Conditions for the proposed change in the treatment of unfunded employer pension schemes in the SNA: illustration for general government accounts

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The national accounts working group on pension schemes (Electronic Discussion Group—EDG) is presenting to the first official meeting organized for the 2008 revision of SNA[1] a proposal to change the current treatment of unfunded defined benefits employer pension schemes in the SNA. This proposal received a large support in the OECD meeting of national accounts experts of October 2003.

This paper reflects the view of the representative of the OECD at the ISWGNA, and at the AEG. It supports the change proposed, on the condition that more precise recommendations be given regarding the conditions of its implementation.

Background

The current SNA has two distinct treatments, based on whether the defined benefits scheme has "segregated reserves" or not. If it has "segregated reserves", it is called a "funded scheme" and pension liabilities are recorded (based on actuarial calculations), with a counterpart asset for households. In this case, contributions are recorded as an increase of the asset of policy holders (i.e. as an increase of the liability of the scheme), and benefits are recorded conversely, as a decrease of the asset of the households (and of the liability of the scheme). In fact, the accounting of such a system has the same characteristics as those of a saving scheme, except that based partly on actuarial values rather than observed values.

On the contrary, if the scheme does not have "segregated reserves" (or only small ones, used to smooth cash imbalances), the scheme is said to be "unfunded" and no liability is recorded. This situation corresponds to a "non autonomous" schemes, which means its accounts are consolidated with its sponsor's (i.e. employer) accounts. In this case, contributions and benefits are recorded as current transfers in the sponsor's account, and impact on net lending/borrowing is equal to benefits paid.

New proposal

The proposal is to abandon the criterion of the existence of segregated assets in favor of deciding that all pension obligations of employers (it is important to note that collective systems, such as social security systems, are not in the scope of this first proposal[2]) be treated similarly, using the first of the two treatments above. This is based on the idea that what is important is not the existence of reserves (i.e. assets earmarked to the payments of the benefits) but the existence of legal or *constructive* pension *obligations*. "Constructive obligations" is, for business accountants, a category lying between fully recognized liabilities and pure contingent liabilities. Pensions are not contingent liabilities because their probability of occurring is very high, and probably even certain on a statistical basis, while they may not be full liabilities, because some pension promises may not be part of a contractual agreement.

[1] SNA= system of national accounts. The current one is SNA 93. The new one is expected for 2008. The first official meeting of the process of revision takes place during February 16-20, 2004.

[2] The treatment of collective schemes remains much more controversial. It is however important to note that the existence of two recordings, one for employer systems and one for collective systems, will generate difficulties for international comparisons, and also when transactions occur between the two types of systems. This issue is raised afterwards in the main text.

According to this proposal, all employer pension schemes, *including general government employer pension schemes,* would be treated as the current SNA treats today a funded scheme, which is itself recorded similarly to a saving scheme (e.g. life insurance), except that actuarial values are used. In accordance, the constructive obligation of pension debt will be recorded exactly as if it was a fully recognized financial liability.

The present paper illustrates the impact of the change in the important case of the general government employer schemes (the sponsor is the general government). Not only the government is generally a big employer, but general government accounts are closely scrutinized.

Conclusions

Obviously, the new proposal will have very significant impacts on the general government accounts. It will change the national accounts estimate of public debt (sometimes up to 50% of GDP). Less obviously, but consistently with the principles of accrual accounting, it will induce changes regarding the treatment of flows, with a significant impact on the net lending/borrowing of the sponsor. Under this new convention, the 3% criterion in use in Europe will most probably have to be re-examined.

