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A PROPOSAL FOR THE SYNOPTIC STRUCTURE OF THE NEXT SNA*

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Summary

The next UN system of National Accounts should have two basic characteristics. First, it has to be a modular system. In the centre there is an institutional core. Next to that there are several modules. By means of imputations and attributions they transform the core into a more functional system that is useful for in intertemporal and international comparisons. Second, it has to be an integrated meso-system. There is a need for a more detailed breakdown of households and enterprises than the 1968 SNA provides. At the same time a description of all interrelations between activities and sectors is necessary. This requires a linkage between input-output tables and sector accounts at a detailed level. The paper shows the synoptic structure of such a system. The heart of this structure is the three-dimensional generation of a value added tables. It shows not only how much of each component of value added is generated by the establishments in each activity, but it also provides the breakdown of each of these cells according to the sector of the enterprise to which the establishments belong. After a more general representation we provide a simplified numerical example.

1. Introduction

Starting with a paper presented at the 1983 OECD National accounts meeting⁽¹⁾, a distinct 'Dutch view' on the structure of the next UN System of National Accounts (SNA) has been formulated. This view has two basic elements. The first is that the next SNA should have a modulary structure centered around a core. This core is an 'institutional' system in the sense that it contains no imputations for non-market production and no attributions of transactions to other transactors than those paying or receiving the money involved. However, because imputations and attributions are necessary to 'functional' intertemporal and international comparability, they should be shown in two standard modules that, together with the core, constitute the central system of the next SNA.

The second element of the Dutch view is that the core should be an integrated meso-system. In particular, this means that households and enterprises should be further divided than in the 1968 SNA and that the linkage between the input-output tables and the sector accounts should be improved.

In the previous papers the reasoning behind this approach to the review of the SNA were explained and the resulting system was described in general terms. Section 2 of the present paper summarizes this. In section 3 the proposed core is presented in greater detail, in the familiar form of tables. We provide a simplified numerical example as well as a more general representation. Section 4 discusses some of the advantages of the proposed structure of the core and its contents. Section 5 gives a tabular representation of the standard modules for imputations and attributions. The final section summarizes the conclusions.

2. Summary of the Dutch view

2.1 Modularity structure of the system.

Van Bochove and Van Tuinen (1985, 1986) and Van Bochove and Bloem (1985, 1986) propose a modularity structure for the next SNA. The next 'Blue Book' should describe a central system consisting of a core and, in addition, a few standard modules. This core is based on three principles. The intersection principle stipulates that the core should, first, contain as few special purpose elements as possible, but must, second, contain all the structural elements necessary for the major alternative descriptions of the economy as a whole. The parsimony principle states that the perceptions of economic agents should be followed as closely as possible, avoiding constructions based on analytical points of view that depart from these perceptions⁽²⁾. Finally, the consistency principle requires the core to be a true system of national accounts, with uniform valuations, consistent balancing, complete enumeration, and so on.

Together, these principles imply two major properties of the core.

- i) The core contains both an integrated meso system and macro aggregates, since the second part of the intersection principle requires that general equilibrium and other multi-sector approaches to the economy as a whole can be supported, next to the traditional macro approaches.
- ii) The core is a more institutional system than the 1968 SNA, i.e. transactions are recorded according to the transactor-transaction principle and the production boundary is determined by market transactions. This is necessitated by both the intersection and the parsimony principle: departures from the institutional system are usually special purpose elements which, in addition, frequently conflict with the perceptions of the economic agents whose transactions are covered⁽³⁾.

Vis à vis the 1968 SNA, the institutional core has a number of important advantages.

- Core concepts are much closer to micro concepts, facilitating both the micro-macro link and the comprehensibility of the core data. This is true both in case of production of industries and in case of households - where the need to align national accounts concepts closer with micro concepts is generally recognized.

- The core is far superior as an integrating framework for specialized statistical systems like IMF Balance of Payments and Government Finance Statistics, balances, satellite accounts of the French type, and so on. The reason for this is that no special constructions have to be removed before the linkage with these specialized systems is made.
- The core need not be changed if institutional arrangements are altered, because it describes transactions just as they occur institutionally, without aiming to uncover a reality behind the institutional arrangements.
- The core provides for superior institutional international comparability: of the market part of economies and of the institutional arrangements of transactions.

Of course, there is a price to pay for these advantages. The institutional nature of the core implies that intertemporal and international comparability of a functional type is not optimal. Thus, e.g., different proportions of market to non-market production of a given commodity - either between countries or over time - impede comparability of total 'physical' production. Therefore, the core should not be the only component of the central system. The central system must also contain two standard modules. The first of these is an 'imputations' module: it provides the information on non-market production that is necessary for adequate 'real' comparisons of production, consumption, investment. Thus this module corrects for differences in the institutional arrangements affecting the production boundary. The second standard module is an 'attributions' module. It provides the information necessary to achieving a routing of transactions that differs from that of the money flows involved. This may be necessary in order to impose a uniform model on transactions which are conducted according to quite different institutional models but have the same 'real' effects. Health care is a good example: in some countries the institutional arrangement is such that health expenditure is partially government consumption and partially household consumption, whereas in other countries arrangements are such that all health expenditure is household consumption. The attributions module could contain the information necessary to reroute, in the first case, government health expenditure in such a way that it is shown as household consumption and that, as a consequence, household income is raised.

2.2 The core as an integrated meso-system.

The 1968 SNA is an attempt to formulate an integrated meso system⁽⁴⁾. In the preceding section we already briefly indicated that the principles of the core imply that this meso character of the system must be preserved, and even enhanced. This point of view needs some further arguing, because it is not universally accepted. Some experts would prefer a small macro system as the core of the next SNA, perhaps along the lines of Meade and Stone's (1941) original system or Stone's (1947) proto-SNA. This small system would then fulfill its role as a coordinating framework for specialized systems by providing the macro totals to which the detailed data of the latter have to add up. Papers by Van Bochove and Van Tuinen (1985, 1986), Van Bochove and Bloem (1985, 1986) and Al (1985, 1986) reject this view for a number of reasons.

First, a small macro system is insufficient as a data base for the description of the production process. The essence of the latter is the physical transformation of goods and services into other goods en services. Thus by its nature the production process can only be described and analysed at a disaggregated (micro or meso) level. This point of view is associated with the Quesnay- Ricardo- Marx- Leontief- Von Neuman- Sraffa tradition and with offshoots like activity analysis pioneered by Kantorovitch and Koopmans. Its implication is that the core without input-output data would at best describe some of the results of the production process but not the process as such.

Second, there are other processes of which the essence is micro or mesoeconomic. Since these processes occupy an ever more important place in economic analysis and policy, the core should support their analysis. Just one example is that of personal income distribution and its relations with taxation structure and social security. Only with a disaggregated description of households, can this subject be covered by the core. The same applies to e.g. planning for basic needs in developing countries.

Third, in addition to the macro economic view of the economy as a whole, the meso economic general equilibrium type view (or, alternatively, multi-sector view) of the total economy is becoming ever more important. This applies both to economic theory and to policy modeling. This meso view should therefore

be reflected by the core of the next SNA. This is only possible if the relations between the various parts and processes of the economy are described at the meso level.

Finally, an integrated meso system is far superior as a coördinating framework for still more detailed specialized systems and for micro data. Adoption of a small macro system would damage the central role of national accounts.

Consequently, the meso character of the 1968 SNA must be reinforced rather than diminished in the next SNA. In what respects does the meso structure of the SNA need strengthening? Three major improvements are necessary.

