NATIONAL AND SECTOR BALANCE SHEETS IN CONCEPT AND IN PRACTICE

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National and Sector Balance Sheets are playing an increasingly important role in economic analysis. This article reviews the actual and potential applications and considers whether there is a case for modifying SNA practice and recommendations to increase the value of the contribution that balance sheets can make to analytical work.

The major sections of the article relate respectively to financial and non-financial items in national and sector balance sheets. In the context of financial items, there is discussion of the perception of what constitutes an individual's total financial portfolio and therefore which items should be included or excluded when assessing the financial assets of the household sector (e.g. various forms of pension entitlement and life assurance). The relevance of marketability is considered as is the possibility of attempting to identify a separate domestic households sub-sector. The other main topic considered in relation to financial balance sheets is the relevance of adopting a single approach to valuation; alternatives are considered in relation to the stock of public sector debt.

So far as non-financial assets are concerned, difficulties arise with the national accounting practice of treating the acquisition of consumer durables and military assets as current expenditure. While it is considered, on balance, best to continue to treat the purchase of consumer durables as current expenditure, though recording the value of the stock of durables outside the main body of balance sheets, it is recommended that "non-fighting" assets such as transport ships and aircraft and hospitals should be treated as capital assets. The treatment of sub-soil assets and the valuation of fixed assets is also discussed.

Reconciling balance sheets with flows data is an essential step if balance sheets are to be fully exploited; some comments are offered on the UN guidelines on this topic.

1. INTRODUCTION

This paper has been prepared by two U.K. government statisticians—one present and one ex. The work of such statisticians is necessarily geared closely to the requirements of government users. In the case of economic and financial statistics this means that the work is directed at the requirements of those responsible for formulating or advising on government economic and financial policy. The work undertaken and the resources employed at government expense have to be justified in the light of those requirements.

The background of the authors is reflected in the flavour of the paper, though the views expressed are entirely personal and should not be attributed to the Central Statistical Office. While there is a need to understand the ideal conceptual framework of national and sector balance sheets, we do not believe that it will be practicable in the foreseeable future to compile such balance sheets in every detail. We therefore give great emphasis to a consideration of priorities; and priorities are judged primarily according to what is likely to be most valuable to users and what is practicable with the resources likely to be available.

It is therefore fitting that the next section starts with an examination of the uses of national and sector balance sheets. Section 3 discusses briefly the overall

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framework of balance sheets. Section 4 considers some aspects of the coverage and measurement, in concept and in practice, of the financial items of balance sheets and section 5 deals similarly with the non-financial items. Section 6 considers the institutional sectors to be identified in balance sheets. Finally, in section 7, we discuss the form of accounts reconciling the values in successive national and sector balance sheets with corresponding transactions accounts.

Throughout the paper discussion is based on the UN System of National Accounts (SNA) and the UN Provisional International Guidelines on the National and Sectoral Balance Sheet and Reconciliation Accounts of the System of National Accounts (M60).

2. Uses of National and Sector Balance Sheets

The analytical framework supporting economic policy analysis has, over recent years, increasingly embodied stock functions, particularly financial, in the economic modelling systems. As policy emphasis has focussed far more on financial aggregates, such as the variety of measures of money supply that are in vogue at any one time and, in the U.K., on the public sector borrowing requirement (PSBR), so there has been much greater interest in the levels of and changes in sector balance sheets.

Areas that have come increasingly to the fore have included:

(i) the use of statistics for wealth, both financial and physical, to analyse economic and financial behaviour;

(ii) the use of sector financial balance sheets as an aid to assessing the impact of inflation on debtor or creditor sectors and behavioural responses;

(iii) changes in non-bank private sector financial wealth as an aid to the analysis of personal and company sector saving and spending;

(iv) the stock of public sector borrowing (PSBR stock) which adds a further dimension to the analysis and determination of the government's fiscal stance;

(v) the development of reconciliation accounts as a quality control tool to establish the validity and an understanding of data on stocks and flows.

Perhaps surprisingly there has been little evidence of a desire to improve the data on tangible assets by integrating estimates of capital stock by industry and type of asset with the balance sheet system. Any future shift in emphasis to more interventionist industrial policy is however certain to increase demands for this sort of development.

Most of the above interests have already been the subject of papers to this organisation or to bodies working in the same field, but the topic that has caught the imagination more than any other in recent years is inflation accounting. Economic policy and national accounting in inflationary conditions was the subject of a conference in its own right in January 1984 and, not surprisingly, members of the Association were not conspicuous by their absence on that occasion.

3. The Overall Framework of Balance Sheets

In principle national and sector balance sheets are statements of the values of tangible assets and intangible assets owned by a nation and its various institutional sectors on a given date and of the outstanding financial claims between institutional units on that date. In concept the coverage of balance sheets should be compatible with the coverage of the capital and financial sections of the transactions accounts (the capital finance accounts of SNA).

In practice much of the interest in balance sheets lies in the changes in valuation between successive accounting dates and more particularly in a division between that part of the change which is due to transactions in the intervening period and those parts which are due to price changes and other causes. It is therefore evident that in practice also the coverage of balance sheets should be compatible with the coverage of the transactions accounts. There may be instances where the special requirements of balance sheets may justify consideration of revisions to the coverage or form of the transactions accounts as defined in SNA. In other instances any differences or conflicts between the requirements of balance sheets and transactions accounts may be reconciled through supplementary tables or through entries in the reconciliation accounts (see section 7).

