Session 062 PD - Draw Down Innovations

Moderator:

Andrew J. Peterson, FSA, EA, FCA, MAAA

Presenters:

Stephen A. Eadie, FSA, FCIA

Theodore A. Goldman, FSA, FCA, MAAA

2017 SOA Annual Meeting & Exhibit

PRESENTERS: STEPHEN A. EADIE, FSA, FCIA
TED GOLDMAN, FSA, EA, MAAA
MODERATOR: ANDREW PETERSON, FSA, EA, MAAA

Session 62 - Draw Down Innovations

October 16, 2017

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Agenda

- Introductions & Context – Andy Peterson
- The “intelligent” drawdown strategy – Ted Goldman
- Improved Variable Annuity – Steve Eadie
- Discussion

Introductions & Context

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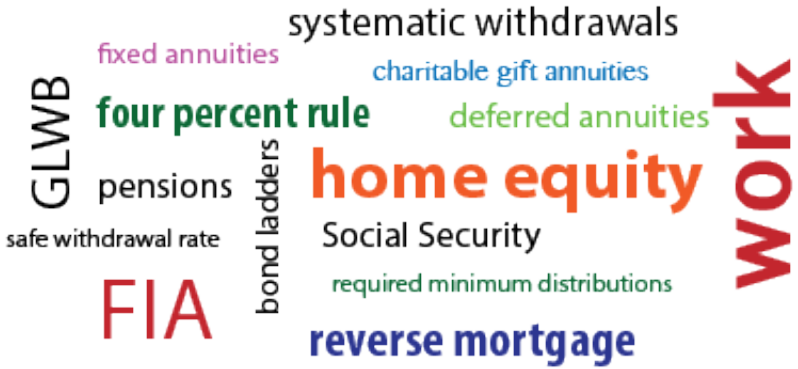
Context

- The Challenge: How to deploy retirement savings to last a long lifetime?



- SOA sponsoring work by Steve Vernon, FSA -- Research Scholar, Stanford Center on Longevity

  Optimizing Retirement Income Solutions

The Challenges

Quantifiable risks

- Market/sequence of returns
- Longevity
- Withdrawal rates too high
- Inflation
- High fees
- Insurer insolvency
- Liquidity
- Inadequate protection for surviving spouse

Behavioral risks

- Inadequate understanding of issues with generating income
- Temptation to spend more today
- Mistakes, fraud, or cognitive decline
- Poor/biased advice
- Inability to assess and self-execute

Source: *Optimizing Retirement Income Solutions* by Steve Vernon, FSA

The Challenges (cont.)

- Decisions on retirement income made in following context:
  - Social Security claiming
  - Existence of traditional pensions
  - Deploying home equity
  - Role of continued work
  - Threat of high expenses for medical or long-term care
  - Desire to leave a legacy
  - Expected pattern of living expenses
  - Amount of debt
  - Level of income taxes

Source: *Optimizing Retirement Income Solutions* by Steve Vernon, FSA

Three Types of Retirement Income Generators (RIGs)

1. Investment income: Invest savings, spend investment income, leave principal intact

2. Systematic withdrawal program (SWP): Invest savings, withdraw principal cautiously to avoid outliving principal (but no guarantee)

3. Annuity: Purchase guaranteed lifetime income from insurance company

Notes:

- Many possible variations and combinations with each approach
- In tax qualified retirement plans and traditional IRAs, first two RIGs devolve to IRS required minimum distribution soon after age 70-1/2 (see Appendix A)

Source: *Optimizing Retirement Income Solutions* by Steve Vernon, FSA

Evaluation Criteria for Selecting Retirement Income Generators

- **A-LIFE** rating system
  - **A**mount of income
  - **L**ifetime guarantee
  - **I**nflation protection
  - **F**lexibility, financial legacy
  - **E**xposure to market risk

Source: *Money for Life: Turn Your IRA and 401(k) Into a Lifetime Retirement Paycheck*, by Steve Vernon

The “intelligent” drawdown strategy – Ted Goldman

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Draw Down Innovations

- Are you concerned with converting hard-earned savings into an annuity…
- Yet want to be sure your money lasts…
- And want the optimum flexibility to access funds…
- But also have some protection against inflation, investment, and longevity risks?

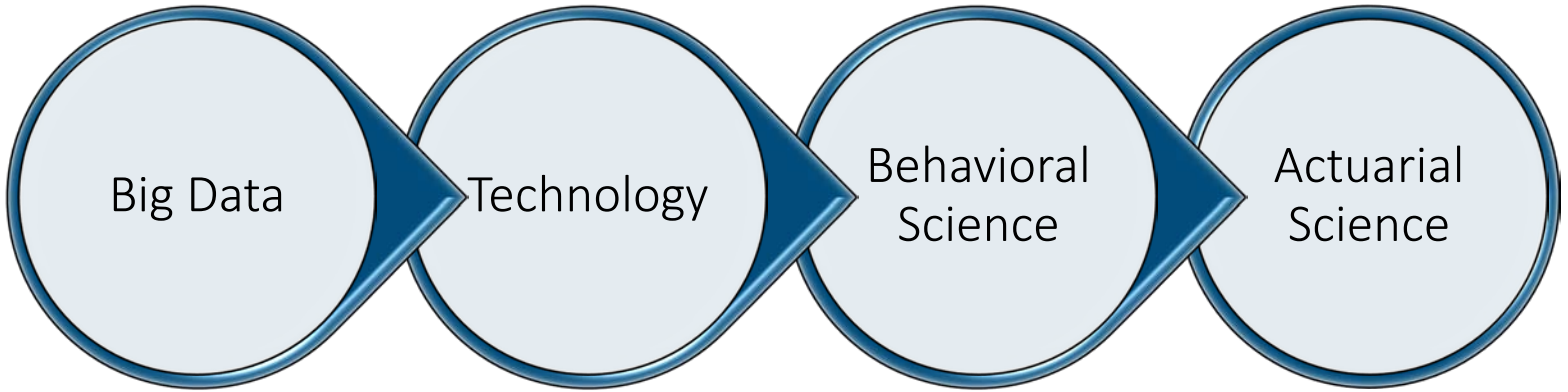
Look No Further

- You may be interested in the personalized systematic drawdown strategy

Concept

- Personalized, systematic drawdown strategy from your defined contribution (DC) plan
- Calculates how much to withdraw based on a targeted payout period and assumed investment return
- Sends a monthly retiree paycheck
- Auto-adjusts during retirement based on actual experience
- Provides modest protection from retirement risks
- Funds available at any time

Key Ingredients



The more data, the more we can accomplish

Calculate and deliver

Informed defaults with opt-out and tools

Yes, there is a role for actuaries in a DC plan

Simple Process

Three Steps

Setup

Initiate

Refresh

Setup

- Inputs
  - Demographics – **age**, gender, marital status, health status
  - Income and assets – **DC account balance** and DB benefits, Social Security, savings and annuities from previous employers, personal savings in IRAs, Health Savings Accounts, homeownership, total financial assets, spouse retirement savings and financials
  - Expenses – fixed, discretionary, planned one-time expenses
- Assumptions (defaults set by plan sponsor, retiree has ability to override)
  - **Investment returns** (post-retirement)
  - **Target payout period** (or life expectancy)
  - **Side fund allocation**
  - Amount to bequeath to heirs
  - Inflation
  - Risk tolerance

Bold/Blue items needed for basic model, other items could be used for future enhancements/improved sophistication and personalization.

