FLEXIBILITY IN THE NEXT SNA: THE CASE FOR AN INSTITUTIONAL CORE

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This paper examines the purposes of the SNA and concludes that they frequently conflict with one another. Consequently, the structure of the SNA should be made more flexible. This can be achieved by means of a system of a general purpose core supplemented by special modules. This core is a full-fledged, detailed system of national accounts with a greater institutional content than the present SNA and a more elaborate description of the economy at the meso-level. The modules are more analytic and reflect special purposes and specific theoretical views. It is argued that future revisions will concentrate on the modules and that the core is more durable than systems like the present SNA.

1. INTRODUCTION

National accounting has a venerable tradition, as old as economic science itself, dating back to the seventeenth century work of Petty (1665) and King (1696). Until the twentieth century, however, it remained just a fringe activity of a few private scholars. Only with the advent of empirical economics did it move to the centre stage and become a concern of public authorities. This, in turn, has led to the formulation of international guidelines. The most important of these, the United Nations System of National Accounts (SNA for short), was first published in 1953. This event marks the coming-of-age of the field, but this does not mean that national accounting has remained static since. On the contrary, it is constantly changing and expanding in order to stay in tune with changes in the economy, economic theory and the demands of users. This process has already caused a major revision of the SNA in 1968 and a second one is now under way. The present paper argues that this revision must be based on a reconsideration of the structure of the SNA: the changing and growing demands on national accounts necessitate a reconstruction of the SNA. To substantiate this view we first, in section 2, reexamine the essential purposes of national accounting and the SNA. The section concludes that the purposes of the SNA may frequently be in conflict with one another. This is borne out by an examination, carried out in section 3, of proposals for changes in the SNA that have been put forward in the course of the revision process. Many of these proposals mould the system to tally with one of its purposes to the detriment of another one. Section 4 evaluates the solutions developed in the past to deal with the problem of conflicting demands and purposes. We conclude that an alternative structure of the system is necessary in order to achieve greater flexibility. This structure is that of a general purpose core with special purpose modules. The principles for the development of the

core, its structure and a number of its details are described in section 5. Section 6 sketches examples of modules and describes the system as a whole. The latter two sections do not elaborate all details of the proposed system, but are sufficient to illustrate the much greater flexibility of this system, emphasized in section 7.

2. PURPOSES OF NATIONAL ACCOUNTS AND THE SNA

2.1. *Purposes of National Accounts*

National accounts are intended to provide a systematic and complete picture of economic activity, meaningful and suitable for economic analysis, forecasting and policy (cf. e.g. ESA, p. 9). These three purposes alone may call for widely different approaches to national accounting (cf e.g. Ohlson, 1958; Kranz, 1983). But in addition, neither economic analysis, nor forecasting, nor policy needs are homogeneous. There are many different schools in economic theory, many different forecasting techniques and a host of policy issues, each with their own data requirements. Moreover, these constantly change and vary from country to country. This multifariousness of purposes and within purposes puts stress on the systems of national accounts in three essential ways.

First, it renders the boundaries of the systems open to debate: which transactors and transactions should be covered by the accounts? Consider one of the major examples of boundaries: the production boundary. A monetarist would prefer a national product concept to be confined to production traded for money in the market. Development economists take a wider view, whereas representatives of the new home economics and related schools need a still more comprehensive coverage.

Second, the levels of aggregation upon which the systems focus depend on prevailing views of economic theory and aims of public policy. The roots of the system are macro-economic: the seventeenth century originators of national accounting primarily aimed to measure national income, and this macro-economic focus was reinforced by the Keynesian influence of the 1930's. Next, however, the need for more detailed planning of production caused the input–output tables to be added to the system. Meanwhile, the ever greater involvement of public policy with detailed aspects of the economy increased the demand for detailed data; the resurgence of neoclassical and other types of micro-economic and meso-economic general equilibrium analysis reinforced this demand for detail. Of course, to some extent this demand can be met by straightforward disaggregation. This might be dubbed the top-down method. However, frequently the emphasis of the analysis is on the interrelations below the macro-level or on partial study of micro- and intermediate variables; aggregating the variables involved to macro-levels, the bottom-up method, may well yield different aggregates from the traditional ones. Anyone who has ever inspected a Social Accounting Matrix for a developing country or the data base for a general equilibrium tax model of a developed country will realize that there is a tension between them and the straightforward disaggregation of, e.g., the SNA's accounts of the nation.

The *third* and most important consequence of the multiplicity of purposes and views underlying systems of national accounts is that the structure of the

systems is debatable. Essentially, this structure consists of rules for grouping and classifying transactors and transactions. Classification then amounts to minimizing within group and maximising between group differences with respect to the relevant characteristics. Consequently, the central issue is the choice of the relevant characteristics. There are two basic approaches to this: the institutional and the functional one. Though the differences between these approaches have not been spelled out too explicitly by the literature, the distinction is a useful one.

We employ the term "institutional" when we want to stress formal and organizational features of transactors and, to a lesser extent, transactions. Thus an institutional definition of transactors emphasizes the units that make decisions, an institutional definition of transactions the formal appearance of these transactions. As a consequence institutional definitions and classifications remain close to the actual experience of the economic agents.

The functional approach, in contrast, is analytic: it starts out with an analysis of the function of transactions. It looks behind their formal appearance to determine their "true" nature. In fact, it frequently concentrates on "processes," "products" and similar categories rather than on transactions. Consequently, transactions that are quite different in formal appearance may be lumped together and vice versa. Transactors are, in the functional approach, defined (if at all) in an indirect way, *viz.* as the performers of functions. They do not have to correspond to directly observable persons or institutions. Clearly, functional definitions and classifications reflect the views and judgments of the designer of the statistical system rather than those of the economic agents.

The 1968 SNA is an institutional system containing a number of functional elements: transactions that are quite different from an institutional point of view are lumped together for functional reasons. Usually, this is achieved by registering them *as though* they were similar. Thus their grouping and classification can only be achieved by adopting one institutional model as the standard model, moulding all transactions with the same function into the shape of the selected standard model. The SNA accomplishes this by means of "imputations" and "attributions."

An example will clarify this. There are two ways of producing housing services: house owning for own use and renting. Since, from a particular functional point of view, both these institutional forms may be thought to serve the same true function, the SNA lumps them together as though only letting/renting occurred. This is done by introducing an imputation for owner-occupied dwellings; to this end households in their role as owners of dwellings are viewed as a part of an industry: the Dutch national accounts, e.g., contain an industry called "ownership of dwellings." This example illustrates several points:

- not only is the structure of the system affected, but the production boundary as well;
- the adoption of a treatment geared to one purpose may hurt other purposes: if one wants to analyse the effects of a 10 per cent rise in rents on the purchases of consumer goods, the imputation for owner-occupied dwellings must be removed first;
- introducing imputations and attributions damages the ease of interpretation and clarity of the data: frequently users ask for data on the enterprise sector net of owner-occupied dwellings.

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The conclusion of this discussion of the purposes of national accounting is that there are so many conflicting purposes and views underlying the accounts that it would be a miracle if one single set of accounts could serve them all. This situation is exacerbated by the fact that the SNA, as an international guideline, has a number of additional purposes of its own.

2.2. *Purposes of the SNA*

International Comparability

The first main purpose of the SNA as an international guideline is to achieve *international* comparability of national accounting data. This purpose implies that the SNA may differ from the most desirable national systems of individual countries, since the latter are geared to the countries' own institutional setting, economic conditions and policy traditions.

In addition, however, the purpose of international comparability as such may give rise to conflicting alternative options, the basic question being what international comparability *is*. Societies and national economies differ in many ways: levels of output of industries, prices, tastes, institutional arrangements, and so on. Inevitably, these differences in many dimensions pose a considerable number of conceptual and practical problems if one wishes to compare two economies. Thus, if one wishes to compare the volume of output, industry by industry, the data should be cleared of differences in institutional arrangements. If, on the other hand, differences in economic behaviour are to be compared, institutional arrangements are of the essence.

