

Accounting in full for pension liabilities

June 18, 2003, by Anne Harrison¹

Overview

The treatment of pensions in the 1993 SNA is driven by two considerations. The first is whether a scheme is considered to be part of social insurance in which case the accumulation of future provision of pensions is recorded as current transactions and not as part of a saving scheme. The second consideration is what assets, if any, are created by contributions to social insurance schemes. The question of the liability incurred by pension funds arises only in the context of the balance sheet.

For some schemes, no liabilities are recognised. For others a liability is established but no reconciliation is given to explain how this liability will be met if the corresponding assets of the pension fund are insufficient. Only in the case of a defined contribution (or money purchase) scheme does it happen that there is an exact match of assets and liabilities of a pension fund.

The growing concern about unrecognised liabilities of enterprises in respect of pensions suggests reviewing the treatment of pension provision in the SNA from the standpoint of how and when liabilities are incurred and how a full recording of these might be effected. Further, this should be done in such a way that there is a match between assets and liabilities of all pension funds. This is the goal of the attached paper. While much of the paper concentrates on employers' schemes, there is also discussion of how far the proposals might apply to social security schemes and consideration of the basic concept of social insurance.

¹ This is written in a purely personal capacity and the views herein should not be attributed to any part of the OECD secretariat. I am grateful to Paul Cotterell, Ross Harvey, John Pitzer, Philippe de Rougemont, Paul Schreyer and John Walton for their comments on an earlier draft.

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Introduction

The recording of pensions in the 1993 SNA varies considerably depending on the nature of the pension scheme in question. The most pervasive scheme in any country is the social security scheme run by government. In almost all countries, these are unfunded. Contributions and benefits are shown as current transactions of government and no liability is shown in respect of pensions due in future. Employers' pension schemes are growing in importance. Some of these are also unfunded, or when the funds are invested in the employing firm's own securities are treated as unfunded in the SNA. In all these cases also, no liabilities for future pensions show in the balance sheet of the firm and no assets are recorded for the employee entitled to a future pension. Increasingly, employers' schemes are funded rather than unfunded which means some future liabilities are shown in the accounts, but for defined benefit schemes these future liabilities do not match the assets available to meet them. For money purchase², or defined contribution, schemes there is an exact match between the liabilities to the pension fund beneficiaries and the assets available to meet these liabilities. Pension plans arranged by private individuals are also money market schemes and exactly funded but are not treated in the SNA as social insurance so that contributions and benefits are recorded as a form of saving and dis-saving rather than as current transactions.

The commercial accounting standards authorities are examining whether the liabilities of employers in respect of pensions should be shown in full in the firm's accounts, whether there is a fund to meet these liabilities or not and whether the fund is adequate for this or not. Such a development would indicate that maybe the SNA recommendations should also be reviewed to see whether more extensive recording of liabilities should also be considered. This concern embraces not just private companies but also government in its role as employer. In the past governments have typically paid for pensions for the population at large through social security on a pay-as-you-go (PAYG) basis assuming that the contributions received from those in work cover the benefits paid to those in retirement. When a population is ageing, as is the case in many OECD countries, this equality is unlikely to hold in future and the question arises about whether for government also there should be recognition in the accounts of future liabilities.

As the balance of pension provision by the state and by the individual changes, under present recommendations, the SNA shows different trajectories for the development of household disposable income and this too is something which might merit re-examining.

The purpose of this note is to review the existing methodology in terms of the entries needed in the SNA to record different sorts of social insurance schemes and to consider what changes would be needed if

² The SNA uses the term "money market" in place of "defined contribution" scheme. Although this last term is widely used, it leads to confusion by mis-identification with contributory schemes. While all defined contribution schemes are contributory, the reverse is not true. Defined benefit schemes, whether funded or not, may be contributory. The term "money market scheme" has come to have a somewhat different meaning from "defined contribution scheme" so that "money purchase scheme" may be a better synonym for "defined contribution scheme".

liabilities were to be recorded in full for unfunded or partially funded schemes. It also covers the case of over-funded schemes. It turns out that it is important to review the basis for estimating the output of financial institutions in order to be able to preserve comparability among different sorts of funds. As well as considering how full accounting for pensions might be incorporated in the system, the paper also considers some of the issues about why such a change might be desirable and whether the present concept of social insurance schemes should be reviewed³.

Social insurance schemes in the 1993 SNA

A defined contribution scheme which is managed by a separate pension fund is the case with the most complex set of transactions recorded in the SNA. An example of the entries required in this case is given in table A.IV.6. of the SNA which is reproduced for reference in an attachment to the present note. The relevant transactions are described below, first as they apply to a defined contribution scheme and then with the necessary qualifications for other types of social insurance schemes.

A Output of the pension fund. This represents the value of the service provided by the pension fund in managing the fund, keeping track of the accounts for each beneficiary and managing the funds available to earn a suitable return on them. The value of output is recorded as a resource in the production account of the financial corporation managing the fund. If a fund is managed not by a separate institutional unit but as a segregated but non-autonomous fund within another enterprise (typically that of the employer of the employees benefiting from the scheme), then there is no separate value of output recorded, the activity of managing the fund being regarded as an ancillary activity of the enterprise (SNA Annex IV Para 20).

B Contributions by employers. These cover actual contributions to the employer's social insurance scheme made by the employer on behalf of an employee. They are treated as being part of the remuneration package of an employee and are thus first included in compensation of employees and then as an outgoing by the employee to the pension fund. They are thus first recorded as payable by employers in the generation of income account and as receivable by households in the distribution of primary income account. They are subsequently recorded as payable by households and receivable by the units managing the pension funds, both transactions appearing in the secondary distribution of income account. For other types of social insurance schemes, contributions by employers to social security and actual or imputed contributions by employers in respect of unfunded schemes also appear and are recorded in the same way in the same accounts.

C Contributions by employees. These cover actual contributions to the employer's social insurance scheme made by the employee on his own behalf. They are recorded as payable by households and receivable by the units managing the pension funds both in the secondary distribution of income account. In addition to contributions by employees, any contributions by the self employed and unemployed to designated social insurance schemes are also recorded in the same way in the same account. Contributions by employees, the self-employed and unemployed persons to social security schemes are recorded similarly. Even for an unfunded scheme, there may be actual contributions made by employees and if so these are recorded here also. While it may be appropriate to record an imputed contribution to a pension scheme by the employer or other third party, only actual contributions by those covered by the scheme are recorded.

³ For simplicity, the discussion here is expressed in terms of pensions though in fact it should be taken to include all social insurance benefits. Only when there is a distinct treatment for benefits other than pensions are these mentioned explicitly.

D Property income attributed to insurance policy holders. This shows the income earned on the technical reserves of the pension fund and since these assets are recorded as being the property of the policy holders, so is the income arising from them. The property income is shown as payable by the pension fund manager and receivable by households in the distribution of primary income account. This item does not appear for unfunded schemes.

