

The Financing and Costing of Government Superannuation Schemes

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I INTRODUCTION

This paper discusses the issues which are relevant to the financing of superannuation benefits provided by the Commonwealth of Australia to its employees. There are four main schemes for Commonwealth employees which are referred to in this report:

- Commonwealth Superannuation Scheme (CSS)
- Public Sector Superannuation Scheme (PSS)
- Defence Force Retirement and Death Benefits Scheme (DFRDB)
- Military Superannuation and Benefits Scheme (MSBS)

The CSS and PSS are the schemes for civilian employees; the CSS was closed to new members on 1 July 1990 when the PSS was established and existing CSS contributors were given the choice of transferring to the new scheme or remaining as members of the closed CSS. The DFRDB and MSBS are the schemes for Defence Force personnel; the DFRDB was closed to new members on 1 October 1991 when the MSBS was established and existing DFRDB contributors were given the choice of transferring to the new scheme or remaining as members of the closed DFRDB.

While there are a number of other schemes for Commonwealth employees, they are of little financial significance relative to the four main schemes. In addition a number of Government Business Enterprises (GBEs) have established superannuation schemes for their employees.

The Commonwealth superannuation schemes are financed in a different way from private sector schemes in Australia. From time to time concerns have been expressed as to the soundness of the financing of the Commonwealth schemes and it has been suggested that it would be preferable if the Commonwealth superannuation schemes were funded in a similar way to private sector schemes. This paper analyses these arguments and concludes that the current financing arrangements are sound, provided there is appropriate reporting and monitoring of the costs of the schemes in the long term. It recommends an appropriate reporting structure necessary to ensure that the schemes are soundly based.

The paper concentrates on defined benefit schemes, because this is the general structure of the Commonwealth schemes. However, some of the issues relating to accumulation funds are discussed also.

II FUNDING

In the private sector, superannuation benefits are almost always funded in advance through a trust which is separate from the employer. There are strong tax incentives for doing so, primarily that the investment income of complying superannuation funds is taxed at only 15%. Moreover, this type of funding is compulsory for benefits provided under the Superannuation Guarantee arrangements. Such a funding approach is common in many other countries but is by no means universal; alternatives include book reserving (where reserves are set aside on the employer's balance sheet) and pay as you go (where superannuation benefits are paid by the employer directly to the employee when they arise).

There are a number of reasons why such external funding is regarded as desirable.

Security

The assets built up in the fund provide security to the members so that their superannuation is not dependent on the future of the employer. Thus people close to retirement cannot lose their superannuation simply because their employer gets into difficulties. For younger people the security of their superannuation is perhaps less important as if they lose it then they may be able to make good the loss during their future working lifetime. However, with modern patterns of work people may expect to spend perhaps 20 years of their life in retirement, after a working life of 40 years. If their retirement is to be reasonably comfortable, then they will need to make significant provision for it throughout their working life. It is not practicable for this provision to be wholly made in the later years of working life. Therefore, even for people in their middle years, the security of their superannuation is a matter of great concern, and it is not satisfactory for it to be wholly dependent on the future prosperity of their employer.

Cost Saving

If money is set aside in advance then it will earn interest, and the cost will be less. The effect of compound interest over long periods is very substantial - if money is saved regularly over a 40 year period then around three quarters of the eventual accumulation will be interest, with only one quarter being the original contributions.

While this may be an argument for advance provision, it is not an argument for external funding, as most companies would believe they can make good use of capital and so achieve corresponding interest on the money. Indeed, to the extent that there are costs in financial market intermediation, most companies are incurring additional costs by the fact that they are providers of capital through their superannuation funds, but users of capital as companies.

Cost Allocation

Companies need to know their labour costs in order to price their products correctly, and superannuation is a part of the cost of labour. If superannuation is funded then the annual contributions to the superannuation fund may be taken to be a reasonable estimate of the costs of superannuation each year. However, this is not always reasonable; for example, if a fund has generated a substantial surplus then the company may not need to make any contributions for some years. Conversely, there are a number of funding methods (particularly the Current Unit Credit method) which may substantially understate the employment costs of superannuation in the early years. It is for these reasons that accounting standards are tending to divorce the accruing cost of superannuation in the employer's accounts from the cash contribution to the fund.