- i) Disaggregation of the household sector. This is essential in view of the increased importance of policy tools for influencing the distribution of income and outlays over households and, more generally, the increasing attention economic analysis pays to households.
- ii) Disaggregation of the enterprise sector in the income and outlay accounts and the capital accounts. This is necessary because of the increasing attention paid to institutional differences between enterprises and their consequences: the role of multinationals in, e.g., direct foreign investment, technology transfers and so on; the role of small and medium sized enterprises in product and process innovation; the resurgence of interest in the economics of imperfect competition and its effects on government policy, as exemplified in the neoclassical political economy school (cf. e.g. Colander, 1984).
- iii) The integration of an input-output framework and the income/outlay and capital accounts for the 'institutional' sectors.

The first two proposals do not need much explaining, though the precise delineation of sectors still requires further research. However, the third proposal is less straightforward and requires elaboration. Al (1985, 1986), taking the Van den Bos (1985) paper as a point of departure, provides a detailed discussion which we summarize here.

The input-output framework is meant to describe the production process whereas the income/outlay and capital accounts are drawn-up in order to describe other processes, notably those of income distribution and capital finance. The differences in the nature of these processes have two consequences for the structure of the two parts of the system. The first is that the sectoring has to be different in both parts. Generally speaking, sectoring has

to be such that the within sector homogeneity with respect to the relevant characteristics of the processes concerned is maximized. In case of the input-output framework, the relevant characteristics have to be selected from the perspective of the production process, in case of the income/outlay accounts the perspective of the income distribution process is to be adopted. Thus in the input-output framework industries are defined on the basis of input and output homogeneity whereas in the income and outlay accounts and the capital finance accounts sectors and subsectors have to be defined on the basis of homogeneity with respect to roles in the income distribution process and the capital finance process. Put differently, the classes distinguished on the income/outlay accounts are neither the same as nor an aggregate of those distinguished in the input-output tables. Thus, purely as a consequence of the difference in perspective between the input-output framework on the one hand and on the other hand the income/outlay accounts and the capital finance accounts, dual sectoring is necessary⁽⁵⁾. The second consequence of the different nature of the processes described in the two parts of the system concerns the statistical units and reinforces this need for dual sectoring. This consequence follows from the fact that the production process is usually organized in smaller units (viz. establishments) than the income distribution and capital finance processes (viz. enterprises). Therefore within-industry homogeneity can only be achieved by classifying establishments⁽⁶⁾, whereas meaningful financial data can only be obtained for enterprises, implying that only the latter can be classified into appropriate sectors in the income/outlay and capital accounts⁽⁷⁾.

Thus, there justly are two major differences in the sectoring in the input-output framework and income/outlay, capital accounts of the 1968 SNA: the characteristics with respect to which homogeneity is to be achieved differ and the units to be classified are different. This, in turn, implies that disaggregate linkage between the activities in the input-output framework and production accounts on the one hand and the sectors in the income/outlay and capital accounts on the other, is not straightforward. Actually, just the total value added generated by all activities and the total value added of all sectors are equal in both parts of the system: there is a link at the top only. The 1968 SNA attempts to remedy this by also classifying the transactors on the income/outlay and capital finance accounts according to economic activity, viz. the main activity of the enterprises and other transactors. This, however, still does not provide the disaggregate linkage: on the production accounts, an establishment's output may be classified into another

activity than on the income/outlay accounts. Therefore a complicated transitions matrix is necessary, which has turned out to be impossible to construct in practice. However, a possible solution does exist that considerably simplifies matters vis à vis the 1968 SNA. This solution is to provide, on the production accounts, a breakdown of the value added (and its components) generated in each activity, viz. according to the sectors of the enterprises to which the activity's establishments belong. This way, the system shows in which sectors each activity's value added is generated; next it can be shown to which sector this value added is allocated. The latter then yields the point of departure for the income distribution process. The purpose of the next section is to demonstrate this way of providing a disaggregate linkage by means of the familiar tables of national accountants.

3. An integrated description of production, expenditure and income.

3.1 Overview of the system.

In this section we mainly restrict the discussion to the integration of the input-output framework with the income and outlay accounts, since the extension to capital accounts is fairly straightforward. Figure 1 presents an overview of the core as obtained under this simplification. The three sets of rows and six sets of columns yield eighteen blocks of matrices and vectors, five of which are meaningless and hence empty. The remaining thirteen contain all basic information needed for an integrated meso-description of production, expenditure, income distribution. We discuss them row-wise.

Commodities in make and absorption matrices.

The subjects of the transactions described in the first set of rows are the commodities, i.e. goods and services. The first two blocks relate to the production process; they are the familiar intermediate use- and make matrices of the 1968 SNA. These two matrices belong in the core because they are the point of departure for the construction of all other input-output tables (industry by industry, commodity by commodity). Next come two blocks of one vector each, describing the imports and exports of goods and services. Breakdowns of imports into competitive and non-competitive are purely functional: they are derived from their commodity composition and are, in addition, not needed for all purposes of national accounts. Therefore they do not belong in the core and only the two vectors given are needed.

Next comes the final domestic expenditure block. Total final domestic expenditure on each commodity is simply equal to the total production of the second block, plus the imports vector less the exports vector, less the total intermediate use as found in the first block. Naturally, final domestic expenditure is to be broken down into the usual categories of consumption, investments, inventory changes. In addition, however, these three categories are provided for each of the sectors of the system. In the standard accounts and tables of the 1968 SNA a rudimentary form of such a breakdown is provided, but in the core much more detail is required if an integrated meso system is to be obtained. Suppose h_j household sectors are distinguished, g_j government

sectors and e_k enterprise sectors. Then the final expenditure matrix shows for each of the h_j household sectors the commodity breakdown of their consumption; for the government sectors the commodity breakdowns of their consumption, investment; for the enterprise sectors the breakdown of their investment and change in stocks and, if some proposals for revision are adopted, the 'final consumption'. One group of sectors might consist of households with an unincorporated enterprise. For these sectors the expenditure matrix also shows both the commodity breakdown of their consumption and of their investment and change in stocks. Clearly, this sectoral breakdown of consumption and investment is essential in the construction of multi-sector models, SAM's, and so on.

Sectors and components of value added.

The second set of rows is a novelty and contains the essential meso links between the production process on the one hand and the income distribution process on the other. Whereas the first set of rows describes the 'production of commodities by means of commodities' (Sraffa, 1960), this second set shows how the production process generates value added and how this value added is transformed into income.

There are three dimensions in the generation of value added. First, it is generated by specific economic activities like, e.g., printing. These activities are carried out in establishments. Second, these establishments belong to enterprises, government or are part of households. In the case of printing, one establishment may be a 200 employee independent enterprise, another one may belong to a multinational multi-activity corporation, still another one may be the government printing office and there may also be unincorporated enterprises. Thus, with an appropriate sector breakdown, each of these is part of a different sector, implying that there is a sectoral dimension to the generation of value added. Thirdly, value added consists of various components, such as wages, indirect taxes, operating surplus, and so on. This is the third dimension. It may be considered from two different points of view. The first one is the income perspective: each of the various components of value added plays a different role in the income acquisition process. The second is the production perspective: each of the components might be considered as a reward of different (groups of) primary production factors. Hence the generation of value added matrix may also be referred to as the primary use matrix.

All three dimensions are included in the generation of value added matrix⁽⁸⁾ in figure 1. This matrix is, essentially, a sectoral breakdown of the standard primary use matrix of input-output tables. The latter specifies how much of each of the components of value added is generated in each of the activities. In figure 1 each of the cells of this standard primary use matrix is broken down further by sector. Thus the operating surplus of the printing activity is broken down according to the sectors to which the establishments mentioned above belong. Similarly, the generation of value added matrix shows how much of the wages generated in each sector are due to printing activity.

