

ACPM National Session

The Future Isn't What It Used To Be: Plan Design and Longevity Risk

Hosted by Ontario Regional Council
November 28, 2018
Toronto, ON

Moderator

David Gordon, *CAAT Pension Plan*

Presenters

Joe De Dominicis, *Morneau Shepell*
Dean Newell, *Actuarial Solutions Inc.*
Mazen Shakeel, Sun Life Financial

ACPM National Session
The Future Isn't What It Used To Be:
Plan Design and Longevity Risk

Planning for the Next Decade -
Is Your Plan Ready?

Presenter

Joe De Dominicis, *Morneau Shepell*
Dean Newell, *Actuarial Solutions Inc.*

Shifting demographics are the catalyst driving powerful global trends

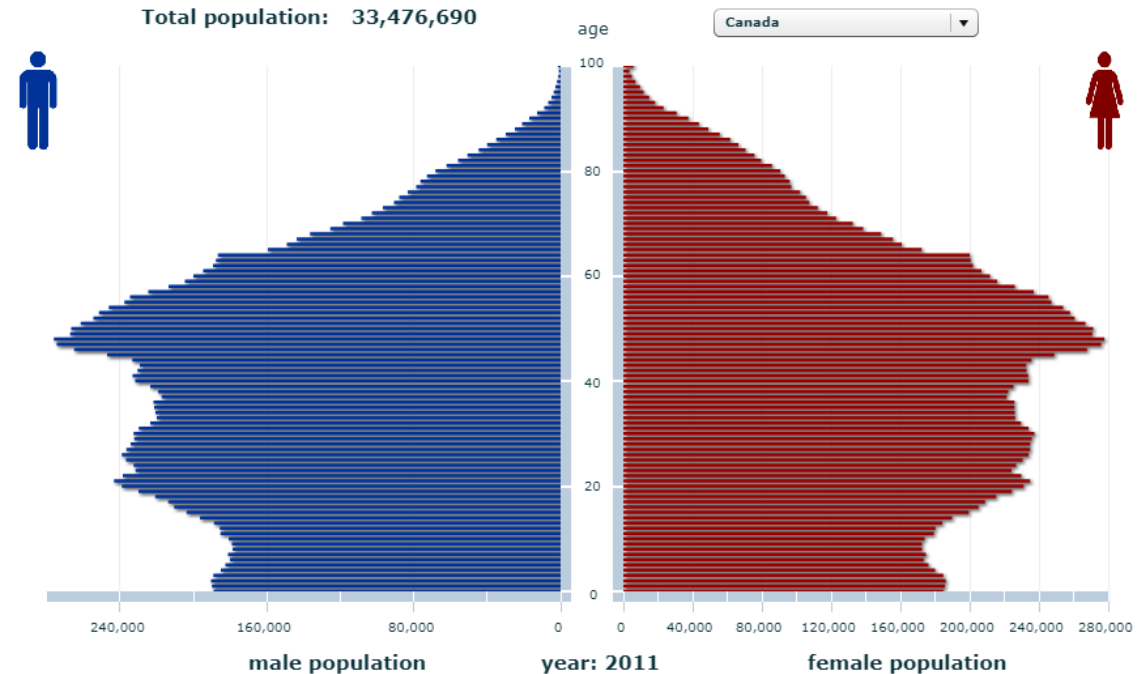
Average Canadian Lifespan projected to reach 87 by 2036

5 Generations in the workforce

Millennials are the largest cohort

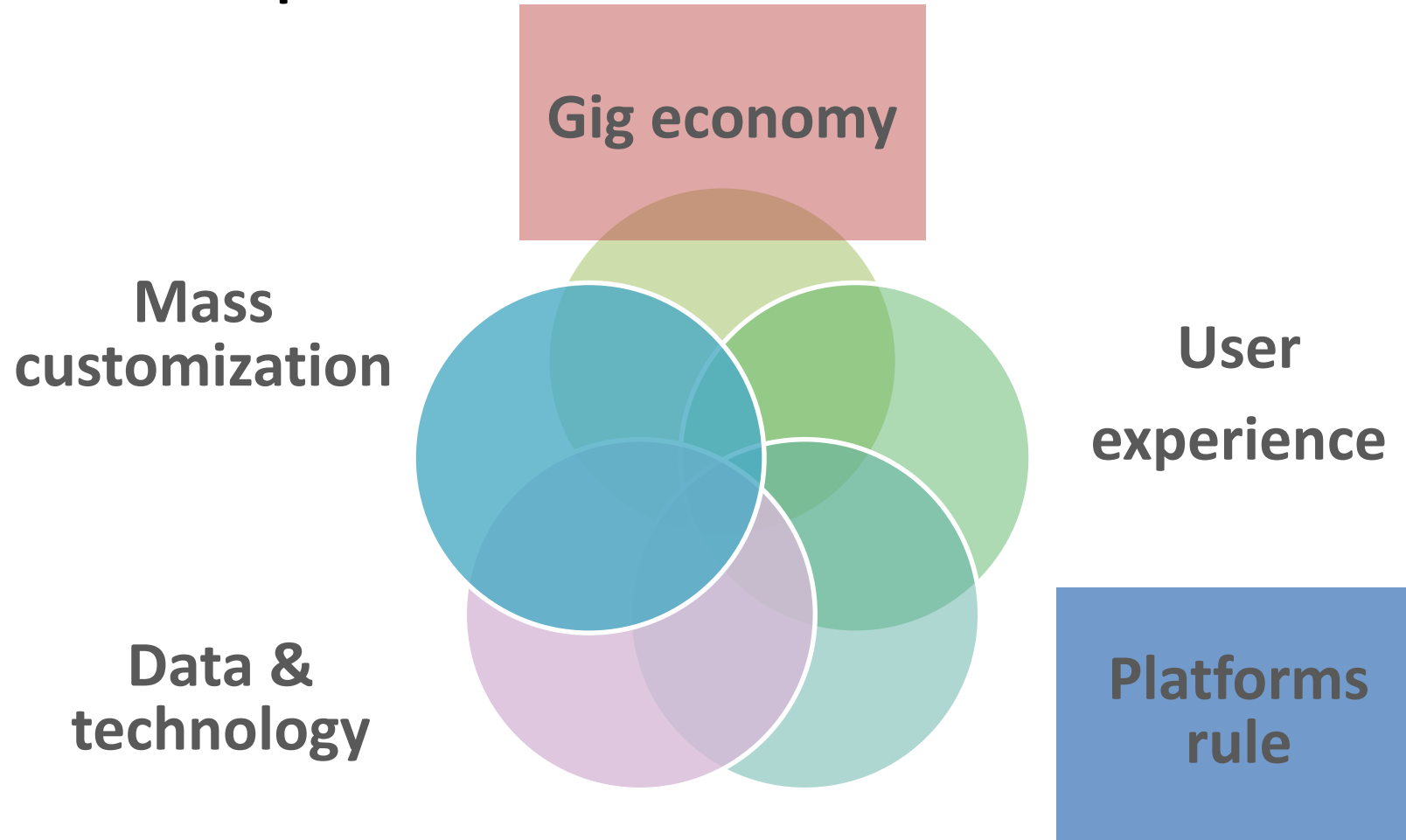
Boomers still a significant proportion

Canadian Age Pyramid 1921 -2011 (Stats Can)

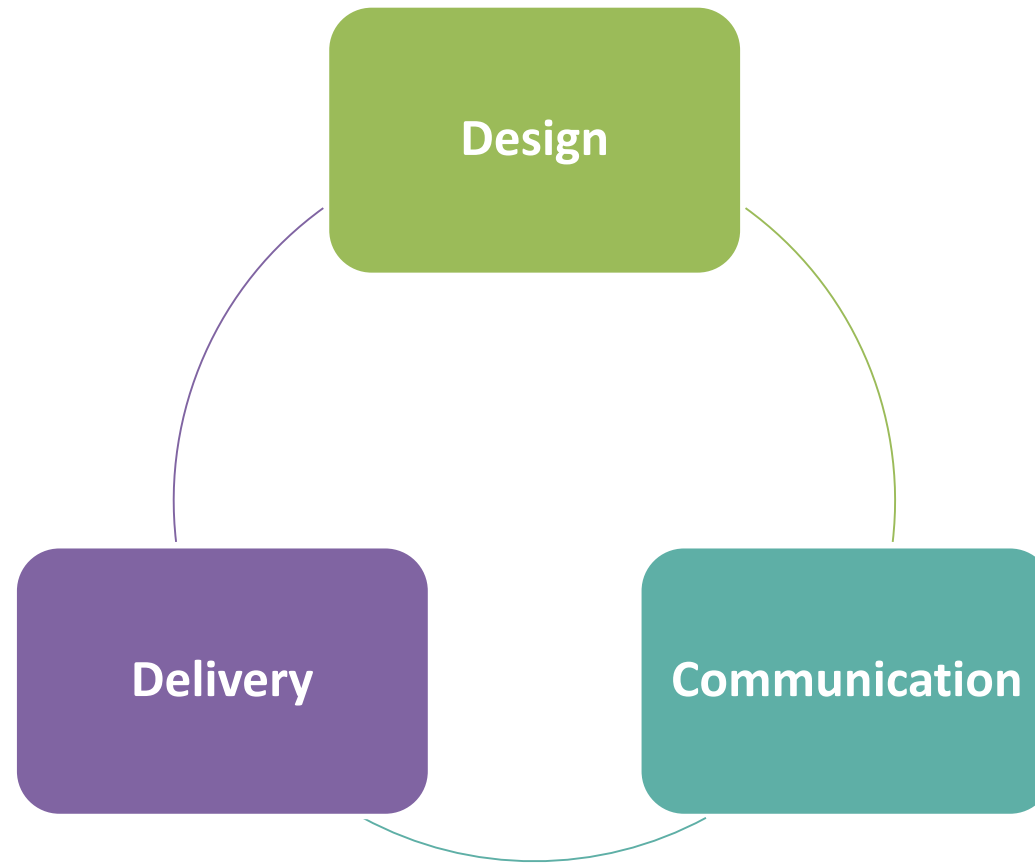


Sources: Statistics Canada, censuses of population and Population Estimates Program, 1921 to 2011. Total population counts originate from the census for census years. Between census years, total population counts were extrapolated using the annual rates of population growth from the Population Estimates Program. For all years included between 1921 and 2011, the age structures are those of the Population Estimates Program.

These trends are shaping the employment relationships of the future.....



And influencing the pension and benefit programs of the future....



Part B

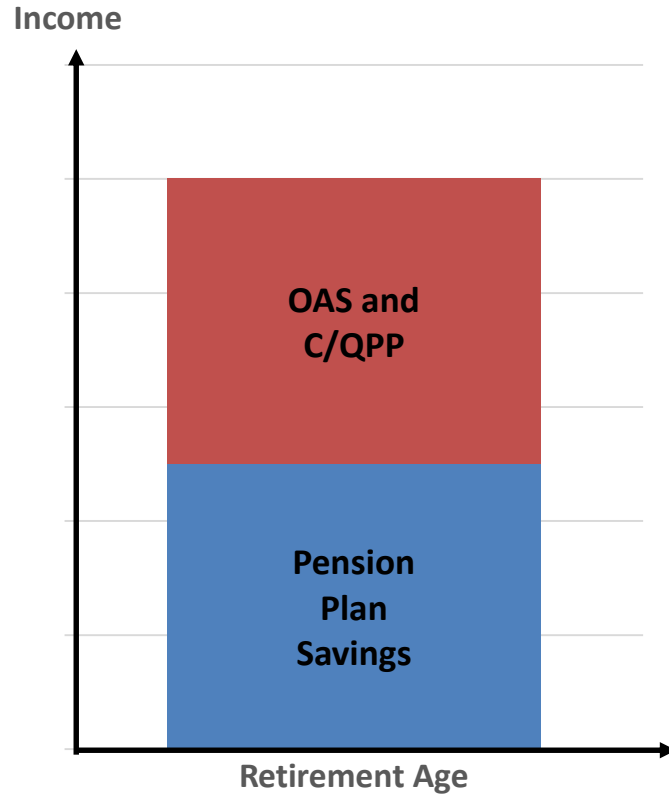
Decumulation

Why are we talking about decumulation now?

- The CAP market in Canada is maturing, and we are approaching a crucial decumulation period
- Only 1 in 10 Canadians in the private sector is covered by a traditional DB pension plan
- Millions of Canadians must rely on their DC registered pensions, RRSPs, TFSAs and non-tax sheltered investments accumulated during their working careers for retirement security
- **Challenge for Canadians:** How to optimally structure one's retirement income to maintain retirement needs for one's life expectancy?

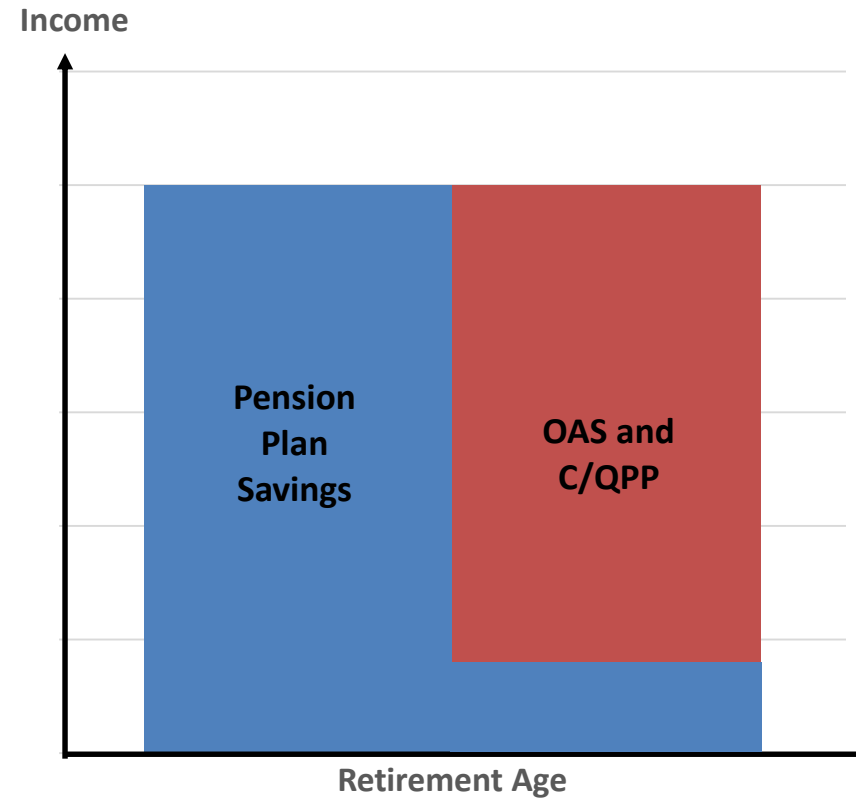
Old mindset vs. new mindset

Old Mindset



New Mindset

Reduces investment risk and longevity risk!



