

# ➤ Assuring retirement income

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**AUTHOR**

Tom Berthold

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The views, opinions, findings and conclusions expressed in this paper are those of the author. They do not necessarily reflect the views of the Ministry of Social Development or the New Zealand Government.

The paper is presented not as policy, but with a view to inform and stimulate wider debate.

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# Executive summary

This paper addresses the problem of decumulation of savings in retirement. Given that none of us knows how long we will live, the decumulation problem is how to secure and draw down our retirement savings so as to maintain our relative standard of living, without running out of money.

As people retire with increasingly large, lump sum withdrawals from KiwiSaver, they face the problem of how to manage their retirement savings over an uncertain lifespan, in a context of uncertainty about investment and inflation, to maintain their relative standard of living.

The paper discusses: risks and their optimal allocation; investment options for retirement income; and three options to manage risks to individuals and to the government:

- allow superannuitants to defer their New Zealand Superannuation (NZS) in exchange for a higher rate of NZS later
- allow superannuitants to buy a higher rate of NZS than their ordinary entitlement
- set up a public annuity fund to accept contributions from eligible persons and pay annuities to them.

The paper discusses advantages and disadvantages of each option, on the assumption that all three options can and should be unsubsidised by the government and hence be fiscally neutral. On balance, the establishment of a public annuity fund (option 3) is preferred as solving the decumulation problem without the significant complications that would arise in the design and delivery of NZS-based proposals (options 1 and 2).

As more people build lump sums for their retirement, demand is likely to increase for the government to help solve the decumulation problem one way or another.

# Introduction

## What's the problem?

The Capital Market Development Taskforce in its December 2009 report pointed to the risks that retirees must manage:

*The first KiwiSaver<sup>1</sup> members are able to withdraw their savings from 2012, and people will retire with increasingly large government-subsidised lump sums that must be managed over an uncertain lifespan, in an uncertain investment and inflation climate. Individuals in or close to retirement would benefit from a more comprehensive and efficiently priced range of products to help them manage the risk that they will exhaust their retirement savings before they die (Capital Market Development Taskforce, 2009, p.41).*

This problem, which affects all retirement savings – not just those in KiwiSaver – can be generalised as follows. Many New Zealanders with retirement savings cannot draw their savings down through their retirement in an efficient way to maintain their relative standard of living.<sup>2</sup> This is the “decumulation problem”.<sup>3</sup> As the Taskforce put it, the problem is one of managing risk, and this is the approach taken in this paper.

This paper will show that the decumulation problem will not be solved by the ordinary operation of markets. It will further show that it can be satisfactorily solved by government intervention leading to the result that the Taskforce envisaged.

## How big is it?

Over 623,000 New Zealanders are aged 65+ – the ordinary qualifying age for New Zealand Superannuation (NZS). Comprehensive information on the level of their savings is not available. However some data are available about income that superannuitants receive from private superannuation and other investments. This information is helpful in two ways:

- it indicates the extent to which recipients can augment their material standard of living without decumulating capital
- it also indicates the amount of income-producing capital that is potentially available to be decumulated to augment their material standard of living.

The following figures relate to 2010 and are derived from the most recent data available<sup>4</sup>. They are indicative only and are rounded. They exclude the value of owner-occupied housing.<sup>5</sup>

<sup>1</sup> KiwiSaver is described at <http://www.kiwisaver.govt.nz/new/about/>, retrieved 9 April 2013.

<sup>2</sup> Decumulation is not a problem for retirees who have no savings to speak of – theirs is a different problem. Nor is it a problem for people with substantial wealth, but many New Zealanders are in neither of those categories.

<sup>3</sup> Retirees may of course prefer to keep at least some of their savings as capital, rather than decumulate them all.

<sup>4</sup> From MSD analysis of the Household Economic Survey. See also Perry (2012), p 142.

<sup>5</sup> Home equity conversion is a potential further means of supplementing retirement income, and is discussed later in this paper.

Around half of superannuitants had income of less than \$15 per week from private superannuation and other investments, indicating that they had few or no savings to decumulate. On the other hand, about 15 percent received investment incomes of \$500 or more per week. This amount indicates that they did not need to decumulate savings in order to enjoy a regular total income at least equal to the average wage, then \$800 a week. In between those groups were about a third of all superannuitants – some 200,000 – with weekly investment incomes of between \$15 and \$500, indicating significant investments. They might have benefited more from these savings had they been able to decumulate some or all of them safely and efficiently. How to enable them to do so is the subject of this paper.

## Why the problem exists

The decumulation problem exists because of factors on the *supply side*:

- the private sector is reluctant to carry the longevity risk attached to annuities because of uncertainty about longevity in the future and there being no way to hedge the associated risk, and perhaps also because of the selection effect
- the private sector is at present unwilling to assume the inflation risk attached to indexation because of uncertainty about rates of inflation in the future, and because it is unable to hedge the inflation risk adequately
- risk-free (in the sense of government-guaranteed) investment options available to retirees do not include annuities.

As to the inflation risk, the Treasury has recently issued inflation-indexed bonds.<sup>6</sup> However, the bonds have a fixed maturity date of 2025, which does not match the indefinite term of life annuities. Nor is there any indication that such bonds will in future be available with maturities beyond 2025. Consequently, the bonds will not adequately hedge the inflation risk to which life annuities are exposed.

