

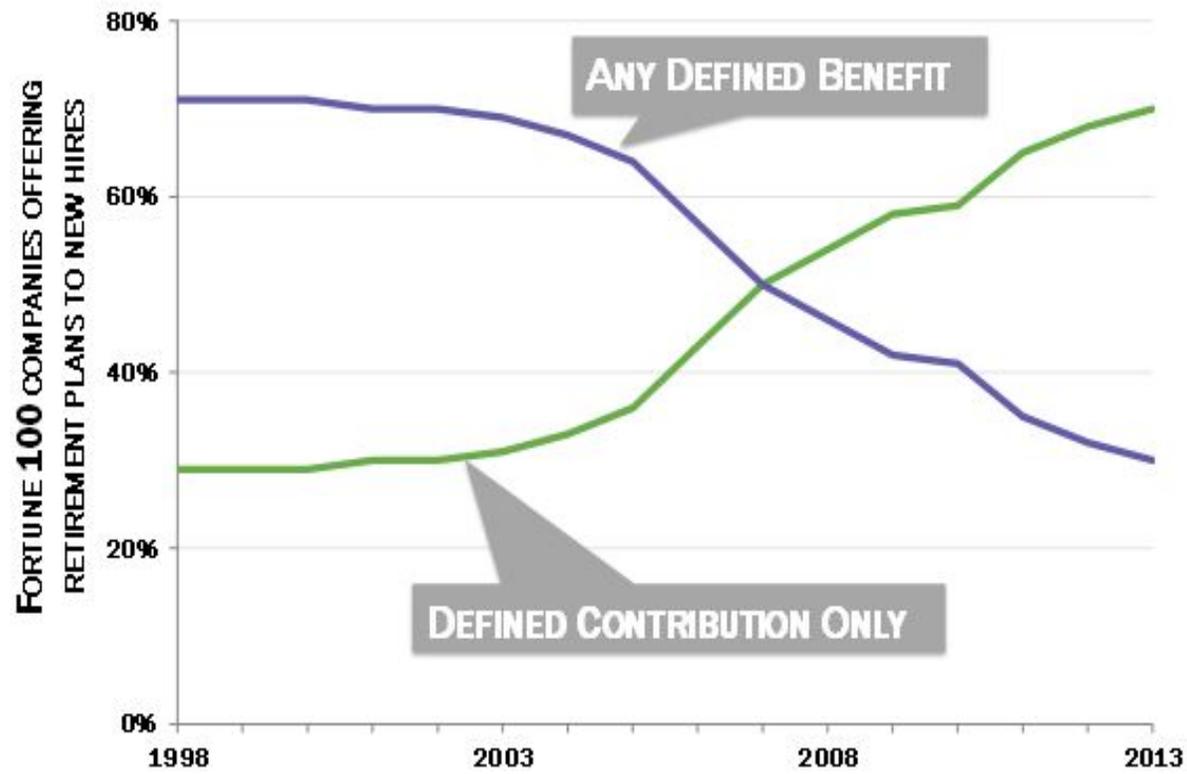
# Pension Design Innovation

Peter Diamond

Pension Reforms in Europe

November 9, 2018

## A SHIFT TO DEFINED CONTRIBUTION PLANS



Source: Towers Watson  
WWW.BIPARTISANPOLICY.ORG



# Decline of DB pensions in the UK

Since late 1990s, c8000 private-sector DB schemes gradually closed, replaced mainly by DC with low contributions.