Just as in the shaping of the structure of national accounts discussed above, two alternative approaches to international comparability can be adopted: the institutional and the functional one. The first would record transactions as they actually occur for the transactors that carry them out; the second employs a host of imputations and attributions to construct "institution-free" data on abstract flows and stocks. Both approaches have their own merits and demerits, depending on the purpose of the comparison. Thus a necessary preamble to any discussion of international comparability would be a discussion of the purposes of the comparison and the points of view these imply. Peculiarly, the 1968 SNA does not contain any such discussion. Nor has an explicit, well-reasoned consensus been achieved since. However, inspection of imputations and attributions pre-scribed by the 1968 SNA, as well as of a number of proposals to enhance international comparability (cf. section 3), reveals that the point of view adopted is, by and large, the functional one. The focus appears to be on the comparison of activities, i.e. "real" flows, whereas institutional differences are abstracted from. As noted above, this choice implies that for each group of abstractly defined transactions a standard institutional model has to be adopted. Internationally, however, the range of different institutional frameworks for the same abstract "transaction" is wider than in a single national economy. Thus, the international dimension exacerbates the problems already inherent in the functional approach to national accounting.

Handbook of National Accounting

The second major purpose of the SNA is to serve as a *handbook of national accounting*: "The new system . . . is designed to provide international guidance to national statistical authorities who wish to improve, elaborate and extend their national accounts and their system of basic statistics." (1968 SNA, p. iii). This purpose, too, may conflict with other purposes. Clearly, one internationally uniform handbook cannot be easily applied indiscriminately to diverse national situations. Sophisticated constructions that are essential for one country may be unnecessary and too burdensome for others.

Framework for other International Guidelines

The third major purpose of the SNA arises from the special character of national accounts as the integrating framework for specialized statistics: the SNA is to serve as *framework for other international economic-statistical guidelines and standards*. Important examples of the latter are the IMF's Balance of Payments and Government Finance Statistics, the UN's Income Distribution Statistics, ILO's Labour Statistics, and so on. The purposes of the specialized system frequently conflict with those of the SNA. Since the latter aims to provide a comprehensive picture of the national economy, the most adequate description of one sector or group of transactions is often sacrificed to the demand of system-wide consistency. In section 3 we consider some examples of this problem. In this case, too, the more functional the bent of the accounts, the more difficult the linkage with specialized systems frequently is; a more institutional approach often remains closer to the specialized system. This, however, need not be a law of the Medes and Persians: occasionally, specialized guidelines, like those of the IMF, contain strongly functional elements and prescribe imputations and attributions that are useful for their own subject but would be detrimental if employed in a comprehensive system like the SNA.

3. PROPOSALS FOR THE REVISION

The preceding section distinguished between the purposes of national accounts as such and those of the SNA. Sections 3.1. and 3.2., respectively, discuss the types of proposals for revision of the SNA that are inspired by these two groups of purposes. There is no need for a full-fledged review of all major proposals, since an excellent survey was recently provided by Ruggles (1984). Instead we concentrate on the way the various types of proposals interact with the purposes of national accounts and the SNA.

3.1. *Consequences of the Evolving Purposes and Uses of National Accounts*

National accounts should be meaningful and suitable for economic analysis and policy. Therefore they must be regularly adjusted to developments in these areas. In addition, the national economies themselves are subject to changes which may necessitate adaptation of the accounts. The revision proposals induced by these changing uses of and demands on national accounts are intended to provide information of three different kinds: additional information on transactions already covered by the accounts, information on transactions not now covered and, thirdly, revision of concepts used in the accounts.

New Information on Transactions Already Covered

Often, the demand for new information takes the form of a request for cross-classifications or for disaggregations. If these are fully integrated into the system they rapidly increase its degree of complexity. Therefore, the usual solution is to provide just some alternative breakdowns in supplementary tables. The demand for new information on transactions already covered may also take the form of proposals for a new treatment—by means of additional imputations and attributions—of transactions that already exist but have come to be conducted in a different way. An example of this is the proposed novel treatment of financial leasing.

Financial leasing occurs when a capital good is rented, on a long-term contract, by a lessee (user) who, however, carries all risks as to breakdown and maintenance and obtains the property right at the end of the contract. The current convention still is to treat the transaction just as it is organized institutionally: the rental is recorded as intermediate consumption of the lessee. The new proposal is to act as though the lessee owned the capital good and the lessor provided just a loan to finance it. This way, intertemporal differences in the extent of financial leasing are abstracted from. This example demonstrates a tendency to introduce a conservative bias in the accounts, by treating transactions that have come to be conducted in a novel way as though they were still conducted traditionally. In addition, the example demonstrates that the SNA will need to be revised again and again: as soon as the institutional setting of a group of transactions begins to change, this necessitates a revision of the SNA if the accounts are to remain intertemporally comparable from the functional point of view.

Information on Transactions Not Now Covered

Both developments in the economy and changes in theory and policy stimulate a demand for information on transactions that was not provided previously. A prime example is information on transactions beyond the present production boundary: do-it-yourself activities, housekeeping activities. A major problem in this respect is the proper valuation: equivalent market prices or minimum wages and so on. A similar problem arises in case of two other examples: the introduction of the costs of external effects like pollution; and the cost of depletion and benefits from discovery of natural resources. Here too, the proper valuation is not unambiguous. As a consequence, the conventional wisdom of national accountants holds that these categories should not be included in the accounts. However, the demand for this kind of information refuses to be satisfied with this rejection. And it cannot be denied that the activities and effects concerned influence the part of the economy that is covered in the accounts, thus making the latter a non-comprehensive description of the economy. On the other hand, inclusion would diminish the system's usefulness for many other purposes, not only because of the arbitrariness of valuations.

Alternative Concepts

For a number of purposes, alternative definitions of concepts presently employed in the accounts are proposed. One example is the introduction of a

correction of sectoral incomes for the impact of inflation on the real value of intersectoral debts with fixed nominal values. Another example is the proposal to redefine final outputs net of costs incurred to avoid pollution, treating the latter as intermediate consumption instead. Here too, what is good for one purpose is bad for another.

3.2. *Proposals Inspired by Specific SNA Purposes*

Many proposals for revision are not made in response to novel developments in national economies or changes in the uses of national accounts, but are due to purposes specific to the SNA. The existence of international guidelines has generated an autonomous process with its own momentum. This may seriously damage the usefulness of the accounts for domestic purposes. To show this, we consider the types of proposal to which each of the specific purposes of the SNA has given rise.

Enhancing Internatonal Comparability

No doubt, the desire for greater international comparability is one of the major driving forces of the revision process. In section 2 we already noted that "international comparability" usually appears to be approached from a functional point of view; and that this often implies that an "institutional" standard model has to be adopted for each category of transactions. The proposal with respect to financial leasing discussed above was an example of this in case of intertemporal comparability; however, it has an international dimension as well, since the extent of financial leasing varies from country to country.

One set of proposals purely inspired by the desire for greater international comparability has become known as the Pêtre proposals. These relate to the treatment of government subsidies to consumption; to direct government funding of private consumption; and to items of government consumption, expenditure of non-profit institutions and of enterprises that could be considered as household consumption. In this case, it is not the proposals that reflect a conservative bias but rather the present SNA treatment. The treatment of government in the accounts clearly brings out some of the functions of government, e.g.:

- the provision of purely collective goods and services, the benefits of which do not accrue to any particular individual or group;
- rectifying inequities in the personal income distribution by taxation and transfers, the latter being spent with full discretion by the recipient;
- influencing production of specific industries by differential subsidies and (indirect) taxation, with production-related effects in mind, like employment.