The decumulation problem exists also because of factors on the *demand side*, which make annuities less attractive relative to other investment options:

- available annuity products do not offer protection against inflation
- the tax system is adverse to annuities.

These factors are discussed later.

## The policy context

The policy context is set primarily by two government interventions that aim to support adequate income in retirement – NZS and the KiwiSaver scheme.

NZS is the basic “first tier”<sup>7</sup> of New Zealanders’ retirement income.<sup>8</sup> NZS provides a basic minimum income. Only a small proportion of New Zealanders aged 65-84 experience material hardship (Perry, 2012, pp 116-122 and 133-142; Koopman-Boyden, van der Pas & Cameron, 2007).

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<sup>6</sup> See <http://www.nzdm.govt.nz/securities/govtbonds/latestresults>, accessed 9 April 2013.

<sup>7</sup> So called (in the OECD taxonomy of pension systems) because NZS is virtually universal and is not dependent on previous saving. For information on many countries’ pension systems, see OECD, 2011 and 2012.

<sup>8</sup> NZS provides an annuity, essentially indexed to wages, to every resident aged 65 or more who qualifies. NZS is not income- or asset-tested nor work tested but it is taxable. The after-tax rate of NZS for a couple both of whom are eligible is

The KiwiSaver scheme was established by the KiwiSaver Act 2006, which provides:<sup>9</sup>

*The purpose of this Act is to encourage a long-term savings habit and asset accumulation by individuals who are not in a position to enjoy standards of living in retirement similar to those in pre-retirement. The Act aims to increase individuals' well-being and financial independence, particularly in retirement, and to provide retirement benefits.*

KiwiSaver provides generous government incentives – \$650 million in 2012/13<sup>10,11</sup> – for individuals to accumulate savings. Employers also contribute. The total savings are (in most circumstances) locked in until age 65. They are then available as a cash lump sum.

The KiwiSaver Act's aims are to increase participating individuals' well-being and financial independence, particularly in retirement, and to provide retirement benefits. The public policy risk is that significant government investment in KiwiSaver will fail to achieve these aims, due to the lack of some means of efficiently decumulating savings in retirement.<sup>12</sup>

## How to think about the problem?

### Risks and their optimal allocation

As asserted earlier, the decumulation problem is one of managing risk.

Citizens face many risks to their individual and collective interests. They manage some risks themselves, by somehow avoiding, mitigating or coping with the consequences. The government manages some other risks on their behalf, and some risks are shared and managed jointly. The distribution of risks between citizens and the government is not simply a matter that society leaves to chance; it is the essence of public policy, which is determined by essentially qualitative ethical and political judgments.

This paper presumes that, from a public policy perspective, any particular risk should be assigned to (or left with) whoever – the individual or the government – has an overall relative advantage in managing that particular risk. The advantage might derive from one or the other of those possessing better information or incentives, or being better able to protect against potential harm from the risk (“hedge” the risk). In some cases, the advantage might be shared in some fashion.

Good risk management seeks to find and make use of new information as it becomes available. The better a risk is managed, the less severe its ill effects are likely to be. That is why it is important to have a risk managed by the most suitable candidate. When suitability to manage risk is shared between the candidates in some fashion, so also should the risk be.

These propositions have implications for public policy and for individuals, as discussed below.

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about 66 percent of the average after-tax wage of a full-time earner. For a single person, it is 60 percent of the married rate.

<sup>9</sup> KiwiSaver Act 2006, Part 1 Preliminary Provisions, section 3, para. 1, p 11.

<sup>10</sup> 2011 Budget: <http://www.treasury.govt.nz/budget/2011/speech/b11-spch.pdf>, accessed 9 April 2013.

<sup>11</sup> Down from \$1,045 million in 2011/12: *KiwiSaver Annual Report 5*, 2011/12 p 24 at <http://www.ird.govt.nz/aboutir/reports/research/report-ks/research-ks-annual-report-2012.html>, accessed 9 April 2013

<sup>12</sup> Among the 34 OECD countries, only New Zealand and Ireland do not currently have a mandatory “second-tier” pension scheme to address the decumulation problem. Nor can suitable annuity-type products be obtained from the private sector in this country.

## Implications for public policy

At the level of individual transactions, the economic theory of decision-making under uncertainty is about managing risk – what to do where the outcome is uncertain, but the relevant probabilities are known? An example of this kind of problem is when an insurance company has to decide the premium to set for a life insurance policy or the price to charge for an annuity for someone – the particular individual's longevity is uncertain (the risk) but the average life expectancy of the individual's population cohort is known (the probability).

However this theory does not solve the problem of choosing the regulatory and other policy frameworks in which individual transactions can occur – in the present case, choosing the institutional structures needed to address the decumulation problem. Institutional choice problems are public policy problems inasmuch as the rules governing the institutions concerned are made or influenced by the government, and the consequences of institutional failure if it occurs are likely to be public policy problems themselves.