# Issues

- Improve DC accumulation
- Innovate risk-sharing
- Improve annuitization

# DC accumulation approaches

- Small number of dedicated firms (Chile)
- Wide market access (Australia, Hong Kong)
- Single central organizer (Premium Pension (Sweden), NEST (UK), TSP (US))

# Chile: Auction Mechanism (2008 reform)

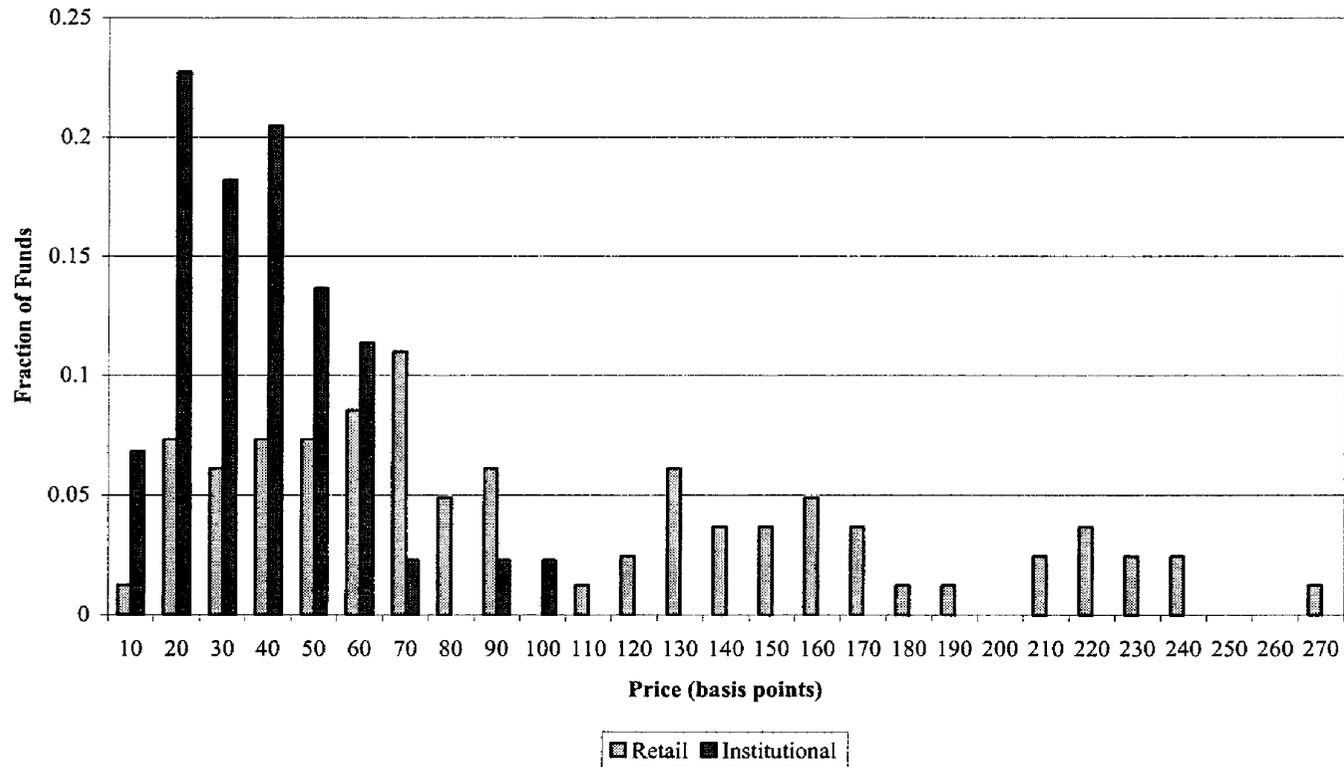
AFPs bid for all new entrants to the labour force over a two-year period, who have to stay with the winning bidder for at least 18 months.

The AFP has to offer the same low commission to its existing members and to any new members.

After 18 months, the AFP can increase its commission for all members, preserving uniformity.

# 2000 Price Histograms

## Retail and Institutional S&P 500 Funds



Source: Figure II., Hortacsu, A. & Syverson, C., 2003. Product Differentiation, Search Costs, and Competition in the Mutual Fund Industry: A Case Study of the S&P 500 Index Funds.

# CATERING TO INVESTORS THROUGH SECURITY DESIGN: HEADLINE RATE AND COMPLEXITY

Claire Célérier, Boris Vallée, November 1, 2016

This study investigates how banks design financial products ... Using a text analysis of the payoff formulas of the 55,000 products issued in Europe from 2002 to 2010

These products typically offer a high return under their best-case scenario –the headline rate– that is nested in a complex payoff formula. ...

