COMPARATIVE SURVEY OF THE PAYOUT PHASE

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The World Bank
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STRUCTURE OF THE PRESENTATION

- Motivation of the Payout Project
- Selection of Countries
- Overall Structure of Pension Systems
- The Role of the Private Pillars
- Menu of Payout Options
- Level of Annuitization
- Marketing Rules
- Institutional Structure
- Solvency Regulations
- Risk Management
- Lessons for Other Countries
MOTIVATION

- Pension reforms have downsized DB plans and expanded DC plans (mandatory in several countries)
- **Payout phase approaching in several countries**
- The policy challenges in the accumulation phase have been extensively researched, but the payout phase has received less attention
- Research on annuities has focused on specific issues and countries
  - Focus on adverse selection, thinness of voluntary annuities markets, money’s worth ratios
  - Focus on a few countries (mainly UK and US)
- Critical policy/regulatory issues facing reforming countries have not been addressed
SELECTION OF COUNTRIES

- Five countries: Australia, Chile, Denmark, Sweden and Switzerland
- All 5 countries have large funded systems due to mandatory or quasi-mandatory pillar (second pillar)
- Accumulation phase is based mostly on DC plans
- But there are important differences:
  - in the structure and role of different pillars
  - in the regulation of payout options
  - in the level of annuitization
  - in market structure
  - in capital regulations; and
  - in risk management and risk sharing
- The 5 countries provide an interesting combination of experiences; lessons for other countries
LARGE RETIREMENT ASSETS IN THE ACCUMULATION AND PAYOUT PHASES (% of GDP)
Design of Payout Arrangements in Pillars 2 and 3 Should Depend on the Design of Pillars 0 and 1

**Multipillar Structure**
(World Bank Classification)

- **Pillar 0**: Public, Redistributive (Tax Financed)
- **Pillar 1**: Public, Earnings-Related (Contributory PAYG)
- **Pillar 2**: Mandatory, Private Funded
- **Pillar 3**: Voluntary, Private Funded
- **Pillar 4**: Housing, Reverse Mortgages
### OVERALL STRUCTURE OF THE FIVE PENSION SYSTEMS

<table>
<thead>
<tr>
<th>Country</th>
<th>Pillar Zero</th>
<th>Pillar One</th>
<th>Pillar Two</th>
<th>Pillar Three</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Chile</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Denmark</td>
<td>X</td>
<td></td>
<td>XX</td>
<td>X</td>
</tr>
<tr>
<td>Sweden</td>
<td>X</td>
<td>X</td>
<td>XX</td>
<td>X</td>
</tr>
<tr>
<td>Switzerland</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
## OVERALL STRUCTURE: ZERO PILLARS

<table>
<thead>
<tr>
<th>Country</th>
<th>Type</th>
<th>Replacement (% average wage)</th>
<th>Reduction (Claw-backs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Universal</td>
<td>25%</td>
<td>Strong</td>
</tr>
<tr>
<td>Chile</td>
<td>Minimum</td>
<td>25%</td>
<td>Top-up to pillar 2</td>
</tr>
<tr>
<td>Denmark</td>
<td>Universal</td>
<td>35%</td>
<td>Moderate</td>
</tr>
<tr>
<td>Sweden</td>
<td>Minimum</td>
<td>34%</td>
<td>No</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Minimum</td>
<td>24%</td>
<td>No</td>
</tr>
</tbody>
</table>
## OVERALL STRUCTURE: FIRST PILLARS

<table>
<thead>
<tr>
<th>Country</th>
<th>Type</th>
<th>Contribution Rate</th>
<th>Target Replacement Rate *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chile</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Denmark</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>NDC</td>
<td>16%</td>
<td>39%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>DB</td>
<td>8.4%</td>
<td>33%</td>
</tr>
</tbody>
</table>

* Average income, full career workers
COST OF PUBLIC SCHEMES (Pillars 0 and 1) (% of GDP)

Cost of Old Age Benefits in Pillars Zero and One (% of GDP)

Australia  | Chile  | Denmark | Sweden | Switzerland
---|---|---|---|---
0.0 | 0.0 | 0.0 | 7.0 | 6.5
1.0 | 1.0 | 1.5 | 7.5 | 6.0
2.0 | 2.0 | 2.0 | 8.0 | 6.5
3.0 | 3.0 | 2.5 | 8.5 | 7.0
4.0 | 4.0 | 3.0 | 9.0 | 7.5
5.0 | 5.0 | 3.5 | 9.5 | 8.0
6.0 | 6.0 | 4.0 | 10.0 | 8.5
7.0 | 7.0 | 4.5 | 10.5 | 9.0
8.0 | 8.0 | 5.0 | 11.0 | 9.5
DIFFERENCES IN COST OF PUBLIC PENSIONS