Consequently, the generation of value added matrix does not show to which sectors each of the components of value added is distributed. This is shown in the last block of the second set of rows (we skip the two columns imports and exports of factor services and discuss them in section 3.2 because we do not want the rest of the world to interrupt our train of thought that leads from production to income distribution): the distribution of value added matrix. This matrix shows the sectoral destination of each of the components of value added. In case of the operating surplus, both are the same. In case of, e.g., wages and indirect taxes, the origin is the sector to which the establishments that pay them belong, whereas the sectors of destination are (with some exceptions discussed in section 4.3) household and government sectors, respectively. If households are broken down in a number of sectors, the distribution of value added matrix is of particular interest since it shows the incoming wages of each of the household sectors. If government is broken down in, e.g., national, state and local government, the distribution of value added matrix immediately shows how much indirect taxes are received by each of them. As a consequence, the distribution of value added matrix will contain a lot of information required to construct multi-sector models.

In the economic literature there are two basic income concepts. The first is the Hicksian concept: how much can you spend in a given period without being less wealthy at the end of the period than at the beginning. Thus this concept is balances-oriented. The major alternative concept is the one employed in national accounts: a flow concept, limited by the production boundary. Here the essential idea is that income is equal to production less costs. Thus, in a closed economy, the income according to the national accounting point of view equals the value added created in the production process. A logical consequence of this point of view is that the original income of sectors is the one they acquire as a direct consequence of the production process. Hence the

distribution of value added matrix may also be referred to as the acquisition of income matrix.

Income distribution.

The thus acquired income is the point of departure for the income distribution process. This is described in the last set of rows in figure 1. These rows relate to the categories of income distribution transactions as they may be found on the income and outlay accounts of the 1968 SNA. Part of these transactions are generated by property rights, e.g. interest and dividend. Categories like direct taxes, social insurance benefits, social assistance grants might be summarized under the heading 'income policy'. Note that indirect taxes are not a category of income distribution transactions, since they are a component of value added and appear in the income acquisition matrix.

The last two blocks of the income distribution rows display the total sectoral payments and receipts in each of the categories of income distribution transactions. The two resulting matrices are somewhat analogous to the use and make (production) matrices. In case of the latter, the classes of transactors are 'activities', i.e. the basic groupings of transactors in the production process, the subjects of the transactions are the commodities. In case of the income distribution matrices the classes of transactors are sectors, the basic groupings of transactors in the income distribution process; and the subjects of the transactions are categories of income distribution transactions. The analogy goes a bit further still: in case of the make and use table, one may construct an industry x industry input-output table; in case of the income distribution matrices one may construct (using some additional information) a sector x sector income distribution table. But this is not needed in the core.

In this discussion of the income distribution rows we once again skipped the rest of the world rows and columns. Their content is self-evident.

3.2 Main aggregates and national accounting identities.

The overview of the core as displayed in figure 1 contains just the basic vectors and matrices. In practice, the layout has to be modified slightly in order to introduce a number of important aggregates and national accounting identities. On the other hand, the proposed structure of the core has some consequences for the definition of the Gross National Product. To clarify these issues we discuss them with the aid of a numerical example.

In the example we distinguish six commodities, three activities, three sectors and the three domestic categories of final expenditure: increase in stocks, investments, consumption. The resulting intermediate use matrix, total production matrix, imports and exports vectors need no elaboration. All commodity transactions have been valued in purchasers' prices in order to avoid the problems of trade or other margins. The final expenditure matrix is simplified slightly by assuming no increase in stocks in the government and household sectors. Note that households invest, implying that unincorporated enterprises are included in this sector. ⁽⁹⁾

The primary inputs are broken down into the usual categories. We do not explicitly show consumption of fixed capital; thus the operating surplus is gross. In the generation of value added block we add, next to the sectoral submatrices, a matrix for all sectors combined. This is, of course, the standard primary input matrix of, e.g., the 1968 SNA. The block also contains a column of totals. This column shows, for each sector, the components of value added generated in the sector. Its sum is the Gross Domestic Product. Thus, whereas the row with totals in the generation of value added matrix provides a breakdown of GDP by economic activity, the column with totals gives the breakdown of GDP by institutional sector of origin, for each of the components of value added.

The two columns 'imports and exports of factor services' contain no entries for operating surplus: there exist no direct payments across borders of the latter. ⁽¹⁰⁾ The items 'property and the entrepreneurial income' to and from the rest of the world as distinguished in 1986 SNA and ESA are not a payment of operating surplus as such. As a consequence, the columns contain only entries for compensation of employees and indirect taxes. The latter item is relevant for members of the European Community, since the community levies indirect taxes.

The destination of the row totals of the generation of value added matrix is either the rest of the world or one of the domestic sectors. Similarly, the origin of the domestic sectors' income is either a domestic sector or the rest of the world. Thus, essentially we have a sector x sector matrix augmented with both a column and a row for the rest of the world. In order to visualize this, we have left the column imports of factor services from the rest of the world empty and added an additional row, line 25, for the only item of this column, the compensation of employees from the rest of the world.

The sector x sector distribution of value added matrix contains flows of value added between the domestic sectors. After addition of the compensation of employees from the rest of the world, a grand total is obtained that is a halfway station between the Gross Domestic Product and the Gross National Income. It differs from the former because it includes net compensation of employees and indirect taxes from the rest of the world; and from the latter because it does not include the net property and entrepreneurial income from the rest of the world.

It is tempting to give this concept the label 'Gross National Product'. Unfortunately, this term is usually defined differently, viz. as equal to the national income. However, the 1968 SNA does not seem to use the term; the ESA defines it (section 129) but does not integrate it in the system. Thus it seems acceptable to redefine the concept in the sense indicated above. Then it would be the 'national' analogon of the Gross Domestic Product: national compensation of employees plus national indirect taxes plus operating surplus. Since no operating surplus as such is transferred across borders, the domestic operating surplus cannot differ from the national one. Hence the usual definition of Gross National Product is somewhat inappropriate. Therefore we shall employ the term GNP in the modified sense in this paper. The GNP defined this way may be considered as an operationalization of what Reich (1985), following French conventions, refers to as 'activity income'. Summarizing the relations between the alternative concepts (omitting the indirect taxes to the rest of the world that should be included in both the modified GNP and a modernized traditional GNP):

$$\begin{array}{l} \underline{\text{Gross Domestic Product}} \\ \text{plus} \\ \text{net compensation of employees from the rest of the world} \\ \text{equals} \\ \text{modified } \underline{\text{Gross National Product}} \\ \text{plus} \\ \text{net property and entrepreneurial income from the rest of the world} \\ \text{equals} \\ \underline{\text{Gross National Income}} \text{ and traditional } \underline{\text{Gross National Product}} \end{array}$$

The distribution of value added matrix's row totals (column u) give the modified GNP's breakdown by sector of origin; the column totals (row 26) give its breakdown by sector of destination. Needless to say that these sectoral

decompositions of GNP are the more interesting, the larger the number of sectors.

In the income distribution rows of our example we specify six explicit categories of income distribution transactions, grouped under the two headings 'property' and 'income policy'. The definition of the items is similar to that in the 1968 SNA income and outlay accounts, with one very important exception: there is no consolidation of within-sector flows. Thus, e.g., total interest payments are the payments by all transactors of sector accounts (i.e. enterprises, government units, households), irrespective of whether the payment is to a transactor in the same sector. The reason for this is the meso-nature of the core. In a properly designed meso-system, the value of aggregates should be independent of the level of detail of the groupings of transactors. With intra-sectoral consolidation, a disaggregation of the enterprise sector into, e.g., banks and non-banks would immediately boost total interest payments. In our approach, this total is untouched by such disaggregation.⁽¹¹⁾

Total receipts and payments of all sectors combined are not equal in each of the categories of income distribution transactions: they differ by the balance of payments to (column i) and receipts from (column j) the rest of the world in each category. In table 1 this yields, for all categories combined, a difference of -3, the net receipts from the rest of the world.

