# The Alberta Pension Advantage? <br> A Quantitative Analysis of a Separate Provincial Plan 

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Seminar, University of Alberta

## An Alberta Pension Plan?

## Rising interest an Alberta Pension Plan

- Long history (explicitly since 1982; speculation in 1965)
- CPP reforms in late-1990s increased interest
- Budget 2000 featured some analysis; ultimately abandoned
- Rising tensions with Ottawa post-2015 revived interest


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Source: Acacus Data (Oct 7, 2023)

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## Fair Deal Panel (May 2020), Recommendation 13: Withdraw from CPP

## Government of Alberta Study by LifeWorks

a. Sustainable contribution rate: 5.9 percent
b. Total employee+employer savings: \$5 billion per year
c. Assets transferred from CPP in 2027: $\$ 334$ billion
d. Increased CPP contribution rate: 10.5 percent

## Core Intuition of Pension Sustainability Analysis

Figure 1: CPP Assets to Expenditure Ratio


Source: 31st Actuarial Report of the CPP, Chart 15

## This Paper

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## Key Insights:

a. Clarifying the nature of pension sustainability analysis

- Simple and (to my knowledge) novel algebra
b. Transfer of CPP assets is highly uncertain
- The paper provides the most detailed interpretation to date
c. Modest potential benefits of a separate plan ( $1.3 \%$ lower rate)
- Equivalent to 0.4-0.5\% higher implied return on contributions
d. Quantitatively important risks of a separate plan
- New investment risk results relevant for smaller plans like APP


## Previous Literature

Canada/Québec Pension Plan: OSFI (2021), Retraite Québec (2021)

## Alberta Pension Plan:

- Emery and McKenzie (2000) - APP contribution rate of 8.15\%
- Robson (2000) - APP contribution rate of 7.8-9.11\%
- Brown (2000); Vaillancourt (2000)
- Alberta (2000): "potential advantage of an APP would have to be weighed against a number of complex and difficult issues"


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## Recent work that has revived interest:

- Clemens et al. (2019) - APP contribution rate of 5.9\%
- "Fair Deal Panel" relies heavily on this paper
- LifeWorks (2023) - APP contribution rate of $5.9 \%$


## The Canada Pension Plan: A Primer

## The Evolution of Canada's Pension Systems



A long and difficult road for policy makers. But CPP today is a secure and sustainable public pension system.

## Main Features of the Canada Pension Plan

Basic features of the plan are fairly simple:

- Two parts: "base" and "additional" CPP. I focus on base.
- Base is partially funded; additional is fully funded
- Base contribution rate: 9.9\%
- Pensionable earnings: $\$ 3,500$ to $\$ 66,600$ (in 2023)
- Benefits indexed to inflation (annually)
- Supplementary benefits: survivors, children, death, disability

Benefits: (One-quarter of average maximum pensionable amount over five years prior to retirement) $\times$ (earnings relative to maximum over $\sim 85 \%$ of working life)

- New benefit value (2023): \$1,300 per month max; \$700 average


## Financial Results of the CPP

## Billions of Dollars (\$)

Year Rate Contri- Expen- Net Assets Invest. (\%) butions ditures Flow (Dec 31) Income A/E

| 1970 | 3.6 | 0.8 | 0.1 | 0.7 | 3.6 | 0.2 | 24.1 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| 1990 | 4.4 | 7.9 | 10.4 | -2.5 | 40.7 | 4.4 | 3.5 |
| 2000 | 7.8 | 20.0 | 19.7 | 0.3 | 47.5 | 4.4 | 2.3 |
| 2010 | 9.9 | 35.9 | 32.0 | 3.9 | 142.5 | 11.8 | 4.2 |
| 2020 | 9.9 | 52.8 | 51.3 | 1.5 | 474.9 | 51.3 | 9.0 |
| 2025 * | 9.9 | 70.3 | 69.3 | 1.0 | 600.2 | 33.8 | 8.2 |
| 2040 | 9.9 | 124.2 | 134.4 | -10.3 | $1,326.7$ | 76.4 | 9.5 |
| 2050 | 9.9 | 176.7 | 197.2 | -20.5 | $2,198.7$ | 126.6 | 10.7 |
| 2100 | 9.9 | 928.5 | $1,246.8$ | -318.2 | $17,024.5$ | 982.4 | 13.2 |

## CPP Sustainability Improving Over Time

Figure 2: Projected CPP Asset to Expenditure Ratios


Source: Chief Actuary of Canada, various CPP actuarial reports.