Although the desired outcome – efficient decumulation – is known, the probabilities around how different institutional arrangements would perform over the next several decades are *unknown*. The timescales involved in matters to do with retirement are often very long – longer than the maturity of any financial instrument available in the New Zealand market, apart perhaps from life annuities. Policy settings affecting retirement income may have ramifications for many decades into the future, during which time all manner of unforeseeable developments will occur. In the face of these uncertainties, a credible calculation and comparison of the ultimate costs and benefits of alternative institutional arrangements is simply unfeasible, because the relevant probabilities are unknown. This rules out *quantitative* modelling of alternative institutional approaches to the decumulation problem. Instead, the issue is better addressed in a more *qualitative* fashion – namely, through consideration of foreseeable risks. These are discussed below.

## Implications for individuals

The decumulation problem can be decomposed into its constituent risks. Retirees with savings face three particular risks:

- longevity risk,<sup>13</sup> because of uncertainty around how long they will live relative to how long their savings will last
- inflation risk, because of uncertainty around how the value of their savings will be eroded by inflation
- investment risk, because of uncertainty around the reliability of the parties to whom they entrust their savings.

When people make decisions about their retirement income, they will behave differently according to their preferences, capacities and resources. Some might seek to manage their affairs according to portfolio management principles.<sup>14</sup> Others might choose a less structured approach. Some might begin thinking and acting long before retirement, and others might not get around to it and take things as

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<sup>13</sup> "Longevity risk can be defined at individual and aggregate levels. At the individual level, longevity risk refers to the possibility of living longer than assumed in financial planning for the retirement of a single individual. At the aggregate level, longevity risk refers to the possibility of a higher average number of years of survival than assumed in designing a retirement security system for the aggregate." Stallard, 2006, p 575.

<sup>14</sup> There is not yet, however, "a reliable, generally accepted model of the complete portfolio problem" (Campbell & Viceira, 2002, p 13). Their modelling of investment portfolio choices excludes annuities altogether.

they come. These choices are properly up to them (though government policies often “nudge” them towards timely preparation, for example). Whatever individuals’ preferences, capacities and resources, when making their choices they are better off for having available at least one satisfactory option for decumulating their retirement savings. The public policy problem is to ensure that they do have such an option that is also satisfactory for the government; ie, that supports the aims of KiwiSaver.

# The problem in detail

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This part of the paper looks at key risks that are drivers of the decumulation problem, namely uncertainties around how long a retiree will live, and what might happen to their retirement savings during their retirement.

## Longevity and inflation risks and their consequences

Individuals with accumulated capital (whether achieved through KiwiSaver or otherwise) for consumption in their retirement have to manage that capital in the face of uncertain longevity. It is risky to base your decumulation strategy in retirement on the assumption that you will live for exactly as long as your life expectancy, because although your life expectancy is known, or thought to be known, your actual longevity is not. If you live longer than you expected and planned for, you run out of savings and your living standard then drops.<sup>15</sup> Conversely, if you die earlier than you planned for, you lived less well than you could have and you leave behind an unintended bequest.

Retirees also face the risk of their real income diminishing over time because their money diminishes in value – the *inflation risk*. The amount of consumption that pension or annuity payments can buy diminishes in line with price inflation, except to the extent (if any) that those payments are indexed to inflation. The compounding effect of price inflation over a typical retirement span is not trivial. Assuming three percent inflation a year, over a period of 15 years (from age 65 to 80, for example) each dollar loses 36 percent of its buying power.

Even if a retiree's pension or annuity is fully indexed to price inflation, over time its value relative to average wages will fall. That is because, over time, average wages rise faster than the general price level. So the retiree's standard of living will fall relative to the average of people still earning, and his or her ability to participate fully in society will decline correspondingly.<sup>16</sup> Assuming that real wages (ie, wages after adjusting their value for price inflation) rise by only two percent a year, over 15 years a pension that is fully indexed to price inflation will shrink 24 percent relative to average wages.

## Investment risks

Every investment (except investing in debt repayment) involves risk. Many financial institutions have collapsed with little or no warning, causing losses to depositors and shareholders. The least risky financial investments (apart from paying down debt<sup>17</sup>) are those guaranteed by the New Zealand government. Examples include government stock (because both capital and interest are guaranteed) and some investments offered by the Public Trust Office. Those avenues of investment may for practical purposes be regarded as risk-free with respect to investment risk, but they do not address the other elements of the decumulation problem, namely the longevity and inflation risks.

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<sup>15</sup> NZS provides protection against longevity risk, but only at a basic income level.

<sup>16</sup> NZS also protects against this decline (because it is linked to average wages) but again, only at a basic income level.

<sup>17</sup> Those living in their own homes are likely to use KiwiSaver drawdowns to retire some or all of any remaining mortgage debt. With changing patterns of home ownership, however, mechanisms to decumulate savings in retirement will become even more important.

Retirees with capital may manage their investments themselves, or may contract the portfolio management out. Both options present significant costs and risks:

- successfully self-managing a savings portfolio requires both financial expertise and continuing adequate mental capacity
- successfully contracting out the management of a savings portfolio requires continuing ability to monitor the investment manager and to take prompt and effective action if necessary to challenge or change unwise, opportunistic or dishonest management, assuming that the need to do so is discovered in time.