However, the 1968 SNA is insufficiently explicit about another function of government, *viz.* influencing the composition of individual consumption. This has been a concern of governments for a long time, but on a fairly limited scale, which is probably the reason why the SNA provides no explicit treatment of this function. However, in the past few decades, governments of industrial countries have greatly increased their intervention in the market in order to achieve desired levels of consumption of a number of specific goods and services, e.g. medical

services, housing, cultural services. This is done by a variety of methods. Institutionally, the industries concerned may be nationalized or social insurance schemes may be drawn up or public funds may be used to pay for the services. As to the method of distribution of the benefits of intervention, the services may be provided freely, or expenditure on them may be reimbursed; in some cases only a part of the value of the service is paid for, where subsidies may be paid both to producers and to consumers.

In the present SNA all these transactions and institutional arrangements are treated as though they were aimed at one of the other functions of government; this implies that measures with essentially the same function are treated quite differently, depending on how closely the specific methods employed resemble those associated with any of the other functions of government. Thus, medical services provided freely by a nationalized industry are treated as a collective good, i.e. as public consumption, but if a reimbursement procedure is followed and consumers have free choice this is considered a transfer payment; housing subsidies given directly to low-income strata may also be considered a transfer, but if they are paid directly to the construction industry or the lessor they may be considered to be a subsidy of the latter, and so on. As a consequence, the accounts do not show systematically how much government spends in order to achieve desired levels of consumption of specific goods and services; nor do they provide an adequate picture of individual consumption and the part thereof that is paid for by the government. The Pêtre proposals would rectify this. Essentially they achieve this by making a function of governments explicit; this way one would obtain a better international comparability from a modernized functional point of view.

The example of financial leasing shows that the introduction of a new formal way of conducting a transaction necessitates a revision of the national accounts if the latter concentrate on the function of transactions rather than on their institutional form. In the example of the Pêtre proposals there was no change in the institutional form of transactions, but instead existing institutional forms were seen to be employed for a new function. However, this too necessitates a revision if the statistical system concentrates on the *functions* of transactions instead of on their institutional form. Consequently, adoption of the functional approach to international comparability will continue to necessitate revisions of the SNA that would be unnecessary in a truly institutional system.

Strengthening the Role of the SNA as a Handbook of National Accounting

The SNA can only achieve the objective of being a universally accepted "handbook of national accounting" if it is unambiguous in its rules and prescriptions and if its categories of transactions and transactors have clear and single-valued interpretations. A number of proposals have been put forward to achieve greater clarity of the SNA in this respect. Examples are proposals for improved criteria for the distinction of quasi-corporate and unincorporated enterprises; and for delineation of the distinction between "producers of government services" and the institutional sector "general government." A somewhat different proposal is to separate, in each category of transactions, the imputations and attributions from the "natural" transactions. This proposal is interesting, because it represents

an attempt to reconcile conflicting purposes of the accounts: on the one hand, imputations and atrributions are made to satisfy functional purposes; on the other hand, many users are interested in the "actual" flows as observed from payments and consider the imputations as artificial constructs hampering interpretation of the data. Of course, the proposal to provide for an explicit treatment of imputations and attributions has a disadvantage too: it increases the number of items that have to be published and hence makes the accounts more unwieldy, so it is less easy to see the wood for the trees.

Harmonization with Other Guidelines

Moulding the SNA and statistical guidelines on specialized subjects into a single coordinated economic statistical system is an ongoing concern of considerable complexity. Section 2.1 identified two ways of integrating detailed information on specialized subjects with national accounts: the top-down and the bottom-up methods. Of course, the same distinction applies to the relation with international guidelines on specialized subjects. An example of the top-down method is the FAO statistics, a fairly straightforward disaggregation of the SNA. The harmonization with IMF guidelines currently in progress is an example of bottom-up integration. Clearly, the latter approach produces proposals for revision of the SNA. These, however, are based on the specific purposes of the specialized system concerned. This may be detrimental to other SNA purposes. A case in point are two adjustments proposed in order to harmonize the SNA with the IMF *Balance of Payments Manual* (BOP). One of these is to adopt the Manual's treatment of financial leasing in the SNA. This treatment is the same as the new treatment already discussed above. The second is to adopt the BOP Manual's treatment of reinvested earnings of foreign-owned companies: the manual treats these as though they were additional foreign direct investment. This is useful if the focus is essentially on changes in foreign claims. However, this way reinvested earnings of foreign-owned companies would be treated differently from those of domestically owned companies. To remedy this, imputed flows would have to be introduced between the domestic sectors as well; this would create considerable problems of valuation and would not have much analytic value either.

It is worthwhile to consider two differences between the SNA's and the IMF's handling of transactions that have *not* led to proposals for the adjustment of either. *First*, the SNA holds as a general principle that what is a capital transfer for one transactor is so for the other transactor too. Thus, estate and inheritance taxes are booked as capital transfers both on the household accounts and on the government account. Here too, the SNA imposes an analytic standard on the data that conflicts with institutional (or, more appropriately in this case: subjective) reality: to the government these taxes are current revenues rather than capital transfers. The IMF's *Government Finance Statistics* manual recognizes this viewpoint, and indeed records estate and inheritance taxes as current revenues. The SNA principle has an obvious reason: suppose the IMF-treatment were to be adopted in the SNA while retaining the SNA treatment of the household sector; this way, there would be an outgoing transfer in the households' capital finance account and an incoming current transfer in government's income and outlay

account. Then government "saving" would increase by the value of the estate and inheritance taxes. Upon consolidation, national saving would be raised by the same amount (compensated for by an additional item on the national capital finance acounts, such as "net capital transfers between residents"). This is a clearcut case of conflicting purposes within the SNA. Either governments' or households' income and savings concepts must depart from their subjective notions if the SNA principle is retained that a transfer is either a capital transfer for *both* sectors concerned, or a current one for both.

A similar problem exists in the relation of the SNA with another specialized system, *viz.* the UN's guidelines on income distribution statistics published in 1977. These guidelines accept the income concept of the SNA; hence, strictly speaking, it is fully harmonized with the SNA. However, in this case harmonization has only been achieved at the cost of applicability: virtually no income distribution statistics have been calculated anywhere that actually achieve consistency with the accounts. One of the reasons is that the SNA income concept includes a whole range of items that do not belong to households subjective notion of "income," or are valuated differently: examples are income from owner-occupied dwellings, imputed interest on life insurance and pension fund reserves and so on. Consequently, the data sources for distribution data do not reflect the SNA income concept. This is certainly true for household surveys, but also for income-tax derived data. Thus here too subjective views of transactions and SNA purposes conflict.

The case of income distribution statistics is only one example of a far wider class of linkages: that between micro- and macro-data. Increasingly, there is a need for micro-bases linked to the national accounts. This reflects the growing awareness that much relevant information is lost in the process of aggregation: the possibilities for drowning in a lake with an average depth of one metre have been rediscovered in such fields as the average profits of firms, average incomes of households, and so on. But *second*, as noted in section 2.1, the growing demand for consistent micro-data is caused by the trend in mainstream economics away from macro-economic analysis and toward micro-economics, be it e.g. neo-classical or Schumpeterian or neo-structuralist.

This two-pronged demand for more disaggregated analysis and data is also reflected in the construction of *social accounting matrices* (SAM's). Broadly, these can be classified in two groups: SAM's for developing countries and tax-modelling SAM's for developed countries. In the first group of SAM's the emphasis is on the distribution of the benefits of economic growth over social and economic groups and on the feedbacks to production; the second group of SAM's are constructed as data bases for the general equilibrium modelling of the distributional effects of alternative tax instruments and, again, their feedbacks on production and growth. Presently, the state of the art in SAM's is comparable to that of national income accounting in the mid-1940s: for each country and each purpose a different SAM is constructed; each of these, of course, meets with its own special problems in linking with the national accounts. Potentially, however, SAM's are a comprehensive framework for the description of a national economy, just as national accounts aim to be. However, SAM's must of necessity start out from the subjective experience and "institutional" environment of the social and

economic groups they are designed to analyse. Thus, if the SNA is to serve as the basis for the construction of SAM's, the need to bring it closer to institutional reality and subjective experience of transactors bulks large.

