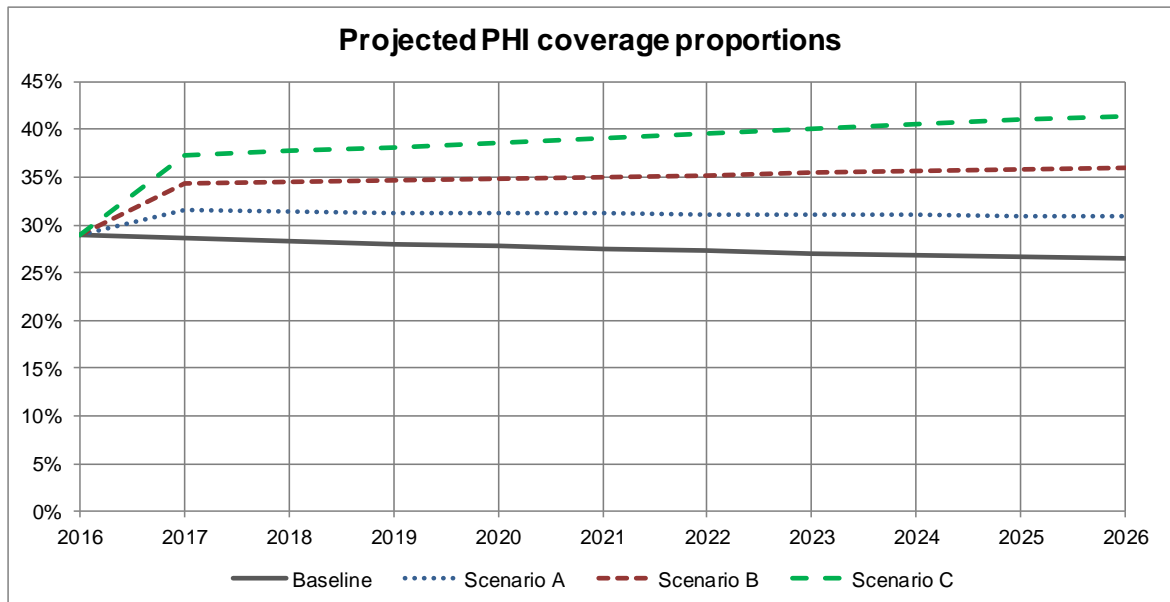
The results are then compared for different values of X and Y. The scenarios tested are:

	Initial impact on policyholder numbers	Decrease to lapse rates
Baseline	None	None
Scenario A	10%	20%
Scenario B	20%	40%
Scenario C	30%	60%

Appendix A includes further details on the assumptions. There is a limit to the extent to which lapse rates are likely to decrease at older ages. For example, if an individual enters aged care it is unlikely that they will continue with PHI cover, regardless of the incentives offered.

3.2.2 Model results

The chart below shows the projected number of insured lives under the baseline scenario and also the three tax incentive scenarios as discussed above. The projected number of insured lives is expressed as a proportion of the projected New Zealand population sourced from Statistics New Zealand.



Under the baseline scenario, coverage rates are expected to continue to fall from their current level of around 29%. Under the most optimistic scenario (C) coverage rates would increase beyond 40% within 10 years.

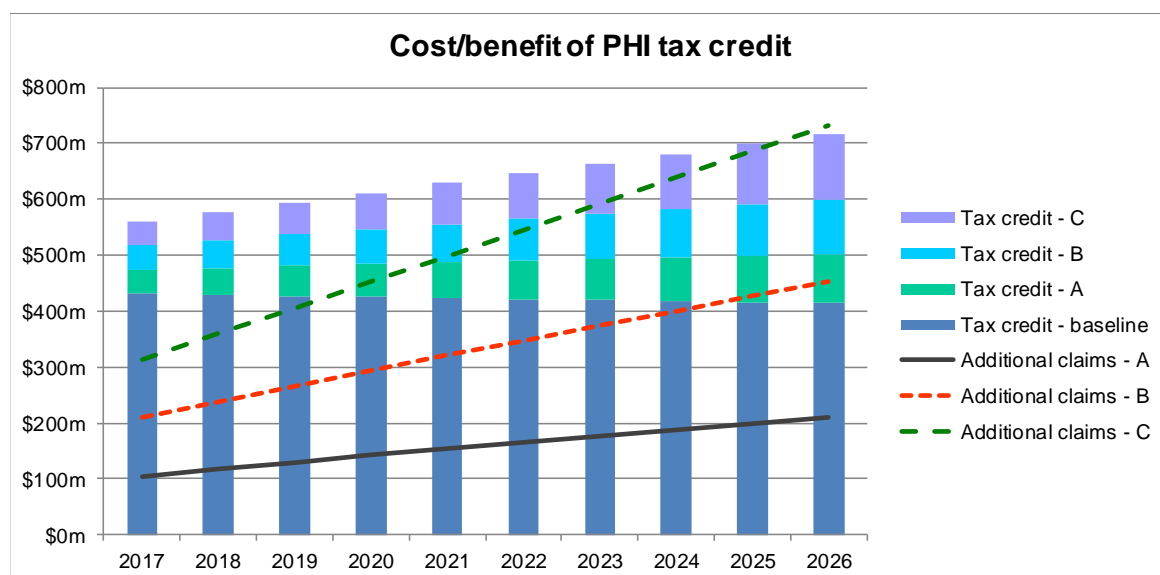
3.2.3 Cost benefit for central government

A likely question for central government is: how does the extra cost of providing the tax credit compare to the reduced cost of providing publicly funded health cover?

The chart below compares the cost of providing the tax credit (33% of all PHI premiums) to the additional cost of claims to health insurers (assuming an 80% loss ratio). The additional claims to health insurers are used as a proxy for the reduced cost to the public sector. The analysis is imperfect as:

- Not all PHI policyholder will be able to utilise the tax credit at the full 33% (if at all).
- Treatment provided through the public system may incur different costs to that provided through PHI. Indeed some treatments may not be incurred at all (or significantly later) if an individual pursues treatment through the public system rather than private. There are also potential scale advantages that may be achieved via the public system.
- Claims paid through PHI may not be entirely offset by reduced costs to the public system for the reasons noted in Section 2.2.

Nevertheless, the analysis gives a broad indication of the cost/benefit to central government. Note that the figures are all in 2016 dollars i.e. inflationary growth is not included in the projections.