It is readily apparent that the coverage of financial assets and liabilities can be defined more clearly than that of non-financial assets. Included in the financial sections of balance sheets are all assets and liabilities arising through lending and borrowing (short-term and long-term) across the boundaries of institutional units; and all of this lending and borrowing is proper to the capital finance accounts of SNA. Each asset has a corresponding liability and across all sectors (including a rest-of-the-world sector) net financial assets add in principle to zero.

In the case of non-financial assets the coverage depends on interpretation of what comprises an asset. In broad terms "asset" must mean "productive asset", but in practice there are many other considerations. These are discussed in section 5.

There are two main requirements of the system of valuation of items in the balance sheets. First, the method of valuation should produce results which are of the greatest possible analytical value to users. An important facet of this requirement is that the valuation should be consistent over time, across sectors and, so far as possible, among items. Secondly, the method of valuation must be practicable.

There is little doubt that in principle current market value is the appropriate basis for valuation. Market value is the value agreed on by buyer and seller; and it is the only form of valuation which, taken over successive accounting dates, can yield an assessment of gains or losses due to inflation. However, there are difficulties in practice which are discussed in sections 4 and 5 and instances where more than one approach may be justified.

4. Financial Items in the Balance Sheets

The UN guidelines identify the following categories of financial assets and liabilities to be recorded in national and sectoral balance sheets:

Gold and IMF special drawing rights

Currency and transferable and other deposits
Short-term (original maturity less than one year) bills and bonds
Long-term bonds
Corporate equities including capital participations
Short-term loans nec
Long-term loans nec
Net equity of households on life assurance reserves and on pension funds
Proprietors' net equity in enterprises
Trade credit and advances
Other accounts receivable and payable.

While the inclusion of most of the above items in a portfolio of financial assets gives rise to no conceptual debate, we think that one should nevertheless pause at this juncture to question what items are relevant to the completion of sector balance sheets and how they are perceived both by the holder and the analyst of the data.

For balance sheets to make any contribution to economic analysis at the sector or sub-sectoral level, the items covered should be perceived as relevant to the balance sheet by the units comprising the sector. Otherwise balance sheets can have little relevance to the interpretation of economic behaviour and inclusion of the data in analytical and forecasting models will only muddy the waters rather than clarify the relationships. The overall objective should be to contribute to the improvement of the information base on which policy decisions are taken so that one can at least claim that—irrespective of whether the "right" course of action was adopted, because that may well be a political judgement—the decision making process was supported by the most relevant information systems.

The holder's perception of his wealth is particularly pertinent where the data are to be used to analyse economic behaviour; particularly interesting questions arise in the context of the household sector. These concern the totality of wealth in terms of overall economic welfare, the marketability of the assets comprising the total net worth and methods of valuation of balance sheet items. One particular item in the above list that raises all these questions is the treatment of the equity in life insurance and pension funds. Consideration of the following five distinct categories—each of which is handled differently in either the flow accounts or the balance sheets—helps to focus on the conceptual difficulties of assembling balance sheet data in this area:

(i) Funded pension schemes;
(ii) Notionally funded pension schemes;[1]
(iii) Unfunded pension schemes;
(iv) Life assurance—with a savings dimension;
(v) Life insurance.

Balance sheet data for the personal sector for the UK[2] include, as assets of that sector only, the equity of self-administered and managed life assurance and pension funds. Whilst transactions are recorded in the flow accounts in respect

[1]E.g., certain pension schemes in the U.K. public sector which are contributory but not funded, any excess of contributions over pensions paid in a period being transferred to the Exchequer for an undertaking to underwrite any future deficiency.

[2]In SNA terms households plus private non-profit institutions serving households.

of notionally funded and unfunded pension schemes, there are no corresponding entries in the balance sheets. But is there any difference in the perception of the prospective pensioner as to his future security—and hence in his current economic behaviour—whether he is the participant in an unfunded, notionally funded or fully funded pension scheme? In each case, although the transferability of the funded arrangements may possibly be better than for the unfunded scheme, and that may affect attitudes to jobs mobility, the attitude to saving is likely to be similar, other things being equal. Can there be any conceptual justification therefore for including in personal wealth the assets relating to fully funded pension schemes only? It seems to us that this falls between two stools and that if these assets are to be included, then there should also be recognition of the potential benefits from notionally funded and unfunded schemes and from state benefits too. If this is accepted then these schemes should also feature in the balance sheets, on a par with fully funded pension schemes.

This leads on to the directly related question of whether the individual perceives a future pension entitlement in the same way as others of his financial assets. The answer must be that he does not, because while the entitlement to a future stream of income may affect his behaviour as regards saving, that entitlement is not part of his currently marketable financial portfolio that can be used for current consumption or alternative investment: it is an asset over which he has no control, yet to which a part of his income is committed. It follows therefore that there is no single measure of households sector wealth that is appropriate for all analytical purposes and balance sheet presentations should recognise this difference between the marketable wealth of an individual and total wealth.

