

Designing DB plans: Lessons from the good and not-so-good

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Pension plans

Traditional contributory plans

- Defined contribution (DC)
- Defined benefit (DB)

Hybrid contributory plans

- Notional defined contribution (NDC)
- Risk-sharing
 - Target benefit, defined ambition, collective DC

Non-contributory plans

Issues to be discussed

- Indexes many countries use and have used for a long time:
 - prices, wages
- Indexes some countries have adopted recently:
 - demography
 - financial balance
- Role of funding

Adjustments of benefits in payment, 1

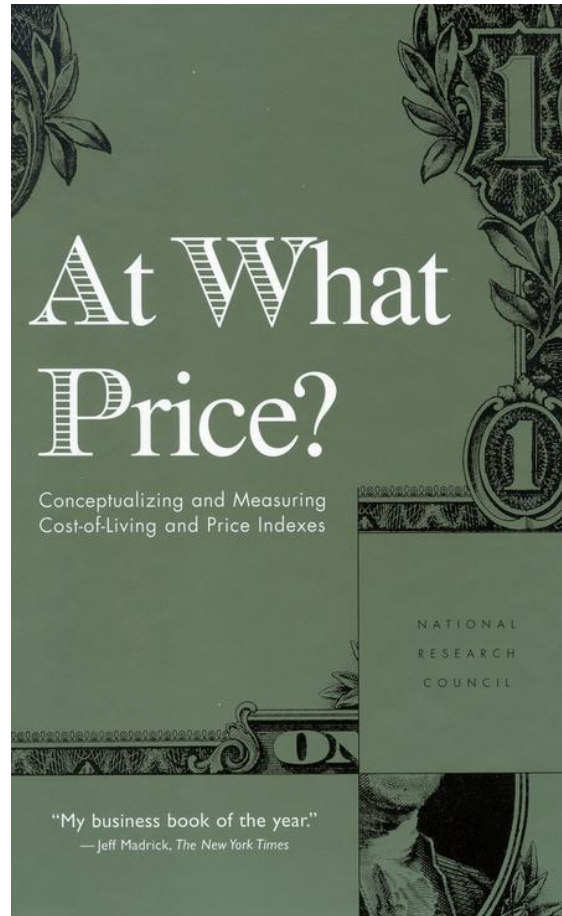
- Benefits in payment are indexed with price changes:
Canada, France, US

- Source: OECD, Pensions at a Glance 2015: OECD and G20 indicators.
http://dx.doi.org/10.1787/pension_glance-2015-en

US Social Security Cost-Of-Living Adjustment

- Current law: CPI-W:
 - Consumer Price Index for Urban Wage Earners and Clerical Workers.
- Johnson: Chained CPI (C-CPI-U):
 - OACT estimates a decrease of 0.3 percentage point per year.
 - Increase benefits for all beneficiaries who have been eligible for at least 20 years.
- Larson: CPI-E:
 - OACT estimates an increase of 0.2 percentage point per year.

At What Price? Conceptualizing and Measuring Cost-of-Living and Price Indexes



- Panel on Conceptual, Measurement, and Other Statistical Issues in Developing Cost-of-Living Indexes
- Charles Schultze and Christopher Mackie, Editors
- Committee on National Statistics
- National Research Council
- National Academies Press (2002)

At What Price?

- A cost-of-goods index (COGI):
 - measures the change in expenditures required to purchase a fixed weight basket of goods and services
- A cost-of-living index (COLI):
 - measures the change in expenditures required to maintain a given standard of living.

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At What Price?

- the price data used to produce the CPI are collected from retail stores and not directly from households,
- the two major aggregation issues:
 - To what extent do changes in living costs differ among the various economic and demographic groups?
 - And to what extent would a democratic index behave differently from a plutocratic one?

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At What Price?

- Changes in the quality of the goods purchased raises conceptual and measurement issues.
- Even if there are no measurement problems, how should the index pursue the goal of quality adjustment.