## Spatial Redistribution in the CPP?

Figure 3: Base CPP net cash flow, Alberta vs Rest of Canada


Source: LifeWorks (2023)

## Spatial Redistribution in the CPP?

Figure 4: Net CPP Contributions, Raw and Adjusted (2018)

Controlling for Age, Pensionable Earnings, and Labour Force Status
Raw Data


Note: Displays the net per capita CPP contributions for each included province, both unadjusted and controlling for selected individual characteristics, as well as the 95 percent confidence intervals for the adjusted estimates.

Source: Author's calculations using SPSD/M version 30.0 microdata.

## Simple Algebra of Pension Sustainability

## Relationship to Public Debt Sustainability Analysis?

In the context of public debt sustainability, "fiscal adjustments" are

## Maintaining a stable debt/GDP ratio

$$
f=d_{0} \times\left(\frac{r-g}{1+g}\right)-\bar{p}
$$

where $\bar{p}$ is the average primary balance and $g$ is GDP growth

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In a pension plan context, the minimum contribution rate would be

## Maintaining a stable asset/earnings ratio

$$
c=\bar{b}-a_{0} \times\left(\frac{r-g}{1+g}\right)
$$

where $\bar{b}$ is the average pay-as-you-go rate and $g$ is earnings growth

## Some Basics

Static world: Total contributions $(c \times W)$ equal total benefits $(B)$

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\Rightarrow c^{*}=B / W
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$$
\begin{aligned}
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$$

Add dynamics: Discount rate $\varphi_{t}=\prod_{i=1}^{t}\left(1+r_{i}\right)$

$$
c^{*}=\frac{\sum_{t=1}^{T} \varphi_{t}^{-1} B_{t}}{\sum_{t=1}^{T} \varphi_{t}^{-1} W_{t}}=\frac{P V_{T}^{B}}{P V_{T}^{W}}
$$

## Sustainability for a Partially-Funded Plan

## Plan asset levels evolve over time

$$
A_{t}=A_{t-1}\left(1+r_{t}\right)+c W_{t}-B_{t}
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\Rightarrow A_{T} / \varphi_{T} & =A_{\mathrm{O}}+c \times P V_{T}^{W}-P V_{T}^{B} \\
\Rightarrow c \times P V_{T}^{W} & =P V_{T}^{B}-\left(A_{o}-A_{T} / \varphi_{T}\right)
\end{aligned}
$$

Intuition: Some assets $\left(A_{0}-A_{T} / \varphi_{T}\right)$ can cover expenditures; then contributions ( $c \times P V_{T}^{W}$ ) make up the rest.

- How much depends on your desired future $A_{T}$


## Sustainability for a Partially-Funded Plan

Minimum contribution rate: Assets relative to expenditures at $T$ ( $A_{T} / B_{T}$ ) will be the same as some initial year $\left(A_{0} / B_{0}\right)$

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## Minimum contribution rate

$$
\begin{aligned}
c^{*} & =\frac{P V_{T}^{B}+A_{T} / \varphi_{T}-A_{o}}{P V_{T}^{W}}, \\
& =\frac{P V_{T}^{B}}{P V_{T}^{W}}\left(1-\frac{A_{0}\left(1-\varphi_{T}^{B} / \varphi_{T}\right)}{P V_{T}^{B}}\right) .
\end{aligned}
$$

Very long-run: $c^{*} \rightarrow \frac{P V_{T}^{B}}{P V_{T}^{W}}\left(1-\frac{A_{0}}{P V_{T}^{B}}\right)$ if interest rates are high enough

## Simple Numerical Illustrations

## Canada Pension Plan, 2025-2084:

- PV earnings: \$23.8 trillion
- PV expenditures: \$2.7 trillion
- Relative expenditure growth: $31.1 \%$
- Assets: $\$ 600$ billion
$\Rightarrow$ Minimum contribution rate: $\frac{2.7}{23.8}\left(1-\frac{0.6 \times(1-0.311)}{2.7}\right)=0.095$