While it may be clear that future pension entitlements, whether funded or not, cannot be categorised as marketable wealth, the distinction is not as clear cut in the case of all financial assets. Holdings of government securities, company shares and building society deposits obviously qualify as marketable, but how should participation in life insurance schemes be treated? We have referred so far to three of the five categories of life assurance and pension funds i.e. those concerning pension rights only. Life insurance may be considered to fall into either of two broad categories, policies with some savings element (life assurance) and those that insure against death only. Only if there is a savings element, to be realised in the form of a lump sum payment or an annuity on maturity of the policy, is life insurance relevant to balance sheet compilation; then one might consider the lump sum or income to be realised on maturity to be in the same category as the benefit from a pension scheme. The difference is that assurance, with a savings dimension, will normally have a surrender value and will be perceived by the holder as more liquid than a future entitlement to a pension. It could well be regarded as being in the category of marketable wealth, though to the extent that there will be a financial disincentive to realise the surrender value it may be regarded as less liquid than other marketable financial assets and therefore be realised only as a last resort.

Having considered the different categories of life insurance and pension funds there would seem to be three categories of wealth that should be represented in a households sector balance sheet:

(i) marketable wealth e.g. government securities, company shares;

(ii) semi-marketable wealth e.g. life assurance;

(iii) non-marketable wealth e.g. pension entitlements.

We consider that these three distinctions should in theory be introduced into balance sheet formulation; this will leave to the user of the data the option of treating the life assurance category in any of three ways, either as marketable or non-marketable or as a separate category in its own right.

Both for the sector flow accounts and balance sheets it is important for the user of the data to be able to identify domestic households separately from the total of the households sector in order that consumer behaviour may be best understood and not swamped by self-employed activity. Sectorisation in the SNA does not directly provide for this as one would ideally want to identify the domestic, as opposed to the business activity, in each of headings 5(a), (b) and (c) in Table 4.1 of M60 (see page 17). If such a separation were possible the flow accounts for domestic households would record receipts from life assurance and pension schemes and individuals' expenditure on such schemes in the income and expenditure account. Transactions between such householders and the schemes would be consolidated within the households sector. We will go on to consider how far such concepts can be followed when compiling balance sheet data, before suggesting how the corresponding data for the households balance sheet might be presented.

Generally there is no problem in attributing values to financial instruments that are marketable though, in the absence of direct reporting from all sectors, it is difficult to decide upon the appropriate sectoral attribution. In the case of pension funds however the guidelines complicate this approach by recommending the inclusion as personal assets only the value of reserves earmarked for policy holders, rather than the total net assets of the funds. Thus the recommended approach implies attributing a separate net worth to pension funds, that being the balance between the total net assets and the value of assets earmarked for fund participants. Given the practical difficulties of making such an attribution, the necessity of collecting additional information to enable the split to be made and the fact that it is questionable whether such a refinement adds to the value of sector balance sheet information, we consider it preferable to attribute the total market value of the equity in pension funds to the households sector rather than attempt to allocate it partly to that sector and partly to a separate fund category with other financial institutions. Within the households sector we would choose not only to separate pension funds from more marketable assets, but also to provide for a domestic households sub-sector that excluded these assets altogether: this would be consistent with our preferred method of recording flows in the income and expenditure account. Here pension fund flows are separately identified and domestic households transactions record pension receipts and contributions; pension fund surpluses are attributed to the non-domestic part of the households sector. Ideally, and the SNA framework provides for this, we would like to see a balance sheet analysis that separated out unincorporated businesses as well.

Saving related life assurance calls in our view for a similar treatment to that of pension funds in that we would attribute the total value of the equity of such funds to the households sector rather than attempt to separate out the value of

assets earmarked for policy holders. However, while we commend the exclusion of pension fund assets from the domestic households sub-sector net worth, we consider that as life assurance normally has a surrender value, that value, being the current value to the policy holder of his investment, should be attributed to the domestic households balance sheet, leaving the remainder in the residual part of the households sector.

Unfunded pension schemes pose a different problem in that although pension rights are accruing no associated assets are held and, in the flow accounts, employers' and employees' contributions are regarded as being equal to pensions paid. There is thus no contribution to households saving or net acquisition of financial assets and no recorded accumulation of pension rights. Pensions paid are effectively transfers between present and former employees. State pension rights call for similar treatment where rates of contribution and payment are the subject of government legislation and are unrelated to funds held.

The case of notionally funded pension schemes in the flow accounts differs only slightly from that of unfunded schemes in that there is a surplus/deficit for transfer between the households and central government sectors. For such schemes in the U.K.—e.g. teachers—no actual assets are held although notional fund accounts and notional assets are maintained and actuarial valuations are made at intervals to determine the appropriate contribution rates for the succeeding inter-valuation period.

For unfunded and notionally funded schemes our view is that the balance sheet treatment should accord with the UN guidelines and that no entries should be made in the main sector balance sheets. If however funded schemes are to feature, albeit with a non-marketable label, corresponding memorandum items should appear with the balance sheets in respect of unfunded schemes so that in any assessment of overall economic welfare an appropriate allowance can be made for all categories of pension rights. The valuation would record the present value of future pension payments attributable to service to date. It would be less appropriate for balance sheet compilation to include an allowance for future service too, although it may be argued that that is the notional value that individuals might attribute to their pension rights.

