Decumulation debate

New Zealand Society of Actuaries
Financial Services Forum
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Prepared by the Retirement Income Interest Group of the New Zealand Society of Actuaries:

Alison O'Connell, Catherine Edgar, Christine Ormrod (Convenor), Daniel Musset, Janet Shirley, Joe Benbow, Kelvin Prisk and Mark Channon

Recap of our conclusions

1. Diversity, uncertainty and change through retirement spell problems with any standard or default strategy
2. There is no universal rule for if or when an annuity is better than drawing down money from savings
3. Market innovation is likely to meet the growing market for income-streaming products, but they are unlikely to be reasonably-priced fully guaranteed lifetime annuities
4. A state-provided lifetime guaranteed annuity would be possible, but not straightforward
5. The critical question is less “What products are needed?” but more “What financial guidance is needed?”

In thinking about retirement income needs, New Zealand is unique …

- **Annuity markets exist where they are mandated or encouraged by policy settings, e.g. a low &/or means-tested public pension**.

  ✗ NZS is relatively high and universal.

- **The tax in the decumulation phase will affect the optimisation of decumulation**.

  ✗ NZ is one of very few countries where retirement savings are "TTE".

Value and coverage of State provided pensions

	Relative benefit value (% of AW earnings)				Relative benefit value (% of AW earnings)		
	Basic	Targeted	Minimum		Basic	Targeted	Minimum
Australia	x	29	x	Japan	16	20	x
Austria	x	28	x	Korea	x	3	x
Belgium	x	25	28	Luxembourg	10	31	39
Canada	14	19	x	Mexico	x	x	28
Chile.	16	51	x	Netherlands	30	x	x
Czech Republic	9	x	12	**New Zealand**	**41**	**x**	**x**
Denmark	18	18	x	Norway	x	x	32
Estonia	13	15	x	Poland	x	15	25
Finland	x	x	21	Portugal	x	17	34
France	x	25	23	Slovak Republic	x	22	x
Germany	x	19	x	Slovenia	x	31	13
Greece	x	14	36	Spain	x	20	34
Hungary	x	x	12	Sweden	x	15	24
Iceland	7	20	x	Switzerland	x	22	16
Ireland	37	35	x	Turkey	x	5	37
Israel	15	28	x	United Kingdom	16	20	10
Italy	x	22	19	United States	x	18	x

source: Pensions at a glance 2013: OECD and G20 Indicators

Tax treatment of retirement benefits

Source: OECD Economic Studies No. 39, 2004/2

Country	Individual/ employer	Contributions[2]	Fund income	Annuities	Lump sums
Australia[3]	Individuals	T	7.1%[4]	T/PC	PE/I 6.5%
Australia[4]	Employers[5]	15%	7.1%[4]	T/PC	PE/I 6.5%
Austria[3]	Individuals	T/PE	E	T/PE	T/PE
Austria[4]	Employers	E	E	T	T
Belgium[3]	Individuals	T/PC	E	T/PC	10%
Belgium[3]	Employers	E	E	T/PC	I 6.5%
Canada		E	E	T	T
Czech Republic[3]	Individuals	T/PE/S	E	15%/PE	15%/PE
Czech Republic[3]	Employers	E/S	E	15%/PE	15%/PE
Denmark		E	15%	T	40%
Finland		E	E	T	T
France		E	E	T/PE	T/PE
Germany		E	E	T/PE	T
Greece		E	E	T	T
Hungary[3]	Individuals	T[5]	E	E	E
Hungary[3]	Employers	E	E	E	E
Iceland		E	E	T	T
Ireland		E	E	T/PE	T/PE
Italy		E	12.5%	T/PE	T/PE

Country	Individual/ employer	Contributions[2]	Fund income	Annuities	Lump sums
Japan		E	E	T/PE	T/PE
Korea		E	E	T/PE	T/PE
Luxembourg[3]	Individuals	E	E	T	T/PE
Luxembourg[3]	Employers	20%	E	E	E
Mexico		E/S	E	T/PE	T/PE
Netherlands		E	E	T	T
New Zealand[3]	Individuals	T	33%	E	E
New Zealand[3]	Employers	21%	33%	E	E
Norway		E	E	T	N/A
Poland		E	E	T	T
Portugal[3]	Individuals	T/PC	E	20%/PE	T/PE
Portugal[3]	Employers	E	E	20%/PE	T/PE
Slovak Republic		E	E	15%	15%
Spain		E	E	T	T/PE
Sweden		E	15%	T	T
Switzerland		E	E	T	T
Turkey		E	E	E	5%/PE
United Kingdom		E	E	T	T/PE
United States		E	E	T	T

E = exempt
T = taxed under personal income tax;
PC = partial credit;
PE = partial exemption or deduction from taxation;
S = state subsidy

1. Private pension refers to mandatory or voluntary funded privately managed pension schemes.
2. Tax-deductible contributions are subject to a certain limit in most countries.
3. The tax treatment of the employers contribution is different from that of the employee's.
4. The effective tax rate assuming a portfolio with 60% interest-bearing assets and 40% equities.
5. Mandatory contributions are fully taxed, but voluntary contributions receive tax credits.

… although other countries are also struggling to find the answer

- **Australia**: Financial System Inquiry recommended trustees pre-select a low-cost comprehensive income product to provide regular and stable income stream, longevity risk management and flexibility. Feasibility?
- **UK**: reeling from *Freedom and Choice*; rules of thumb being examined; looking elsewhere for wisdom on drawdown and longevity products; concerns over availability of advice. New normal not till after 2016?
- **US**: fragmented markets with different product features. Drawdown prominent. Complex annuities in the market.

General retirement income framework can be adapted for New Zealand

3. Desired additional income
e.g. drawdown from higher return KiwiSaver; buy annuity?

2. Conservative, flexible income doubles as emergency fund
e.g. bank accounts, term deposits, liquid PIEs/KiwiSaver – c. $100,000??

1. Minimum guaranteed income - NZS

New forms of “Advice” or “Guidance” needed

- **People vary in ways which are fundamental to what the appropriate product(s) is for them**
- **Rules of thumb** may be appropriate for people with modest KiwiSaver balances (the majority).
    - Rules of thumb need to be appropriate for New Zealand longevity and investment conditions - these may change over time.
    - Rules of thumb need to be simply communicated – standardise for NZ to avoid confusion
- **For people with higher wealth**: full advice or a simpler form of approved independent financial guidance should be available at suitable moments during retirement – auto-enrol KiwiSavers with significant balances to a guidance scheme?

Rules of Thumb

- Starting point of $100k to decumulate from age 65
- Overview of the rules analysed
- Modelling assumptions
- Results

Things to consider

- Thoughts on appropriateness of these rules. Any others we should include?
- What criteria should be used to assess these rules of thumb?
- How best to communicate this output and help people come to an informed decision?