These abilities are frequently compromised by advancing age (Callaway, 2010). The risks involved in managing investments therefore tend to increase with age, as well as accumulating simply with the passage of time.<sup>18</sup> A mistake or oversight, or just bad luck, can have irretrievable consequences for a retiree's standard of living.

## Investment options for retirement income

Investment options that produce a stream of retirement income are few. A small and diminishing number of New Zealanders are invested in pensions or annuities, and a few are invested in home equity conversion schemes.<sup>19</sup>

### Pensions

Employment-related pension schemes that pay an annuity for the lifetime of the pensioner (and maybe his or her spouse) are becoming increasingly rare.<sup>20</sup> This follows changes to superannuation scheme taxation in the late 1980s that did away with favourable tax treatment of these schemes.

Subsequently, public and private sector employers moved to limit their pension liabilities by closing their defined benefit schemes to new entrants.

### Annuities

The Retirement Commissioner (2007, p 73) has observed that many of the barriers to annuity supply and demand stem from two inescapable issues: the significant uncertainty of longevity risk and the small size of the New Zealand market. The implication is that the market, without some form of government intervention, will fail to supply annuities that would solve, or substantially solve, the decumulation problem.

The tax treatment of annuities may be a contributory factor. The 2009 Capital Market Development Taskforce report (2009, p 107) said:

*The Taskforce is concerned that tax rules may be discouraging the development of an active annuities market in New Zealand. ... Currently, investment income from purchased annuities is taxed to the*

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<sup>18</sup> What can go wrong will go wrong, eventually (adapting Murphy).

<sup>19</sup> Cash receipts from such sources may affect entitlements to income-tested benefits. See for example <http://www.sherpa.org.nz/Portals/0/SHERPA%20Adviser%20Guide%20for%20HER%20Loans%20July%202012%20Version.pdf>, accessed 9 April 2013.

<sup>20</sup> The major existing defined benefit pension schemes are the Government Superannuation Fund and the National Provident Fund Defined Benefit Annuitants Scheme, both of which are indexed to price inflation and guaranteed by the government. The National Provident Fund was permanently closed to new entrants from 1 April 1991 and the Government Superannuation Fund was similarly closed from 1 July 1992.

issuer at the company tax rate of 30 percent.<sup>21</sup> No further tax is paid by the annuitant. It is likely that many retired people who could potentially invest in annuities would be on the 12.5 percent or 21 percent tax rates.<sup>22</sup> There is, therefore, a tax disincentive to invest in annuities for persons on those tax rates... This tax treatment could be discouraging investment in annuities, and is one explanation for the low take-up of annuities... The Taskforce considers that in addressing this problem, any solution should attempt to treat annuities in a similar manner to other substitutable investments.... It is noted that this issue is on the government's tax policy work programme, but has been deferred.

Other contributory factors may include:

- the selection effect ('adverse selection'), described below
- lack of inflation protection<sup>23</sup>
- lack of understanding of annuities products
- their administrative cost (although this is likely to be less than the true all-up cost of self-managing investments)
- lack of trust in providers, reflecting the investment risk, and
- considerable uncertainty around the extent of possible improvements in longevity.<sup>24</sup>

Individuals who elect to buy annuities tend to live significantly longer than those chosen at random from the general population. This is the *selection effect* (sometimes called by insurers *adverse selection*, because it is adverse to the insurer). Insurers therefore tend to design annuity products for this longer-lived group, leading to those with lower expectations of longevity being effectively priced out of the market.

### Home equity conversion schemes<sup>25</sup>

Home equity conversion schemes are marketed as a way to make available to older people some of the equity in their homes. They generally provide loans secured against the capital value of people's homes. The loans are advanced in the form of one or more lump sums, periodic payments or annuities. They therefore have a decumulation purpose. The capital advances, together with accumulated interest on these advances, usually do not have to be repaid until the owner sells the property or dies. A home equity conversion contract might be written so as to provide at least some protection against inflation. The contract might also protect against investment risk by keeping the title in the homeowner's name until the owner sells the property or dies.

Converting home equity might address the following concerns:

- an unnecessarily restricted retirement due to the inaccessibility of money tied up in the home

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<sup>21</sup> From 1 April 2011, this rate reduced to 28 percent.

<sup>22</sup> From 1 October 2010, these rates reduced to 10.5 and 17.5 percent respectively.

<sup>23</sup> No life office annuities at present on offer in New Zealand provide protection against inflation.

<sup>24</sup> The New Zealand Society of Actuaries has written to the Retirement Commissioner about the state of the New Zealand annuity market. The Society's submission is at <http://www.actuaries.org.nz/pdfs/Annuities%20May07.pdf>, accessed 9 April 2013.

<sup>25</sup> Information on these Schemes is provided by the Office for Senior Citizens at <http://www.osc.govt.nz/her/index.html>, accessed 9 April 2013.

- leaving unintended bequests of capital that might have been used to make retirement more pleasant
- having mortgage payments reduce current living standards (where there is still an undischarged mortgage).

The following concerns might not be addressed:

- longevity risk. Protection against longevity, if this is provided for in the contract, is generally limited to protection against negative equity; ie, if the homeowner lives longer than expected, he or she will never owe more than the value of the house, but the income stream stops when the equity runs out
- interest rate risk. A compounding interest charge with no explicit guarantee that this is fixed tightly to the floating rate (or any external benchmark) exposes the homeowner, once locked in, to the risk of opportunistic rate-fixing.