A households sector balance sheet for the United Kingdom might then look like this:

	£ billion (end 1984)
A. *Tangible assets*	
(i) Dwellings	486
(ii) Other	82
(iii) Total	568
(iv) *Memo:* consumer durables	98
B. *Marketable financial assets*	
(i) Notes, coins, financial investments	327
(ii) Life Assurance surrender values, say	50
(iii) Total	377

	£ billion (end 1984)	
C. *Financial liabilities*		
Total	174	
D. *Net-marketable financial wealth* (B – C)	203	
E. *Other life assurance and pensions assets*		
(i) Funded:		
(a) Life assurance nec	47	
(b) Pension funds	130	
(c) Total	177	
(ii) *Memo:* Unfunded and notionally funded:		
(a) Occupational pensions	175	
(b) State pensions	520	
(c) Total	695	
F. *Net wealth*		
(i) Including Memos	1741	
(ii) Of which marketable		869
(iii) Excluding Memos	948	
(iv) Of which marketable		771

To summarise, our recommendations for the presentation of life insurance and pension funds in sector balance sheets are that:

(i) for the domestic households subsector there should be provision for the separate identification of marketable and non-marketable assets, pension fund equity being recorded in a residual part of the households sector;

(ii) the domestic households sub-sector should record the surrender value of life policies, the balance of the equity value being attributed to the rest of the households sector;

(iii) as no actual assets exist in respect of notionally funded or unfunded pension schemes, it would be inappropriate to record entries in the main sector balance sheets, but memorandum items should record the appropriate actuarial valuation.

The other topic that we want to raise in the context of financial balance sheets concerns the compilation of a public sector balance sheet. The valuation aspects have assumed greater importance with the emphasis now being given to the contribution of sector balance sheets to inflation accounting and our particular concern is to question whether market values are necessarily the most relevant method of valuation in all cases.

The market value may, *prima facie*, be the obvious valuation to place on an asset when assessing the wealth of the sector holding that asset, but for that value to have any meaning there must be a market in which it it is traded and in which the asset holder is likely to operate. On the other hand, the market value may have no significance at all to the issuer of the debt and market valuation may in

such circumstances have little relevance to the level of and changes in the issuing sector's net worth. The conceptual difficulties to which this gives rise are illustrated in the following table which shows, for the United Kingdom, the level of and changes in the stock of public sector debt, measured at market values, both in current prices and real terms.

PUBLIC SECTOR BORROWING REQUIREMENT
LEVELS AND CHANGES 1980-1984

	£ billion					
	1980	1981	1982	1983	1984	Change 1980/84
PSBR net liability (a) at end year:						
(i) Current market values	104.3	111.3	133.4	146.2	157.7	+53.4
(ii) Current nominal values	114.3	127.1	132.5	143.9	157.7	+43.4
PSBR net liability at end year at 1981 prices:						
(iii) Market values (b)	111.6	106.3	120.9	125.8	129.8	+18.2
(iv) Nominal values (b)	122.4	121.4	120.1	123.8	129.8	+7.4
Change in PSBR net liability:						
(i) Current market values		+7.0	+22.1	+12.8	+11.5	+53.4
(ii) Current nominal values		+12.8	+5.4	+11.4	+13.8	+43.4
(iii) Market values deflated by RPI(b)		−5.3	+14.6	+4.9	+4.0	+18.2
(iv) Nominal values deflated by RPI(b)		−1.0	−1.3	+3.7	+6.0	+7.4

Notes: (a) Consolidated financial liabilities of the public sector less holdings of monetary gold, convertible currencies, SDRs and Bank of England (Issue Department) holdings of short term domestic assets.

(b) Deflated by General Index of Retail Prices (RPI) at mid-December of each year (1981 = 100):

Dec 1980	93.4
Dec 1981	104.7
Dec 1982	110.3
Dec 1983	116.2
Dec 1984	121.5

Two periods in particular contrast the effect of using market and nominal prices. These are the years 1981 and 1982 when, at market prices, debt rose by £7 billion and £22 billion respectively, while in nominal prices the changes were +£13 billion and +£5 billion. In constant prices nominal debt fell in both years. We question whether the PSBR stock figures compiled on the basis of market prices are helpful to users beyond the fact that the figures balance with the data for the counterpart sectors. The point at issue is brought out in considering the holdings of British Government Securities (BGS), which accounted for nearly tw thirds of the PSBR net liability at the end of 1982. During 1981 the Financial Times Gilts index fell from 68.7 to 62.4, though it rose again to 81.2 by the end of 1982, an appreciation of 30 percent. Thus, of the increase in the net liability of the PSBR of £22 billion during the year, something approaching £20 billion was attributable to market price revaluation of BGS. Such price changes reflect the reaction, often exaggerated, to past and expected movements in exchange rates, interest rates and relative rates of inflation. While these are all factors relevant to the fiscal stance it is questionable how far a balance struck on a

particular day and based on market prices that are subject to erratic short-term fluctuations is helpful in determining a statistic that is an input to assess the government's fiscal policy over a number of years to come.

It will generally be accepted that for the purpose of comparative studies and behavioural analysis, the market price of government stock is the appropriate value for the holder of marketable stock. This is because transactions take place in the market at the price determined by supply and demand. While the market price is that at which the government could at any time redeem its debt, it is in fact well distanced from that market and that market price and variations in it have little relevance to the government for fiscal and monetary policy analysis.

We are therefore attracted by the approach that admits to there being no unique solution to the problem of valuation. While there are presentational advantages in adopting a common approach to apply to all sectors, so that the value of one sector's assets balances with the counterpart liability, there are attractions, in some instances, in adopting different valuation conventions for the holder and issuer of debt.