Old Age Pension Expenditures are Larger in:

- Countries with generous zero pillars: Denmark, Sweden
  - Chilean zero pillar benefit is top-up/has low coverage
  - Australian zero pillar benefit has relatively large clawbacks

- Countries with first pillars: Sweden, Switzerland

- Degree of “annuitization” from public schemes varies:
  - High in Denmark, Sweden, Switzerland
  - Medium in Australia
  - Low in Chile
## OVERALL STRUCTURE: SECOND PILLARS

<table>
<thead>
<tr>
<th>Country</th>
<th>Type of System</th>
<th>Type of Plan</th>
<th>Contribution Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Occupational and open funds</td>
<td>Mostly DC</td>
<td>9%</td>
</tr>
<tr>
<td>Chile</td>
<td>Open funds</td>
<td>DC</td>
<td>10%</td>
</tr>
<tr>
<td>Denmark</td>
<td>(1) Central scheme (ATP) (2) Occupational funds and insurance companies</td>
<td>(1) DC/hybrid (2) DC/hybrid</td>
<td>1% 11%</td>
</tr>
<tr>
<td>Sweden</td>
<td>(1) Central scheme (PPM) (2) Occupational funds</td>
<td>(1) DC (2) DC</td>
<td>2.5% 3.5%-4.5%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Occupational, operated by foundations and insurance companies</td>
<td>DC with minimum return guarantee</td>
<td>8.75%</td>
</tr>
</tbody>
</table>
CONTRIBUTIONS TO SECOND PILLAR (% OF COVERED WAGE)

- Australia
- Chile
- Denmark
- Sweden
- Switzerland
REPLACEMENT RATES ASSUMING
ANNUITIZATION OF SECOND PILLAR
(40 years of contribution; wage growth = 2% p.a.;
rates of returns of 3.5% p.a. and 5% p.a.)

Replacement Rates for Average Full Career Worker (% of wage)
A = Public Scheme; B = Total (return = 3.5%; C = Total (return = 5%)

Australia   Chile   Denmark   Sweden   Switzerland

Private  Public
PAYOUT ARRANGEMENTS IN THE SECOND PILLAR

- Menu of retirement products
- Marketing regulations
- Institutional arrangements
- Solvency rules
- Risk Management
# REVIEW OF MAIN RETIREMENT PRODUCTS

<table>
<thead>
<tr>
<th>Retirement Product</th>
<th>Protection Against</th>
<th>Provision of Bequest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Investment Risk</td>
<td>Inflation Risk</td>
</tr>
<tr>
<td>Lump-sum</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Phased Withdrawal</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Term Annuity</td>
<td>Maybe</td>
<td>No</td>
</tr>
<tr>
<td>Variable Annuity</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Fixed Nominal Life Annuity</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Fixed Indexed Life Annuity</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
REVIEW OF MAIN RETIREMENT PRODUCTS:
Many variations within each class

- **Phased Withdrawals**
  - Single x Joint
  - Fixed benefit, fixed percentage, lifetime

- **Annuities**
  - Single x Joint
  - Immediate x Deferred
  - Guaranteed x Non-guaranteed
  - Several types of variable annuities
  - Risk-sharing (investment, longevity, costs)

- Each of these products implies different exposures to the main risks, allow different degrees of bequest
Examples of Life Annuity, Term Annuity, Lifetime PW Paths
(premium = 2,000 UF; interest rate = 4.5%, mortality table = Chilean RV-04)
# MENU OF RETIREMENT PRODUCTS IN THE FIVE COUNTRIES

<table>
<thead>
<tr>
<th></th>
<th>Lump-Sums</th>
<th>Term Annuities</th>
<th>Lifetime PWs</th>
<th>Fixed Nominal Life Annuities</th>
<th>Fixed Indexed Life Annuities</th>
<th>Variable Annuities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Chile</td>
<td>No *</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Since 2004</td>
</tr>
<tr>
<td>Denmark</td>
<td>(1) No</td>
<td>(1) No</td>
<td>(1) No</td>
<td>No</td>
<td>No conditional bonus only</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(2) No *</td>
<td>(2) Yes</td>
<td>(2) Yes</td>
<td>No guaranteed benefit only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>(1) No</td>
<td>(1) No</td>
<td>(1) No</td>
<td>No</td>
<td>No conditional bonus only</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(2) No</td>
<td>(2) Yes</td>
<td>(2) Yes</td>
<td>No guaranteed benefit only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>Yes *</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No Conditional</td>
<td>No</td>
</tr>
</tbody>
</table>