In row 34 the total payments and receipts of the sectors are shown, in row 35 their balance, the net receipts of each sector from the income distribution process. Adding this to each sector's part of the Gross National Product (row 26), we obtain the sectoral disposable incomes. Naturally, they add-up to the Disposable National Income in the last column. This equals the Gross National Product plus the net non-factor receipts⁽¹²⁾ from the rest of the world.

This completes our discussion of the tabular representation of the scheme of figure 1: the description of the production process, expenditure and income distribution. It is, however, useful to indicate briefly how the scheme can be extended to capital accounts. We restrict this extension to a stylized capital finance account. To this end we show, in row 37, the values of sectoral savings, obtained by subtracting the sectoral consumption totals given in row 7 from the sectoral disposable income. The resulting savings are, of course,

items in the finance of (gross) accumulation. Gross accumulation is then shown in rows 41-43. Assuming zero-valued purchases of land and intangible assets, gross accumulation consists of the sectoral changes in stocks, recorded in row 7, investment, also shown in row 7, and net lending, which is calculated as a residual. This should suffice to demonstrate that the whole of the sectoral income and outlay accounts and capital finance accounts can be shown in detail in the sectoral columns k through u.

3.3 The compilation of the core.

The final expenditure matrix and the generation of value added matrix contain the essential new information vis à vis the 1968 SNA. Therefore some attention should be given to their method of compilation.

The production - final expenditure - generation of value added block of the core is basically a truncated three dimensional system, the three dimensions being sectors, commodities and activities. However, not all information in the most general system conceivable is useful or necessary. In fact, only a fairly limited part of the system needs to be compiled. Essentially, its compilation is a three-stage process. In the first stage, 'unbalanced' information is collected for each of the sectors. Consider one of the enterprise sectors, say i. For this sector we may collect an 'absorption table' as in figure 2 and a similar commodity x activity make table. These tables can be filled with information from production surveys of the establishment⁽¹³⁾. The operating surplus to be included in the unbalanced absorption table is the one resulting from the combination of the remainder of the absorption table with the make table. The only truly novel information required to do so is a labelling of establishments according to the sector of the enterprise to which they belong. Naturally, the information used to fill-in figure 2 and the corresponding make table is only unbalanced in the sense that no system-wide commodity balancing has been achieved. But the information must be homogenized, in the sense of uniform valuation of commodities and stocks; uniform not only across the establishments belonging to enterprises of sector i but across all establishments in the economy. Moreover, the information must be complete in the sense that all establishments are covered; thus if establishments are not observed directly, the information on them must be estimated using what partial information is available.

	Establishments belonging to enterprises of sector i, classified according to the activity of the establishment	All establishments belonging to enterprises of sector i.
	Activity 1, a	Investment change in stocks.
Commodity	I	III
Components of value added	II	

Figure 2. Unbalanced absorption table for enterprise sector i.

For household sectors a consumption column must be added, to be filled by means of expenditure information from, e.g., budget surveys. For household sectors without unincorporated enterprises this consumption column is all information required, whereas for sectors of households with an unincorporated enterprise complete absorption and make tables are to be compiled as well. For government sectors the tables are completely analogous to those of the sectors of households with an unincorporated enterprise. Finally, rows for the imports and exports of commodities - valued at the same uniform prices employed in the make and use matrices (except, of course, for margins) must be compiled.

The second stage of the compilation of the production/expenditure/generation of value added block of the core is the system-wide balancing. To this end, the first-stage make and absorption tables of all sectors are added-up; consumption of the government sectors is, of course, to be kept apart from that of the households. With the resulting system-wide make and absorption tables (in which the activities and commodities are, of course, not aggregated) the usual balancing procedure is followed. Of course this process yields, i.a., an operating surplus for each activity.

Next comes the third stage. Here the balancing corrections have to be disaggregated by sector. However, there is no need to do this for all the elements of the make and absorption tables: in the core only the final expenditure block and the primary input block are broken down by sectors. Consequently it suffices to calculate for each sector corrected data on:

- the categories of final expenditure, by commodity;
- total production and total intermediate use, by activity;
- the components of value added, by activity.

This procedure is the simplest way to obtain the production/expenditure/generation of value added block of the core. The only truly novel information - novel when compared with the traditional commodity flow method - required, is the sectoral labels of establishment. With adequate computerization of statistical offices and a well-run up to date register this should not be difficult. If a register is absent or inadequate, however, the linkage may be estimated, using sampling techniques.

The sector by sector distribution of value added matrix can be filled-in as soon as the generation of value added matrix has been compiled. Only one important new piece of information is required: the breakdown of the compensation of employees according to the sector of destination. Naturally, this information is required only if more than one household sector is introduced. The breakdown can only be achieved employing income data, e.g., fiscal data. Thus the commodity flow method has to be supplemented with income data, whereas without disaggregation income data on households are not necessary to complete national accounts.

The income distribution block can be compiled in a straightforward way, the only difference with the traditional commodity-flow method of compiling national accounts being the level of detail required by the introduction of finer-grained sectoring.

3.4 Extension of the commodity flow method.

One of the great advantages of the core as developed in sections 3.1 and 3.2 is that its adoption will make it possible to improve the quality of the national accounting data very considerably. This is because within the core framework it will for the first time become possible to combine all three methods for measuring national income at a very disaggregate level: the output, expenditure

output and expenditure methods, the commodity flow method, was the most reliable way of estimating the Gross Domestic Product. On the other hand, if the choice is between the output, expenditure and income methods as such - without combining - the income method is often regarded as the best option. Therefore it would be very useful if the commodity flow and income methods could be integrated.

If the commodity flow method is followed, it yields the Gross Domestic Product; then income data are used only to subdivide this into its sectoral and income components. This is the simplest way to compile the core; for this reason we described this method in section 3.3. However, it is also possible to integrate the commodity flow and income methods more completely; or, more precise, to integrate establishment-derived data with enterprise-derived data.

Consider the unbalanced table described in figure 2. This table provides information for enterprise sector i but is based on information obtained from establishments. As a consequence, the information in it is - at least to a considerable extent - independent of the information on this enterprise sector that can be obtained from enterprises. Therefore a confrontation of the information in figure 2 with similar enterprise-derived information is useful. In particular, this confrontation is possible for the components of value added and for investments.

For compensation of employees and investments the confrontation is straightforward: there are no conceptual differences between establishment-derived data and enterprise-derived data on them. Therefore differences between the estimates for enterprise sector i as a whole based on the two different sources are statistical differences only; and consequently, the discrepancies may be used as control information in the next stage of the compilation, the system-wide balancing.

The comparison between the operating surpluses derived from the two alternative sources is the cornerstone of the extension of the commodity flow method. In figure 2, the operating surplus is calculated as the difference between the production and the costs of the establishments belonging to the enterprises of enterprise sector i. An independent estimate of this sectoral operating surplus can be obtained from the profit and loss accounts of the enterprises of the sector. The basic procedure is to start with after tax profits, add direct (enterprise) taxes, net interest payments and the other items given on the income distribution accounts to obtain a crude estimate of

gross operating surplus. Next a number of conceptual differences with the national accounting operating surplus have to be corrected. Most of them can be achieved using just the profit and loss accounts of the enterprises. An important example of a conceptual difference that can be corrected this way is the addition to contingency reserves. After these corrections a sectoral operating surplus results that is conceptually equivalent to the establishment-derived one except for one major difference: the underlying change in the value of stocks. It is precisely with respect to this conceptual difference that the proposed structure of the core is most helpful.

