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FLEXIBILITY IN THE SYSTEM OF NATIONAL ACCOUNTS

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Summary

This paper sets out some of the main ideas of what gradually developed into the Dutch view on the fourth revision of the SNA. In particular it focuses on the validity and even desirability of the inclusion of a number of carefully chosen alternative definitions in the "Blue Book", and the organization of a flexible system starting from a core that is easier to understand than the 1968 SNA. The paper was discussed by National Accounts Experts at their OECD-meeting in May 1983.

The paper furnishes examples of requirements with regard to the production boundary, sectors, valuation etc. that researchers and politicians have expressed concerning the overall economic statistical system. It is impossible to incorporate all these often conflicting demands in one uniquely defined system. Because, firstly, the SNA should give scope for analysis on the organization of and the relationships within the economic process in all its many aspects and, secondly, it is not the task of the statisticians to make a choice between the various options on behalf of the users, it is concluded that the next SNA should be a flexible one. Such a flexible system may consist of a basic system supplemented by data and accounting rules that allow for alternative fully consistent presentations. The basic system or core should be simple, intelligable and meaningful by itself. It can be extended by the application of building blocks. The paper contains a rough sketch of the core system. It is suggested that it should resemble present SNA to a large extent, but deleting the attributions and imputations of that system. Building bloks may for example be constructed for the purpose of output analysis, employment policy-making, research into the income distribution and welfare analysis.

The building block for welfare analysis is somewhat further elaborated. This is a very interesting extension of the core from the flexibility point of view, because there is no communis opinio on the definition of welfare. Several alternative definitions of the production boundary are discussed, as well as the problems related to the intermediate or final character of expenditure. A major instrument in developing relevant building blocks is sought in a general classification of economic functions.

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1. Introduction

Since the SNA was first published (in 1953) it has been recognized that the ultimate goal of the system was to provide a framework, within which the statistical information needed to analyse the economic process in all its many aspects could be organized and related (United Nations 1968, par. 1.2.). The 1953 version provided the first step by furnishing a set of six accounts and twelve supporting tables in which main flows relating to production, accumulation and external trade were brought together in a common framework. It provided a uniform basis for reporting national income statistics and a tool for (Keynesian-type) policymaking. The 1968 SNA extended this system considerably, partly by introducing new aspects such as financial flows, partly by requiring much more information on a detailed level. An important feature of this new SNA was the disaggregation of the main items on the basis of different classifications, each corresponding to a centre of interest for analysis or policy purposes. In order to be unambiguous on the arithmatic and accounting identities which connect the variables in the system, concepts were defined quite strictly. Now that the 1968 SNA is in use for about fifteen years (although not yet fully applied by most countries) time has arrived to examine the needs that have been formulated by the users of the statistics, to check whether needs should be met by the overall framework, and if so, in what ways. The international discussions on these matters have already begun, partly based on the comprehensive report that professor Ruggles wrote for UNSO (Ruggles 1982). It is the purpose of this paper to stimulate the discussion regarding these questions further, in particular by emphasizing the advantages of bringing more flexibility in the System.

In paragraph 2 of this paper the question is raised whether SNA should in principle be open to different kinds of analysis. It concludes with our first proposition that the answer to this question should be affirmative. Some examples of analytical and political requirements for statistical data are given in paragraph 3. In paragraph 4 our second proposition is defended, which states that an open-ended SNA must necessarily be a flexible system. The main

features of such a system are discussed in paragraph 5. The two main elements of a flexible system - the stable core and the building blocks - are reviewed in a more concrete way in paragraph 6. In paragraph 7 some further tentative remarks are made on the building blocks which may be relevant for welfare analysts' purposes. Finally, in paragraph 8 our main conclusions are summarized. This paper should be regarded as a very preliminary one - a more extended version may be presented at the UN-CES meeting on National Accounts and Balances in Geneva, 1984: Reactions in the OECD-meeting will be most welcome in preparing the later version.

