

Measures of adequacy of pension systems

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- focus of Ageing Report is on fiscal sustainability
- fiscally sustainable pensions may not be adequate
- ...and may therefore not really be sustainable
- what is the impact of reform on individuals?
- what is fair?
 - from an actuarial perspective
 - from an intra-generational perspective
 - from a social perspective
- complex and multi-faceted topic
- we present some ideas aligned with sub-groups of WG-Age

Sub-group 2. Aligned methodologies to define and measure adequacy and sustainability

- social fairness
- intergenerational fairness
- actuarial fairness
- sustainability
- modelling Replacement Ratio scenarios and other outcomes

Social fairness measure

$$\text{Ratio} = \frac{\text{Cohort Life Expectancy (CLE) at the effective 1st Pillar pension age}}{\text{Actual years of working life (career) completed up the effective pension age}}$$

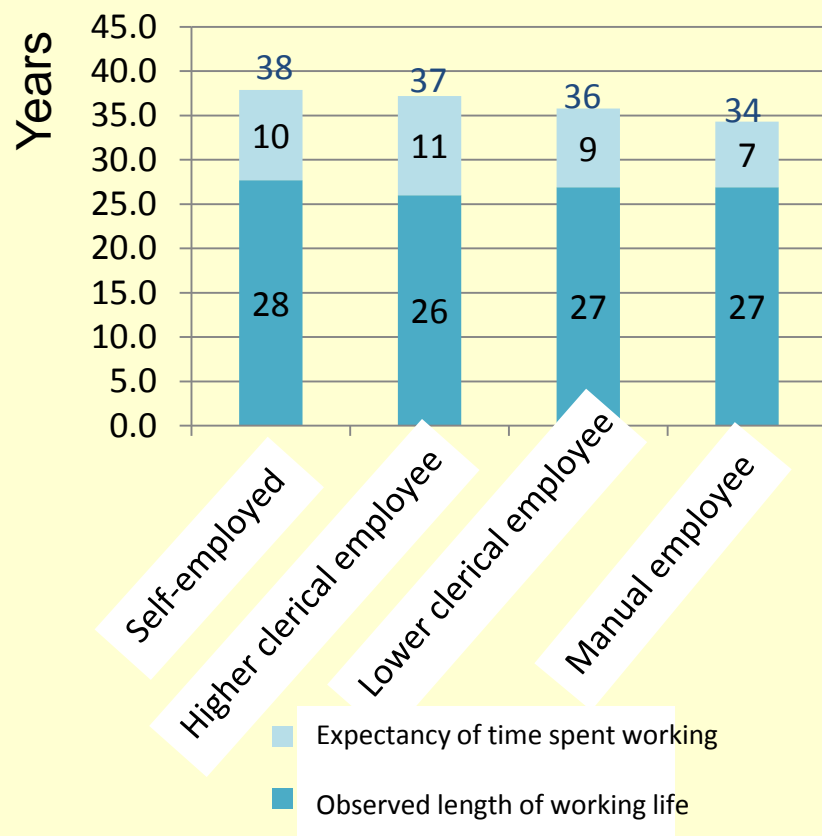
Compare the value of this ratio at a recent date with the projected value of the ratio after 10, 20, 30, 40, 50 years, taking into account the expected effective Pillar 1 pension age.

The target is to prevent the ratio from increasing and monitor to see how well this is being achieved

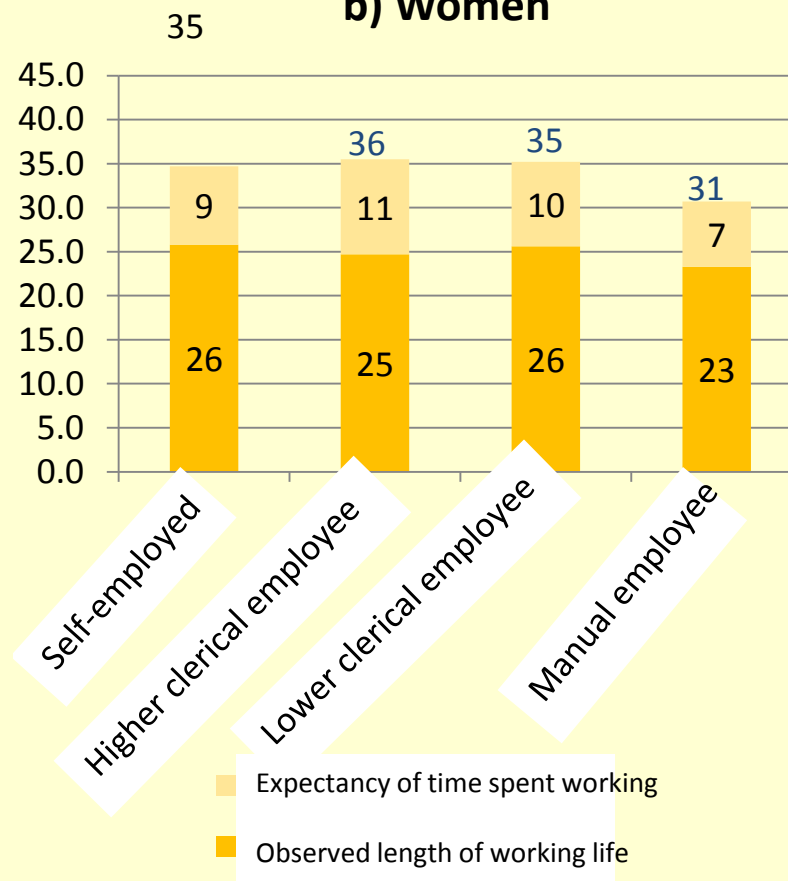
Total length of working life

Calculations for age 50 in year 2007

a) Men



b) Women



Source: Observed length of working life: Finnish Centre for Pensions; Expectancy of time spent working: Myrskylä, Leinonen & Martikainen (2013) Life expectancy by labor force status and social class. ETK, Working Papers 02/2013.