E Contribution supplements. Although the property income just described as item D accrues to the policy holder, it is recorded as being returned to the fund manager as a form of contribution supplement. It is exactly equal in value to item D. It is exactly analogous, except for the change in terminology, to the premium supplement and matching property income recorded for life and non-life insurance policies excluded from the coverage of social insurance. The recording of contribution supplements in the accounts is discussed under item F below. This item does not appear for unfunded schemes.

F Net contributions to social insurance schemes. These comprise a number of elements payable by households to the pension fund manager. The first component is the contributions made by the employer on behalf of the employee as described in item B above. The second is the net contribution payable by the employee on his own behalf. It is the sum of his own actual contribution (item C) plus the contribution supplement just discussed under item E less the service charge of the pension fund manager (if any) described under item H below. The total amount ($B + C + E - H$) is shown as payable by households and receivable by the pension fund manager in the secondary distribution of income account.

G Social insurance benefits. This item represents the pension payable by a social insurance scheme as well as any other social insurance benefits payable under the scheme. It is shown as payable by the pension fund manager and receivable by households in the secondary distribution of income account. In the case of social security, a distinction is made between benefits receivable in cash and those receivable in kind. Both are payable by general government in its capacity as the fund manager for social security.

H Final consumption expenditure. This represents the service charge levied by the pension fund to cover the costs of managing the fund. It is equal in value to item A. Since all additions to the fund are recorded as being paid by households in item F, it follows that this service charge is also payable by households and thus is recorded as their current expenditure. It is payable by households as final consumption expenditure in the use of income account and appears as output on the resources side of the production account for the fund manager.

I Adjustment for the change in net equity of households in pension funds. In the course of a year, households make contributions to pension funds, item F, and receive benefits, item G. The difference between these two, if it is positive, represents the increase in the value of the assets of pension funds owned by households. This represents a form of saving by households, usually one of the most significant forms of saving. For private savings schemes, additions to and withdrawals from the saving scheme are recorded as a use of saving in the financial account. The purpose of introducing social insurance in the accounts is precisely to be able to record pension benefits as income and not as a run-down of saving. This accords with the common perception of the nature of pensions and the way pension payments are treated in most household income surveys and derived analyses, for example income distribution statistics. For benefits other than pensions, collective nature of the risk spreading offered by the fund is better captured as a redistribution of current income than a redistribution of saving. If pension receipts and other benefits are to be recorded as current transactions, then it follows that contributions must also be recorded in the current accounts. This too accords with common perceptions since it means that pension contributions, over which the household has no discretion about whether they are saved or spent, are excluded from disposable income. However, if both contributions and benefits from pension funds are recorded as current transfers, then the net contribution to the pension fund appears as part of the saving of the pension fund and not as household saving. In order to avoid this undesirable consequence, an adjustment item transferring

this part of saving back from pension funds to households is made in the use of income account and is subsequently transferred back from households to pension funds in the financial account. The purpose of this dual recording is not always apparent to users of the accounts and care must be taken in deriving savings ratios for households that the item is included in both the numerator and denominator of the calculation which is not the case if it is taken to be the ratio of saving in the use of income account divided by disposable income in the secondary distribution of income account⁴.

The adjustment item I is equal in value to item F less item G and appears in the use of income account as payable by the pension fund manager and receivable by households.

J Transactions in the net equity of pension funds. This is the counter-part item to the adjustment item I just discussed and is equal in value to it. It is recorded as a payable by households and receivable by the pension fund in the financial account.

K Other change in pension funds. In addition to the transactions relating to pension funds listed in items A to J above, there are a number of other changes in the value of pension funds which may take place for other reasons. Holding gains and losses may appear when the technical reserves of a pension fund are invested in stocks and shares or when the reserves are invested in bonds and there are changes in interest rates. These are recorded in the other changes in assets account. There may be changes in the institutional nature of a pension fund which are also recorded in the same account.

The incidence of the recording of these items for the different types of social insurance and other insurance scheme can be summarised in Table 1. More detail and with numerical examples is given in annex IV of the 1993 SNA.

Social insurance schemes in the balance sheet

In the 1993 SNA, only funded social insurance schemes feature in the balance sheet. For each pension scheme, there is a liability equal to the actuarial liability of the pension scheme to make payments in the future to the beneficiaries of the scheme. This liability is matched by an equal asset appearing in the balance sheet for households. For the pension fund or insurance company managing the fund, the liability exactly matches the assets of the fund only in the case of defined contribution schemes or those schemes taken out by private individuals. In the case of defined benefit plans, except by coincidence there will always be either an excess of assets over the liability or a deficit. In the former case the scheme is described as being over-funded and in the latter under-funded. For both defined contribution and funded defined benefit schemes, increases in the value of assets are recorded in the financial account as normal. For defined contribution schemes, the increase in the value of the liabilities of the schemes exactly matches the increase in the value of the assets as recorded in the financial account plus any change in value recorded in the other change in assets account, For defined benefit schemes, another item is entered in the other changes in assets account which shows the difference between the value of the assets of the scheme and the actuarial value of the liability⁵.

⁴ Reformatting the use of income account by inserting another income item, called say total income, as the sum of disposable income as presently calculated plus the adjustment item, before the appearance of final consumption would certainly help transparency to the user of the accounts.

⁵ Papers by John Walton on the EDG and a dialogue between himself and myself also posted on the web, explore the difference between this theoretical SNA approach and the more practical considerations arising from commercial accounting practices.

For schemes which are not funded, or those which the SNA regards as being unfunded because all the assets of the fund are invested in the employer's own securities, there is no entry in the balance sheet for the scheme. There is thus no way of recording a liability of the employer towards the employee and correspondingly the assets of households do not show a pension entitlement as an asset in this case.

Table 1: Schema of transactions recommended in 1993 SNA for social and other insurance schemes

Item	Private funded pension scheme – defined contribution	Private funded pension scheme – defined benefit	Unfunded social insurance scheme	Social security	Other life insurance
A Output	Yes if autonomous	Yes if autonomous			Yes
B Employers' contributions	Actual	Actual	Actual and Imputed	Actual	
C Employees' contributions	Actual	Actual	Actual	Actual	
D Property income	Yes	Yes			Yes
E Contribution/premium supplements	Yes (=D)	Yes (=D)			
F Net contributions to schemes/premiums	Yes (=B+C+E-H)	Yes (=B+C+E-H)	Yes (=B+C)	Yes(= B+C)	
G Benefits/claims	Yes	Yes	Yes	Yes	
H Final consumption expenditure	Yes if autonomous (=A)	Yes if autonomous (=A)			Yes (=A)
I Adjustment item	Yes (=F-G)	Yes (=F-G)			
J Changes in insurance technical reserves	Yes (=I)	Yes (=I)			Premiums plus supplements (=D) less claims and service charge (=H)
K Other changes in pension fund reserves					
- due to changes in liabilities	-	Yes			-
- other	Yes	Yes			Yes

Problems with the 1993 SNA recommendations

There are three issues where the SNA text may be misleading or at least need clarifying. The first of these concerns the costs of operating segregated but non-autonomous pension funds, the second and third concern contributions to unfunded schemes.