Why some CAP sponsors are now focused on decumulation

- Provide an increased retirement income
 - Through lower fees, better management and oversight
 - Provide greater support for members transitioning into retirement; and, a benchmark to compare retail options offered on an individual basis
- Leverage scale by retaining assets in the plan, to keep costs down for all members in the accumulation and the decumulation phase

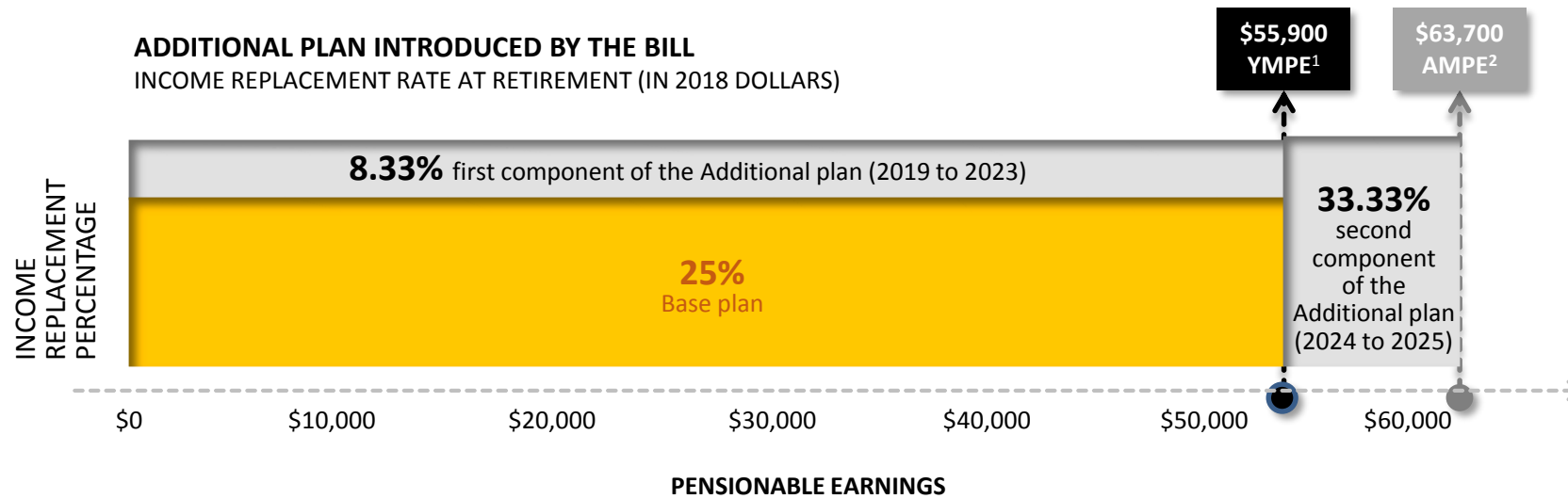
Why some CAP sponsors are now focused on decumulation

- Stay involved; their employees trust them
 - Keep an ongoing relationship with retired employees
 - Maintain control and oversight through retirement to ensure program delivers on objectives
 - Financial literacy; help members understand their income sources in retirement, and how to optimize them
- Believe that the decumulation phase will be as integral to the success of their plan as the accumulation phase is today

Part C

CPP/QPP Changes

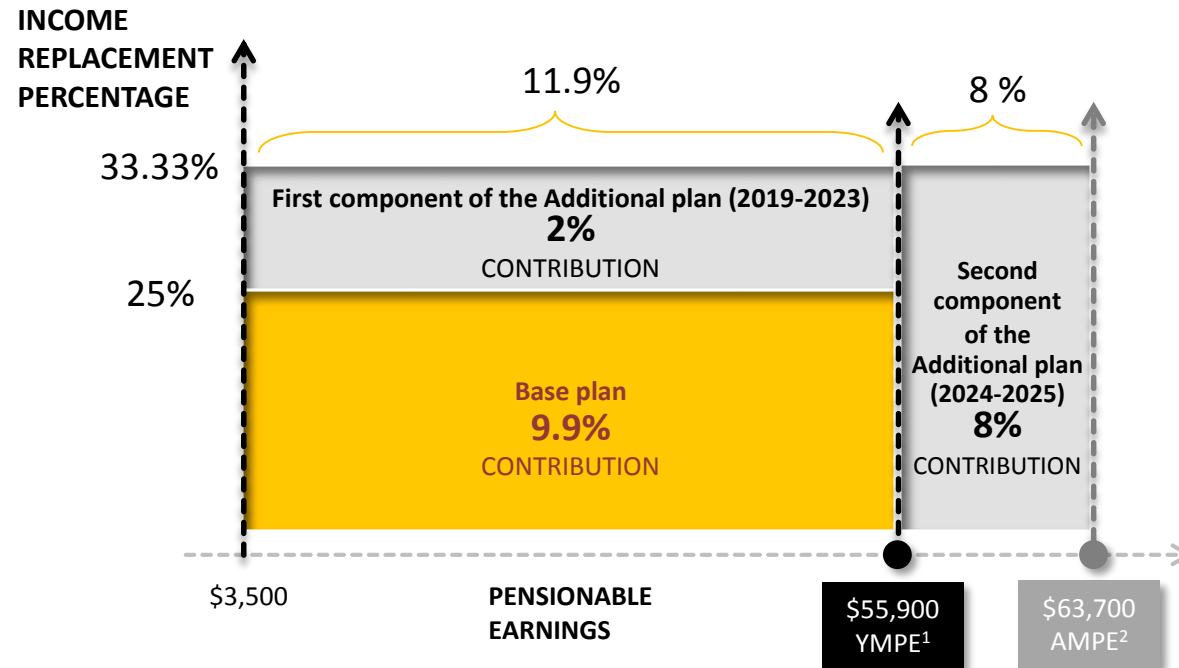
Changes to Benefits



1. Yearly maximum pensionable earnings (YMPE)
2. Additional maximum pensionable earnings (114% of YMPE)

SOURCE: RETRAITE QUÉBEC

Changes to Contributions



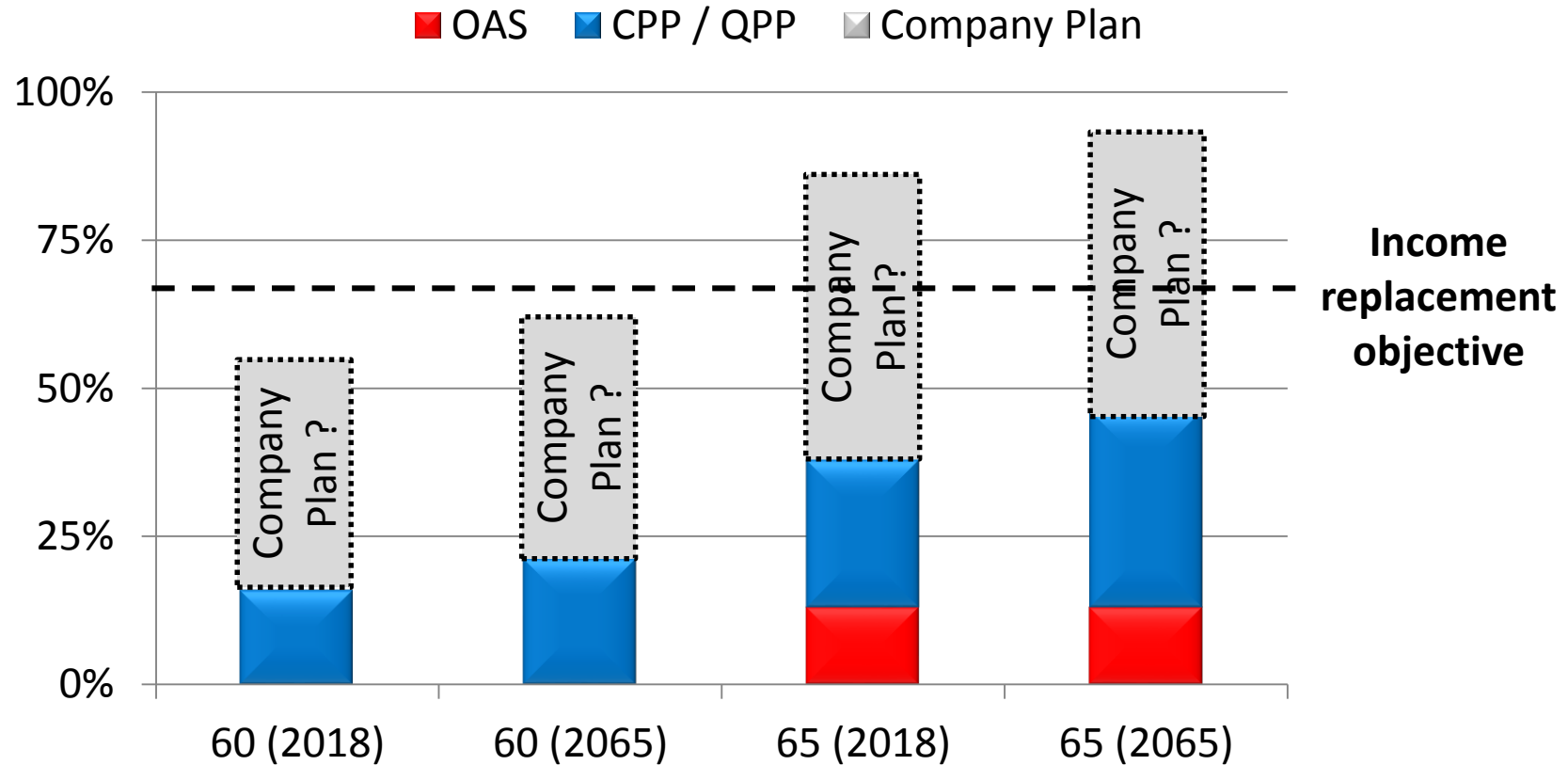
1. Yearly maximum pensionable earnings (YMPE)
2. Additional maximum pensionable earnings (114% of YMPE)

- QPP base plan contributions
 - 5.4% each for employers and workers, for a combined 10.8%

SOURCE: RETRAITE QUÉBEC

Considerations

- Total retirement revenues from CPP / QPP and Company plan



Options

1. Do nothing (status quo)

- Absorb the labor cost increases
- No additional communication or administrative complexity

2. Complete or partial integration with existing retirement or savings plans

- Objective is to avoid labor cost increases and additional employee contribution
- Result in lower benefits or employer contributions
- Additional administration and communication complexities

3. Adjust another component of the global compensation package

- E.g. lower future salary increases equivalent to labor cost increases
- Difficult to avoid employee contribution increases

Agenda

- CAAT Pension Plan
- CAAT *DBplus*
- Competitive Advantage
- A Unique Solution
- Closing

CAAT Pension Plan

- A Modern DB Pension Plan
- A Jointly Sponsored Pension Plan registered in Ontario
- 1st Plan Design is a Final Average Earning DB style pension

CAAT Pension Plan

- Open and Ready for New Growth
- CAAT is actively exploring mutually beneficial mergers
 - ROM
 - Youth Services Bureau
 - Torstar
- 2nd Plan Design - *DBplus*

CAAT DB*plus*

- Employees and Employers make matching contributions of between 5% and 9% of pay
- Base Pension Benefit that is 8.5% of total contributions

CAAT DB*plus*

- From the Employee's Perspective
 - Career Average Earnings type plan
 - Inflation Protection
 - Survivor Benefits

CAAT DB*plus*

- From the Employer's Perspective
 - A “Delegated” DB Pension offering
 - No Balance Sheet Risk
 - No Contribution Volatility
 - No Administrative Responsibility

CAAT DB*plus*

- CAAT's Responsibility
 - A Jointly Governed Plan
 - Funding Policy and Reserving
 - Determine the balance between conditional benefit enhancements (indexing, benefit improvements, early retirement subsidies) and margin for future adverse experience

CAAT DB*plus* – Competitive Advantage

- Not subject to typical solvency funding requirements
- Members, not participating employers, are subject to risks of participating in a defined benefit plan

CAAT DB*plus* – A Unique Solution

- Should be of interest too:
 - Employers looking for a well-managed pension solution
 - Plan Sponsors for Single Employer Defined Benefit Plans looking to convert/exit

Other Developments

- OPTrust Select
- Other JSPP's in Ontario accepting transfers
- Blue Pier
- Common Good Retirement Plan
- Association & Industry-wide Plans

Questions

Agenda

- The issues leading up to design changes
- Case Study - College
 - Previous design
 - Process
 - New design
- Case Study - Public Service
 - Previous design
 - Process
 - New design
- Conclusions

Issues leading up to design change

- Members were starting later
- Members were retiring later
- More members were working less than full time
- There was discussion about doubling the YMPE
- Even without CPP expansion, members pensions were being eroded by increasing YMPE

Case Study

- Old plan design:
 - Defined Benefit - Final Average Salary
 - Integrated with Canada Pension Plan
 - 1.7% below YMPE, 2% above
 - 0.3% bridge benefit (on income below YMPE) payable to 65
 - Unreduced at 60 or 35 years of contributory service
 - 3% reduction for each year the member retires before 60

Case Study

- In 2015
 - less than 1 in 25 members retired with 35 years of service
 - Average service was 16 years
 - Average age at retirement had increased to 62

Case Study

- Process
 - Broad consultation
 - FPSE (the largest union in the sector) conducted a survey of potential viable options
 - Plan partners settled on a new design
 - New design ratified at FPSE convention in 2014
 - Implemented changes on January 1, 2016

- New Design
 - Changes future service only
 - Still DB, Final Average Salary
 - No longer integrated with the CPP
 - Flat 2% for each year of service

Case Study

- New Design
 - No more bridge benefit
 - Unreduced retirement only at 65
 - Or with 35 years of contributory service
 - 3% reduction for each year the member retires before 65



Case Study

- Old plan design:
 - Defined Benefit - Final Average Salary
 - Integrated with Canada Pension Plan
 - 1.35% below YMPE, 2% above
 - 0.65% bridge benefit (on income below YMPE) payable to 65
 - Unreduced pension at 60, or earlier if Rule of 85 applied
 - Service capped at 35 years



Case Study

- In 2015
 - More than 1 in 10 members retired with 35 years of service
 - Average service was around 22 years
 - Average age at retirement had increased to 60
 - Many members working past 35 years saw declines in the nominal value of their pension due to increasing YMPE



Case Study

- Process
 - Partners negotiated agreement
 - No broad consultation with members or other unions
 - Plan design changes announced March 16, 2018
 - Changes effective April 1, 2018*

• * retroactive change is not payable until October 2019



Case Study

- New Design
 - Changes future service only
 - Still a DB Final Average Salary pension
 - No longer integrated with the CPP
 - Flat 1.85% pension



Case Study

- New Design
 - No bridge benefit
 - No Rule of 85
 - Unreduced pension at 35 years of service or at 60
 - Reduced by “benefit neutral” factor of 6.2% for each year the member retired before 60
 - Improved the below YMPE accrual rate to 1.65% for service earned between April 1, 2006 and March 31, 2018 (this was done using part of the \$1.9 billion surplus)
- * retroactive change is not payable until October 2019

Conclusion

- Plan membership and member circumstances may be changing quickly
- Plan design changes are necessary
- If you are going to make changes:
 - Consult with members
 - Give significant lead time for changes
 - Anticipate panic



Questions?