Rules of Thumb

Rule 1 – “4% rule”

- 4% of original assets drawn down each year
- No inflation adjustment
- i.e. drawdown each year is $4,000

Rule 2 – “6% rule”

- 6% of original assets drawn down each year
- No inflation adjustment
- i.e. drawdown each year is $6,000

Rules of Thumb

Rule 3 – “4% rule + inflation”

- 4% of original assets drawn down each year
- Withdrawals inflation adjusted each year
- i.e. drawdown in year t+1 is \$4,000 * $(1 + inf)^t$

Rule 4 – “6% rule + inflation”

- 6% of original assets drawn down each year
- Withdrawals inflation adjusted each year
- i.e. drawdown in year t+1 is \$6,000 * $(1 + inf)^t$

Rules of Thumb

Rule 5 – "Straight line over 20 years"

- 20 year withdrawal period
- i.e. drawdown in year t+1 is $Fund_t$ / (20 – t)

Rule 6 – "Straight line over 25 years"

- 25 year withdrawal period
- i.e. drawdown in year t+1 is $Fund_t$ / (25 – t)

Rule 7 – "Life expectancy, yearly recalc"

- Withdrawal period based on life expectancy
- i.e. drawdown in year t+1 is $Fund_t / e_{65+t}$

Rule 8 – "Life expectancy, 3 year recalc"

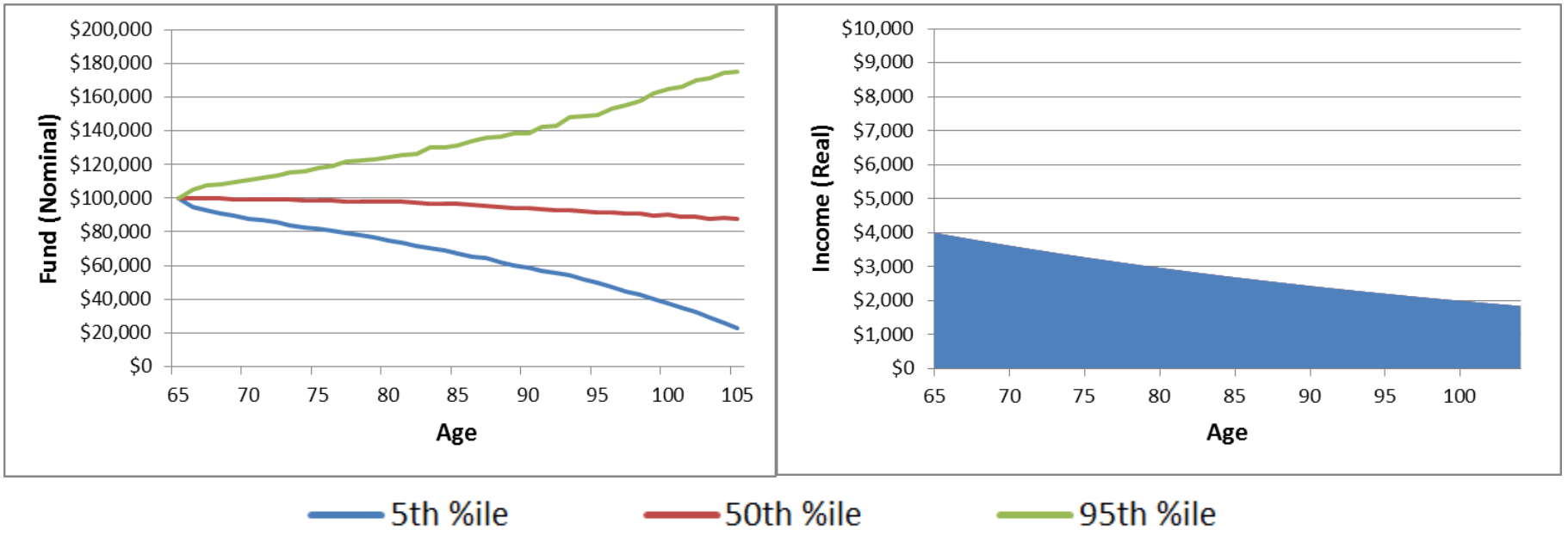
- Withdrawal period based on life expectancy
- As Rule 7 but drawdown amount only recalculated every 3 years
- i.e. drawdown in years t+1=1, 4, 7, … is $Fund_t / e_{65+t}$

Modelling assumptions

- Lump sum of $100,000 to drawdown from age 65
- Investment returns follow a normal distribution with mean 4% (nominal), standard deviation 3% (fairly conservative)
- Returns are net of tax and investment management fees
- Future inflation of 2% (deterministic)
- 1000 simulations
- Mortality rates derived from Statistics NZ female cohort life tables (updated September 2014) and 2014 (base) national population projection mortality assumptions, based on medium death rates.
- Income shown in addition to any NZ super
- Basic model at this stage – just illustrating concept

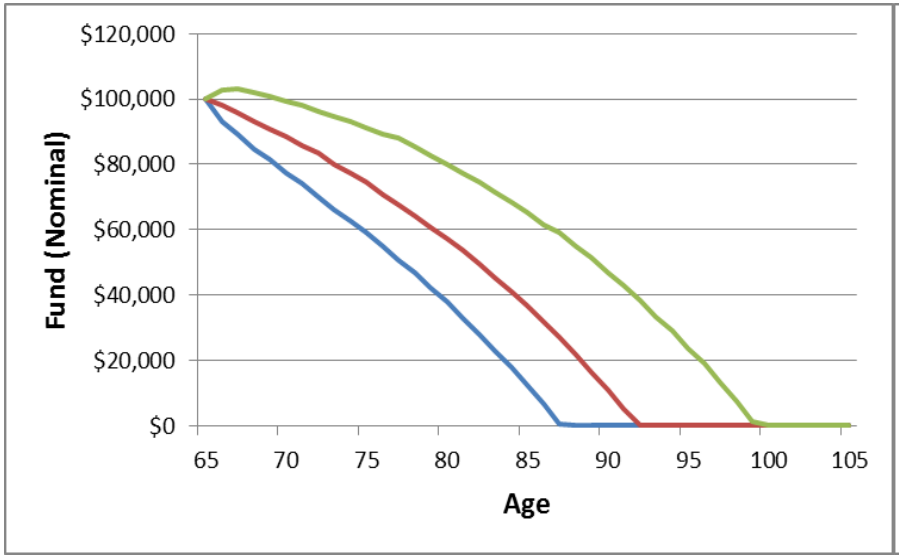
Rule 1 – “4% rule”

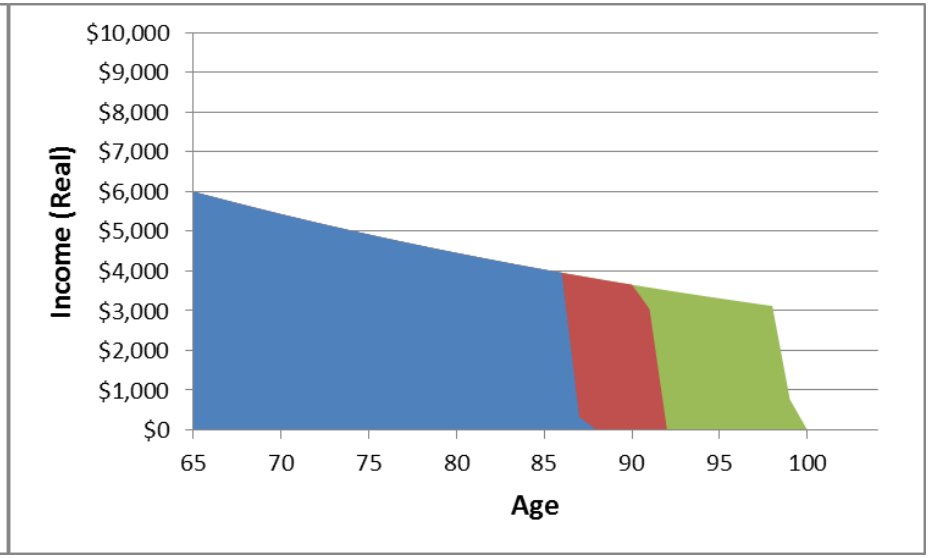
- Very simple
- Almost 0% probability of running out of money
- Wide variation in outcomes for fund
- Could leave a significant inheritance
- Stable income, but doesn’t keep up with inflation