The costs of operating non-autonomous funds

As noted above, the costs of operating a funded scheme managed by a separate institutional unit are implicitly paid for by households out of either the actual contributions or the contribution supplements payable by them to the pension fund. Paragraph 20 of Annex IV, however, states that the costs of a segregated but non-autonomous fund represent ancillary costs of the enterprise. This implies that the costs are borne by the enterprise as intermediate consumption and not households as final consumption. In practice, though, the technical reserves of the fund are unlikely to increase by the full amount of contributions plus contribution supplements; it is more probable that the amount added to technical reserves represents this total less the costs incurred by the enterprise in managing the fund. Treating these costs as intermediate consumption leads to an understatement of GDP via a reduction in value added and operating surplus matched by an understatement of consumption expenditure. A treatment more consistent with autonomous funds would be to describe the activity of managing the fund as secondary activity rather than an ancillary activity. This secondary production could be recorded as output and final consumption expenditure as for the service provided by specialist fund managers⁶.

Actual contributions to unfunded schemes

It is frequently assumed that unfunded schemes are non-contributory and that the imputed contributions made by employers are set equal to the value of the benefits received in the same period. This is not exactly what the SNA says, however. Paragraph 37 of Annex IV reads in full:

37. In the System an employer operating an unfunded scheme is regarded as making an imputed social contribution to the scheme on behalf of the employees. This contribution should be determined taking into account the composition of the labour force of the employer and the commitment to provide benefits in the future. In practice, however, it is usually set equal in value to the benefits payable in the period under consideration. The imputed contribution forms part of the compensation of employees and is also shown as being payable by the employees to the scheme together with any actual payments by the employees. However, it is not uncommon for unfunded schemes to be non-contributory for the employees. In these cases the payment by the employees to the scheme exactly matches the imputed contribution payable to them by the employer:

(a) Employers' imputed contributions to unfunded social insurance schemes are shown as a payable by the sector in which the employer is located in the generation of income account and a receivable by households in the allocation of primary income account;

(b) In the secondary distribution of income account, employers' imputed contributions and actual contributions by employees are shown as payable by households and receivable by the employer. Further, pensions and other benefits payable to households by the employer are shown as payable by the employer and receivable by households.

From this it is clear that employees may make actual contributions to unfunded schemes though it does not allow for the possibility that employers may do so also. This must be a possibility and in particular may include those schemes which are "funded" but the funds are invested in the employer's own securities. In this case the SNA recommends that the schemes be treated as unfunded because there is no independent security over the funds to be assigned to the households of employees. (Para 4.98)

⁶ This would lead to GDP being slightly higher than at present with both the operating surplus of enterprises and final consumption of households increasing by the cost of managing these funds. Saving by the enterprise will increase by the same amount as that of households decreases.

Imputed contributions not equal to actual benefits

For an unfunded scheme, only three types of transactions are included in the accounts. These are items B and C covering the contributions of employer and employee and item G covering benefits. As noted in the quotation above, the SNA says that in practice, the value of the contributions may be set equal to the benefits. This assumption of a steady state, when contributions equal benefits, implies that the (unknown and unrecorded) level of the liability of the employer to his employees does not change over time. However, the same quotation above recognises that if the composition of the labour force changes, the assumption of a constant level of liability is not satisfactory. However, even if the compiler of the accounts want to record contributions exceeding benefits, there is no mechanism for recording this increased liability because there are no financial transactions recorded for unfunded schemes and no liability in the balance sheet. What the SNA appears to recommend is that the contributions are recorded as payable from the employee to the employer and the benefits payable from the employer to households in the secondary distribution of income account. When contributions exceed benefits, the effect is simply to increase the saving of the enterprise and decrease the saving of households and vice versa if benefits exceed actual plus imputed contributions. It is counter-intuitive to the point of seeming to be poor accounting that in a period when a firm is incurring more future pension liabilities than it is presently incurring, saving increases.

Abandoning the notion of social insurance does not solve the problem. In this case, household saving would always include the full amount of the employer's and employee's contributions but again there is no mechanism to show this as an addition to a saving scheme and deductions from it in the financial account. Under the social insurance scheme with the assumption of equality between contributions and benefits, the financial account for households is incomplete but with matching omissions for additions to and deductions from pension reserves. Without the social insurance scheme mechanism in place, there is an element of saving which cannot be explained in the financial account because there is no recognition of a matching saving scheme.

There is thus a major problem with the 1993 SNA recommendations for unfunded schemes when contributions do not exactly match benefits. There is no reserve into which the excess of contributions over benefits can be paid in the financial account and there is no mechanism for recognising in the balance sheet the future liabilities incurred by the employer in the period in question.

Unrecorded liabilities

This last point leads in to a major unease not just with the present SNA recommendations but with accounting conventions in general. As noted in the introduction, there is growing concern that a company's true position is misrepresented if it has pension obligations which are not shown in its balance sheet because there are no assets set aside to meet these and equally no formal liability is shown. Accounting standard FRS17 in the UK recommends that any pension fund short-term deficit be deducted immediately from profits and any surplus added. The present lack of information affects the market valuation given to the firm via its share price and there have been recent examples of shares having fallen in the light of estimates being made of previously undisclosed pension obligations⁷. This affects the assessment of a firm's financial strength and is of crucial importance to anyone interested in taking over the firm.

⁷ See for example the article "Nest eggs without the yolk" in the Economist of 10 May 2003.

The problem arises not just in connection with unfunded schemes but also with those which are under-funded. By definition these must be defined benefit schemes since by their nature, defined contribution schemes must be exactly funded since the benefits payable to the persons covered by the scheme are determined exactly by the funds available; hence their alternative description as money purchase schemes. Neither over- nor under-funding can occur for such a scheme. No other type of social insurance scheme is exactly funded except by coincidence. In the case of unfunded schemes, there are no assets at all. For a defined benefit funded scheme, although the value of the technical reserves of the pension funds, which are treated as the assets of households, is calculated as the net present value of the pension entitlement of those households, the assets of the fund may be quite different, leaving the fund with an estimated net worth which will be positive when the scheme is over-funded and negative when under-funded. This section looks first at the problem of under-funded schemes and then proceeds to consider the case of unfunded and over-funded schemes. Social security, which is typically unfunded, is a special case to be considered separately.

Under-funded schemes

The treatment of social insurance in the 1993 SNA follows the treatment of life and non-life insurance. It is recognised that especially for non-life insurance, claims frequently exceed premiums because the insurance company is able to earn and retain property income on the technical reserves belonging to policy holders and that this income offsets part of the costs of the insurance company. The SNA thus shows this property income as being attributable to policy holders and then paid back to the insurance company in the form of a premium supplement. An exactly similar process is followed for social insurance except that it may be an autonomous pension fund rather than an insurance company managing the fund and the payments to and by the fund are referred to as contributions and benefits rather than premiums and claims.