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$\Rightarrow$ Minimum contribution rate: $\frac{2.7}{23.8}\left(1-\frac{0.6 \times(1-0.311)}{2.7}\right)=0.095$
Clemens et al. (2019): AB was $16.5 \%$ of earnings and $10.6 \%$ of CPP expenditures, so an APP minimum contribution rate is:

$$
0.095 \times \frac{0.106}{0.165}=0.061(w / \text { some adj. for assets, leading to } 5.9 \%)
$$

## Simple Numerical Illustrations

## In the model to come, I find:

- PV earnings in Alberta is 18.4 percent of CPP
- PV expenditures in Alberta is 15.8 percent of CPP

An APP and a CPP-ex-AB depend on a comparison of these PVs

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## What happens if Alberta leaves CPP? (Abstracting from asset split)

$$
\begin{gathered}
\frac{C_{C P P, \text { New }}^{*}}{C_{C P P, \text { Old }}^{*}}=\frac{1-0.158}{1-0.184}=1.032 \Rightarrow c_{C P P, \text { New }}^{*}=0.098 \\
\frac{C_{A P P}^{*}}{C_{C P P, O l d}^{*}}=\frac{0.158}{0.184}=0.86 \Rightarrow c_{\text {APP }}^{*}=0.082
\end{gathered}
$$

## Neutral Asset Splits

Definition: An asset split is neutral if

$$
\left(1-\frac{A_{0}\left(1-\varphi_{T}^{B} / \varphi_{T}\right)}{P V_{T}^{B}}\right)
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is the same in both APP and CPP-ex-AB systems.

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is the same in both APP and CPP-ex-AB systems.

This implies,

$$
\left(\frac{A_{0}^{A B}}{A_{0}^{R o C}}\right)=\left(\frac{P V_{T}^{A B, B} /\left(\varphi_{T}-\varphi_{T}^{A B, B}\right)}{P V_{T}^{R O C, B} /\left(\varphi_{T}-\varphi_{T}^{R O C, B}\right)}\right),
$$

which (it turns out) implies 19.7 percent of CPP assets for APP

Model

## Demographic Projections

## A population transition matrix $A$ and migration vector $M$

- Two-sex Leslie model with age-specific fertility rates
- Sex- and age-specific survival and migration probabilities
- Mortality improvements over time

$$
\mathbf{P}^{\prime}=\mathbf{A} \cdot \mathbf{P}+\mathbf{M}
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$$

| Year | Population <br> (Millions) | Persons 18-64 <br> per person 65+ | Male Life <br> Expectancy | Female Life <br> Expectancy |
| :--- | ---: | ---: | ---: | ---: |
| 2030 | 5.1 | 3.4 | 81.6 | 85.5 |
| 2050 | 6.8 | 2.8 | 83.3 | 86.9 |
| 2070 | 8.7 | 2.7 | 84.8 | 88.1 |
| 2090 | 11.2 | 2.6 | 86.2 | 89.2 |

## Summary of Basic Initial Parameters and Assumptions

## Intial parameters:

- Number of APP contributors: 16\% of CPP in 2025
- Number of APP beneficiaries: $13 \%$ of CPP in 2025
- Alberta new benefit levels: $5 \%$ higher than CPP in 2025


## Baseline assumptions:

- Inflation: 2\%
- Labour productivity growth: 0.9\%
- Earnings-distribution: stable
- Non-retirement benefits: $1.7 \%$ of earnings
- Operating expenditures: 0.1\% of earnings
- Mortality improvement rate: 0.8\%
- Real investment returns: 4\%
- Fertility rate: 1.75
- Net migration rate: 1.0\%


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- Operating expenditures: 0.1\% of earnings
- Mortality improvement rate: 0.8\%
- Real investment returns: 4\% (LifeWorks: 3.7\%)
- Fertility rate: 1.75 (LifeWorks: 1.5)
- Net migration rate: 1.0\% (LifeWorks: 0.7\%)


## How to Split the CPP Assets?

Base CPP assets in 2025 projected to be approximately $\mathbf{\$ 6 0 0}$ billion
The Canada Pension Plan Act governs the assets that are transferred to a separating province with a comparable plan
... but it is unclear


For Alberta today, this is a roughly \$200 billion problem!