Setup (cont'd)

- Create payment plan (algorithmic)
  - Subtract side fund allocation from total account balance
  - Convert remaining (available funds) into level monthly retiree paycheck
    - Certain annuity based on target payout period and assumed interest rate
  - Assets remain in the plan with "through" target date fund as default
  - Side Fund – risk reserve, notional account
    - Continues to be invested with all funds
    - Designed to help mitigate risks during retirement (e.g., 10%-15% of total assets)

Initiate

- Retiree paycheck amount communicated (via mobile app)
- Retiree accepts/adjusts/rejects – can set own amount or fine-tune assumptions with calculation tool
- Plan administrator sends monthly “retiree paycheck” – electronic deposit to personal bank account
- Full access to remaining DC assets, as needed, upon request
- On-demand report with full reconciliation – investment performance, projected balances, side fund balance, etc.

Refresh

- Periodically (e.g., annually) reviews actual results versus expected results
- Makes adjustments, if needed
  - ✓On course – no change
  - ✓Gains – no change, side fund grows
  - ✓Losses – transfer from side fund (if available) to keep on track, otherwise will reduce retiree paycheck to assure funds last to the targeted date
- Continues to work as cognitive skills may decline with age
- Full DC account balance ultimately paid to retiree or heirs, if unused during retirement

Illustration

- DC account balance at retirement $500,000
- Retirement age 65
- Target payout age 90 (25 years)
- Assumed investment return 3%
- Side fund $50,000 (10%)
- Available funds $450,000

Illustration: Setup

- Calculation of monthly retiree paycheck
  - $450,000/(25-year annuity certain factor at 3% interest)
- Result: $25,090 per year from 65 to 90
- Initial side fund = $50,000

Illustration: Actual = Expected

Assumed and actual returns were 3% every year

	Available Funds				Side Funds			
Age	BOY Balance	Retiree Paycheck	Investment Earnings	EOY Balance	BOY Balance	Transfer Amount	Investment Earnings	EOY Balance
65	$ 450,000	$ 25,090	$ 12,747	$ 437,657	$ 50,000	$ -	$ 1,500	$ 51,500
66	437,657	25,090	12,377	424,945	51,500	-	1,545	53,045
67	424,945	25,090	11,996	411,850	53,045	-	1,591	54,636
68	411,850	25,090	11,603	398,363	54,636	-	1,639	56,275
69	398,363	25,090	11,198	384,472	56,275	-	1,688	57,964
70	384,472	25,090	10,781	370,163	57,964	-	1,739	59,703
75	308,507	25,090	8,503	291,919	67,196	-	2,016	69,212
80	220,442	25,090	5,861	201,213	77,898	-	2,337	80,235
85	118,351	25,090	2,798	96,059	90,306	-	2,709	93,015
89	25,090	25,090	0	0	101,640	-	3,049	104,689

Paid monthly

Can continue payments if live past 90 or reverts to heirs, or use the side fund for other retirement needs such as inflation, health, travel, etc.

Illustration: Actual ≠ Expected

Actual return was -5% vs. expected of 3%, results in transfer of funds from side fund to available funds

	Available Funds						Side Funds					
Age	BOY Balance	Retiree Paycheck	Investment Earnings	Pre-adjusted Balance	BOY Transfer In (Out)	EOY Balance	BOY Balance	BOY Transfer In (Out)	Investment Earnings	EOY Balance	Expected Return	Actual Return
65	$ 450,000	$ 25,090	$ 4,249	$ 429,159	$ -	$ 429,159	$ 50,000	$ -	$ 580	$ 50,500	3%	1%
66	429,159	25,090	12,122	416,191	8,753	424,945	50,500	(8,753)	1,252	42,999	3%	3%
67	424,945	25,090	(19,993)	379,862	31,988	411,850	42,999	(31,988)	(551)	10,460	3%	-5%
68	411,850	25,090	23,206	409,966	(11,603)	398,363	10,460	11,603	1,324	23,387	3%	6%
69	398,363	25,090	7,465	380,739	3,733	384,472	23,387	(3,733)	393	20,047	3%	2%
70	384,472	25,090	43,126	402,508	(32,344)	370,163	20,047	32,344	6,287	58,679	3%	12%
75	308,507	25,090	8,503	291,919	-	291,919	32,466	-	974	33,440	3%	3%
80	220,442	25,090	(15,628)	179,724	21,489	201,213	51,754	(21,489)	(2,421)	27,844	3%	-8%
85	118,351	25,090	6,528	99,790	(3,730)	96,059	30,733	3,730	2,412	36,876	3%	7%
89	25,090	25,090	-	-	(0)	(0)	40,806	0	2,040	42,846	3%	5%

Amount available for unexpected expenses. If side fund is depleted, retiree paycheck would be re-amortized over remaining period to target payout age.

Key Features

- Personalized drawdown strategy
- Monthly retiree paycheck makes it easy for the retiree to budget (familiar concept)
- Full access to account – can request additional funds, if and when needed
- Reserve designed to mitigate (but not fully solve) unexpected events in retirement
- Continue to participate in employer plan with competitive investment choices and (likely) lower fees

Potential barriers

- Fiduciary risk of plan sponsor
- Administrative complexities
- Extreme events – poor investment performance, outlive target payout period
- No guaranteed lifetime income (unless build in QLAC)
- Assumes inflation is handled through other assets (but could be built in)

Possible enhancements

- Further customization
  - More retiree choice on assumptions (life expectancy, investment returns), ability to update as one ages
  - Coordinate strategy with commencement of Social Security
  - Reflect other personal assets and goals (e.g., inheritance)
- Separate investment strategies for available fund and side fund
- QLAC as part of the default strategy
- Inflation adjustment option in retiree paycheck
- DC tontine as alternative risk mitigation – pool side funds with other retirees (needs legislative assistance)
- Integration with HSA account (separate medical and non-medical)
- Tie to similar wealth accumulation concept

Academy lifetime income activities

- Very active Lifetime Income Task Force
- Look for upcoming Academy deliverables on annuities, Qualifying Longevity Annuity Contracts (QLACs), and lifetime income disclosures
- Lifetime income webpage for plethora of great information: www.actuary.org/content/lifetime-income-initiative

Longevity Illustrator – Try It!

