Session: Moving Beyond Traditional Replacement Rates
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Presentation Outline

- Background
- Conceptual
  - Replacement Rates 101
  - The Debate
  - Conclusion
- Methodological
  - Replacement Rate Building-Blocks
- Empirical support
- Wrap-up
Background


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Replacement Rates 101

Goals of Cdn Retirement Income System
1. Eliminate Elderly Poverty
2. Preservation of Standard of Living
Replacement Rates 101

Used to:

- Evaluate retirement income adequacy
  - Public systems
  - Employer Pension Plans
  - Retirement financial planning
- Examine population trends over time
Replacement Rates 101

The Goal:
Preservation of Standard of Living

- Smooth Consumption

- Smooth Disposable Income
  (= gross income - taxes - net savings)

- Adequate Gross Replacement Rate
Replacement Rates 101

Traditional Gross Replacement Rate

\[
\text{Traditional Gross Replacement Rate} = \frac{\text{Gross Retirement Income (age 65)}}{\text{Gross Pre-Retirement Final Earnings}}
\]

Target Replacement Rate < 100% (e.g. 70-80%) to recognize

- Taxes
- Children
- Savings (including Mortgage)
- Work-related expenses
The Replacement Rate Debate

- Baldwin: “Why start considering replacement of pre-retirement INCOME? After all, what is being spent today is EXPENSES, not income.”
- Gross income versus consumption
The Replacement Rate Debate

- Milevsky: “many will live 30 years or more in retirement. The risk they face is outliving their money.”
- Longevity and investment-rate risk

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The Replacement Rate Debate

- Hamilton: “normal working families once relieved of the burden of raising kids and paying mortgages and retirement savings and heavy taxes that go with working will find 50% will give them the kind of life they’re accustomed to”
- Impact of taxes, savings, and dependents
The Replacement Rate Debate

- Abboud: “you can’t eat bricks, and unless the retiree either have to borrow or sell their home to produce some form of income.”
- Importance of home equity and controversy in its treatment
The Replacement Rate Debate

- Butler: “Averages don't mean very much to the individual. Post retirement income rules-of-thumb averages are totally misleading as it all depends on your starting point and your pre-retirement income. For example, when a rule-of-thumb is used what is your starting point? Do you use your income from the day before you retire?”

- What measurement period?
The Replacement Rate Debate

- Research generally
  - determines target replacement rates, and/or
  - calculates the historical or projected replacement rates of individuals in a sample
- Wide range of methodologies and findings
Conclusion

*Complexity and Diversity*

- BETWEEN people
- ACROSS the lifecourse
Replacement Rate Building Blocks

- Unit of Analysis
- Components of Consumption
- Measurement Period
- Period-Specific Consumption
- Post-Retirement Risks
Replacement Rate
Building Blocks

Unit of Analysis

In General

- Economic welfare is best evaluated at a household level rather than at the level of the individual

Traditional Methodology

- Individual level

Moving Beyond

- Household level
Adult-Equivalent

Adult-Equivalent Consumption

\[ = \text{Total Household Consumption} \sqrt{n} \text{Family Size} \]

Captures:

- Impact of Raising Children
- Households enjoy economies of scale (not just “average”)
Example: Unit of Analysis

Year 1974:
Single Earner Household
Head aged 40 (born 1934)
5 dependents < 18 yrs old

Year 2011:
Single Earner Household
Head aged 77
No dependents
Example: Unit of Analysis

Year 1974:
Household Disposable Income: $120,000 (2011$)

Year 2011:
Household Disposable Income: $50,000 (2011$)
Example: Unit of Analysis

Year 1974:
Adult-Equivalent Disposable Income = $120,000/\sqrt{6} \approx $49,000

Year 2011:
Adult-Equivalent Disposable Income = $50,000/\sqrt{1}$
Replacement Rate Building Blocks

Components of Consumption

In General

- Traditionally a strong reliance on income data
Replacement Rate Building Blocks

Components of Consumption

Traditional Methodology

Pre-Retirement

- Employment Earnings
- Income and payroll taxes (averages)
- Savings in registered vehicles (averages)

Post-Retirement

- Government pension benefits (C/QPP, OAS, GIS)
- Employer pension benefits
- Drawdown of RRSP wealth
- Income taxes (averages)
Replacement Rate
Building Blocks

Components of Consumption

Moving Beyond

- Government transfers
  - Social assistance, employment insurance, child benefits
- Investment income
- Housing equity
  - Imputed rent
  - Mortgage payments and drawdown (controversial)
- Non-registered financial savings and debt
  - Accumulation and decumulation
- More precise treatment of taxes and registered savings
Replacement Rate Building Blocks

Measurement Period

In General: Pre-retirement

- Most substantive methodological issue
  - Complex and enormous impact on results
- Living standard over what period?
- Relationship between gross earnings and consumption
  - Extreme year-to-year earnings volatility
  - Weak relationship over short-term
Replacement Rate
Building Blocks

Measurement Period

In General: Post-retirement

- Retirement income sources tend to be smoother
- Suggests measurement period less consequential

- Exceptions:
  - Annuitized income not indexed to CPI
  - Different years of retirement between spouses
  - Spousal deaths and survival benefits
Replacement Rate Building Blocks

Measurement Period

Traditional Methodology
- Ages 60-65 for pre-retirement (5 years or less)
- Ages 65-66 for post-retirement (1 year)

Moving Beyond
- More is more - broad measurement period
- Test various ranges
Replacement Rate
Building Blocks

**Period-Specific Consumption**

In general

- Goal may not be “smooth consumption”
- Pre-retirement period-specific consumption
  - e.g., working expenses
- Post-retirement period-specific consumption
  - e.g., home care
Replacement Rate Building Blocks

Period-Specific Consumption

Traditional methodology

- Ignore or
- Diverse approaches (such as assuming a population-wide average)

Moving beyond

- Treat outside replacement rate framework
  - E.g., insurance type analysis
- Explicitly model over lifecourse
Replacement Rate
Building Blocks

Post-Retirement Risks

In general

- Replacement rate measures have not explicitly accounted for important risks of retirement that can affect a senior’s financial well-being
  - E.g., the risk of accelerating inflation, the death of a spouse, divorce, insurer default, low investment returns, annuitization rates, longevity, developing a health condition that generates significant out-of-pocket expenditures, increase in public taxes, and changes in retirement benefits by government and private plan sponsors
Replacement Rate Building Blocks

Post-Retirement Risks

Traditional methodology

- Ignore or
- Diverse methodologies (usually only consider very few)

Moving beyond

- Treat outside replacement rate framework
- Explicitly model over retirement
Empirical Evidence

- "The proof of the pudding is the eating."
  - Miguel de Cervantes Saavedra (Don Quixote. Part ii. Chap. xxiv.)
- Research tool: Statistics Canada LifePaths Population Microsimulation Model
- Only 13% of Canadians who maintained their standard-of-living after retirement had a traditional gross replacement rate between 70-80%
  - Wide distribution of target gross replacement rates (even when broken down by income and gender)
Traditional *gross replacement rate targets* are GROSSLY inadequate, owing to:

*Complexity and Diversity*

- BETWEEN people
- ACROSS the lifecourse

**Wanted**: Paradigm shift away from *Dumb* Rules-of-Thumb

Obstacles for analysts remain formidable, but better resources are available (better data, methodologies, and computer technology)