The bars represent the additional cost to the government in the form of a tax credit. The greater the take up rate of PHI (i.e. more optimistic scenarios), the greater the cost of the tax credit. The lines represent the saving to the government in the form of reduced public health costs (higher PHI claims). Only under the most optimistic scenario (C) does the tax incentive result in a net gain to the government within 10 years.

3.3 Age loading/discounting

In order for PHI to be cheaper for older lives, someone else has to pay more. In the absence of external subsidies (say from central government) this may come from younger insureds. Several insurers have investigated health products with a long term component in which premiums are loaded for younger insureds and later subsidised as an insured ages and premiums increase. Such a product would build up a surrender value which is then gradually released after a certain age.

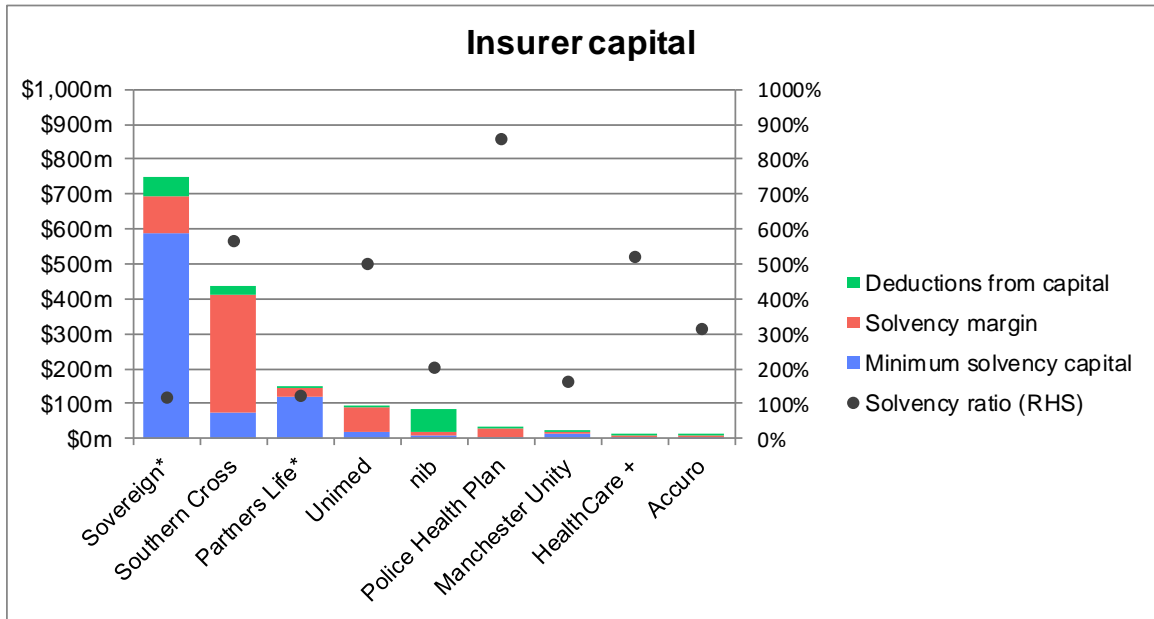
Unfortunately, demand for such products is expected to be low. PHI penetration is low and falling for most age groups. Price sensitivity of younger insureds is such that take up rates on a higher priced product are expected to be low, even with the prospect of cheaper premiums as they age.

For that reason, none of the insurers that considered an age loaded/discounted product have chosen to invest in developing a product.

3.4 Age discounting with existing capital

Whilst younger policyholders are unlikely to prefund a discounted product for when they're older, some mutual insurers already have excess capital which could potentially be used to subsidise premiums for older policyholders.

The chart below shows the capital held by the main health insurers in New Zealand. For Sovereign and Partners Life this includes life business as well. Southern Cross holds the largest solvency margin (in dollar terms) by far at \$340 million.

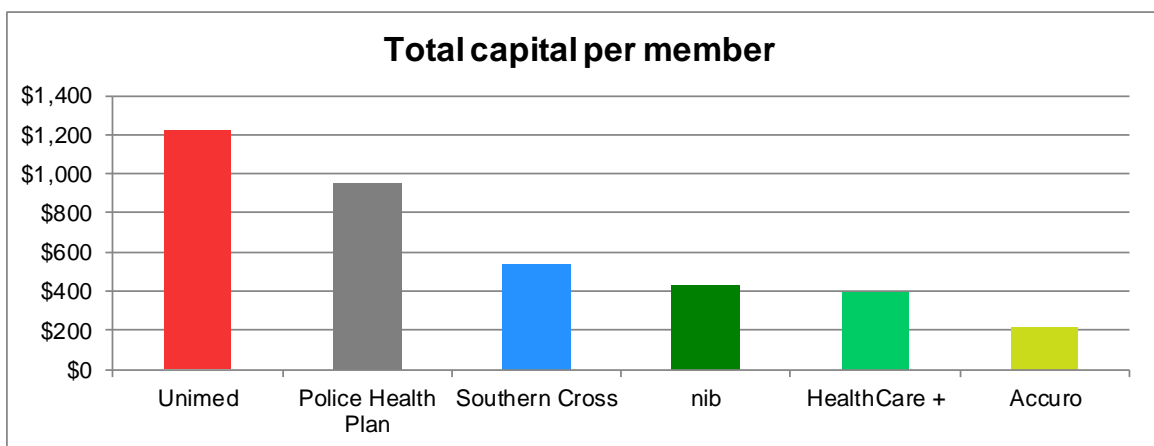


*includes life insurance

Sources: Companies Office and insurer websites

It is interesting to look at capital relative to policyholder numbers. The chart below shows total capital (before deductions for solvency purposes) per insured life. The figures are all approximate.