## Section 113(2) of the CPP Act: A Four-Step Procedure

.. shall be calculated by the Minister of Finance as the amount obtained by adding
(a) the total amount of all contributions credited to the Canada Pension Plan Account and the Additional Canada Pension Plan Account, to the day on which the regulation referred to in subsection (1) became effective, in respect of employment in that province or in respect of self-employed earnings of persons resident in that province, and
(b) the part of the net investment return of the Investment Board and all interest credited to or accrued to the credit of the Canada Pension Plan Account and the Additional Canada Pension Plan Account, to the day on which the regulation referred to in subsection (1) became effective, that is derived from the contributions referred to in paragraph (a),
and subtracting from the total so obtained
(c) such part of all amounts paid as or on account of benefits under this Act as would not have been payable under this Act if that province had been a province described in paragraph (a) of the definition province providing a comprehensive pension plan in subsection 3(1), and
(d) the part of the costs of administration of this Act, to the day on which the regulation referred to in subsection (1) became effective, that is equal to the proportion of those costs that the total amount of the contributions referred to in paragraph (a) is of the total amount of all contributions credited to the Canada Pension Plan Account and the Additional Canada Pension Plan Account to that day.

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## Step 1: Total All Contributions Paid from Alberta

## Section 113(2), Paragraph (a)

... the total amount of all contributions credited to the Canada Pension Plan Account and the Additional Canada Pension Plan Account, to the day on which the regulation referred to in subsection (1) became effective, in respect of employment in that province or in respect of self-employed earnings of persons resident in that province

Practical challenge: public data based on residence

- Alberta, 1966-2025: \$203 billion


## Step 2: Allocate Part of the CPPIB Investment Returns

## Section 113(2), Paragraph (b)

... the part of the net investment return of the Investment Board and all interest credited to or accrued to the credit of the Canada Pension Plan Account and the Additional Canada Pension Plan Account, to the day on which the regulation referred to in subsection (1) became effective, that is derived from the contributions referred to in paragraph (a)

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Conceptual challenge: What does "derived from" mean?

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## Historical Aside!!

## The original CPP was very different

- Excess contributions over revenues loaned to provinces
- Total bonds purchased from each province was equal to their contribution shares
- Ten-year rolling average


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- Excess contributions over revenues loaned to provinces
- Total bonds purchased from each province was equal to their contribution shares
- Ten-year rolling average


## All interest credited to the CPP Account was from provincial bonds

The "part of all interest credited to the CPP Account ... that is derived from contributions" was therefore equal to that province's (10-year rolling average) contribution share

- Alberta, 1966-2021: 15.5-16\% $\rightarrow$ \$85 billion


## Historical Aside!

Hon. Mr. McCutcheon: It hardly is an administrative difficulty that sets the formula for investment; in other words, you are going to keep nine sets of books.

TIIr. BRYCE: Buried away in the computer will be all these records. Stored the memory of the computer will be sufficient information to constitute these aceewnta if necessary, but we would not pronose to koop these accounts in our regular books.

Source: Joint Committees, 26th Parliament, 2nd Session : Special Joint Committee on Canada Pension Plan, vol. 1, 401-402.

## Historical Aside!!

Hon. Mr. McCutcheon: I take it you are going to charge your administration on a general pro rata basis?

Mr. Bryce: Yes. Now, to complete my answer to your question, there may be some difficulties where we have different rates of interest owing to the fact that we have to allow the interest payable on the operating balance, so to speak, and things of this sort, but I assume we can resolve this with reasonable equity.

Hon. Mr. McCutcheon: By and large the interest will be charged on what I might call the net balance and payments in and payments out, like administration charges.

Mr. Bryce: Yes.
Mr. Chatterton: But the amount that is to be paid to the provincial government, except in so far as interest is concerned, does not depend on the payments out.

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... alas, he never did

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Mn mivison: From the total of the two amounts described in paragraphs (a) and (b) there would be subtracted, in arriving at the amount to be transforred, two separate amounts described in paragraphs (c) and (d)

Paragrapir (C) deveniboothe amount-of the berrefts that have been paid but that would not have been paid if the province in question had been a province having its own pension plan from the inception of the federal plan.

Paragraph (d) describes part of the cost of administration of the act up to the time when the regulation became effective, computed according to the proportion-such costs of administration up to that time that the total of the contributions referred to in paragraph (a)-that is to say, the contributions that derive from employment or self-employed earnings in that province -is of the total amount of all contributions credited to the account up until the same day.
Source: Joint Committees, 26th Parliament, 2nd Session : Special Joint Committee on Canada Pension Plan, vol. 1, 401-402.