Case Study

- Plan was government sponsored until 2000
- Inflation Adjustment not guaranteed
- Implemented via a distinct Inflation Adjustment Account (IAA)
- Started in 1980
- When an inflation adjustment was granted, the present value of the inflation adjustment would be transferred to the basic account from the IAA



Case Study

- Inflation adjustment account funded by
 - contributions from employees and employers
 - excess investment returns (from the basic account)
 - Investment returns on the balance of the account

Case Study

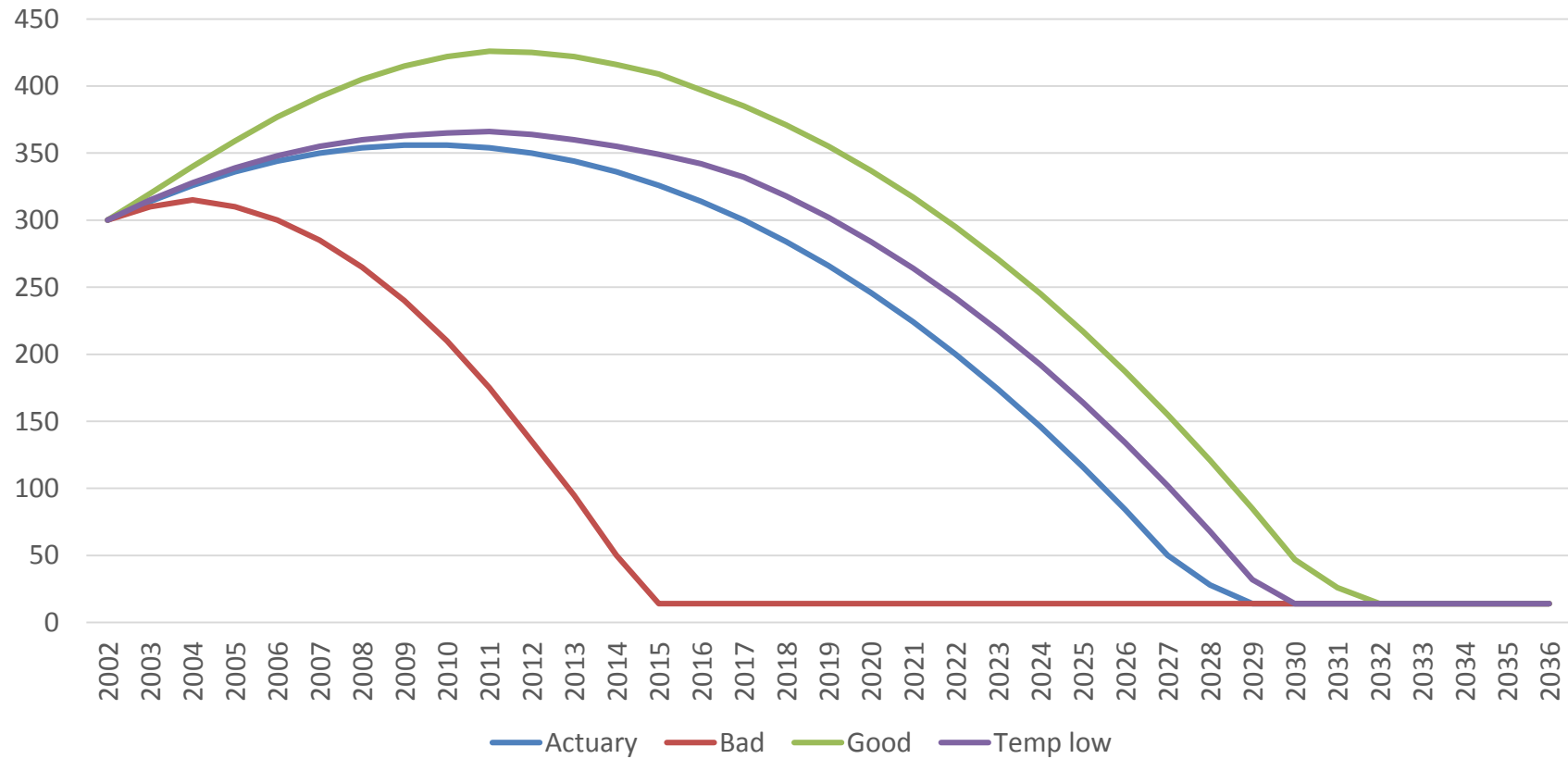
- The practice of the plan prior to joint trusteeship was to fully increase pensions to account for inflation as long as there was enough money in the IAA to do so (“Cliff Indexing”).
- When IAA was first created the plan was only 12 years old.
- There were very few retirees, and their pensions were small.
- Full inflation protection was not a problem before 2000

Case Study

- Plan became jointly trusteeed in 2000, and in 2001, the board started looking at the inflation adjustment scheme.
- Board modeled the circumstances of the IAA and the Board's ability to pay full inflation protection over the long term

Case Study

IAA Balance Scenarios



Case Study

- 2002 – adopted a policy that would no longer pay cliff indexing if models showed that they couldn't expect to do so for at least 20 years
- 2008 hit
- Active to retiree ration had dipped to 3. They now expected 1:1 on steady state basis
- Had 13 years left before they would expect to hit the “cliff”.

Case Study

- Plan sponsors agree to increase contributions by 0.25% from each of employer and employee
- It wasn't enough to solve the problem.
- Did not consult with plan sponsors
- Board decided to adopt sustainable indexing model:
 - They would pay out what the plan could afford (on best estimate basis with no PfAD) to pay for inflation on an infinite basis

Case Study

- Options considered:
 - Pay fixed percent of inflation
 - Cap inflation protection
 - Pay inflation above a certain minimum
 - A combination of the above
- They picked capping inflation as that would protect the IAA balance for future generations and would also leave open the possibility that full inflation adjustments could happen.

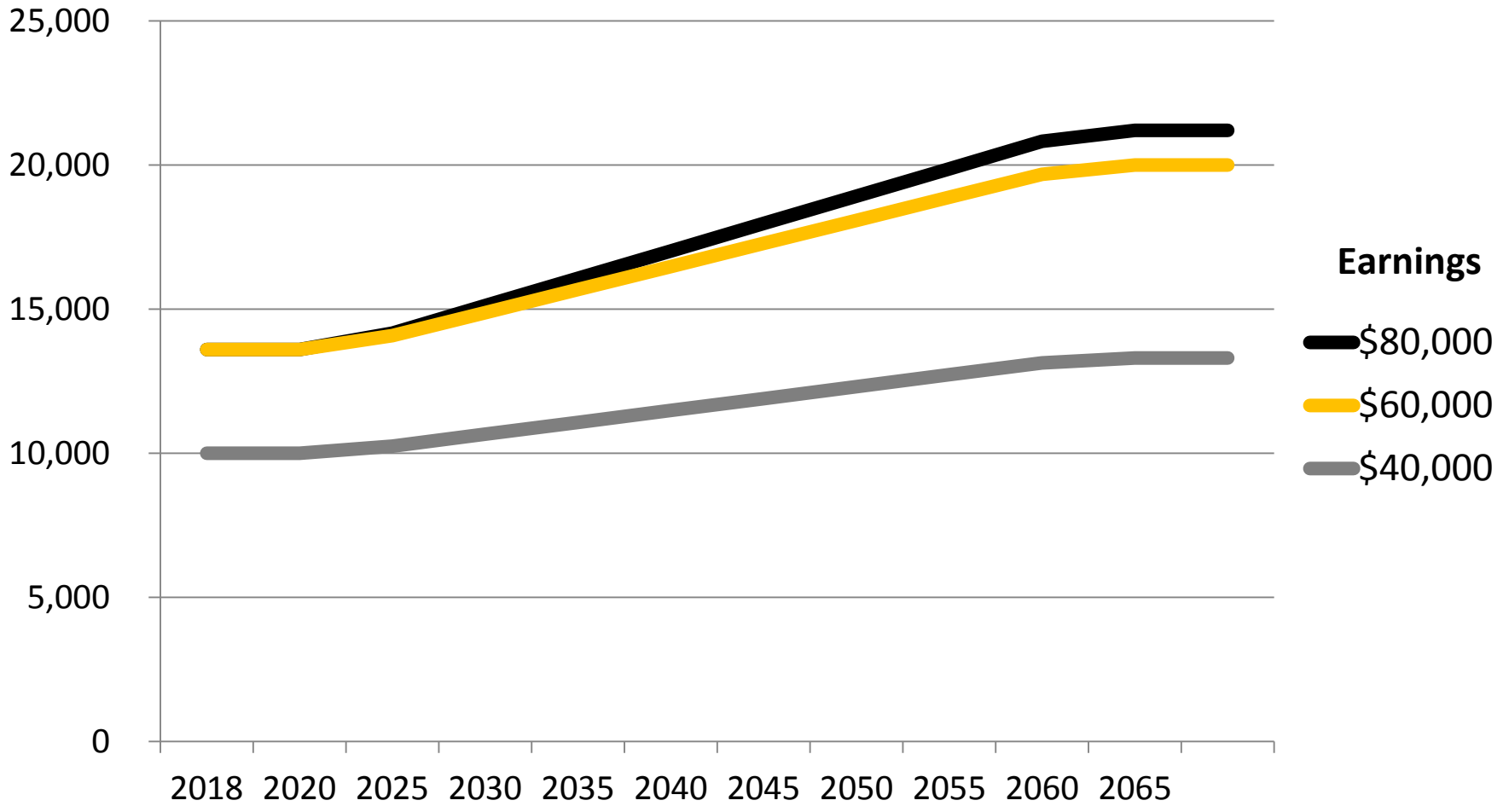
Case Study

- Plan sponsors not happy
- Main learning – consult before making major changes.

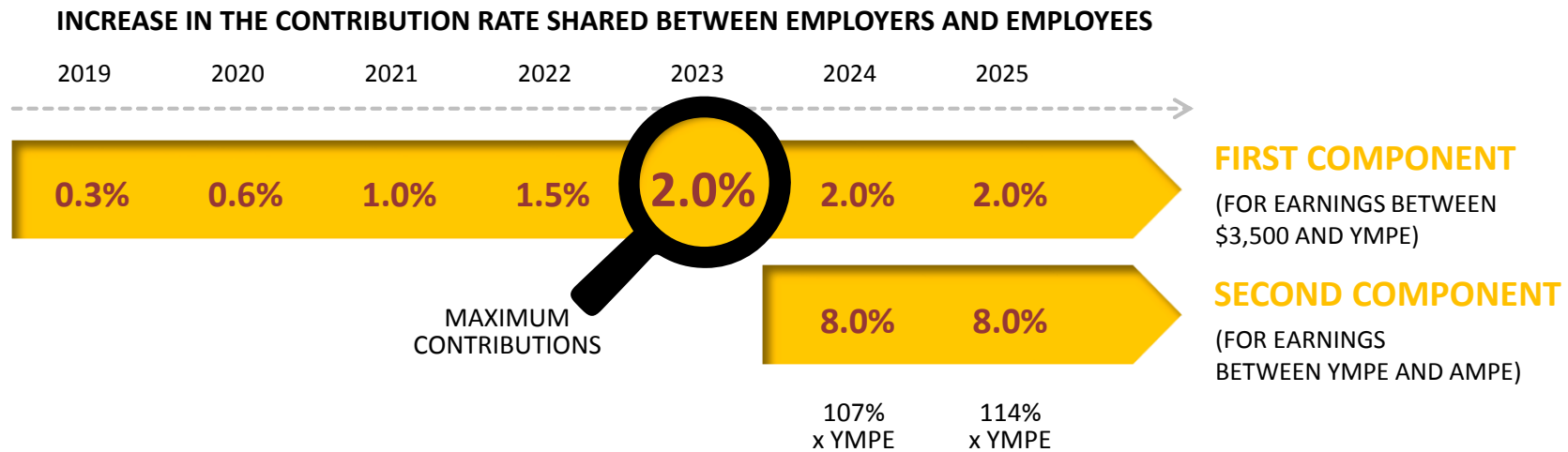


Questions?

Changes to Benefits



Changes to Contributions



- Same increases for CPP and QPP

SOURCE: RETRAITE QUÉBEC

Considerations

- Labor costs increase
- Employee profile
- Lower take-home pay
 - CPP / QPP – Estimated increase of worker’s contributions

EARNINGS	CURRENT	2019	2023	2025
\$40,000	\$1,971	+\$55	+\$365	+\$365
\$60,000	\$2,830	+\$79	+\$524	+\$688
\$80,000	\$2,830	+\$79	+\$524	+\$837
\$100,000	\$2,830	+\$79	+\$524	+\$837

(today's dollars)

Considerations

- Company retirement and savings plan considerations
 - Type of plan offered
 - Current plan design
- Integrating with improved CPP / QPP
 - Required only if goal is to avoid labor cost increases
 - Complex in almost all circumstances
- Communication issues

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Longevity Risk –
How to Ensure you Don't Run out of Money
(and still enjoy retirement)

Presenter
Mazen Shakeel, *Sun Life Financial*

Agenda

- **Introduction**
- **Consequences of Not Managing Longevity Risk**
- **Alternative Solutions Using Existing Rules**
- **Potentially More Cost Effective Solutions**

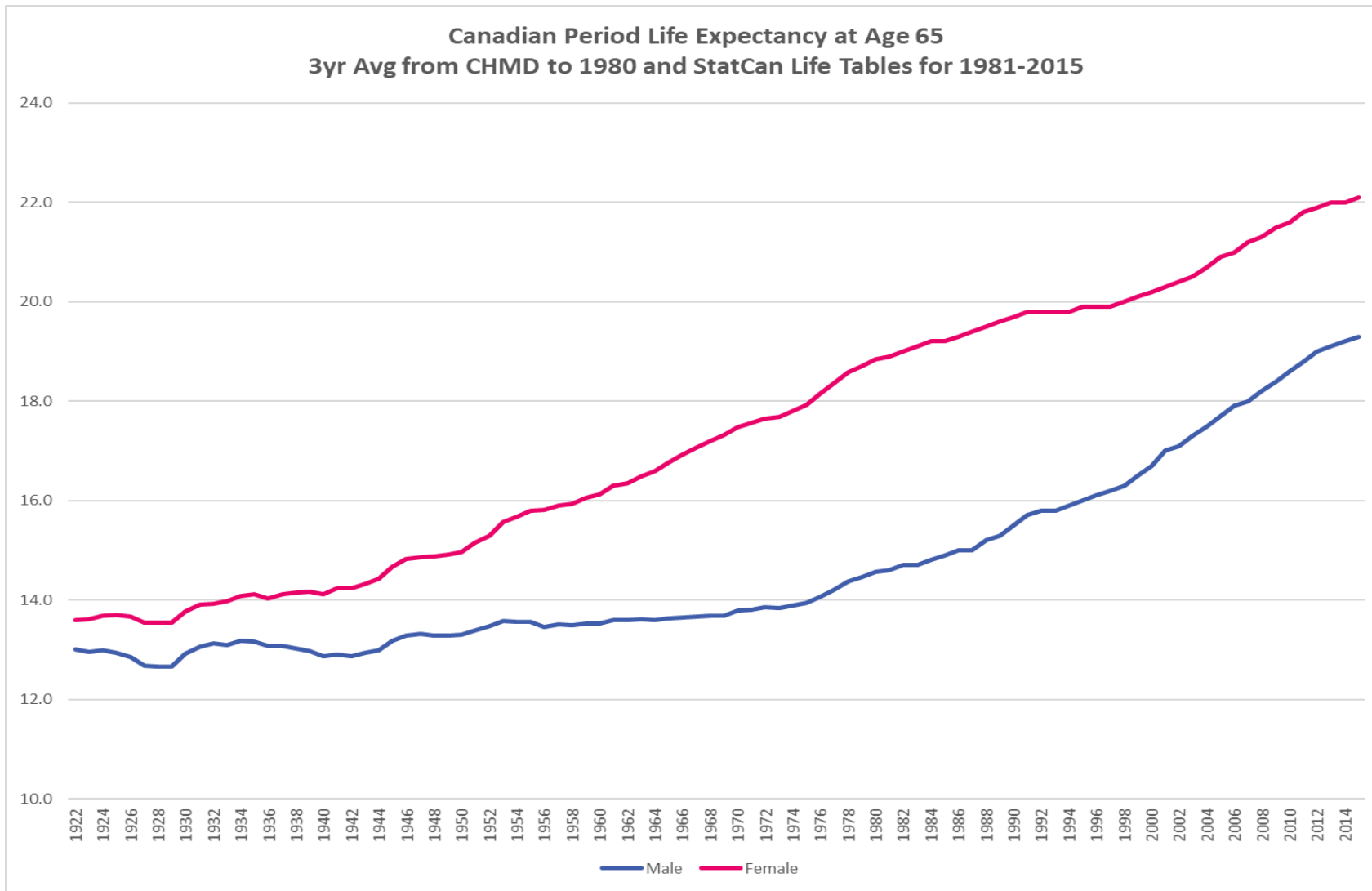
Introduction

Longevity Risk May Be One of the More Important Risks Faced in Retirement

- Some examples of retiree risks other than longevity risk include market risk and long term care risk among others
- Longevity risk multiplies the impact of all other retiree risks → the longer one lives the greater likelihood of:
 - Suffering a market crash
 - Requiring expensive long term care
- Successful retirement may depend on how well a retiree is able to manage these risks or remove them if possible

Longevity Risk Implications – DC Participants and Individual Savers

- Life expectancies continue to improve due to better diets, access to adequate food, healthcare and advances in medicine
- Individuals may underestimate how long they are going to live which means they could run the risk of:
 - Exhausting their savings
 - An appreciable decline in standard of living
 - Burdening their families



Club Vita Canada Inc., calculations based on Canadian Human Mortality Database data to 1980 and Statistics Canada life tables from 1981 to 2015.