However, whereas the inclusion of the premium supplement for ordinary insurance can be seen just as a device to ensure that the operating surplus of an insurance company is positive, in the case of pension funds, the respective roles of contributions and contribution supplements can be identified with different economic content. In broad terms, contributions, that is the sum of items B and C, represent the addition to pension entitlement earned in the year in question while contributions supplements, item E, represent an increase in the value of previously earned entitlement⁸. Looking at these two aspects separately helps to identify how under-funding of a scheme comes about and what might be done to rectify this. The additions representing the entitlement coming from the current year's employment may be less than the net present value of that entitlement. This means that the value of the employer's and employee's contributions is too low. Alternatively, and more commonly, it may be that contribution supplements are insufficient to cover the increase in the net present value of previously accrued entitlement.

Consider the following example. The value of a pension fund at the start of a period is 100 and is exactly funded at that point. During the year the new entitlement is 10, the increase in existing entitlement is 20 and the benefits paid are 27. The value of the pension fund reserves at the end of the period should then be 103. Now suppose that during the year, the employer's contribution is 6, that of the employee is 3 and the property income earned on the reserves is 16. In this case there is a shortfall on new entitlement of 1 and on the increase in previous entitlement of 4 and the sum of the assets of the scheme as measured in the SNA is only 98. The net worth of the pension fund has become -5. In order to construct an accounting treatment where the value of the pension fund assets is equal to the net present value of the outstanding pension entitlements, and the net worth of the fund returns to zero, it is necessary to make some further

⁸ For simplicity at this point we set aside consideration of the service charge item H.

imputations and to introduce a financial transaction which relates to changes in the employer's liability towards the pension scheme.

Contributions

The value of the entitlement earned in the year, 10 in the example, should appear as income to the employee but in practice only 9 is shown under the present recording system. It seems reasonable to record the unpaid part of this entitlement as an imputed contribution by the employer, additional to his actual contribution, and routed via compensation of employees in the same way. In effect, this is funded by the employer increasing his liability to the pension scheme. Making this sort of imputation for the unfunded part of the pension entitlement is entirely consistent with the convention of making imputations for schemes which are wholly unfunded and ensures that the income earned by employees includes the pension entitlement earned in the year as well as other elements of compensation.

Contribution supplements

The increase in the value of the pre-existing benefits represents the fact that the future has become one year nearer with the passing of time and the net present value has increased because there is one fewer discount factor to apply to the amounts due. This increase in value is not simply a measure of an opportunity cost of capital but represents income to the future pensioner. It is not income from production nor a transfer of any other income from production but could be recorded as imputed interest on pension reserves, under property income. It still represents income which does not enter the disposable income of the future pensioner at this point but is transferred back to the pension fund. It is thus consistent to record this as the contribution supplement payable to the fund. Part of the imputed property income is covered by the actual property income earned by the fund on the assets it holds on behalf of households. The deficit is property income due to households and ultimately payable by the employer. In order to preserve the accounting restriction that total property income receivables must equal total property income payables, this deficit should thus be shown as imputed property income flowing from the employer to the pension fund. Thus in the example we would have actual property income earned by the pension fund of 16, imputed property income due from the employer to the pension fund of 4, imputed interest payable by the pension fund to households of 20 and contributions supplements payable by the household to the pension fund of 20. The reserves of the pension funds rise by 20, 16 of which is the use made of the interest earned and 4 of which is an increase in the liability of the employer to the pension fund.

Net worth of the fund

Once these new transactions were introduced, there would be an exact funding of the pension scheme. The sum of its assets and liabilities to households would balance and both would show the total pension entitlement of households. The pension fund would have no net worth of its own. The employer, on the other hand, would have reduced net worth compared to the present situation because of the new entries for the increase in his liability owed to the pension fund.

Other changes in technical reserves

In addition to these changes in the current and financial accounts, it is also possible to consider other ways to make the recording of pensions more complete. Some employees may contribute to the fund for a period but leave the employer before the minimum qualifying period is completed. They may either sacrifice their contributions in total or receive a refund which is less than the actuarial value of remaining in the fund. The liability of the pension fund may alter due to changes in the conditions of a pension fund concerning the timing and level of benefits payable under the scheme. The level of benefits payable in a year may be different from actuarial expectations. Taking a longer view, it may be necessary to revise the

whole set of net present values of future entitlements because of steady demographic changes. Another change may come from the consequences of an industrial disaster affecting the employees covered by the scheme. In order to correctly record the impacts of these factors on the liability of the pension fund, these could be as other change in volume of financial assets in the other changes in assets account.

One other way in which an employee increases his pension entitlement is to be promoted. Usually, pension entitlement is linked to the final salary or best year of the last few and so every step up a salary grade, say with a rise of five per cent, also increases the value of the pre-existing pension entitlement by five percent. Over time, however, the age and grade composition of an enterprise's employees may remain fairly static so that on the whole the total liability does not tend to increase. When there is a change in structure, this should also be recorded in the other changes in assets account.

Unfunded schemes

The preceding analysis of the under-funded case makes clear that the problem of the unfunded scheme is not just that there is no fund recognised in the balance sheet and no additions and deductions made to it in respect of the contributions and benefits paid in the current year, there is also no provision for the value of that fund to increase as employees approach their retirement date. It is not just items I and J which are missing, so are items D, E and F.

If the changes suggested above for the treatment of under-funded schemes were accepted, extending them to the case of totally unfunded schemes would be straightforward. The first step is to consider that a segregated (but not necessarily autonomous) fund is set up which receives two sources of funds each year in respect of future pensions. The first of these is an imputation for contributions which fully cover the new entitlement earned in the year, the second the imputed property income necessary to provide the employee with an income equivalent to the increase in the net present value of his previous entitlement. With these two pieces of information, a full set of accounting entries, analogous to those described for funded schemes, needs to be established. This means including entries for items D, E, F, I, J and K which do not appear under the present basis for recording unfunded schemes as well as the new entries for the increase in liability of the employer towards the pension fund.

David Pritchett presents a somewhat similar scenario in his paper on the EDG concerning an unfunded scheme of government for its own employees though it is geared to the presentation in the GFSM rather than the SNA. He too distinguishes the difference between the new entitlement and increase in value of existing entitlements (which he also records as imputed interest and a form of borrowing by government) and specifies a number of circumstances which should appear in the other changes in assets account.

Social security schemes

While there is increasing interest in fully accounting for unfunded employers' pension schemes, there is much less support for the similar accounting for social security schemes which are very often also unfunded. The GFSM states in Para 4.34 that "it is considered that social security schemes do not result in a contractual liability for the government, i.e. there is no direct link between the contributions made and the benefits eventually paid." But it adds, in the same paragraph, "Nonetheless, it is important for a government to be aware of the contingent liability that arises from its social security program. As a result a memorandum item is included in [the balance sheet] to recognize the net present value of future benefits that have already been earned according to the existing laws and regulations." Further in para 7.145 it specifies that these "...should be calculated in a manner similar to the liabilities of an employer retirement scheme".