The paper shows that the new proposal will significantly increase the number of situations where the statisticians would be in the position of actuaries, in particular leading them to choose or validate a "discount rate", which value will have a very significant impact on the data. This is a situation which is necessary but that producers *and users* of national accounts are not accustomed to. This leads to three recommendations regarding the conditions of the implementation of the new proposal:

1/ let users be able to distinguish clearly these estimates from the rest of the accounts, allowing users to obtain estimates of the main balances and balance sheet positions under an approach that would not include the imputed flows and implicit assets/liabilities,

2/ provide clear recommendations on the discount rate to be used in order to avoid endangering the credibility of the accounts and their international comparability,

3/ organize as soon as possible workshops including producers and users (economists specialists of public finance, public accountants) of the national accounts on this issue. The ideal situation would be that this new proposal reflects a consensus with users. The OECD, which has for now more then ten years[3], studied the implications of the ageing of population on general government fiscal policies, is prepared to organize such a workshop. More exchange with public accountants will push them to implement themselves the mechanism that will allow the national accountants to obtain reasonably good estimates of these implicit debts.

4/ resolve the contradiction that will exist between the proposed treatment for employers and the recording of collective systems (social security).

5/ explore the consequences of the proposed change on GDP.

The present paper should not be seen as rejecting the proposed change.

From a purely statistical point of view, the new proposal is welcomed for the simple reason of better comparability: the current system lead to different recordings based only on differences of the mode of

[3] As such, the proposed treatment may be seen as the implementation in practical statistics of a research and development activity that has been conducted for now more than ten years by economists.

financing of the same future commitments. This situation was not satisfactory, especially when the trend in business (see IAS 19) and even in public accounting (Australia, Canada, the IMF GFS standard) is to systematically record liabilities in these cases, *whatever the organization of the funding*. It would look strange that national accounts do not recognize liabilities which are increasingly recognized by the institutional unit itself.

From an economist point of view, it will certainly be welcomed to have data that reflect better than today the costs of the future commitments of employers, and specially government, especially during the present time. Many economists will even question the fact that the proposal stops short, for the moment, of including the commitments made under collective systems. In the views of some, if statisticians are prepared to include these types of actuarial estimates for employers, there is no economic reason not to extend it to collective systems. This is an issue that the working party will have to discuss in the next months.

But at the same time, economists expert of public finance know that these data are estimates which depend, in particular, on an arbitrary choice of a discount rate, and they are not prepared to treat these data in the same way that they would treat other national accounts flows. They would like to know the assumptions made (in particular which discount rate is used), and be able to separate these data from the other parts of the accounts.

Thus, the paper should be seen as making recommendations on the conditions of such a change, and not on the change itself.

The example[4]

Let us take the example of a government running a non autonomous unfunded defined benefits pension scheme for its own employees. The government pays 11 of benefits. Employees pay 1.5 of contributions. Regarding *employer* contributions, national accountants will record them in any case, whether or not the government wants to make them appear. If the flow is apparent in government accounts, it will be called *actual* employer contribution. If the flow is not apparent, national accountants will record an "*imputed* employer contribution". Let us suppose first that there is no actual contribution and that the national accountants applied the average employer rate of contributions in similar private schemes to estimate this "imputed contribution", and obtained 10.

The 1993 SNA

Under the present SNA, the recordings of the transactions regarding the pension scheme in the government accounts will be the following (as the scheme is not autonomous from the general government the accounts are in fact part of the general government accounts, but we will show here only the flows that are linked to the scheme).

Table 1: the current SNA

	Imputed flows are in italics	**General government**	
		uses	resources
D122	*Imputed employer contributions*	*10*	
D6112a	Employee contribution		1.5
D6121	*Employer contribution*		*10*
D62	Pensions	11	
B9A	**Net lending/borrowing**	**-9.5**	
	Financial accounts	ΔAssets	ΔLiabilities
AF2	Cash	-9.5	
B9B	**Net lending/borrowing**		**-9.5**

The imputed employer contribution of 10 (D122) is recorded on the use side of the general government account, and is (implicitly) distributed to government employees (i.e. households; the households accounts are not shown but are not difficult to derive). Households then implicitly repay back to the pension scheme (which is here the general government itself) all the contributions for a total of 11.5, whether employee (D6112a) or employer (D6121). In parallel, the government pays the pensions (11, D62) to its pensioners (other households).

[4] This example is similar to the one included in the December 2003 version of moderator's report of the working group, pages 57 and 58.