The cause of the conceptual difference is a difference in the valuation of stocks between national accounts and enterprise accounts and balances. The latter employ a number of different systems to recalculate the value of initial stocks and to calculate the end-of-year value; in case of national accounts changes in stocks are valued at the average market prices during the year. The latter calculation is, to a considerable degree, based on valuation of changes in the quantities of the products held in stock. This quantity information is available on the establishment level (i.e. in production surveys) but not in the enterprise accounts. Hence, the operating surplus derived from the latter cannot be easily corrected for differences in valuation. However, the sectoral change in stocks can be calculated from establishment data, as is done in the absorption table in figure 2. As a consequence, the establishment-based sectoral operating surplus can be recalculated net of change in stocks. The same applies to the enterprise-based operating surplus, where the recalculation net of change in stocks is done using enterprise data only. Thus an operating surplus net of change in stocks is obtained independently from both sources. The difference between the two for the sector as a whole can be employed as a control variable in the system-wide balancing. Naturally, after the system-wide balancing the resulting operating surpluses have to be adjusted again, in order to include the change in stocks once more.

This way of integrating the commodity flow method with income method data can be extended further. In the process of compilation, all enterprises in each enterprise sector may be broken down in two groups: single-establishment enterprises and multi-establishment enterprises. For the former, a one-to-one correspondence with the activity classification can be achieved. Hence the income method operating surplus for this part of each sector can be compared directly, for each activity, with the commodity flow operating surplus. This again strengthens the statistical process considerably.

4. Contents of the core

4.1 The basic view of the economic system.

In section 2 we indicated that the core should be an integrated meso-system and that this implies that input-output data must be integrated in the system. Thus in this sense the core requires more integration than the celebrated integrated economic accounts of the Ruggleses (1982). A major criticism of these accounts was that they represented only a partial integration because they did not solve the problem of linking the establishment-based production system with the enterprise-based income distribution system. Thus Carson and Jaszi (1982) conclude: 'The integrated economic accounts [...] cannot be fully evaluated as an integrated system without knowing how the obstacles that arise because of the establishment-firm dichotomy are to be dealt with' (p. 57).

The core-structure solves this problem, at least in concept, by the introduction of the generation of value added matrix, the breakdown of final commodity demand by institutional sectors and the introduction of the distribution of value added matrix.

By solving the dual sectoring problem, the core restores to its proper central position the most basic national accounting notion of them all: the 'identity' of production, income and expenditure. Only this time this notion is applied at the meso level. Put succinctly: the core shows that production is what generates income, that the distributed income is what generates expenditure and that expenditure on commodities is what links the flows back to production. This essentially simple scheme of circular flows was obfuscated by the complexities generated in the 1968 SNA as a consequence of the failure to remove the 'obstacles that arise because of the establishment-firm dichotomy'. By returning to this scheme, the system as a whole becomes understandable to a far wider group than just the few hundred (if there are so many) national accounting experts that may claim to understand the 1968 SNA as a whole.

The core has been explicitly designed as a meso system. This means in particular that sectors, industries, commodity groupings, groupings of transactions and so on can be disaggregated without any impact on the totals. In the income and outlay accounts and the capital accounts of the 1968 SNA this is not true because these contain only intersectoral flows and, hence, consolidations. In the core scheme, in contrast, all flows are given as the

total receipts and payments of transactors in the sectors. As a consequence, disaggregation simply details the data of a more aggregate version, but does not blow-up the totals. This greatly clarifies the linkage with specialized statistics. For example, the issue of whether social security funds should be consolidated with general government, as in IMF's Government Finance Statistics (GFS), or deconsolidated, as in 1968 SNA, vanishes into thin air: given the core, the only thing needed to link-up with GFS is to show separately in a linkage module the sectoral destination of income distribution payments and the sectoral origin of income distribution receipts. The GFS then is simply a more detailed analysis of a part of these flows.

4.2 Classifications in the core.

A crucial element in the design of an adequate meso system is the definition of the relevant classes of transactors and items. There are several aspects to this. In any classification, two basic issues are which units are to be classified and with respect to which characteristics homogeneity has to be achieved. Both have to be decided from the perspective of the process for which the classification is designed. With these basics in mind, several delineations of classifications in the core may be discussed.

We already devoted a lot of attention to the differences between an activity classification and a sector classification. The former is designed from the perspective of the production process, the latter from that of the income distribution and of the capital finance process. Hence a difference in units (establishments/enterprises) and in characteristics to be homogenized. There is, however, also a difference in the classification of activities and commodities. In the latter case the units to be classified are goods and services. Though these too have to be classified from the perspective of the production process, like establishments, other perspectives play a role as well: foreign trade, consumption, investment. Therefore, the definition of commodities as the characteristic outputs of activities is inadequate: this is a purely production process-oriented classification instead of the more general one that is needed in an integrated system. Therefore, in the revised SNA, the commodity classification should be less like the ISIC and more like the SITC.⁽¹⁴⁾ Put succinctly: we need a Standard International Commodity Classification which can be used both to classify international trade and the

intermediate inputs and outputs in the use and make matrices, including the deliveries to final demand.⁽¹⁵⁾

Another difference in classifications that needs emphasis is that between the production factor labour and groups of households. Labour is present in the core in the form of compensation of employees. Classification of the latter must be achieved from the perspective of the production process. The units to be classified are compensations for different types of labour services. These are to be homogenized with respect to characteristics that are relevant for their role as inputs. Households, in contrast, are present in the form of institutional sectors. These are to be classified from the perspective of income distribution, expenditure, capital finance. Here the units to be classified are different types of households. They are to be homogenized with respect to socio-economic characteristics. The generation of value added matrix then shows how much each activity uses of each type of labour, whereas the distribution of value added matrix shows how much of each type of labour service is rendered by each socio-economic group of households. In this respect, the distribution of value added matrix plays the same role in linking types of households to types of labour services that the generation of value added matrix plays in linking enterprise sectors to activities.

An altogether different issue is the level of detail that should be included as an international standard in the core. The basic approach would be to agree on both a minimum level and a more extended recommended classification. The required minimum level of detail can be approached from several points of view: the minimum level at which international comparability is desired, the minimum level required from an analytical point of view, and so on. From these points of view a somewhat more elaborate detailing of sectors, particularly enterprises and households, than in the 1968 SNA seems appropriate.

But there is another point of view that should play an important part in determining the minimum level of detail. This is the point of view of the flexibility that the core should lend to the SNA. Consider the example of sectors. In section 3 we carefully avoided the word 'subsectors', because designating a grouping of transactors as a subsector implies definition of the parent sectors. And the delineation of sectors is precisely what generates so much debate among national accountants. Consider private non-profit institutions working for households. No one wants them. Those interested in households do not want them in the household sector, because they spoil the micro-macro linkage for that sector. Those interested in enterprises do not

want them there, because they spoil the linkage for that sector. And a lot of other things as well. Therefore, the core should, as 1968 SNA, leave them as a separate sector. But the same reasoning applies to other groups of transactors. Households with an unincorporated enterprise are an example, as well as, in the United States, members of the Armed Forces and the institutional population of which Carson and Jaszi (1982) point out that they, too, spoil the micro-macro linkage for households.

These examples should suffice to demonstrate that a certain minimum level of detail is not only necessary for analytical purposes, but also for flexibility. Moreover, it seems easy to achieve consensus on sectoring from this point of view. To a considerable degree, the inventories of controversial groups of transactors that have been drawn-up are the consensus minimum list. Naturally, this leaves some problems open. Not all countries will be able to provide separate data on, e.g., unincorporated enterprises, the institutional population, private non-profit institutions. But the fact that countries cannot show them separately is no reason to give them an international guideline saying that they should not do so.

4.3 The production boundary and the routing of transactions.

Our point of departure with respect to the core was that it should be an institutional system: a production boundary determined by market transactions and recording rules based on the tracing of actual money flows. In section 3 we avoided these issues, as the synoptic structure developed there is equally well-suited to any other production boundary and to any treatment of specific groups of transactions. In this sense, the structure is independent of the content. But, as argued in other papers, the core will have its greatest analytical use and will achieve the greatest flexibility if it is strictly institutional.