Home equity conversion as presently available is at most a partial solution to the decumulation problem. It does not provide a secure annuity<sup>26</sup> and it is inapplicable to savings not invested in a home.<sup>27</sup>

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<sup>26</sup> A potential mode of home equity conversion without this disadvantage is described later in this paper.

<sup>27</sup> Rates postponement is another partial decumulation device with similar limitations. For one scheme, see <http://www.ratespostponement.co.nz/> accessed 9 April 2013.

# Ways forward

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The Capital Market Development Taskforce (2009, pp.41, 49) gave considerable attention to the decumulation problem in its report:

*Individuals in or close to retirement would benefit from a more comprehensive and efficiently priced range of products to help them manage the risk that they will exhaust their retirement savings before they die.... Annuities are a way of turning retirement savings into a regular income....*

*There are a number of barriers to the development of the annuities market, and studies have shown that government intervention is typically required for a healthy annuities market to operate.<sup>28</sup> Government may be better placed than the private sector to facilitate the development of annuities products, or potentially to help provide them. This is because the government is a long-lived institution with extremely low credit risk. Since life expectancy is the key uncertainty in the annuities market, pricing is not straight forward. Taken together with the problems of adverse selection, there are good reasons why private annuities markets may fail to emerge. Through provision, or underwriting, the government may be able to support a well-functioning “actuarially fair”<sup>29</sup> market to develop. Government has an interest in helping people to effectively manage their financial assets in retirement. Without products such as reverse mortgages and annuities that are seen as fair and efficient, there is a risk that accumulated financial assets from KiwiSaver and other managed funds schemes will end up in a future version of the recent finance company collapses.*

The Taskforce suggested various steps to address the barriers to the development of the annuities market, such as the adverse tax treatment of annuities. The Taskforce also suggested that another option is to allow the purchase of additional NZS;<sup>30</sup> this is option two below.

Three options are discussed below.

## Option one – allow deferment of New Zealand Superannuation

This option would allow superannuitants to defer receiving their NZS. In exchange, they would become eligible to receive a higher rate of NZS later.<sup>31</sup> In effect, this would amount to the government selling government-guaranteed, wage-indexed annuities to qualifying individuals at a pre-specified price. That price would equate to the present value of the NZS pension that would have been paid to the individual during the deferral period. This option could be exercised either at the time of qualifying for NZS or later.

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<sup>28</sup> The Taskforce here cites Impavido, Thorburn & Wadsworth (2004).

<sup>29</sup> “Actuarially fair” means the cost of an annuity is equal to the present value of the regular payments the purchaser expects to receive.

<sup>30</sup> The Taskforce sourced this suggestion from a submission from Mercer (2009).

<sup>31</sup> In the UK, a person reaching retirement age can elect to defer payment of his or her state pension (the basic rate of which is about two-thirds of NZS). The result of deferment is a bigger pension once payment commences, or optionally a lump sum. Everyone gets the same deal regardless of life expectancy. See [http://www.direct.gov.uk/en/pensionsandretirementplanning/statepension/statepensiondeferred/dg\\_10027570](http://www.direct.gov.uk/en/pensionsandretirementplanning/statepension/statepensiondeferred/dg_10027570), accessed 9 April 2013.

There being no justification to do otherwise, the effective price charged for the higher NZS pension should be such that each deferral would aim to be actuarially fair and therefore fiscally neutral. Accordingly no subsidy would be involved,<sup>32</sup> and the government's financial net worth would not be affected.

The advantages and disadvantages of this option are similar to those of option two, and are discussed in option two below.

## Option two – allow superannuitants to buy increased superannuation

This option would allow people who qualify for NZS to pay the government a lump sum and in exchange to become eligible to receive a higher NZS pension. This option would be in addition to or instead of deferral. As before, the price would be actuarially fair.

### What the first and second (NZS-based) options could achieve

These two options, separately or together, would appear at first glance to go a long way to solving the problem of decumulation. Participating individuals, to the extent of their participation, would obtain a government-guaranteed annuity additional to NZS, similarly indexed to the average net wage. They would be relieved of the associated longevity, inflation and investment risks. They would also be relieved of the financial and other costs and risks of managing alternative investments. They would have the comfort of the probity and financial stability of the government as custodian of their investment.<sup>33</sup>

Both of these options being conceptually similar, they present similar advantages and disadvantages.

### Advantages

The advantage to participating retirees would be *security of their investment*. By investing savings at an actuarially fair price through the deferment option or through a single investment transaction (or both), the retiree would avoid the investment risk to which savings would otherwise be exposed.

For its part, the government would benefit also. First, it would in effect be borrowing funds domestically through a market mechanism that would complement its other sources of credit. Secondly, the government would mitigate the increasing regulatory and supervisory problems it will face in financial markets as growing numbers of retirees become increasingly dependent on the robustness and fidelity of investment businesses for the safety of their KiwiSaver and other retirement savings.

Option one has the additional advantage of encouraging people to continue participating in paid work beyond age 65. This helps to address skills shortages and contributes to economic output.