This leaves a non financial accounts deficit (B9A) of -9.5, equal to receipts (11.5) minus payments (21). The financial accounts deficit (B9B) is, of course equal to the non financial accounts deficit, reflecting the net movements in cash (AF2): +1.5 of employee contributions and -11 of pensions.

It is interesting to note that, in this treatment, the estimation of "imputed contribution", which may look arbitrary, has strictly no impact on the net lending/borrowing, because what is recorded as disbursed as D122 is then recorded as received as D6121 (i.e. D122 is identically equal to D6121). In this system of recording, only "real" (i.e. non imputed) flows count for deriving net lending/borrowing. The introduction of employer contributions can be merely seen as an accounting device to show the real cost of labor for the government, but it does not impact its financial flows[5].

While it is not the main objective of the present paper, it is useful to note here that the new proposal will have, for those countries that did not yet compile imputed contributions using actuarial methods, an impact on GDP, via the change in compensation of employees, itself included in the value added of government. Indirectly, GDP will be thus dependent of the choice of the (real) discount rate. It would be useful that the consequences of this impact be fully explored.

The new proposal

In the new SNA, the fundamental idea would be to recognize that *current labor costs* generate *future obligations*. The first consequence is that imputed contributions are to be equal to the present value of the change in future pensions generated by the work of current employees[6]. Let us suppose that this value is estimated at 15 by actuaries.

The second consequence is that, because current employees had accumulated future rights over the previous periods, they are entitled to receive an *implicit interest* on the amounts of money they had thus implicitly "lent" to the scheme. Let us suppose the accumulated rights had been estimated by actuaries at 100, and that the "interest rate", preferably called here the nominal discount rate, is 6%. The implicit interest flow would be equal to 6 (D44).

The third consequence is that, in the view of the pension scheme and of the households, contributions to the pension scheme or benefits received from the pension schemes are financial transactions: contributions increase the amount of future obligations; benefits decrease the amounts of obligations. Thus the accounts become:

[5] This result could be seen as dependant on the fact that the pension scheme is here consolidated with the government itself, which is a normal case for an unfunded scheme. If the scheme was autonomous from the government, the net lending/borrowing of the government would be equal to contributions paid and not equal to benefits paid. But, in this case, these contributions would inevitably be real (and not imputed) contributions; otherwise, the "autonomous" fund would have no money to fund the benefits! One can imagine that these contributions would be set at 9.5, the value that would leave the autonomous fund in current equilibrium. If this was the case, the net lending/borrowing of the general government would be the same, whether or not the scheme is considered autonomous. But if the contributions were equal to another value, the net lending/borrowing of the government would change, showing that the current net lending/borrowing of the government would be dependant of the classification of the scheme. However, the consolidated accounts of the government and the scheme would still be the same: -9.5, the value of benefits paid. It is quite logical to consider that unfunded employer sponsored scheme should always be consolidated with the accounts of the employer.

[6] This is in fact the preferred method of compilation of imputed contributions in the present SNA (see paragraph 8.72). However, a subsequent paragraph (8.73) says that "in practice" imputed contributions can be taken "as equal to benefits". This lack of rigor could be attributed to the fact that, as seen in the previous section, the method of estimating the imputed contribution has no impact of the net lending/borrowing of the government as long as the non autonomous scheme is treated as unfunded.

Table 2: the new proposal

	Imputed flows are in italics	General government	
		uses	resources
D122	*Imputed employer contributions*	*15*	
D44	*Imputed property income*	*6*	
B9A	**Net lending/borrowing**	**-21**	
	Financial accounts	ΔAssets	ΔLiabilities
AF2	Cash	-9.5	
AF611	Net equity of households on pension funds		11.5 (1.5+*6+15* – 11)
B9B	**Net lending/borrowing**		**-21**

As can be noted, the net lending/borrowing of the government, as sponsor of the scheme, has significantly changed, and, in this example, has worsened. We will come back later on the analysis of this global result. Let us first analyze technically the different flows.

There is nothing to say about the line AF2, which remains unchanged, compared to the previous account.