Consequences of Not Managing Longevity Risk

Impact on Society of longevity risk

As individuals, we are all trying to maximize our longevity risk – ie we all want to live longer than expected.

As a society, this concerted effort to extend life expectancies causes strain on the following:



Healthcare Impact



Canada % of GDP spent on Healthcare¹	11.2% in 2017 (10% in 2005)
Total Cost of Healthcare¹	\$242bn in 2017 (150bn in 2007)
% Costs to over 65¹	46% of Total Costs (2015)

Proportion of Over 65s in Canada²	16.9% (2017)
Projected Proportion of over 65s in Canada by 2037²	24%



Does increased healthcare spending, increase longevity risk, or does longevity risk increase the potential for higher healthcare spending?

Source: 1. Canadian Institute for Health Information
2. Stats Canada

Public Retirement Systems



Current and future life expectancy is a key assumption in the CPP actuarial valuation

Life expectancy at age 65 (December 31, 2015):

- Male 21.3 years / Female 23.7 years

Life expectancy at age 65 (2050):

- Male 23.3 years / Female 25.6 years (1.9-2.0 year increase)

Valuation provides sensitivity to future improvements. Using an assumption that is broadly consistent with these used by Global insurers and reinsurers

Age 65 life expectancy in 2050:

- Male 25.8 years / Female 27.9 years (4.2 – 4.5 year increase)

If life expectancies are in line with higher expectation

Minimum contribution rate increases to 10.10%
(above current level of 9.90%)

There are lots of variables that impact the sustainability of the CPP.
However longevity risk is a key (and real) risk

Source: 1. 27th Actuarial Report on the Canada Pension Plan (revised)

Consequences of not managing longevity risk

- Risk is more acute among middle income earners and those who have not accumulated significant wealth prior to retirement
- For individual retirees with capital accumulation balances (including commuted values from DB plans), risk is suboptimal allocation of assets

Consequences of not managing longevity risk

- Starkest risk is that retiree outlives assets, and required to rely on assistance of others in final years
- Conversely, there is a risk of leaving more assets behind at death than intended, particularly where size of estate is not a concern/priority

Potential for Misallocation of Assets

- More broadly, can lead to failure to spend in accordance with priorities out of concern for outliving assets
- Assets may not be allocated to stages of life correctly, leading either to missed opportunities (e.g. travel) at beginning of retirement due to overestimation of future needs, or diminished quality of life later in retirement, as expenses exceed expectations (e.g. assisted living)

Longevity Uncertainty can be a Source of Stress

- Inability to plan legacy/make gifts while alive out of uncertainty over the extent and timing of assets available for giving
- Stress of living with all of this uncertainty in itself can reduce quality of life in retirement
- All risk magnified when retirement income required to support two persons

DB Members Insulated but not entirely immune from Longevity Risk

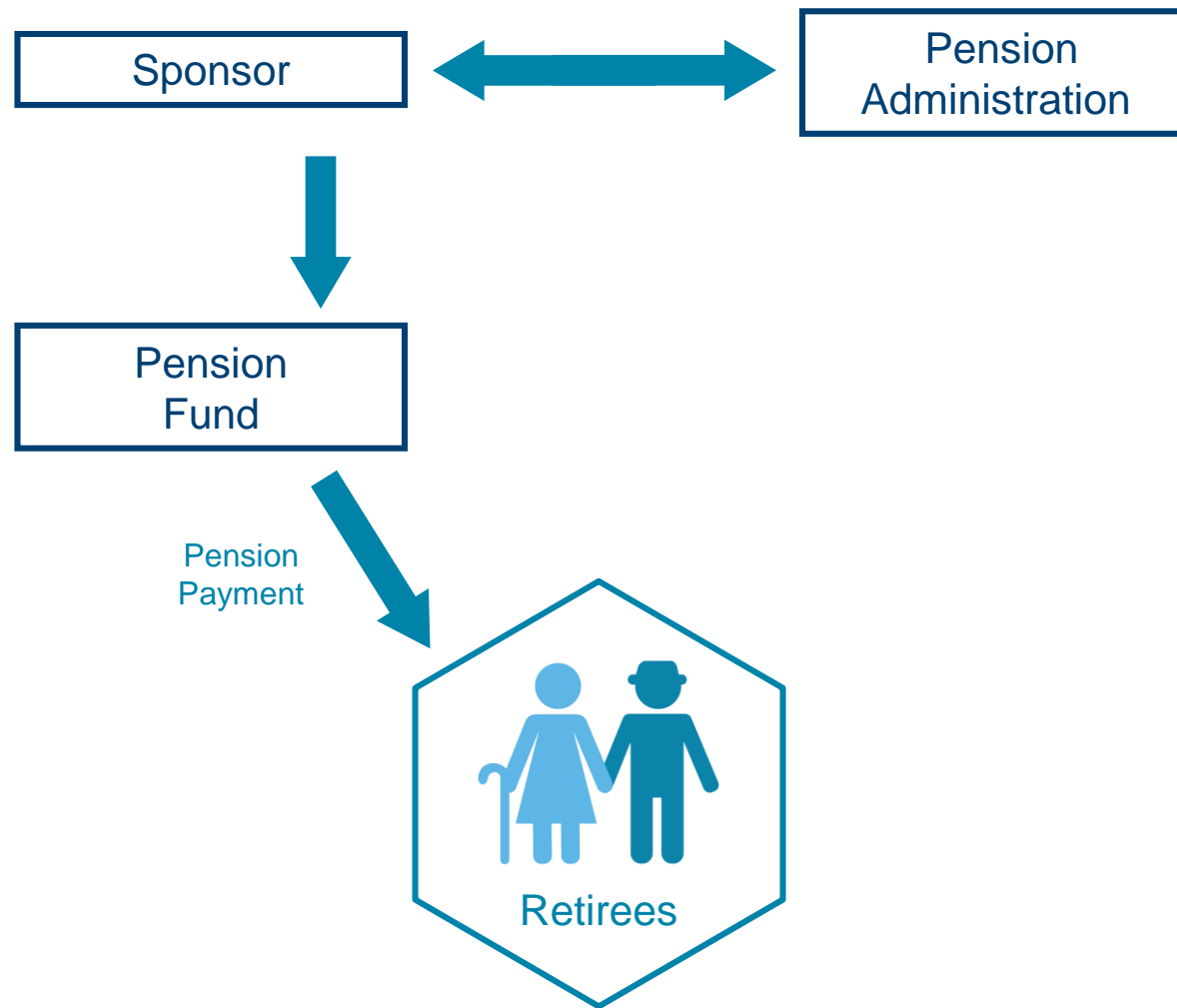
- For members of DB plans, risk of longevity not being adequately managed is more remote, but to extent benefits are not annuitized, retirees could remain somewhat exposed
- Longer the life span of DB member, the longer the exposure to other plan risks.

Alternative Solutions Using Existing Rules

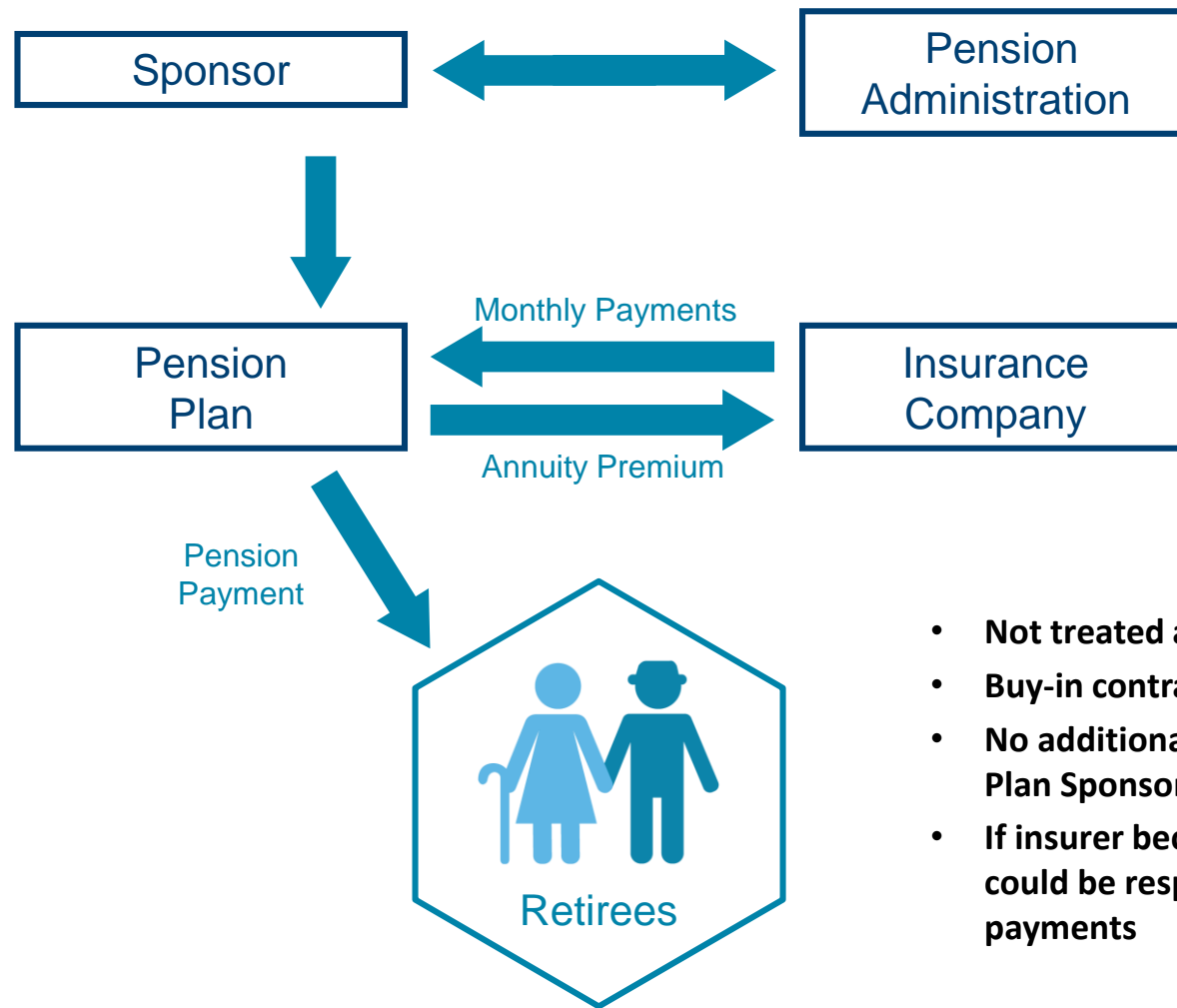
Managing Longevity Risk in DB Plans

- Plan design solutions (tail wagging the dog?)
 - Target benefit design
 - Lump sums at retirement
 - Reducing liability duration (e.g. later retirement, lower COLA)
- Financing solutions (no change to plan benefits)
 - Buy-in
 - Buy-out
 - Longevity insurance/swap