Actuaries LONGEVITY ILLUSTRATOR

About the Longevity Illustrator | FAQ | START OVER | BACK

Results

Longevity Charts

Here is information about your expected longevity, personalized based on the data you provided.

	test	test spouse
Date of Birth	10/16/1952	10/16/1952
Nearest Age	65	65
Illustration Age	65	65
Gender	Female	Male
Do You Smoke?	No	No
General Health	Average	Average

The purpose of these illustrations is to provide an estimate of how long you and your spouse/partner might live. The calculations are based on the information you provide and the 2010 Social Security Administration mortality table, with future mortality improvement projected using the Society of Actuaries' MP-2015 scale. The information is intended to provide a reasonable estimate; however, you or your spouse/partner's actual longevity can differ significantly. The illustration methodology was developed by actuaries who are members of the American Academy of Actuaries and/or the Society of Actuaries.

Print Results

Click here to receive a printout of the charts for you to discuss with your financial advisor.

Print

Try Again

Use these buttons to return to the Input page and start over or to modify the personal data you have already entered, such as health status.

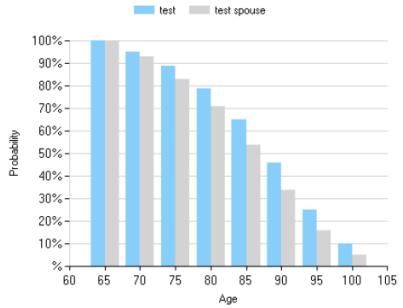
Probability of Living to a Certain Age

This graph introduces the concept of longevity as a range. It illustrates the likelihood that you will live at least to certain ages. If you chose to enter an illustration age later than your nearest age, the calculations assume 100% likelihood that you will live from your nearest age to the age you entered. For instance, the chart shows that the likelihood is 65% that you will live from the later of your nearest age or the illustration age entered to 85, while test spouse has a 54% chance of living to 85.

Note that these probabilities are calculated from your nearest age or from the illustration age if you entered one. If you chose to enter an illustration age later than your nearest age, the Longevity Illustrator assumes a 100% chance that you will live to the age you chose and also a 100% chance that test spouse will live the same number of years.

Probability of Living to a Certain Age

Show Data Table



Longevity Illustrator – Joint Academy & SOA effort www.longevityillustrator.org

A Collective Payout Strategy Through An Improved Uninsured Variable Annuity

– Steve Eadie

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Traditional Uninsured Variable Annuities

- Offered in a few defined benefit plans
- Intent is to provide inflationary increases to all pensioners at the same level
- Increases designed to maintain buying-power of pension over the long-term
- “Hurdle rate” equal to the expected real rate of return of the investment fund
- Annual pension increases equal the fund return less the “hurdle rate”

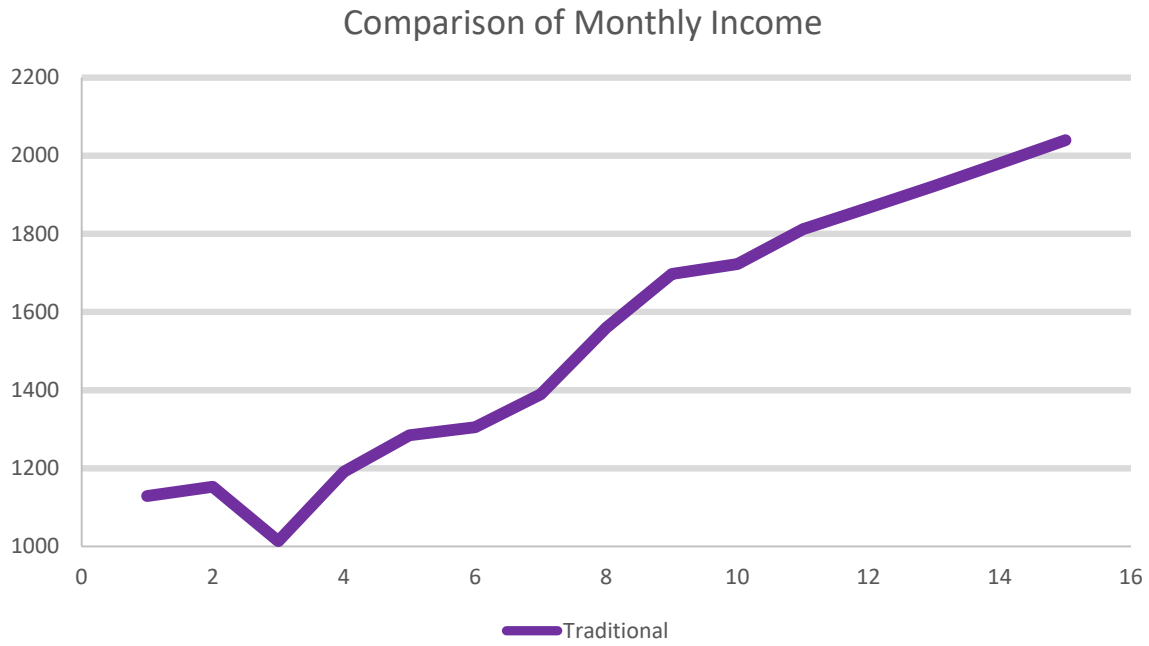
Traditional Uninsured Variable Annuities

- One fund for all pensioners
- Funding Target based on “Hurdle Rate”
- Accounting expense and disclosure based on “Hurdle Rate”
- Investment risk in retirement belongs to pensioners

Variable Annuity Concept
An Example

- Payments beginning in 2007
- Invested in 50% equities (ICPP Total Index) and 50% fixed income (Canadian Bond Universe)
- 4% Hurdle Rate

Traditional Variable Annuity Payout (2007)