## Step 3: Total All Benefit Expenditures

## Section 113(2), Paragraph (c)

... such part of all amounts paid as as or on account of benefits under this Act as would not have been payable under this Act if that province had been a province described in paragraph (a) of the definition province providing a comprehensive pension plan in subsection 3(1) [to recipients of the separating province]

Practical challenge: publicly available expenditure data based on residence (bigger problem than paragraph (a))

- Alberta, 1966-2025: \$136 billion


## Step 4: Apportion Administration Costs

## Section 113(2), Paragraph (d)

the part of the costs of administration of this Act, to the day on which the regulation referred to in subsection (1) became effective, that is equal to the proportion of those costs that the total amount of the contributions referred to in paragraph (a) is of the total amount of all contributions credited to the Canada Pension Plan Account and the Additional Canada Pension Plan Account to that day.

Practical challenge: Same as paragraph (a). But conceptually easy.

- Alberta, 1966-2025: 16\% $\rightarrow$ \$2 billion


## The End Result! \$150 billion (in 2025)

The amount of assets transferred to Alberta $A_{i}$ is given by:

$$
A_{i}=\underbrace{C_{i}}_{\substack{\text { Para }(\mathrm{a}) \\
\$ 203 \text { billion }}}+\underbrace{r_{i} \times 1}_{\begin{array}{c}
\text { Para }(\mathrm{b}) \\
\$ 85 \mathrm{~b}
\end{array}}-\underbrace{B_{i}}_{\substack{\text { Para }(\mathrm{c}) \\
\$ 136 \mathrm{~b}}}-\underbrace{o_{i} \times 0}_{\begin{array}{c}
\text { Para }(\mathrm{d}) \\
\$ 2 \mathrm{~b}
\end{array}}
$$

where $C_{i}$ is total contributions by Albertans, $B_{i}$ is total plan benefits to Albertans, $I$ is the total net investment income credited to the CPP Account, and $O$ is total operating costs of the CPP. The terms $r_{i}$ and $o_{i}$ are the share of total net investment income and operating costs

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\end{array}}
$$

where $C_{i}$ is total contributions by Albertans, $B_{i}$ is total plan benefits to Albertans, $l$ is the total net investment income credited to the CPP Account, and $O$ is total operating costs of the CPP. The terms $r_{i}$ and $o_{i}$ are the share of total net investment income and operating costs

This is VERY different than analysis preferred by the Government of Alberta, which adopts a method that deviates from the text

## Uncertainties in the Asset Split Estimate

## Material uncertainty in two main components of formula

- Contributions only known by residence
- Benefits by province not tied to historical contributions by province of work

Some evidence that Alberta workers who retire elsewhere receive larger CPP benefits (roughly 5\%) than non-Albertan workers who move to retire in Alberta

Some discretion to federal Minister of Finance

## Baseline estimate assumes for 20\%

- In line with stated intent of Pearson's government (asset split related to future obligations), although that is likely irrelevant


## But What About John Robarts!?

## Robarts wanted an option to leave and <br> ... be placed in precisely the same financial position as if [Ontario] had operated an identical but separate plan from the outset... [this] was accepted and Bill C-136 allows such opting out with transfer of assets. <br> Result: \$300 billion in 2025 <br> Intuitively correct originally. Is it correct anymore? <br> Does it even matter?



Source: Legislative Assembly of Ontario

## Quantitative Results

## Projected APP Asset to Expenditure Ratio

Figure 5: Ratio of APP Assets to Expenditures, 2025 to 2100

- At APP Minimum Contribution Rate of $8.2 \%$ At CPP Minimum Contribution Rate of $9.5 \%$


Note: Displays the projected ratio of total APP assets to expenditures from 2025 to 2100 using the estimated minimum contribution rates for APP and CPP.