Typical Pension Plan

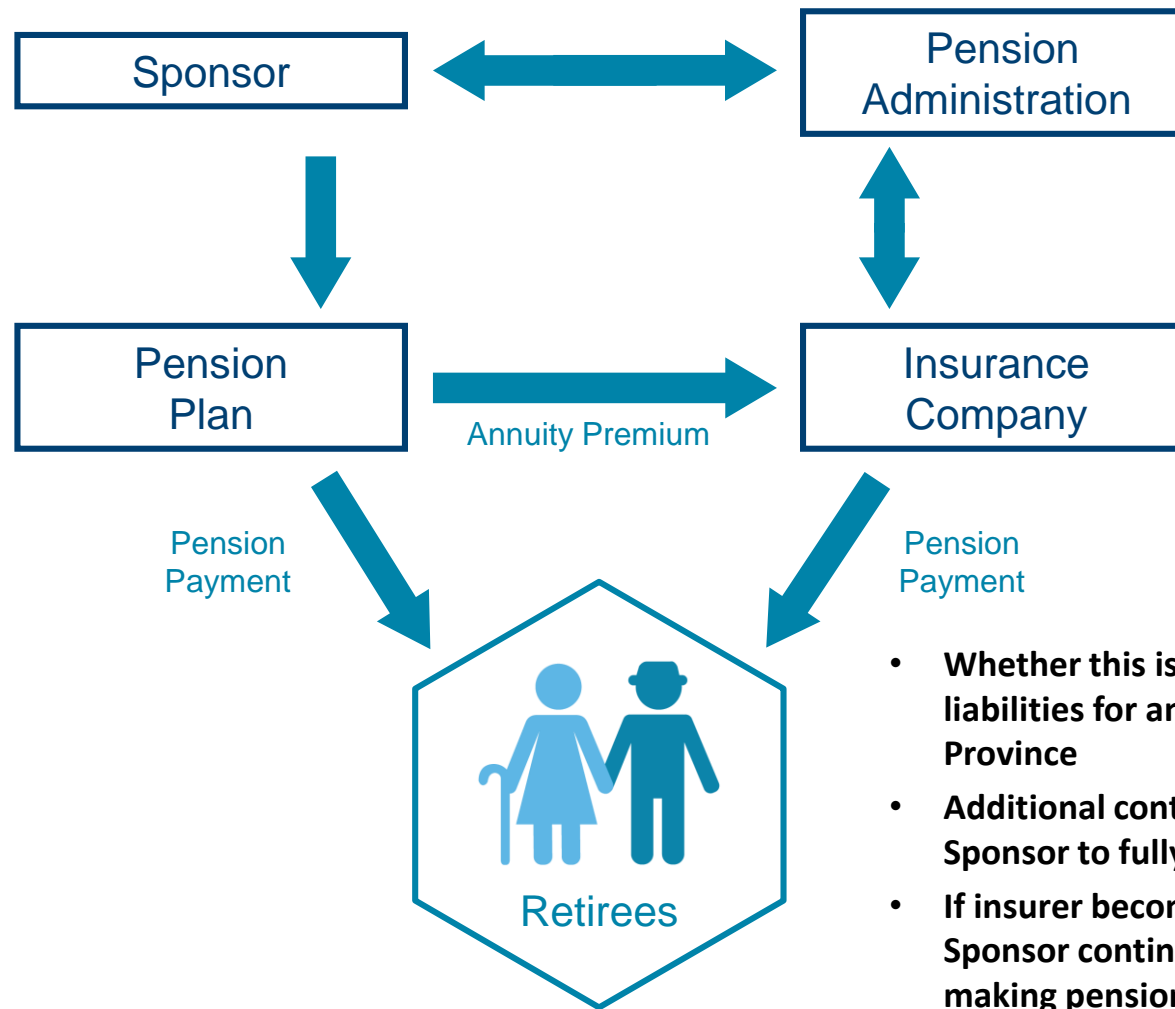


Buy-In Annuity



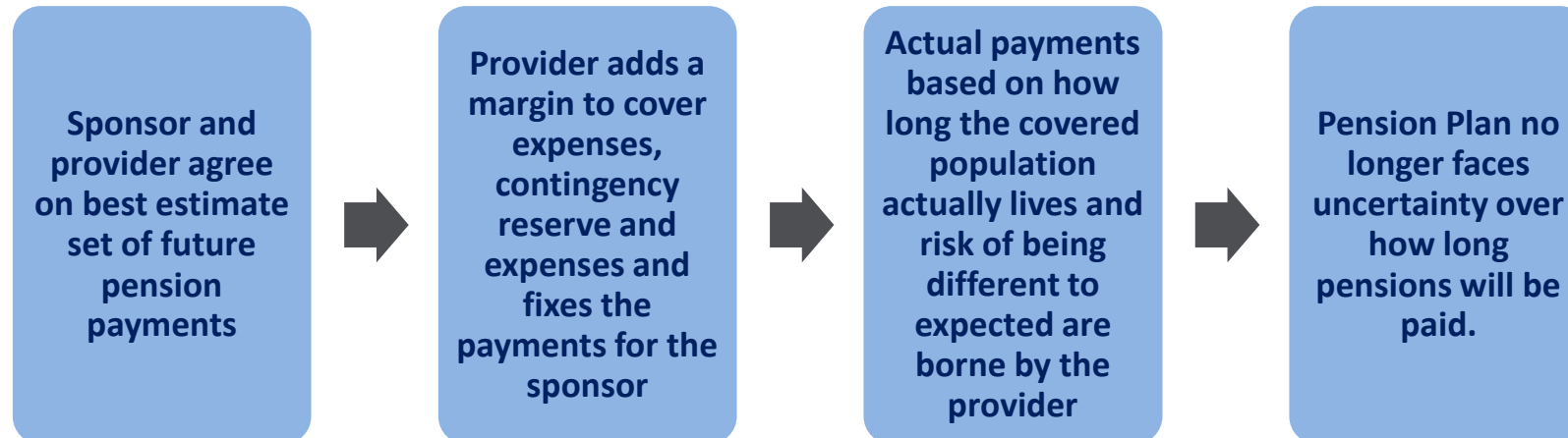
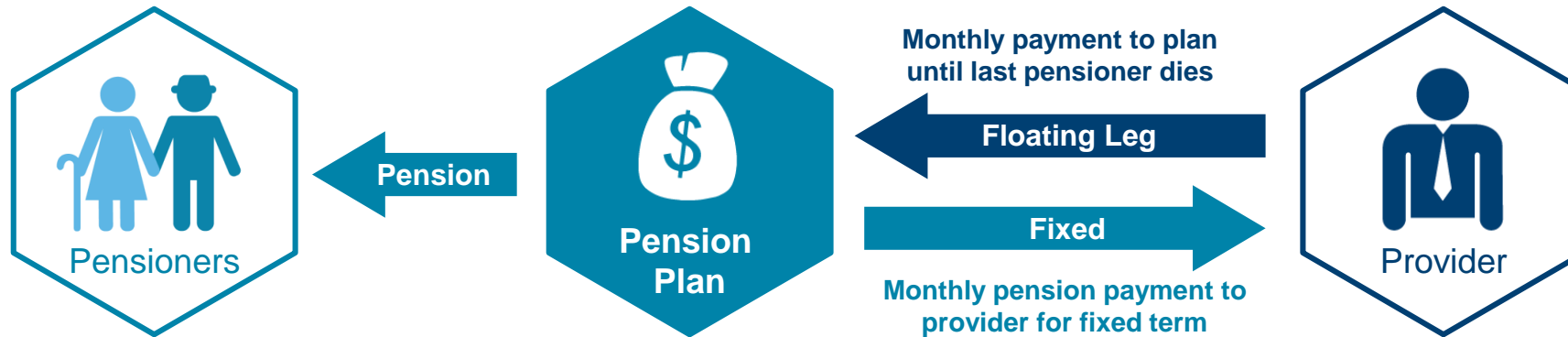
- **Not treated as a full discharge of liabilities**
- **Buy-in contract treated as plan asset**
- **No additional contribution necessary by Plan Sponsor to fully fund liability**
- **If insurer becomes insolvent, Plan Sponsor could be responsible for making some of the payments**

Buy-Out Annuity

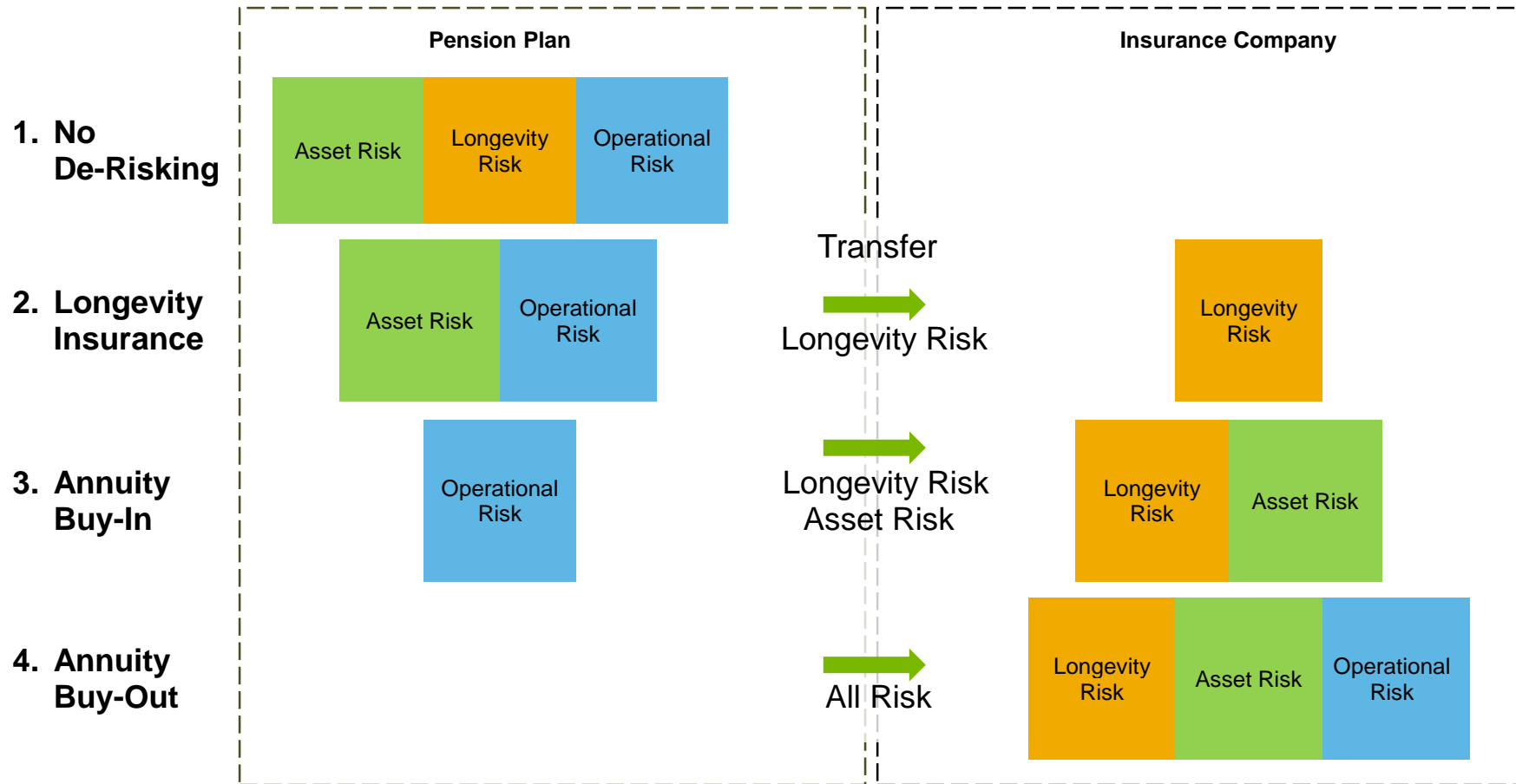


- **Whether this is treated as a full discharge of liabilities for an ongoing plan depends on Province**
- **Additional contribution required by Plan Sponsor to fully fund liability**
- **If insurer becomes insolvent, not clear if Plan Sponsor continues to be responsible for making pension payments**

Longevity Swap



Canadian Risk Settlement Solutions



Here is an example of an average Canadian who has saved for retirement. Can he run out of money?

LET'S ASSUME

- Retirement at 65
- Accumulated savings of \$300K
- OAS and CPP of \$22K/year at 65 (Not reflecting future CPP increases)
- House \$300K with no mortgage
- No DB
- Single with children

- No inflation
- 3% interest rate
- Death at 90
- Withdrawal from savings of \$16K/ year

He will receive:

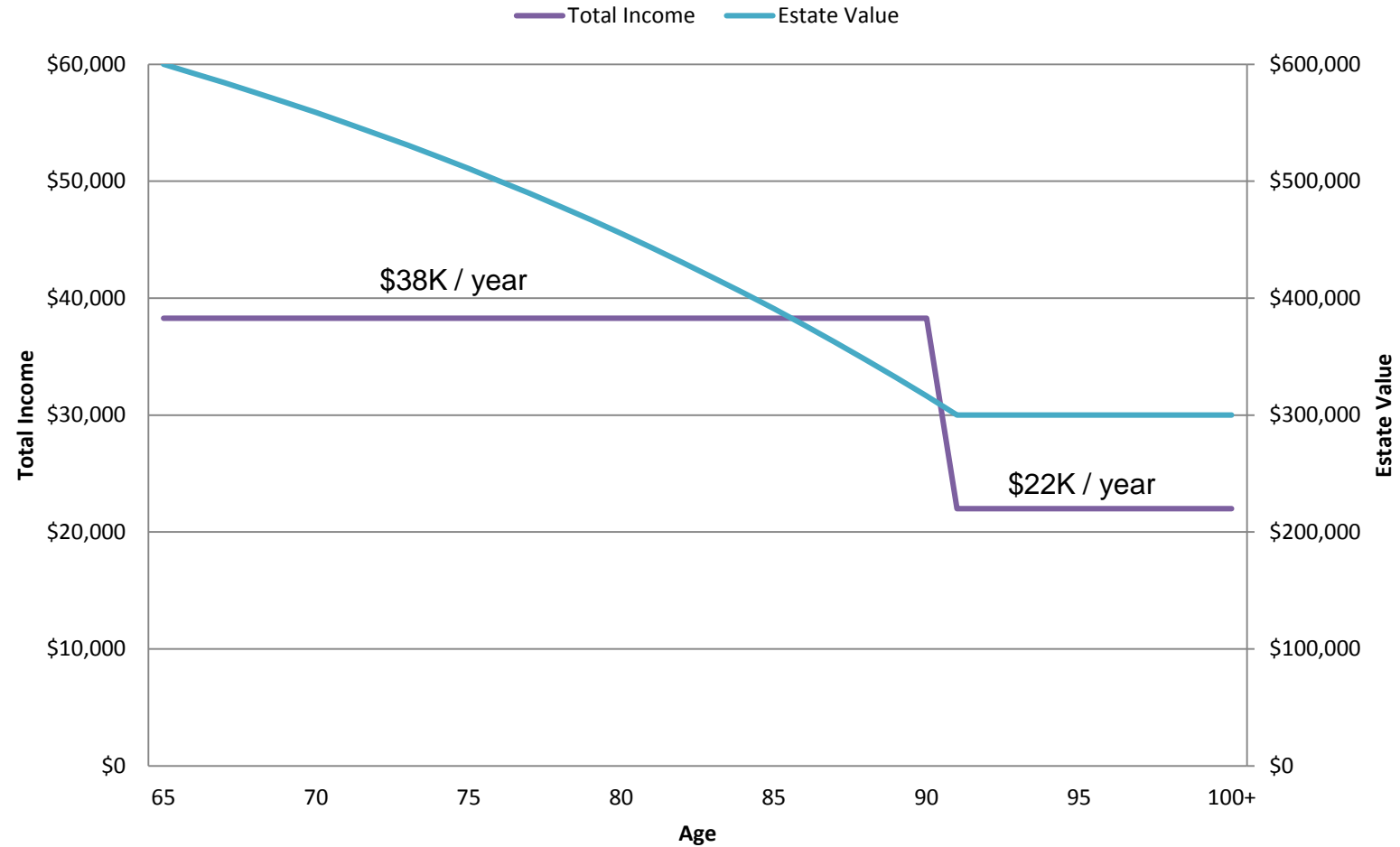
- 65-90: \$38K/year (OAS, CPP and withdrawals)
- 90+: \$22K/year (OAS and CPP)