Rule 2 – "6% rule"

- Better pattern for returning capital…
- …though income still declining in real terms
- Higher chance of running out of money

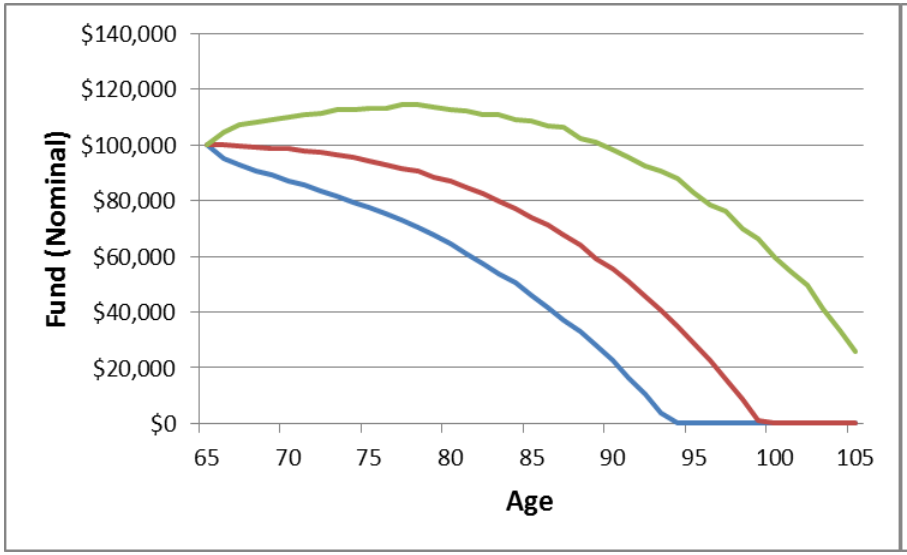


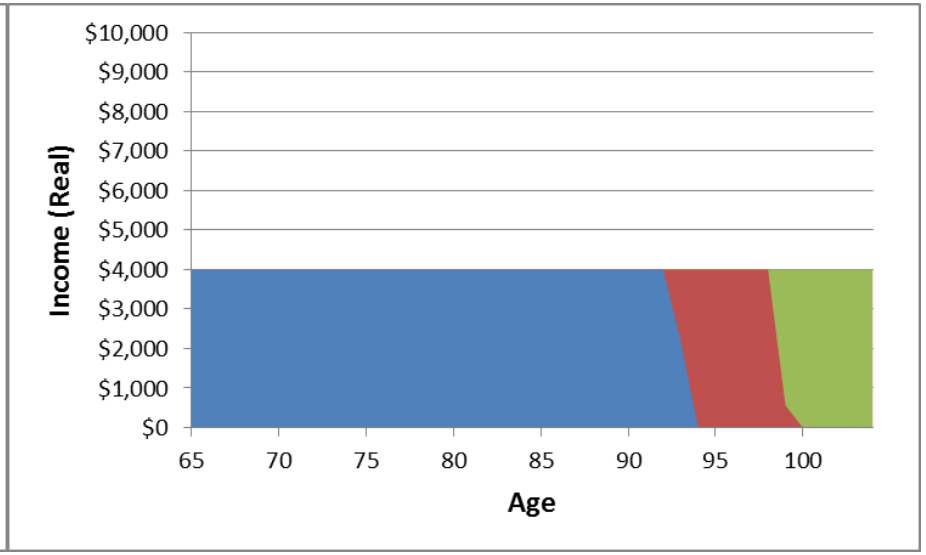


5th %ile 50th %ile 95th %ile

Rule 3 – "4% rule + inflation"

- Inflation proofed income
- Fund likely to last until age 100
- More complicated for the consumer

