Simulated Replacement Rates for CPP Reform Options

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Agenda

1. What is the nature of the ‘pension problem’?
2. Three reform options
3. Simulation of replacement rates
4. Summary and Discussion
The nature of the ‘pension problem’

- Incomes of the elderly in Canada have been growing across the income distribution

- Some Canadians not adequately replacing their career earnings.
Notes: The data are drawn from the Survey of Consumer Finances for 1973 to 1997, and the Survey of Labour and Income Dynamics for 1998 to 2010. We graph the 10th, 50th, and 90th percentile of economic family income for families with the reference person age 65 and older (elderly) and the 50th percentile for those between 25 and 54 (prime). All dollar values adjusted to 2012.
Replacement Rate Calculations

Divide retirement income by working age income:

\[ \text{Replacement Rate} = \frac{\text{Retirement Income}_{\text{Age65}}}{\text{Earnings}_{\text{Age50}}} \]

Comments:

- Target is to have income that allows for ‘smooth’ consumption.
- Opinions differ on ‘acceptable’ range, but advice ranges from 50% to 70%.
- Misses other assets like housing
## Replacement Rates

Ostrovsky And Schellenberg (2010)

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Whether couple has pension or not</th>
<th>Neither spouse</th>
<th>One or both</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Percent with pension</td>
<td></td>
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<tr>
<td>Lowest</td>
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<td>77.3</td>
<td>22.7</td>
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<td>Replacement rates:</td>
<td></td>
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<tr>
<td></td>
<td>&lt;50</td>
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<td>0.4</td>
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<td>50-69</td>
<td>3.7</td>
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<td></td>
<td>70+</td>
<td>95.6</td>
<td>96.6</td>
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<tr>
<td>2nd</td>
<td>Percent with pension</td>
<td>46.7</td>
<td>53.3</td>
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<td>1.9</td>
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<td>50-69</td>
<td>38.9</td>
<td>28.2</td>
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<tr>
<td></td>
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<td>55.6</td>
<td>69.7</td>
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<td>3rd</td>
<td>Percent with pension</td>
<td>31.0</td>
<td>69.0</td>
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<td></td>
<td>Replacement rates:</td>
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<tr>
<td></td>
<td>&lt;50</td>
<td>23.9</td>
<td>9.4</td>
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<td>4th</td>
<td>Percent with pension</td>
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<td>77.9</td>
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<td>Replacement rates:</td>
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<tr>
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<td>70+</td>
<td>37.9</td>
<td>43.9</td>
</tr>
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</table>

Notes: For each quintile, the shaded row reports the proportion of couples for which neither has a pension and for which one or both has a pension. Below that, we show the distribution of couples in each quintile across three ranges of replacement rates. The source for all the data appearing here is Ostrovsky and Schellenberg (2010).
The nature of the ‘pension problem’

- Need to target reform to affect upper three quintiles.

- Increasing CPP at bottom actually does harm
  - forces unnecessary savings on those who are currently struggling.
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Status Quo CPP: A rough sketch

- Covers earnings up to ‘Year’s Maximum Pensionable Earnings’ (YMPE)
  - 2013 value is $51,100

- At claiming, earnings for each month of work is compared to YMPE.
  - If you were always at or above YMPE, you would get a ‘1.0’
  - If you were on average at half of YMPE, you would get a ‘0.5’
  - Call this $AVGEARN$

- Replacement rate is set at 25%.

- Earnings updated to average of last 5 YMPE’s: $\bar{YMPE}^5$

Formula:

$$CPP \text{ Pension} = AVGEARN \times 25\% \times \bar{YMPE}^5$$
Status Quo CPP: Example

\[ CPP \text{ Pension} = AVGEARN \times 25\% \times \overline{YMPE}^5 \]

A high earner who always exceeded YMPE:

\[ CPP \text{ Pension} = 1.0 \times 25\% \times 48,600 = $12,150 \text{ pa} \]

A mid earner who on average earned 75% of YMPE:

\[ CPP \text{ Pension} = 0.75 \times 25\% \times 48,600 = $9,113 \text{ pa} \]
# Reform Options:

1. **BIG CPP**  
   - **Replacement rate:** Double from 25% to 50%  
   - **YMPE:** No Change

2. **PEI**  
   - **Replacement rate:** 25% up to $\frac{1}{2}$ YMPE (no change)  
   - 40% between $\frac{1}{2}$ YMPE and YMPE  
   - 15% from YMPE to $2\times$YMPE  
   - **YMPE:** Doubled

3. **Double YMPE**  
   - **Replacement rate:** No change  
   - **YMPE:** Doubled
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Simulations

Stylized example: Young person in 2012, plans to retire at age 65
- Consider average lifetime earnings between $10,000 and $120,000
- Upon retirement, collects CPP, OAS, GIS if eligible
- Simplifying assumptions
  - Career earnings rise with YMPE
  - 2012 policy variables (tax and RIS)
  - No other income in retirement
  - Single

- Public pension replacement rate, after tax basis:
  \[ R_{65} = \frac{\text{CPP}_{65} + \text{OAS}_{65} + \text{GIS}_{65} - \text{Tax}_{65}}{\text{Earnings}_W - \text{Tax}_W} \]

- Robust to inclusion of other income, delayed retirement, province
- We don’t consider marital status – dual or single earner family, survivor benefits
After-Tax Public Pension Replacement Rates for Four Options

![Graph showing after-tax public pension replacement rates for four options: Status Quo, Big CPP, Double YMPE, and PEI. The graph plots annual earnings against the after-tax replacement rate.](image-url)
After-Tax Replacement Rates at Specific Earnings Levels
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Summary

- ‘Big CPP’
  - is poorly targeted
  - perverse impact on lower earners.

- PEI plan
  - exempts lower earning
  - provides higher replacement rates for quintiles 3 and 4.

- Double YMPE
  - exempts those below median earning
  - provides moderate boost in replacement rates for higher quintiles.
  - Doesn’t involve different (25/40/15) CPP replacement rate bands.
Discussion

Two Questions:

1. Is it government’s role to make sure people save?
   - Strong evidence of behavioural biases against saving. Ignore that?
   - Should government moderate ‘decision making failures’?

2. If we do expand CPP, how should it be done?
   - ‘Big CPP’ is a ‘big mistake’
   - PEI and Wolfson-style plans target the right set of people.
   - Expanding YMPE delivers almost same replacement rates without complexity.