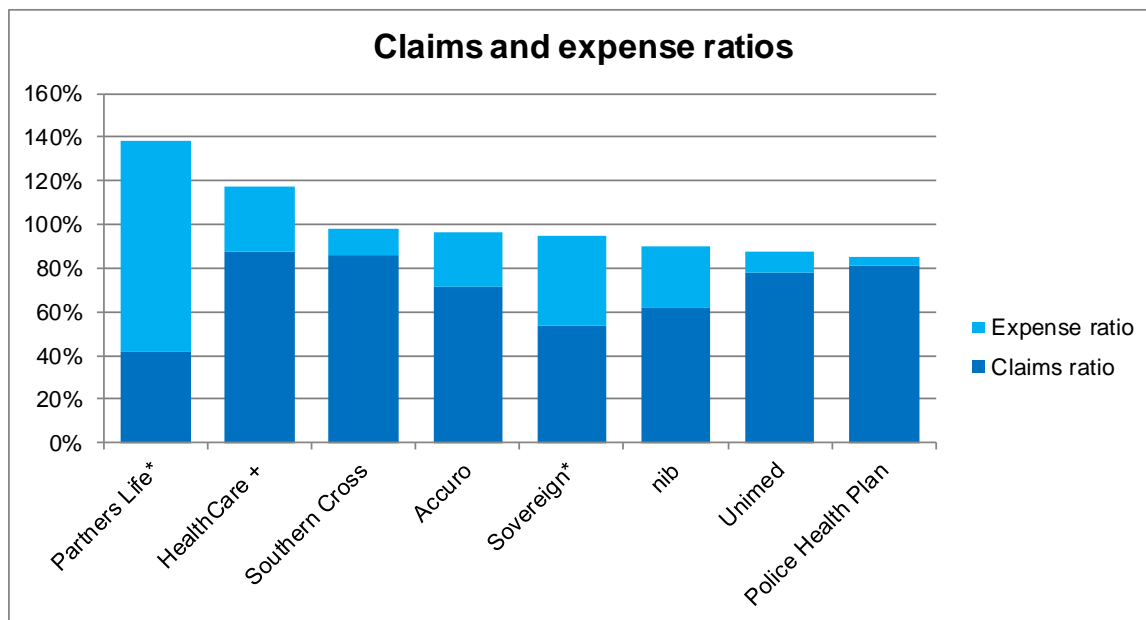
Sovereign and Partners Life have been omitted from the chart as it is not possible to separate the capital held in respect of life business from that of health business. Manchester Unity has also been omitted from the chart as the non-insurance activities undertaken by the Society distort the capital per life assured.



Sources: Companies Office and insurer websites

Unimed and the Police Health Plan hold the most capital per life assured. Is there a way for mutuals such as these to utilise this capital to encourage/subsidise policyholders to retain their cover beyond the 50-65 age bracket after which coverage rates start to decline? And what level of capital might be required for an insurer to implement such a strategy?

In order to consider such a strategy, it is necessary to gauge typical parameters within which health insurers tend to operate – see the chart below.



*includes life insurance

Sources: Companies Office and insurer websites

The figures for Sovereign and Partners Life are skewed by the life insurance business written by these two, though the figures are still interesting. The figures for Manchester Unity have been omitted due to the distorting effect of non-insurance activities.

For those insurers offering only health insurance, recent loss ratios range from 62% for nib to 88% for HealthCare+. Expense ratios range from 4% for the Police Health Plan to 30% for HealthCare+. HealthCare+ receives commission on other health and life insurance sales to offset their high expense ratio.

3.4.1 A loyalty reward model

Consider a hypothetical insurer with 10,000 policyholders and holding existing capital of \$10 million i.e. \$1,000 per life assured. The insurer decides to increase retention for older policyholders by offering a discount to older policyholder in the form of a loyalty bonus:

No premium increases after age X (other than for inflation) for any policyholder having been with the insurer for at least Y years before reaching age X.

Premiums after age X are subsidised by the insurer in the form of a discount back to the age X premium. This discount is funded by releasing existing capital.

3.4.2 Model assumptions and parameters

The simple model includes the following assumptions and parameters:

- Loss ratio of 80%
- Expense ratio of 10-15%
- Premiums are capped from age 65

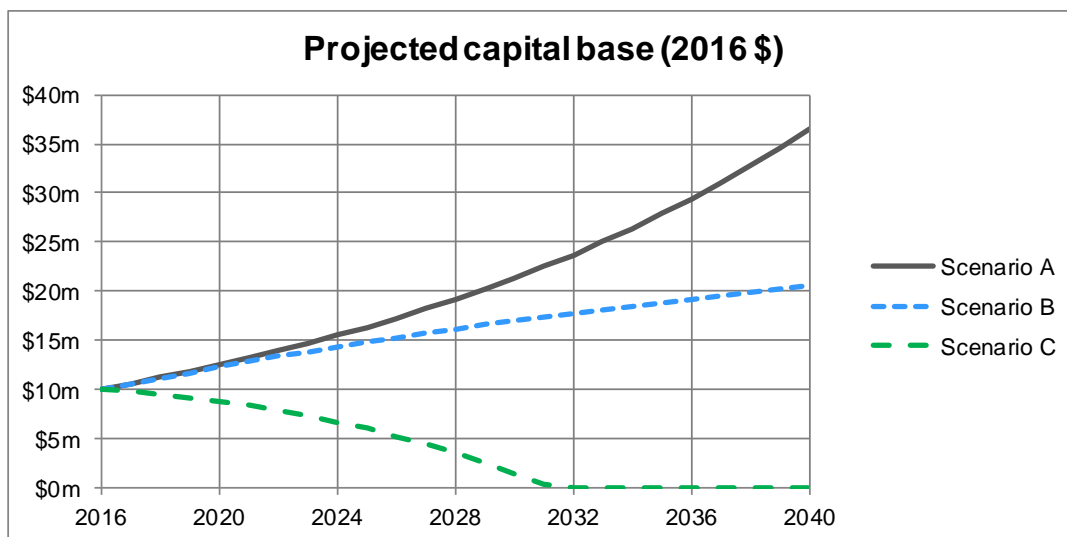
- Require that policyholders have been with insurer for 10 years before receiving the benefit of the premium capping
- Real investment returns (i.e. net of inflation) of 3-6%
- Lapse rates decrease by 0% - 100% after the age at which premiums are capped
- A surge in new business at the age 10 years prior to the that after which premiums are capped.

Where ranges of assumptions/parameters are specified outcomes are modelled based on various combinations. A number of extensions to this concept are possible (for example premium capping/discounts which vary by loyalty period) although these aren't addressed here.