The apparition of the line AF611, "Net equity of households on pension funds", reflects the basic assumption of the new proposal, which is to recognize as financial liabilities the amounts of pension obligations due by pension funds to households[7]. This change in liabilities consists in the sum of contributions (1.5 from employees, 15 imputed from employers) and of the imputed interest D44 (6) both paid or implicitly paid by future pensioners, *minus* the payments made by the scheme to current pensioners.

<u>It is essential to note that this is the exact transposition of the entries that would have been recorded if the scheme was a pure saving (or life-insurance) scheme.</u>

Let us interpret the example as if the scheme is a pure saving scheme.

First, regarding the amount of property income D44. Previous savings from households amounted to 100. The "imputed saving scheme" will put this money on the market and get a property income of 6, which belongs to the households, and is thus recorded as distributed to them and, further, reinvested by them in the scheme. This explains the D44 flow on the use side of the government (which is here the scheme) [8],

[7] It is interesting to note that the title of AF611 refers to pension « funds », while this one is clearly not funded. Indeed, there are no assets as a counterpart of this liability. This confirms that a special sub-category should be created for these liabilities.

[8] One can try to explain in other words why this imputed flow D44 intervenes as an outlay in the government account, thus with a negative impact on net lending/borrowing. The idea is that <u>if</u> the government (i.e. sponsor) paid the households the full costs of labour in the current period, households would save this money, and obtain property income on it. But the government is not paying the households, so it "unduly" retaining these amounts, and, therefore obtains a <u>real</u> property income with an real positive impact on its net lending borrowing. Thus the necessary inclusion of a counterpart imputed property income to balance this real property income, which is undue under accrual principles. As a result, the net lending/borrowing of the

which will increase the households savings and that they will reinvest in AF611**.** This is exactly what is recorded in the national accounts for life-insurance schemes.

Second, regarding the amount of 15 of imputed contributions. This imputed amount reflects the remaining amount that households should have "saved" in order to ensure the additional revenues that they will get in the future, owing to their employer's commitments.

Let us now return at the analysis on the new B9 generated by the new proposal. In this example, the deficit is significantly increased. This is linked to the specificity of the example itself (which reflects a case of a scheme maturing rapidly) but not only: the necessary recording, under the new treatment, of an imputed expense in property income will systematically increase the government deficit (or decrease its surplus). As a consequence, some will probably sustain that criterions based on absolute level of deficits (such as the Maastricht criterion of 3%) should be reviewed, or, conversely, that this new feature of national accounts should not be applied to the data used for the compilation of these criteria.

The second impact on B9 comes from the fact that it is now the (imputed*) contributions* (equal to the change in future commitments due to current labor input) that are now affecting the deficit, while, previously, it was the *benefits* paid. This reflects that we are now recording the change in the future commitments, not the realization of past commitments. In our example current benefits paid are lower than future commitments. This is typical of a scheme which is rapidly ageing (which is the current situation in most countries and for some years). But this situation would not occur when the demographics of the scheme is stationary, and could even be reversed in the opposite demographic situation.

On the whole, the new accounting treatment, being based on the idea that there is a pension liability which builds up, conducts inevitably to the introduction of flows that correspond exactly to those that would be recorded if the scheme was a pure saving scheme. The appendix shows that the impact on general government net lending borrowing and balance sheet is exactly the same whether the scheme is, as above, consolidated with the general government, or autonomous, which could be seen as the logical consequence of treating the scheme as if it was a saving scheme. This result ensures that the new system is consistent to classification differences, and this is reassuring.

The new recordings also reflect the logical consequence in accrual accounting of the recognition of the pension debt as an ordinary fully recognized financial liability/asset. The appendix shows that the principles of the recording would be the same if the newly recognized financial liability/asset was in fact an ordinary tradable government bond. But this is of course not, in reality, the case, thus leading to impute the corresponding flows.

Overall the new treatment is, in theory, supposed to give a better image of the situation of the government as the sponsor of the pension scheme. It shows the real current cost of its future commitments and the impact of this on its current deficit/surplus. It is also a serious advantage in term of comparability: it means that assets and liabilities and corresponding flows recorded in the national accounts will be the same even if the institutional funding arrangements can be different from one country to another, while future commitments are the same. This not only will increase the comparability of government debt figures but also will increase the comparability of households' financial assets figures.