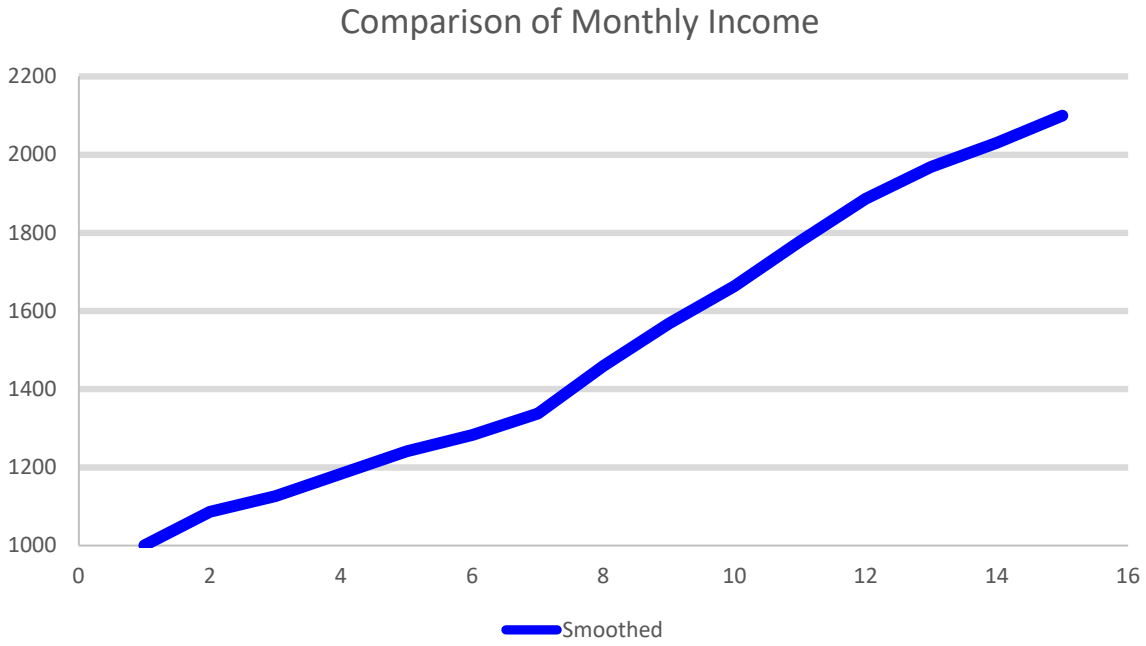


Smoothed Variable Annuities

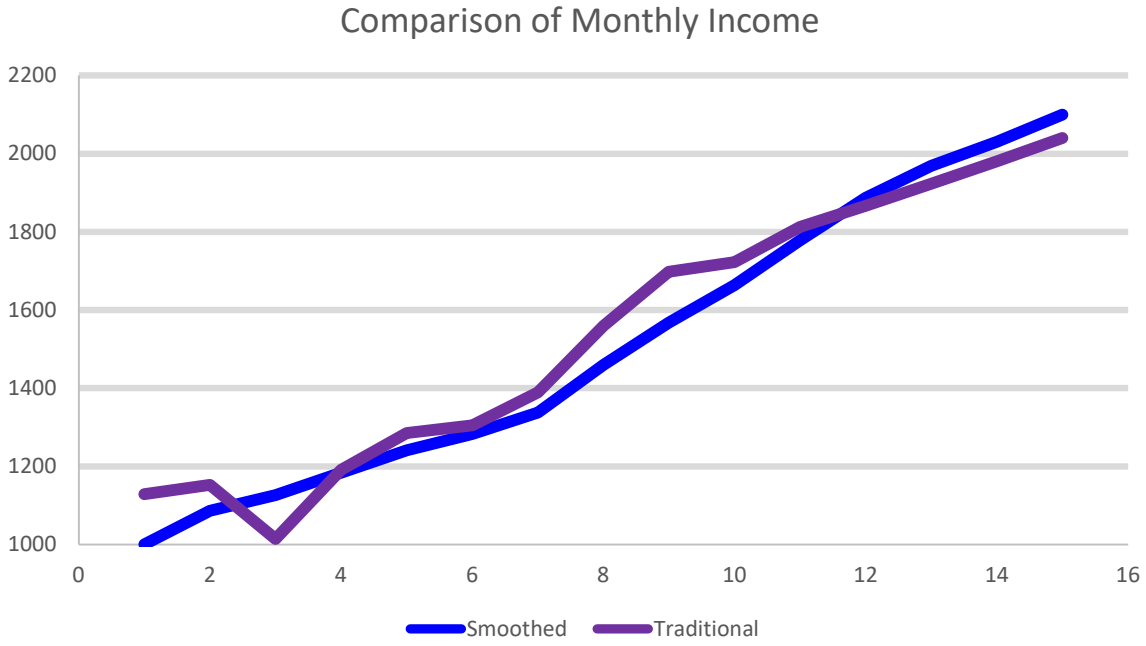
- Increases each year are introduced over a five-year period

- Increases designed to maintain buying-power of pension over the long-term
- “Hurdle rate” established equal to the expected fund real rate of return
- Annual pension increases equal the fund return less the “hurdle rate”
- First four increases are already scheduled when the member retires

Smoothed Variable Annuity Payout (2007)



Variable Annuity Monthly Payouts (2007)



Variable Annuities for DC Plans

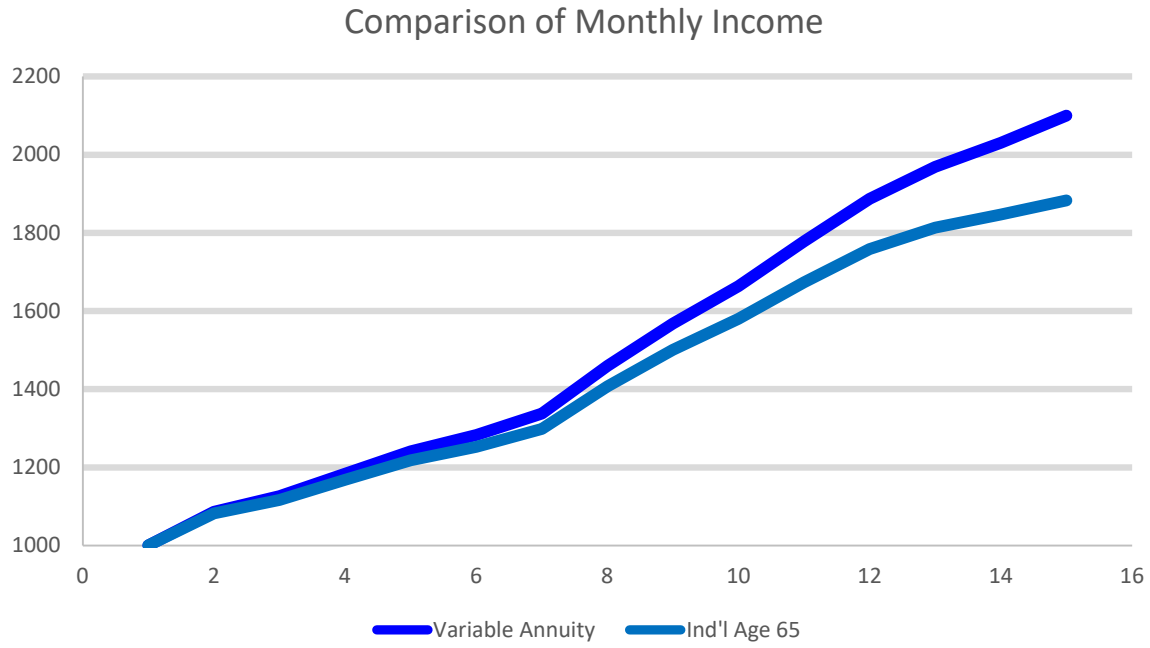
- Increases each year are introduced over a five-year period

- Increases designed to maintain buying-power of pension over the long-term
- “Hurdle rate” established equal to the expected fund real rate of return
- Annual pension increases equal the fund return less the “hurdle rate”