3.4.3 Model results

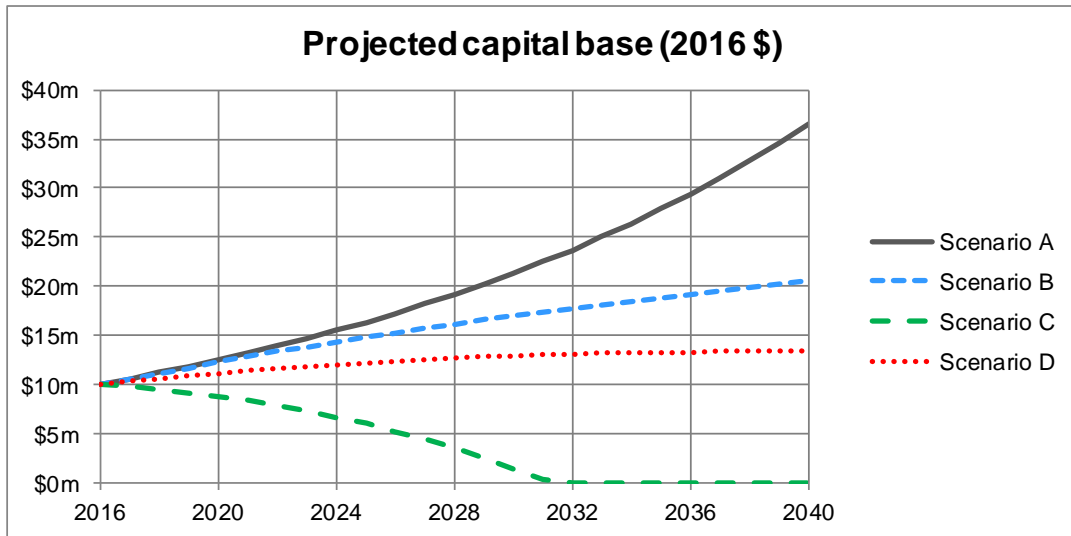
The chart below shows the projected capital base under three scenarios:

- Scenario A – expense ratio 10%; real investment return 6%; premiums capped after age 65; lapse rates unchanged.
- Scenario B – same as Scenario A, but with lapse rates halved after age 65.
- Scenario C – same as Scenario B but with expense ratio of 15% and real investment return of 3%

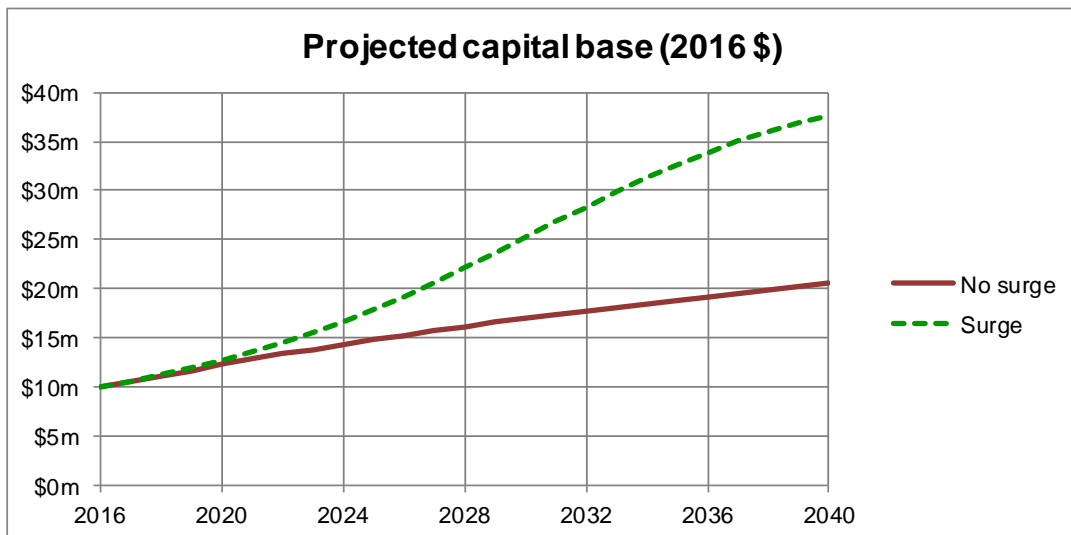


Under Scenario A capital continues to grow for the next 20 years. Scenario B incorporates the possibility that lapse rates might reduce if premiums are capped. Capital continues to grow under this scenario, although at a lower rate. Scenario C incorporates some more pessimistic assumptions around expense rates and investment returns. In this case capital is depleted after around 15 years.

A potential solution to more pessimistic expense and investment assumptions is to increase the age after which premiums are capped. In the chart below a fourth scenario (D) is added in which premiums are only capped after age 72. Under this scenario capital remains reasonably stable.

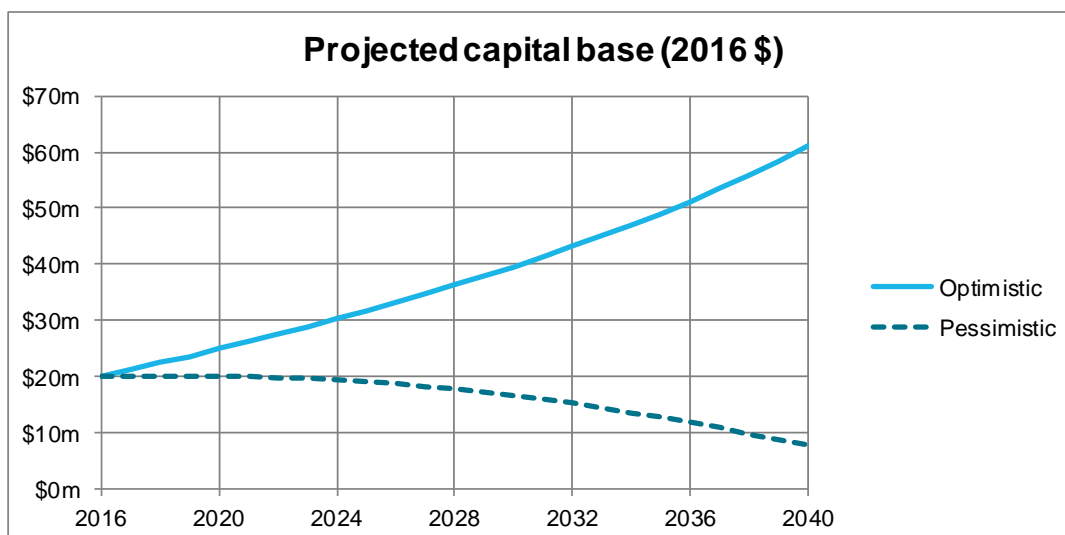


One potential concern with discounting premiums after a certain age is that potential policyholders might choose to maximise the benefit to themselves by joining the insurer just outside the 10 year loyalty period. The chart below shows the impact of a surge of new policyholders joining the insurer at age 55 in order to receive the benefit of capped premiums from age 65. The results with a surge of policyholders are compared to Scenario B (no surge) from earlier.