... In the cross section, the headline rate of a product is positively correlated with its level of complexity and risk.

# Overview of the Hong Kong Mandatory Provident Fund System

Findings of the Cost Study probably suggest that **it is not enough merely to rely on market forces to drive down fee levels of MPF funds.**

Source: *Legislative Council Secretariat IN07/12-13, Research Division,*

## Hong Kong Fund Expense Ratio (FER %) (as of June 2016)

| Fund Type                  | Number of Funds | Average | Lowest | Highest |
|----------------------------|-----------------|---------|--------|---------|
| Equity                     | 180             | 1.58    | 0.63   | 2.29    |
| Mixed Assets               | 183             | 1.72    | 0.70   | 2.11    |
| Bond                       | 49              | 1.38    | 0.78   | 1.90    |
| Guaranteed                 | 27              | 2.08    | 1.29   | 3.75    |
| Conservative               | 12              | 0.69    | 0.13   | 1.21    |
| Money Market<br>and Others | 13              | 1.17    | 0.60   | 1.39    |

## Decline in Value of Accounts Due to Fees After a 40-Year Work Career <sup>a</sup>

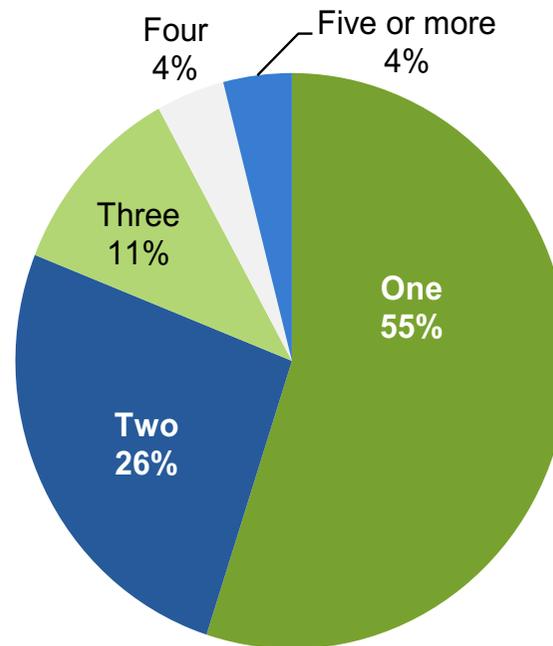
| Type and Level of Fees                            | Percentage Decline in Account Value Due to Fees |
|---|---|
| Front-load fees (% of new contributions) of:      |   |
| 1 percent   | 1 %   |
| 10 percent  | 10 %  |
| 20 percent  | 20 %  |
| Annual management fees (% of account balance) of: |   |
| 0.1 percent                                       | 2.2 %   |
| 0.5 percent                                       | 10.5 %  |
| 1.0 percent                                       | 19.6 %  |

a. Assuming real wage growth of 2.1 percent and a real annual return on investments of 4 percent. With a larger difference between the rate of return and the wage growth rate, the charge ratio with annual management fees is slightly larger, and conversely.

Australia: Superannuation: Assessing Efficiency and Competitiveness  
Productivity Commission Draft Report, April 2018

- While some funds consistently achieve high net returns, a significant number of products ... underperform markedly
- Fees remain a significant drain on net returns.
- members lack access to quality, comparable information to help them find the best products.
- Inadequate competition, governance and regulation have led to these outcomes.

# Number of Superannuation Accounts Held



Source: Figure B.1, Australian Government, Productivity Commission, How to Assess Superannuation Competitiveness and Efficiency, Draft Report., 2016.

## Hong Kong MPF Default Investment Strategy

Life-cycle mix of two funds, with declining risk with higher ages.

Fees and expenses cannot be higher than 0.75% and 0.2% of net asset value of the fund, respectively.

## Australia: superannuation default

- The report proposes to change the default process based on a provided **top-ten MySuper** list.
- Workers can choose from the list or from outside the list.
- Workers who make no choice are allocated to a fund in the list on a ‘cab-rank’ basis.
- Workers changing employers without declaring a new provider would stay in their existing fund, whether it was a previous choice or resulted from a default.