2. The integrating function of SNA

There are good reasons for saying that SNA has obtained its overriding position in economic statistics primarily because it was set up as an integrating framework for these statistics. Not only does it integrate many kinds of statistics in a numerical way into macro-economic aggregates, it also integrates to a large extent the underlying economic concepts. Of course these relationships have always been a matter of interaction: just as SNA was influenced by existing statistics, new statistics were initiated on the urge of SNA requirements and existing economic statistics were harmonised so as to fit into the concepts and definitions of the national accounting framework. In practice the comprehensiveness and complexity of SNA may sometimes have had the unwanted consequence that compiling statisticians in the last decade concentrated on bringing their basic economic statistics in line with the requirements of the 1968 system, and turned a blind eye to the qualities of the concepts and definitions of these specialized statistics. Also they may have been inclined to sit back and watch when new developments occured, without taking action and creating new statistics by bringing new classifications and subdivisions in the overall System. This situation is in sharp contrast with the aims of the original authors of SNA, who had in mind a dynamic concept of the integrating function of the System. They emphasized both the "way-down" from SNA to required basic statistics, and the "way-up" from developments in economic theory, political interests and available statistics to the integrating framework. So we claim to be fully in line with the traditions of SNA when we put the proposition, that the SNA should be kept open to these "way-up" phenomena. The main reasons for the proposition are:

1. the System should retain the primus inter pares position that it held for so many years after World War II;
2. the open-end policy would have a positive influence on national and international harmonization of statistics that has been created by some countries in the last decade;
3. there would be a positive effect on the creation of meaningful new basic statistics.

3. Analytical and political requirements

3.1. General

What are the requirements that are to be met by SNA? In recent years the developments probably were characterised less by the introduction of completely new, revolutionary theories, than by the general penetration of different kinds of analysis in many aspects of economic life. Without doubt one of the reasons for this phenomenon is the increasing engagement of governments in the economic and social processes and structures. Also pollution, the scarcity of raw materials, the oil price shocks and the resulting depression have raised political interest in new aspects of the workings of the economic process. Not in the least the introduction of automated data-processing has made it possible that much more detailed and complicated analysis can be endeavoured. So, gradually, the demand for many kinds of data has increased: on the distribution of income, on regional economic developments, on energy flows, on the abatement of environmental pollution etc. Often, theory has preceeded by far the possibilities for actual collection of data.

Different applications correspond to different demands with respect to SNA. Welfare analysts generated many ideas which are of interest to the overall accounting system: on the one hand they include a wider range of human activities in their analysis than presently covered by the reporting system, on the other hand their interpretation of the positive or negative contribution of these activities sometimes differs widely from common opinion of, say, thirty years ago. The demand from welfare analysts for macro-data is relatively well acknowledged; in this context reference can be made to the excellent survey, which Saunders made for the United Nations (1977) "The Feasibility of Welfare Oriented Measures to Supplement the National Accounts and Balances: A Technical Report". In this survey Saunders discusses a variety of proposed alterations to SNA measures, proposed by e.g. Nordhaus and Tobin (1973), R. and N. Ruggles (1975), Hawrylyshyn (1976) and Usher (1973). In the discussions about such alterations the welfare analysts find themselves often opposed by practitioners, who are primarily interested in output measurement.

To the latter group belong authors like Jaszi (1973), Denison (1971), Hill (1979) and Okun (1971). The special needs of monetary analysts do not seem to be so well presented, probably because present SNA (including the balance sheet accounts) accommodates them to a large extent. Nevertheless their views are interesting - firstly because their theories are widely applied now in actual policymaking, secondly because in a certain sense they may be regarded as the antipodes of welfare economists in their needs for modifications of SNA variables. Short-term (Keynesian) policymakers, interested in employment or taxation issues seem to be accommodated reasonably well by SNA too.

3.2. Some specific examples

All statistics are based on a number of conventions: the borderlines of concepts used have to be defined, classifications have to be constructed and so on. Of course the SNA constitutes no exception to this rule. Below we shall summarize some important decision points for SNA indicating (necessarily very roughly) in what ways some have suggested to change the present conventions. Extensive use was made by the overview by Ruggles (1982).

3.2.1. The assets boundary

The issue at stake here is the question of what should be regarded as a capital asset. Welfare analysts certainly are inclined to use wider concepts than SNA in this domain, and in particular they would include - unlike monetary analysts - such items as a clean environment in the stock of assets. They share the monetarist's view that outlays on education should be regarded as an investment that will increase future earnings - so human capital too would be seen as an asset. The same can be said of outlays by households on durable consumption goods and - to some analysts - part of military expenditure that is classed now as final expenditure.