Initially, the additional policyholders serve to increase capital. However, after 10 years the growth in capital starts to wane as the extra policyholders reach 65 and start to benefit from subsidised premiums.

Another option is to consider how the results might vary with based on a higher capital starting position. The chart below is similar to the optimistic and pessimistic scenarios B and C earlier, but based on a starting position of \$20 million capital i.e. \$2,000 per insured life.



The chart shows that if conditions were to remain pessimistic indefinitely then would eventually be depleted, although it would be some time before this occurred. Under more optimistic conditions capital would be expected to grow considerably.

3.4.4 Model conclusion

The model results show that a number of outcomes are possible depending on the investment returns, operating ratios, the age of eligibility and policyholder behaviour. For such a model to be sustainable, it would probably be necessary to vary the loyalty discount/subsidy according to experience.

This model is only available to well capitalised mutual insurers, or potentially a new government owned insurer if sufficient capital were made available for the purpose. And whilst some improvements in PHI coverage might be achieved for the particular insurer, it is unlikely that such a model would address the crisis described in Section 2. In the following section the concept of solidarity is explored and how this might result in better outcomes for the New Zealand healthcare system.

4 Solidarity options for private health insurance in New Zealand

In preparation for this paper I met with a number of health insurers and stakeholders. A common theme throughout these discussions was that the current trajectory for PHI is a pessimistic one. If the industry continues as it has over the last decade or so then it likely to continue to shrink (on an inflation adjusted per capita basis if not in nominal terms).

Discussions regarding how to address the issues in the PHI industry were a lot more varied. A number of ideas were proposed. In this section two of these ideas which incorporate solidarity principles are discussed. But first, it's worth summarising the concept of solidarity in healthcare and considering the Australian system.

4.1 Key elements of solidarity

Solidarity encompasses four key elements:

- **Minimum benefits:** defining the demarcation between health insurance and cash management products e.g. cover for general practitioner visits. Minimum private insurance benefits need to be defined in the context of a clear definition of what is covered by the public system.
- **Open enrolment:** a scheme has to accept anyone who wants to become a member at standard rates.

- **Community rating:** some form of restriction/balancing of premiums between high and low risks i.e. all beneficiaries pay the same community premium regardless of risk (or at least their premium doesn't fully reflect their risk).
- **Risk equalisation:** mechanisms to transfer funds between pools based on their respective risk profiles so that higher risk pools receive subsidies from lower risk pools.

There are many ways to incorporate these elements into a healthcare system and many ways to organise the subsidies and loadings. Various countries incorporate some or all of these elements to varying degrees. An interesting close-to-home example is the Australian system.

4.1.1 Private health insurance in Australia

To what extent does the Australian system incorporate the elements of solidarity? Medicare, the government healthcare provider, provides a basic level of universal health insurance for Australian residents. Medicare is funded through a mix of general taxation revenue and the Medicare Levy (a percentage of taxable income). Some low income earners are exempt or pay a reduced levy.

PHI is available to give people more options for treatment (e.g. private hospital cover) or for items which aren't covered by Medicare (e.g. most physiotherapy costs). Higher income earners pay an additional Medicare Levy Surcharge if they don't have PHI cover. There is also a rebate on health insurance premiums which varies according to age and income level.

Minimum benefits

Private health insurance policies are categorised according to the level of benefits that apply. These may include hospital cover and/or ancillary/extras cover. Certain criteria must be met in order for a policy to qualify for exemption from the Medicare Surcharge Levy.

Open enrolment

Private health insurers are barred from refusing to offer someone a policy. This applies regardless of the age, health status or claims history of the individual. Policies must be sold at standard rates for the product concerned.

Waiting periods of up to 12 months may apply for pre-existing conditions. However, these are only applicable for a new health insurance purchase or when they upgrade their cover. Waiting periods do not apply when a person switches between insurers, unless they upgrade their level of cover.

Community rating

Private health insurers must charge the same premium to every individual for the same product, regardless of their age. However, people purchasing cover for the first time over the age of 30 pay the Lifetime Health Cover (LHC) loading. This is a percentage loading on top of the standard health insurance premium which varies according to the age at which a person first took out PHI. This is to incentivise people to take out PHI while they are young rather than wait until they are older and more likely to need the cover. The LHC loading is paid for a maximum of 10 years.

Risk equalisation

The Australian Prudential Regulation Authority (APRA) manages an equalisation scheme called the Risk Equalisation Special Account. The purpose of this zero sum pool is to compensate insurers with riskier demographic profiles by transferring funds from those insurers with less risky profiles.

Despite the name of the scheme, it operates as a claim equalisation scheme rather than a risk equalisation scheme. Insurers pay into or draw from the scheme according to specified rules which operate as a function of the benefits paid during a period. That is, insurers that pay more in claims draw from the fund, whilst those that pay less contribute to the fund.

Summary

On the face of it, the Australian system incorporates all the elements of the solidarity. Minimum benefits are specified, enrolment is open to everyone, premiums are community rated, and insurers are compensated where they experience higher claims costs due to their policyholder demographic.

But the system is not without its troubles. The claim equalisation rules are not universal i.e. insurers aren't simply compensated for every dollar they spend above the average. (Nor should the scheme be entirely universal if insurers are to have an incentive for efficiency.) But this has drawn attempts from some insurers to cherry pick the best risks. That is, focusing their marketing efforts on low risk individuals for whom they expect the equalisation rules will penalise the insurer less than the reduction in claims costs.

Insurers have also been criticised for their claims service where many individuals argue that the level of service received is no better than that they would receive through the public system. Such criticism has been accompanied by a decline in membership for young people and a subsequent increase in premiums overall as the average age of the community rated pool increases.

In the following sections some of the options put forward for New Zealand are considered.

4.2 Compulsory employer provided PHI

One suggestion for New Zealand was to make it compulsory for employers to offer PHI to all employees, similarly to how employers are currently obligated to offer Kiwisaver contributions to all employees. While not strictly necessary, it was suggested that this requirement would coincide with the removal of FBT on health insurance. To enforce compulsory PHI it would be necessary to define a minimum cover level. For example, a specified level of major medical cover would be required.

Some of the advantages of such a system are:

- It would considerably increase the take up of PHI by employees and potentially reduce the burden on the public system.
- Larger employer schemes allow for group rating and may make coverage possible for people with pre-existing conditions (PECs). That is, insurers offering cover for PECs on an individual basis risk being selected against, but by requiring employers to offer PHI to all employees this reduces the potential for anti-selection.