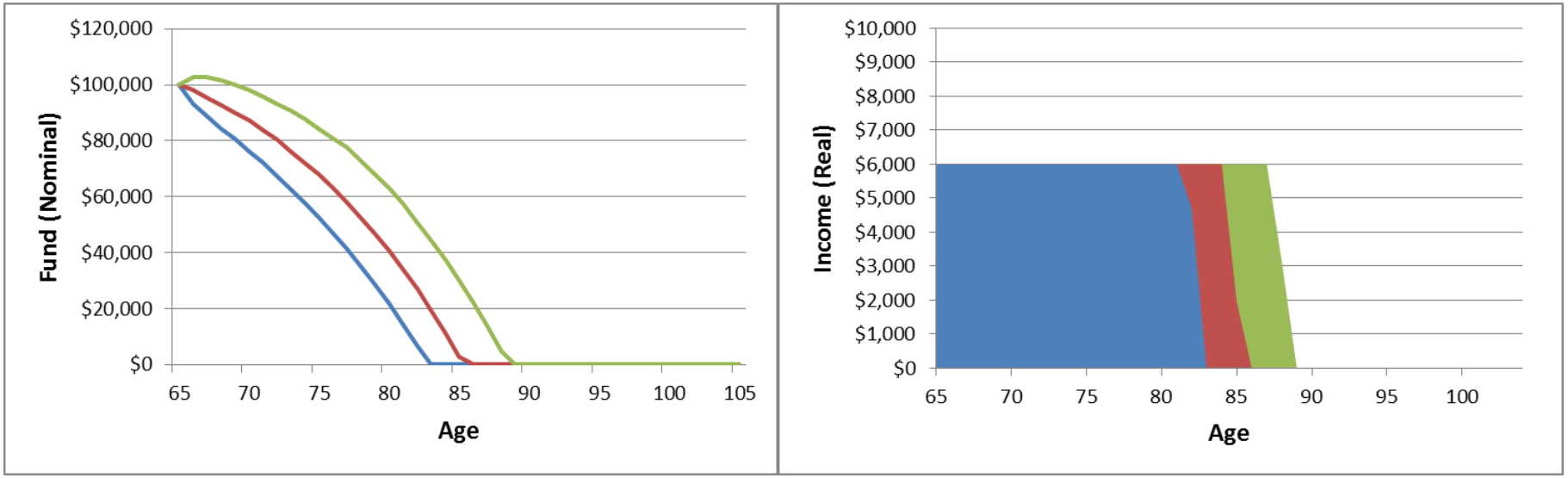




5th %ile 50th %ile 95th %ile

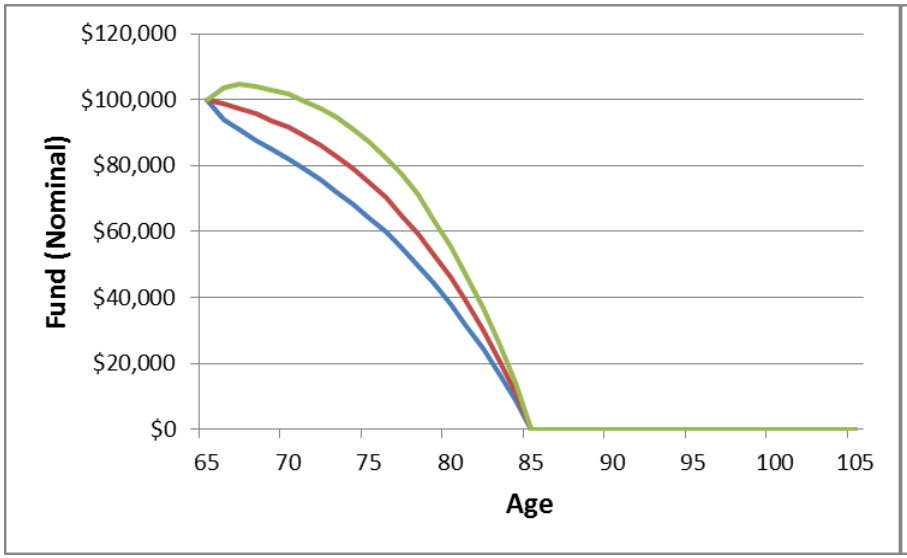
Rule 4 – “6% + inflation”

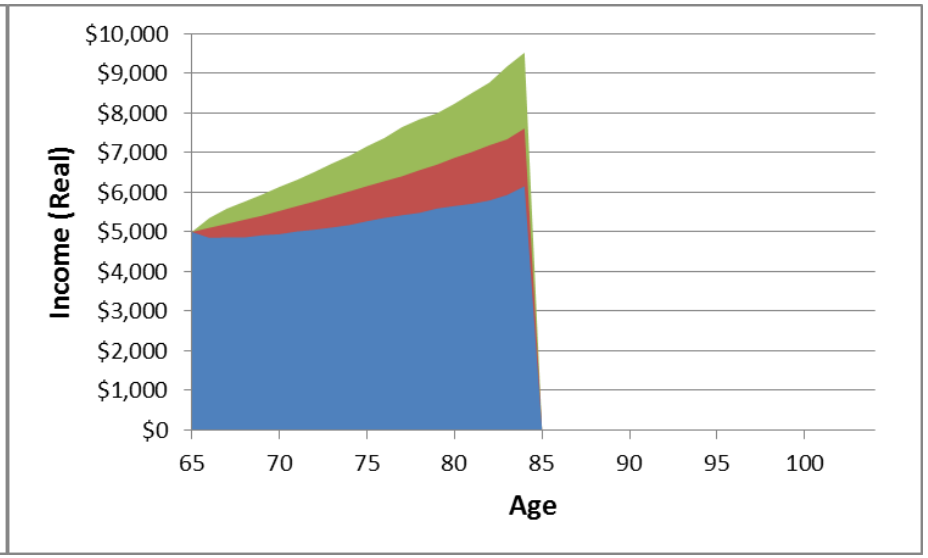
- Higher inflation proofed income
- Fund likely to last until age 86



Rule 5 – "Straight line over 20 years"

- Provides certainty as to when fund expires
- Real income increases over time
- Relatively straightforward to understand
- Leaves no inheritance and a reliance on NZ super if still alive at age 85

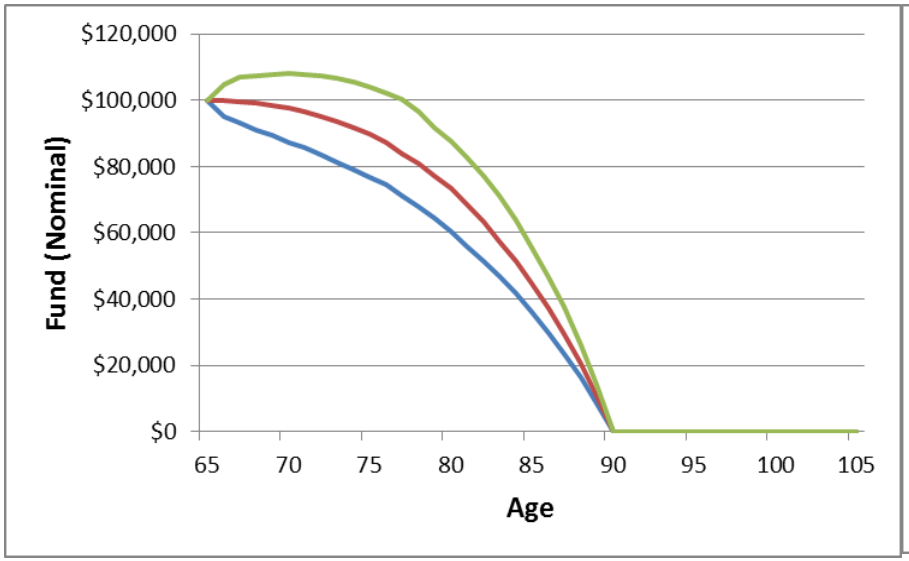


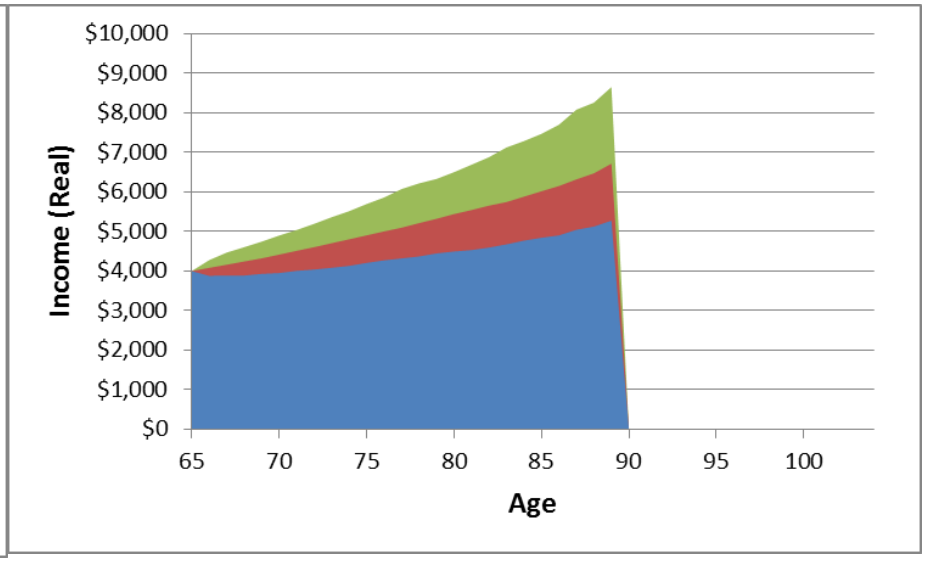


5th %ile 50th %ile 95th %ile

Rule 6 – "Straight line over 25 years"