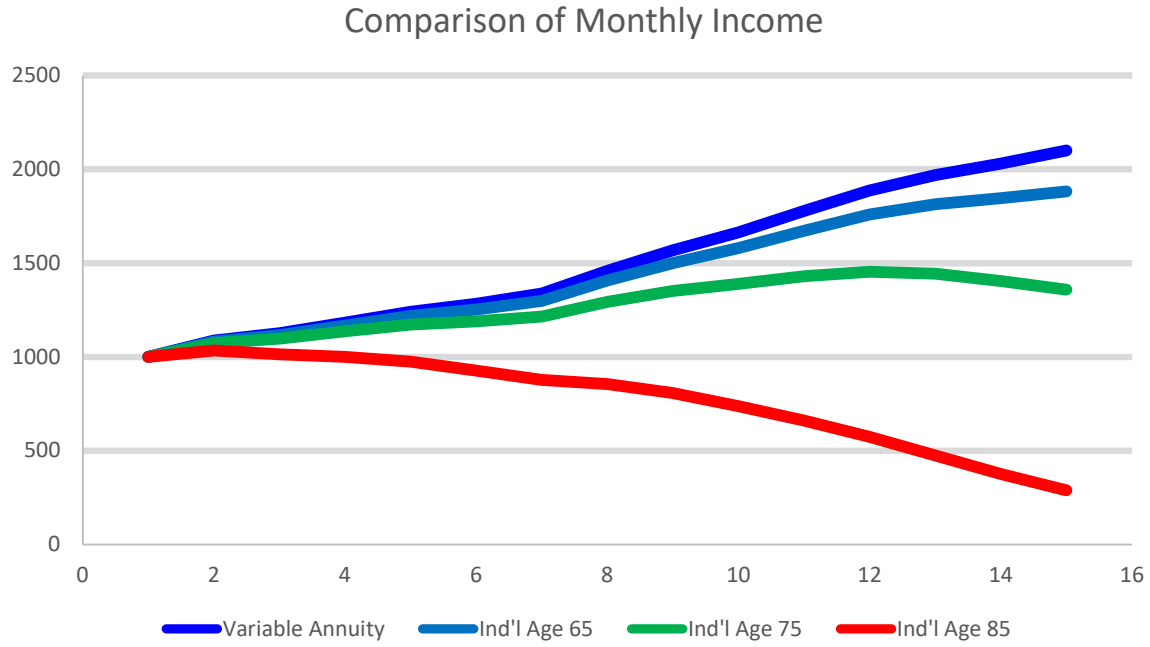
Variable Annuity Concept

- Payments beginning in 2007 for a 65 year old – managed on an individual basis
- Invested in 50% equities (ICPP Total Index) and 50% fixed income (Canadian Bond Universe)
- 4% Hurdle Rate
- Member receives full account value as death benefit

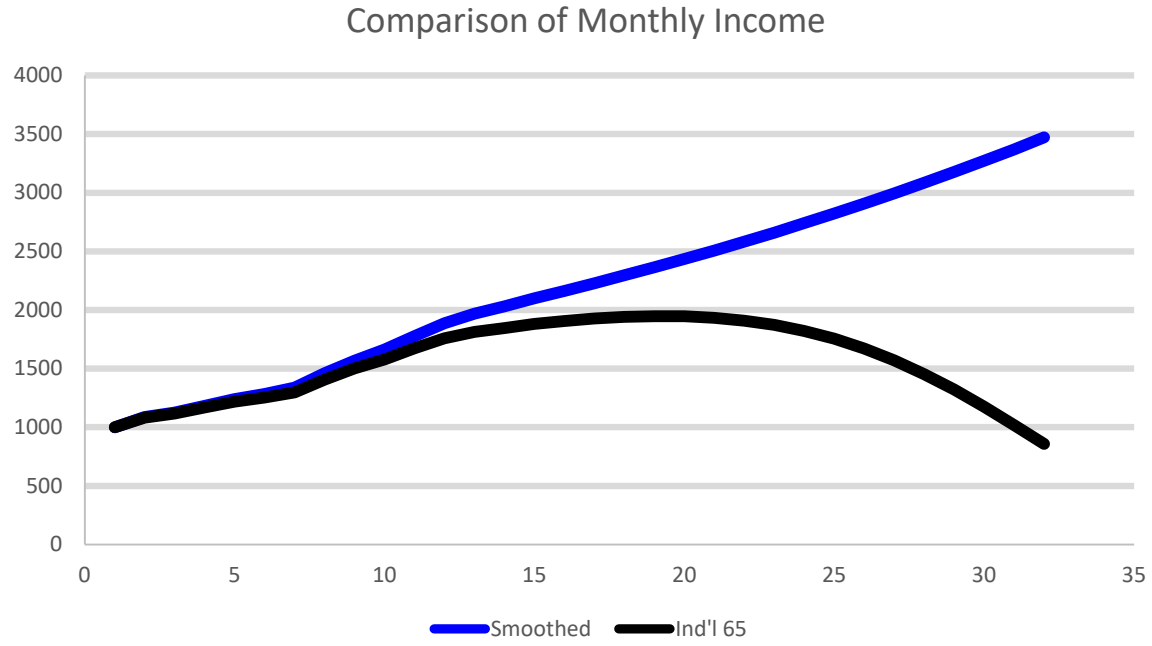
Collective and Individual Payouts (2007)



Collective and Individual Payouts (2007)



Collective and Individual Payouts (2007)