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<sup>32</sup> Some cross-subsidisation would occur among participants because their lifespans will differ, with the longer-lived being subsidised by the shorter-lived. In principle, this could be minimised (if desired) by pricing the increased pension according to the risk classification of each participant.

<sup>33</sup> The Public Trust Office has provided this comfort to savers since 1873.

## Disadvantages

Hurnard (2007) has suggested that options such as these risk confusing the basic policy purpose and rationale of NZS and so could undermine the broad social and political consensus that NZS enjoys. It would indeed be unfortunate if that consensus were to be eroded and the policy sustainability of NZS jeopardized, but that is unlikely. The basic entitlements of NZS, with their policy rationale, would not change. The options to be added would be designed to be fiscally neutral and not redirect funds away from core government business, or create unfair loopholes, or entrench privilege.<sup>34</sup>

Particular features of NZS would make these options very complex, however, both for recipients and for the government. NZS is payable at different rates depending on recipients' relationship circumstances – single, single living alone, or partners (married or in a civil union). People's relationship circumstances are liable to change from time to time, and new individual rates would have to be calculated. In addition, two partners married or in a civil union might wish to defer their NZS for different periods, or to purchase different amounts of additional NZS. A residency test also applies to NZS, and overseas superannuitants might be entitled to less than 100 percent of their applicable rate in New Zealand. NZS can also be abated where an overseas pension is payable. Detailed rules would need to be developed to anticipate the numerous possibilities, specifying the entitlements accruing and payable in each case. The two additional NZS options would therefore be far from straightforward for the government to administer or for superannuitants to understand.

There would be administrative costs. Because these options would employ the same organisation and systems as NZS but with some enhancements, the administrative costs attributable to them would be the costs of the enhancements, made up as follows:

- development costs:
  - changing legislation
  - setting up a robust annuity pricing basis
  - making changes to a not very flexible payment system
- ongoing costs:
  - processing applications
  - additional costs of processing changes to NZS payments where entitlement to additional NZS is involved
  - monitoring experience.

These costs could, however, be recovered from the participating individuals as a reduction in their additional pension, or as a one-time fee, or a combination.

These two NZS-based options would, to the extent that they were implemented and taken up, alter the government's exposure to risks. So would the next option. It is convenient to analyse this issue here.

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<sup>34</sup> As Hurnard says (2007, p 16): "People are likely to be receptive to government initiatives that open up new options for retirement income management and help people to make better informed decisions, with the proviso that these are not seen as redirecting significant funds away from core government business, creating unfair loopholes or entrenching privilege."

## The government's exposure to risks

First, the government would face a *wage indexation risk*. Future wage growth, which is effectively the indexation base,<sup>35</sup> might be higher (or lower) than was anticipated when the government set the effective annuity price. That would make the measures more (or less) fiscally costly than initially expected. The government is well-hedged against this risk, however – indeed, it is uniquely so. This is because taxes on earnings comprise the bulk of the government's revenue base, and tax revenues increase with wage growth.<sup>36</sup> Only the government is naturally hedged against the wage indexation risk.<sup>37</sup> Internationally, it has been common for governments to carry such risk. Of the 34 OECD governments, 12 have provided “second-tier” pensions indexed wholly or partly to wages (OECD, 2011, p.111) and accepted the corresponding wage indexation risk. Nineteen OECD governments have provided “second-tier” pensions indexed wholly or partly to prices<sup>38</sup> and accepted the corresponding price inflation risk.

The government would also face the *longevity risk* – that participating individuals, on average, may live longer than anticipated.<sup>39</sup> If that happened, it would make these measures more fiscally costly than initially expected. The government is better placed, however, than other potential candidates to manage the longevity risk, as it already does with NZS. Government policies which increase health expectancy – the number of years a person could expect to live independently without any functional limitation (Ministry of Social Development, 2010) – together with policies to support positive ageing will, to the extent that they are successful, extend people's ability to work, to contribute to their own support, and to pay taxes beyond traditional retiring ages. The government also decides the qualifying age for NZS.<sup>40</sup> Only the government is hedged in these ways against longevity risk. The issue, however, is not whether the government is completely hedged against longevity risk; it is whether the government is better placed than all alternatives – including individuals themselves – to bear this particular risk, which it is.

*Adverse selection* could be expected – that is, individuals expecting to live a long time would tend to participate more than those expecting a shorter lifespan. The government could choose to accept this risk. Or it could seek to counter adverse selection by pricing according to risk classification – for example by differentiating between men and women, or by ethnic group, or by allowing loadings for “impaired life” (individual risk factors) in the design of the measures. Either way, the aim would still be fiscal neutrality.

The government might also face an *investment risk* when it comes to invest the actual or putative payments from participants. It could avoid that risk altogether by using these funds to substitute for

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<sup>35</sup> After adjustment for the deduction of standard tax. See New Zealand Superannuation and Retirement Income Act 2001. section 15.

<sup>36</sup> Assuming no fiscal drag. If fiscal drag occurs, income tax revenue will grow faster than wages.

<sup>37</sup> As well as being hedged, the government has a major influence on wage growth through economic and other policies that raise productivity.