- Provides certainty as to when fund expires
- Real income increases over time

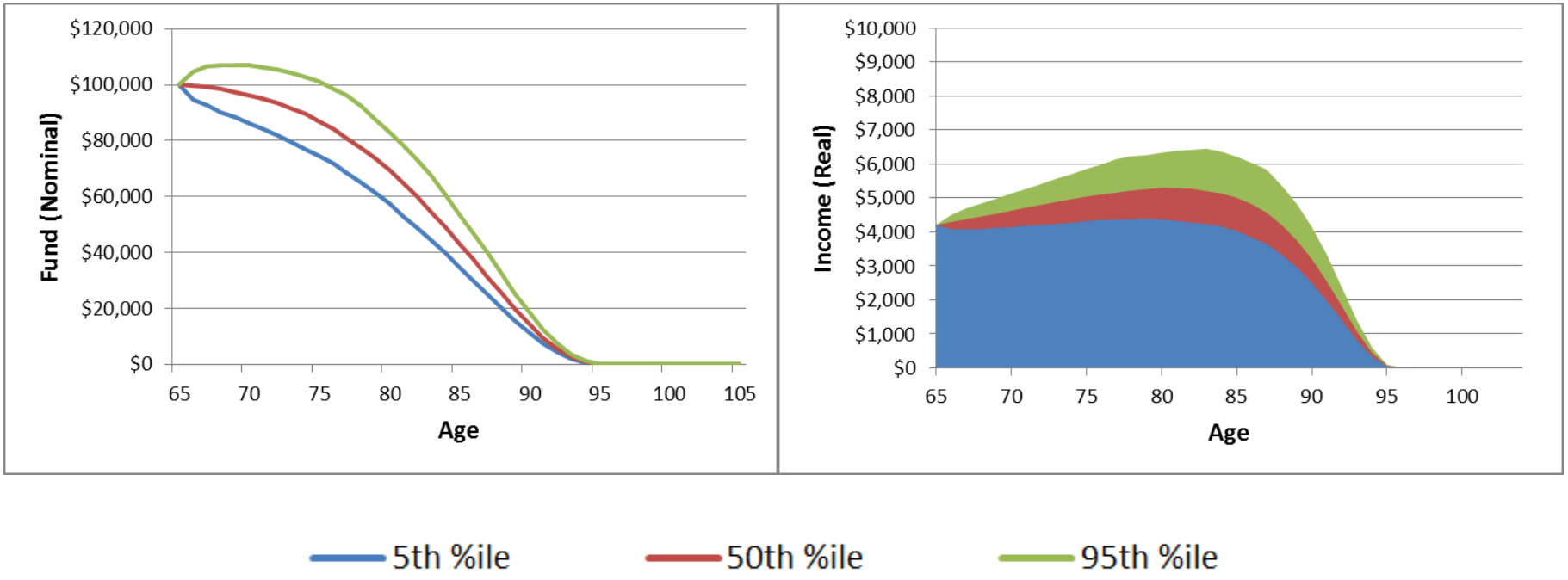




5th %ile 50th %ile 95th %ile

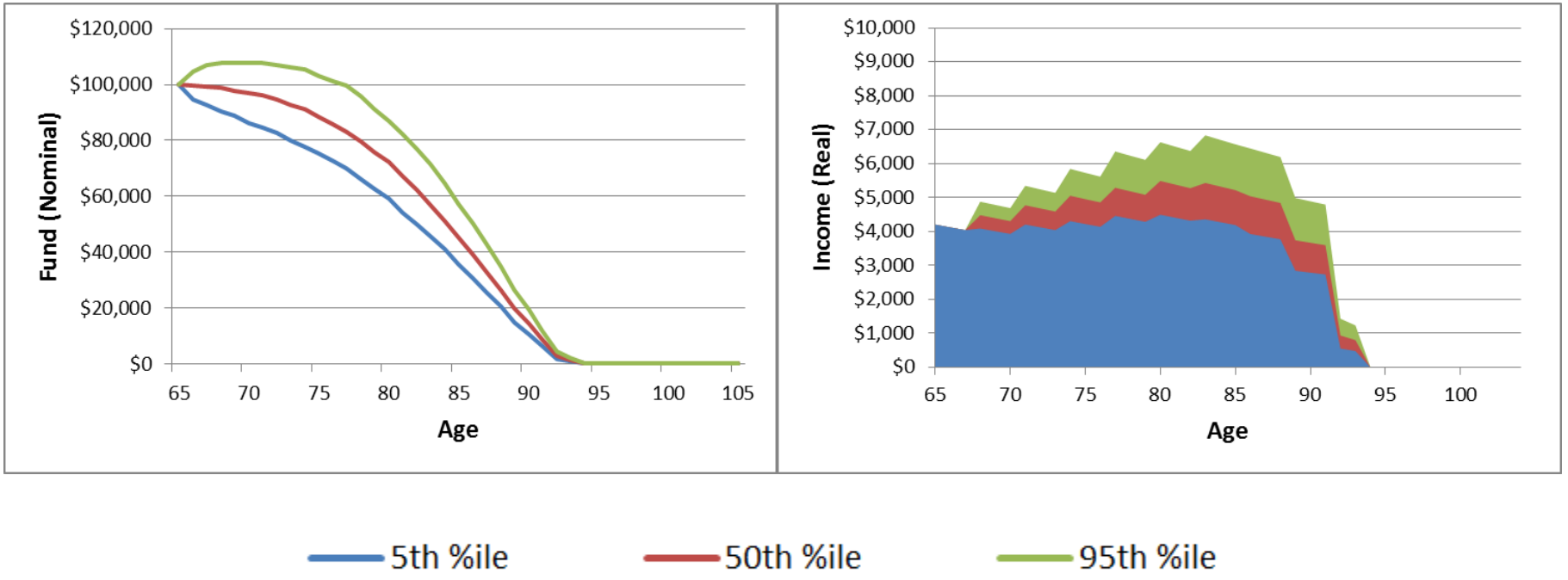
Rule 7 – "Life expectancy, yearly recalc"

- Maintains reasonable levels of real income, though tails off in later years
- "Actuarially" makes sense
- But is it too complicated for a rule of thumb?

