

Some Guiding Principles for the Development of Self-Adjusting Mechanisms for Sustainable Retirement Systems

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Agenda

1. **Some terminology and methodology**
2. **Characteristics of an effective ABM**
3. **Five guiding principles**
4. **Illustration**

Some Terminology and Methodology

- **SSRS – social security retirement systems**
- **ABM – automatic balancing mechanism**
- **Sustainability – ABM must achieve both financial balance and equitable balance**
- **Principles derived by examination of ABM for Canada, Germany, Japan, and Sweden**

Essential (1-3) and Ideal (4&5) Characteristics of Balancing Mechanism

1. Gradual
2. Equitable
3. Sustainable
4. Automatic
5. Transparent

Comments on Guiding Principle 1

The ABM should relate directly the factors which affect inflows to factors which affect outflows

- Equating Δ Income to Δ Outflow results in

$$\left\{ \frac{AI_{t+1}NC_{t+1}}{AI_t NC_t} - 1 \right\} = \left\{ \frac{AP_t NP_t}{AI_t NC_t} \right\} \left\{ \frac{AP_{t+1} NP_{t+1}}{AP_t NP_t} - 1 \right\}$$

- Germany and Japan come close to incorporating this approach

Comments on Guiding Principle 2

In assessing the equitable distribution of adjustment, the change in expected utility should be considered by class of participants

- Expected utility affected by factors such as:
 - ✓ amount of pension income
 - ✓ its share of total income
 - ✓ proximity to retirement

Equity is Hard to Define – Some Choices

1. **Hard line – No changes**
2. **Paying the same contributions/contribution rate**
3. **The lifetime net benefit rate is zero for all cohorts**
4. **Equity requires achieving certain social welfare goals**
5. **Having a constant relationship between PV of pensions and PV of contributions across cohorts**
6. **Having an equivalent change in the expected utility among cohorts**

Illustration of How Definition 6 Might Be Evaluated

- Calculate the following ratio after-change to before-change:

PV of Pension / AV of Contributions to 65

PV = present value AV = accumulated value

- Require the ratios to be not more than 5% different in any one year and not more than 10% different in any five-year period
- Use a table of personal discount rates

Personal Discount Rates

| Period (current age x) | For Period of Life Expectancy | Thereafter |
|------------------------------|----------------------------------|------------|
| $65 - x > 30$ | 4 % | 4 % |
| $30 \geq 65 - x > 20$ | 3 % | 3 % |
| $20 \geq 65 - x > 10$ | 2 % | 3 % |
| $10 \geq 65 - x > 0$ | 1 % | 3 % |
| $0 \geq 65 - x$ | 0 % | 3 % |

Comments on Guiding Principle 3

The greater financial burden of adjustment should be borne by contributors rather than by pensioners

- Equivalent financial changes have greater disutility for pensioners than contributors
- Contributors can adapt more easily because they are working and have a longer time horizon
- Adjusting the age of full benefit entitlement is a good mechanism to consider

Comments on Guiding Principle 4

The ABM should be able to restore balance without recourse to extra-systematic flows

- **Otherwise the ABM is not self-adjusting**
- **Both Japan and Sweden fail this test**

Comments on Guiding Principle 5

Where approximations are used, the financial condition and equity of the SSRS should be reviewed periodically and adjustments made as warranted

- **Adjustment is a complex, dynamic problem**
- **Approximations facilitate administration and communication**
- **Canada, Germany and Japan use approximations**

Illustration – Paper by Godinez-Olivares et al. (2015)

- **Uses nonlinear optimization method wrt contribution rate, NRA, indexation rate of pensions**
- **Normalization of projected demographic data for EU from 2013 – 2087**
- **Report the contribution rate, NRA, indexation rate stabilize at end of period (2087) at 19%, 67.5 years, minus 1%**

Illustration – Guiding Principles Not Met

- Principle 2 – no consideration of expected utility; pensioners continue to lose purchasing power; possibly to be less than expected expenses
- Principle 3 – not clear greater burden of adjustment falls on contributors
- *Although robust financial balance is achieved, equitable balance is not; therefore not sustainable*

Conclusion

- **The five principles provide guidance for a sustainable ABM**
- **Since derived by empirical investigation they are unlikely to be complete**
- **An SSRS is a social system**
- **To be sustainable both financial and equity goals must be met**
- **No agreement on the definition of equity**
- **My view: must consider utility; greater burden of adjustment should be borne by contributors**