We consider therefore that it would be wrong to tie SNA guidelines down to a single approach to valuation. It is important to be consistent within the main structure balance sheet compilations in order to avoid the complication of having to include valuation adjustments within the tabulations, but there should be provision for supplementary analyses to display balance sheets compiled using alternative valuation methods. So far as government stock is concerned, other possible approaches to valuation include the redemption price (for dated debt) or a present discounted value approach. Although the nominal price was given by way of illustration, it is not an attractive alternative to the market value as it seldom represents either what was originally paid for the stock or the price at which it will be redeemed. Conceptually the present value of the redemption price is attractive, but it involves complicated calculations and would be too subjective a measure, leaving too much scope for disagreement about the appropriate discount factor to use both at a particular point in time and over time. Of the three additional options suggested, that leaves redemption values. These would reflect the nominal value of the stock issued plus any bonuses enjoyed by the holders, in particular repayment premiums and any capital appreciation due to index linking. This approach has more relevance than the other methods to medium term policy on taxation and borrowing in that, although it ignores the income flows, it does represent the borrower's ultimate liability in cash terms. For the government sector it would be appropriate therefore to include this alternative valuation as a memorandum item.

5. Non-financial Items of Balance Sheets

The classification of non-financial assets in balance sheets, as set out in M60, is summarised below.

Reproducible tangible assets
- Stocks
- Fixed Assets

Non-reproducible tangible assets

Land

Timber tracts and forests

Subsoil assets and extraction sites

Fisheries

Historical monuments

Non-financial intangible assets

The coverage of non-financial assets in national and sector balance sheets has to meet as closely as possible three main requirements:—

(1) It must be compatible with the transaction accounts (e.g. in SNA). That is, the assets included should be of the type where any transactions in them would be recorded in the national and sector capital finance accounts (Accts 5 of SNA);

(2) It should be compatible so far as possible with the coverage of financial assets and liabilities. For example, where a financial liability has been incurred to finance the purchase of a non-financial asset of a capital nature, that non-financial asset should be included in the balance sheet;

(3) A reasonable valuation of the assets should be feasible.

Requirement (3) immediately eliminates a number of intangible but important features including climate, environment and human factors such as population structure, political stability, health and levels of education. All of these features have a strong bearing on the productive capacity of a nation but there is no agreed method of measuring their value in money terms. Their omission means that the final total in national balance sheets, the net worth of the nation, is deficient and the value of international comparisons at this highly aggregated level is limited.

The omission of these intangible features does not, however, seriously affect the relationships between the assets and liabilities which are recorded or the relationships between the institutional sectors. The value of national and sector balance sheets lies in what they show of the structure of national economies; the parts and the relationships between them are more important than the whole.

Requirements (1) and (2), the need for compatibility with transactions accounts and the need for compatibility between the coverage of non-financial assets and financial assets and liabilities, conflict in at least one respect—and that is in the treatment of consumer durables.

Consumer durables. It is implicit in the concept of national and sector balance sheets that the only non-financial assets included should be capital assets. Fixed capital assets are those with the capacity to produce the goods and services included in the production accounts (Accts 1 of SNA) and (by convention) with a productive life of more than one year. Transactions in these capital assets are included in national and sector capital finance accounts.

Household production (other than through the ownership of dwellings, the activities of sole proprietorships and partnerships and through certain subsistence activities of households) is outside the boundaries of production as presently defined for national accounts. Non-financial assets of households (other than dwellings and those used by sole proprietorships and partnerships in the course

of their business) are therefore deemed not to be capital assets. Purchases of these assets are classified as final consumption and entered as such in the income and outlay accounts (Accts 3 of SNA). It follows that on these grounds such household assets (consumer durables) should be excluded from balance sheets.

However, there are other considerations. In particular consumer durables are often purchased on credit and the financial liability incurred through that credit is included in the balance sheet of households. The picture of the net worth of households would therefore be incomplete without an estimate of the value of durables owned by households. Moreover, the stock of household durables owned by households may be an important factor in consumption models and in the interpretation and forecasting of household saving.

One way of reconciling these conflicting requirements would be to amend the transactions accounts as defined in the SNA by treating as capital assets all or some of the durable goods purchased by households. This would entail the re-classification of such purchases as gross domestic fixed capital formation and the imputation of a value to the services produced (and consumed) through ownership of the assets. The value imputed might be based on estimates of the capital consumption of the assets, in a similar way to the treatment of the capital assets held by the non-market sector of government. If it were decided to go only part way along this road, a change in the treatment of automobiles owned by households might be the most attractive first stage.

In our view practicability and value to the user are more important than conceptual purity. By their very nature imputed values are speculative and often merely conventional. Moreover they tend to add to the mystique of the national accounts system, which must be regarded as undesirable from the viewpoint of all but the most specialist users of national accounts.

In assessing whether a change in the treatment of household durables would be generally helpful to users, despite the above considerations, it is relevant to consider the reasons why an exception is already made in the treatment of owner-occupied dwellings. They are certainly the biggest and longest lasting non-financial assets ever likely to be owned by households. However the main reason why the exception has to be made is, we think, that in any country the occupation of dwellings is a mixture of owner-occupation and rented occupation. The proportions of each may vary among countries, and over quite a short period of years, in any one country. If no imputed values are given to owner-occupation, any differences or changes in the proportions of owner-occupied and rented dwellings would result in spurious differences or changes in the estimated value of gross domestic product. (E.g. a shift from rented occupation to owner-occupation would lead to a spurious reduction in GDP.) This particular feature is not thought to apply in anything like the same degree to other household durables.