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general government is now consistent with accrual principles: it does not record the positive impact of a property income that is not in fact the property of the government.

However, there is one first difficulty, which is that this construction is based on assumptions. The net lending/borrowing for the general government will now be significantly affected by imputed flows, while the old one did not[9]. It may be considered useful that national accounts show deficits that reveal the true current costs of the employer's commitments. But this should be done using solid and internationally comparable assumptions; otherwise this could result in a decrease of the credibility of the accounts.

Serious recommendations should therefore be put forward to ensure the economic relevance of the assumptions that underlie these imputations and also that these assumptions are comparable between countries. When businesses or government have themselves shifted to a similar recording, national accountants could use these estimates, if they are reliable. When this is not the case, national accountants will be obliged to estimate themselves these flows, an exercise they are not used to do, which needs the manipulation of demographic data, the knowledge of the precise regulations of the pension schemes and, last but not least, the choice of a (nominal) discount rate.

It would therefore be first advisable to involve experts of the pension schemes, which should be an opportunity to have them to publish themselves such actuarial values, even as memorandum items.

It would be, secondly, advisable to modify the classifications of the national accounts when necessary to allow users to disentangle the imputed flows from the non imputed flows. The first very simple step would be to create a special category for imputed assets of purely unfunded schemes, as a sub-category of AF61 in the financial accounts, and to publish jointly the assumption made for the (real) discount rate.

Some mention a second difficulty which is that, if one takes into account *today* benefits to be paid *tomorrow*, why not take into account the revenues (taxes) of tomorrow that will be generated by these future taxable benefits? This reflects the school of thinking that says that government's accounts cannot be totally inspired by private accounting because of the specificity of government which has the right to levy taxes.

Compilation of imputed amounts[10]

The calculation of the present value of pensions to be paid in the future implies the knowledge of a series of demographic variables and of the precise rules of the pension scheme, associated with a series of assumptions of which the discount rate is the most sensitive.

As mentioned before, private sector accounting recommendations exist on such issues and many firms conduct and probably publish these actuarial valuations. Also some governments have already either included such evaluations in their own regular accounts or published them as memorandum items. In this case, national accountants will have the possibility, depending if they consider these estimations reliable, of using this data. In other cases, national accountants will have to develop their own calculations, preferably with experts of pension schemes. These calculations imply choices in methods and assumptions on a series of variables.

- Type of method. There are different types of valuation methods that differ owing to the scope of beneficiaries that are taken into consideration. The proposal put forward for the national accounts

[9] However, not exactly in the same context, but still a similar one, national accountants have to make imputations which affect the deficit/surplus. One example is the estimation of current interest in the case of zero-coupons.

[10] The discussion below is inspired by an OECD working paper "Pension Liabilities in the seven major economies" by Paul Van den Noord and Richard Herd. Economics Department Working Paper, n° 142, Paris, 1993

valuation would be based on the use of the *accrued to date method* also called *accrued benefits method*. This is a method in which the actuarial value of liabilities only takes into account the situation, at the current date, (1) of current pensioners and (2) of current employees for which only the benefits that are accrued *for service up to that given date* are taken into account. This excludes the consideration of new entrants in the scheme (and thus of possible future contributions, etc). While some economists may find this method incomplete to be really useful, it has the advantages of being in line with the principles of national accounts, which only recognize past commitments. It needs also fewer assumptions. To be more precise, the moderator proposes the use of the so-called "projected unit method", which is an accrued benefits method in which "the scheme liability makes allowances for projected earnings". This method is promoted by the business accounting recommendations (IAS 19) and has the characteristic of spreading more evenly across time the costs of pensions[11]. Even if the presentation of the method in the moderator's report could be more extensive, the recommendation is here clear and reasonable.

