Ten years after the Swedish Pension Reform

Design & Current Status

D.B. Mikula – Swedish Pensions Agency
(Oslo, 16:th sept. 2010)
The Reform Strategy

Defined Contribution

Inkomst-pension NDC

Defined Benefit Plan

Flat Benefit Formula

Guarantee Pension

D = Disability pension
S = Survivors pension

PAYGO

Funded

Theoretical risk distribution

100 % insured

100 % insurer (= taxpayers)
Major structural reform 1999 (since 1960)

- Premium Pension (2.5%)
- Guarantee Pension (tax financing)
- Inkomstpension – NDC (16%)
- CPI - indexation
- Average wage - indexation
- Level of contributions
- Market rate of return
- Occupational schemes
The Swedish NDC/PAYGO pillar attributes

- Pension credit = contribution
- Indexation by growth in average income (front-loading of benefits with discount rate 1.6%)
- Annuity divisors (calculated annually with fresh mortality experience)
- Buffer fund

Also sources for financial imbalances dealt with by The Automatic Balancing Mechanism
The Swedish Automatic Balance Mechanism makes use of an old Italian invention: Double-entry bookkeeping.

Giovanni di Bicci de' Medici 1360-1429

Luca Bartolomeo de Pacioli 1445–1517
“Summa de arithmetica, geometrica, proportioni et proportionalita” 1494
Accounting of a PAYGO Pension System

"You should not go to sleep at night until the debits equal the credits!“
Accounting of a PAYGO Pension System

Liabilities 31 Dec 2008

2009

Liabilities 31 Dec 2009

2010

Balance Sheet =

Income Statement
Verifiable Transactions
Verifiable Events

Assets 2008

2009

Assets 2009

2010

Balance Sheet =

Income Statement
Verifiable Transactions
Verifiable Events

Accounting of a PAYGO Pension System
Accounting of a PAYGO Pension System

Balance Sheet = Assets

Income Statement
Verifiable Transactions
Verifiable Events

Balance Sheet =

Income Statement
Verifiable Transactions
Verifiable Events

Liabilities 31 Dec 2008

Liabilities 31 Dec 2009

Liabilities 31 Dec 2010
Calculation of liabilities

(1) The sum of the notional accounts of the active population

+ Pension payments

(2) “Remaining life expectancy”

= Total net pension liability*

* Accrued to date, that is 31 December each year
Income statement
What explains changes in the liabilities?

Verifiable Transactions

(+) Accrual of new pension credits
(-) Pension disbursement
(+ ) Indexation of pensions and entitlements
(-) Deduction for administrative costs

Verifiable Events

(+/-) Value of change in life expectancy (money weighted)
(-) Inheritance gains arising
(+ ) Inheritance gains distributed
Calculation of assets

It corresponds to only 10% of pension liability!...

..."Value of contributions"...

Buffer Fund + Contributions × Turnover Duration

- contribution asset
- transfer wealth
- balance liability
Expected Turnover Duration

\[ A_c (2001) = 43.12 \]
\[ A_c (2008) = 43.93 \]
+ 9.7 months
(42 days per year)

\[ A_r (2001) = 75.01 \]
\[ A_r (2008) = 75.69 \]
+ 8.2 months
(35 days per year)

\[ TD (2001) = 31.89 \]
\[ TD (2008) = 31.76 \]
- 1.5 months
(-7 days per year)

Expected age profile of contributions

Expected age profile of pension payments

\[ TD = 30-34 \text{ years} \]
Income statement
What explains changes in the assets?

Verifiable Fund Transactions

(+) Pension contributions
(-) Pension disbursement
(+/-) Return on funded capital
(-) Administrative costs

Verifiable Events (changes in the contribution asset)

(+/-) Value of change in contribution revenue
(-/+ ) Value of change in turnover duration
### Balance sheet as a percent of GDP