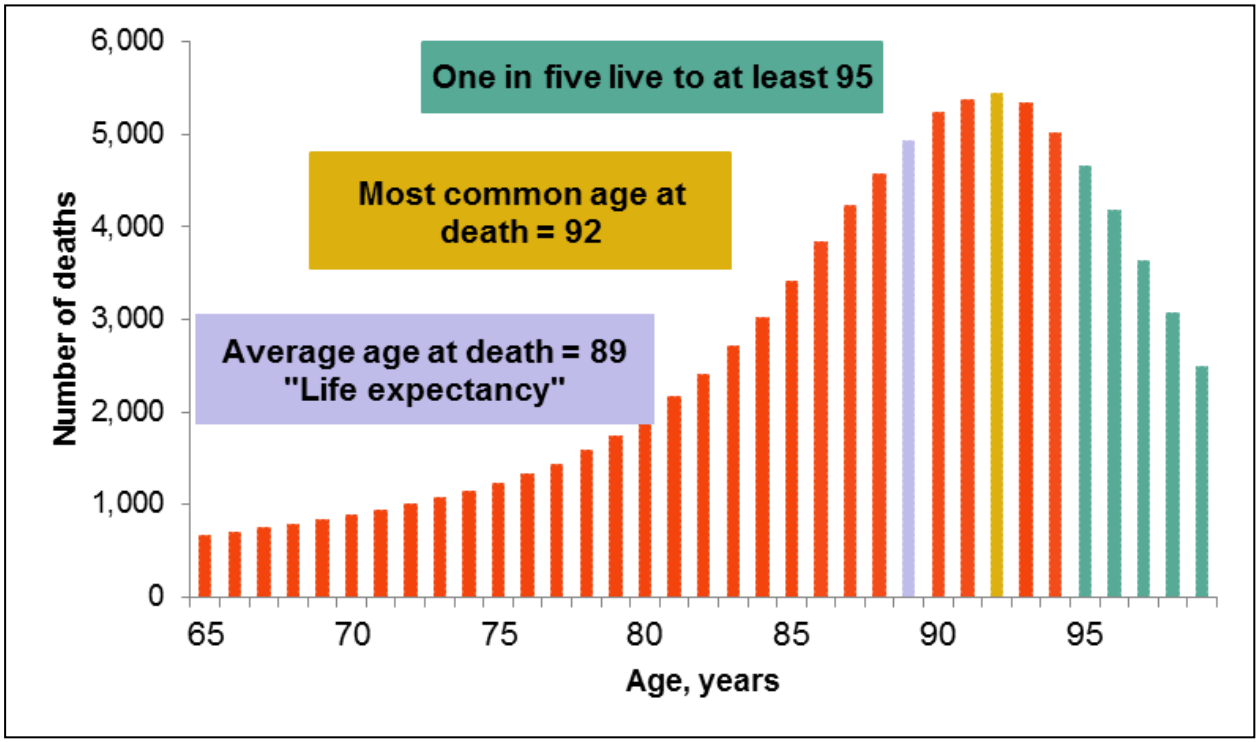


Rule 8 – "Life expectancy, 3 year recalc"

- Doesn't differ much from previous rule
- Recalculation should involve updated mortality assumptions
- Probably too complicated for a rule of thumb?



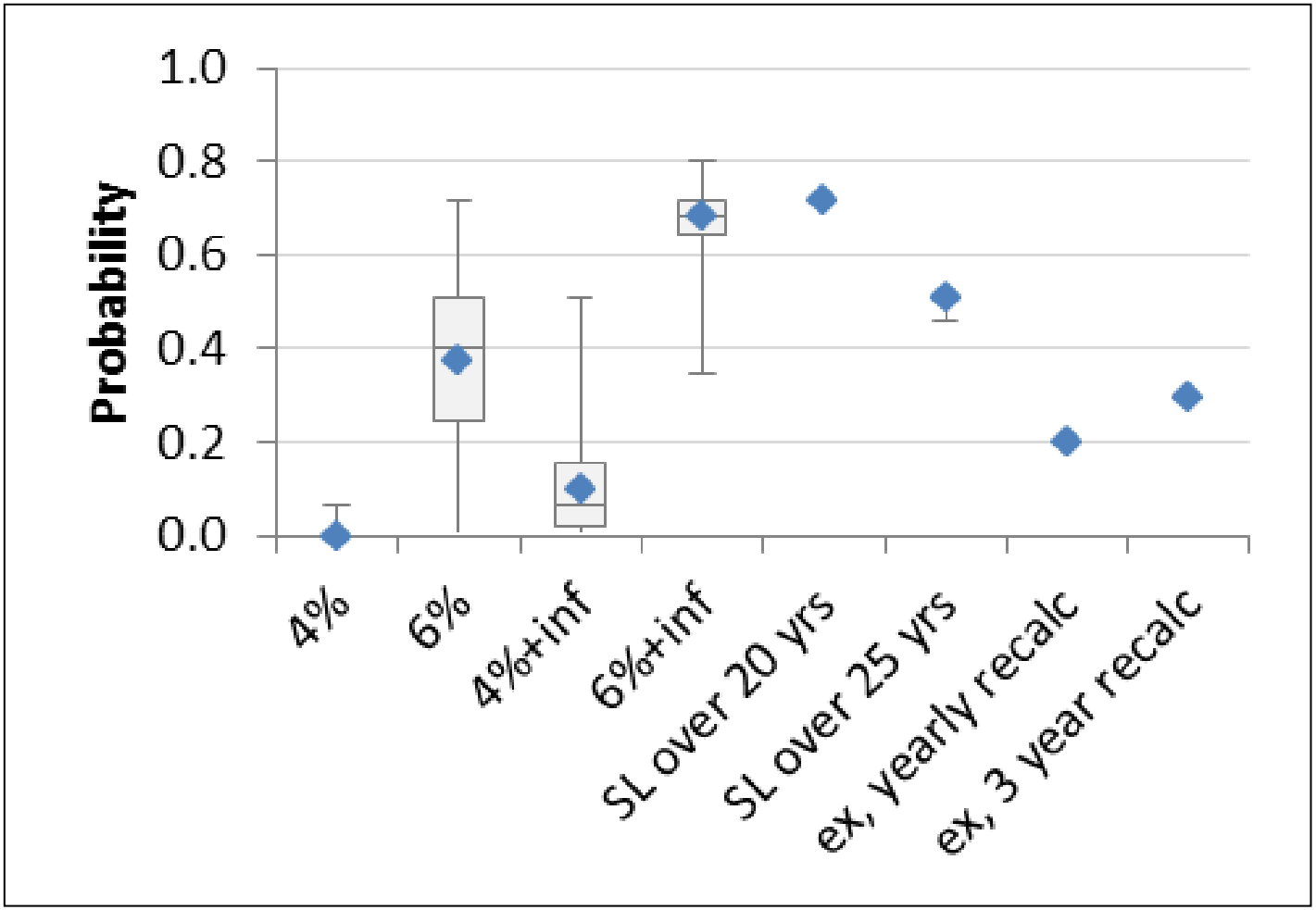
Cohort life expectancy



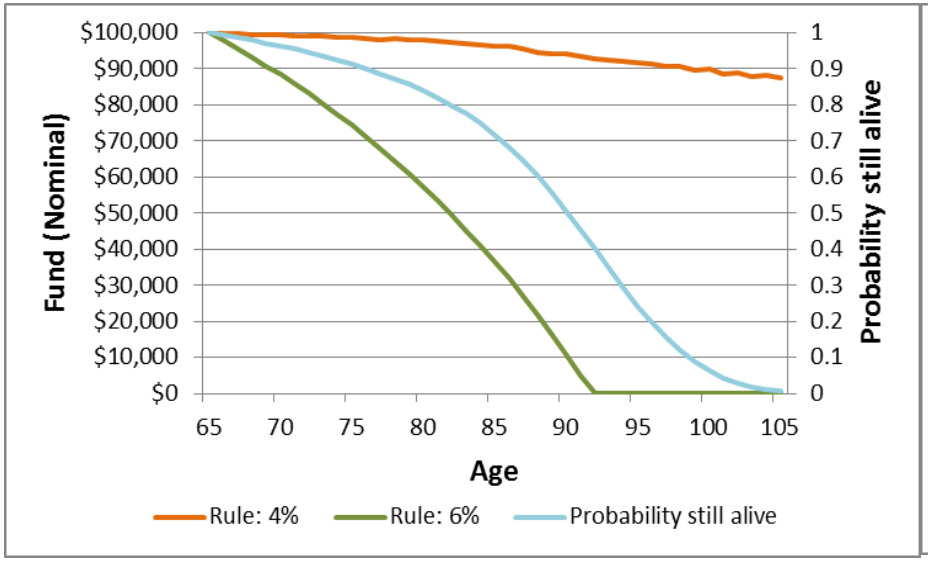
Estimated number of deaths at each age (from 65 to 100) for 100,000 female New Zealanders who reach their 65th birthday in 2015