Potential disadvantages or limitations are:

- It does not address coverage issues for retired people (but see below).
- It does not address coverage issues for people not employed (e.g. stay at home parents, children or unemployed people), although this can be addressed to some extent by requiring cover to be offered for an employee's immediate family.
- There is the cost to central government of removing FBT. Whether there is an overall net positive or negative impact on public finances is less clear.
- It provides a disincentive to employ older people as the impact on employer health insurance premiums may be substantial.

To address the low coverage for people aged 65+ it was suggested to mandate that a fixed rate apply after age 65 (linked to the retirement age) and that this is at a specified discount to the rate immediately prior to this. Such a pricing mandate would need to be carefully framed to avoid, for example, insurers applying a dramatic loading at age 64 in order to apply the discount at age 65. One option would be to mandate the relative premiums by age and allow insurers to vary the premiums only in aggregate or within a certain range.

Mandating the premium for older insureds at an amount lower than their cost of claims requires a cross subsidy from younger insureds. In effect, such a system introduces a degree of community rating by age. That is, the premium curve by age increases at a lower rate than would be the case under a purely risk rated system. This goes some way towards reducing the disincentive to hire older employees.

However, it creates an incentive for insurers to target employers with younger employees. Employers with a higher proportion of older employees, particularly those nearing retirement age, may find it difficult to secure PHI for their employees.

A positive impact of such a system is that employers would be incentivised to encourage their employees to maintain healthy lifestyles. Given the amount of time that most people spend at work, employers have some influence over the health and wellbeing of their employees.

A compulsory employer funded private health market has some merit for increasing the take-up of PHI. However, for such a system to work towards better healthcare for all New Zealanders requires careful planning and consideration of potential unintended consequences.

4.3 An ACC-style approach

In New Zealand comprehensive no-fault accident cover is provided through the Accident Compensation Corporation (ACC). Whilst cover for all New Zealanders is provided no matter where or how the accident occurred, accidents are categorised according to their location and the employment status of the injured person:

- Work Account: covers work-related injuries
- Motor Account: covers injuries involving motor vehicles
- Earners Account: covers non-work injuries for people in employment
- Non-Earners Account: covers injuries to people not in paid employment
- Treatment Injury Account: covers injuries caused by medical treatment

Coverage is very much based on solidarity principles – every accident is covered by one of the accounts (although there can be issues with the definition of an accident – see Section 4.3.1 below). The different accounts include different degrees of mutuality in the way they are funded. In decreasing order of degrees of mutuality:

- The Work Account is funded by employer levies as a percentage of payroll according to industry claims experience as well as the claims experience and health and safety practice of the employer.
- The Motor Account is funded by a levy on registered motor vehicles which varies according to the safety categorisation of the vehicle (although it is recognised that, for example, motorcycles are levied at an amount much less than their no-fault cost of claims).
- The Earners Account is funded by a percentage deduction from employee income (the percentage is fixed for all employees but applies up to a maximum limit).
- The Non-Earners and Treatment Injury Accounts are funded out of consolidated government revenue.

By applying solidarity principles on a no-fault basis ACC has been very successful in limiting the impact of legal costs on providing accident cover. In contrast, motor vehicle insurance in the UK is unaffordable (and yet compulsory) for many young drivers due to the third party bodily injury component of premiums.

4.3.1 A similar model for non-acute conditions

So would a similar ACC-style model be feasible for non-acute conditions, and how might it look? Indeed the ACC model has already been extended to include certain conditions not originally covered within the definition of 'accident.' The Woodhouse Report of 1967 (Royal Commission of

Inquiry, 1967), which was the precursor to ACC, notes the difficulty in drawing the line between injury by accident vs. sickness or disease. The Accident Compensation Act 2001 extended the scheme to cover mental injury caused by sexual crimes.

One option would be to extend the scheme further to cover a broader range of conditions otherwise covered by current PHI policies. Alternatively an entirely new scheme could be devised to operate in a similar fashion to ACC and provide similar coverage to current PHI. Features of such a scheme would include:

- Compulsory cover provided by a government monopoly
- Limited rating factors, potentially only age and possibly gender
- Cover for pre-existing conditions, congenital defects and other conditions not generally covered by private insurers
- Excess or cost sharing options

The cover provided by this monopoly is referred to as a PHI equivalent.

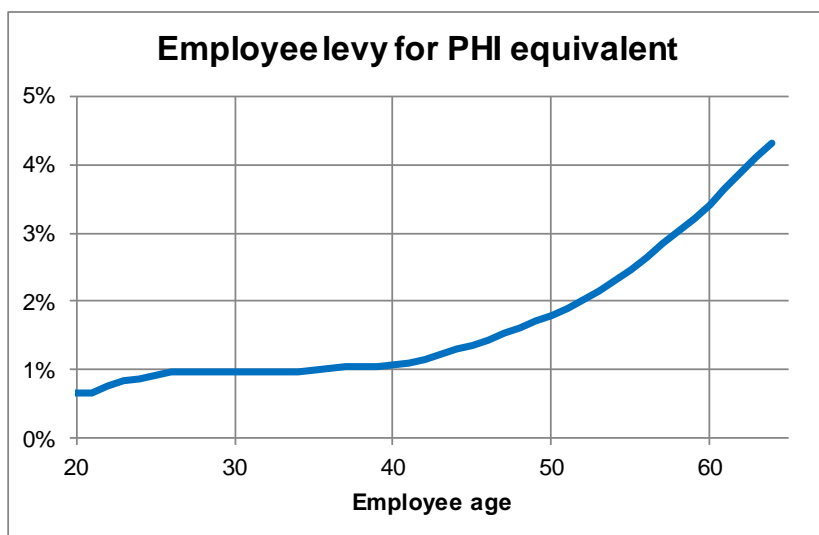
4.3.2 Funding mechanisms

Cover for employees could be funded by a PAYE levy similar to the current ACC levy of 1.21%+GST (applied on income up to \$122,000). The average PHI premium for 18-65 year olds (weighted by population) is around \$800. If this were instead paid as a flat rate levy on personal income this would be around 1.6% (based on approximately \$50,000 liable earnings per employee, similar to that used by ACC).

For non-earners (children, retired, and those not employed) cover would probably need to be funded out of consolidated government revenue. Non-earners comprise more than half of the total cost as the following table shows.