If death at 90 : House to children

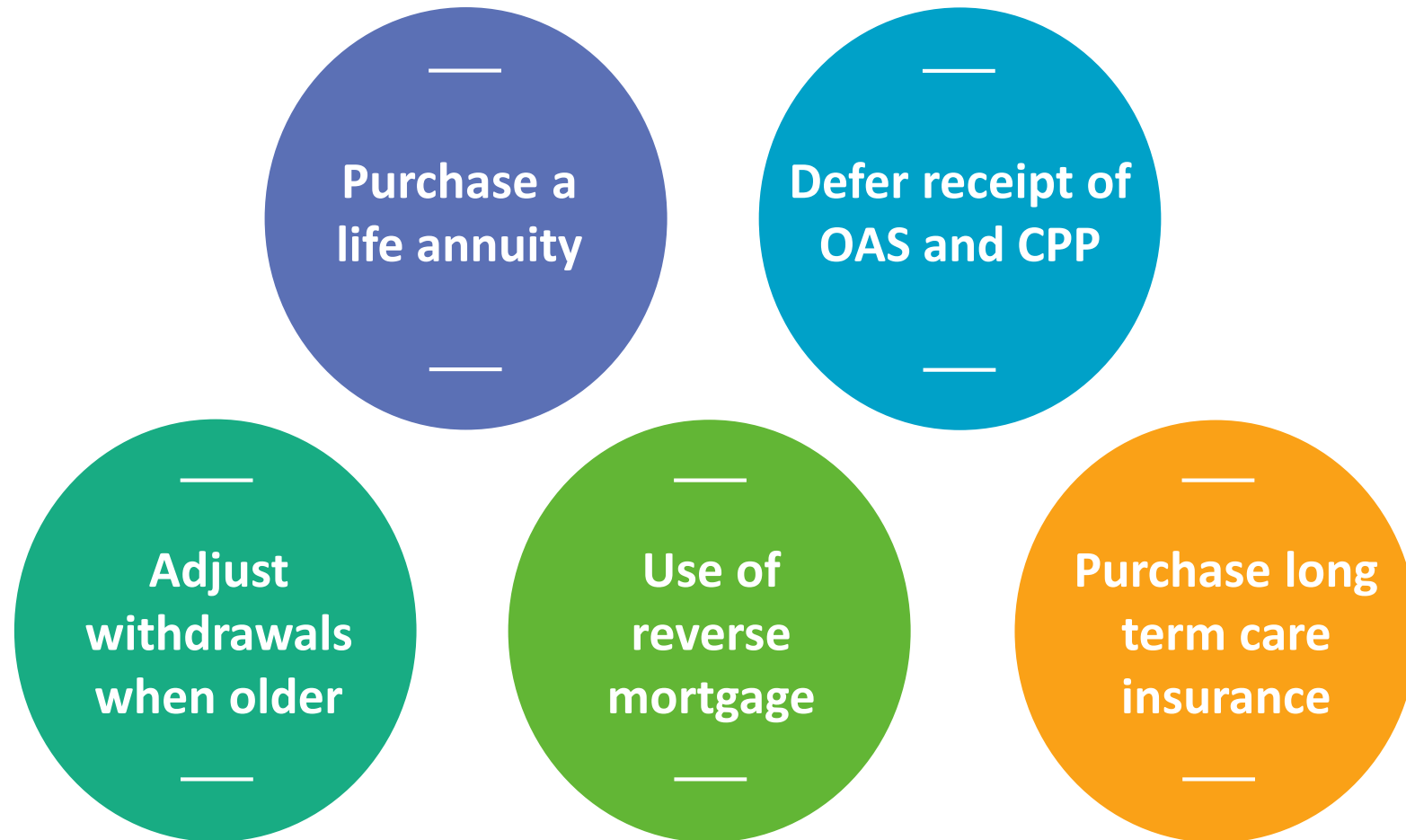
If lives past 90: Can he cut back to \$22K/year?



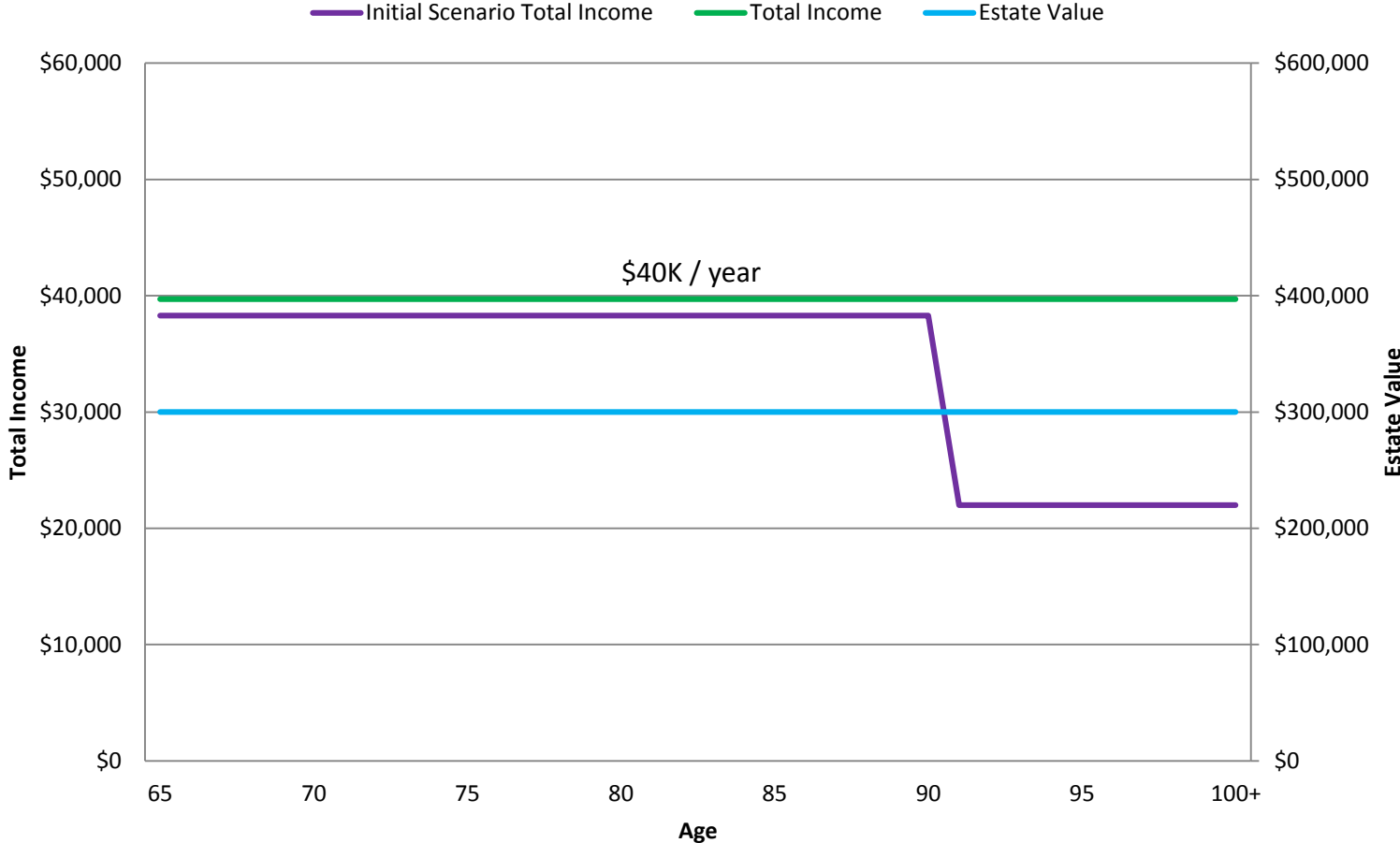
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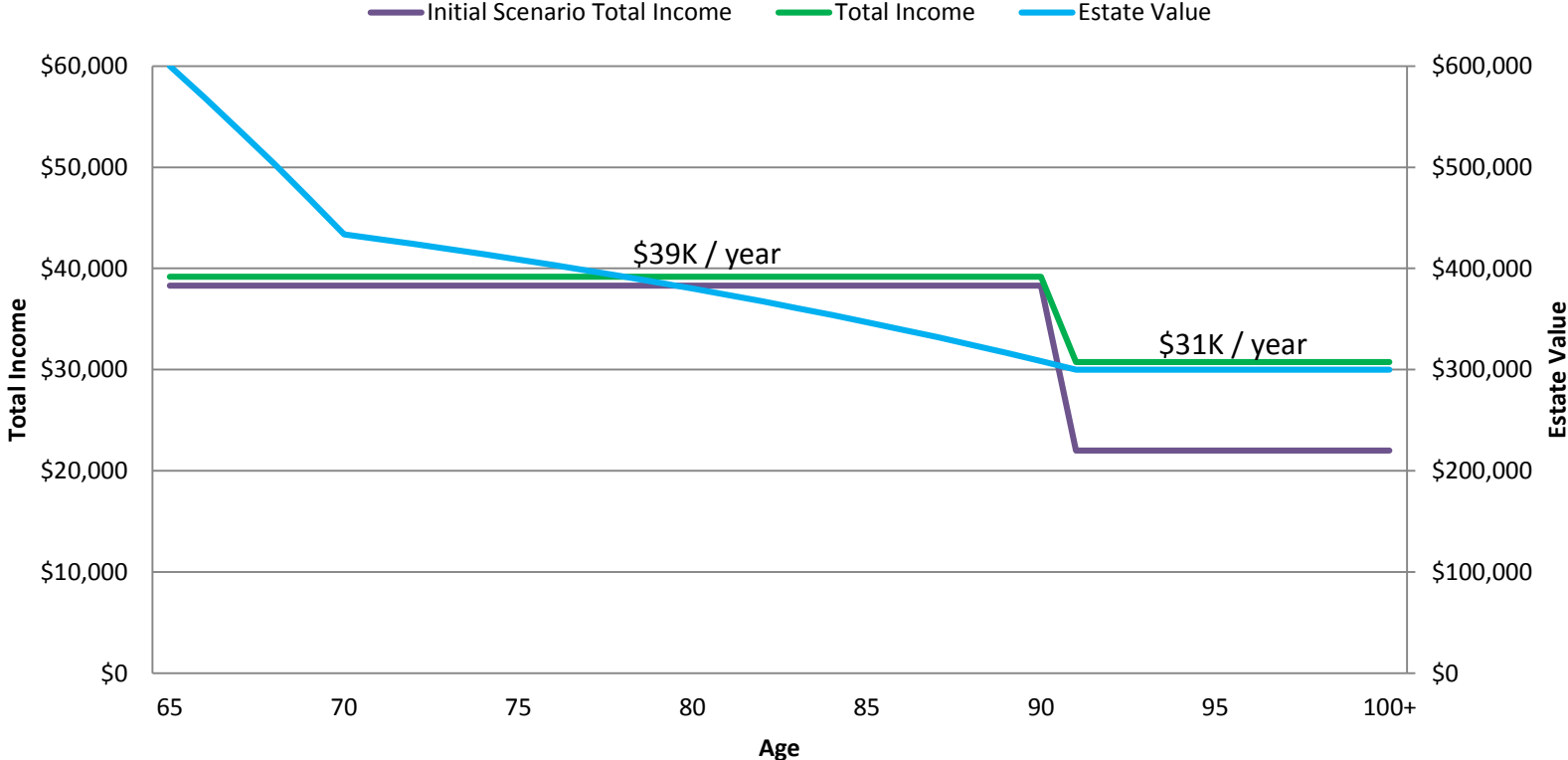
He can use many strategies to receive more after 90



He can use his accumulated savings of \$300K to purchase a life annuity of \$18K /year

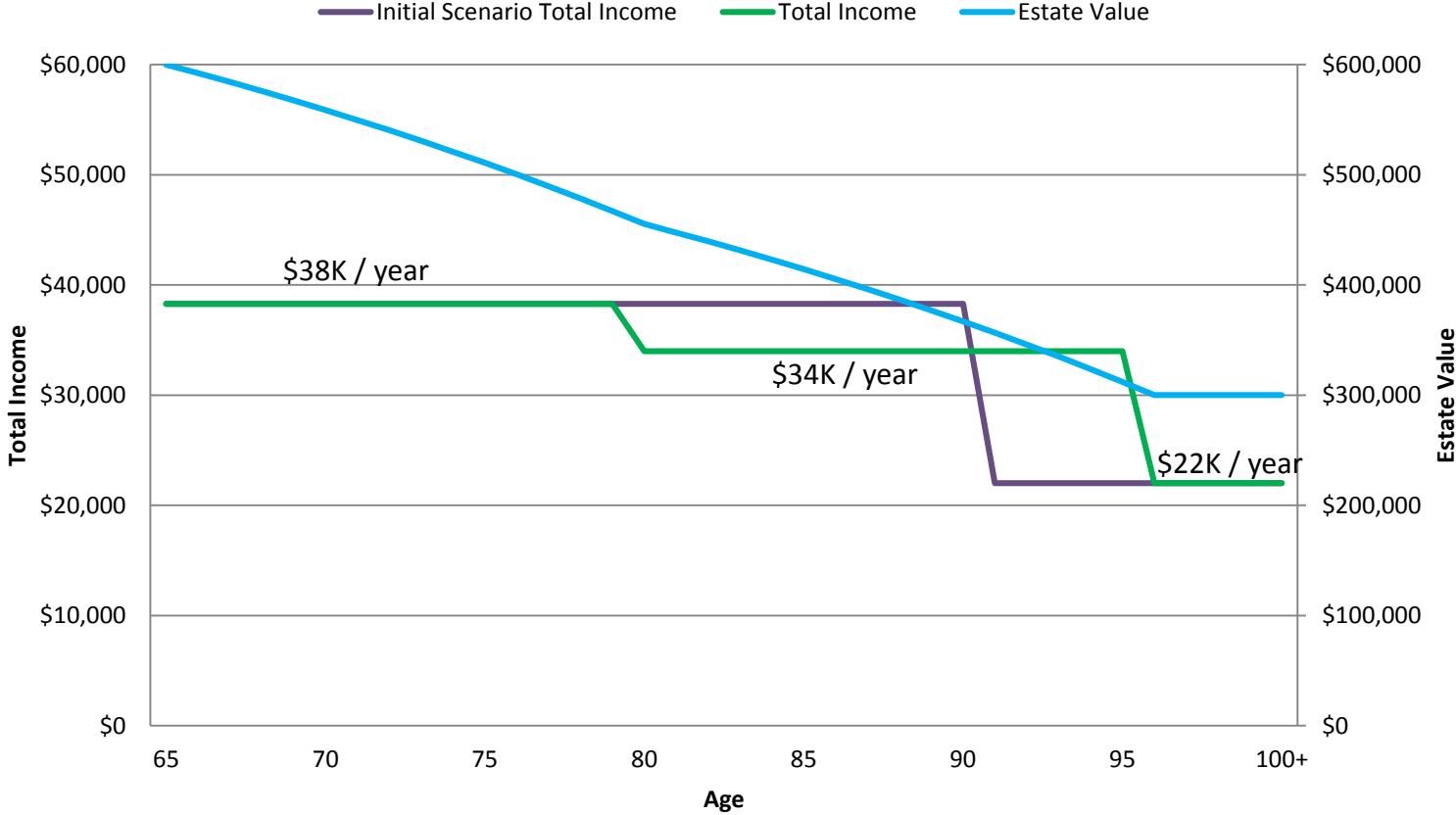


He can defer receipt of OAS and CPP to age 70 with a 40% increase to \$31K and use all his savings before 90