There are a number of considerations which are different for social security funds and unfunded employer pension schemes. Government does not have a market capitalisation value, is not a potential candidate for a takeover by another unit and is unlikely to completely default on future obligations (though it may change the conditions attaching to them). All of these are reasons why it may be less pressing to have a value of the total pension obligation of government in respect of social security than it is for a private firm or even for government in its capacity as employer. Nonetheless, there is good reason to go at least part way in the same direction and account for the changes in this liability if not the absolute level. Payments of current benefits represent the liquidation of liabilities previously incurred but due for payment in the current year, receipts of current contributions represent the incurrence of new liabilities in respect of the present year. One might argue that government works with a zero social discount rate and that there is thus no need to have anything akin to a “contribution premium” in respect of social security; current contributions and benefits form a sufficient basis for evaluating government’s changing liabilities. The difference between the two would thus show the extent to which the level of total liabilities is growing or diminishing and thus how far the scheme really is PAYG and how far its financing invokes future commitments. This would enable the flow accounts for government to be complete and consistent with other pension schemes (including recording the items suggested for the other changes in assets account) even if the balance sheet for government was less complete and consistent.

It should be noted that while there can be discussion about whether some private pension schemes should be treated as private saving schemes instead of social insurance schemes, this is not true for social security since any social security assets are regarded as assets of government and not of households.

Over-funded schemes

The most common way a scheme becomes over-funded is when the earnings of the fund exceed the increase in previous entitlement. In this case, it would seem logical to extend the previous suggestion and allow a flow from the pension fund to the employer. In this case, the flow of property income from the fund is partitioned into two parts, one flow to the future pensioner equal to the increase in the net present value of his start of year entitlement (as before) and a further flow of property income equal to the excess over this to the employer⁹. This accords with practice, since even the best of well run schemes is unlikely to hit an exact balance every year but would aim to be in balance in the long run. The proposed item showing the increase in liability of the employer to the fund would then oscillate up and down being positive at times when the fund was in deficit (under-funded) and negative when the fund was in surplus (over-funded).

At times, the earnings of the fund may be sufficiently high that the employer can take a “pension holiday” and use these earnings to fund both parts of his commitment, both for the new entitlement and the increase in the past entitlement. In such a case, if only the actual contribution paid (possibly zero) is included in compensation of employees, this will appear to decrease compared with a year when full contributions are paid, even though the remuneration package has not altered and the employee is as well off in both situations. It therefore seems desirable to still make an imputed contribution in this case and allow this increase in liability of the employer to the fund in respect of contributions to offset part of the back flow of property income from the fund to the employer.

It is unlikely that the sum of employer and employee contributions will exceed the new entitlement over a long period. However, changes in the rate of contributions are usually infrequent and it may be that

⁹ The complications caused when these earnings come from holding gains and losses are considered in the next section.

immediately after (or before) a change some over-payment takes place. In such a case, the excess contribution is illusory income to the employee. If he were able to take the amount in cash, he would be able to earn a better return on it but this of course is not an option open to him. In this case also, therefore it would seem that in principle the excess should be recorded by the employer as a reduction in his liability to the pension fund and not as part of compensation of employees.

Holding gains and losses

Pension funds do not invest their funds entirely in interest bearing assets. Most funds will be invested in equities less for the sake of the dividends they earn than for the holding gains which will accrue from astute trading in them. In the example above, the pension fund may have revenue of 16 in a year but this may represent interest of 7 and a holding gain of 9. What difference should this make to our proposals on the imputed property income flow? The shortfall on the pension funds assets to cover the increase in previous entitlement is still 4 but this now represents the difference between the total liability of 20 less both the interest and the holding gain. While this is a useful first step to dealing with holding gains and losses, it does not get to the heart of the issue. Based on the increase in the value of previously established entitlement, the pension contribution was established as 20, independently of the level of the earnings of the fund or their composition. The question for consideration now is whether the contribution supplement payable to the employee should remain at 20 or should it be reduced by the amount of the holding gain in the (insufficient) revenue of the fund?

If we reduce the contribution supplement by the amount of the holding gain, there will be lack of comparability between schemes which have their assets invested in interest bearing assets and those which do not. We will have a problem about trying to decide whether any shortfall is missing property income or missing holding gains. We would lose the link between the contribution supplement and the increase in entitlement due to the pension date becoming one year nearer. All these reasons suggest including the holding gain in the contribution supplement but this seems directly counter to the SNA stricture on excluding holding gains from income. Is there any rationale for ignoring this convention in this case?

The 1993 SNA appears to be quite firm on the measurement of holding gains and losses; they are not to be included in measures of income. Within the production account, items used in a period as intermediate consumption are to be valued at the prices of that period, even if they were acquired in an earlier period at a different price. Goods sold in a period are to be valued at the prices of that period even if they were produced in an earlier period and, had they been sold then, would have commanded a different price. These principles are expounded at some length in various sections of the SNA to ensure that value added does not include any holding gains and losses arising from the fact that production of goods and their sale may be spread over several periods.

And yet there is explicit exemption from this firmly enunciated principle in a couple of cases. Farmers who produce crops at a single period but sell them throughout the year, count as production the increase between the seasonal and out of season price. This is treated as the rewards to storage of the crop over the year. Production of wine, when sales may be some years after the wine has been bottled, including the price increase as the value of maturing the wine. Neither of these special cases is being disputed; the point is to establish that when the rule about holding gains and losses gives an implausible result, rationalisations for bending the rules have been found. In these cases, the fact that the producer withholds sales until an increase in price has taken place is held to be production and not a pure holding gain. While it is true that mature wine may have perceived different characteristics from immature wine, the physical characteristics of grain at the time of harvest and some months later are not significantly different.

There is little discussion in the SNA on the role of holding gains and losses as they concern financial assets in the production and income accounts. Much of the output of financial institutions is calculated indirectly.

For financial intermediation, the formula specified is “the total property income receivable by financial intermediaries minus their total interest payable”, (SNA para 6.125). The output of insurance services is defined as “total actual premiums earned plus total premium supplements [previously defined as the property income earned by the insurance company on its technical reserves] less total claims due less increases (plus decreases) in actuarial reserves and reserves for with-profit insurance”. (SNA annex IV para 18; the original definition in para 6.140 is wrongly presented due to mistaken type-setting.) The text states that all items are to be measured excluding holding gains and losses without further discussion of why this should be so. The task forces looking at the measurement of financial services and non-life insurance are considering whether some part of holding gains and losses should be included in the measurement of output of these financial institutions. Neither task force is considering life insurance, though note has been taken that there may be serious consequences for the measurement of the output of life insurance companies if any element of holding gains and losses is included.

Holding gains and insurance services

The initiative behind introducing the concept of premium supplements was the practical one of ensuring that the output of insurance companies was enough not only to cover all their operating costs but allow them to make realistic operating surplus also. At the time, it was assumed that property income was the best proxy to use to explain the implicit charge they raised from the policy holder and the SNA explicitly states that holding gains and losses on the technical reserves were to be excluded. Since then the use of alternative financial instruments has increased and even in the short term, insurance companies may be making relatively more from holding gains than from interest. In the limit, as the amount of interest received falls, the problem of negative operating surplus for insurance companies may recur.