4. OPTIONS FOR THE REVISION

4.1. *Past and Current Response to Conflicting and Evolving Demands*

The central conclusion of the preceding sections is that the SNA has to satisfy many conflicting demands: its purposes may conflict with one another and there are different views on the best way to achieve a purpose. How has this situation been dealt with in the past?

The first SNA had a flavour of a quest for the philosophers' stone: an attempt to provide *the* description of the economy. That is, a single, objective, description of the economy as it really is. Thus chapter 2 (p. 4) opens with the sentence "The aim of national accounting is to describe *the* structure of an economic system in terms of transactions". Above, we have referred to it as the functional approach; however, if the aim is to describe *the* structure, the underlying assumption is that each transaction has one and only one function. If this is true, the task of the economic statistician is simply to discover this function. Any difference of opinion would then just reflect imperfect knowledge or incorrect views. The possibility that there will always remain valid differences of views, without any one being "better" than the others, is then denied. Though it is hardly likely that this radically positivist view was actually held by the authors of the first SNA—e.g. Stone's earlier proposals amounted to an institutional system of accounts—the further development of the system as envisaged in the preface to its 1960 edition was still thought to be restricted to elaboration and extension, particularly with flow of funds and input–output tables. The latter was indeed realized in the 1968 SNA, but in addition that system introduced institutional sector accounts. The latter may be considered as a move away from the more functional approach of the first SNA and a partial return to Stone's original views. Nevertheless, the concept of one monolithic description of the economy was still maintained. Consequently, purposes and views not accommodated within that framework had to be accommodated in a different way. Several alternative ways to do this have been employed meanwhile.

The most elaborate SNA-based development is that of the French national accounts. In addition to the SNA-based accounts and input–output tables, together referred to as "The Central System," they contain three different types of additional accounts:

- *Complementary analyses.* These simply provide an alternative breakdown of one or more key SNA variables for some sector, e.g. a breakdown of household final consumption by purpose;
- *Intermediate accounts.* These employ micro-economic concepts, as distinct from macro-concepts, and aggregate micro-data according to them. The link with the SNA framework is not complete: most macro-concepts can be derived from the intermediate accounts by regrouping them; however, the intermediate accounts are a straightforward aggregation of micro-data and do not incorporate the adjustments resulting from system-wide statistical integration that are so valuable in the national accounts.

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• *Satellite accounts.* These do not refer to just one variable or sector of the SNA, but rather to a field, e.g. education, R & D, etc. They provide non-monetary indicators and link up with the SNA through a comprehensive description of the monetary, or monetized, flows in the field concerned that are incorporated in the SNA. Typically, this analysis of monetary and monetized flows comes in three parts: an analysis of the financing of the characteristic activities, etc. by sector of source of finance; an analysis of production by uses and resources; and an analysis showing how much each sector receives of each characteristic good, service, money transfers, etc.

Essentially, the French system accepts the SNA view of the economy as a whole. The additions detail specific groups of transactions or provide a comprehensive economy-wide view of a single field. But no provision is made for alternative paradigms in the description of the economy as a whole. Complementary analyses and satellite accounts are not sufficient as tools to change, e.g., the production boundary of the system. Attempts to achieve this have been made outside statistical offices, e.g. by Nordhaus and Tobin (1972), Economic Council of Japan (1973), Juster, Courant and Dow (1981). In these cases SNA-based data are used, but the framework is altered. If it were not so difficult for researchers outside statistical offices, the difference from the SNA would probably be even more dramatic. Given the complicated nature of the SNA and its mixed institutional/functional approach, it is very difficult to employ its data for the construction of an alternative comprehensive system. This is probably the main reason why attempts to build systems employing different production boundaries have been sporadic in spite of the demand for them.

Another type of alternative system is the one where the essential macro-economic nature of the SNA is replaced by a meso-economic paradigm. SAM's are the prime example of this. Here too, often, national accounting data are employed, but the structure of the system may differ substantially. SAM's may employ a different sectoring from the SNA; subsectoring is of the essence, the relations between subsectors being specified; production boundaries may differ from the SNA; and so on. Construction of SAM's is thus frequently hampered by the need to remove a number of constructions from the national accounts data.

Summarizing, the 1968 SNA still gives the impression that it attempts to provide, in one monolithic system, the single "true" vision of the economy; wherever this approach conflicted with other purposes and views, additional tables and accounts or complete alternative systems have been developed. But this has been hampered by the functional constructions in the SNA.

4.2. An Alternative Approach: Core and Modules

The discussion above leads to the conclusion that a basic change in the approach to designing systems of national accounts is called for. We should not attempt to construct, in a single monolithic framework, the "true" or "best" all-purpose description of national economies, simply, because there *is* no "true" and no "best" description. Instead, there are various alternative descriptions, each useful for its own purpose, each "best" and "true" from its own underlying

theoretical point of view. Thus we propose to depart from the "physics" approach to economics and recognize economics for what it is: a social science where no single comprehensive model will ever be able to obtain consensus. Put differently, we should cease to force our data into a single, restrictive, model.

This view is gaining currency with other disciplines of economic science too, not only with narrow schools, like the neo-structuralists, but throughout the discipline. Consider three quotes of economists that might be thought to be representatives of the highly technical "physics" approach to economic science.

> "We should be using the newly available data sets to help us find out what is actually going on in the economy and in the sectors that we are analyzing without trying to force our puny models on them. The real challenge is to stay open, to learn from the data, but also, at the same time, not drown in the individual detail. We should keep looking for the forest among all these trees". (Griliches, 1985)

> "The example of national income analysis does remind us of a danger in the use of economic theory in economic history. There is a bias towards flattening out the particularities of the past. The more one uses categories drawn from the need to generalize, the less marked is the difference among the instantiations". (Arrow, 1985)

> "My impression is that the best and the brightest in the profession proceed as if economics is the physics of society. There is a single universally valid model of the world. It need only be applied .... Of course there are holdouts against this routine, bless their hearts .... We need a different approach. The function of the economist in this approach is still to make models and test them as best one can but the models are more likely to be partial in scope and limited in applicability." (Solow, 1985)

The implication for the SNA is that it should, instead of trying to provide *the* comprehensive framework for the statistical description of economic systems, be comprehensive in the sense of facilitating the construction of all the alternative descriptions that are relevant for science, policy, and business, both now and in the future. The best way to achieve this is by means of a systems structure that consists of, on the one hand, a *core* and on the other a range of *modules.*

Since this proposal was first put forward (Van Eck, Gorter and Van Tuinen, 1983) it has been misunderstood in several ways. One of these is that the core is just a simple aggregated version of the 1968 SNA, e.g. consisting of a streamlined version of the accounts of the nation and accounts for as small a number of institutional sectors as possible, without any disaggregation, input–output table, cross-classification and so on, all of which would have to be provided in modules. This, however, would be a retrogression. This core would simply be a Keynesian, macro-economic description of the economy and thus represent a return to the economic thinking of the early 1950's and ignore the changes that have occurred since. Only if all other approaches to economic analysis were simple disaggregations and extensions of the Keynesian macro model would this interpretation of the core make sense. However, since there are now a number of wholly different views of economic systems, particularly emphasizing meso-relations, the core

cannot be designed to accommodate just the Keynesian view but must anticipate the need to construct several alternative descriptions of the economy as a whole.

