



**Technical Seminar of the ISSA Technical Commission of Statistical, Actuarial and
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Optimal financing of social security pension schemes

Financing of pension schemes

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Forewords

Subjects to be considered

- **Possibility of efficient investments**
- **Definition of the benefit package**
- **Necessity of implementing actuarial tools**

As the problem of financing pension scheme cannot be seen in isolation: reference is made to the experience in Africa

Investment challenge in Africa

How to invest social security funds?

- **Financial services are provided by a small financial sector**
 - granting short term loans to large high risk clients
- **Government bonds**
 - to cover the fiscal debts
 - representing a significant portion of bank and social security assets

The lack of reliable long term saving instruments limits the capacity of investing long term funds

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Financing and Provident Fund experience

- **Conclusion: Accumulation of funds, as in Defined Contribution plans, cannot be proposed**
- **Provident Funds showed that**
 - **Investments yields were below inflation rates**
 - **The administration expenditures were high**
 - **And then the final lump-sums meaningless**
- **Main objective:**
 - **Avoiding large accumulation of funds**
 - **Adopting partial funded systems**

Definition of the pension formula: the key challenge

- Main purpose: to achieve a social justice:
 - Benefit package should be designed with the objective of providing adequate pensions to low and medium earners
- The formulae used are based on
 - Average insurable earnings over the last 3 or 5 years
 - Contribution periods
- Attention to
 - the definition of earnings (basic or gross salary?)
 - more re-distributive formulae?
 - Minimum pension
 - Special conditions for invalids, survivors, elder members
 - Ceiling in order to avoid perverse redistribution

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Implementation of actuarial tools: Periodic assessment of the schemes

- **Projection models should be tailored to a specific scheme**
 - **The use of one-size-fits-all approach should be avoided**
- **Local actuaries should be involved in the implementation of the model (Morocco experience)**
- **Model should be designed by bearing in mind the variability of the results**
 - **in the deterministic models is worthwhile to introduce earnings groups**

May we establish a fruitful co-operation with the economists?

- **Our contribution:**
 - explaining clearly the meaning of funding
- **Their contribution:**
 - analysing the factors (not only the demographic factors) that can shock the economy of a particular Country
 - as a growing economy does not imply increases in labour sectors, studying alternatives in the financing of pensions programs
 - What about the studies (1980s) regarding value added criteria to finance pensions?

My contribution to the co-operation with the economists

- **What is the meaning of “full funding”?**
- **Once Prof. M.A. Coppini strongly claimed “a protected designation of origin” for this label**
- **Argument:**
 - **A label may influence our expectation about the product**

Example by Prof M.A. Coppini: strawberry jam



Dreaming about a nice breakfast

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People inventing general average premium have put a label on it



- Peaceful old age time sheltered by solid reserves

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The label does not fit the expectation

Example Italian Scheme

- **In 1919 the actuaries created it as a full funded scheme (general average premium)**
- **Afterwards, financial crises, inflation, war, increases in benefit conditions reduced the function of the reserve**
- **In 1969 any residual form of capitalisation was abandoned. Main argument: in a mature scheme PAYG contribution rate is close to the general average premium**

Public Full Funded scheme is a theoretical concept and technically a very fragile system

- **Small variations in respect of the actuarial assumptions entail the re-calculation of the premium to readjust the value of the reserves**

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Nowadays Economists have put the same label to defined contribution plans



Warning: the amount of your future pension is subject to market volatility and scheme management

Comments on this new label

- The perseverance of presenting Defined Contribution Plans as a perfect solution induced Prof. M.A. Coppini to say that there is a virus infecting social security field

The “defined contribution virus”

- Economists had re-opened (1994) the old debate on the Aaron Paradox (1966):
 - “Social insurance” can increase the welfare of each person if the sum of population growth and real wage increase exceed the rate of interest

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L. Thompson comments about Aaron paradox and defined contribution plan

- **The paradox is based on over simplified assumptions. The picture may change when considering**
 - **Mortality structure**
 - **Administrative costs**
- **When introducing a social security scheme attention should be paid to the time necessary to achieve the goal of insuring adequate income at the retirement**
- **Is it possible to switch from a PAYG system to a Defined contribution plan?**
 - **The transition involves large duplicate payments for several decades**

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L. Thompson and the effect of demographic factors on DCP

- **The demographic factors may influence the amount of pension under DCP**
 - **People accumulate something of value during the working life (financial assets)**
 - **At the retirement, they will sell those items to the young people**
- **The demographic factors will affect DCP when the supply of accumulated assets is larger than the demand**

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A new concept: Implicit Pension Debt

- **Definition (from World Bank papers):**
 - Present value of the accrued rights that current workers have in social pension schemes
 - It is derived by the rules applied into private pension sector (see IAS 19) to protect participants if the scheme discontinues
- **But, in public pension scheme no termination of the scheme is expected**

Techniques for calculating Implicit Pension Debt

- There are many studies trying to adjust techniques used for private pension schemes to the complex reality of public pensions
- Two main techniques:
 - Accrued to Date Liabilities
 - Estimation of the liabilities accrued to a point in time
 - Open System Liabilities
 - Future benefits entitlements of the current population + those relevant to future contributors with an infinite time horizon

Implicit Pension Debt: World Bank calculations

- **Method used: accrued to date Liabilities, similar to the Projected Unit Credit Method set by IAS 19:**
 - For the current existing pensioners the present value of the annuities;
 - For the present contributors a quota of the projected benefit amount
- **Calculations on industrialised countries showed that the IPD is a very large amount (over the Gross Domestic Product)**
- **International comparisons are difficult because:**
 - Problems in harmonising basic projection assumptions
 - Problems in considering country specific features

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Commentary to IPD made by IAA

- The topic merits debate and discussion: IPD is a misunderstood and misinterpreted notion
- IPD is less relevant in the context of national accounts than it is for corporate balance sheet
- The probability of wind-up of most national scheme is very close to zero
- For public Plans what is important is not the funding but the solvency and sustainability
- Solvency and sustainability are related to cash flows and not the assets and the liability
- My comment: It would be desirable to carry on actuarial theoretical studies instead of controversial projections

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Further comments on Implicit Pension Debt

- **IPD is a misleading concept: it is an absolute value and the comparisons are discretionary. Comparison suggested:**
 - **To the assets (reserves) of a Social Security scheme**
 - **To the covered wage bill**
- **Use suggested: to measure the effect of a reform**
- **Comment:**
 - **Those comparisons do not add any information to our knowledge nor give any hint about the degree of capitalisation**
 - **Actuaries have already other instruments: the calculation of a general average premium or at least of a financial equilibrium over a long period give us indications about the effect of a reform**

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New supporters of Implicit Pension Debt

- **The International Public Sector Accounting Standard Board in March 2008 has issued a draft on long-term fiscal sustainability**
- **Fiscal sustainability involves an assessment of the extent to which governments can be met in the future**
 - **The calculation of IPD is slightly different from Accrued to Date Liabilities:the liabilities in respect to the active persons is limited to the individuals (without quota) who have satisfied the eligibility criteria at the reporting date**

Another virus?

- **By using the words of Prof. M.A. Coppini, I am tempted to say there is another virus infecting the social security field**

Implicit Pension Debt Virus

- **Other areas to be infected: the International rating agencies that are interested in including the amounts and the future trends of IPD in their criteria for country rating**

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