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At What Price?

- Consider improvements in specific medical procedures that reduce mortality.
- Intuitively, many people think it would be inappropriate to adjust the CPI for such quality improvements.
- Should the benefits paid to social security recipients be reduced to reflect the estimated monetary value of additional longevity resulting from improved medical procedures

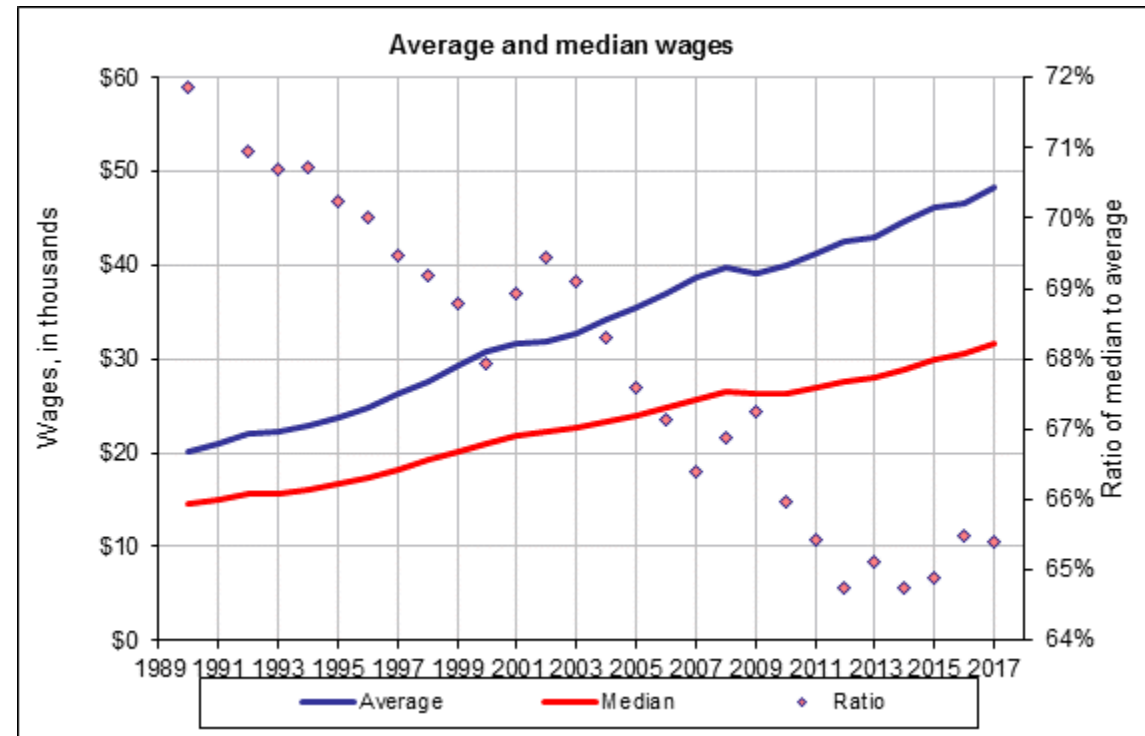
Adjustments of benefits in payment, 2

- Finland: indexed to 20% of earnings changes and 80% of price changes.
 - Switzerland: indexed 50% to prices and 50% to nominal earnings.
 - Italy: indexation is progressive: lower pensions are indexed more generously than higher pensions.
 - Norway: indexed to wages, minus a fixed factor of 0.75% a year.
 - Sweden: indexed to average earnings less 1.6%
 - Germany: indexed to gross wage growth with two adjustments
- Source: OECD, Pensions at a Glance 2015: OECD and G20 indicators.
http://dx.doi.org/10.1787/pension_glance-2015-en