3.2.2. The production boundary

In essence, the purpose of the national accounts as understood in SNA, is the measurement of market activities supplemented by a number of "imputations" that must increase the comparability in time and space, notably subsistence activities and services of owner occupied housing. From the welfare analysts' point of view economic activities cannot be limited to those that imply a purchase at the market - so the span of the system in their opinion would have to be extended, e.g. to include all actions with a market equivalent or all actions that could be performed by a third party. In this way a closer link between economic activities and welfare outcomes might be established. As examples of probable further imputations housework and study are frequently mentioned. In contrast to this view the monetarist is interested in reducing the system to those transactions that involve a monetary settlement (or wants at least have these transactions singled out). A system based solely on market transactions may be the one that is most useful for policy purposes, because generally economic measures are directed at and applied most effectively to market behaviour. Also, it corresponds more closely to the institutional organization of the economic proces and the daily experience of users of economic statistics than a system with imputations and attributions.

3.2.3. Transactors

Two decisions have to be made concerning transactors in the system: the choice of the statistical units and the grouping of these units in sectors. Present SNA distinguishes two kinds of statistical units - one that bears relation to the activity classification and one for the formation of institutional sectors. Some questions concern the classification of activities (e.g. homogeneity versus measurability as a unit, which is reflected in sometimes arbitrary decisions on deconsolidation), but most problems refer to the institutional transactors. Firstly it is not quite clear what an institution is: different criteria like control or financing or even size are used. So there seems to be an endless dispute on what exactly a non-profit organization is, how quasi-unities should be formed, whether direct investment of one agent into another means that they should be regarded as only one unit etc. Secondly the sectoring of institutional units has always caused some trouble, because there

does not exist a unique principle of grouping them. There is a tendency to group the institutional units in the same way in which the activities are classified. But different analysts may have very different views: some want to combine private-non-profit bodies serving households or private quasi-corporations with households, others want to combine them with government or corporations. Analysts that want to examine the effect of government on the economy, tend to enlarge the government sector far beyond the borders set by present SNA. Thirdly there are problems in identifying the transactors. Reference can be made to the criteria "paid by" and "enjoyed by" on outlays of government and enterprises in favour of households - not only in the form of direct purchases of goods and services, but also by way of income and capital transfers. Similarly some researchers will be interested in "collected by", others in "destined for" criteria with respect to the collection of taxes by central and local government. Finally, we may mention that many analysts are unhappy with the dual classification of the transactors in SNA: probably an attempt should be made to link the two more directly than is done now.

3.2.4. Valuation

Some issues concerning valuations are:

- no corrections are made in present SNA for inflation e.g. in interest flows that contain a compensation element for revaluations of the principal sum. For this reason such variables as savings by sector are very difficult to understand, if not misleading, in periods of chronic inflation. Perhaps allowances have to made in estimates of capital consumption for sudden changes in average economic lifetimes of fixed assets, like variations in the capacity to generate profits caused by a price increase of the fuel consumed. These proposals imply a transfer of certain items from the SNA reconciliation accounts to the transaction accounts.
- Analysts of money flows tend to attribute the sums of money actually transferred between two units to one simple transaction. Others cannot agree with this method; they think in terms of a "normal" valuation of all transactions - that is prices which correspond to commercial practice between independent parties. Any deviation from this "normal" valuation should indicate that two transactions are settled in one payment - e.g. in the case of transfer pricing of multinational enterprises or softterm loans to employees or developing countries.

- Contrary to the needs of those who want to analyse actual money flows, in SNA "netting" is sometimes recommended, often in the case of dependent intermediaries but also in the case of independent intermediairies, most notably in the treatment of wholesale and retail trade.

3.2.5. Classification of the transactions

Well-known issues regarding the classification of transactions are the many questions on whether a specific transaction should be regarded as intermediate or final expenditure - for instance in the case of travel expenses of employees and other instrumental outlays that could be labelled as regrettable necessities. Other issues in this field are: pollution abatement costs included in final consumption, payments for education or recreation of employees included in intermediairy consumption etc. But there seem to be numerous other wishes for alternative classification arising from analyst's or politician's needs. As a matter of fact, a lot of the items indicated in the other subparagraphs have their direct influence on the classification of the transactions. Besides that, of nearly all transactions required by SNA more details are requested by the users of the statistics. Of course there are the important extensions of the accounts with quarterly or regional information. A serious defect seems to lie in the underclassification of income flows resulting from different kinds of financial assets, which causes problems for monetary analysts when they want to compute the returns of several financial assets.