Inter-generational fairness measure (1)

1. Dynamic Old-age Dependency Ratio”

$$\text{DOADR} = \frac{\text{(numbers aged } x \text{ and over)}}{\text{(numbers aged 16 up to } x\text{)}}$$

where x is the Pillar 1 pension age at the date of calculating the DOADR, monitored at 10 year future intervals for

- ✓ pure demographic DOADR; and
- ✓ economic dependency DOADR

Inter-generational fairness measure (2)

2. Benchmark: the pension age (y) required in future to maintain the dynamic old-age dependency ratio at the current level and to report the sequence of y for 10, 20, 30, 40, 50 years into the future.
3. Another measure which focuses purely on longevity in retirement would be to monitor the Pillar 1 pension age required at 10 year intervals in future in order to maintain the cohort life expectancy (CLE) at that age equal to the cohort life expectancy at the current Pillar 1 pension age.

Actuarial fairness measure (1)

Actuarial fairness principle – contributions and benefits should have an equal discounted (or accumulated) value over the life-time.

- robust test of fairness
- helps insureds to feel they are getting value for money

Owing to the need for proper discounting or accumulation rates, it requires prudent scientific actuarial calculations.

We can define

- ✓ Actuarial fairness on a collective basis
- ✓ Actuarial fairness at an individual level

Actuarial fairness on a collective basis

- popularity of the NDC system
- perceived as replicating an actuarially fair defined contribution accumulation system.
- absence of the market may make it more or less fair.

Other social security systems could be measured against this benchmark for each cohort taken as a whole. However, normally there are explicit exceptions to provide benefits which are seen as socially fairer to individuals with employment gaps, disability etc. on an individual income basis. Measures could be considered for the deviation from actuarial fairness for social reasons.

Actuarial fairness on an individual basis

Individuals feel safer in a social security system which is more transparent, with a defined plan to correct imbalances created, for example, by employment categories with special pension privileges and explicit cross-subsidies to needy categories.

However, some would argue that individual fairness is not necessarily a primary objective in a system which relies on government guarantee (i.e. budgetary subsidy) and that social fairness is more important.

Actuarial fairness on an individual basis

1. Individuals are divided into two categories: 1) those receiving pensions equal to or below a predefined threshold level (poverty line, minimum pension etc) and 2) other pensioners.
2. Establish an automatic redistributive mechanism through pension indexation by monitoring the Individual Funding Ratio at the attained age

$$IFR = \frac{\textit{Current value of pension received}}{\textit{Value of contributions paid up to retirement}}$$

3. According to the value of their IFR, individuals would be divided into two subcategories:
A) those with $IFR \leq 100$ and B) those with $IFR > 100\%$.
Pension reform could be used to correct such imbalances.

Pension systems and labour market consistency

Define “consistency” better and find a way to measure it.

Examine projections of the proportion of working population aged 50-55, 55-60, 60-65, 65-70 who are i) employed, ii) self-employed, iii) unemployed and seeking work, iv) retired early as a result of long term disability (health status etc.), v) not employed because of caring responsibilities – now, 10 years ago and at 10 year intervals in future.

The evolution of employment rate of people before retirement age during the period of reform as the proportion of the employed to total population in the age group of “effective retirement age minus 5 years” to “retirement age” could be calculated for some past years and projected for future years.

Employed people in the 5 years before effective retirement age
Total population in the 5 years before effective retirement age

Opportunities by Pension Schemes to increase adequacy by working longer

To monitor the effectiveness of incentives to later retirement, the net pension wealth (NPW) could be calculated, i.e. the present value of future net pensions at retirement age. If the NPW when postponing retirement, $NPW(t_1)$, is bigger than that of a normal (NPW) or early ($NPW(-t_2)$) retirement then there are real incentives. Thus the inequality $NPW(t_1) \geq NPW \geq NPW(-t_2)$ should always hold. A measure for monitoring incentives in pension systems could be based on the values of $NPW(5)/NPW$, say, and $NPW/NPW(-5)$, considering current values and projected future values.

Housing

Housing wealth is an major consideration for adequate income in retirement but is unevenly distributed and depends on inheritance, rural/urban location and government interventions and incentives.

An important aspect of analysis of adequacy could be to monitor current and projected future home ownership for different categories of workers and by subdivisions such as urban/rural, and by region, etc. Availability of housing benefits, including direct cash welfare benefits and subsidies for reducing the impact of rental costs and property-based taxes for pensioners, should be analysed alongside the adequacy of cash pension benefits in order to get a more complete picture.

Other pensions and savings

Pillar 2 and 3 pensions need also to be brought into account, as well as other tax-efficient savings vehicles which are generally used for saving for retirement.

Costs to the public purse of regulating, and allowing tax relief for, Pillar 2 and 3 pensions should be included in any estimates of future public pension costs. Tax relief should be calculated on a cohort basis, as a significant part of tax relief in many countries is only an issue of deferral of tax.

Disclosure and tracking services

In October 2013 the Actuarial Association of Europe published a report on the first phase of our work on tracking services. A second report will be published at the start of 2015.

We believe that good disclosure of pension entitlements from all Pillars is essential to creating a good pension environment where incentives to save more for retirement can work properly.

The AAE will be happy to discuss any of the topics in this report and, if necessary, elucidate them. Please see our written report for more details and additional aspects. We may have other suggestions as we study these matters further.

We will be happy for future engagement on how to define precisely and to implement the measures which we have suggested.

Thank You,

**Chris Daykin, SSSC Chairman
Marianna Papamichail, ADQ TF Chair**

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