If either a pension fund or a life insurance company were to invest only in interest bearing assets, we could see from the definition of the output of the unit that there must be a direct relationship between the premium supplement and the increase in the reserves of the fund. In the limit, if premiums and claims were exactly equal and the fund were non-autonomous so engendering no output, the premium supplements (equal to the redistributed property income) and the increase in the reserves must be equal. In the case of pensions, this corresponds to the idea that while new contributions correspond to the new entitlement earned in the current year, claims correspond to entitlements extinguished in the year (and may happen to exactly offset the new entitlements), premium supplements correspond to the increase in pre-existing entitlement due to the fact that the payment date has become one year nearer. In the case of a life insurance policy, with no new premium and no claim in the year in question, the premium supplement also represents the increase in the value of the ultimate claim.

If we ignore the holding gain aspect, it seems uncontroversial to say that this increase in value should be regarded as income to the future pensioner or policy holder and represents the return to the financial capital invested in the pension fund or life insurance policy. It is earned by the pension fund or insurance company on behalf of the beneficiary, redistributed to him and is returned to the fund by him to be reinvested in the form of a premium or contribution supplement. All of this fits neatly with the position of the SNA on the measurement of the output of these units and with the propositions above concerning imputations which should be made in the case of unfunded pension schemes.

The function of financial institutions

The role of a financial institution is to manage a portfolio of financial assets in order to make a return on these financial assets, for which a fee is charged. Depending on the nature of the agreement between the owner of the asset and the financial institution, the latter may be constrained to invest only in interest-bearing assets or may have more flexibility in the choice of instruments. In the latter case, it is part of the function of the financial institution to decide which type of asset is likely to yield the better return and to

automatically exclude holding gains from the measure of output seems arbitrary and counter to economic rationale. The task force on financial services has discussed whether the definition of output of financial services should include some holding gains.

The definition of the output of insurance services adds in premium supplements and deducts the change in technical reserves. As currently written, both these terms exclude holding gains and losses. If instead both premium supplements and technical reserves *included* holding gains and losses, the level of output would include any excess of holding gains attributed to policy holders over the amount added to technical reserves. If all the holding gains were both attributed to policy holders and added to the technical reserves, that there would be no change in output from the present case. Including rather than excluding holding gains in the definition of insurance output allows the level of output invariant to the balance of earnings between interest, dividends and holding gains¹⁰. This change would allow us to include holding gains and losses in the measure of premium supplements, as long as the measure of the change in technical reserves used to calculate the level of output also included holding gains and losses.

The suggestion is made, therefore, that just as exceptions to the general principle that holding gains and losses are excluded from output are made in the case of growing seasonal crops and producing wine, a similar exception should be made in the case of financial institutions since here also it is in the very nature of the activity that decisions are made precisely to capture holding gains and losses. Such an exception could be formulated in one of several ways. One would be to reformulate the coverage of property income in the case of financial institutions to include holding gains and losses on financial assets made on behalf of the customers of the institution¹¹. Another form of words with identical effect would be to replace the expression “property income” in the definition of the output of banks and insurance companies by the expression “return to financial capital” which would be defined as interest, dividends and holding gains and losses on financial assets. At this point, the proposal is only to include holding gains and losses in property income (or a return to financial capital), not immediately in the income generated in the production account as value added. However, a consequence is that measures of output which depend on formula which include property income, such as those for financial institutions including but not confined to insurance companies, would then increase by part of the value of holding gains and losses included in this enlarged form of property income. This is equivalent to specifying that part of output is a service which cannot be measured directly but for which property income *including holding gains and losses* forms a good proxy measure.

Defined benefit schemes

Adopting the principle that the contribution supplements should correspond in total to the increase in the previously existing liability including holding gains and losses, a number of modifications must be made to the earlier propositions on how to measure the full liabilities of a defined benefit scheme. At this point also we need to ensure that the service charge of the fund manager is fully accounted for.

¹⁰ In the SNA as presently formulated, interest which is recorded in nominal terms, also includes an element of holding gains and losses.

¹¹ When a financial institution invests in other assets for example buildings or old masters (valuables) primarily as a means of making a holding gain on behalf of its customers, these gains should be included with holding gains and losses on financial assets.

Contribution supplements

It is possible to think of a scheme where there are no new contributions in a year and no benefits payable, and yet there would be a fee payable to the fund manager. It is thus simplest to assume that the contribution supplement must be sufficient not only to cover the increase in the previously existing liability but also the service fee payable. The whole of this contribution supplement should be shown as property income payable by the fund to the beneficiary of the scheme. If the total payable exceeds actual property income receivable, the difference is shown as imputed property income.

If the sum of the actual property income plus the holding gain earned by the fund on assets attributable to the beneficiaries exceeds the increase in the previously established liabilities plus the service charge, the fund is over-funded. In this case, the excess is shown as actual property income payable by the fund to the employer. If the scheme is under funded, in that the sum of the actual property income plus holding gains and losses is insufficient to cover the increase in the previously established liability, the deficit is shown as an imputed property income flow from the employer to the fund.

Fixing the level of previously established liabilities

The index to be used for calculating the annual increase in benefits may often be specified in the terms of the pension agreement. Sometimes pensions, especially social security pensions, may be linked to the general inflation index or CPI. Employers' schemes often specify pension increases as following salary increases in the firm or some other pre-specified index. It is assumed here that such specific indices would be used as the discount rate to determine the net present value of outstanding liabilities of the fund at any point in time and thus the increase occurring during a year.

When there is a difference between the index used to calculate pension entitlement under a defined benefit plan and the general inflation level, the value of an individual's pension entitlement will increase more slowly or more quickly than assets where holding gains and losses are always calculated relative to the general price index. It could be analytically useful to show this difference between a holding gain based on a specific index and the general level of inflation in the revaluation account

Defined contribution schemes

A defined contribution or money market scheme is similar in principle to a defined benefit scheme in terms of the items to be recorded in the accounts. There are contributions, contribution supplements and benefits all payable. An adjustment item and addition to the reserves of pension funds are also recorded as the difference between contributions and benefits. However, since defined contribution schemes are by definition always exactly funded, no imputed flows are necessary either in respect of the employer's contributions or to supplement the property income subsequently treated as contribution supplements. However, the level of property income distributed to the beneficiaries will contain an imputed element, equal to the value of the holding gains and losses made on the previous reserves of the fund as discussed below.

In the case of a defined benefit scheme, it is clear that the contribution supplements can be calculated in terms of the increase in the net present value of a stream of benefits specified in advance. In the case of a defined contribution scheme, there is no such association. However, given the principle adopted for the measurement of contribution supplements discussed in general terms for insurance schemes above, in the case of a defined contribution (or money market) scheme, they can be associated with the actual property income and holding gains and losses arising from the previously existing reserves of the fund. In this case there will be no imputed payments of property income, either from the fund to the employer or from the employer to the fund because the fund is always exactly funded with no possibility of over or under

funding. Including the holding gains and losses, which might seem unnecessary in this case, preserves parity between funds which are otherwise similar except in respect of the investment strategy adopted by the managers. Further, in the coincidental case that a defined benefit scheme is exactly funded, and otherwise similar to a defined contribution scheme, the flows recorded in the system will also be parallel.