3.2.6 Timing

Present SNA recommends the recording of transactions according to a change of ownership principle, often with some allowance for practical limitations of measurement. It is conceivable that monetary analysts would like to see a timing according to the principle of settlements. Other often disputed issues in this area are financial leasing and hire-purchase contracts.

4. The case for a more flexible system

From the examples in paragraph 3 it should be clear that different demands are made upon statistics which describe the working of the economic process, and that these demands are incompatible when we try to incorporate them in one single, uniquely defined system. Having such a system would mean that on every issue mentioned there can be just one and only one solution which is to be incorporated in SNA. But why should SNA be organized in that way? When the ultimate object of SNA is seen, as described in the introduction, as a framework within which the statistical information to analyse the economic process in all its many aspects is organised and related, then SNA should furnish information on the economic process to every group of serious analysts that want to study this process. Inevitably this would mean also, that the different angles from which the economic process can be looked upon must be honoured by the System and that it cannot confine itself to one consistent set of concepts and classifications only. This conclusion can also be reached by some contemplation on the role and position of the statistician. With good reason the statistician often complains that theory gives him very little to go by when phenomena from real life have to be classified, measured and put into well-ordered tables of data. Very often it is the statistician who will have to decide on border cases and difficult classifications. But this cannot mean that the statistician will have to impose on the users just that one classification which he considers best. On the contrary - where classifications necessarily contain an element of choice and subjectivity he should return to the users and let them have the choice, even if this means that he will have to measure according to several definitions.

Of course in many instances SNA can accommodate users who are interested in slightly deviating definitions. The System allows for the identification of many a point of controversy, contains memorandum items and so on. Nevertheless this is often on a rather ad hoc basis. This all leads to our second proposition, that a future SNA will have to be fundamentally opened up for several meaningful definitions and concepts, not only in details, but in the formulation of the main variables as well. This will show to be of great advantage to the indeed various points of view from which analysts and politicians look at the economic processes. At the same time it can alleviate some of the burden of decision making that rests on the statistician's shoulders.

5. Main aspects of a flexible system

5.1. General definition

If a future, more flexible SNA would encompass different options and several, possibly conflicting definitions, what will be the binding element in such a system? The answer to this question can be short: its consistency. At first sight it is hard to see much consistency in a system in which the definitions seem to be on the drift. In order to give some clarification on this point, it is appropriate to define the proposed system in general terms as follows: "A flexible SNA consists of a basic set of fully consistent concepts plus the potential in data and accounting rules to change the basic system into other sets of fully consistent concepts". The advantage of this formulation is, that it focuses on a basic form or core of the system, which can be used as a point of reference in the system. The potential in data and accounting rules to change the core consists of sets of systematically formed bits of information, or building blocks, that lead us from the core to other forms of desired output. These two aspects of the flexible system: the core and the building blocks, are discussed in some more detail below.

5.2 The core

As stated in paragraph 5.1 the main purpose of the core is to serve as a point of reference in the flexible system. This does not mean that the core necessarily needs to be a core in the most restricted sense. A core in the most restricted sense can be considered as a basic collection of elements which appears in all collections of buildingblocks (all desired sets of concepts). This points towards a basic set that, if we use an architectural methaphore, forms the nave around which all kinds of different national accounts aisles can be built. By itself such a nave may have limited analytical value. There certainly are advantages in defining a core that way. But other wishes have to be considered as well, such as:

- simplicity and intelligibility. This could lead to a core that, with respect to the transactions boundary, is based on the payments criterion or the so-called transaction/transactor principle;

- significance of the core as a self contained system calls for a core which forms a meaningful complete system by itself.

Other points for consideration are:

- possibilities to construct comparable data between countries;
- data availability in most countries;
- stability over time. In this connection it is very well conceivable that as a standard extension of the core of the system present SNA is a first priority in order to avoid discontinuity in established data collection and presentation. Moreover this would maintain the validity of the "super-structure of research, analysis and forecasting models that has been built upon the existing series" (Saunders 1977, para 5 (e)). In this way future SNA would be flexible and stable at the same time.