Variable Annuities for DC Plans

- Increases each year are introduced over a five-year period

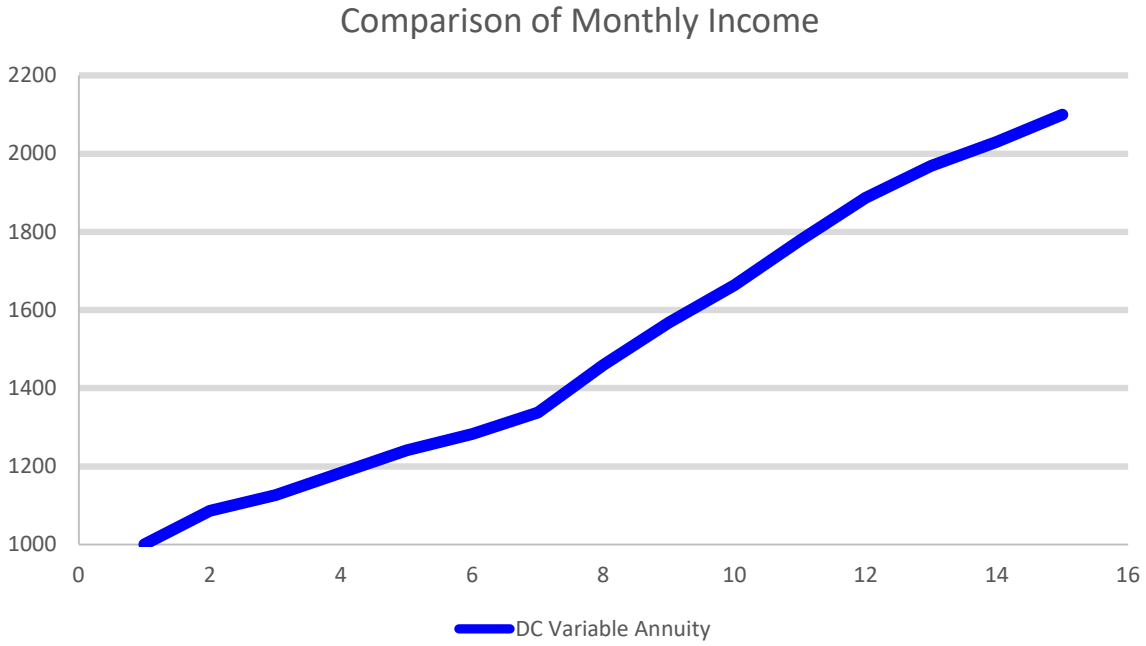
- Increases designed to maintain buying-power of pension over the long-term
- "Hurdle Annuity" established assuming the expected fund real rate of return and plan mortality basis
- Hurdle annuity uniquely defined for each Member, including scheduled increases
- Annual pension increases equal the total fund return less the amount required to support collective "hurdle annuities"

Hurdle Annuity

- Uses Hurdle Rate (e.g. 4%)
- Uses Industry Mortality Table (CPM-Priv in Canada)
- Uses member's (and spouse's) age
- Uses member's selected optional form of pension

- Valuation each year to determine pension increases

Collective DC Variable Annuity Payout (2007)



Variable Annuities for DC Plans

- Annual Valuation using hurdle annuity assumptions
- AL_n= Total Liability at time 0 for Member payments to be paid beginning at time “n”, before increase
- Rev AL = (AL_0 + AL_1 + AL_2 + AL_3 + AL_4) x Ann Inc + AL_0
- Rev AL = Assets

Ann Inc = (Assets - AL_0) / (AL_0 + AL_1 + AL_2 + AL_3 + AL_4)

Variable Annuities for DC Plans

- Collective DC Plans
- Should increases be the same for all pensioners over a five-year period?
- An 85 year old less likely to survive to receive future increases as compared to a 65 year old
- Increases could be unique but actuarially equivalent for each pensioner

Variable Annuities for DC Plans

- Assume Assets = AL_0 x 1.05
- Assume Plan has 100 65-year olds, 90 75-year olds, 67 85-year olds and 20 95-year olds all with the same pension
- Collective Ann Inc = .0120
- Age 65 Ann Inc = .0115
- Age 75 Ann Inc = .0121
- Age 85 Ann Inc = .0139
- Age 95 Ann Inc = .0187

Variable Annuities for DC Plans

- Assume Assets = AL_0 x .8 (similar to 2008)
- Assume Plan has 100 65-year olds, 90 75-year olds, 67 85-year olds and 20 95-year olds all with the same pension
- Collective Ann Inc = (.048)

- Age 95 Ann Inc = (.075)
- Stability of a Collective Increase may be better

Variable Annuity Highlights

- Third Payout Option for DC Plans (Retirement Savings Plans)
    - Insured Annuities without inflation protection
    - Individual Accounts

Variable Annuity Highlights

- Expenses Controlled
  - Investment and custodial – hurdle annuity
  - Annual administration – built into initial purchase
  - Other expenses – direct pay by plan sponsor or pensioner
- Risk Control Managed by Plan
  - Introduce “hurdle annuity” to manage additional risks
  - Pooled experience
  - Reduced costs compared with individual solutions
- Assets Always Equal Liabilities

Variable Annuity Highlights

- Efficient Payout Strategy for Inflation Protected Benefits
  - Insured Annuity provides less income (20 to 25%)
  - Lifetime LIRA payments provide less income (about 25% less to protect against running out of money 90% of time)
- Risk Control
  - Reasonable Inflation Protection
  - Longevity Risk Management
  - Expense Control
  - Appropriate Investment Risk Control

Improved Benefit Targets

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Ideal Canadian Pension Plan

- Elements of the plan include:
  - Appropriate Benefit Targets
  - Appropriate Benefit Security
  - Pooling as needed
  - Appropriate risk management
  - Efficient Cost for services

Appropriate Benefit Targets

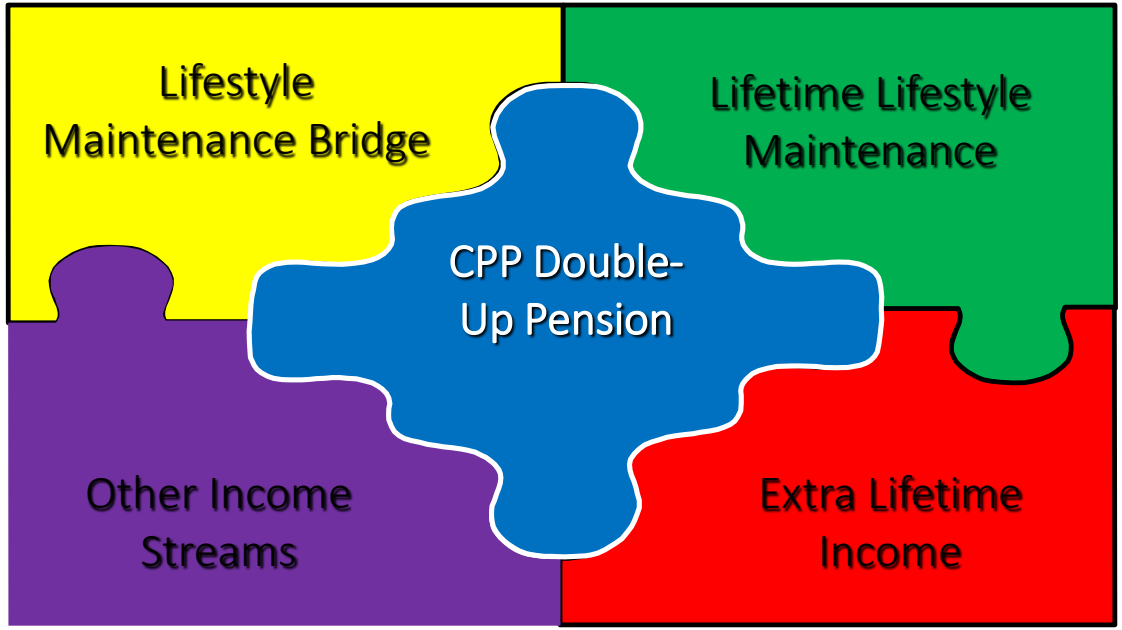
- Not all benefit need to be paid for lifetime
- Member needs change during retirement
- Other assets may be available later in life
- Traditional benefit targets are outdated