A second misunderstanding concerning the core-modules approach is that the core would represent *the* authoritative and detailed description of the economy as a whole whereas the modules would, in the vein of the French system, be merely elaborations of specific groups of transactions, transactors or special fields. Instead, our proposal is to construct a core that is, as such, a detailed description of the whole economy, but constructed in such a way—by proper choice of the production boundary, sectoring and subsectoring, units and classifications—that it is easy to transform it into an alternative description of the whole economy. One set of modules is to be designed to achieve just this. Thus, this set does not contain modules only for the elaboration of a special field or for complementary analysis, but modules that, added to the core, achieve a drastic transformation of the core, e.g. a change in the production boundary, an alternative sectoring, and so on. Naturally, there are other sets of modules too, e.g. for linkage with other statistical guidelines, and for specialized topics.

5. THE CORE

A fascinating aspect of national accounting is that there are so many engrossing issues on which a stand must be taken: shall we retain this imputation, do we want that attribution, and so on. The great pitfall, however, is to enter this decision-making process without sufficiently specific guiding principles. In terms of Griliches' "*cri de coeur*": the wood should be designed properly before coming down to the trees. The preceding section introduced the basic notion of a core and modules but we still have to specify more precisely the principles of the development of the core (section 5.1.) before we can safely start to fill in some of the details (section 5.2.). In section 5.3. we disentangle from the details again and evaluate some features of the resulting core to conclude that the core is not a radical departure from the present SNA but rather the logical next step in the evolution of national accounting.

5.1. *Principles of the Core*

At least three principles of the core are implied by the discussion in the preceding sections. They can be designated as the "Intersection Principle," the "Parsimony Principle" and the "Consistency Principle."

Intersection Principle

The core is the point of departure for all conceivable systems of economic statistics. One way to achieve this would be to define it as the *intersection* of all systems, i.e. as the collection of all elements common to all systems, with the exclusion of all elements that are absent from the major alternative systems. Clearly, though, the common elements may be so few that a core defined this way might be virtually empty. Therefore, the intersection concept cannot be maintained in its unadulterated form. Instead, the intersection principle has a more limited meaning and consists of two parts:

- The core should contain as few special purpose elements as possible. Special purpose elements are revaluations, imputations, attributions, classifications, that are useful or necessary for one or two purposes but have to be removed for other major purposes or if important theoretical points of view are to be reflected.
- The core should contain the essential structural components that are the basis for the construction of the major alternative descriptions of the economy as a whole. Structural components are sector and subsector specifications, archetypical concepts, and so on.

The second part of the principle merits some elaboration. Currently, there are two sets of alternative descriptions of the economy as a whole. The *first*, more traditional, one is the *macro-economic* archetype. The core should, by the second part of the intersection principle, contain some archetypical form of a macro-economic statistical system; by the first part of the principle it should, as far as possible, be structured in such a way that the various alternative macro-systems can be obtained from it by adding information without having to remove anything.

At this point it should come as no surprise that we believe that the *second* major alternative archetype of the economy as a whole is the *meso-economic* one. This comes in various alternative forms, already mentioned before: Leontief–von Neuman models and the related neo-Ricardian models; neo-classical general equilibrium models; SAM-based planning and taxation models. Each requires its own specific statistical system. The essence of the second part of the intersection principle is that the core must contain an archetypical form of the meso-economic approach from which, by the first part of the principle, the alternative meso-systems can be derived by adding modules. Without this second basic ingredient the core would be a parochial, outdated construct instead of a cosmopolitan modern system.

Parsimony Principle

The present SNA bears the scars of many *ad hoc* decisions on the treatment of specific items and transactions. We have demonstrated in preceding sections that the system contains both functional and institutional elements. In many specific cases, compromise treatments were adopted, which went one way in one case and another way in another case. These compromises were made not only on the choices between an institutional approach and a functional one, but also on that between competing functional points of view. As a result, the system lacks consistency in this respect. This causes many of the problems of the present SNA that were discussed in preceding sections. If the core is to avoid this, it must be designed from a single basic point of view, instead of vacillating between different viewpoints like the present SNA. This means that functional treatments have to be avoided as far as possible. Functional treatments are treatments where attributions and imputations are used in order to impose the national accountants' analysis on reality. Instead, the core should, as far as possible, reflect the economic agents' perceptions of themselves and of their transactions. Its concepts should be free of the influence of hypotheses that are based on theoretical analysis instead of subjective experience; the core must be *parsimonious* in the use of

constructions that are intended to capture the reality behind the perceptions of economic agents. This is the parsimony principle.

Naturally, this principle cannot be applied absolutely. The perceptions of the two partners to a transaction may differ and it may not always be possible to reflect *both* perceptions in the core, for if the latter were to be attempted too liberally, system-wide consistency would have to be sacrificed, which would be incompatible with both the intersection principle as explained above and the consistency principle to be introduced below. Nevertheless, to adhere to the parsimony principle as well as possible yields considerable benefits. To mention the three most obvious:

- It will be easier for the core to serve as the coördinating framework for specialized statistical systems, since the latters' concepts tend to reflect fairly closely the subjective perceptions of the units they describe.
- Economic agents are not just subjects of the accounts, but are also respondents to the surveys on which these are based. Consequently, staying close to the agents' own concepts facilitates the integration of micro-data and the core. The same applies to construction of meso-systems.
- Economic science increasingly recognizes that, in modelling agents' reactions to changes in economic variables, attention should be paid to the way they obtain information on these variables. One example of this tendency is the greatly increased attention to the way expectations are formed.

Adoption of the parsimony principle has another important advantage. For most users of statistical information, the value of the data decreases proportionally with the effort required to understand them. Acquiring a minimal understanding of national accounts presently demands the close reading of a 10 to 20 page printed explanation. Further extensions of the accounts would actually *decrease* their value to many users if they necessitated still more elaborate explanation. Consequently, the value of the core as such is the higher, the more self-explanatory its data are. Clearly, the parsimony principle goes a long way towards achieving this: its application yields concepts that are in close harmony with the daily experience of non-sophisticated users; consequently, the core will be easier to explain than the present SNA.

In practice, application of the parsimony principle increases the *institutional content* of the core. The institutional approach emphasizes the way transactors and transactions are organized. The way the transactors are organized and the organizational form of their transactions is, to a large extent, the basic structure within which the daily experience of these transactors occurs. Thus, transactors' perceptions are, to a considerable degree, preconditioned by their institutional form and the institutional form of their transactions. Of course, there are exceptions to this. Agents, too, think and ascribe the same function to transactions with differing institutional forms. But by and large, adoption of agents' own subjective concepts requires an institutional approach to statistical systems design.

Consistency Principle

National accounts are now extremely widely used. The vast majority of users employ the data for quite general purposes: they need key indicators on economic

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performance, a point of reference to illustrate the relative magnitude of some activity, an authoritative statement of the structure of the economy, and so on. These users are not interested in the precise concepts underlying the accounts. In fact, they could work with various systems of national accounts. Thus, the core can satisfy their needs, *provided* it is a consistent, self-contained system of national accounts, just as the 1968 SNA is. This, then, is a major requirement that the core must satisfy. We can, for briefness, refer to it as the *consistency principle*: the core has to satisfy the usual properties of social accounting systems. Thus:

- The *concepts* of the core have to be at least as useful to the non-specialized, non-sophisticated user as those of present SNA.
- The core must satisfy the elementary consistency requirements: aggregates must be the consolidations of disaggregated core data; classifications must be exhaustive and unambiguous; principles of valuation specified; a proper accounting structure adopted; etc.
- The data in the core must represent a system-wide integration of the basic statistics, just as present SNA does.
- Proper attention must be paid to the *intertemporal comparability* of the most important indicators in the core.
- The core must have *internal cohesion.*

The last property requires some elaboration. Social accounting systems generally describe groups and subgroups of *processes* for groups and subgroups of *units.* However, to describe one group of processes adequately, a different grouping of units may frequently be necessary than is required for the description of another group of processes. Thus we may have one type of sectoring for one process (e.g. capital finance) and another for another process (e.g. production). Internal cohesion is then achieved by introducing at least one level of aggregation of (sub)groups of units where at least summary characteristics of all processes can be described. It seems safe to say that the internal cohesion is the stronger, the lower the levels of aggregation are at which all the major processes concerned are described jointly. To provide one example: the 1968 SNA by and large describes production at the industry level and capital finance at the level of institutional (sub)sectors. Only at a very high level of aggregation (i.e. economy wide) are the two processes summarized for the same set of units. Consequently, the SNA resembles two pillars, leaning against each other for support, but joined together only at the very top. The strength of the system would be greatly enhanced if more connections could be achieved between these two pillars. Incidentally, this would also increase the possibilities for joining these two processes with others and hence increase the flexibility of the system.