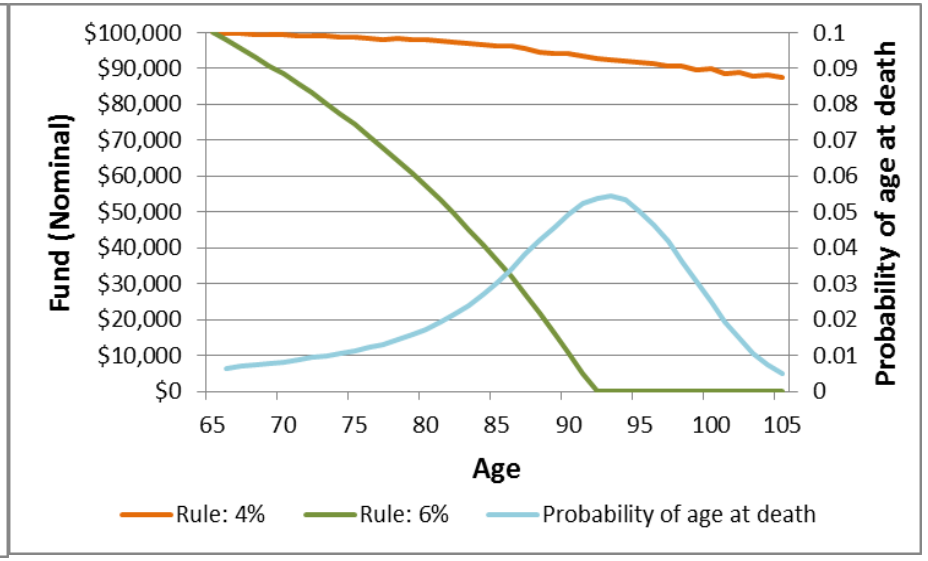
Source: Calculated from Statistics New Zealand cohort life tables (updated September 2014) and 2014 (base) national population projection mortality assumptions, based on medium death rates. Average age at death (cohort e65) from *How long will I live?*

Probability of outliving the fund



Mean fund size against longevity indicators





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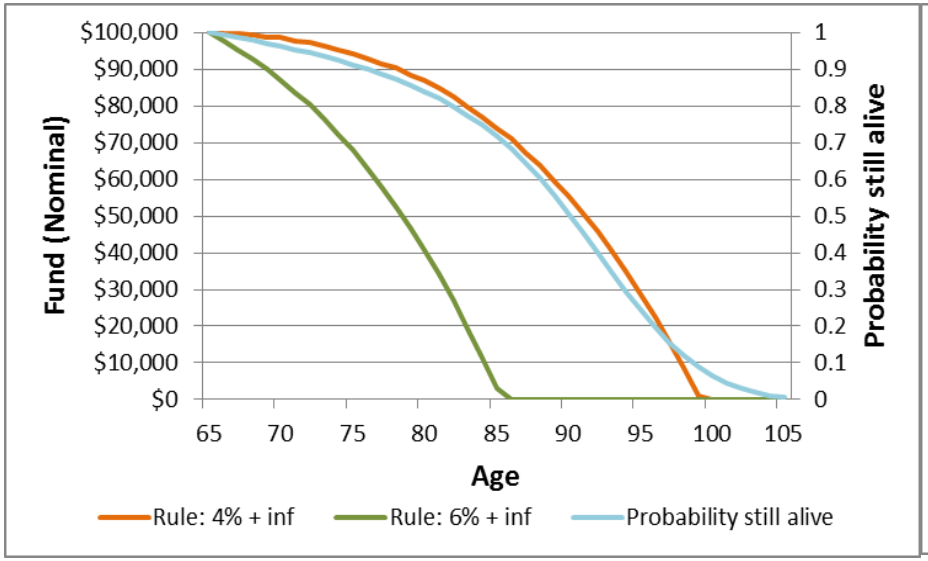

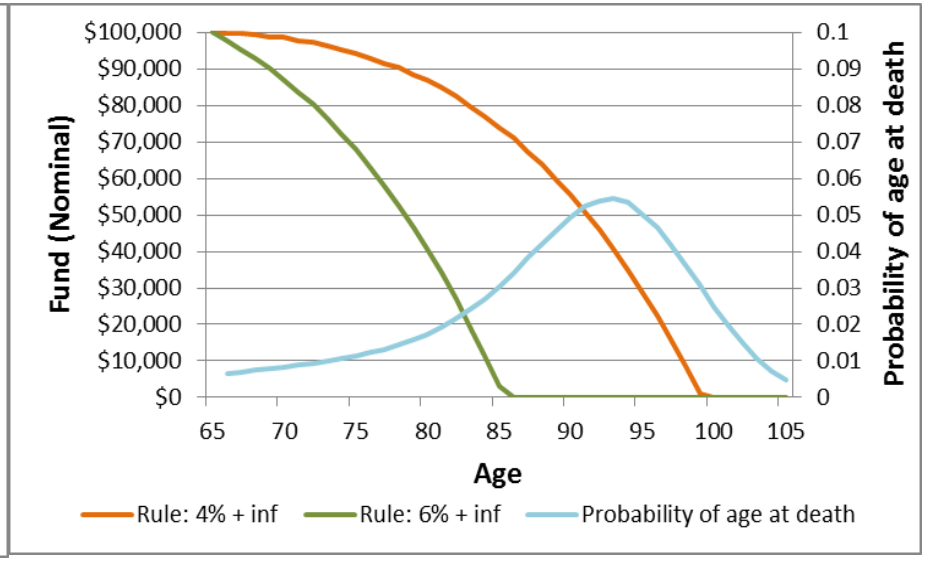

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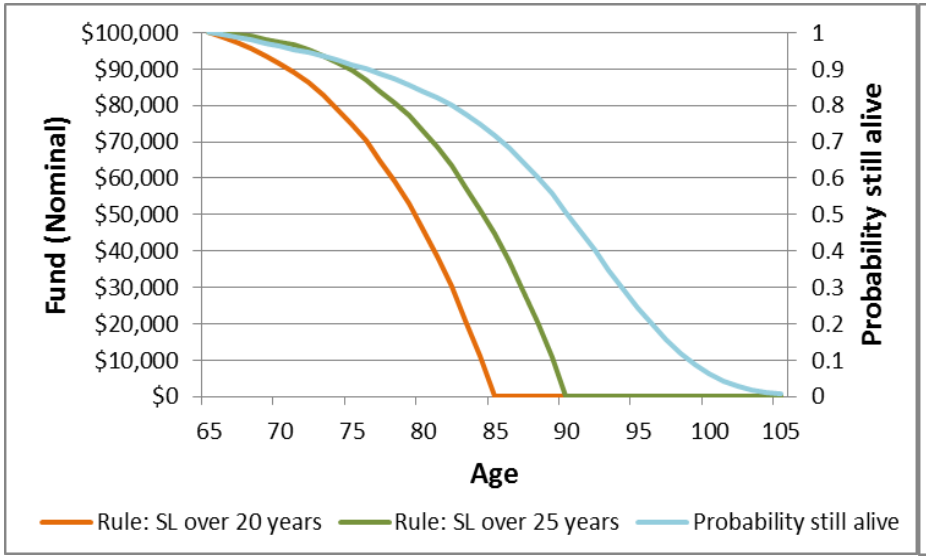