Uses of the Average Wage Index, US

- OASDI contribution base taxable maximum
- Coverage threshold for domestic employees and election workers
- Earnings needed to earn a “quarter of coverage,” used for becoming insured.
- Average Indexed Monthly Earnings
- Primary Insurance Amount
- Formula for computing maximum family benefits
- Exempt amounts under the retirement earnings test

Median and Mean Earnings, US

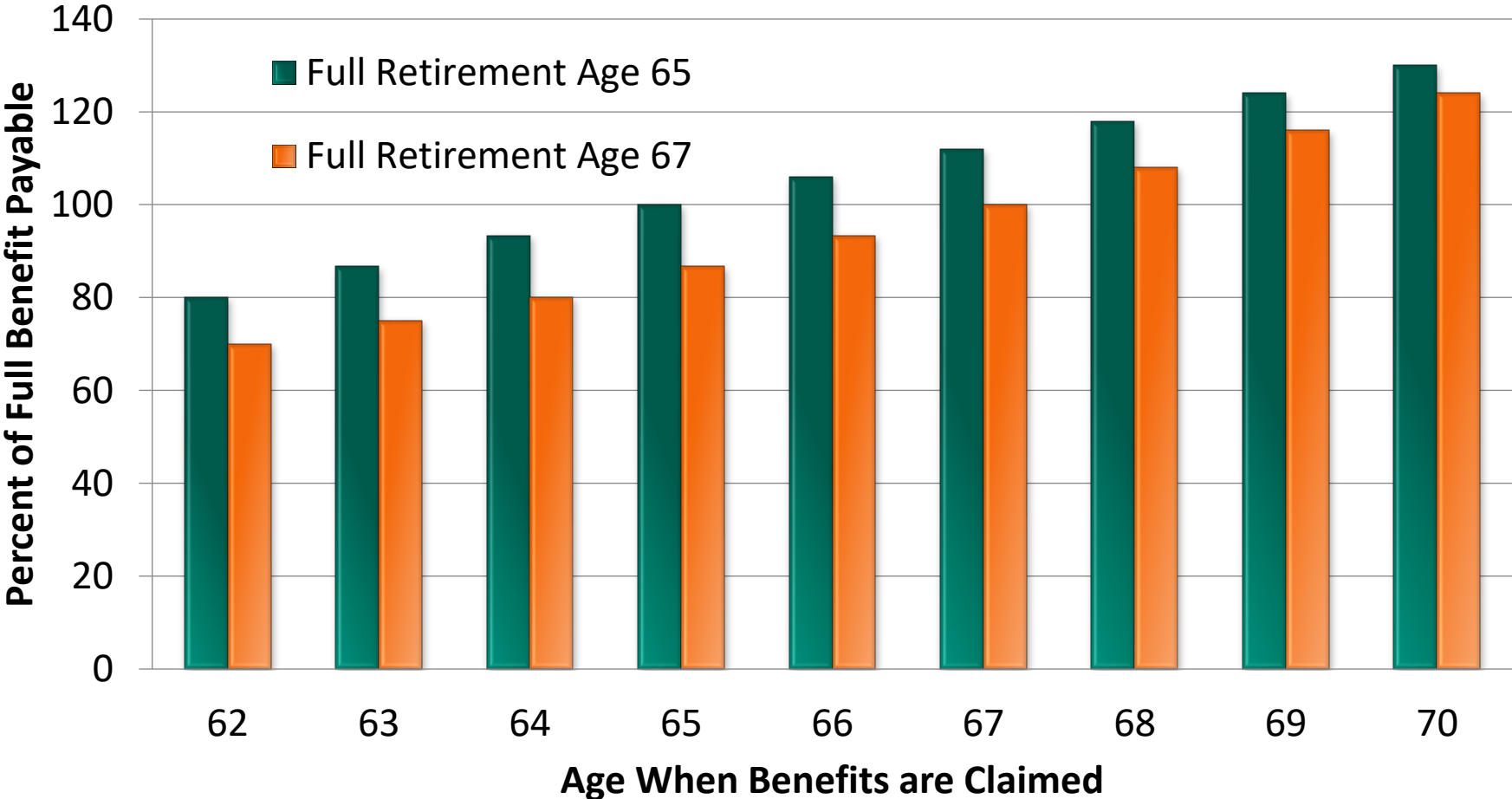


Indexing benefit eligibility

Earliest eligibility age

Age for full benefits

US: Increase in Full Retirement Age (FRA) Lowers Retirement Benefits at Any Age Claimed



Gregory et al., 2010.