5.2. *Structure and a Sample of Details of the Core*

As a consequence of the consistency principle, there is a presumption against differences between the core and the 1968 SNA. Only those differences are to be accepted that are essential in view of the intersection and parsimony principles. Therefore, the natural way to develop the core is to start out from the 1968 SNA and reconsider its features bearing the intersection and parsimony principles in

mind. Examples of SNA features we retain are the use of a flow concept of income, limited by the production boundary, and registration of all transactions at the time they occur, not at the time of payment. As in these two cases, we usually shall omit the argumentation if we simply retain the treatment of the present SNA. As to the description of the core, we shall first consider its basic features and next discuss a number of details.

Types of Accounts and Tables

Like the 1968 SNA, the core must describe the economy as a whole in an integrated, systematic and consistent way. It must be a self-sufficient system. Consequently the core contains:
   (i) a production, income, capital and external account for the nation;
   (ii) production, income and outlay, and capital finance and accumulation accounts for the institutional sectors.

The introduction of production accounts for the institutional sectors is a departure from the 1968 SNA, which is already accepted in the European System of Accounts. It is useful in view of the intersection principle. For many purposes analysis of the production of the institutional sectors is valuable, whereas inclusion of production accounts for institutional sectors does not hurt the system's usefulness for any other purpose. Another argument for their inclusion was already touched upon in section 5.1: the inclusion of production accounts for institutional sectors will considerably strengthen the *cohesion* of the system. Below we will return to this argument.

The two sets of accounts indicated above are the first, macro-economic, component of the core. But, as argued above, the system must also contain a strong meso-economic component if it is to satisfy the interaction principle. This requires the inclusion of two essential ingredients, both to be discussed in some detail below:
   (i) input–output tables for industries and commodities;
   (ii) institutional sector accounts disaggregated into appropriate subsector accounts.

Sectoring

The parsimony principle requires that units be grouped into (sub)sectors in accordance with their own perceptions. The dual sectoring principle of the 1968 SNA admirably satisfies this requirement. On the one hand, the processes of income distribution and outlays, and capital finance and accumulation, are decided upon by larger units, *viz.* enterprises, than the process of production which is mainly decided upon in establishment-type units. Hence it stands to reason to suppose that the variables on the income and capital accounts are most likely to correspond with the perceptions of enterprise-type units; and those on the production accounts with the perceptions of establishment-type units. Consequently, a sectoring of both types of units according to their characteristics with respect to their respective central processes is most likely to be recognizable to the units themselves. Put differently: enterprises, households, and government should be (sub)sectored in such a way that maximum within-subsector homogeneity is achieved regarding behaviour with respect to income distribution

and outlay and capital finance and accumulation; whereas, on the other hand, production units should be (sub)sectored in such a way that maximum homogeneity is obtained with respect to the characteristics of the production process.

The latter is already done by the 1968 SNA. Thus, the basic treatment can be retained in the core. However, the treatment of the 1968 SNA is less than satisfactory in view of the intersection and consistency principles. The internal cohesion of the system is not as strong as it could be, and the linkages between production on the one hand and the income and outlay, capital finance, and accumulation processes on the other, are not given at a level of disaggregation that is sufficient if the core is to serve as the basis of a full-fledged meso-economic system. Therefore we propose to improve the linkage in three ways, in addition to the introduction of production accounts for institutional sectors already discussed above.

    (i) To abandon the special treatment of departmental enterprises in the production accounts. If these are included in the industry "producers of government services" the latter would coincide with the institutional sector of government.

    (ii) To add a breakdown of value added, its major components and total production of each industry according to institutional (sub)sector.

    (iii) To add an appropriate subsectoring of the institutional sectors.

The second proposal requires the classification of data on output and value added of each industry by institutional subsectors. In an era of computerized registers of establishments, enterprises and enterprise-groups it is possible to provide each establishment-type unit with other labels than just the one indicating its economic activity. Thus, another label could be the institutional (sub)sector code of the enterprise or enterprise-group to which the establishment belongs. This way the desired cross-classification of production data by institutional (sub)sector could be achieved.

Perhaps even more important is to provide for an adequate subsectoring of institutional sectors. Consider the non-financial enterprises. This sector could be divided into two subsectors. The *first* would contain only enterprises that consist of just one establishment-type unit, the *second* of enterprises that comprise more than one establishment. The first subsector could then be subdivided according to industry and a full-fledged integrated analysis of production, income distribution and outlay, capital finance and accumulation by industry could thus be provided. In the core a further subdivision of the second subsector into, e.g., multinationals and non-multinationals is conceivable in order to improve linkage with external accounts. But a breakdown of this second subsector by the major economic activity of the enterprises, as proposed in section 5.59 of the 1968 SNA, is definitely *not* an element of the core; it violates the intersection principle because it is typically a special purpose element; therefore it might be an interesting module but does not belong in the core. This is the more true because it does not improve the internal cohesion of the system as there will be a discrepancy between the standard production accounts by industry and the breakdown of the institutional sector production account by industry. Finally, it would violate the parsimony principle since it is hardly likely that, e.g., a

multi-product multinational perceives itself to be essentially a single economic activity enterprise.

The cohesion of the system can, similarly, be raised by an adequate subsectoring of the household sector. Thus, introducing a subsector of private unincorporated (not quasi-corporate) non-financial enterprises would yield the same benefits as that of the first subsector of non-financial enterprises introduced above. This subsector, too, could be subdivided by economic activity. Furthermore, the household sector should be broken down into a number of subsectors that are homogeneous with respect to "institutional" characteristics. An example of such a breakdown would be subsectors of government employees, non-government employees, unemployed, or aged, or, alternatively, by *per capita* income. These breakdowns, however, require further consideration: there are problems such as the classification of households with more than one income earner, and so on. Yet it is important to introduce a subsectoring in the core as this is an essential element in meso-economic systems building; it goes without saying that these subsectors should be fully integrated in the system. Thus, e.g., the system should provide a breakdown of the destination of commodities by the subsectors of the household sector.

A final element of the sectoring of the system requiring consideration is that of the standard production accounts. We already emphasized the need for input–output tables for industries and commodities and applauded the SNA principle of classifying *establishment-type units* into industries. Clearly, the parsimony principle requires that the input-output tables in the core are of the industry × commodity and commodity × industry type, just as in the 1968 SNA. All other types of input–output tables are analytical rather than parsimonious. These commodity × commodity and industry × industry tables are derivatives, obtained by introducing hypotheses and analytical devices. Though, e.g., commodity × commodity tables are extremely useful as modules the core should firmly adhere to the rule that establishment-type units are not to be broken down into processes, commodities, and so on, but are to be treated as a whole. Of course, inclusion of input–output tables in the core poses considerable practical problems for many countries. Construction of reliable annual input-output tables is tantamount to employing the full-blown commodity flow method in compiling national accounts. Though this method has been recognized (cf. e.g. Studenski; 1958) as the most reliable method of compilation, it is also the most laborious one. As a consequence, it is employed by only a few countries. However, the core is a conceptual system, and not just the most elaborate system that can still be constructed by a majority of countries. Therefore input–output tables must be included in the core, as they are essential from a conceptual point of view.