5.3 The building blocks

The construction of building blocks seems to be the most promising method for extending the scope and the flexibility of the system. However, a "building-block approach" can have very different meanings. Used in a narrow sense building-blocks are no more than the numerical expression of the various steps that have to be taken in order to arrive from one system of presentation to another. The blocks are comparable to the items in the "bridge tables" that have been constructed between SNA and MPS or SNA and the IMF balance of payments. They are accompanied by some simple rules stating which building-block to add or substract from which variable in the system of departure.
In a more sophisticated system the building-blocks form an immanent addition to the basic information given by the system, for instance in the form of an extra cross classification. Several modes of output can now be constructed.
The accompanying rules are accounting ones, that is to say, they indicate how in general, consistent main aggregates can be formed. (A purpose classification crossed with intermediate consumption of enterprises for example, opens the way to reclassify these intermediate inputs at will to final consumption of households. The rules state in which way national income etc. is affected).

In a fully developed building-block approach the whole system consists of a compilation of standardized items, that are constructed in such a way that:
- every transaction finds its place in a building block;
- every transaction is described by one block only;
- the desired modes of output can be constructed by linking building blocks.

Each building block in such a complete system is defined by at least four variables: transactor, transaction, period and value, but this has to be largely extended by variables of volume, transaction partner, object (kind of commodity or financial item), function and so on. A double classification of, say, transactors, only involves the adding of a new variable in the definitions of a building block. This complete building-block approach ensures very high, even perfect, flexibility in output. But it will turn out to be impossible to be developed completely in practice. Concluding this section it is noted that in extending the core of a flexible system, attention should be paid to the desired degree of flexibility and therefore to the character of the building-blocks to be constructed. In this way it can be ensured that the system as a whole is kept within manageable limits.

6. A first elaboration of parts of a flexible system

6.1. General

This paragraph is rather speculative. The main aim is to make the suggestion, made in the foregoing paragraph, a little more concrete.

6.2. The core of the system

There are several reasons for presenting a rough sketch of a central core. Such a sketch is needed as a starting point for the description of the structure of the system. But it can also serve as a way of showing the consistency of the system. So, the benefit of defining a core, which at first glance can be questioned when a pure building-block approach is advocated, is derived from considerations of presentation. But there are various demands to be considered when determining the core. Simplicity and significance as a self contained system cannot be met completely in one core. So it has to be decided which demands prevail. If possible, it would be useful to choose a core which is as near as possible to daily experience of the economic subjects. Then the variables in the core are aggregates of transactions which in principle can be observed and which can be recorded in basic economic statistics. This would make the system simpler and better understood, it reduces the distance between collecting and integrating statistical data and generates a clearer relationship between macro and micro data. The significance of the core as a self-contained statistical system may be harmed, if in this way much emphasis is put on simplicity and intelligibility. But if the main aim of the core is to form the nave, around which several aisles can be built, some reduction in significance with respect to present SNA is acceptable. Such a core could be built up from:

- main sectoring principles of present SNA;
- a recording of transactions on a transaction basis;
- a recording of transactions at the transactors which are really paying or receiving (no attributions). This does not mean that all transactions

necessarily are recorded at the value of the actual payment. The need for consistency of valuation and the need to distinguish different categories of transactions require rearrangements of data on actual payments as in present SNA. But the difference with present SNA is, that no purchase of sector A is recorded as a transaction of sector B. This is especially important for transactions in kind (wages, gifts to developing countries etc.) and for transactions in the field of life insurance and pensions. Of course there will remain a number of borderline cases in which specific conventions are needed:

- the same rules for consolidation and deconsolidation as in the present SNA but in co-ordination with other economic statistics (no consolidation or deconsolidation within statistical units);
- an application of activity classification as in the present SNA;
- a recording of market transactions only, in the sense that no imputations are added; the production boundary is drawn using the criterion of the earning of money incomes, income in kind is not recorded as income;
- for the rest the main rules of present SNA are retained.

This implies e.g. that the distinction between intermediary and final consumption is made according to simple rules: current outlays of producers are intermediate, other outlays are final.

This starting point for the development of a core suggests only two main differences from present SNA (no attributions and no imputations) which serve simplicity and intelligibility. Of course these points are harmful to international comparability. It is clear that full comparability is an ideal which will never be attained. The suggested core of the system will be less comparable than present SNA. But it will be a useful instrument to show institutional differences between countries. If the building-blocks are generated in a systematic way, and cross classifications are internationally harmonised, international comparability can be attained in a flexible way, because it can be applied to a greater variety of variables. The result can be that institutional differences between countries are managed more clearly than in a more complicated and uniform SNA. Similar remarks can be made with respect to comparability over long periods of time, when within countries the institutional setting changes.