- Technical assumptions. The calculation of the implicit pension debt is then based on (1) the exact knowledge of the rules of the pension schemes (how the pension is calculated –flat-rate, related to number of years of contributions, means-tested, or mix of those systems--, age of retirements and possible deferrements or anticipation, etc), (2) the knowledge of the structure par age of the population of pensioners (and dependents of pensioners) and of current employees, (3) demographic assumptions on life expectancies at different ages. The knowledge of all these variables will allow deriving an estimation of the streams of pension benefits over the next decades, the limit being the period of probable death of the children of the youngest generation of current employees. This extends the time limit of the calculations to around 100 years! Assumptions have also to be made regarding the nominal increase of pensions (assumption on increase in salaries, at least equal to forecasted inflation).

- Discount rate (nominal or real). The discount rate allows calculating the present value of these future streams of benefits, thus giving the liability figure, and also intervenes in the estimation of the property income flow D44 (which can be taken approximately as equal to the nominal discount rate multiplied by the actuarial value of the pension obligation) and of imputed contributions. Present value calculations are simple but sensitivity of the results to a choice (necessarily arbitrary) of the discount rate is significant. In one simulation by OECD in 1993 (see footnote 10), results showed that "if the level of the discount rate is raised by 1.5 percentage points the gross liability falls by around 20%", as illustrated by the below table[12].

Total public pension liabilities (including collective systems): actuarial estimates in 1990
Sensitivity to discount rate in terms of GDP (OECD estimates, 1993, see footnote 10)
In percent of GDP

	USA	Japan	Germany	France	UK	Canada
Discount rate = 4%	113	162	157	216	156	121
Discount rate = 5.5%	89	128	125	171	121	92

[11] It consists in estimating the future benefits taking into account the probable career of current employees, and applying to this the ratio of the number of years accomplished over the total years that is going to be accomplished. Such a method spreads the increase in benefits that are generally accrued in the end of the career to the whole period.

[12] The table is only given as an illustration of sensitivity. Levels should not be commented as their scope is much larger than the scope discussed in the present proposal. They cover all public pension liabilities and not, as in the present paper, government employees public pension liabilities, which are much smaller. Also the paper is quite old.

- The few figures available to the author of the present paper regarding actuarial values of unfunded general government pension schemes for their own employees, in terms of GDP are lower than the figures given above: 20% in Canada and Australia, 50% in France. But, extrapolating the same type of sensitivity than the one observed in the above table, a difference of 1.5% in the choice of a discount rate would lead to figures of 16% for Australia and Canada, 32% for France. In the national accounts recordings this would have two impacts: a significant sensitivity on the level of the public debt, but also a significant sensitivity on the annual estimate of the property income flow (D44). This flow is approximately equal to the discount rate multiplied by the stock of liabilities. For France, this would lead to a D44 flow equal to 1.5% of GDP with a discount rate of 3% (3%*50%), and 1.8% with a discount rate of 4.5% (4.5%*40%). The difference between the two, 0.3%, can be considered small but is quite substantial in the context of the European Stability Pact.

It is therefore essential that strict recommendations be put forward regarding the quality of the estimation of the liabilities, and the comparability of discount rates used by different countries in order that the implementation of the recommendations on unfunded general government pension schemes do not decrease the credibility of the national accounts, and especially of general government accounts. For the time being, the report of the moderator "suggests" a real discount rate of 3% and (does not discuss also the necessary forecast of the inflation rate, which has less impact) but without giving any precise recommendations. The use of the long-term government CPI indexed bond interest rate could be seen as the most "objective" choice.

The community of statisticians will have therefore to discuss these recommendations. The best way is to open the discussion with economists expert in public finance and with public accountants.

Appendix: what if the scheme is considered autonomous in the new proposal?

Starting from table 2, let us introduce a situation of autonomy of the scheme in a gradual way.

First, let us try to apply the preceding accounts with a completely "virtual" pension scheme, but nevertheless considered autonomous. We can think of this virtual scheme as a pure accounting object, sometimes called a "notional fund", which exists uniquely for transparency reasons: it helps in showing the full picture of the implicit pension flows. In order to do this, we will consider that the government is building a debt *not towards* the households but *towards this fund*, in the form of a non tradable "notional government bond"[13], for which we use the classification position. We obtain the following accounts.