The possibility of recording entries in the other changes in assets account for a defined contribution plan exists but they are likely to be less common because of the exact funding nature of the scheme. One possible entry is the case where the future entitlement is not transferable when an employee leaves his current employment.

Other life insurance

Contributions to other life insurance policies may take the form of a one-off payment or a series of regular payments. The series of payments is clearly analogous to the defined contribution scheme except that it is not designated as forming part of social insurance. Such policies may represent simply a form of saving or could be viewed as personal pension plans if there are conditions about when and how the payments under the scheme are made (for example if they may only be taken as an annuity after a certain minimum age) or if there are tax considerations which mean the contributions are tax exempt but the benefits are taxable.

A one-off deposit placed with a life assurance company for payment at a higher value at some future date is invested by the company and (hopefully) increments year by year. As with the pension scheme, the beneficiary earns income each year as the result of earnings on the existing reserves of the scheme. This is shown as property income due to the policy holder. Each year the insurance company deducts a fee and the remaining premium (or premium supplement) is added to the policy holder's claim on the company. As before, to preserve consistency between saving schemes which are and are not designated as part of social insurance, the property income attributed to the policy holder is augmented where necessary by an imputed element corresponding to the holding gains and losses on the reserves. Unlike social insurance schemes, the contributions to and benefits from the scheme are not shown in the secondary distribution of income account. For a personal saving scheme, household disposable income includes the value of premiums and premium supplements but not that of claims, which is the reverse of the case for a social insurance scheme.

Social protection

Much of the momentum to fully account for pensions in the realm of commercial accounting is driven by the desire to see the accounts for individual firms reflect previously unrecognised liabilities towards present and past employees. At the macro-economic level, there is also interest from the point of view of social policy to assess how far the living standards of the retired will be adequate in future, based on present projections and provisions.

Although the SNA discusses social assistance, social security and social insurance schemes, there is no discussion of the issue of social protection though this now appears in the GFSM. As part of the exercise of reviewing the treatment of pensions, the topic of social protection could usefully be discussed in an SNA context.

Social assistance has not been discussed previously in this paper. It is assumed that this will always be a non-contributory programme, vital for the provision of a social safety net but always funded out of current revenue and not via explicit funding.

Although the concentration here has been on pension provision, equally important is the cover for other situations, notably health and, in particular, the typically heavy health expenditures occurring in the last years of life. This needs further consideration but is not entered into here.

Clearly one possible categorisation of pension provision could be in terms of the source of funding, whether this is government, the employer or the individual. Another possible categorisation would be in terms of the certainty with which the individual can rely on promises of future payments. It is to be assumed that social assistance and social security programmes of government will continue, even if the levels of support offered by them change over time. Next in order of certainty are the defined contribution pension schemes. These are always controlled by independent units and the assets are not at risk even if the employer who initiated the scheme goes bankrupt. The assets of a funded defined benefit scheme are, presumably, equally protected but not the outstanding liability of the employer towards the scheme in respect of the unfunded part of the liability. This suggests that for some purposes, alternative figures for the assets might be useful; those which are inalienable and those which are still contingent on the ability of the employer to meet his obligations. For unfunded schemes, all the assets would fall in the latter category.

Although the SNA excludes personal saving plans from social insurance, there may be analyses when it would be useful to include them. In terms of certainty of receipts (even if not of the amount to be received) these rank alongside defined contribution plans since they will in fact be most probably organised by the same group of fund managers.

Summary and recommendations

There is clearly a good case to be made for incorporating the full implications of pension entitlement in the SNA both from the point of view of attributing potential liabilities to the individual firms who make commitments to their staff and from the macro-economic point of view of understanding how far people are likely to have a reasonable income in retirement. Actual transactions which relate to pension provision are clearly identified in the SNA as at present but these do not add up to the full liability which is recorded in the balance sheet of pension funds in the case of funded defined benefit schemes. In the case of unfunded schemes, or where the funds are invested in the securities of the employer (other than government) there is no liability shown in the employer's balance sheet.

Accounting for these missing elements means imputing transactions in respect of two sorts of claims. One relates to the entitlement to a pension in future earned in the period of account. The other relates to the increase in the value of previously established entitlement during the period in question because the retirement date has become nearer. If all the revenue to fund these two claims came from interest, there would be little difficulty in knowing how to make the relevant imputations. The problem comes from the fact that a very great deal of the increase in value of past entitlements come from holding gains and at present the SNA rejects recording any such gains within the current accounts as income. This means a lack of comparability among pension schemes depending on the composition of the portfolio in terms of interest bearing and non-interest bearing assets.

Allowing holding gains and losses in this case to be recorded as income not only allows a straightforward and comprehensive recording of all pension liabilities, it also seems in accord with emerging considerations on how the services of financial institutions at large should be measured. The recommendations which follow assume this treatment.

The present methodology for recording transactions in pensions is summarised in Table 1. Table 2 shows how this might be modified to include extra imputed transactions which would allow a full recording of the liabilities of all pension funds whether funded or unfunded and whether of the defined benefit or of the

defined contribution variety. Changes from the earlier table are shown in bold type. These proposed changes can be summarised by type of transaction and by type of scheme.

Type of transaction

Funding

All pension schemes should be treated as if they were funded though a careful distinction should be made between those which are actually funded and those which are not. Equally a clear distinction should be made, even for actually funded schemes, between the amount of liability which is matched by actual assets and those where only a contingent liability from the employer to the pension fund exists.

Contributions

The net present value of the pension entitlement coming from employment in the current period is funded by the contributions of employer and employee. The employee's contribution is always actual. That of the employer may be actual, imputed or partly both. The suggestion here is that the imputed element should always be that amount which exactly matches the new entitlement to the sum of the employer and employee contributions. In cases where the joint contributions exceed the entitlement, there should be a de facto reduction in the compensation of employees by reducing the employer's contribution. This amount should be routed directly to the fund from the employer.

Contribution supplements

The increase in the start of year value of the fund for those not reaching retirement in the year in question is income. Since this income is not earned in the period, it is shown as property income, consistent with the idea that this is income arising from allowing the fund (or employer) to utilise the pension reserves which are the property of future pensioners. It is payable by the pension fund to the future pensioner as property income and re-invested by the future pensioner in the pension fund in the form of a contribution supplement. Any shortfall is recorded as an increase in liability of the employer to the pension fund, any excess is recorded as a reduction in the liability.

The basis for calculating the increase in the liability of a pension fund should be the general rate of inflation unless the rate of increase in pension entitlement is specifically linked to another index in which case this should be used.