<sup>38</sup> Whether these governments in fact avoid the wage indexation risk (which is larger than the price inflation risk because, over time, wages rise faster than prices) has been questioned. The OECD (2011, p 27) argues that indexing pensions to prices would lead to pensions declining relative to earnings over time to an extent unlikely to be sustainable or, indeed, sustained. It therefore assumes in its modelling of future pension entitlements that pensions “are linked to average earnings, not prices, even though this is what legislation specifies”.

<sup>39</sup> Alternatively, people might live less long than anticipated. Longevity is generally a good thing for the people concerned, and a desirable public policy outcome.

<sup>40</sup> At some time in the future, a government may have regard to increased health expectancy as well as to its exposure to longevity risk when deciding the qualifying age for NZS.

borrowing from other sources. If it preferred, the government could choose an active investment strategy (as it has with the New Zealand Superannuation Fund), putting the funds in the market and accepting the associated investment risk in the expectation of higher returns over time.

All the above risks could be contained by setting reasonable limits on the extent to which individuals were permitted to participate; eg, limits on the allowable period of deferment or on the amount of additional pension that could be purchased, or both.

Design choices would have to be made around pricing and about whether to price according to the risk profiles of participants. Such choices have been made in other countries<sup>41</sup> without apparent controversy and without harm to the broad social and political consensus that the associated public pension scheme enjoys.

### Option three – set up a public annuity fund

In this option the government would become an annuity provider, as mooted by the Capital Market Development Taskforce, and set up a public annuity fund.<sup>42</sup> This fund would receive payments from eligible individual contributors and eventually pay them each an annuity, calculated to be actuarially fair and based on the value of the individual's contributions. A limit would be set on the amount of annuity an individual could purchase, corresponding with the aims of the KiwiSaver legislation cited earlier.

The annuity would be indexed, desirably to wages. Wage indexation would maintain its value relative to average wage incomes and living standards in the rest of the community. As discussed earlier, the government is hedged against the wage indexation risk.

Alternatively, inflation (price level) indexation could be chosen. In that case the government's indexation risk is naturally hedged by the Goods and Services Tax (GST), as GST revenue responds to movement in the general price level.<sup>43</sup> For the same amount invested, an inflation-indexed annuity would start at a higher rate than a wage-indexed one. The inflation-indexed annuity's value would however tend over time to fall relative to average wage incomes and living standards in the rest of the community.

It would of course be possible to allow annuitants to select their preferred basis of indexation, or choose partly one and partly the other.<sup>44</sup>

The public annuity fund's liabilities, representing annuities to be paid, would be guaranteed by the government as ordinary public debt. The fund would be managed on actuarial principles and cover all its administrative and other costs from its income so that there is no subsidy involved and the government's financial net worth is not affected.

The fund would work like this. Eligibility would be limited to individuals entitled to receive NZS, as there is no apparent public policy justification for extending eligibility more widely. Once entitled to receive NZS, eligible individuals could invest in the fund by paying lump sums from KiwiSaver savings or elsewhere into their individual account in the fund, or assigning payments from NZS or elsewhere,

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<sup>41</sup> In the UK, for example, as mentioned earlier.

<sup>42</sup> A similar proposal is advanced by Professors Henry T. C. Hu of the University of Texas School of Law and Terrance Odean of the University of California at Berkeley (Hu & Odean, 2011).

<sup>43</sup> As well as to movement in the volume of liable goods and services.

<sup>44</sup> An analogy is people choosing a fixed or floating interest rate, or a combination, for a mortgage.

or both. The fund could take security over a participant's home in lieu of a lump sum contribution, providing a secure and efficient means of home equity release.

Each contributor would be entitled to receive an actuarially fair, indexed life annuity.

The fund could be administered by a government agency, or its administration could be contracted out, as is the case with the Government Superannuation Fund at present.

The fund would be entirely separate from NZS and have no implications for the parameters of NZS in future.

### **Advantages and disadvantages of a public annuity fund<sup>45</sup>**

A public annuity fund would, like the NZS-based options, offer participating retirees all the advantages of a secure, indexed annuity income for the rest of their lives. These advantages would not be provided at the expense of taxpayers, or by coercing anyone. The private sector would remain free to compete and offer investment products, including annuities, as substitutes or complements, and its products should enjoy tax neutrality with a public annuity fund.

A public annuity fund would provide the government with an efficient substitute for other borrowing. It would mitigate future regulatory and supervisory problems in the investment sector, including expectations that the government will assist those whose investments go bad and who suffer financial loss in spite of – or because of defective - government regulation and supervision.

The disadvantages of a public annuity fund are rather less than for the NZS-based options. The administrative complexities of piggy-backing on NZS would be avoided. Entitlements would be predictable and not dependent on the vicissitudes of future relationship circumstances or other pension rights. The basic policy purpose and rationale of NZS and the broad social and political consensus that NZS enjoys would not be jeopardised. The government would still assume the wage (or price) indexation risk, the longevity risk, and the investment risk (if any), as in the case of the other options. These risks, as has been shown, are in any case hedged. As with the NZS-based options, the government's exposure to the aggregate risk could be contained by the rules around participation together with limits on amounts that could be invested.