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Pension Funds</td>
<td>23.1</td>
<td>29.3</td>
<td>28.7</td>
<td>26.9</td>
<td>23.3</td>
<td>21.6</td>
<td>18.6</td>
</tr>
<tr>
<td>Contribution asset</td>
<td>212.1</td>
<td>199.2</td>
<td>198.9</td>
<td>200.1</td>
<td>202.6</td>
<td>204.4</td>
<td>202.1</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>235.2</td>
<td>228.4</td>
<td>227.6</td>
<td>227.0</td>
<td>225.9</td>
<td>226.8</td>
<td>220.7</td>
</tr>
<tr>
<td><strong>Surplus</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opening surplus</td>
<td>0.6</td>
<td>3.2</td>
<td>1.0</td>
<td>0.3</td>
<td>2.1</td>
<td>1.9</td>
<td>6.8</td>
</tr>
<tr>
<td>Net income/-loss</td>
<td>-8.6</td>
<td>-2.7</td>
<td>2.4</td>
<td>0.7</td>
<td>-1.8</td>
<td>0.2</td>
<td>-4.9</td>
</tr>
<tr>
<td><strong>Closing surplus</strong></td>
<td>-8.0</td>
<td>0.6</td>
<td>3.3</td>
<td>1.0</td>
<td>0.3</td>
<td>2.2</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Liabilities and Surplus</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
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<td>0.6</td>
<td>3.3</td>
<td>1.0</td>
<td>0.3</td>
<td>2.2</td>
<td>2.0</td>
</tr>
<tr>
<td>Pension liability</td>
<td>243.2</td>
<td>227.8</td>
<td>224.3</td>
<td>226.1</td>
<td>225.6</td>
<td>223.9</td>
<td>218.7</td>
</tr>
<tr>
<td><strong>Total liability and surplus</strong></td>
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<td>228.4</td>
<td>227.6</td>
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<td>226.0</td>
<td>220.7</td>
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</table>
Balance ratio and the automatic balancing mechanism (ABM)

\[
BR = \frac{\text{Assets}}{\text{Liabilities}} = \frac{C \times TD + F}{PL} \geq 1.0
\]

ABM 2001-2009

\[
BR \neq \frac{C \times TD + F}{PL} \geq 1.0 \approx BR
\]

ABM 2010-
Do the numbers have a meaning for humans, for retirees?

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in income-index, %</td>
<td>+6.2</td>
<td>+0.3</td>
<td>+3.1</td>
<td>+4.0</td>
<td>+3.9</td>
</tr>
<tr>
<td>Balancing effect, %</td>
<td>0.0</td>
<td>−1.7*</td>
<td>−4.5</td>
<td>−1.4</td>
<td>+0.1</td>
</tr>
<tr>
<td>Indexation of NDC-accounts %,</td>
<td>+6.2</td>
<td>−1.4</td>
<td>−1.6</td>
<td>+2.6</td>
<td>+4.0</td>
</tr>
<tr>
<td>Indexation of NDC-pensions, %</td>
<td>+4.5</td>
<td>−3.0</td>
<td>−3.1</td>
<td>+1.0</td>
<td>+2.3</td>
</tr>
</tbody>
</table>

*Parliament decided on a smoothing rule in 2009, implying that the value of the buffer fund in the balance ratio should not be by its value 31 December, but the average of the buffer fund value 31 December the last three years. Without this smoothing the balancing effect for 2010 would have been 3.28%. The old rules would most probably have implied a lower balancing effect in 2011 and 2012.

Source: Försäkringskassan, Budgetuppföljning 2009-10-29
What did we learn so far ...

The accounting procedure has been a very useful device. It helps efficient to clarify the system performance. It makes the Swedish public pension system:

- more transparent
- easier to communicate to the public
- easier to discuss when it comes to proposal for any modifications
What did we learn so far ...

The performance of the scheme was however worse than expected in respect to:

- **Internal rate of return:**
  on average, explicit indexation exceeded the available return by 1.1% per year since start

- **Volatility:**
  The system outcome is more volatile than expected
The main reasons for this outcome

- Low buffer fund return relative to indexation of liabilities

- Uncertainties in original forecasts of the DB pension liability being phased out

- Change in tax code 2001 – 2004 gave an artificially high indexation of liabilities

- Indexation of the system is estimated from lagged and smoothed changes in average wage. This is a source of undesired volatility when growth rate shifts
Current issues

Swedish NDC

The Pensions Agency has proposed:

• a minor technical modification of how liability should be calculated (will reduce volatility when balancing)
• that alternative designs of the indexation should be investigated in order to reduce system volatility
Possible issues:

- Front loading with 1.6% can be considered to be too high – however very difficult to change
- Real retirement age – lot of surrounding legislation still focus on 65?
- Guarantee pension (+housing allowances) and work incentives
- ...
At last: What might the accounting be good for?

The fundamental difficulty to give understandable and credible information opens the floor for a political struggle that can be harmful. Harmful in the sense that “worse” political and private actions are taken than if we have transparency.

One reason for the income statement and balance sheet is to increase transparency. Hopefully transparency may improve the logic and efficiency of public decisions on pensions.
Thank you for your attention

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