# DC accumulation approaches

- Small number of dedicated firms (Chile)
- Wide market access (Australia, Hong Kong)
- Single central organizer (Premium Pension (Sweden), NEST (UK), TSP (US))

## Sweden: Premium Pension in 2016

- Government collects contributions and does record-keeping.
- A government fund competes with the private funds and provides the default.
- 843 private funds administered by 108 management companies
  - 573 equity funds
  - 97 mixed funds
  - 41 generation funds
  - 132 interest funds

## Sweden: Premium Pension fees, 2016

- Administration cost: 0.07%.
- Rebate on the ordinary expenses of the funds, equivalent to a reduction in fund management fees of about 0.49 percentage points.
- The capital management fee is 0.23 percent (excluding transaction costs of .05).
- AP7 default funds yearly fees:  
Equity Fund 0.14% and Fixed Income Fund 0.05%.

## UK: National Employment Savings Trust (NEST)

- Automatic enrolment into NEST or other occupational plan
- Choice from small number of funds
- Centralised account administration
- Wholesale fund management
- Savings fully portable; and more than one employer can contribute to a member's savings pot

## UK: National Employment Savings Trust (NEST)

- NEST is completely free for employers to use.
- Members pay annual management charge of 0.3 per cent of retirement pot  
and a temporary
- 1.8 per cent charge on contributions, slowly covering startup costs, after which it stops.

# U.S. Thrift Savings Plan Funds

- Government Securities Investment (G) Fund
- Fixed Income Index Investment (F) Fund
- Common Stock Index Investment (C) Fund
- Small Capitalization Stock Index (S) Fund
- International Stock Index Investment (I) Fund.

and

- Lifecycle funds, which are invested in the individual TSP funds—G, F, C, S, and I.

# Explicit risk sharing

- National plan with buffer fund (Inkomstpension (Sweden))
- Partially-funded national plan (Canada Pension Plan)
- Fully-funded public employer (New Brunswick (Canada), Wisconsin, South Dakota (US))
- Fully-funded private employer (Netherlands, UK)

# Equivalent rates of return

- DC: Only safe asset **2%** real return
- DC: Also risky asset iid risk  $E r = 5.9\%$  ann risk of SP500  
Equivalent to safe return of **3.33%**
- DB: max chosen for zero expected growth of fund under optimal policy  
Equivalent to safe return of **4.39%**
- DB with participation constraint as in Netherlands:  
Equivalent to safe return of **3.83%**

Christian Gollier, 2008, Intergenerational risk-sharing and risk-taking of a pension fund. *Journal of Public Economics*, 92, 5-6, 1463-1485.

# Sweden: Inkomstpension balancing

## Assets

The value of assets of the National Pension Funds

plus

the contribution asset, equal to the pension liability that the contribution revenue for the accounting year could finance if the conditions prevailing at the time of valuation remained constant.

## Liabilities

Pension balances of insured persons who have not begun to draw an old-age pension

plus

annual amounts to retirees multiplied by the expected number of years for which the amount will be disbursed. The number of years is discounted in order to reflect the indexation.

## Sweden: Inkomstpension balancing

- Balance ratio is assets/liabilities, lagged for data availability.
- Damped balance ratio is equal to 1 plus one-third of the difference between the balance ratio and the number 1.
- If the balance ratio is less than 1.0, the balance index is used instead of the income index,  $B_t = I_t \cdot BT^*$ , so indexation of pensions and pension balances is reduced.
- After balancing, later surpluses are used to increase indexation and thus to restore the value of pensions.

# Canada Pension Plan

Every three years, the Chief Actuary of Canada reviews the contribution rate required to sustain the CPP over the next 75 years.

Insufficient rates provisions of Base CPP  
serve as a safety net in case of political impasse

If the minimum contribution rate is higher than the  
legislated contribution rate

AND

if the federal and provincial finance ministers cannot  
reach an agreement

THEN

Contribution rate increased by  $\frac{1}{2}$  of excess over three  
years

Benefits frozen until next review (3 years).