With respect to the treatment of transactions, 'institutional' means that money flows are the yardstick: the production boundary is determined by market production and the routing of flows conforms to the money flows. Here market production is defined as all production that is sold in the market, plus all production that is not sold, but does lead to a monetary remuneration of the production factors involved in its production. Imputations then are monetary valuations of production beyond this production boundary. This concept of market production has caused some debate. Carson and Jaszi (1982, p. 59) already indicated that the definition of imputations (and hence of the

production boundary) was not clearcut: 'further work on the subject - including going back to the basics of defining imputation - would be desirable'. Our definition of 'market production' as all production that leads to a monetary remuneration of the production factors involved is far more comprehensive than the one given by e.g., Lützel (1985): we include lot of production that is not sold in the market but that does lead to monetary remunerations of factors. Examples are government services, banking services (the banking 'imputation' thus is not an imputation), production of own-account investment goods carried out by employees that are paid wages and for which inputs are bought. Actually, our definition removes just three major items from the 1968 SNA: production of services by owner-occupied dwellings, subsistence primary production and processing, and compensation of employees in kind. This way, only non-market production by households is left out of the core. This is the part of 1968 SNA production that has no direct linkage to money flows. As a consequence, the core is more useful in analysing the impact of changes in variables that are linked to money. To provide an important example: consider a developing country with a substantial subsistence production. The latter is fairly independent of e.g. prices on the world market, exchange rates, taxes, government expenditure. Now suppose that the government pursues anti-inflationary policies. Predicting their effects on output using the 1968 SNA data will yield wholly incorrect results; whereas the proposed core would be well-suited for such purposes.

In a number of cases the 1968 SNA does not follow the routing of money flows in its recording of transactions, but records them between other transactors; that is, attributions are made. The delineation between imputations and attributions is simply that the former raise GDP whereas the latter do not. It is not necessary to discuss the attributions of the 1968 SNA that should not be included in the core in detail. For this we refer to Van Bochove and Van Tuinen (1985, 1986) and to Ruggles and Ruggles (1985). In the light of the former paper, the latter recast their earlier description of 'the' household sector in the core-standard module framework. Their definition of the contents of the core as regards the production boundary and the routing of transactions corresponds, with a few exceptions, with the Van Bochove and Van Tuinen proposals. They provide estimates - both for imputations and for attributions - for the impact of the proposals on the USA data as given in the Bureau of Economic Analysis National Income and Product Accounts.

Instead of discussing the attributions again, it is useful to consider an example of the way their removal works out in the synoptic structure of the core as given in section 3. The example concerns withheld wage taxes and social

security charges. From the point of view of enterprises and activities, these are compensation of employees. But households are hardly aware of them because the money does not pass through their bank accounts. Thus there is a difference in perceptions. Due to the existence of both a generation of value added matrix and a distribution of value added matrix, this difference in perceptions can easily be handled in the core. In the generation of value added matrix, the items are simply recorded as a part of compensation of employees, perhaps as separate sub-items, in the activities and sectors where they are paid. Then in the distribution of value added matrix, the value of the items is recorded directly as a receipt of the government sector. Thus this part of the compensation of employees does not flow to the household sector and does not spoil their accounts. This, too, is a simple and easily comprehensible treatment. It leaves all essential information in the core while yet providing pictures of both enterprises' (and government's) production accounts and households' income accounts that harmonize with each sector's own perceptions.

5. The two standard modules of the central system

In the Van Bochove and Bloem (1985, 1986) paper, two standard modules are proposed as a complement to the core. The first one describes non-market production, hence extending the strict production boundary of the core. The second relaxes the strict transactor-transaction principle of the core by describing attributions. The purpose of the present section is to show what the two standard modules look like.

5.1 The standard imputations module

The distinctive feature of imputations is that they add to the value added of the economy as described in the core. There exist two basic types of imputations.

- i) Imputations of household production. The two standard examples in 1968 SNA are owner-occupied dwellings and subsistence primary production and processing. In addition, some important new imputations could be added, either in the standard module or, as the Ruggleses (1985) propose, in an extended module: do-it-yourself activities, services produced by consumer durables, and so on.
- ii) Imputations of enterprise and government production. Here the standard example in 1968 SNA is compensation in kind of employees. In the standard imputations module of the core it seems useful to adopt a part of Pêtre's proposals and add some items of intermediate consumption that may be considered as final individual consumption. Formally, these are equivalent to compensation of employees in kind.

Both types of imputation have in common that they occur only in the upper part of the core: the production/expenditure/generation and distribution of value added block. They do not alter the income distribution block. Therefore the general scheme of the imputations module is analogous to that of the upper blocks of the core. We show the layout for the first category of imputations⁽¹⁶⁾; the basic information consists of:

- i) The value of non-market production ('make'), specified by activity, commodity and the household sector in which the activity occurs;

ii) The value of the commodities that the core records as final consumption but that in the imputations module should be reclassified as intermediate use. An example is paint bought by house-owners.

The general layout of these items of basic information is given in figure 3 for one of the household sectors. This module specifies for each of the non-market production activities the make and use by commodity. The module contains one component of value added: operating surplus, equal to make less use. This operating surplus and the compensation in kind in the second type of module together represent additions to GDP vis à vis the core GDP. If only the three 1968 SNA imputations are covered, the resulting GDP is the 1968 SNA GDP.

		Non-market productive activities			
		1	...	n	
		Use	Make	Use	Make
	1				
Commodities	2				
	a				

Operating Surplus =
Contribution to total GDP

Figure 3. Non-market production module for a household sector.

In table 2 we provide an example of the household production module within the framework of the numerical example of section 3.2. The example concerns owner-occupied housing, no further non-market activities are taken to exist. In the example there are just two basic items: use of materials and production of

Table 2. Numerical example of non-market production module.

		Owner occupied housing (All households)	
		Use	Make
Commodities	Food		
	Materials	5	
	Durables		
	Buildings		
	Health		
	Others		20

Operating surplus = contr. to GDP.	15
------------------------------------	----

housing services, included in the 'other' commodities. One item is not included: purchases of new houses by households. Their value is included in the core. However, it is not completely clearcut how the core should record them. To record them in the core as though they were household consumption seems farfetched. Therefore we would prefer to record them as household investment. This introduces a category of investments that are not 'productive' in the sense of the market production concepts of the core. This solution does not seem to have any serious drawbacks, apart from, perhaps, inelegance.

The two basic items of information in table 2 cause many more changes in the system as a whole, if they would be incorporated in the core. This is demonstrated in table 3, where the additions and subtractions their inclusion would cause are shown. Note that the intermediate use of materials causes a fall in the final consumption of materials.

5.2 The attributions module.

The core is based on the transactor-transaction principle: flows (transactions) are recorded between the transactors who pay or receive the money involved in them. Attributions are reroutings of these flows, based on a principle like, e.g., the recording of transactions at the beneficiary. Two groups of attributions may be distinguished.

1. Reclassification of final expenditure of non-household sectors as individual consumption. This is a category of increasing importance that is a subject of the Pêtre proposals. Moreover, it is essential for international welfare comparisons. It should be included in the attributions module, even though the 1968 SNA lacks this category of attributions.
2. Attributions in the income distribution transactions. The attribution of, e.g., the increase of actuarial reserves to households is one example. For reasons of continuity with 1968 SNA alone their inclusion in the attributions module seems warranted.

Attributions in the central system do not alter the Gross Domestic Product, since they do not influence the production, generation and distribution of value added blocks. Instead, their impact is restricted to the expenditure and income distribution blocks of the core as shown in figure 1. Thus the attributions module can be structured as in figure 4. The second group of attributions appears in the lower part of the module (the income distribution block) only. The first type of attribution, in contrast, appears in both the upper and the lower part. In the upper part expenditure is reclassified. Here positive items in the household columns are exactly balanced by negative items in the columns for other sectors. The same items return in the income distribution blocks, as receipts of the household sectors and payments of other sectors.