In fact there appears to be little if any practical advantage to macro-economic analysis in changing the present treatment of transactions in household durables. Such a change would be more likely to confuse than to help users.

We therefore conclude that the best solution is that adopted in M60—i.e. to leave transactions accounts unchanged and to show the stock value of household durables in a supplementary table outside the main body of balance sheets.

Military assets. Somewhat similar considerations arise in respect of military assets. Expenditure on durable goods (other than housing) intended for defence purposes is, in SNA, deemed to be intermediate consumption (effectively final consumption), not part of capital formation. For consistency such assets should therefore be omitted from balance sheets. We would not want to include in balance sheets, even as supplementary data, essentially military equipment such as tanks, guns and warships. There is, however, an anomaly in that the SNA classifies expenditure on certain types of "non-fighting" assets such as transport aircraft, ships and vehicles, permanent hospitals and schools for general education as consumption if classified as military defence, but as capital formation if classified to any other function of government. There is already a slight difference in emphasis between the definitions of SNA and the instructions for completing UN/OECD national accounts questionnaires. According to SNA (para 6.122):

> "... the construction of schools, hospitals, airfields or roads for use by the armed forces is classed as intermediate consumption though these facilities might be put to civilian use. This is also the case for motor vehicles used for military purposes."

The definitions of gross fixed capital laid down for the purpose of completing national accounts questionnaires includes the following passage:

> "Outlays by producers of government services for military purposes are considered to be current expenditures *except for outlays on* land and *certain civilian-type items such as schools, hospitals,* family-type housing *and roads if they are mainly for civilian use.*"

We believe that there is a case for treating as capital assets in balance sheets all military assets of the type described above where there is an identical civilian use; and for amending accordingly the SNA classification of transactions in these assets. In this respect our preferred action differs from the guidelines in M60.

We do not regard this conclusion as inconsistent with our conclusion over household durables for four main reasons:

(1) the treatment of these types of military asset as capital would be readily understood and helpful in analyses of government expenditure;

(2) unlike household production, government production of services (includng military services) is already within the boundaries of production as defined in SNA;

(3) the change in treatment of military assets would be easy to make in practice;

(4) it overcomes the logical inconsistency of treating certain capital assets purchased by the armed forces as current consumption and excluding them from the Balance Sheets, while similar assets leased to the armed forces have been counted as capital expenditure in recording the lessor's acquisition.

We recognise, of course, that the proposed change in treatment of certain military assets would increase gross domestic product to the extent of the value imputed to the services produced and consumed through ownership of the assets.

Subsoil assets and extraction sites. The treatment of sub-soil reserves of mineral resources is another area where a revision to SNA may need to be considered. SNA does not provide for the inclusion in the transactions accounting

system of changes in the value of reserves of such resources. The reason for this omission is that the reserves are deemed not to enter the economic system until the minerals are worked. Nevertheless, in certain circumstances the known existence of mineral reserves can have a profound effect on the economic behaviour and prospects of a country; the known reserves constitute a major element of wealth. For this reason it is suggested that the value of reserves of mineral resources should, in principle, be included in balance sheets. However the value should be included only if it is positive—that is, if the reserves can be deemed to have a market value.

For example, if the price at which coal can be sold on the market is no higher than the costs of extraction, including a reasonable return on capital equipment but excluding any licences or royalties paid, then the value of the reserves must be deemed to be zero for balance sheet purposes. (It is clear that, in reality, such reserves must have some value. If it were not so the question arises as to why they should be worked. The answer, we suggest, is that the value is of an intangible type; it lies in the ability to provide employment coupled possibly with a "self-sufficiency" strategic value. Such values could not readily be quantified.)

Where, as in the case of oil at the present time, the selling price exceeds all the costs of extraction, as defined above, then the reserves have a positive value. The value of the depletion of the reserves period-by-period can be deemed to be equivalent to the amount of excess. The present value of the remaining reserves is the product of the known reserves in physical units and the present "excess profit" per unit, discounted according to current rates of return on capital and the future schedule of extraction. This is an oversimplification since allowance should properly be made for any future real increases in the costs of extraction from each site as the reserves become less easily accessible. However, there is a danger that in attempting further refinement the process becomes immersed in complete imponderables, such as future developments in technology as yet unknown. Balance sheets can be drawn up only on the basis of knowledge available at the time.

Where the owner of the mineral reserves (often the community at large as represented by government) is different from the extracting operator, the excess profits may be "creamed off" through licences and/or royalties. If both parties get their values right the amount of the licences and royalties, period by period, can be deemed to be equivalent to the value of the depletion of the reserves.

If a sufficiently sound basis for valuation is available to include mineral reserves in balance sheets, changes in value through depletion need to be accounted for either in the reconciliation accounts or in a transactions account. We suggest that, in concept, the value of the depletion would be most appropriately treated as a reduction in stocks in the capital finance account of the owner; this would result in a reduction in gross domestic product as presently defined. It is suggested that it is right in concept that this should be. The income arising through the extraction and working of the mineral reserves can be deemed to have two elements. The first element is the sale of a stock built up in the immeasurable past. The second is the income generated directly through extraction and working (the value added). Only the second element can be deemed to be income generated

through economic activity in the current period. If this solution were adopted SNA would need to be amended and the coverage of balance sheets and the transactions accounts of SNA would become compatible.