Stability of Cost

Actual superannuation payments can vary substantially from year to year depending on retirements and resignations. Funding provides an effective way of smoothing these fluctuations, as the fund essentially operates as a fluctuation reserve to smooth them out. However, the existence of the fund does introduce some volatility of its own, through the volatility of investment performance. This effect is most marked for funds which are mature, and has shown clearly in the large surpluses that arose in many funds following the exceptionally high real investment returns of the 1980s.

In any case the variation in superannuation payments is not substantially greater than other variations in company outgoings, such as capital expenditure. It can be managed within a company's accounts by the same techniques that are used to manage other variable outgoings - prudent budgeting, cash flow management, contingency reserves.

Portability

If superannuation is externally funded then when a person changes jobs it may be easier for them to transfer their superannuation from their old employer to their new one. A simplistic analysis would certainly suggest this: the Federal and State Governments are the only significant employers who do not allow superannuation to be transferred when an employee leaves, and these are also the employers who do not fund their superannuation. The issue in fact is probably more one of benefit design, and the extent to which benefits are defined at retirement rather than exit from service.

With defined benefits, the employer acts as 'guarantor' of the promised benefits; the fund is merely a mechanism for provision of the benefits. (The term guarantor is used here for convenience; as will be seen later it has limitations in its application to defined benefit funds.)

The extent of the employer's guarantee is a matter of benefit design, and will vary from scheme to scheme. In the private sector in Australia the commonest scheme design has been one in which a guaranteed lump sum benefit was provided on exit from service by means of retirement, death or disablement. No guarantee is provided on resignation, where the benefit is just an accumulation of contributions with interest.

With this design of scheme, once an employee leaves service their benefit guarantee finishes, and their benefit can be taken or transferred to another fund. Even if the scheme allows the money to be retained in the fund, the fund is operating merely as an investment vehicle for the money, not a scheme for the provision of benefits.

Government schemes have tended to provide benefits in the form of a life pension, and so the benefit guarantee continues up till death. In these schemes an earlier payout represented an early termination of the guarantee, and the question then arises as to whether such a termination should be permitted, and if so, on what terms. It has been rare for such a termination to be permitted on favourable terms.

Matching

With defined benefit funds it is not possible to match the funding to the liability. However, with an accumulation fund an advantage of funding is that it matches the provision to the accruing liability and so protects the employer against market fluctuations. (It is perfectly possible to have an accumulation scheme which is only partially funded, for example a scheme where the benefit is a multiple of members' accumulated contributions - if the members' contributions are funded there is no need to fund the remainder of the benefit in order to determine the benefit beyond doubt.) If an employer is willing to bear the market risk then the employer may well prefer a defined benefit scheme as more accurately targeted to the retirement needs of employees.

III NATIONAL INTEREST

The arguments so far have examined the position from the point of view of the individual employers and employees involved. However there are some broader considerations of the national interest which are also relevant. Some of these considerations have led to the introduction of the Superannuation Guarantee legislation under which a certain level of superannuation provision is mandated for all employees (other than those on extremely low incomes).

Equity Between Generations

It is desirable that each generation should provide for its own retirement and not be dependent on succeeding generations to support it. In an absolute sense this is of course impossible. Retired people are inevitably dependent on younger people for many of the services they require such as medical and nursing care. However it is possible and desirable in a financial sense - if each generation saves sufficient during its working life then the drawings made on the production of the country by that generation when it is retired, will not impact adversely on the prosperity of the succeeding generation of the working population. This implies a need for an appropriate level of national saving, but not necessarily specific funding for specific retirement provision. Thus, Australia, in common with many other countries, provides an old age pension out of general taxation on a pay as you go basis. This pension is not funded: no advance provision is made for it, but in the past the general level of national saving has been sufficiently high that the increasing prosperity of the country has been able to support both an increase in number of pensioners and increases in the amount of the pension in both monetary and real terms.

National Saving

There are other reasons for seeking a high level of national saving. In general, the countries which have had the most sustained prosperity have been those with high rates of national saving. The Fitzgerald Report ("National Saving A Report to the Treasurer" by Dr V W Fitzgerald, June 1993) identified the importance of national saving, and also some of the ways in which national saving can be increased. Two of the major items identified by Dr Fitzgerald are Government saving, and funded superannuation. The two are related because national saving is the aggregate of public and private saving. Thus the tax concessions afforded to funded superannuation reduce public saving and this reduction in public saving needs to be taken into account in assessing the impact of funded superannuation on national saving. For example, the superannuation guarantee will have a relatively small impact on national saving over the next decade or so, but the effect increases thereafter. (Fitzgerald Report p53). If an increase in funded superannuation is also associated with an increase in the extent of Government borrowing then this will further reduce the impact on national saving. In the extreme position if the Government were to fund its superannuation schemes but increase its borrowing in order to do so then there would be no increase in national saving at all.