The Production Boundary

The intersection and parsimony principles unequivocally demand a narrower production boundary than employed by the present SNA, namely a production boundary which includes only productive activity that leads to a monetary remuneration of the production factors involved. This way (neglecting Marxist analysis) no "productive" activities have to be removed from the core for any major purpose. As the data base for monetary analysis the core as such would

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suffice; for Keynesian and neo-classical analysis it is probably adequate as well, though possibly some activities might be added (but none removed); for other analyses more activities should be added but, again, none removed. This strict production boundary is also parsimonious: it is easily understood by laymen precisely because no sophisticated monetization is necessary of flows that do not lead to monetary remuneration. Moreover, linkage with micro-data bases is considerably simplified.

The proposed production boundary excludes from the present SNA some items of imputed production for own use, particularly products produced for own use by professionals, primary production and processing of primary production for own use and owner-occupied housing. As indicated in section 2.2, one major argument for including them is international comparability; another one is intertemporal comparability. But we already concluded that including these items achieves comparability only from one particular functional point of view and diminishes it from another. Moreover, they are completely insufficient to achieve the desired type of functional comparability. Hence these imputations are special purpose elements and violate the intersection principle from this point of view too. They should be excluded from the core and included in modules only.

Origin and Destination of Flows

The parsimony principle requires that flows be recorded as far as possible between the transactors who directly experience them and that reroutings be avoided wherever feasible. This principle has implications for the delineation of intermediate and final expenditure and for a number of issues regarding attributions made in the present SNA.

As to the first point, the definition of intermediate consumption must necessarily start with the identification of the producers in the economy. Given the production boundary described above, these are the same groups of agents as in the present SNA. Given this point of departure, the most parsimonious definition of intermediate consumption is: all output of non-investment goods and services paid for by producers. All other output is then recorded as final expenditure. This approach implies some deviations from the present SNA. Benefits in kind supplied to employees are not recorded as final consumption of households, but as intermediate consumption of producers. This probably coincides with the perception of most producers. It may not harmonize with the perception of employees, particularly if the benefits are taxable; however, to record them as though they were completely similar to other outlays does not correspond with households' subjective experience either since they are not outlays paid from freely disposable income. Anyway, specialized modules might be constructed by applying a functional cross-classification to intermediate consumption in order to arrive at the total consumption of the population. But this treatment should not be included in the core as it violates the parsimony principle, and is not required by either the intersection or consistency principle. The core should record consumption of the payees; modules may attempt to record it at the much more functional (and hence more debatable) categories of "consumers."

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The present SNA knows several other *attributions* of flows paid for by one sector for the benefit of another sector. One example is employers' contributions to social security (attributed to households). This example clearly violates the parsimony principle; moreover, it is not of general analytic value. So in the core this attribution should be dropped. A related issue is employees' contribution to social security that is not paid to the employees first but directly to the social security funds; similarly, frequently wage-related income taxes are paid directly by the employer to the government. The distinction between these flows and formal employers' contributions is that employees are informed of them; however, their subjective experience of these flows differs considerably from that of other income components since they themselves cannot dispose of this income component at any time. Hence it is preferable to record these flows in accordance with the way the payments are made, i.e. as a transaction between e.g. enterprises on the one hand and social security funds and general government on the other. By recording them as separate items on the accounts, reclassifications can always be made in a module.

Another example of an attribution in present SNA is payments of insurance companies to medical service (attributed to households). This case is more difficult than that of social security contributions. If the insurance company pays the household which, in turn, pays the medical service there is no problem with the present SNA; no attribution either, for that matter. But if the insurance company pays the medical service directly, the parsimony principle suggests the recording of a direct transaction between the insurance company and the medical service. Though this creates some difficult borderline cases, there seems to be no overriding reason not to follow the parsimonious approach in this case. One might argue that the core would, given this treatment, not adequately reflect households' consumption of medical services. But it would adequately reflect households *expenditure* on them, i.e. insurance premiums plus direct expenditure less reimbursements. Thus, elimination of the attribution is again a step in the direction of a core based on consumption by the payees. Naturally, the same treatment should be followed in the input–output tables of the core.

Some Special Issues

The discussion so far sketched the outline of the core and illuminated this with some specific details. It seems useful to illustrate the principles of the core still a bit more by considering a few special issues.

One famous problem of national accounting is the treatment of the banking imputation: the margin between interest received and interest paid by banks. One approach (favoured by Sunga, 1984) would be to register all interest flows just as they occur, at the transactors between whom they occur. This could be defended if interest could be considered a payment for a non-factor service, just as rents are a payment for housing services. This, however, conflicts with the parsimony principle, since all enterprises, except for banks, regard it as payment for a factor service (or as a negative property income). Consequently, this treatment should not be adopted in the core. A second approach would be to drop the imputation altogether. This, however, would violate the parsimony principle: in the perception of the banks the margin between interest received and interest paid

is a return for the services they render. Thus the banking inputation should be retained.

This, however, raises the problem whether the services of banks that are represented by the imputation are a final or (as the SNA treats it) an intermediate service. The parsimony principle implies the former: since non-financial enterprises do not consider interest to be a non-factor service, the banking service represented by the imputation cannot be an intermediate service either. To treat the banking imputation as final expenditure is completely consistent with the treatment of other unmarketed costs for the economy as a whole. There is a good analogy between the banking imputation and, e.g. the maintenance of public roads (final output), since both are connected with unmarketed services.

Another special issue is whether or not to adopt the proposed new treatment of financial leasing, discussed in section 3. This treatment should *not* be adopted in the core as it is a clear violation of the parsimony principle without any benefits in regard to the intersection and consistency principles.

Another example of an imputation that should *not* be adopted in the core concerns the interest on life insurance and pension fund reserves. The present SNA imputes this interest to the household sector, as an addition to household saving. This imputation clearly violates the parsimony principle as is illustrated by the fact that many users remove the imputation before analysing data on the household sector. Naturally, the imputation might be included in a special module.

Still another special issue, mentioned in section 3.2, is the treatment of estate and inheritance taxes. The parsimony principle would require them to be recorded as outgoings on households' capital account and as incomings on governments' current account. Thus this principle should be followed unless the two other principles are opposed to it. This does not seem to be the case. The treatment would yield income and accumulation concepts that harmonize with sectors' subjective perceptions and consequently are useful for the connection with other statistical systems, e.g. the IMF's Government Finance Statistics. The consistency principle is not violated. It might be violated if the rule were to be adhered to that saving and income of the nation have to be the sum of, respectively, sectoral savings and sectoral incomes. This, however, does not seem to be an essential feature of a system of national accounts. In defining national disposable income we might, without any consistency problems, define it as the sum of sectoral disposable incomes minus net capital transfers between residents. This way, national disposable income would not be influenced by the proposed registration of estate and inheritance taxes, and neither would national saving.

A final special issue to be discussed is the consumption of fixed capital. This item is defined in the present SNA in terms of the current price level and the true economic life of the fixed assets concerned. This yields a concept which differs from the concepts of producers; in addition, there are many countries where producers' own concept varies widely. This violation of the parsimony principle results from the fact that the consumption of fixed capital is not directly connected with a transaction. It is an obviously functional element in the SNA which, strictly speaking, does not belong in the core. Various alternative concepts of capital consumption should be developed in a valuable module. This is the more desirable because depreciation based on current costs must be considered

as an inconsistency in the income concept of the present SNA as has been pointed out in Van der Laan and Van Tuinen (1985).

Of course we might devote many more pages to many more special issues, e.g. that of reinvested earnings of foreign-owned companies, discussed in section 3.2. However, the outline of the core and the application of its guiding principles would not be clarified further this way. Instead, it is now more useful to devote some attention to the properties of the core that emerge from the discussion so far.

5.3. *Properties of the Core*

The core is, due to the application of the consistency principle, a multi-purpose system describing the economy as a whole in an integrated and systematic fashion. The core describes the most restricted part of the economy for which it is still possible to establish all interrelations specified in advanced systems of social accounting; thus it is a canonical national accounting system. Its concepts are, due to the parsimony principle, as close as possible to those of the economic agents themselves and hence, too, to those of the respondents to the surveys on which its accounts and tables are based. As a consequence, the core is the system with the *maximum institutional content*. It is, in this sense, merely the logical next step in the evolution of the SNA, since conceptually a major difference between the 1968 SNA and the 1953 SNA was the increased institutional content.