This would represent a major change in SNA and such a change would have limited value unless all countries concerned were able to comply. In view of the probable difficulties of estimation this should perhaps be considered as a desirable change in the longer term. In the shorter term changes through depletion in the value of reserves of mineral resources could be accounted for in the reconciliation accounts.

We suggest that changes in the value of mineral reserves through causes other than depletion (new discoveries, appreciation etc) should in any event be accommodated in the reconciliation accounts.

Other valuation problems. As already suggested, the ideal basis for the valuation of assets is current market value. At the instant of purchase, the current market value of new assets is the price paid. However as soon as assets become "used" or "second-hand" other factors have to be considered. For balance sheet purposes the price at which a used asset is sold can be deemed to be representative of market value only where there is an active competitive market and where the price of the asset sold is closely representative of the value which would be put on a similar asset by holders not selling at that time—that is, in institutional units where the asset is still in active use. For example, the price at which second hand industrial plant is sold on the liquidation of a business cannot be deemed to be representative of the market value of all similar plant. In a similar way it is suggested that an estimated market value of most household durables, based on second-hand sale prices, would tend to be an under-estimate.

A further practical consideration is that the selling price of a particular type of asset can be used as a direct basis for estimating aggregate balance sheet values only where the stocks of that asset, in physical units, can be measured.

In view of these considerations it appears likely that in many countries the only fixed assets for which a true market value can be assessed are dwellings and certain commercial buildings such as shops and offices, commonly used road vehicles and commercially used land.

Where balance sheet values cannot be based on transactions in the market a proxy has to be adopted, the most favoured of which is written down current replacement cost.

The most common method of estimating written-down current replacement cost is the perpetual inventory method which builds up estimates from historic records of gross fixed capital formation, the expected lifetimes of use of fixed assets and historic price indices for gross fixed capital formation. The method is described and illustrated in detail in M60.

A major practical advantage of this approach to estimation is that it makes use of data required in any event for the transactions accounts, particularly in the estimation of capital consumption. It is therefore less burdensome on resources than direct inquiries of holders of assets. A disadvantage is that the estimates of capital consumption, and therefore of written-down current replacement cost, depend heavily on the lengths of life attached to each type of asset; and in practice these lengths of life may often be little more than assumptions. For

international comparisons it is important that all countries should adopt similar principles in assessing lengths of life.

Buildings. In principle:

(i) valuation should be "market value" where a realistic market exists;

(ii) value should be exclusive of land.

In practice (i) and (ii) are often incompatible because buildings and the land underlying them (and immediately surrounding them) are inseparable in the market. Moreover the distinction is not of great importance for balance sheets except where the owners of the buildings and of the land underlying them are in different sectors. We suggest that the balance of advantage lies with the valuation of buildings and "built-on" land together except where separate ownership in different sectors can be identified. Although most of these combined estimates of buildings and land would be classified to "buildings", some farm buildings might be more easily and more appropriately valued and classified as part of the value of the agricultural land on which they stand.

Priorities in practice. Given that the resources available for developing and maintaining national and sector balance sheets are likely to be limited, it is necessary that those resources should be directed towards areas of the work which yield results with the greatest practical value to users. It has already been concluded that the coverage of non-financial assets must inevitably be less complete than that of financial assets and liabilities. There is a contrast between the financial and non-financial elements also in the fundamental nature of the estimates. Whereas financial assets and liabilities are naturally denominated in monetary units, the translation of non-financial assets into monetary terms is mainly indirect and often conventional. The estimated value of non-financial assets must be accepted as being subject to substantial error.

For this reason we suggest that it would be unrewarding to devote resources to exploring every last crevice of the non-financial area of balance sheets. It would be preferable to concentrate on those items which are measurable in a realistic way and which are important in terms of size and analytical value. It is important to ensure that these items are measured and evaluated as consistently as possible over the sectors and over time.

In Western Europe, the country most advanced in the development of balance sheets is probably France. In the French national balance sheet for end-1979 fixed assets and stocks together account for 86 percent of all non-financial assets and land accounts for 12 percent. The remaining 2 percent comprises intangible assets. (These proportions do not take into account consumer durables or sub-soil assets—except insofar as sub-soil assets are incorporated in the valuation of land.) If, as is likely, these proportions are roughly typical of countries most likely to be able to develop balance sheets in the short term, we suggest that it would be more rewarding to improve the reliability of 86 percent—or 98 percent including land—than to devote resources to exploring 2 percent. We have our doubts about the need, for the purpose of national and sector balance sheets, to put a value on land which is not productive in any measurable way. Of course a comprehensive coverage of all land is required in land-use statistics denominated in terms of area. But we cannot readily accept the merits for macro-economic analysis of putting rather dubious values to all this land.

Summing up this section, we believe that priority in the development and maintenance of the non-financial sections of national and sector balance-sheets should be given to fixed assets, stocks, "productive" land, consumer durables and, in countries where they are of importance to the economy, sub-soil assets.