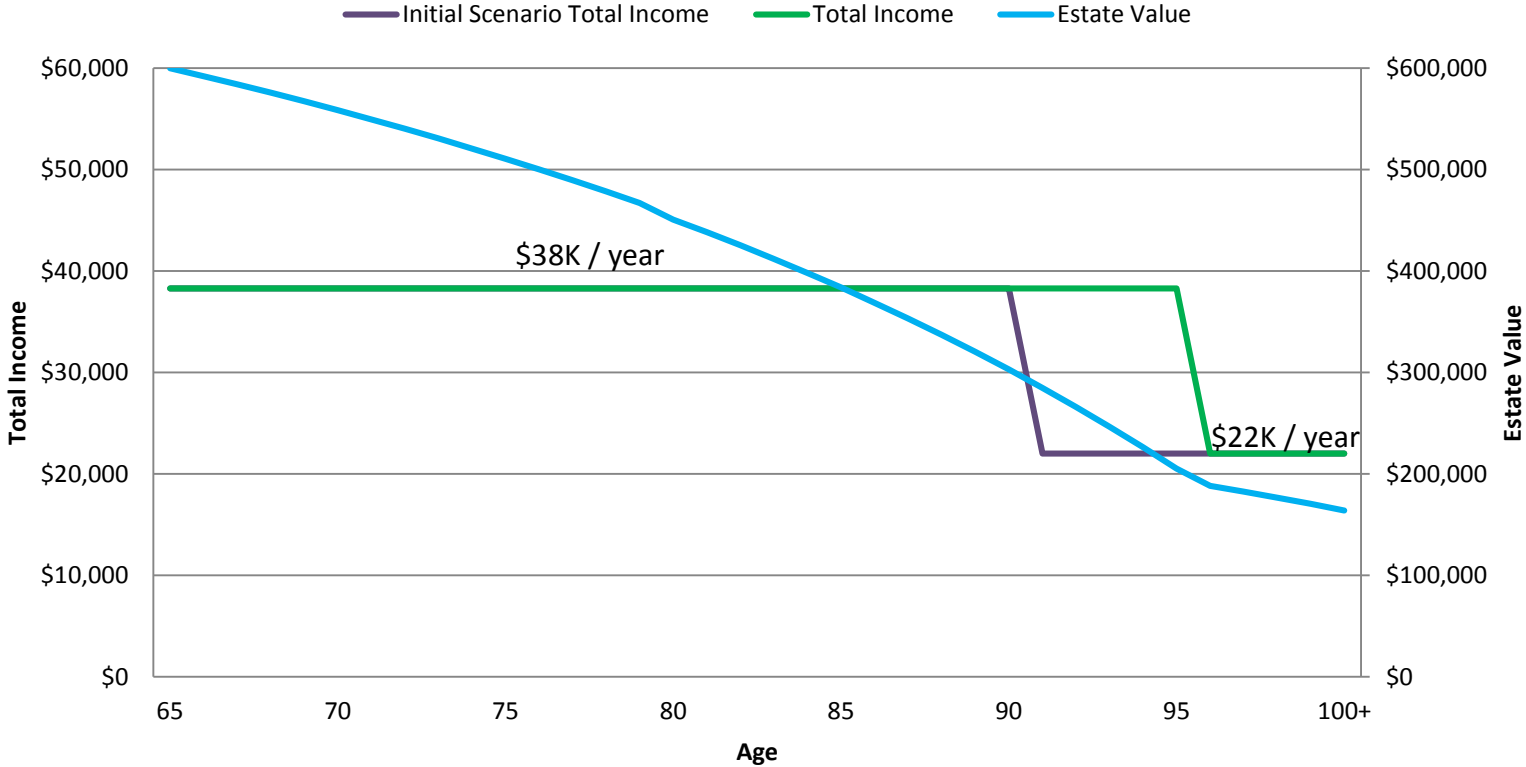


AND BENEFIT FROM INDEXATION AND LONGEVITY PROTECTION, AND HIGHER RETURN OF CPP

When he reaches 80, he can hope to die at 95, and reduce withdrawals from savings by \$4K from \$16K to \$12K

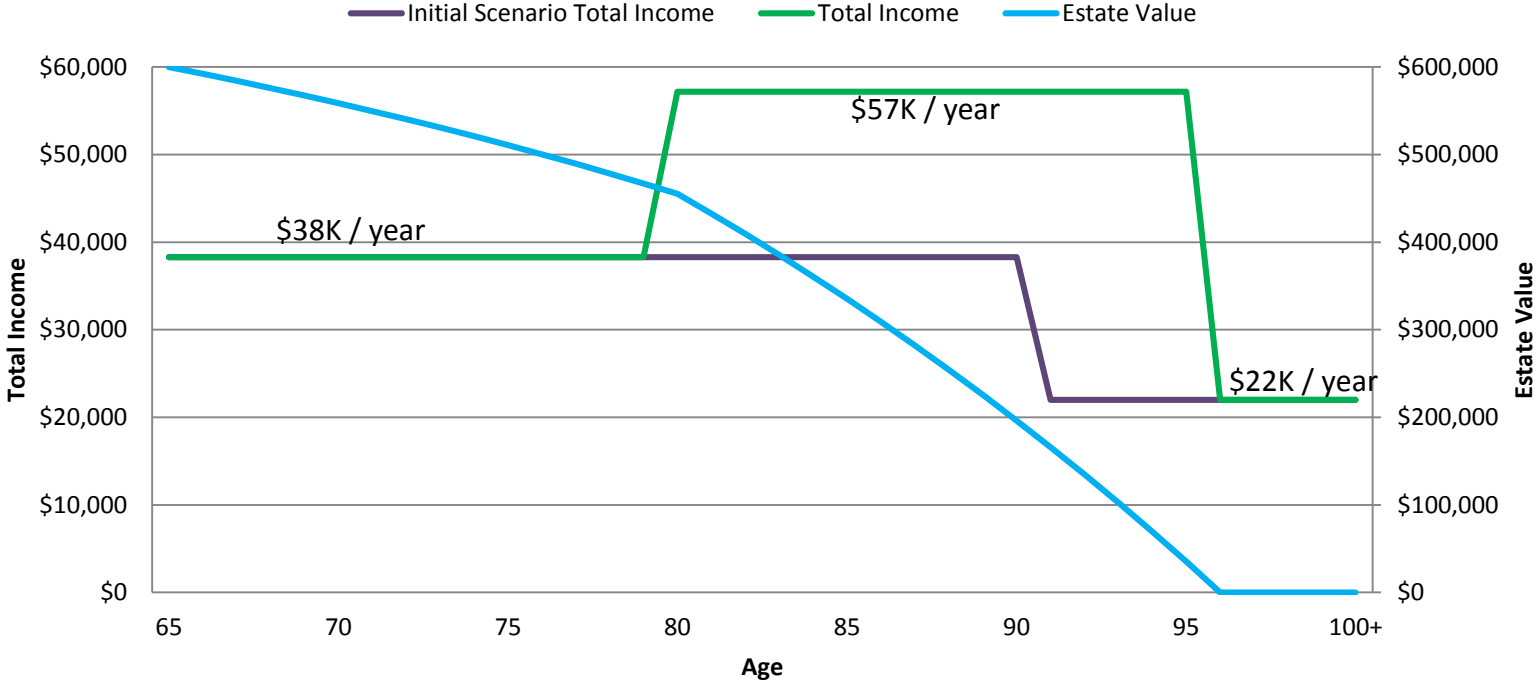


At 80, he can adjust withdrawals by \$4K and borrow \$4K/year against the value of the house



AT DEATH, ESTATE WILL RECEIVE HOUSE VALUE LESS LOAN OF \$5K/YEAR PLUS INTEREST

What if he needs long term care at \$45K/year at age 80, and \$12K of additional expenses? He can sell the house and generate \$19K/year until 95



**ESTATE WILL GET NOTHING IF DEATH AT 95,
OR HAVE TO FIND \$35K/YEAR IF LIVES PAST 95**

An average Canadian may meet the challenge of longevity with strategies



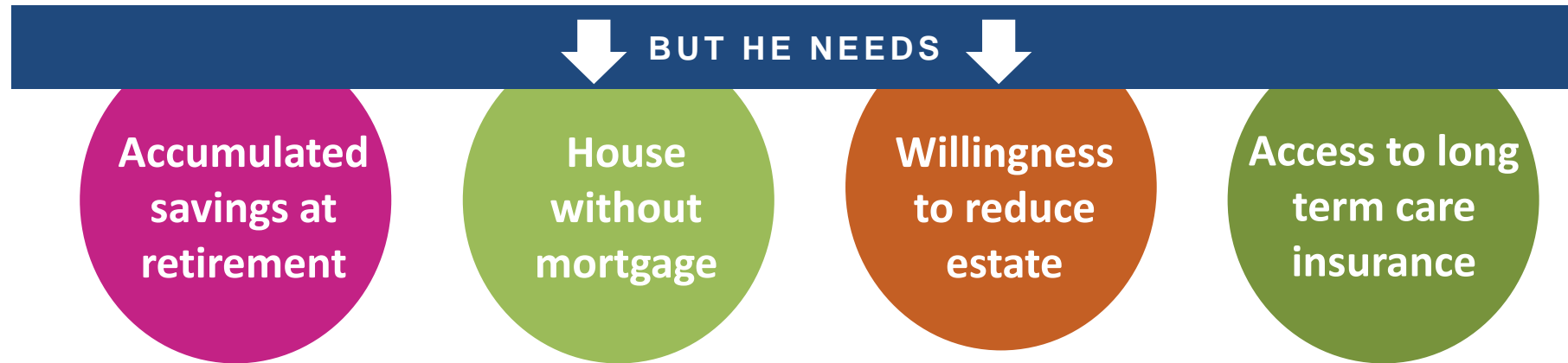
Purchase
a life annuity

Defer receipt
of OAS and
CPP

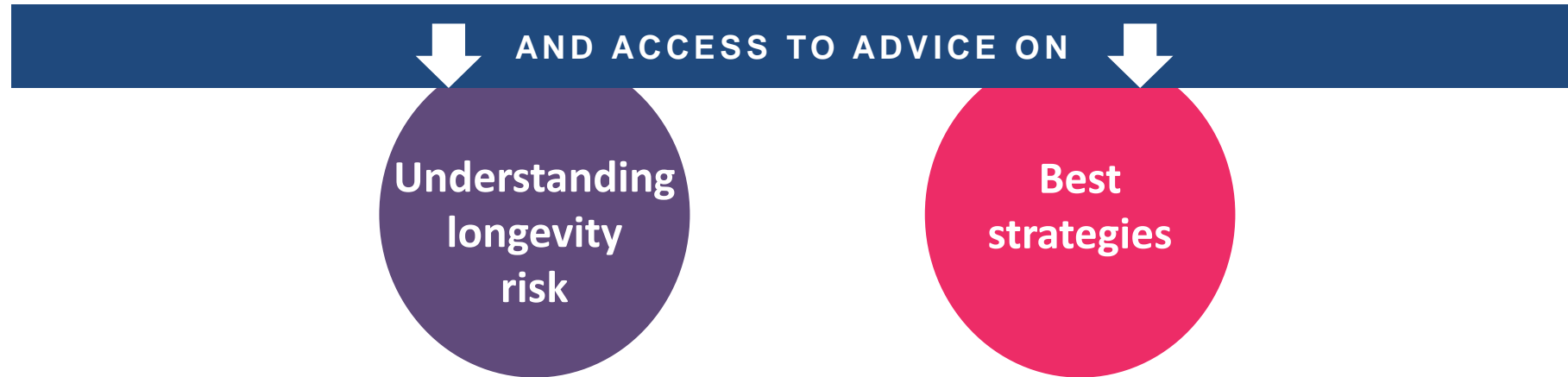
Adjust
savings
withdrawals

Use of
reverse
mortgage

An average Canadian may meet the challenge of longevity with strategies



An average Canadian may meet the challenge of longevity with strategies



Possible Reforms for More Cost Effective Solutions

Principles of reform

- 1) Little or no cost to federal government
- 2) Ability to enact quickly
- 3) Use pooling mechanisms to economically and effectively mitigate longevity risk to provide better outcomes for Canadians
- 4) Ensure income exists in older age when health care expenses are largest
- 5) Retain payment flexibility in earlier retirement years to maintain pre-retirement standard of living

Reform #1: Delay commencement of government programs

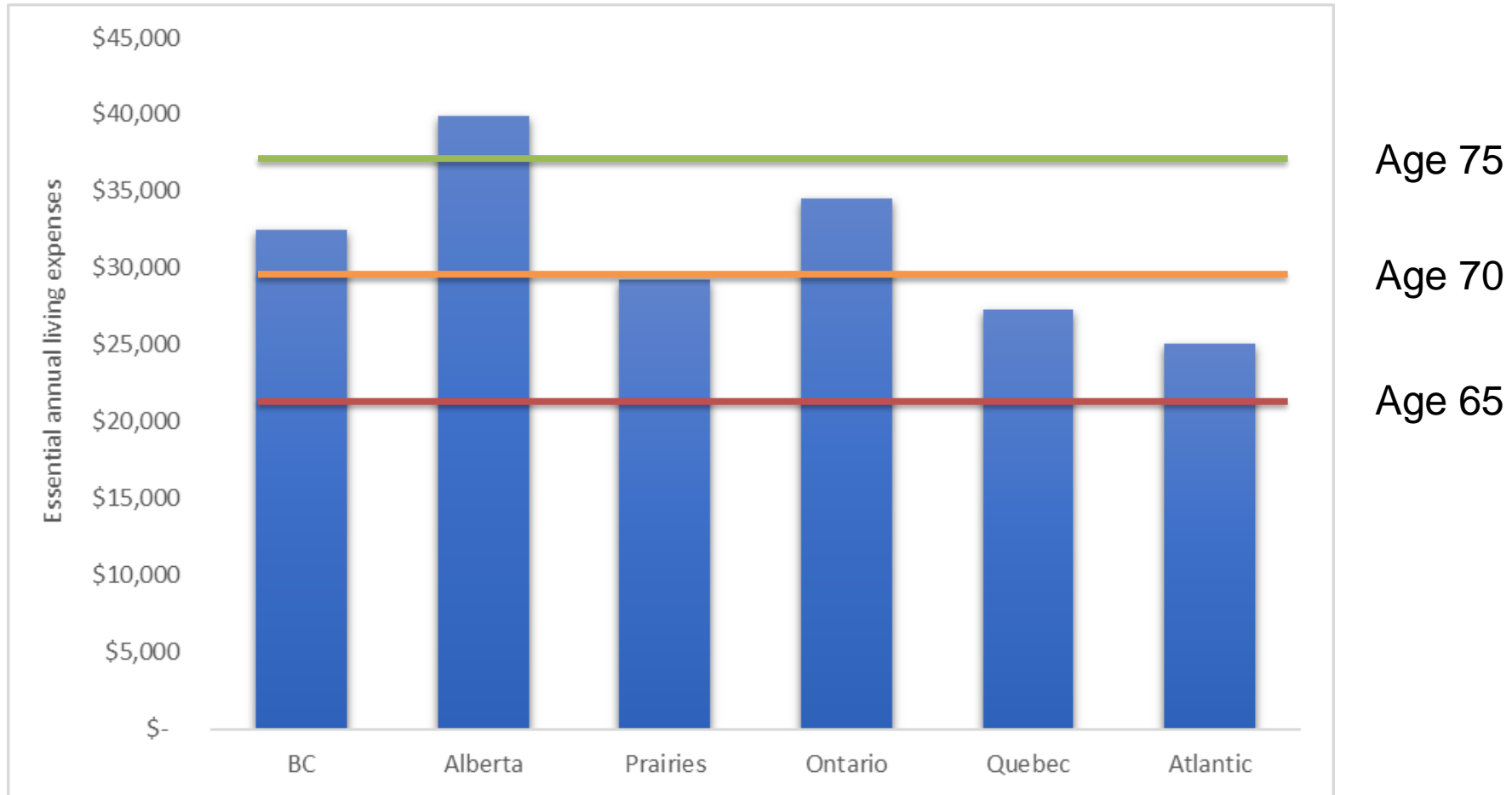
Problem

- Old Age Security (OAS) and Canada/Quebec Pension Plan (C/QPP) provide significant income to all working Canadians
 - already provide longevity and inflation protection
- The programs require payments to begin by age 70