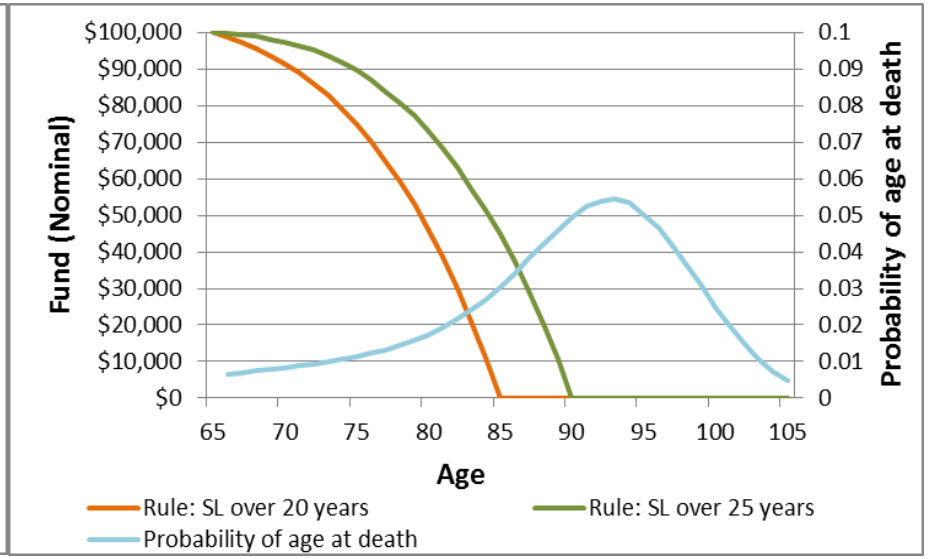

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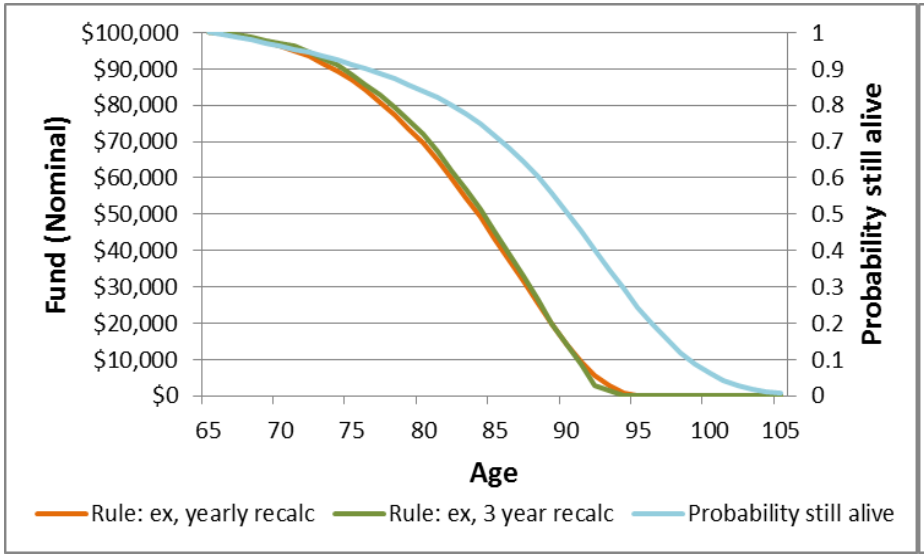

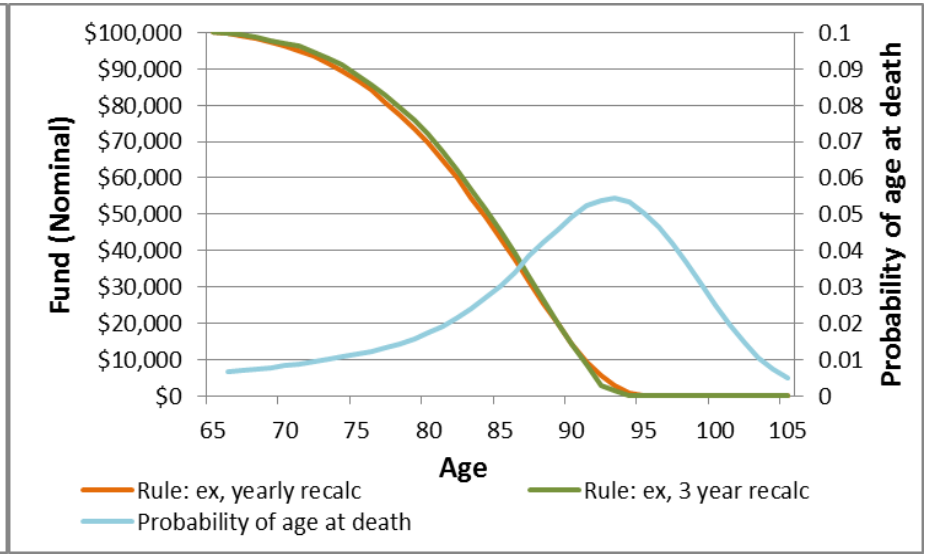

Summary

Rule of Thumb	Pros	Cons	Suitable for
4%	- Very simple	- No inflation protection - Capital remains high	Those wanting to retain/bequeath their capital
6%	- Very simple	- No inflation protection	Those wanting to “front-load” their spending
4% with inflation	- Inflation protection - Fund likely to last lifetime - Matches mortality profile well	- Lower income than some other options	Most people, especially if they want to leave an inheritance
6% with inflation	- Higher income with inflation protection	- Fund likely to last average lifetime only	Those happy to spend later years relying on NZ super and not concerned with inheritance
Straight line	- Certainty of expiry	- Higher volatility of income, increasing over time	Those wanting certainty of when fund will expire
e_x	- Real income which tails off	- More complex	Those wanting to maximise income over expected lifetime; not concerned with inheritance

Questions/Discussion

- Are these the best rules of thumb to consider? Any others we should consider?
- What criteria should be used to assess these rules of thumb?
- How best to communicate this output and help people come to an informed decision?
- What other ways can actuaries get involved in the debate?
- More general comments/discussion about the decumulation problem