6.3. Examples of generating building-blocks

6.3.1. General

For reasons of continuity at least building-blocks must be available to generate present SNA variables starting from the core. When the detailed definitions of the variables in the core have been developed the deviations from present SNA have to be investigated. Some of the building blocks needed are included in the examples mentioned below. Old and recent discussions in the field of SNA contain a wide variety of issues which could be elaborated in the next paragraphs. Only a few examples are mentioned.

6.3.2. Building blocks for input-output analysis

A good example of the generation of alternative data specifications, contained in present SNA, is the compilation of commodity*commodity and industry* industry matrices. The underlying data cannot be recorded in basic economic statistics, so they are not part of the core, just like they are not part of the basic system of SNA. In the transformation process from input-output matrices in the core to the "analytical" matrices, building-blocks can be defined according to:

- classification principles;
- valuation principles;
- definition of variables (diagonal items).

6.3.3. Building blocks for monetary analysis

For purposes of monetary analysis the core has to be supplemented with transactions, which "disappeared" as a consequence of consolidations, while deconsolidations have to be undone. A classification of the transactions according to monetary categories might be introduced (by type of medium: currency-demand deposits, etcetera; transactions within or outside the monetary system; and others?).

6.3.4. Building blocks for employment policies

For applications of a (Keynesian) employment policy, the production boundary would have to be shifted to include all sorts of labour relevant for policymaking (and maybe to exclude labour, which in the policymaker's opinion does not contribute to "employment"). If "the" policymaker does not exist, but instead different employment policies using different definitions of "employment" are advocated, a building-block approach is needed, based on a classification of the different employment categories.

6.3.5. Building-blocks for the analysis of the sectoral income distribution

In the opinion of at least a number of compilers and users of national accounts data for a meaningful analysis of the sectoral income distribution and expenditure behaviour additional building-blocks are needed in an era of chronic inflation. In this connection it is advocated to split up interest transactions into real interest and the inflation compensation, contained in nominal interest. The latter component is not treated as (consumable) income of the creditor but as part of saving of the debtor.

6.3.6. Building-blocks for the generation of welfare indicators

The variables in the core show many shortcomings from the viewpoint of analysts of economic welfare. Different analysts certainly have different opinions on what has to be included in "welfare outcomes" or even in "economic activities".
Therefore a range of building-blocks has to be developed according to at least three dimensions:

- the location of the production boundary;
- the distinction between intermediary and final consumption;
- the addition of attributions (e.g. the allocation of government expenditure to households).

In order to generate the building-blocks the core has to be extended and then serious problems can arise with the valuation of activities. But perhaps these problems have to be avoided by sticking to measurement in volumes. Then the analyst has the opportunity to apply the valuation method he prefers. For generating building-blocks within the extended system a general classification of economic functions, attached to the transactions and non- market activities will be very useful. This example will be elaborated somewhat further in the next paragraph.