The Ageing Population

In common with most of the industrialised world, Australia is likely to see a significant shift in the age distribution of its population. The Table below shows the proportions of older people in the main industrialised countries over the 40 years from 1985 to 2025.

	Proportion of population in 1985		Proportion of population in 2025		Increase in proportion of	
	old (over 65)	very old (over 85)	old (over 65)	very old (over 85)	old (over 65)	very old (over 85)
	%	%	%	%		
UK	15.1	3.1	18.7	4.0	24%	29%
Italy	13.0	2.5	19.6	4.3	51%	72%
W. Germany	14.5	3.2	22.5	5.3	55%	66%
France	12.4	3.2	19.3	3.8	56%	19%
US	12.0	2.6	19.5	4.8	63%	85%
Canada	10.4	2.0	18.8	3.7	81%	85%
Japan	10.0	1.7	20.3	4.9	103%	188%
Australia	10.1	1.7	15.9	2.9	57%	71%

Source: "Pay-as-you-go Funding Stability: An Age of Eligibility Model" by Robert L Brown, Transactions of the 24th International Congress of Actuaries, 1992

Note: The proportion of old people includes the proportion of very old people.

These projections show that even in 2025 Australia is projected to have a smaller proportion of old people than other industrialised countries. However, the demographic shift in Australia is of similar magnitude to the other countries - with an increase of 57% in the proportion of old people and of 71% in the proportion of very old people. While there may be a simultaneous reduction in the proportion of children in the population, the Government expenditure on each child is less than the Government expenditure on each old person (particularly each very old person), so if no policy changes are made the effect of this ageing of the population will be a significant increase in Government expenditure, ie the proportion of the country's production that is reallocated through the process of taxation and benefit payment will be significantly increased.

This raises the political question of whether such an increase will be acceptable to the country (in particular to the working population of the country) and the economic question as to whether such an increase will be affordable. These are not questions which can be answered definitively now, as the answers will depend on future circumstances. Certainly the last one hundred years has seen a very large increase in the proportion of the country's production that is reallocated through the system of taxation and benefit payments. However this increase has been achieved most easily either under the influence of national emergency (ie war) or when the prosperity of the country was rapidly increasing. The problem of the ageing population is therefore best provided for at the present time by doing everything possible to ensure that the prosperity of the country continues to increase as rapidly as can reasonably be achieved. The major step that can be taken towards this end is an improvement in the rate of national saving.

On national interest grounds, therefore, the question of whether and how to finance the Commonwealth superannuation schemes resolves itself into the question as to which method would be the most effective in improving national saving performance. In some countries (notably Singapore) the Government has played a significant role in improving national saving - they have raised money from their people and contributed most of it towards national saving rather than current expenditure. However, in most other English speaking countries (including Australia) the tradition has been that Governments are spenders of money rather than savers: ie money raised by the Government whether by borrowing or taxation, is generally used for consumption rather than saving. One reason for this is that the effectiveness of national saving in improving the prosperity of the country depends not only on the level of saving but on the efficiency of its deployment.

The basic philosophy in Australia and similar countries has been that the most efficient deployment of savings will be achieved by the use of market mechanisms, rather than Government direction. It is consistent with this general philosophy that the Government has generally not funded the superannuation schemes for its own direct employees. If these schemes were funded the amount of the funds would be very large (over \$60 billion) compared with total superannuation assets of \$170 billion and total assets in financial institutions of \$830 billion. The efficiency of the investment of this \$60 billion would have a major impact on the performance of the economy generally. While various structures could be devised which would be designed to secure the efficiency of such an investment fund, their effectiveness is not assured. There is clearly a risk that the public sector would obtain an inordinate influence over investment markets.