Age / employment group	Approximate population	Average PHI premium	Total cost of PHI equivalent (\$m)
18-65 employed	2,420,000	800	1,936
18-65 not employed	430,000	800	344
<18 or >65	1,800,000	1,600	2,880
Total	4,650,000	1,100	5,160

For earners, funding a PHI equivalent via a flat rate levy raises equity issues. A flat levy would introduce a cross subsidy from younger to older employees (although where costs are currently funded out of consolidated government revenue then such a cross subsidy may already exist). An alternative would be to have the levy vary by age. This could be done in proportion to the difference in expected cost by age group. The chart below illustrates the variation in employee levy if the levy were to be scaled according to current PHI premiums.



The scaling of the levy by age is simplistic in that it doesn't account for differences in income by age. For example, 18-25 year olds would be paying a total levy less than their cost of equivalent PHI due to the lower incomes for people in this group. One could adjust the levy so that each age group pays a total levy equal to their expected cost of PHI equivalent, effectively risk rating by age. However, median personal incomes peak at around the late forties to early fifties. (Statistics New Zealand, 2016) Therefore to adjust levies according to average or median income by age would result in higher levies for both younger and older employees and reduced levies for mid-age employees. This increases the possibility of affordability issues for older employees.

Clearly, it would be administratively simpler to apply a flat levy across all ages, and this would require considerably less modification to existing payroll systems than a levy which varies by age. But there is a balance to be achieved between equity, affordability and simplicity. On the question of equity, the issue was raised that there are currently significant intergenerational inequities, notably the unaffordability of housing for young people. There may be some resistance to a policy which is perceived to cause further intergenerational inequity if it required young employees to cross subsidise older employees.

4.3.3 Cost issues

The analysis above is based on the concept that a compulsory government monopoly insurer would provide a PHI equivalent at a similar premium. The analysis is intentionally simplistic. Some potential factors which might affect the costs of providing a PHI equivalent are:

- Providing cover for pre-existing conditions will increase costs.
- Providing for conditions not currently covered by private insurers will increase costs.
- Providing cover on a compulsory basis will reduce underwriting costs.
- Administrative costs of premium collection may be reduced as the burden is largely shifted to employers.
- Utilisation of services and policyholder behaviour may be different when cover is guaranteed and provided by a monopoly insurer.

On the last point, to reduce the potential for moral hazard, the scheme would probably need to have some sort of cost sharing arrangement. Applying an excess to each claim or providing cover at less than 100% will act as a disincentive for people to claim unnecessarily. In addition to this, the medical profession has a responsibility to ensure that appropriate treatments are employed and that medical services are not utilised unnecessarily. This is particularly important where there is a disconnect between the funder and the beneficiary of a particular treatment.

4.3.4 Role for private insurers

So what role does this leave for private insurers? A very reduced one. Rather than private insurers competing on price, products and risk selection as they do now, it would be the role of healthcare providers to compete on service as they do currently for ACC. Depending on the excess and/or cost sharing proportions there may be a role for private insurers to 'fill in the gaps' not covered by the scheme. Indeed Blumberg, as noted earlier, argues that the current role for private insurers in New Zealand is to fill the gaps in cover not provided by the public sector. So under an ACC-style PHI equivalent scheme private insurers might simply be filling fewer gaps in a more comprehensive public system.

Considering our current private health insurers, the market is dominated by not-for-profits operating at loss ratios often in excess of 80%. In some cases the cover provided is more a case of 'dollar-swapping' (e.g. dental or general practitioner allowances) than unforeseeable significant risks. Of the three major for-profit insurers, two sell both life and health insurance and only one has a business model based on selling health insurance alone.

5 Synthesis and a way forward

So what does an ideal healthcare system look like? There isn't one, which is perhaps why systems vary so much between countries. Nevertheless, there are some general elements which most systems incorporate, and New Zealand can learn from these.

PHI coverage rates in New Zealand are declining and are likely to continue to do so under the current system. Section 3 of this paper proposes some options that insurers can take (under the current system) to increase coverage, particularly for older New Zealanders. But these options are really just tinkering at the edges rather than addressing the fundamental issue: the lack of solidarity in New Zealand's healthcare system.

The Treasury expects the private sector to bear an increasing portion of the cost of healthcare in future. But to turn around the current declining trend in PHI coverage will require a systemic change to the way PHI is approached in New Zealand.

The options proposed in Section 4 go a small way towards incorporating the features of solidarity that are required for a system that is to provide affordable healthcare for all New Zealanders. Compulsory employer provided healthcare can address minimum benefit issues and enables a greater degree of community rating. It may also be possible to incorporate open enrolment in such a scheme, but without effective risk equalisation there are potential perverse consequences.

An ACC-style scheme is an effective way to deal with the issues of minimum benefit levels, open enrolment and community rating. And risk equalisation is unnecessary when cover is provided by a government monopoly. But an ACC-style system leaves little role for the private sector. And whilst ACC has been very effective at limiting the cost of accidents (for example legal costs), it remains to be seen whether a similar system for non-acute conditions could achieve value-for-money outcomes.

5.1 A possible approach

To ensure affordable healthcare for all New Zealanders, a degree of community rating is necessary. To counter the negative consequences of community rating (for example the accumulation of riskier policyholders in a pool of ever increasing premiums) requires effective risk equalisation and incentives to join.

Risk equalisation (as opposed to claim equalisation) can be effective at dealing with the different costs involved with different demographic profiles. But it's less effective at dealing with the extreme cases of certain very high risk individuals whose claim costs are disproportionate to their age and sex profile. In these cases claim equalisation might be more effective. On the other hand larger pools are more effective at employing risk equalisation to deal with the extreme cases of very high risk individuals than smaller pools.

In fact, if risk and claim equalisation are effective enough then a degree of community rating may be possible without compelling insurers to do so. That is, an effective risk and/or claim equalisation scheme will reduce the need for insurers to offer different premiums for different risks. This might open the door for insurers to compete more on their product and service offering than on price.

To encourage the take up of PHI (in the absence of compulsion) one or both of the following are necessary:

- Incentives are offered to people to purchase PHI (or disincentives not to purchase PHI).
- The private sector provides a superior / more comprehensive offering than the public sector, filling gaps that the public sector cannot / has elected not to cover.

Incentives could be either a rebate for PHI policyholders or a penalty for those not purchasing PHI. And whilst the connotations are different, the underlying effects are similar: higher PHI coverage. These incentives can be linked to the purchasing ability of an individual e.g. their income and dependents.