* Restrictions apply; either regulatory or at the plan level
# TYPES OF LIFE ANNUITIES

<table>
<thead>
<tr>
<th>Country</th>
<th>Price Regulation</th>
<th>Types of Life Annuities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>None</td>
<td>Various, but little demand</td>
</tr>
<tr>
<td>Chile</td>
<td>None</td>
<td>Fixed indexed annuities; joint annuities for married men; option of guaranteed annuities (very popular)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Since 2004: Variable annuities and PWs in combination with fixed annuities</td>
</tr>
<tr>
<td>Denmark</td>
<td>Unisex Tables</td>
<td>Variable annuities in risk-sharing arrangements: (1) guarantees and bonuses or (2) unit-linked; Longevity risk always shared</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Combinations allowed</td>
</tr>
<tr>
<td>Sweden</td>
<td>Unisex Tables</td>
<td>Same as in Denmark</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Fully Regulated</td>
<td>Fixed joint life nominal annuities Possibility of inflation adjustment bonus</td>
</tr>
<tr>
<td>Country</td>
<td>Types and Terms</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>Term annuities for 5-10 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lifetime PWs (allocated annuities)</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>Lifetime PWs</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>Term annuities for 5-10 years</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>Term annuities for 5-10 years</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>Not allowed in the mandatory pillar</td>
<td></td>
</tr>
</tbody>
</table>
LEVEL OF ANNUITIZATION IN THE SECOND PILLAR

Degree of Annuitization in the Second Pillar (%)

Australia  Chile  ATP  Denmark  PPM  Sweden  Switzerland

0  10  20  30  40  50  60  70  80  90  100

ATP Occup.  PPM Occup.

?
FACTORS AFFECTING THE DECISION TO ANNUITIZE IN THE SECOND PILLAR

- Restrictions on lump-sums and other payout options
  - Legal restrictions, or plan restrictions
- Substantial annuitization from public schemes
  - Denmark, Sweden and Switzerland; Australia to a less extent
- Marketing activity
  - Chile
- Culture and tradition?
  - Traditional Annuity Mentality in Switzerland?
  - Lump-sum Mentality in Australia?
IS THE MENU REASONABLE?

- In the case of Chile, the more restrictive menu is justified, given the key role of the second pillar
  - Indexed annuities protect against investment, inflation, longevity risks
  - Joint annuities for married males extent longevity insurance to spouses
  - Lifetime PW allows bequests, limits exposure to longevity risk
  - Variable annuities in combination with minimum fixed annuity

- The more liberal rules for occupational schemes in Denmark and Sweden are also justified
  - Significant level of annuitization in pillars 0 and 1 and in central schemes in pillar 2
  - Use of short term annuities/PWs with higher payouts is justified
High degree of annuitization in Switzerland is partly explained by lump-sum restrictions in plan rules; may have led to over-annuitization

- Regulation that introduces obligation to offer minimum 25% lump-sum probably correct

Australian case is intriguing: the strong role of the second pillar would call for some restrictions on lump-sums, more annuitization

- Force people to save during their working lives and allow unrestricted choice at retirement?
MARKETING RULES

- Marketing rules are important when annuities are purchased in open markets.

- In Denmark, Sweden and Switzerland, annuities are mainly provided through occupational schemes. 
  - There is less concern with marketing campaigns and costs, brokers’ commissions.

- In Australia, occupational plans are not active providers of annuities. 
  - Marketing of annuities follows ordinary conduct rules.
MARKETING RULES: The Chilean Experience

- Chile is the main exception: Large open market
- Annuity brokers played a key role in persuading workers to opt for early retirement and purchase annuities
- Non-transparent market in the 1990s with high commissions and wide price dispersion
- New electronic quotation system was introduced in 2004, together with caps on brokers’ commissions
- Retiring workers have easy access to best quotes, can compare annuity prices across providers, compare annuities with PWs
Sweden and Denmark have both centralized and decentralized schemes for the provision of annuities; both adopted extensive risk-sharing arrangements.

**Sweden:**
- PPM: Centralized provision
- Occupational schemes: decentralized
- Risk-sharing in the payout phase

**Denmark:**
- ATP: Centralized provision
- Occupational and voluntary plans: decentralized
- Risk-sharing in the accumulation and payout phases
INSTITUTIONAL STRUCTURE: Switzerland and Chile

- Switzerland has a highly decentralized structure for the provision of annuities
  - Occupational schemes play a dominant role. Insurance companies also compete for mandates, but annuity pricing is highly regulated

- The Chilean system is based on a highly competitive and decentralized structure with insurance companies
  - During 1990s, large marketing costs, high commissions
  - However, since 2000, annuitants have obtained a good deal for their premiums: high money’s worth ratios
The solvency regulation of providers of PWs is simple, because pensioners assume investment and longevity risks.