Partial Funding

The decision on whether to fund the Commonwealth Government schemes is not a straight choice between no funding and full funding. Various partial funding approaches are possible. Thus of the current main government schemes the DFRDB is wholly unfunded while the MSBS, the CSS and the PSS have the member contributions and the employer productivity contributions funded. In addition, a number of GBEs (such as Telecom) have established separate funds for their employees. The Government requires that these schemes be fully funded in respect of accruals since their establishment. The CSS pays transfer values to these new schemes in respect of CSS accruals prior to their establishment. These transfer values are paid when members leave the service of the GBE, whereas in the CSS the benefit would not have become payable until retirement. There is therefore some advancement of the funding of the previous CSS accruals following the establishment of the new GBE schemes. Some other GBE schemes, such as Qantas, have been fully funded for many years.

This has enabled a partial funding of the Government's superannuation liability, but on a dispersed basis remote from direct government control.

The above arguments suggests that the appropriate level of funding should be determined primarily on the basis of achieving the best result for national saving, taking account not only of the amount of such saving but also the efficiency of its use.

IV SECURITY

As described above, the most important reason for funding in the private sector is to provide some security for the members' benefits. The nature of this security needs closer examination. In a continuing scheme the members just receive their defined benefits. However, if the scheme is discontinued (eg because the employer has gone bankrupt) then the members lose their entitlement to a defined benefit backed by the employer and become entitled to a share of the fund assets instead. The proportion of fund assets allotted to each member will take account of their defined benefit expectations, but the amount of money available for distribution is simply the amount of money in the fund. Even in less extreme circumstances the members do not have any absolute security for the payment of their defined benefits. If the fund's experience is unfavourable then the employer may be unable to maintain the level of defined benefits, and some reductions may be necessary. In practice employers would normally try to make up any shortfall between the assets in the fund and the value of accrued benefits unless the cost of these benefits was threatening the viability of the employer.

While the external fund does give security to the provision made for members (because the assets are held in trust) it does not give security to the members defined benefits, as the continuance of these is dependent on the employer's ability to meet any shortfall. The essential idea is that the employer establishes a funding plan under which it makes contributions to the fund on a regular basis designed to finance the defined benefits for each member during their period of employment. This funding plan is adjusted on a regular basis in the light of experience. If the employer has to discontinue its planned funding then the members should get what has been contributed for them on the basis of the funding plan.

The existence of a fund does not guarantee the defined benefits, and if conditions are very adverse (eg a major investment downturn) then the members are relying on the goodwill and continued prosperity of their employer to maintain the defined benefits.

Government Ability to Pay

There have been doubts expressed as to whether the unfunded Government liabilities will be able to be afforded out of future government revenue. In effect, these doubts are similar to the doubts expressed over the possible future of other programmes such as the age pension. Moreover, they are exacerbated by the changing demographics of the country. These doubts have arisen most forcefully in respect of schemes for State Government employees - the governments of New South Wales, Victoria and South Australia have been sufficiently concerned about this to adjust their schemes and to move towards full funding in respect of new employees. The Queensland Government has for some time accumulated assets within its Consolidated Revenue Fund which are held for the purpose of meeting its superannuation liabilities.

It is certainly true that the mere existence of revenue raising powers does not ensure that future obligations can necessarily be met. Changes in technology and shifts in population can lead to a major decline in a revenue base that was once substantial. Thus for example local authorities have been vulnerable to shifts in population, while port authorities have suffered from changes in technology. In Australia, "the dominant revenue raising powers of the Commonwealth coupled with the large expenditure responsibilities of the State/Territory and local government sectors necessitates significant transfers from the Commonwealth to the other levels of Government". (1994-95 Budget Paper No 1 Statement 6)

The position of the Commonwealth, as a national government with very wide revenue raising powers, is therefore different from the other Australian Governments. Its revenue raising ability is essentially only constrained by the prosperity of the country. This is a significant constraint - for example, it is unlikely that the population would accept for any length of time a system under which the general population was very much poorer than those employed in government service. However, the management of the economy is a matter for which the Federal Government has responsibility, and this is much less liable to unforeseen variation than a local authority or a particular authority which is dependent on a single trade.

If the economy as a whole got into serious difficulty, it is unlikely that advance funding would preserve the superannuation benefits of public servants. Such a major economic problem would inevitably be felt by all sections of the community, and the mere fact that persons in retirement had had savings made on their behalf would not protect them from the general consequences. Indeed, in major economic distress it is not uncommon for those who are dependent on savings to suffer much worse than those who are dependent on their earnings from their own exertions. In practice, the prosperity of retired public servants is likely always to be constrained by what the population of the country as a whole will accept for this group of people.