7. Building-blocks for welfare indicators

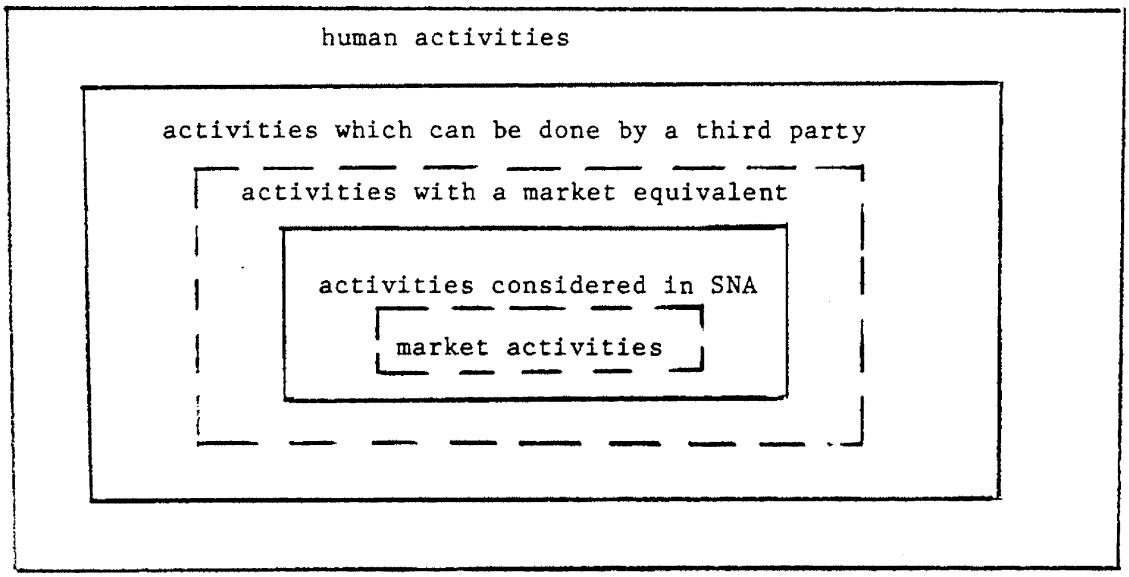
7.1. Introduction

It is widely recognized that "the distinction between activities undertaken for pleasure and those undertaken out of necessity cuts right across that between productive and non-productive activities" (Hill, 1979). It is not useful to try to measure economic welfare with one single measure built up out of SNA. But it may be valuable for welfare analysts if indicators of welfare inputs could be derived from SNA. These inputs are goods and services, obtained from the market for consumptive purposes, and productive activities leading to results which are directly available to the consumer. So, (1) all consumption available from market activities has to be taken from the core as defined in paragraph 6.2. and (2) productive non-market activities have to be added. The first point includes the problem of a welfare-oriented distinction between intermediary and final consumption and the problems involved in the development of variables like total consumption of the population. In this field issues are under discussion which cannot be decided upon without subjective judgements on which opinions sometimes vary widely. The same holds for the second point. Especially because the relation between productive activities and expenditure on the one hand and satisfaction on the other is so unclear the production boundary can be drawn differently according to different purposes of the welfare analysts. This means, that statisticians cannot do more than generate building blocks from which analysts can build up their favourite concepts.

7.2. The production-boundary

There are several ways to isolate the activities to be recorded in a system of economic accounts from the entire range of human activities. This is illustrated in diagram 1, which is based on Hawrylyshyn (1977).

DIAGRAM 1. HUMAN ACTIVITIES AND PRODUCTIVE ACTIVITIES



The following criteria are used to determine the different boundaries of productive activity:

(1) The market criterion. Activities are considered as productive, if they take place in the market, if money is paid in exchange.

(2) The SNA criterion. In SNA, market activities are supplemented by a limited number of non-market imputations, notably subsistence agricultural activities and space rental of owner-occupied housing.

(3) The market-equivalence criterion. Market activities are supplemented by all non-market activities with a market counterpart.

(4) The third party criterion (Hawrylyshyn, 1977). Productive activities are defined as activities, which would yield equivalent results, if performed by some other economic unit (a third party).
This criterion is distinct from the previous one, because here it is irrelevant whether the third party actually operates in the market or not.

The criteria are a useful point of departure for developing a classification of non market activities which can be used for systematically generating building-blocks for welfare analysts.

7.3. Intermediary and final consumption

The problems of outlays of enterprises or government directly benefitting households and the problem of instrumental outlays of households (outlays that do not lead to consumption like costs of travelling to the work place) are manifest to the welfare analyst. The same holds for outlays of government or households for the compensation or elimination of environmental deterioration. The treatment of defence expenditure and other parts of general administration that often are considered as intermediary or as counterproductive outlays also generate perpetual discussions. A major instrument for developing building-blocks that enables analysts to build up their favourite concepts, is a general classification of economic functions. Horz and Reich (1982) have presented interesting work showing that COFOG can be used as an instrument for attributing government expenditure to intermediary or final uses. This kind of work can be generalised if a single general classification of economic functions could be developed which can be applied to consumption outlays of enterprises, government and households. Preferably such a classification has to be applicable to non-market activities as well. Certainly the development of that classification will be a very difficult operation. It has to be emphasized that such a classification not necessarily needs to meet all requirements of a functional classification. The demands to be met have to be extracted from the viewpoints of analysts who need data on welfare inputs (generated by productive activities). The scheme below shows a number of examples, mainly extracted from Saunders (1977) and Ruggles (1982), of possible demands to be met.