## The Case for Collective DC

November 2013

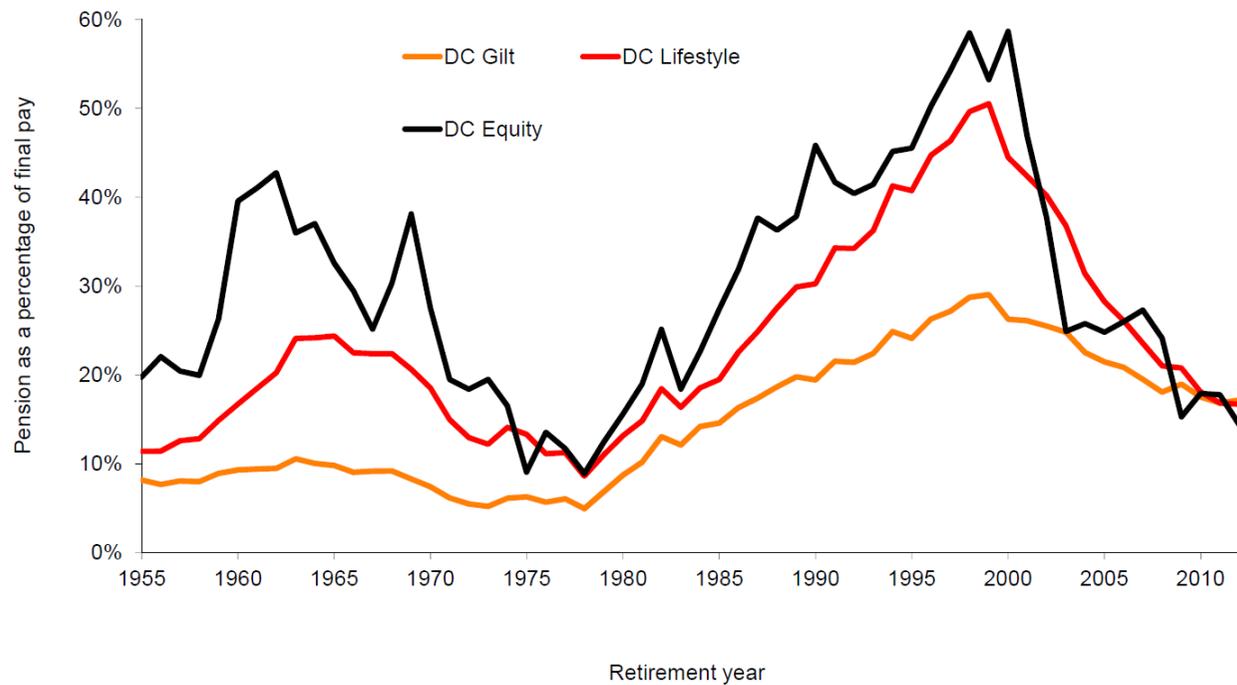
A new opportunity for UK pensions

An Aon Hewitt White Paper

Prepared by:  
Kevin Wesbroom  
David Hardem  
Matthew Arends  
Andy Harding

**AON** Hewitt

Historic DC outcomes: The chart shows vividly the extreme range of outcomes a member might have experienced - ranging between 6% and 60% of final pay.



: Figure 1, Wesbroom et al. "The Case for Collective DC, A new opportunity for UK Pensions," *Aon Hewitt White Paper*, Nov 2013.

## Collective Advantages (Aon Hewitt, 2013)

In our view the two strongest advantages of CDC plans over the best of DC solutions found in the market at present are:

- The mixture of risk that can be taken on behalf of plan members allows optimisation of investment returns over time and avoids decisions being driven by short-term issues.
- The fact that pensions are paid from the plan rather than being purchased by way of annuities in the open market means that greater amounts can be held in return seeking assets, thereby leading to superior expected outcomes.

In addition, avoiding an annuity purchase means that the profit margin and cost of capital for an insurer are avoided, and more of the assets are applied to improving members' benefits.