Solution

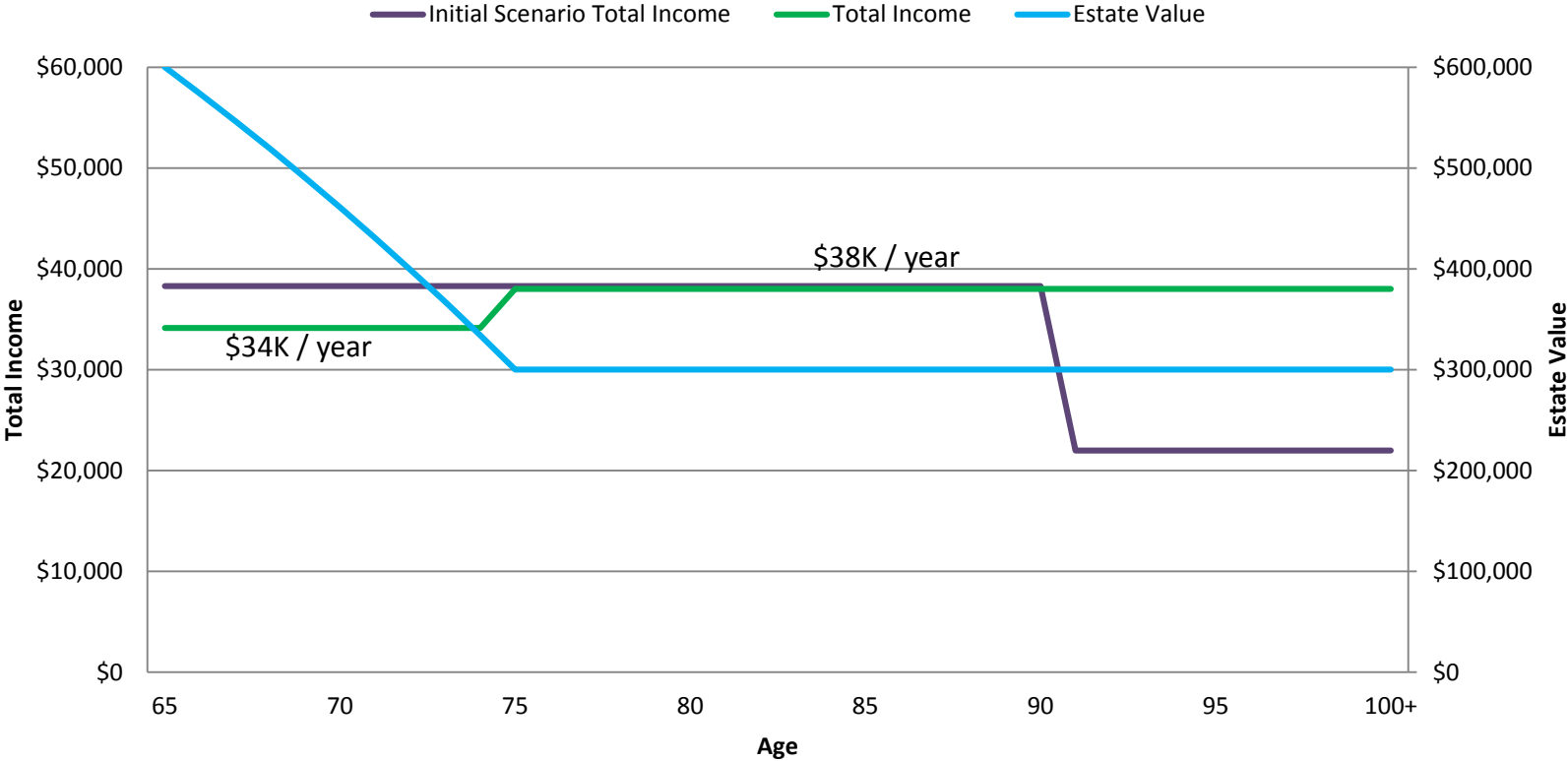
- Allow Canadians to defer commencement to a later age
- For Canadians with other forms of savings, better if public programs provide meaningful longevity insurance later in life, relying on accumulated savings in the earlier retirement years

Comparison of Essential Living Expenses and Government Pensions for middle income earner



Source: Statistics Canada; calculations by Eckler Ltd.

Defer receipt of OAS and CPP to age 75 and use all his savings before 75



**REDUCED INCOME IN EARLY YEARS,
BUT IMPROVED LONGEVITY PROTECTION**

Reform #2: Variable payments from registered CAP plans

Problem

- DC and Group RRSP/TFSA plan members lose investment pooling risk once retired and run risk of outliving accumulated balance
- Individual annuities are generally bought at retail prices
- The recent amendments to Pension Benefits Acts to allow drawdown in retirement do not mitigate an individual's longevity risk

Solution

- Amend the Income Tax Regulations to allow collective variable payout programs

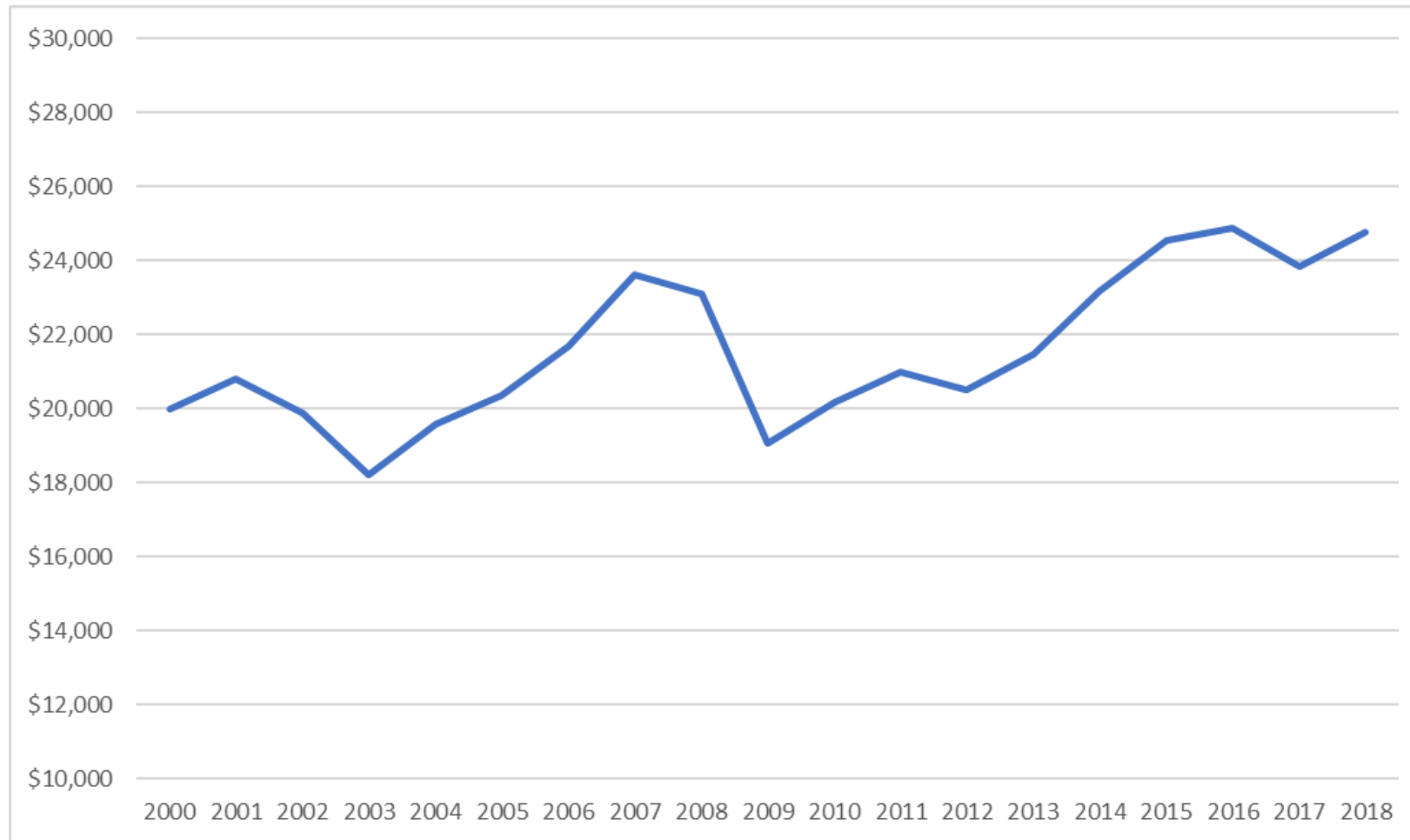
Example: UBC Faculty's Variable Payment Life Annuity

Feature	Impact
Accumulated DC balance	Kept in plan, professionally managed in balanced fund and overseen by Board of Trustees
Fees	Same lower fee level as during accumulation
Investment risk	With individual
Longevity risk	Pooled with all participants
Initial payment	Higher than an insurance company annuity
Annual payment	Will change each year by investment and survivorship experience

Example: UBC Faculty's Variable Payment Life Annuity

	Calculation of January 1, 2018 adjustment
Balanced fund return after fees in 2017	8.62%
Expected return	<u>4.00%</u>
Investment adjustment (using compound interest)	4.44%
Survivorship adjustment	<u>-0.59%</u>
Adjustment to annual payment	3.85%

Change in \$20,000 UBC pension over last 18 years



Reform #3: Allow purchase of deferred annuities with registered funds past age 71

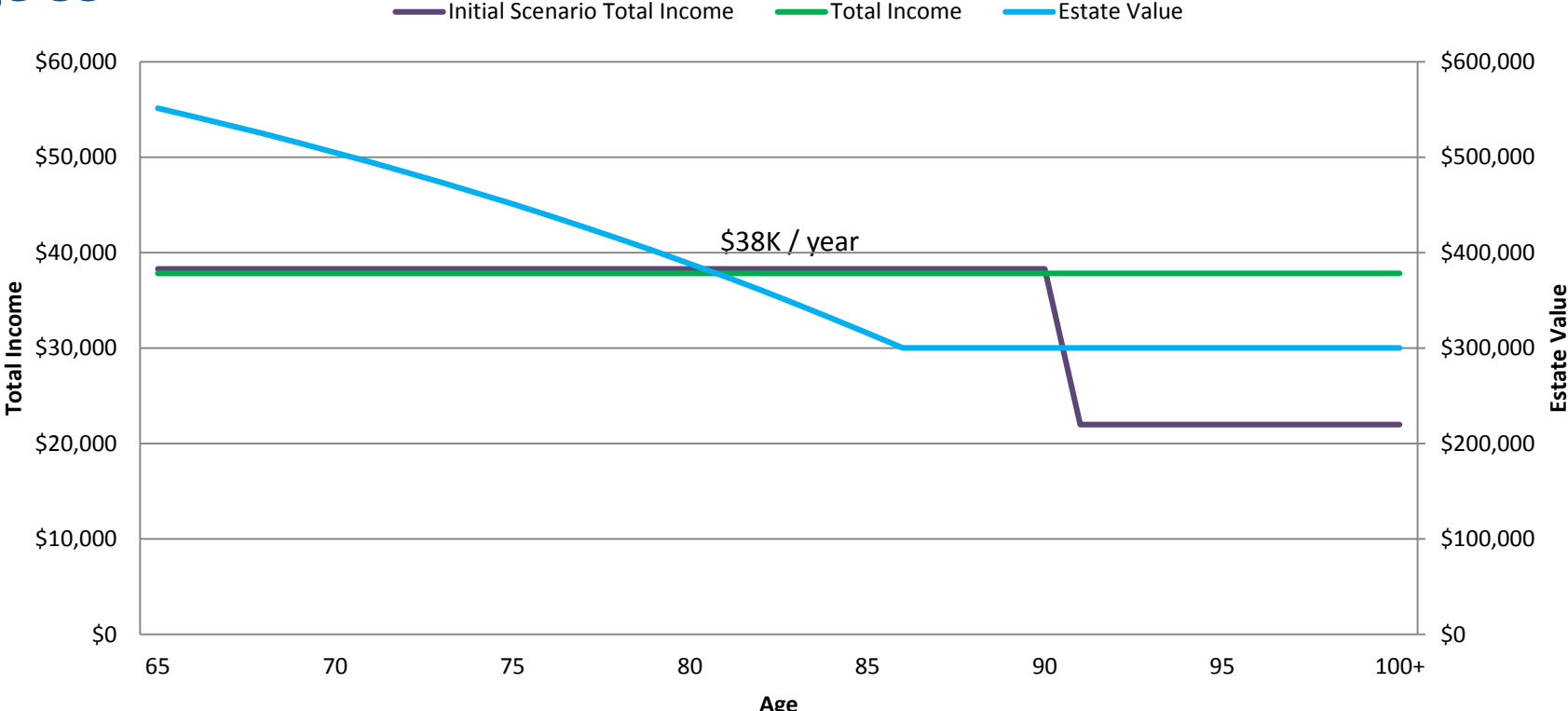
Problem

- Income Tax Act requires pension income to commence by age 71
- CAP retiree cannot buy insurance to provide for basic expenses starting later in retirement (e.g. age 85)

Solution

- Amend the Income Tax Act to allow retiring CAP plan members to purchase a deferred pension starting as late as age 85
- Deferred annuity income will be taxable when received
 - A deferred annuity purchased at age 65 that starts at age 85 is 10% of the cost of an immediate annuity starting at age 65¹

Purchase a 20 year deferred annuity of \$16K per year starting at age 85 for \$48K and withdraw \$16K per year from savings up to age 85



STABLE INCOME OVER TIME
LONGEVITY RISK HEDGED FOR A SMALL INVESTMENT
OF ABOUT 15% OF ACCUMULATED SAVINGS AT AGE 65

Reform #4: Allow purchase of annuities from TFSA funds

Problem

- TFSAs are becoming a larger source of savings for Canadians
 - In 2009, 4.5 million Canadians contributed; in 2017, 7.9 million Canadians contributed
 - 49% of all Canadian tax filers have a TFSA account
- Canadians cannot buy longevity insurance with balance

Solution

- Amend the Income Tax Act to allow retiring TFSA plan members to purchase an immediate or deferred annuity (starting as late as age 85)

Advocacy Discussion

- **How can we maximize the chance for success with these four reforms?**
 - **Delay commencement of government programs**
 - **Variable payments from registered CAP plans**
 - **Allow purchase of deferred annuities with registered funds past age 71**
 - **Allow purchase of annuities from TFSA funds**
- **Are there other reforms that could significantly aid individuals with managing their own longevity risk?**
- **How best to educate public/financial planners about longevity risk?**
- **How to encourage more people to purchase annuities, defer government pensions etc.?**
- **How to stimulate a market in long term care insurance?**

ACPM National Session

The Future Isn't What It Used To Be: Plan Design and Longevity Risk

Hosted by Ontario Regional Council
November 28, 2018
Toronto, ON

Moderator

David Gordon, *CAAT Pension Plan*

Presenters

Joe De Dominicis, *Morneau Shepell*
Dean Newell, *Actuarial Solutions Inc*
Mazen Shakeel, *Sun Life Financial*