Contribution holidays

It may happen that the property income and holding gain made by a fund in a year is so large, or just that the level of assets so far exceeds the level of liabilities, that the employer does not actually make a contribution to a scheme in a period. If the accounts record only the actual payments, the apparent level of compensation of employees will decrease when this happens and the level of contribution supplements will be artificially high since in effect they cover the employer's contribution also. A more consistent recording is to impute an employer's contribution to cover the present year's entitlement in all cases, allowing this to be offset by an increased reduction in the employer's liability to the fund by reducing the contribution supplement to exactly the level necessary to show the increase in previous entitlement.

Table 2: Suggested schema of transactions recommended for social and other insurance schemes

Item	Private funded pension scheme -defined contribution	Private funded pension scheme – defined benefit	Unfunded social insurance scheme	Social security	Other life insurance
A Output	Yes	Yes			Yes
B Employers' contributions	Actual	Actual	Actual	Actual	
*B1 Under-funded contributions from employer to employee		Imputed addition to B	Imputed		
*B2 Over-funded contributions from employer to pension fund		Imputed deduction from B			
C Employees' contributions	Actual	Actual	Actual	Actual	
D Property income	Actual	Actual			Actual
D1 Imputed property income (holding gains and losses)	Imputed	Imputed			Imputed
*D2 Under-funded flow from employer to pension fund		Imputed addition to D	Imputed		
*D3 Over-funded flow from pension fund to employer		Imputed deduction from D			
E Contribution/premium supplements	Yes (=D+D1)	Yes (=D+D1+D2 +D3)	Yes (=D2)		
F Net contributions to schemes/premiums	Yes (=B+C+E-H)	Yes (= B+B1+B2 +C+E-H)	Yes (= B+B1+C+E)	Yes (= B+C)	
G Benefits/claims	Yes	Yes	Yes	Yes	
H Final consumption expenditure	Yes (=A)	Yes (=A)			Yes (=A)
I Adjustment item	Yes (=F-G)	Yes (=F-G)	Yes (=F-G)		
J Changes in insurance technical reserves	Yes (=I)	Yes (=I)	Yes (=I)		Premiums plus supplements (= D+D1) less claims and service charge (=H)
Liability of employer to pension fund		Yes (= B1+B2+D2 +D3)	Yes (= B1+D2)	Yes (=F-G)	
K Other changes in pension fund reserves	Possible	Yes	Yes	Yes	Possible

* Items marked with * apply only to defined benefits schemes

Holding gains and losses

Because an uncertain and variable amount of the income reinvested as contribution supplements may in fact come from holding gains and losses, this is taken as a proxy of other income payable to households over and above what is actually property income redistributed by the fund to the future pensioners.

Other transactions

Once these changes to contributions and contribution supplements are made, the consequences for other existing transactions follow automatically. Both net contributions, the adjustment item and the increase in the pension fund reserves will reflect the change in the contribution items. In addition, a new entry is needed in the financial account to show the change in liability of the employer to the pension fund. A similar entry is needed in the balance sheet to show the outstanding liability (positive or negative) of the employer to the pension fund.

Other changes in assets

In the other change in assets accounts, specific entries are recorded for the impact of a number of factors on the overall level of the liability of the pension fund, (actuarial, technical composition of the employee population, demographic, industry specific disasters).

Net worth of pension funds

If all these changes are implemented, all pension funds, both actual and notional, will have zero net worth.

Type of pension scheme

Defined contribution scheme

Only two changes are proposed in this case. The first is that a service charge should be calculated even for a segregated but non-autonomous fund and the cost of this deducted from the income accruing to the fund through its investment. This means that the activity of managing the fund would be treated as a secondary and not an ancillary activity but would seem to better accord with practice.

The second change is to include an element of imputed property income, equal in value to the holding gains and losses made on the reserves of the fund. This is done to ensure that the sum of the actual and imputed property income represents the income element to the beneficiary of the fact that his pension payments become one year nearer during the accounting period. It also ensures strict comparability between funds with different mixes of interest bearing and non-interest bearing assets and with unfunded (or partially underfunded) schemes where the whole of the increase (or shortfall) in the previous level of entitlement is recorded as imputed property income.

Defined benefit scheme - funded

The same changes are made for the service charge of a segregated but non-autonomous fund and for imputed property income equal to the holding gains and losses on the reserves of the fund as are made for defined contribution schemes.

Two possible items are added in respect of the employer's contributions. Together the actual contributions of the employer and the employee should be equal to the new entitlement accruing to the employee for his

employment in the current year. If this is insufficient, an imputed element (shown as item B1) should be included and should be recorded as being paid initially from the employer to the employee as for the actual contributions. This extra imputed element would be funded by an increase in the liability of the employer to the pension fund. In the case where the sum of the actual contributions by the employer and employee exceed the value of the new entitlement, the employer's contribution should be reduced accordingly by item B2 and this reduction should be shown as a reduction in the employer's liability to the pension fund.

Two items are also added in respect of contribution supplements. As explained under the description of the inclusion of the imputed property income element for the defined contribution scheme, the sum of the actual property income earned by the pension fund and redistributed to the employee should be equal to the increase during the accounting period in the value of the entitlement existing at the start of the period. In the case of a defined benefit scheme, this amount is not necessarily equal to the sum of the actual property income plus the value of the holding gains and losses of the scheme. Any shortfall should be shown as item D2, increasing the liability of the employer to the fund. Any excess reduces this liability and is shown as item D3.

A new item, showing the liability of the employer to the pension fund appears in the financial account. This ensures that once any changes in the reserves of the pension funds to be recorded in the other changes in assets account have been taken into account, the net worth of the defined benefit plan, like that of the defined contribution plan, is zero. These include the effects of general demographic changes, errors in actuarial expectations, changes in the composition of the work force, industry specific disasters and any revaluation changes arising because the index by which benefits are uprated differs from the general rate of inflation.

Defined benefit schemes – unfunded

There are two sets of differences proposed for unfunded schemes (which are by definition all defined benefits schemes) in Table 2 as compared with Table 1. The first, major change, is to treat the schemes as if they were funded and add items D, E F, I and J. The second change is to include the imputations for under-funding of current contributions and of contribution supplements on the same basis as for unfunded schemes (items B1 and D2). Clearly an unfunded scheme cannot be over-funded so items B2 and D3 do not appear.

Social security schemes

The proposals here stop short of suggesting that the full liabilities of social security schemes be recorded automatically in the system. However, the suggestion is made that an item showing the increase in the liability of government for future pensions be included as well as the sort of effects captured in the other changes in assets account for private schemes.

Although contributions and benefits are shown in the secondary distribution of income account, in this case unlike that for employers' schemes, no adjustment term is needed since any excess of contributions over benefits is regarded as a transfer of income to the government and the consequent increase in the social security fund is recorded as an asset of government and not of households.

Other life insurance

The only change proposed is to include the imputed property income item (D1) to preserve consistency with other schemes. It would be straightforward, if desired, to treat these schemes in the same way as defined contribution schemes which are treated as social insurance schemes in supplementary presentations.

Social protection

As well as reviewing the measurement of increasing pension liabilities, it is suggested that some thought be given to introducing the concept of social protection into the SNA with a link to the treatment of pensions.