Netherlands: Indexing non-contributory benefit eligibility

If you were born after 30 September 1957, your exact AOW pension age will be decided about 5 years in advance. As from 2022, it will be linked to life expectancy.

Notional Defined Contribution

To date, five European OECD countries have implemented a full NDC reform:

- Sweden (legislated 1994, implemented gradually, beginning in 1996, with full implementation 1999),
- Italy (legislated as of 1995 and implemented as of 1996, with reform measures and accelerated implementation as of 2012),
- Latvia (legislated 1995, implemented as of 1996),
- Poland (legislated 1998, implemented as of 1999),
- Norway (legislated 2009, implemented as of 2011).
- Also, Kyrgyzstan (legislated 1997),

Indexing past earnings in determining initial benefits

Prices: France

Average earnings: Sweden

Both prices and average earnings: Finland

Aggregate earnings: Latvia

Other indexing in determining initial benefits

Life expectancy: NDC

Demography: Germany, Sweden

Financial balance: Canada

Other indexing for demographic changes

- Germany: Pension point value is indexed to gross wage growth adjusted for changes in the contribution rate and changes in the dependency ratio.
- US proposal (Diamond and Orszag): Life expectancy affects both initial benefit levels and contribution rates to share increased 75-year projected cost.
- Sweden: “balancing” to affect current and future benefits.

Sweden: Inkomstpension balancing

- **Balance ratio** is assets/liabilities, lagged for data availability. A calculation, not a projection.
- **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, $B_t = I_t \cdot BT^*$
- Thus, indexation of pensions in payment and of pension balances (accrued claims for future benefits) are reduced.
- After balancing, later surpluses are used to increase indexation and thus to restore the value of pension balances.

Tontine: an alternative to part of indexing

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 capital released by deaths in the previous calendar year are distributed once a year as “inheritance gains.”

Annuity divisors still needed to convert balances to benefits.

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.

