



# Comment on SNA Treatment of Defined Benefit Pension Plans

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# Pension Entitlements in Defined Benefit Plans

- In a typical defined benefit (DB) pension plan, the level of benefits during retirement depends on the length of service to the employer and pay in last year, or few years, of the career.
- *Pension entitlements* (aka Plan's *actuarial liability* or **AL**) = present value of participants' claims to future benefits.
- *Unfunded actuarial liability* (UAL) = pension entitlements – the total value of the assets held by the pension plan.
- Underfunded plans have  $UAL > 0$ ; for overfunded plans  $UAL < 0$ .
- For underfunded plans, SNA records a “claim of pension fund on the pension manager” equal to the UAL.
- In practice, the “pension manager” of the SNA is usually the employer (or “plan sponsor”), but other cases are possible.

# Normal Cost

- “Service cost” or “normal cost” = claims to benefits accrued through service to employer during the accounting period.
- Under ABO approach, normal cost includes effect on the AL of actual salary increases that happen in the accounting period.
- Under PBO approach, projected future salary increases are factored into value of claims benefits accrued through service.
- In private sector financial accounting, PBO usually calculated using the Projected Unit Credit method, but actuarial reports for government employee pension plans often use the Entry Age Normal method.
- EAN measure of normal costs based on the constant percent of pay over the career needed to accumulate assets at time of retirement = to annuity value of benefits during retirement.

# Drivers of Change in Pension Entitlements

- Gross accruals of pension entitlements = normal cost + interest payable on pension entitlements.
- Net change in pension entitlement (*“adjustment for change in pension entitlements”*) = normal cost + interest payable on pension entitlements – benefits paid.
- Variation in **AL** from year to year is also influenced by OCVAs, such as changes in actuarial assumptions, particularly the interest rate, and by changes in plan provisions (which may be classifiable as capital transfers.)

# Pension Plan's Income and Expenses

- Income of the plan consists of:
  - contributions from the employer and the employees;
  - property income generated by the plan's assets.
  
- Cash expenses of the plan are:
  - costs of running the plan (“administrative expenses” or “service charges”), which are services consumed by households; and
  - benefit payments to retirees and survivors.
  
- Accrual expenses of the plan add the *adjustment for change in pension entitlements*.
  
- Accrual expenses of the plan = normal cost + interest payable on pension entitlements + administrative expenses.

# Household Total Pension Contributions

- *Employers' imputed contributions* is defined such that:  

$$\text{Employers' actual contributions} + \text{Employers' imputed contributions} = \text{Normal cost} - \text{Employee contributions} + \text{Administrative expenses}.$$
- Compensation component of household income from participation in pension plans = total employer contributions.
- Interest payable on pension entitlements is reinvested by households in the form of *household contribution supplements*.
- In calculating *household total pension contributions* there is a negative imputation for administrative services, which are recorded elsewhere as implicit sales of output to households.
- Household total pension contributions = Employer contributions + employee actual contributions + contribution supplements – admin. expenses = **Gross accruals of pension entitlements.**

# Saving of DB Plans as Measured in the SNA

- $\text{Income} = \text{property income from plan assets} + \text{implicit sales of administrative services ("output")} + \text{household total contributions} = \text{property income from plan assets} + \text{administrative expenses} + \text{normal cost} + \text{interest payable on pension entitlements}.$
- $\text{Expenses} = \text{administrative expenses} + \text{interest payable on pension entitlements} + \text{benefits} + \text{adjustment for change in entitlements} = \text{administrative expenses} + \text{interest payable on pension entitlements} + \text{normal cost} + \text{interest payable on pension entitlements}.$
- $\text{Income} - \text{expenses} = \text{property income from plan assets} - \text{interest payable on pension entitlements}.$
- $\text{Saving of pension plans} = \text{property income from plan assets} - \text{interest payable on pension entitlements}.$

# DB plans likely to have negative saving

- Pension managers often invest in assets that are expected to provide investment returns in the form of holding gains.
- Dividend + interest yield on these assets < interest rate assumed in the actuarial calculations of normal cost and the AL.
- If assets < AL, then property income from assets < interest on the AL even if the income yield on assets = rate assumed in calculations.
- Underfunding of pension plans is more common than overfunding.
  - Employers with cash flow problems often put off making the contributions that are due.
  - Plans fail to build buffers against periods of poor investment returns.
  - Pension managers tend to base contribution amounts on optimistic assumptions.

# Claim of the plan on the pension manager

- Most of the time, the claim on the plan on the pension manager equal to the UAL can be treated as a claim on the employer.
- The employer is the one who makes the pension promises.
- Employers may be legally or contractually liable for their plans funding shortfalls.
- Even if there is an separate pension manager, the pension manager is likely to treat the UAL as a liability of the employer.
- Shortfalls in actual contributions are treated as **employer** imputed contributions. It is hard to see how they can be a liability of the employer in the period when the contribution is due, but become a liability of someone else one period later.
- Interest ought to be payable on the claim of the underfunded plan on the employer.

# Why Impute Interest Payable on the UAL?

- Failure to make a contribution when it is due deprives the plan of the opportunity to earn property income.
- To enable the plan to pay the promised benefits, besides making up the missed contribution, the employer must replace the property income that the plan would have been able to earn.
- Including interest on the UAL brings the accrual measure of the employer's pension expense into line with the cash expenses, as cash contributions will be needed to cover the interest charges.
- Interest on unpaid contributions can make the finances of employers unsustainable and even push them into bankruptcy.

# Overfunded Plans

- For overfunded plans, investment income on excess assets will reduce the need for future contributions.
- To reflect reduced need for future contributions, plan pays interest to the employer on the amount of the pre-funding of the employer's pension costs.
- Often only aggregate data on the funding status of an entire class of pension funds is available, so it is often not practical to try to exclude overfunded plans from calculations of interest on the plans' claims on employers.

# Benefits that are funded by holding gains

- Negative saving of pension plan that is caused by missed employer contributions is clearly a mistake.
- An erroneous negative measure of saving by plans will distort the entrepreneurial income of financial corporations.
- But when the plan's property income is low because its investment returns come in the form of holding gains, a justification exists for saying that the plan has negative saving.
- Nevertheless, inclusion of benefits funded by holding gains in the income of households is inconsistent with exclusion of holding gains from the measure of national income.
- With interest on the UAL included in plan's property income, it is reasonable to measure pension income of households by the benefits that can be funded by the pension plans' income.

# Decomposing plan saving: An example

- Let *actuarial value of benefit entitlements* = 1.2 million.
- Let *interest rate for actuarial calculations* = 5 percent. Then:
- *Interest payable on benefit entitlements* in a year = 60,000.
- Let *plan assets* = 1 million.
- Let *annual property income from plan assets* = 30,000. Then:
- Implied funding of benefits from expected holding gains = (1 million)(5 percent – 3 percent) = 20,000.
- Claim of plan on the employer for the UAL = 200,000.
- Interest payable to plan from claim on the employer = 10,000.
- Saving of pension plan =  $-(10,000 + 20,000) = -30,000$ .

# DB Pension Flows in the NIPAs