Appropriate Benefit Targets

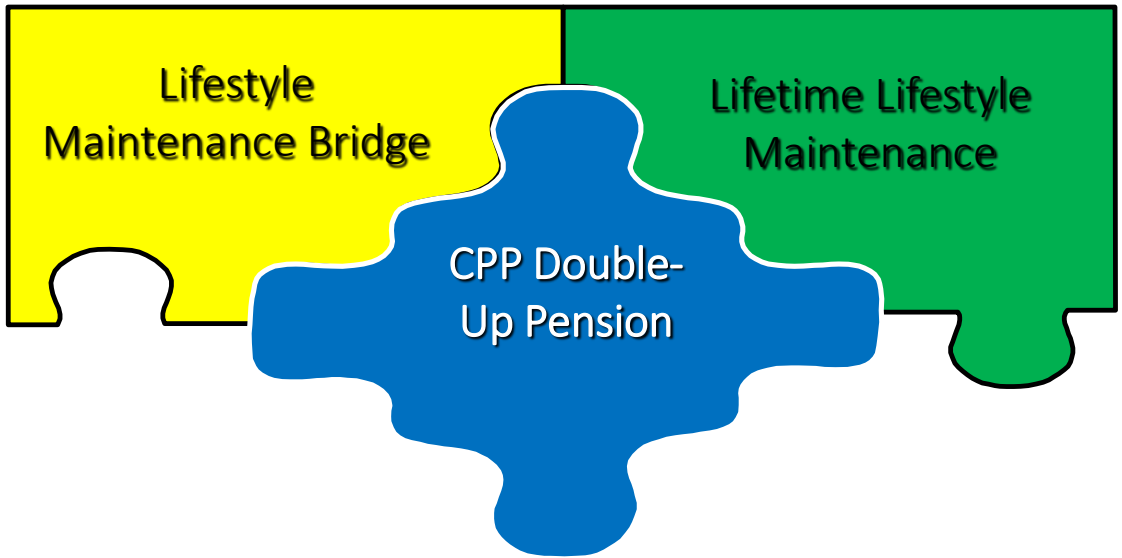
- Basic Benefits must be inflation protected and payable for lifetime