## Sensitivity of Baseline Estimates to Risks

|  | Real Investment Returns |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Scenario | $3 \%$ | $3.5 \%$ | $4.0 \%$ | $4.5 \%$ | $5 \%$ |
| Baseline | 9.4 | 8.8 | 8.2 | 7.6 | 7.1 |
| National average fertility rate | 9.5 | 9.1 | 8.4 | 7.8 | 7.2 |
| National average net migration rate | 9.8 | 9.2 | 8.5 | 7.8 | 7.2 |
| Zero net migration | 10.5 | 9.7 | 9.0 | 8.2 | 7.5 |
| No mortality improvements | 8.5 | 8.0 | 7.5 | 6.9 | 6.4 |
| Mortality improvement rate doubles | 10.1 | 9.5 | 8.8 | 8.2 | 7.6 |
| Five percent higher expenditures | 9.8 | 9.2 | 8.6 | 8.1 | 7.5 |
| Ten percent higher expenditures | 10.3 | 9.7 | 9.1 | 8.5 | 7.9 |
| Initial assets at \$90 billion | 9.6 | 9.1 | 8.6 | 8.2 | 7.7 |
| Initial assets at \$150 billion | 9.3 | 8.5 | 7.8 | 7.1 | 6.4 |
| Initial assets at \$300 billion | 8.6 | 7.2 | 5.8 | 4.5 | 3.2 |
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## Investment Risks Are Large

Each 1 percentage point drop in investment returns increases the APP minimum contribution rate by 1.2 percentage points

- Larger than the CPP sensivity, which is 1:1
- Especially relevant if APP funds used for local investments


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Volatility is critical for long-run projections
Portfolio composed of 70/30 equity/debt

- One-year standard deviation in returns of $10.7 \%$
- Large variation relative to expected returns of $6 \%$

Less well known: positive skew in long-run compound returns

## Why Positive Skew in Investment Returns Matters

At 7\% return, will take $\sim 10$ years to double $[\ln (2) / \ln (1.07)]$
Things are different with stochastic returns. Consider an iid log-normal distribution of returns

- With $17 \%$ annual volatility (U.S. equity): $50 \%$ probability of doubling in 13 years, $30 \%$ prob. in 20 years
- With $30 \%$ annual volatility (emerg. mkt.): $50 \%$ probability of doubling in 22 years, $30 \%$ prob. in 59 years


## Bessembinder (2018), Farago and Hjalmarsson (2023)

- Example: returns either $-20 \%$ or $20 \%$ with equal prob.
- Two-period mean is 0\%; but two-period median is -4\%


## APP Investment Risks Are Large

Figure 6: Distribution of Minimum Contribution Rates


Note: Displays the projected minimum contribution rates for a separate APP under a range of investment returns calibrated to reflect historical experiences. Based on one million simulations of normally distributed annual returns with a six percent nominal return and 10.7 percent standard deviation.

## APP Investment Risks Are Large

Simulate one million draws from normally distributed one-year returns, mean $6 \%$ and standard deviation of $10.7 \%$ (as in CPP)

- Median annual compound rate of return: 5.5\%


## Critical risk metrics for an Alberta Pension Plan:

- Probability minimum contribution rate exceeds $8.2 \%$ : $67 \%$
- Median minimum contribution rate by 2084: 8.9\%
- Median minimum contribution rate for infinite horizon: 9.6\%


## Nominal Internal Rates of Return, CPP vs APP

Implied rate of return to contributor depends on future benefits relative to contributions

For someone with maximum pensionable earnings:

| Age at Death | Canada <br> Pension Plan | Alberta <br> Pension Plan |
| :---: | ---: | ---: |
| 70 | $-3.5 \%$ | $-2.6 \%$ |
| 75 | 0.7 | 1.4 |
| 80 | 2.5 | 3.0 |
| 85 | 3.5 | 4.0 |
| 90 | 4.1 | 4.5 |
| 95 | 4.5 | 4.9 |
| 100 | 4.8 | 5.2 |

## Another Way to Quantify the Benefits

At an 8.2\% minimum contribution rate, room for:

- Boost benefit spending by 5 percent,
- Lower business contribution rate by 0.5 points, and
- Lower worker contribution rate by 0.5 points.


## Maximum monthly savings per worker: \$26

- Can be viewed as the cost of insurance against interprovincial migration risk and elevated demographic/investment risks
- Present value over lifetime: \$12,000


## Conclusion

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The paper provides an updated analysis on the financial viability of an Alberta Pension Plan

- While feasible, benefits are modest, and increasing benefits while reducing contributions may be difficult
- Division of assets from the Canada Pension Plan is problematic due to the vagueness of the Act
- An APP is more sensitive to underlying migration, mortality, and investment risks than CPP
- An APP minimum contribution rate is $8.2 \%$, but with investment risks there is a $\mathbf{1 / 3}$ probability the MCR exceeds $\mathbf{9 . 5 \%}$

Potential benefits of an APP must be weighed against the risks


[^0]:    0-500. Aherre ofly