## New Brunswick Public Service Pension Plan

The purpose is to provide secure pension benefits without an absolute guarantee, but with a high degree of certainty that base benefits can be met in the vast majority of potential future economic scenarios.

Future cost of living adjustments and other ancillary benefits such as early retirement subsidies will only be provided to the extent that the pension assets are sufficient to pay such benefits.

The Funding Policy provides guidance and rules regarding decisions that must, or may be made by the Board of Trustees around funding levels, contributions and benefits.

## NBPSPP Funding Policy

- The 15 year open group funding ratio compares the fair market value of the Plan's assets, plus the present value of excess contributions over the next 15 years, to the Plan's liabilities.
- The Plan's liabilities are based on the benefits earned to the date of the report.
- This asset-liability ratio is used to determine the actions, such as granting indexing, to be taken by the Board of Trustees under the Plan's Funding Policy.

## NBPSPP Open group funded ratio falls below 100% for two successive years

- A contribution increase of up to 3% of earnings (1.5% each for employee and employer contributions) until such time as the open group funded ratio reaches 110% (without considering the effect of the contribution increase) and the funding goal under regulation is met.
- Future and present benefits can be reduced:
  - Change the rules for non-vested members to a full actuarial reduction for early retirement; then
  - Reduce base benefit accrual rates for future service by no more than 5%; then
  - Reduce base benefits on a proportionate basis for all members for both past and future service in equal proportions.

## NBPSPP Open group funded ratio high enough

Exceeds 105% for two successive plan year ends:

- Reverse previously reduced base benefits

- Indexing of base benefits for future payments up to full CPI for years that have been missed

Exceeds 140%:

- Reduce contribution rates to maintain ratio of 140%;

- Establish a reserve for potential contingent indexing;

- Propose benefit improvements.

# DC drawdown: annuities

- Information (Chile)
- Tontine (Sweden)

# Choice of annuity provider, UK

In 2012, 60% of annuities were purchased through the customer's existing pension provider or a third party with which their provider has an arrangement.

We estimate that overall 80% of those purchasing an annuity from their existing pension provider would benefit from shopping around and switching.

Financial Conduct Authority, Thematic Review of Annuities, February 2014, p. 12, 14.

# Choice of annuity provider, Chile

In order to retire, all members must consult with the Online Pension Consultation and Bidding System (*Sistema de Consultas y Ofertas de Montos de Pensión*, or SCOMP).

This system grants ... access to more and better information for making decisions, which ultimately leads to greater transparency.

SUPERINTENDENCE OF PENSIONS, 2010, THE CHILEAN PENSION SYSTEM

# Tontine

Lorenzo di Tonti: Born 1602 (Italy), died 1684 (Paris). Real name: Lorenzo Baroncini.

A simple tontine involves a group of investors who each buy a share of a fund that pays out returns that are divided among the remaining living members.

# Sweden: Premium Pension Annuity

Mandatory annuitization (unisex rules) with the government providing two options

- Traditional insurance-with-profit annuity: a nominal guaranteed monthly amount with possible monthly supplement, which may vary from year to year.
- Retain accumulated balance in the fund. The pension amount depends on the rate of return of the funds chosen by the saver and realized mortality.

# Sweden: Premium Pension Annuity

The amount of the premium pension is recalculated once each year, based on the value of fund shares in December.

The value of the pension account is divided by an annuity divisor, based on forecasts of future life expectancy.

Inheritance gains arising and distributed are analogous to decedents' capital.

Inheritance gains are distributed once a year, determined by the sum of the capital released by deaths in the previous calendar year.

it [is] necessary for man with his limited powers to go step by step; breaking up a complex question, studying one bit at a time, and at last combining his partial solutions into a more or less complete solution of the whole riddle.

...

Each exact and firm handling of a narrow issue, however, helps towards treating broader issues, in which that narrow issue is contained, more exactly than would otherwise have been possible.

Source: Alfred Marshall, 1920, *Principles of Economics*, eighth edition. New York: The Macmillan Company, 1948, page 366.