At the present time, there seems no reason to suppose that the future expenditure on superannuation for Commonwealth Government employees will place an unsustainable burden on the budget. It is presently around three percent of total government expenditure, and less than 1% of GDP. Moreover, as a percentage of GDP it is expected to fall in the next few years, and to stabilise at a rate which is less than half the current rate.

V COSTING METHODS

There are a variety of different actuarial methods available for the costing of superannuation schemes. The main methods in common use are described in an Appendix. Some of these methods are of use only in fully funded schemes, as they are designed to produce a reasonable rate of contribution to a scheme to ensure that its benefit payments may be met. For an unfunded scheme the assessment of costs needs to cover three things.

1. Since these schemes may be largely unfunded, the level of future outlays may vary significantly. In particular, it is quite likely that the level of costs may rise in the future - particularly if any new scheme or any benefit improvement is introduced for existing employees only. It is therefore essential to have a long term projection of the outlays on the scheme from year to year, in a form which enables a meaningful assessment to be made of whether the scheme is affordable.
2. Superannuation is an important element of remuneration, and needs to be understood as such. It is therefore necessary to have a reasonable measure of the costs of superannuation for determining the total costs of remuneration for government employees. This is important in a relative sense so that the remuneration packages of government employees may be compared with the remuneration packages of other employees in the country. However it is also important in an absolute sense, so that decisions about the allocation of resources can be made on a fair basis. For example, it is often desirable to compare the cost the Government incurs in carrying out a particular function with the private sector cost of carrying out that function (eg to assess the efficiency of the Commonwealth or to assess the merits of outsourcing the function). The full costs of superannuation for the Commonwealth employees need to be included if a fair assessment is to be made.
3. An assessment needs to be made of the value of the accrued liabilities in respect of superannuation entitlements for Commonwealth employees. In effect, these accrued liabilities represent the liabilities for superannuation entitlements in respect of service already rendered to the Commonwealth. It is reasonable to separate the accrued liabilities from the future liabilities because the future liabilities are a part of future terms of employment, and should be considered in the same light. Thus the Government has greater flexibility to negotiate over the future liabilities, whereas the accrued liabilities are an existing commitment which it would be very difficult for the Government to avoid - indeed such an avoidance is likely to be seen as bad faith, and an indication of untrustworthiness or financial unsoundness in the Government.

It is desirable that the methods used for items two and three above are consistent, ie that the assessment of the cost of accruing superannuation from year to year is the same as the increase in the value of the accrued superannuation liability.

Cash Flow Projections

The long term projection of budget outflows can be presented in various ways. Presentation in actual dollar terms is likely to be misleading because the impact of inflation on the later figures is substantial. This can of course be overcome by presenting the figures in today's dollars ie removing the effect of inflation from the figures. However, even these figures may be somewhat misleading . The Australian Population is expected to grow over the long term, and this growth is likely to translate into some growth in government employment, as the government programmes will have a greater population to service. This anticipated growth will of course be reflected in a growth in the future benefit payments.

In the past, it has been common for actuarial reports on the Commonwealth schemes to show benefit payment costs as a proportion of salary of current employees. This has been reasonably effective while the public service was stable. However, it loses its effectiveness when there are substantial changes to the existing public service because no corresponding changes occur to the pensioners. Thus for example Telecom has recently been redefined as no longer part of the Public Service, but people who have previously retired from Telecom are still receiving pensions from the CSS. In any case, salaries of public servants are not a reasonable measure of the impact of an outgo on the budget; they bear no relation to the country's ability to finance these benefits, nor to anything else in the budget apart from the salaries item itself. Therefore, it seems more reasonable to use a measure which is related to the prosperity of the country, ie to show the costs as a percentage of Gross Domestic Product (GDP). Any significant rise in the costs as a percent of GDP would clearly need to be carefully prepared for, as it would show a significant increase in the potential impact of the superannuation payments on the Commonwealth budget.

Funding Methods

For many superannuation benefits, there is no obvious way of determining how much of the eventual benefit is to be deemed to have accrued at a particular point in time. The rules of the scheme provide for a benefit to be paid, for example, on retirement at or after age 60, and how that benefit is to be calculated. They do not specify how much of that benefit is to be regarded as accrued by the age of 40 for someone who joined at age 30. There are two main methods of determining how much of the liability is to be supposed to have accrued. The Projected Unit Credit method proportions each benefit by service. In other words, for a member who joins at age 30, the proportion of their possible benefit payable at age 60 that is deemed to have accrued at age 40 is one third. This method produces, in respect of individual employees, a superannuation costs which rises as a percentage of salary, because each year has to buy the same proportion of the final benefit, but the earlier years have the benefit of greater interest earnings thereafter.