In contrast, the solvency regulation of annuity providers is complex and depends on the types of annuities and risk-sharing arrangements:
- They are more significant for fixed nominal or real annuities where providers assume the investment and longevity risks.
- They are less onerous for products or arrangements that share risks or transfer the risk to pensioners.

Increasing move towards risk-based solvency rules and emphasis on risk management, as part of a growing emphasis on risk-based supervision.
Effective risk management by providers depends to a good extent on the availability of instruments with long durations, hedging tools, reinsurance.

If annuities are indexed, need to have access to indexed instruments for matching.

Lack of proper instruments imply mismatches and are reflected in poor annuities, greater insolvency risk, or both.

Expanding the supply of instruments has proved a problem in many countries.
Risk Management: Risk-Sharing Arrangements in Denmark and Sweden

- Denmark and Sweden have adopted similar risk-sharing arrangements for the provision of life annuities (also similar to TIAA-CREF in the US)

- Two types of variable life annuities typically offered:
  - Guaranteed fixed benefits plus bonuses
  - Unit-linked annuities

- Guaranteed + bonus: investment risk partly shared

- Unit-linked: Investment risk shifted to participant

- Longevity risk shared by participants in both cases
  - Some differences (cohort-specific x whole pool)
Can we compare performance?

- **Measures of performance:**
  - Money’s worth ratios (MWR)
  - Differential between annuity rate and government debt rate
  - ROEs of providers

- **Difficult to compare performance across very different arrangements**
  - Occupational schemes and open schemes
  - Chile and Switzerland: high MWRs, not available for other countries
  - Lack of MWRs in risk-sharing schemes
LESSONS FOR OTHER COUNTRIES: MENU

- Degree of annuitization largely explained by restrictions (regulatory or plan restrictions)
- If a high degree of annuitization is a policy objective, the menu has to be regulated accordingly
- However, it is important to avoid over-annuitization
- Optimal menu is country-specific
LESSONS FOR OTHER COUNTRIES: MENU

- Chilean approach is reasonable for countries where second pillar plays a key role
  - Restrictions on lump-sums
  - Indexed annuities
  - Lifetime PWs
  - Combinations with fixed annuities
  - Possibly joint annuities for married males

- Countries with larger zero pillars and/or first pillars should adopt a more flexible menu
  - Fewer restrictions on lump-sums
  - Variable annuities
  - Term annuities/PWs
LESSONS FOR OTHER COUNTRIES: MENU

- Menu regulation needs to consider the supply of instruments and hedging tools
  - Imposition of indexation in the absence of indexed instruments may lead to poor annuities
  - Effort to expand supply and/or consider alternatives (e.g. escalating annuities)

- Price Regulation of Annuities (Switzerland)?
  - May avoid excessive dispersion across annuitants with same characteristics, but:
  - Generates large income transfer across gender, marital status
  - May jeopardize solvency of providers
LESSONS FOR OTHER COUNTRIES: MARKETING RULES

- Countries with open annuities markets should consider adopting an electronic quotation system such as the one introduced in Chile in 2004

- Broker activity/financial advice may need to be regulated to prevent abuse

- Some countries felt the need to introduce harsher regulations
  - Caps in Chile
  - Complete prohibition in Colombia
LESSONS FOR OTHER COUNTRIES: INSTITUTIONAL ARRANGEMENTS

- Centralized provision (single provider):
  - Possible advantages:
    - Large risk pooling
    - Scale economies
  - Possible disadvantages:
    - Interference in annuity pricing
    - Interference in asset management/weak innovation
    - Transfer of investment and longevity risks back to the State
LESSONS FOR OTHER COUNTRIES: RISK MANAGEMENT

- Capital Market Agenda for the Payout phase
  - Public debt management: supply of instruments with long-durations, indexed instruments
  - Private fixed income instruments
  - Derivatives markets
  - Longevity bonds

- Risk-based supervision
  - Risk-based solvency rules
  - Regulations on risk management
LESSONS FOR OTHER COUNTRIES: RISK MANAGEMENT

- Risk-sharing arrangements are an attractive option in many aspects
  - Help address complex risks, such as longevity risk, and market risk in the absence of an adequate supply of instruments

- However, these arrangements also introduce challenges:
  - Effective pricing rules (e.g. aggressive cohort mortality table) to minimize subsequent adjustments
  - Transparent rules to avoid transfers of income across different cohorts
  - Transparent rules to avoid excessive appropriation of profits by shareholders