Approaches to PAYG Funding

None (part of general revenues): Netherlands AOW

Adequate for a recession: Sweden Inkomstpension

Address the baby boom: US Social Security

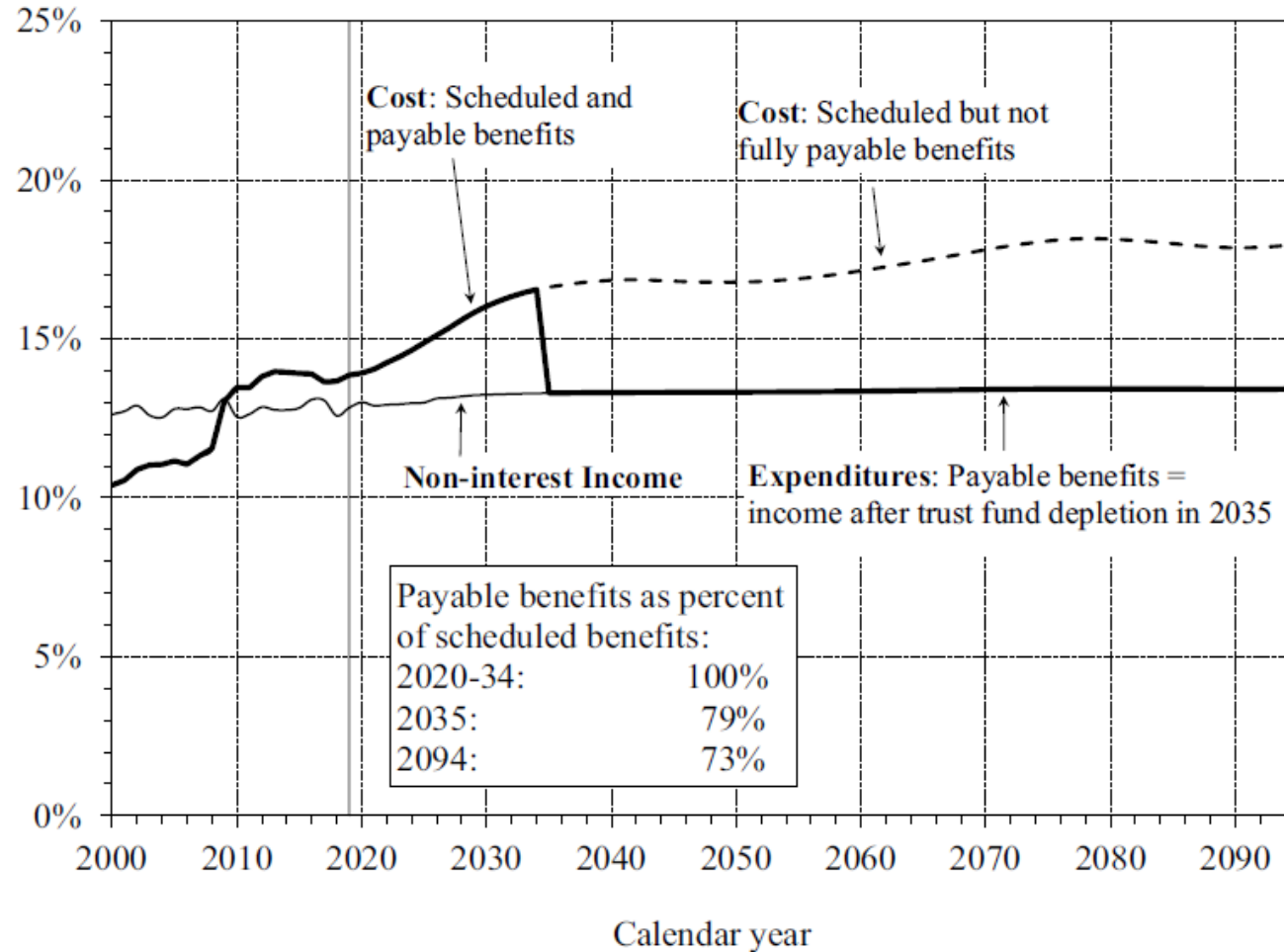
Address intergenerational equity: Canada Pension Plan

US Legislative history

- 1972: automatic indexing of benefits in payment for inflation and of maximum taxable earnings for average earnings, beginning in 1975
 - but benefits overindexed
- 1977: automatic wage indexing for initial benefit determination
- 1983: funding for baby boomers

US: OASDI Income, Cost, and Expenditures as Percentages of Taxable Payroll

[Under Intermediate Assumptions]



Source: Figure II.D2. *The 2020 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. 2020. Social Security Administration.

Funding the Canada Pension Plan

- Base CPP: Employer and employee contributions are projected to cover 75–80% of future CPP benefits, with investment returns covering 20–25%.
- Additional CPP: benefits financed by additional contributions and investment earnings and will accrue gradually over a period of 40 years.
- Investment Board is governed independently from the CPP.

Automatic adjustment of the 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.
- Funding ratio in 60 years must be as large as in 10 years
- If the required contribution rate is projected to be higher than the legislated rate, and no agreement is reached, then the contribution rate is increased by $\frac{1}{2}$ of the excess and benefits are frozen until next review in 3 years.

Technical Panel on Labor Force Participation

Report to the
Social Security Advisory Board

June 2017