		Payments sectors				Receipts sectors			
		1	2	s	1	2	s
Commodities	1								
	2								
	c								
Categories of income distribution transactions	1								
	2								
	id								

Figure 4. Attributions module.

We once again provide a numerical example of an attribution, in table 4. The example is an attribution related to the Pêtre proposals: individual consumption of health services produced by the government. The only basic information is the value of this item: 20. It shows at four places in the module. Table 5 shows the way the attribution would alter the system as a whole if it were to be incorporated in it.

Table 4. Numerical example of attributions module.

		Payments			Receipts		
		Ent.	Househ.	Govrn.	Ent.	Househ.	Govrn.
<hr/>							
<u>Commodity</u>	Food						
	Materials						
	Durables						
	Buildings						
	Health		+20	-20			
	Others						
<hr/>							
<hr/>							
<u>Property</u>							
	Interest						
	Dividend						
	Rent						
<u>Income Policy</u>							
	Direct tax						
	Soc. Sec.						
	Soc. Ass. Grants			+20		+20	
<u>Others</u>							

6. Concluding remarks

In this paper a proposal has been made for the synoptic structure of the next SNA. Apart from an increase in the number of sectors, the crucial new elements compared with the 1968 SNA are:

1. A sectoral breakdown of the categories of final expenditure.
2. The generation of value added matrix that shows for each component of value added the cross-classification of the activities and the sectors in which it is generated.
3. The distribution of value added matrix that shows the sectoral origin and destination of each component of value added.
4. Replacing the income and outlay accounts by income distribution receipts and payments matrices that show, for each sector, the total (both intra-sectoral and inter-sectoral) receipts and payments of the transactors in the sector; this for each category of income distribution transactions.
5. An imputations and attributions module to supplement the core's market flows.

The system is easier to explain than 1968 SNA; it provides a complete integration of input-output data and the income distribution data; it is more flexible and greatly facilitates micro-macro linkage.

Notes

1. Cf. Van Eck, Gorter and Van Tuinen (1983).
2. With respect to this 'parsimony principle' H.J. Adler (Statistics Canada) suggests, in correspondence with the authors, that 'perceptions principle' might be a more appropriate label. We tend to agree.
3. This congruency between the parsimony principle and the first part of the interception principle was pointed out by C.S. Carson (Bureau of Economic Analysis) at the March 1986 Economic Commission for Europe National Accounts meeting in Geneva.
4. As pointed out by Sir Richard Stone in correspondence with the authors.
5. There is a terminological issue connected with 'dual sectoring'. In the 1968 SNA the term as such does not occur. Instead it says (section 5.3) that 'two main classes' are used and it also employs the term 'dichotomy' (section 5.5). As a consequence, sometimes the term 'double classification' is advocated in preference to 'dual sectoring'. It is often argued that 'dual sectoring' would imply that all types of transactions are described in two alternative sector breakdowns, with the relations between sectors within each of the breakdowns fully specified. This seems a bit too restrictive: in this sense the 1968 SNA does not contain any sectoring at all, since production transactions are described for one sectoral breakdown only and income/outlay and capital finance transactions for another breakdown only. Consequently, we retain the term 'dual sectoring'.
6. The core is an institutional system. This implies (cf. Van Bochove and Van Tuinen, 1986) that the transactors in the statistical description of the production process are to be defined in harmony with the perceptions the producing agents have of themselves. Consequently, the transactors are actual organizational units with some discretionary power on the production process. This, in turn, implies that a reasonably complete quantitative picture of these transactors is available. Therefore the establishment-type unit of the 1968 SNA is the most appropriate definition of the transactors on the production accounts of the institutional system. The 'homogeneous production units' of the ESA, in contrast, are a statistical construction rather than an actual organizational unit corresponding with subjective perceptions; therefore these units are to be rejected as transactors in an

institutional system. This does not imply that the 1968 SNA definition of the establishment is without problems of its own. Fergie (1986), in an excellent paper, justly notes that there is some tension between the SNA definition and the perceptions of producing agents. Consequently, the concept of 'establishments' needs some elaboration and perhaps modification in the course of the current revision process.

7. We have restricted this brief discussion to the relation between industries and enterprises for presentational convenience only. The arguments also hold true for the other activities vis à vis government, private non-profit institutions, and so on.
8. There is, at first glance, some similarity between the generation of value added matrix and table 17 of the 1968 SNA. The latter shows the breakdown of operating surplus and compensation of employees of some of the institutional sectors by kind of economic activity. However, in table 17 this is the economic activity of enterprises, whereas in the generation of value added matrix the breakdown is according to the activity of the establishments. This is what makes it possible to provide the breakdown for the GDP at market prices, i.e. including indirect taxes. Incidentally, in the notes to table 17 (p. 203), the 1968 SNA indicates that the table might be further elaborated by providing, for the enterprise sector, a breakdown by the economic activity of the establishments as well. This, then, would be similar to our generation of value added matrix. However, the 1968 SNA proposes to do this for a curious purpose: to provide a cross-tabulation of value added (at factor prices) by activity of the enterprises and by that of the establishments. This is curious, because the breakdown of the enterprise sector by kind of economic activity of the enterprise is superfluous, at least from the linkage point of view, as soon as the breakdown of the sector by the kind of economic activity of the establishments is available.
9. This should not be taken to imply that we take the position that the new SNA should necessarily include unincorporated enterprises in the household sector. For this, cf. section 4.2. Another reason why households invest is investment in owner-occupied dwellings; cf. section 5.2.
10. This is because we view dividend, interest, withdrawals of entrepreneurial income as income distribution transactions rather than as transfers of operating surplus. None of these is immediately linked to the current production process because these flows may occur for many reasons.

Consequently, the value of the operating surplus may be an explanatory variable for these types of flows, but not the only one. Nor can the operating surplus be said to consist of interest, dividends, etc.: operating surplus is a receipt on the income accounts, along with other receipts. From these total receipts the disbursements are paid of which dividends and interest are just a part. But there is no separability property which makes it possible to split-up the account into receipts of operating surplus and payments from it on the one hand and other receipts and payments from them on the other.

11. Perhaps in practice this deconsolidated approach needs some modification. In particular, the interest flows between banks are different in character from those between other enterprises. Therefore more useful total payments and total receipts concepts might exclude between-banks flows. There may be other examples of specific categories of transactions between specific transactors that should be excluded from the income distribution payments and receipts matrices.
12. Defined to include net property and entrepreneurial income from the rest of the world.
13. In case of investments, great care should be taken in the phrasing of the questionnaire. Investments are to be defined on a transaction base. That is, the time of recording is that of the transaction, not of installation; and the basis of recording is ownership, not use.
14. The ISIC, in contrast, should stress production processes still more than it presently does. It should emphasize input homogeneity and other characteristics of the productive process. For example, in developing countries the production of coffee by large plantations and by small farmers is a wholly different production process. Such differences must be reflected in the ISIC. In contrast, the inclusion of an 'energy' group in NACE is wrong: this is a commodity category, not a production process related one.
15. The latter differs from, e.g., a purpose classification of consumption expenditure. In a purpose classification, the expenditure is classified, not the goods and services on which the expenditure is made.
16. The basic information for the second type of imputation is more elaborate. It consists of a commodity x activity matrix table showing how much of each

commodity each activity pays as compensation in kind; and of a sector x activity generation of value added table, showing the cross classification of the compensation in kind by paying activity and paying sector; and, third, of a commodity x household sector final expenditure table showing how much each household sector received of each commodity as compensation in kind. For macropurposes, these tables could be aggregated over commodities, activities, and, to some extent, sectors.