- Lifestyle Maintenance Benefits generally change during an extended retirement

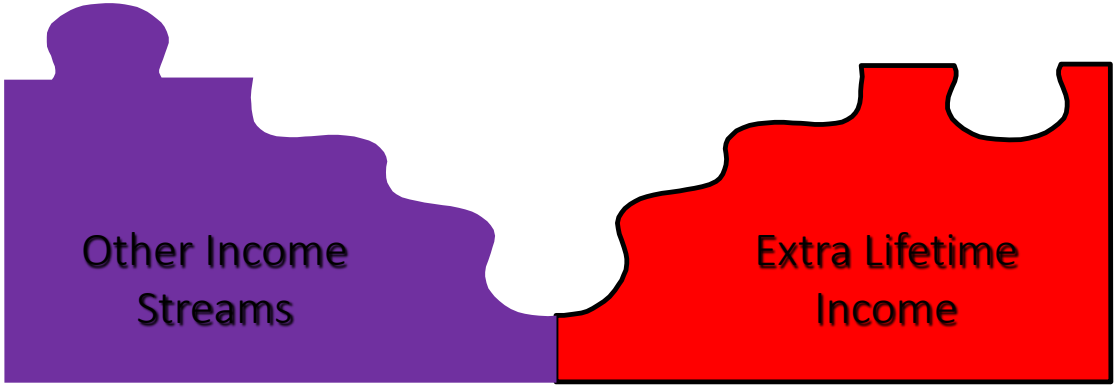
ICPP - Sources of Retirement Income



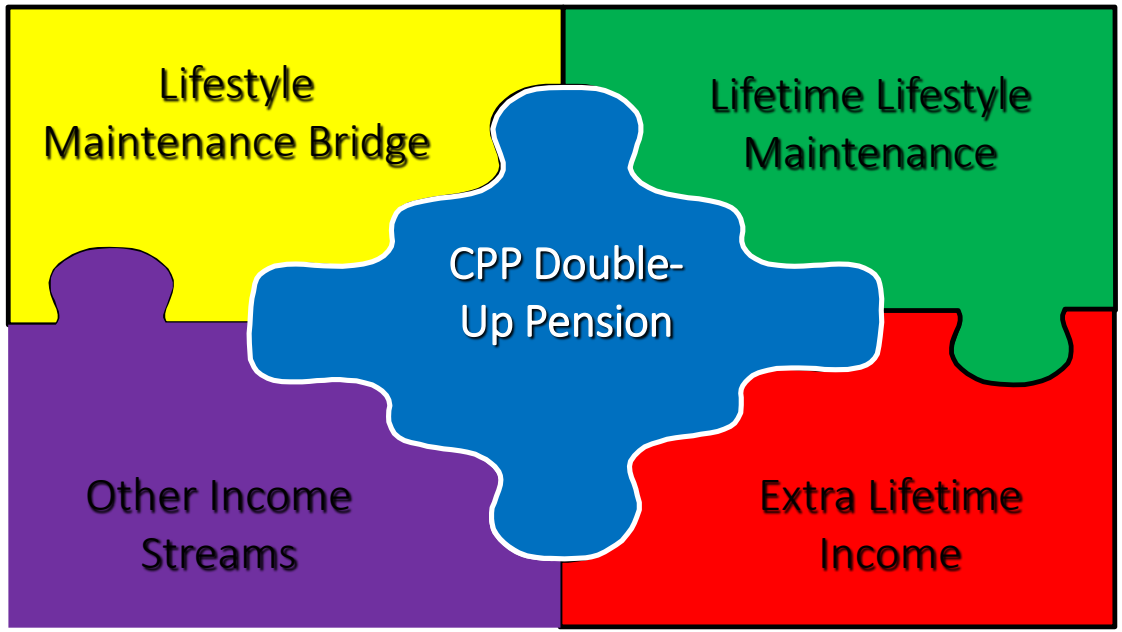
Traditional DB – Fund Payout



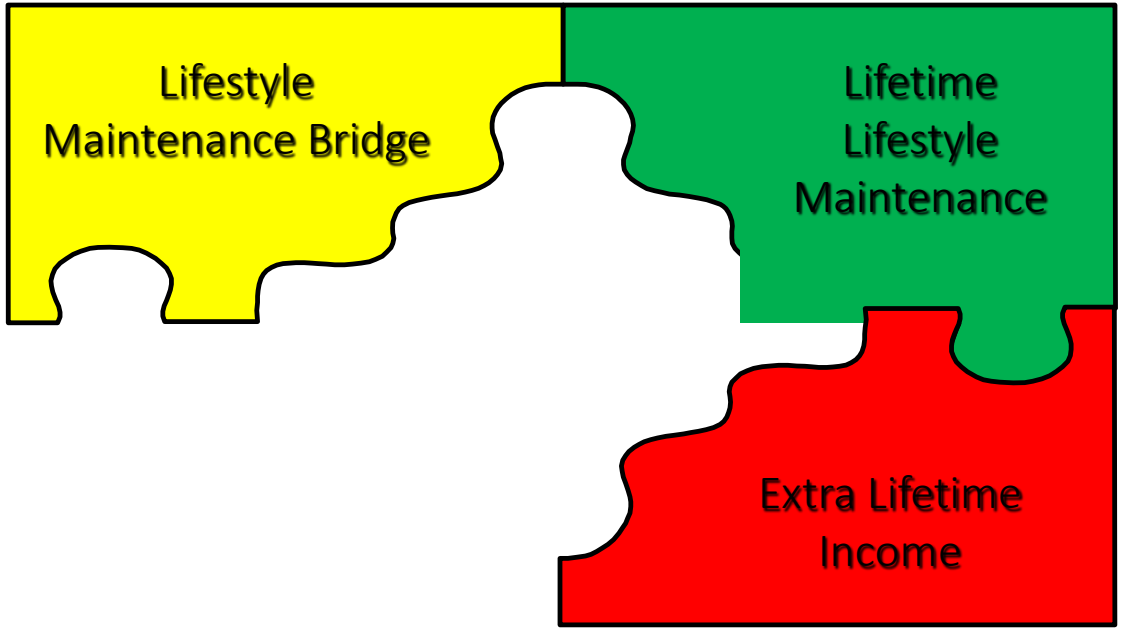
Additional - Money Purchase



Total Savings – DB/MP

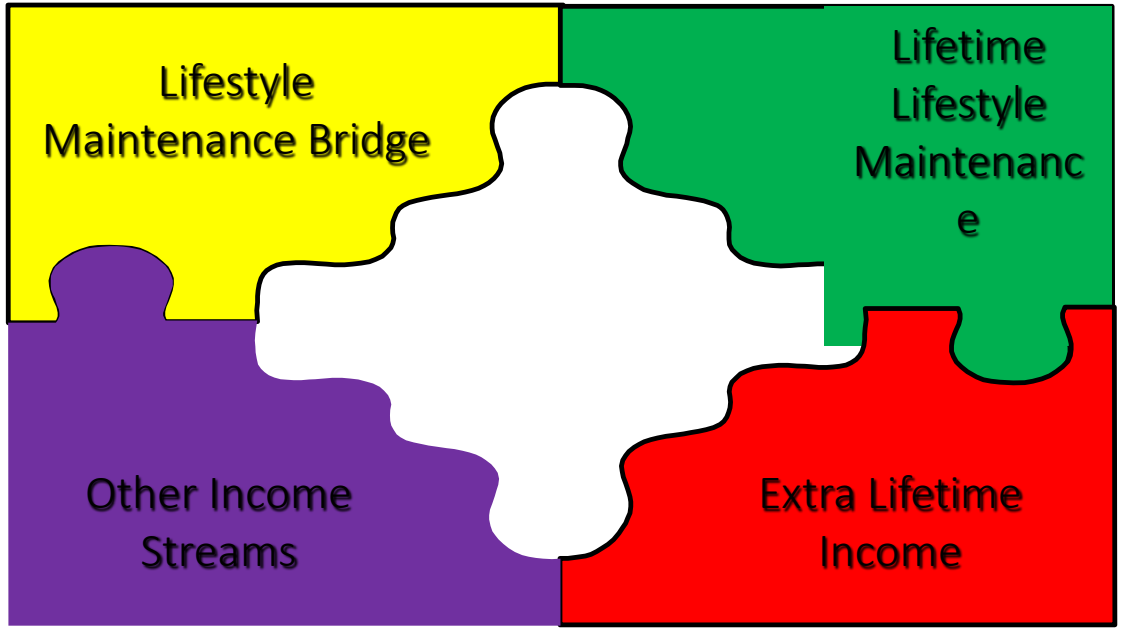


Traditional DC – Annuity Purchase



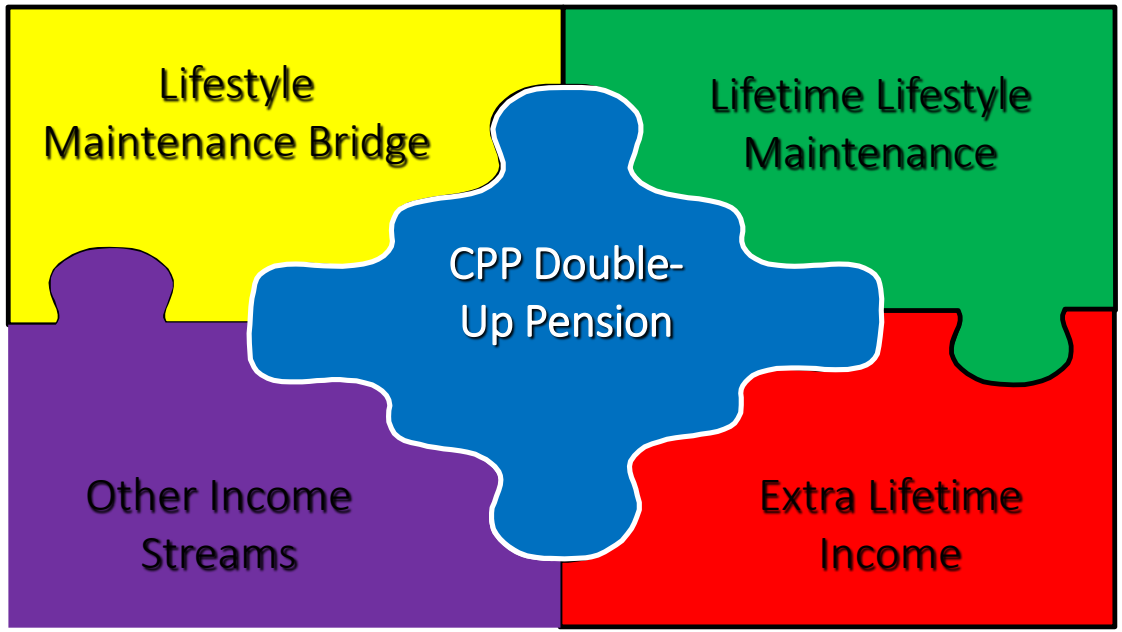
Traditional DC – Transfer to LIRA

Traditional DC - Both Annuity/LIRA



DC – Variable Annuity

New DC – Variable Annuity Added



Discussion

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Discussion topics

- What are the barriers to implementing these particular solutions?
- Are there regulatory changes that need to be made?
- Why isn’t there more take-up of existing solutions (e.g. QLACs, annuities, etc.)?

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