

**IMPUTING LIABILITIES OF UNFUNDED EMPLOYER PENSION SCHEMES :
A REAL OR A NOMINAL DISCOUNT RATE?**

Note by John Walton

1. This note comments on some of the implications of OECD's paper of 23 January 2004 –
“ Conditions for the proposed change in the treatment of unfunded employer schemes
in the SNA : illustration for general government accounts ”
– as regards the discount rate. Subject to these qualifications, I agree with almost all of it.
2. The suggestion on page 10 of the OECD paper, that the long-term government CPI indexed
bond rate should be used, is attractive. But there is a critical relationship between the
assumption about the discount rate and the assumption used in estimating the future stream of
benefits. Footnote 11 on page 9 of the paper indicates that this assumption is needed too,
with which I agree.
3. In my experience as a “Trustee”¹ of a UK defined benefit (final salary) employer pension
fund, our actuarial advisers expressed both these assumptions in nominal terms. Say, an
assumption that in the long-term salaries would increase on average by 5% p.a., and that in
the long term the interest rate would average 4%. The expected inflation component of each
assumption was not explicit – it seems desirable that it should be; if it were, say, 2%, the
assumed salary increase and discount rate in real terms would be 3% and 2%, respectively.
Although I criticise, in this way, past commercial practice in the UK, the point remains that
more needs to be known about the practice of actuaries advising the managers of funded
employer schemes of the defined benefits type, and about the extent of variation between
schemes in such practices, to the extent that they are permitted by accounting standards.
4. When statisticians are acting like actuaries in making such assumptions in regard to unfunded
employer schemes of the defined benefits type, a key question is what assumption about
future salary increases is best, and whether this should be expressed in real or nominal terms.

¹ Member of the management board. In UK law, the Trustees have a duty to manage and to balance the interests of the employer/shareholders and of the employees. They should be independent of the employer.

There may be a stated objective of government as employer, e.g. comparability with the private sector. In the long run market forces will tend, in any event, to create some parallelism between salaries in the public and private sectors. It might help to estimate from past data for either the public sector or both public and private sectors in which form, real or nominal, the assumption about trended average annual salary increases gives the best fit to actual annual data.

5. However, past data will include the effect of other factors such as grade drift²; it may be necessary to adopt composite assumptions for the future, also including the effect of such factors. All in all, assumptions relating to real movements seem best.
6. I agree with footnote 11 of OECD's paper – if, for instance, real salaries have increased/are assumed to increase in future, on average, by $x\%$ p.a., this affects, from the first year of anybody's employment, both the accrual of contributions and the estimate of accrued pension rights. Incidentally, this is one reason why current pension payments are an inadequate proxy for contributions on an accruals basis, even when the employment hierarchy is stable and mature, and the age profile of employees is normal. Contributions on an accruals basis should provide, throughout a career, for the fact that the pensions in year 1 of those retiring in year 1 may have a higher real value than the indexed pensions in year 1 of those who retired in year 0.
7. Other points
 - (a) D44. The estimate of the present value, at current prices, of accrued pension rights should not be affected by: whether the estimated stream of future benefits is expressed in nominal terms and discounted back to the present using a nominal long term interest rate; or whether both are expressed in real terms – provided that the inflation assumption is explicit and is common to both. Long term market interest rates could be used as proxies. But presumably the calculation of D44 must be based on a *nominal* interest rate. It is an open question whether that should be 'this year's' long term market interest rate or the estimate, described above, for

² One way in which market forces – difficulty of recruitment and retention of public sector employees – can make themselves felt, in the long run, is by virtually institutionalising grade drift. In the UK, in the 1950's-1970's, this tendency was apparent and helped, I believe, to keep public sector salaries competitive; but it is difficult to disentangle this from more 'genuine' reasons for higher grades, such as increases in the involvement and responsibilities of government. Another type of grade drift would be the tendency, if allowed, to promote people near to retirement so as to improve their pensions (if the definition of benefits is based on final salary rather than on real average salary).

the *nominal* version of the discount rate. In other words, should the discount rate change year to year in the same way as long term interest rates do, in the market? Does it matter if there are fluctuations in the discount rate so that changes in it do not track exactly, from year to year, changes in the (more stable) assumption about the rate of future benefit increases?

- (b) Interest rates on corporate bonds. The “long term government CPI indexed bond rate”. In the private sector, actuaries accept a nominal discount rate based on high grade corporate bonds, which will be slightly higher than that based on ordinary (non-indexed) government bonds. The difference might be added to the CPI indexed rate on government bonds?
- (c) Concept of disposable income. Presumably the concept of the disposable income of the members (active and retired) of unfunded pension schemes should be the same as that of the disposable income of members of funded schemes. If the dual recording basis is used, this would mean introducing pensions as resources in the secondary distribution of income account, and contributions and imputed property income as uses, and introducing D8 into the use of income account. The concept of saving stays the same as in the illustrations of the OECD paper. On the dual recording basis, the concept of the disposable income of members of the unfunded schemes would remain as now, I think; only their saving would change.
- (d) Analogy with non-life insurance? In adopting estimates based on expectations, there is a slight analogy with the recommended changes for non-life insurance. However, the analogy does not go far. In pension funding, the revised accruals based concepts for contributions, saving and net lending are all affected by long term expectations about salary increases and the discount rate; and the reconciliation between long term expectations and short term actuality takes place in the financial, etc., accounts. With non-life insurance, the accruals based concept of net lending remains unchanged, but those of production and saving are changed, being affected by medium term expectations about claims. The reconciliation between medium term expectations and short term actuality takes place in the capital account.