Table 3

	Imputed flows are in italics	**General government**		**Notional pension scheme**	
		uses	resources	uses	resources
D122	*Imputed employer contributions*	*15*			
D44	*Imputed property income*	*6*		*6*	*6*
B9A	**Net lending/borrowing**	**-21**		**0**	
	Financial accounts	ΔAssets	ΔLiabilities	ΔAssets	ΔLiabilities
AF2	Cash			-9.5	
AF611	*Net equity of households on pension funds*				*11.5*
AF619	*Notional government bond for pensions*		*+21*	*+21*	
B9B	**Net lending/borrowing**		**-21**		**0**

Nothing is changed for D122, imputed contributions, compared to the previous account. It corresponds to the amount necessary to cover the additional rights granted by the sponsor of the notional scheme to its employees. The same amount of 6 appears as D44 for the general government as before. However, the interpretation of this amount is different: it represents the property income implicitly paid to the autonomous pension scheme on the notional government bonds detained by the scheme. All these assets being imputed, there is no reason to consider that this amount should be different than the amount that was calculated in the previous accounts on the virtual pension debt of the government. This leaves the government with a net lending/borrowing exactly equal to the preceding one, and cumulated, with a debt also equal to the previous one.

Regarding the notional pension scheme, one records the same (virtual) amounts of 6 received and paid for D44, one received implicitly from the government, the other one implicitly paid to households. The financial accounts of the notional pension scheme record the net cash decrease (AF2) as well as the net change in AF611 that were previously recorded under the account of the general government. The last feature of this account is the recording of the increase in the assets in terms of notional government bonds

[13] This is the presentation that was used by Statistics Canada to introduce their notional scheme. It seems also that specific non tradable government bonds are also issued by the US treasury to some public pension schemes.

(AF 619) of the notional fund. Net lending/borrowing of the notional fund is therefore nil, and the net worth of the pension scheme is nil.

One could doubt about the usefulness of this quasi entirely virtual presentation, as shown by the amount of lines in italics (lines in italics show imputed flows)! But, first, it helps to understand the nature of the property income D44 implicitly paid by government by putting a more concrete underlying financial asset behind it.

Second and main usefulness of this presentation is that it shows in fact exactly the accounts that would be the *real* accounts of a *real* (government sponsored) defined benefits pension fund *in which the sponsor would have committed to automatically ensure the equilibrium of assets and liabilities.*

Let us suppose indeed that the government decides one day to transform its unfunded pension scheme into a fully fledged defined benefit pension scheme, with the commitment to ensure at any period that the pension fund is systematically in equilibrium. The above account would look exactly the same, however with no more lines in italics: imputed employer contribution would be an actual employer contribution, imputed property income would be equal to real government bonds yields, the notional government bond for pensions would be real government bonds. Overall the deficit and the debt for the government as well as for the pension scheme would be strictly identical to previous ones.

Of course, the big difference between a notional pension scheme and a real pension scheme would be that a real pension scheme could not have assets in "notional bonds". It should be tradable bonds so that the pension scheme can cash these bonds in order to pay benefits to its members…This shows that even if governments have not shifted yet to this real pension scheme, the national accounts would record the situation as if they had.

What now if the real fund was not in equilibrium and therefore showed a net worth (positive or negative)? Recommendations put forward for the revision of the SNA are that, in this case, the net worth should be allocated to the sponsor.

This confirms two positive characteristics of the treatment: (1) its results on the sponsor's (here the government) net lending/borrowing and on its net worth is equivalent whatever decision is taken on the classification of the (virtual) pension scheme, (2) that the recordings impacts on deficit and net worth correspond exactly, even if the fund is virtual, to those that would be recorded if the fund was a real fund.

Another interesting conclusion of this long appendix is that it could appear that the long term government bonds interest rate could be an acceptable candidate to be used as the discount rate used in the calculation of the debt liability and the property income.