BLE 1. Issues in the Updating of SNA

pic	SNA treatment	Proposed shifts in SNA production boundary ? 1)	Kind of basic data needed	Is monetary valuation necessary	Should a classification of economic functions contribute to the solution of this issue
useholds					
own account food by farmers	- final output	M (-)	physical agric. output	yes	yes
housework	- excluded	ME, TP (+)	time budgets	no	yes
volunteer activity	- excluded	ME, TP (+)	time budgets	no	yes
instrumental expenditure (cost of travel to work)	- final output	none	household budgets	yes	yes
instrumental time (time of travel to work)	- excluded	TP (+)	time budgets	no	yes
leisure activities	- excluded	none	x	x	x
vernment expenditure					
attributions to households	- final consumption of government (unless "free choice" criterion applies)	none	government exp.	yes	yes
intermediate (e.g. defence, law and order)	- final consumption of government	none	government exp.	yes	yes
terprise expenditure					
attributions to households (e.g. health and education of employees)	- intermediate	none	enterprise exp.	yes	yes
other final (e.g. commercial radio and t.v., public welfare	- intermediate	none	enterprise exp.	yes	yes
vironmental costs					
expenditure on pollution abatement and control					
› enterprises	- intermediate (excl. investment)	none	enterprises exp.	yes	yes
› government	- final	none	government exp.	yes	yes
› households	- final	none	household budgets	yes	yes
ypothetical costs of restoration	- excluded	none	x	x	x
ictitious damage costs	- excluded	none	x	x	x

Outward (+) or inward (-) shifts in the SNA production boundary due to the application of the market (M), marketequivalence (ME), or third party (TP) criterion.

Information is not relevant for the proposed system of economic accounts.

The first item in the table "own account food by farmers" appears in present SNA as final consumption of the households. Basic data on physical quantities of agricultural output is used and a monetary value is imputed. This valuation is desirable in present SNA as well as in accounts which would use a wider production boundary. A classification of economic functions should make it possible to separate own account food production from production which goes to the market. The entry in the third column indicates, that only the application of the strict market criterion would result in a shift of the production boundary: own account food would be excluded from the accounts. At present instrumental time of households is not considered in SNA. Using e.g. the Third Party criterion parts of instrumental time use can be included in the accounts as productive activity of households. This would require an outward shift in the SNA production boundary. Basic data would come from time budget studies and a monetary valuation of this time is not desirable, mainly because of the subjective nature of such a valuation. A classification of economic functions (of time) should make it possible to distinguish this specific "productive" use of time from other "productive" or "consumptive" time uses. Some parts of government expenditure which at present are considered as final, are intermediate in the eyes of some analysts. This difference in opinion on for example expenditure on law and order is of no consequence to the present production boundary. Basic information comes from government budgets and is in monetary terms. This should remain so. A classification should isolate expenditure on which one disagrees about their final or intermediate nature. Fictitious environmental damage costs and hypothetical costs of restoration are and should never be considered in SNA, so basic data are not needed and the costs would not be classified in the framework of SNA.

7.4. Final remarks on welfare indications

The complex problems of constructing output and consumption measures which are useful indicators of welfare inputs make it necessary to increase the flexibility of present SNA on various other points not mentioned here. At this stage the only goal of this paragraph was to suggest that some systematic ways of generating relevant building-blocks are imaginable.

8. Conclusions and final remarks

8.1. Conclusions

The main conclusions of this paper are:

1. One uniform SNA cannot meet all present-day demands.
2. If SNA is to retain its present position as a major statistical tool for economic policy-making and analysis, it has to be flexible in its output.
3. This flexibility can best be obtained by a system with a simple core supplemented with several sets of building-blocks.
4. It is suggested that in the core the non-monetary imputations and attributions of present SNA should be excluded.
5. Furthermore it is suggested that part of the desired building-blocks can be generated systematically by the introduction of cross-classifications.

8.2. Final remarks

It is clear that these suggestions raise many practical problems. There certainly is a limit to the possibility of adding cross classifications to statistical variables. For several reasons the core of the system, which serves as a starting point for the addition (and in special cases: removal) of building-blocks, has to be as simple as possible. Such a core can be looked upon as a simplified SNA. But it has to be a consistent and self contained system. The simplification must arise from the reappraisal of complicating conventions, agreed upon in the earlier stages of the development of SNA. This approach seems to be a better one than going on with further clarification, elaboration, refining and extension of present SNA, retaining all conventions and details and adding more. The rigidity of the present system, demonstrated in international discussions, certainly is a result of its complexity. National accounting data are used for many different purposes. This is not compatible with rigidity and uniformity. It is also not compatible with a high degree of complexity and it is recognized that only a minor part of users of national accounts data are in a position to take into account all the information needed for a correct use.

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