6. Institutional Sectors

We have no major argument with the classification recommended by the UN in M60:

1. Non-financial enterprises, corporate and quasi-corporate
   (a) Private enterprises
   (b) Public enterprises
2. Financial institutions:
   (a) The central bank;
   (b) Other monetary institutions;
   (c) Insurance companies and pension funds;
   (d) Other financial institutions.
3. General government:
   (a) Central government;
   (b) State and local government;
   (c) Social security funds.
4. Private non-profit institutions serving households.
5. Households including private non-financial unincorporated enterprises:
   (a) Households headed by an owner of unincorporated or quasi-corporate enterprises:
      (i) Primarily engaged in agricultural activities;
      (ii) Primarily engaged in non-agricultural activities;
   (b) Households headed by an employee;
   (c) Persons in other status and small social clubs:
      (i) Households headed by an inactive person or an inmate of an institution;
      (ii) Small social clubs.

We fully support the sub-division of non-financial corporate and quasi-corporate enterprises into public and private enterprises. The sources of finance of private and public enterprises are likely to be substantially different, a large-proportion of finance for the latter coming via government, thereby setting up a government financial asset and contributing at second hand to a government borrowing requirement and a government financial liability. Without separate identification of the private and public elements the picture of inter-dependent finance may become blurred or even misleading.

We recognise that there is no internationally agreed definition of what comprises a public enterprise. The proportion of ownership or the legal status are not the only criteria which have been used. The degree of government control of operational and investment decisions and the permanence of government interest are also factors which may be adopted in some countries. Until common definitions are agreed the division between private and public enterprises is best

left as an optional division for those countries where it is important, using national definitions.

Households sector. In SNA, and also as recommended in M60, the whole of the transactions and balances of households headed by owners of unincorporated (or quasi-corporate) enterprises are separated from those of other households. As intimated in Section 4, we believe that it would be preferable for analytical purposes, and often easier in practice, to sub-divide the household sector more directly into the business and personal elements. In effect the transactions and balances of households headed by owners of unincorporated business would be divided between those for business purposes (within the production boundary) and those for personal household purposes (largely outside the production boundary as presently defined). The latter, personal, element would not necessarily be distinguished from the transactions and balances of households headed by employees or inactive persons. A division of the household sector along these lines has been made on an experimental basis in the U.K. and has been warmly welcomed by many users.

A sub-division between agricultural activities and other activities within the household sector has a limited value to the interpretation of balance sheets. It would be preferable to supplement the breakdown according to institutional sector by the identification of certain areas of economic activity which may straddle the institutional sector boundaries. Agriculture is one such area which would merit separate identification.

7. Reconciliation Accounts

The purpose of the reconciliation accounts is to account for the differences between opening and closing values of assets and liabilities in national and sector balance sheets. The reconciliation accounts therefore provide a reconciliation between the changes in balances shown by balance sheets for successive dates and the transactions recorded in the capital financial accounts (or, in the case of consumer durables, the income and outlay accounts).

We have reproduced at Appendix I the "classification of items of reconciliation according to cause" set out in M60. As M60 contains a very thorough discussion of these items we are confining ourselves here to a few comments concerned mainly with practical considerations related to our suggestions in sections 5 and 6.

Differences in coverage. We have suggested that there are a number of items in which transactions are recorded but which are relatively unimportant in the context of balance sheets and which may therefore have low priority in the work of compiling balance sheets. Where there are known differences between the coverage of the capital finance accounts and of balance sheets, these differences should be accounted for in a separate item of the reconcilation accounts. We would prefer the final item (13.7) to be reserved for unexplained discrepancies.

Discrepancies between financial assets and liabilities. In principle financial assets and liabilities over all sectors, including the "rest of the world", add to zero. Where an asset and its corresponding liability are deliberately given a

different value, as suggested in our section 4, a discrepancy arises which should be recorded as a separate item of the reconciliation accounts.

Price changes. Finally, we regard the items showing revaluations due to price changes as the most important items of the reconciliation accounts because of the essential part they must play in any assessment of the effects of inflation on the measurement of income and savng. For this reason it would be helpful to add footnotes to the reconciliation accounts comparing the revaluations as derived from balance sheets with theoretical revaluations based on the general price index chosen as numeraire.

Appendix I

Classification Of Items Of Reconciliation According To Cause (M60)

13.1. Revaluations due to price changes
- 13.1.1. Market prices
- 13.1.2. Replacement costs
- 13.1.3. Rate of discount or capitalisation factor
- 13.1.4. Foreign currency exchange rates

13.2. Issue of IMF special drawing rights

13.3. Adjustments in respect of unforeseen events
- 13.3.1. Unforeseen obsolescence
- 13.3.2. Differences between allowances included in capital consumption for normal damage to fixed assets and actual losses.
- 13.3.3. Transfers to net equity of households of reserves of life insurance and pension funds
- 13.3.4. Uncompensated seizure of assets

13.4. Net changes in value of tangible assets not accounted for in the capital finance accounts
- 13.4.1. Natural growth less depletions
  - 13.4.1.1. Breeding stock, draught animals, dairy cattle and the like
  - 13.4.1.2. Timber tracts and forests
  - 13.4.1.3. Plantations, orchards and vineyards
  - 13.4.1.4. Fisheries
- 13.4.2. New finds less depletions of subsoil assets
- 13.4.3. Losses in land and timber tracts in catastrophes and natural events

13.5. Adjustments due to changes in structure and classification
- 13.5.1. Changes in the institutional sector or subsector of owners
- 13.5.2. Acquisition or divestment of subsidiaries and consolidation or decomposition of statistical units for other reasons
- 13.5.3. Changes in the classification of entries

13.6. Termination of purchased patents, copyrights, trade-marks etc.

13.7. Statistical discrepancies and discontinuities.