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Kind of transaction Transactors		P. for inputs	R. for outputs	P. to R.O.W.	R. from R.O.W.	Other P.	Other R.
		Activities 1 2...a	Activities 1 2...a			Sectors 1 2...s	Sectors 1 2...s
Transactors Subject of transactions							
Commodities	1 2 ⋮ c	Intermediate use matrix	Total production matrix	Imports of goods and services	Exports of goods and services	Final expenditure matrix (each sector's column subdivided in three columns: change in stocks, investment, consumption)	
Sectors	Components of value added 1 ⋮ va 2 ⋮ va ⋮ ⋮ ⋮ s ⋮ va	Primary use matrix = Generation of value added matrix		Imports of factor services	Exports of factor services		Distribution of value added matrix = Acquisition of income matrix
	Categories of income distribution transactions 1 2 ⋮ id			Non-factor income to R.O.W.	Non-factor income from R.O.W.	Income distribution payments matrix	Income distribution receipts matrix

Figure 1: Overview of the production, expenditure and income tables of the core.
P = payments; R = receipts.

Table 1
The core,
as a whole

	Payments for inputs				Receipts for outputs				P to R from		Other payments						Other receipts																															
	Activities				Activities				ROW	ROW	Sectors						Sectors																															
	Agr.	Manuf.	Serv.	Total	Agr.	Manuf.	Serv.	Total			Enterprises	Households	Government	TOTAL	Ent.	Housh.	Govrn.	TOTAL																														
	INTERMEDIATE USE				PRODUCTION				IN-	EX-	Inc.St	INV	INV	CONS	INV	CONS																																
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u																												
Food	20	30	10	60	110	25	0	135	45	75	0	0	0	45	0	0	45			1																												
C Materials	30	200	0	230	25	150	0	175	115	50	5	0	0	5	0	0	10			2																												
O Durables	0	0	0	0	0	110	0	110	30	73	0	10	10	45	2	0	67			3																												
M Buildings	0	0	0	0	0	40	0	40	0	0	0	22	10	0	8	0	40			4																												
H Health	0	0	0	0	0	0	30	30	0	0	0	0	0	5	0	25	30			5																												
. Others	20	20	40	80	4	50	156	210	7	10	0	0	0	90	0	37	127			6																												
TOTAL	70	250	50	370	139	375	186	700	197	208	5	32	20	190	10	62	319			7																												
	PRIMARY USE = GENERATION OF VALUE ADDED								IMP. EXP. of fact. serv.								DISTRIBUTION OF VALUE ADDED = ACQUISITION OF INCOME																															
S	E Comp. of Empl.	10	40	20	70					1							69	20	69	8																												
	n Social Sec. Charg.	3	12	5	20													15	20	9																												
	t Indirect Tax Net	4	8	4	16					1							40		15	10																												
	. Operating Surpl.	10	20	10	40														40	11																												
H	E Comp. of Empl.	15	20	21	56												56	12	56	12																												
	o Social Sec. Charg.	2	5	5	12													14	12	13																												
	s Indirect Tax Net	5	5	5	15					1							50		14	14																												
	h Operating Surpl.	20	15	15	50														50	15																												
T	G	o Comp. of Empl.	0	0	34	34												34	15	34	16																											
	v Social Sec. Charg.	0	0	15	15													2	15	17																												
	r Indirect Tax Net	0	0	2	2													0	2	18																												
	n Operating Surpl.	0	0	0	0														0	19																												
S	A	l Comp. of Empl.	25	60	75	160					1							159	47	159	20																											
	l Social Sec. Charg.	5	17	25	47												40	31	47	21																												
	Indirect Tax Net	9	13	11	33					2									31	22																												
	S Operating Surpl.	30	35	25	90														90	23																												
c	. TOTAL	69	125	136	330	GDP				3							40	209	76	327	24																											
Comp. of Empl. from ROW									1								1	1	25																													
TOTAL									3		1								40	210	76	328	26 GNF																									
									Non-factor P. R.								DISTRIBUTION OF INCOME																															
PROPERTY									1		4		14		18		24		56		30		29		0		59		27																			
Interest									3		0		18		-		-		18		2		8		5		15		28																			
Dividend									0		0		4		2		1		7		2		5		0		7		29																			
Rent									-		-		10		56		-		66		-		-		66		30		30																			
INCOME POLICY									5		0		-		-		52		52		-		47		-		47		31																			
Direct Tax									0		0		-		-		20		20		-		20		-		20		32																			
Social security									0		2		0		5		0		5		2		2		3		7		33																			
Social grants																																																
OTHERS																																																
TOTAL									9		6		46		81		97		224		36		111		74		221		34																			
NET RECEIPTS											-3								-10		30		-23		-3		35																					
																	INCOME AND OUTLAY																															
																	DISPOSITION				DISPOSABLE																											
DISPOSABLE INCOME																					30				240				55				325				36 DNI											
CONSUMPTION																	0				190				62				252																			
SAVINGS																	30				50				-7				73																			
INCOME DISPOSED																	30				240				55				325																			
																													CAPITAL FINANCE																			
SAVINGS																													30				50				-7				73				40			
INCREASE IN STOCKS																	5				0				0				5																			
GROSS FIXED CAP FORM																	32				20				10				62																			
NET LENDING									6								-7				30				-17				6																			
DISPOSED SAVINGS																	30				50				-7				73																			

Table 5

An Attribution:
Individualised
Consumption of
Health services

	Payments for inputs				Receipts for outputs				P to R from		Other payments						Other receipts					
	Activities				Activities				ROW	ROW	Sectors						Sectors					
	Agr. Manuf. Serv.		Total	Agr. Manuf. Serv.		Total				Enterprises	Households	Government		TOTAL	Ent. Housh.	Govrn.		TOTAL				
	INTERMEDIATE USE				PRODUCTION				IM-PORTS	EX-PORTS	FINAL EXPENDITURE											
										Inc. St	INV	INV	CONS	INV	CONS							
a b c d				e f g h				i	j	k	l	m	n	o	p	q	r	s	t	u		
C Materials D Durable M Buildings H Health O Others																				1		
																					2	
																					3	
																					4	
																					5	
																					6	
	TOTAL																				7	
	PRIMARY INPUTS = GENERATION OF VALUE ADDED								IMP. EXP. of of fact. fact. serv. serv.								DISTRIBUTION OF VALUE ADDED = ACQUISITION OF INCOME					
S E C T O R S	E Comp. of Empl.																					8
	n Social Sec. Charg.																					9
	t Indirect Tax Net																					10
	. Operating Surpl.																					11
S E C T O R S	o Comp. of Empl.																					12
	u Social Sec. Charg.																					13
	s Indirect Tax Net																					14
	h Operating Surpl.																					15
S E C T O R S	o Comp. of Empl.																					16
	v Social Sec. Charg.																					17
	r Indirect Tax Net																					18
	n Operating Surpl.																					19
S E C T O R S	l Comp. of Empl.																					20
	l Social Sec. Charg.																					21
	l Indirect Tax Net																					22
	S Operating Surpl.																					23
c	. TOTAL				GDP																	24
Comp. of Empl. from PDW																				25		
TOTAL																				26 GNP		
								Non-factor P. R.		DISTRIBUTION OF INCOME												
PROPERTY																				27		
Interest																				28		
Dividend																				29		
Rent																						
INCOME POLICY																				30		
Direct Tax																				31		
Social security																				32		
Social grants																				33		
OTHERS																						
TOTAL																				34		
NET RECEIPTS																				35		
INCOME AND OUTLAY																						
DISPOSITION										DISPOSABLE												
DISPOSABLE INCOME																				36 DNI		
CONSUMPTION SAVINGS																				37		
INCOME DISPOSED																				39		
CAPITAL FINANCE																						
SAVINGS																				40		
INCREASE IN STOCKS																				41		
GROSS FIXED CAP FORM																				42		
NET LENDING																				43		
DISPOSED SAVINGS																				44		