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<sup>45</sup> Geoff Rashbrooke has mooted such a fund, but considers that, given NZS, it may be difficult to get acceptance of a state-supported annuity fund. He concludes that without additional state intervention, annuity products seem destined to remain unattractive. He rejects the option of the state stepping in to provide traditional annuity products but says there would appear to remain a need for some state intervention (Rashbrooke, 2008).

# Conclusion

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To restate the problem: many New Zealanders with retirement savings cannot draw their savings down through their retirement safely and efficiently so as to maintain their relative standard of living. Three options have been explored:

- allow superannuitants to defer their NZS in exchange for a higher rate of NZS later
- allow superannuitants to buy a higher rate of NZS than their ordinary entitlement
- set up a public annuity fund to accept contributions from eligible persons and pay annuities to them.

Implementation of any of these options should be unsubsidised and fiscally neutral.

The first and second (NZS-based) options are conceptually similar and potentially complementary, and they can be considered together. They could largely solve the decumulation problem. However, grafting contractual annuities on to statutory NZS entitlements would be far from straightforward for either the government or superannuitants.

A public annuity fund could solve the decumulation problem and do so without the complications of the NZS-based proposals. A public annuity fund would present no novel administrative problems. A clean separation between NZS and the public annuity fund could be maintained, and with it the significant distinction between a statutory entitlement to a benefit (which NZS is) and a private property right in a contractual insurance policy. It is therefore to be preferred to the NZS-based options.

There is no solution that does not involve risks to someone – the risks are there already, and they are growing. The challenge is to manage them well. As more people join KiwiSaver and build lump sums for their retirement, they will look to the government to fix the problem and to share the investment risk one way or another.

# References

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- Callaway, E. (2010) Why older brains stand to lose more. *New Scientist*, 26 January 2010. Cited in <http://www.psy.vanderbilt.edu/postdocs/gregoryrsl/press/files/64a61858970765f9e550a890008c486b-16.htm> accessed 9 April 2013.
- Campbell, J., & Viceira, L. (2002) *Strategic asset allocation: Portfolio choice for long-term investors*. Oxford: Oxford University Press.
- Capital Market Development Taskforce. (2009) *Capital markets matter: Report of the Capital Market Development Taskforce*, accessed 9 April 2013 from <http://www.med.govt.nz/business/economic-development/pdf-docs-library/cmd-capital-markets-matter-full-report.pdf>
- Hu, H., & Odean, T. (2011) *Paying for old age*. New York Times, 26 February 2011, accessed 9 April 2013 from [http://www.nytimes.com/2011/02/26/opinion/26Hu.html?\\_r=3&src=me&ref=homepage](http://www.nytimes.com/2011/02/26/opinion/26Hu.html?_r=3&src=me&ref=homepage)
- Hurnard, R. (2007). *Managing assets and income in retirement: An issues paper prepared for the Retirement Commission*. Retrieved
- Impavido, G., Thorburn, C. & Wadsworth, M. (2004) *A conceptual framework for retirement products: Risk-sharing arrangements between providers and retirees*. World Bank Research Working Paper 3208. Accessed 10 April 2013 from <http://www1.worldbank.org/finance/assets/images/3208.pdf>
- Inflation-linked NZ bonds benchmark for annuities*. Dominion Post, 23 May 2011.
- Koopman-Boyden, P., van der Pas, S. & Cameron, M. (2007). *Wellbeing: Social connectedness and economic standard of living among 65–84 year olds in New Zealand – 2007*. Working paper 9, Enhancing Wellbeing in an Ageing Society (EWAS). Accessed 12 October 2012 from <http://www.ewas.net.nz/Publications/filesEWAS/Wellbeing,%20social%20connectedness%20and%20economic%20std%20of%20living.pdf>
- Mercer (2009) *Securing retirement income: Time to act. Risks, challenges and opportunities with New Zealand's retirement income system*. July 2009. Accessed 10 April 2013 from <http://www.mercer.co.nz/secureretirement>
- OECD (2011) *Pensions at a glance 2011: Retirement-income systems in OECD and G20 Countries*, accessed 10 April 2013 from [http://www.oecd-ilibrary.org/finance-and-investment/pensions-at-a-glance-2011\\_pension\\_glance-2011-en](http://www.oecd-ilibrary.org/finance-and-investment/pensions-at-a-glance-2011_pension_glance-2011-en)
- OECD (2012) *OECD Pensions Outlook 2012*, accessed 10 April 2013 from <http://www.oecd.org/finance/privatepensions/oecd-pensions-outlook-2012.htm>
- Perry, B. (2012) *Household incomes in New Zealand: Trends in indicators of inequality and hardship 1982 to 2011*. Wellington: Ministry of Social Development, accessed 10 April 2013 from <http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/household-incomes/index.html>
- Rashbrooke, G. (2008) Income in retirement. *Policy Quarterly* 4(1), pp 26–35, accessed 10 April 2013 from <http://ips.ac.nz/publications/files/dfa4aff8b01.pdf>
- Retirement Commissioner (2007) *Review of retirement income policy 2007*. Wellington: Office of the Retirement Commissioner, accessed 10 April 2013 from <http://www.retirement.org.nz/retirement-income-research/policy-review/2007-review>

Stallard, E. (2006) Demographic issues in longevity risk analysis. *Journal of Risk and Insurance* 73(4), pp 575-609.