The Entry Age Normal method accrues each benefit on the basis that it is paid for as a uniform percentage of salary over the person's lifetime. This produces a somewhat faster rate of accrual of the liability than the Projected Unit Credit method.

Both methods are theoretically satisfactory and will also work effectively in practice.

There is no requirement in Australia to include an assessment of accrued liabilities as part of an actuarial valuation of a superannuation scheme. Indeed for schemes funded using the Entry Age Normal it is usual for the valuation not to include an assessment of accrued liabilities. Various solvency indices are normally calculated, but these are not regarded as assessments of the accrued liability. (For example, a fund may have a solvency index greater than 100%, but no surplus will be shown.) Where an assessment of accrued liability is required to be made (eg on sale of part of a business) the Projected Unit Credit method is nearly always used to assess the accrued liability. Thus the current position in Australia is that accrued liabilities are nearly always assessed on the Projected Unit Credit method, but contribution rates are often assessed using the Entry Age Normal method. This has little to commend it, as the contribution calculations are then based on a faster accrual than the liability calculations.

World practice is moving towards the Projected Unit Credit method, and this is in fact mandated by American accounting standards. In Australia the use of the Projected Unit Credit method has received some legislative support in the regulations for the determination of Pre-88 Funding Credits. (These regulations are used for the assessment of liabilities for schemes which were underfunded at 1988 when the 15% contribution tax was introduced - they receive a tax credit off the amount of their underfunding at that time.)

For these reasons it seems appropriate in Australia at the present time to use the Projected Unit Credit method for the assessment of the cost of the schemes for employment purposes, and also for the assessment of the accrued liabilities.

Clawback

The liability figure needs to be set in the context of the Commonwealth as a whole. The unfunded liability figure represents the capitalised value of the liability of the Commonwealth in respect of service already provided to the Commonwealth. However, if the Commonwealth did not discharge this liability, then it would suffer increased Age Pension outlays and reduced taxation receipts. This impact on the Age Pension and tax parts of the budget are therefore an offset to the unfunded liability, this offset being described as clawback. The amount of the clawback is the capitalised value of the additional costs that would fall elsewhere on the Government (either by increased outlays on old age pensions, or by reduced tax receipts) if the unfunded liabilities were not discharged.

It is worth noting that this clawback also arises in respect of private sector superannuation. Indeed, one of the main justifications for the tax concessions afforded to superannuation is the taxation revenue and reduced age pension outlay that will arise when the superannuation benefits become payable. In effect, the tax concessions represent a part of the savings of the country from the Commonwealth Government, and the Government will redeem these savings at the same time as the individual does through taxation on the individual benefit and a lesser payment of age pension. So far as the unfunded liabilities are concerned, it is useful to identify

the portion that represents the Government component of the liability rather than the member component.

VI CONCLUSIONS

It is not necessary for the Commonwealth Government to fund its superannuation schemes in the same way as private sector superannuation schemes. However, it may be desirable to fund them to some extent, provided the extent of their funding can be translated into an efficient and effective increase in national saving. Aside from national saving, there is no other reason to consider the funding of superannuation schemes for Commonwealth Government employees.

Whether a Commonwealth Government scheme is funded or not, it is essential that appropriate estimates be made of its cost. The following estimates should be made:

1. A long term projection of future Commonwealth outlays on superannuation benefits, so that any possible undesirable trends can be identified in advance, and whatever action is necessary may be taken. This should be expressed as a percentage of GDP.
2. The additional employment cost which arises from the existence of the superannuation benefits. This should be calculated using the Projected Unit Credit method, and presented as a percentage addition to salaries.
3. The unfunded liabilities of the scheme - that is the extent to which the liabilities for superannuation in respect of employment services already rendered exceed any assets that may be held against them. This should be expressed in dollar terms.
4. The offset to the unfunded liabilities which arises from the interaction of the superannuation scheme with the tax and social security system. This should also be expressed in dollar terms.