Similarly the degree to which the private sector provides a better offering than the public sector can be a function of either a well performing private sector and/or a badly performing public sector. Clearly, the latter is undesirable.

5.2 Conclusion

Considerable work is required in this field, and the time to commence this work is now. With the healthcare crisis looming actuaries need to consider the system that is best for New Zealand and to work towards that system. The current, largely unregulated, system for PHI cover is ripe for change. New Zealanders have an opportunity to propose a new clean-slate system to achieve affordable healthcare across the public and private sectors.

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A Appendix – model assumptions

A.1 Premium structure

There are a wide variety of options available when it comes to purchasing PHI in New Zealand – excess options, various inclusions/exclusions and cost sharing options. To simplify the analysis the model treats the market as if it offers a single product at standard premium which varies only by age. The table below sets out the assumed premium structure.

Age	Premium (\$)	Age	Premium (\$)	Age	Premium (\$)	Age	Premium (\$)
0	325.00	25	459.07	50	891.18	75	3,430.02
1	325.00	26	474.52	51	942.32	76	3,588.90
2	325.00	27	481.44	52	998.61	77	3,755.14
3	325.00	28	482.51	53	1,062.18	78	3,929.07
4	325.00	29	483.04	54	1,137.11	79	4,111.07
5	325.00	30	483.21	55	1,219.50	80	4,301.49
6	325.00	31	483.38	56	1,310.24	81	4,500.73
7	325.00	32	483.91	57	1,404.17	82	4,709.20
8	325.00	33	484.62	58	1,494.03	83	4,927.33
9	325.00	34	485.51	59	1,586.36	84	5,155.56
10	325.00	35	491.37	60	1,685.08	85	5,394.37
11	325.00	36	502.03	61	1,797.84	86	5,644.23
12	325.00	37	512.50	62	1,913.43	87	5,905.67
13	325.00	38	518.71	63	2,024.58	88	6,179.22
14	325.00	39	522.25	64	2,126.84	89	6,465.43
15	325.00	40	530.77	65	2,222.01	90	6,764.91
16	325.00	41	548.52	66	2,309.73	91	6,764.91
17	325.00	42	575.51	67	2,399.94	92	6,764.91
18	325.00	43	607.47	68	2,499.38	93	6,764.91
19	325.00	44	640.85	69	2,596.86	94	6,764.91
20	325.00	45	675.11	70	2,661.66	95	6,764.91
21	325.00	46	712.57	71	2,861.80	96	6,764.91
22	380.23	47	753.05	72	2,994.36	97	6,764.91
23	416.99	48	796.37	73	3,133.06	98	6,764.91
24	435.99	49	842.89	74	3,278.18	99	6,764.91

A.2 New business assumptions

Age	Growth	Age	Growth	Age	Growth	Age	Growth
0	12.0%	25	1.0%	50	2.5%	75	0.0%
1	11.0%	26	1.0%	51	2.4%	76	0.0%
2	10.0%	27	3.5%	52	2.2%	77	0.0%
3	9.0%	28	6.0%	53	2.1%	78	0.0%
4	8.0%	29	5.8%	54	1.9%	79	0.0%
5	7.0%	30	5.7%	55	1.7%	80	0.0%
6	6.0%	31	5.5%	56	1.6%	81	0.0%
7	5.0%	32	5.4%	57	1.4%	82	0.0%
8	4.0%	33	5.2%	58	1.3%	83	0.0%
9	3.0%	34	5.1%	59	1.1%	84	0.0%
10	2.0%	35	4.9%	60	0.9%	85	0.0%
11	1.0%	36	4.7%	61	0.8%	86	0.0%
12	1.0%	37	4.6%	62	0.6%	87	0.0%
13	1.0%	38	4.4%	63	0.5%	88	0.0%
14	1.0%	39	4.3%	64	0.3%	89	0.0%
15	1.0%	40	4.1%	65	0.2%	90	0.0%
16	1.0%	41	3.9%	66	0.0%	91	0.0%
17	1.0%	42	3.8%	67	0.0%	92	0.0%
18	1.0%	43	3.6%	68	0.0%	93	0.0%
19	1.0%	44	3.5%	69	0.0%	94	0.0%
20	1.0%	45	3.3%	70	0.0%	95	0.0%
21	1.0%	46	3.2%	71	0.0%	96	0.0%
22	1.0%	47	3.0%	72	0.0%	97	0.0%
23	1.0%	48	2.8%	73	0.0%	98	0.0%
24	1.0%	49	2.7%	74	0.0%	99	0.0%

A.3 Lapse rate assumptions

Age	Lapses	Age	Lapses	Age	Lapses	Age	Lapses
0	1.0%	25	1.0%	50	4.5%	75	8.1%
1	1.0%	26	1.0%	51	4.6%	76	8.2%
2	1.0%	27	1.1%	52	4.8%	77	8.4%
3	1.0%	28	1.3%	53	4.9%	78	8.5%
4	1.0%	29	1.4%	54	5.1%	79	8.7%
5	1.0%	30	1.6%	55	5.2%	80	8.8%
6	1.0%	31	1.7%	56	5.3%	81	9.0%
7	1.0%	32	1.9%	57	5.5%	82	9.1%
8	1.0%	33	2.0%	58	5.6%	83	9.3%
9	1.0%	34	2.2%	59	5.8%	84	9.4%
10	1.0%	35	2.3%	60	5.9%	85	9.6%
11	1.0%	36	2.4%	61	6.1%	86	9.7%
12	1.0%	37	2.6%	62	6.2%	87	9.8%
13	1.0%	38	2.7%	63	6.4%	88	10.0%
14	1.0%	39	2.9%	64	6.5%	89	10.1%
15	3.0%	40	3.0%	65	6.7%	90	10.3%
16	5.0%	41	3.2%	66	6.8%	91	10.4%
17	7.0%	42	3.3%	67	6.9%	92	10.6%
18	9.0%	43	3.5%	68	7.1%	93	10.7%
19	11.0%	44	3.6%	69	7.2%	94	10.9%
20	9.0%	45	3.8%	70	7.4%	95	11.0%
21	7.0%	46	3.9%	71	7.5%	96	11.1%
22	5.0%	47	4.0%	72	7.7%	97	11.3%
23	3.0%	48	4.2%	73	7.8%	98	11.4%
24	1.0%	49	4.3%	74	8.0%	99	11.6%