APPENDIX - DESCRIPTION OF COMMON FUNDING METHODS

Most funding methods involve two concepts - the standard contribution rate, which is the rate required to be paid if the scheme is neither overfunded nor underfunded, and the standard fund which is the amount of assets required for the scheme to be in balance so that it is neither underfunded nor overfunded. The difference between the actual assets and the standard fund is the surplus or deficit, which is normally amortised over a period by an adjustment to the future contribution rate.

Individual Entry Age

A standard contribution rate is determined for each member based on age at entry as a level percentage of earnings over their anticipated membership. It is calculated as the value at the time of entry of all future benefits which may become payable to that member divided by the value at the time of entry of all future earnings of the member.

The standard fund is determined as the total of the standard funds for each existing member of the scheme. The standard fund for each member is determined as the difference between the present value of all benefits payable to the member and the present value of future contributions at the standard rate for that member.

Since there are major practical difficulties in having different contribution rates for each individual member this method is rarely used in practice. The Entry Age Normal method is generally a good practical approximation to the Individual Entry Age method.

Entry Age Normal

The standard contribution rate is determined as a level percentage of earnings for a new member entering at the assumed normal entry age for the scheme. It is calculated as the present value of all future benefits which may be payable to such a member divided by the present value of all future earnings of the member.

The standard fund is determined as the difference between the present value of all benefits payable to existing members and the present value of future contributions at the standard contribution rate for these members. This method only gives the standard fund as an aggregate for the whole membership - if it needs to be broken down to individuals then the Individual Entry Age will give the most satisfactory division consistent with the principles of the method.

Aggregate

This method does not require a standard contribution rate or a standard fund. A single contribution rate is determined which is the contribution rate required to fund the total benefits for existing employees, allowing for the assets actually held, but ignoring new entrants. It is calculated as the present value of all benefits payable to existing members, less the value of the assets held, divided by the present value of all future earnings of the existing members.

This method cannot be used in a wholly or partially unfunded scheme. In a funded scheme it can be regarded as a variant of the Entry Age Normal method, as it produces the same contribution rate as under Entry Age Normal if any surplus or deficiency under Entry Age Normal is spread over the future working lifetime of existing members.

Attained Age Normal

This method involves a division of benefits for existing members between those that have accrued prior to the valuation date and those that will accrue after the valuation date. The division is normally done on the basis of the accrual rates specified in the scheme design. (The method is not normally used where benefits are not defined in terms of an accrual rate.)

The standard contribution rate is determined as the level percentage of earnings required to fund the future service benefits of existing employees, ignoring new entrants. It is calculated as the present value of the future service component of all future benefits which may be payable to existing members divided by the present value of all future earnings of these members.

The standard fund is calculated as the present value of the past service component of all future benefits which may be payable to existing members.

A peculiarity of this method is that the standard contribution rate and the standard fund are not calculated on a consistent basis; if the assumptions are met in practice then payment of the standard contribution rate will lead to a surplus of assets over the standard fund.

Projected Unit Credit

This method involves a determination of the proportion of each eventual benefit which is deemed to accrue in each year of membership. The conceptually simplest determination is to allow for each benefit to accrue uniformly over membership - ie each year of membership accrues an equal proportion of the ultimate benefit. However other approaches can be taken, particularly in respect of benefits which are not directly related to membership completed (such as death benefits).

The standard contribution is the present value of the benefits that will accrue in the next year; this can be expressed as a contribution rate by dividing by the present value of earnings in the next year.

The standard fund is the present value of the benefits that have accrued in respect of membership prior to the valuation date. This is the same standard fund as for the Attained Age Normal method, but the standard contribution rate for the Projected Unit Credit method is consistent with this standard fund.

Current Unit Credit

This method starts with the standard fund and derives the standard contribution rate from it.

The standard fund is determined as for the Projected Unit Credit method, but ignoring future increases in earnings.

The standard contribution rate is determined as the rate required to maintain the scheme at this level of funding. It is therefore calculated as two components - the increase in the accrued liability over the next year arising from the increase in earnings, plus the actual accrual of liability in the next year.

Funding Periods

The standard contribution rate under both the Projected and Current Unit Credit methods is determined as the cost of the next year's accrual of benefits. This may be liable to short term fluctuations and these can be evened out by averaging the contribution rate over the period between valuations (generally three years). If the period is extended beyond one year then it is necessary to allow for the effect of new entrants during the funding period.