In another respect, too, the core is simply the logical next step in the evolution of the SNA. The 1953 SNA was essentially a macro-economic system; the 1968 SNA took a giant stride in the direction of a meso-economic system by the inclusion of input–output tables. The core continues this process by adding disaggregated linkages between the institutional sectors' accounts and input-output tables and by a further subsectoring of the institutional sectors.

The choice of the production boundary in the core, which was dictated by the parsimony and intersection principles, implies that the core is restricted to flows which are directly connected with *market transactions*. A further implication of the outline of the core sketched in section 5.2 is a fairly strict application of the "*transactor–transaction principle.*" This principle could be described as the rule that transactions have to be recorded at the transactors who pay or receive the money involved in the transactions. These two properties of the core together imply that the core provides, basically, a description of the *monetary part* of the economic process. The tables and accounts of the core are, therefore, optimally suited for monetary analysis. This choice does not imply that we consider monetary or monetarist analysis the most important approaches to economic analysis; nor that we consider the monetary part of the economy to be the most important. Rather, the monetary part of the economy is the minimum part in which virtually all users are interested.

6. THE SYSTEM AS A WHOLE

6.1. *Examples of Modules*[1]

The *core*, as outlined in section 5, is the economic statistician's exercise in restraint. Wherever possible, the conceptions and perceptions of transactors have

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[1] In the original paper seven pages were devoted to an elaboration of a number of modules.

been accepted as they are and the transactions described as they appear; the temptations of superimposing the economic statistician's own views have been resisted. The *modules*, in contrast, are the analysts' backyard. Here alternative economic theories, national accountants' own views, purposes of special analysis may be drawn upon to obtain analytic descriptions of the economy or parts of it. Thus, whereas the core has maximum *institutional* content, modules transform the core data to *functional* systems.

The variety of conceivable modules is almost infinite. They may transform the whole system in order to take account of alternative points of view. To mention just two examples:
- a module may apply a ruthless *purpose classification*, based on the con- cover, e.g., not just the market transactions of the core but also the equivalent non-market transactions.
- a module may apply a ruthless *purposes classification*, based on the con- sumption by the consumer principle of the Pêtre proposals, to government and enterprise expenditure.

Modules may also provide detailed descriptions of specific processes. Some examples:
- an *input–output module*, describing the production process, would contain industry-by-industry and commodity-by-commodity tables in addition to the make and use matrices of the core.
- an *income distribution module* would disaggregate the household sector from various points of view, in addition to those of the core (e.g. age and household composition, level of education) and provide a detailed analysis of primary income, taxation, social security, benefits of government expen- diture.

Modules may also cover *special fields*, e.g. education, culture; these could be structured like the French satellite accounts. Another group of modules might be designed in order to incorporate alternative *concepts*; e.g. an inflation account- ing module may show the way sectoral incomes are altered if holding gains and losses on fixed claim financial assets are taken account of.

Other modules may analyse specific sectors. The IMF Government Finance and Balance of Payments Statistics may be regarded as examples of this type of module. Still another set of modules may analyse variables that are not directly related to transactions and financial flows and stocks, but are relevant to the economic process nevertheless. Examples are:
- a module on non-monetized production factors, such as fixed capital and its consumption, non-renewable natural resources, human capital.
- a module on non-financial sectoral balance sheet items that are important for the analysis of total wealth and its distribution.

6.2. *The Architecture of the Whole System*

The core is a complete, consistent, integrated system just like the present SNA. However, unlike the present SNA, it is not an attempt to meet *all* demands on national accounting. Instead, the core opts for a number of clearcut choices, e.g. with respect to the production boundary, consumption by the payee, and so

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on. Consequently, the core as such is insufficient to satisfy all major purposes of national accounts. This, in turn, implies that some of the modules are not optional: a number of modules should be a standard part of the system of national accounts, in addition to the core. This line of reasoning leads to a delineation of three classes of modules.

- *Mandatory modules.* These are mandatory in the sense that countries will be asked to produce them for international reporting purposes.
- *Recommended modules.* Modules in this class are to be agreed upon internationally, but countries need not (yet) commit themselves to their production. Once a country decides to tackle a given subject, the module serves a handbook function.
- *Experimental modules.* Modules in this class can be developed by individual countries or researchers; they are, as it were, the laboratory of national accountants.

What makes our system much more flexible than a monolithic system like the 1968 SNA can ever be is that the distribution of the modules over these three classes can be altered as the need arises. Once experimental modules have matured they can be moved up to the recommended class; recommended modules may become mandatory, whereas outdated mandatory modules may be removed. For the time being, there are two groups of mandatory modules. The *first* one consists of statistics on specialized fields which are to be habitually reported to world-wide international agencies. Thus the FAO statistics, IMF's Balance of Payments and Government Finance Statistics, ILO's Labour Statistics are mandatory modules of this type. The *second* group of mandatory modules is of a different kind. The core does not include a number of functional elements of the present SNA and some important proposals for new functional elements, because including them would contaminate the institutional nature of the core and harm its intersection function. However, these elements are so important for a number of purposes, e.g. continuity with the present SNA, that they should be included in the next "blue book" describing the SNA. Following the French convention, the latter might be called the "Central System." Thus the Central System of the next SNA should consist of both the core and a number of standard modules. For the time being two such standard modules seem sufficient:

(i) A module covering a number of non-market activities included in the present SNA but not in the core: own account housing, investment and primary production. The module would show the value added generated by them and their influence on national aggregates like GDP. This module would also contain data on consumption of fixed capital, and the "net" versions of the national aggregates.
(ii) An "attributions" module, containing not only the major attributions of present SNA, like those for life insurance and pension funds, but also a number of those implied by the Pêtre proposals.

The central system obtained thus as a combination of the core and two standard modules is fully equivalent to the present SNA, the latter amended to incorporate Pêtre-type elements. At the same time, it has the enormous advantage of containing the strongly institutional core, thus allowing for easy linkage with micro-data concepts, many other statistical systems, and so on. Of course, the

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standard modules proposed here are not very elegant. They bridge the gap between the (amended) present SNA and the core; consequently, they reflect the fact that the SNA contains a rather disorderly collection of functional elements: either too little or too much from any coherent point of view. Thus they only very incompletely satisfy the need for international comparability and intertemporal consistency. Instead, modules would be preferable, like those listed in section 6.1., that serve a useful analytic purpose of their own, analyse specific fields, processes, transactions, or transactors and achieve a much greater international comparability than will ever by possible by means of compromises like those in the 1968 SNA. Once a sufficient number of these modules have been developed, the two standard modules mimicking the 1968 SNA in the central system become superfluous.

7. THE FLEXIBILITY OF THE SYSTEM

The SNA is a multi-purpose system, faced with ever increasing conflicting demands. These cannot be satisfactorily met by a monolithic system like the 1968 SNA. Instead, we propose to define a general purpose core and arrange around it special purpose modules. Some of these will be mandatory for international reporting purposes.

The core is developed on the basis of three principles. Two of them, the parsimony principle ("remain close to the perceptions of the economic agents") and the intersection principle ("avoid special purpose elements but include all general purpose ones") create a limited number of deviations from the present SNA, particularly in the direction of a higher institutional content and a more integrated meso-economic description. These deviations are the natural next steps in the evolution of the SNA: the 1968 SNA deviated in the same directions from the more "functional" and macro-economic 1953 SNA. Continuity between the new system and the 1968 SNA is provided by two (mandatory) standard modules that, together with the core, constitute the central system to be described in the next "blue book."

An important feature of the core is that it may be expected that future changes in the economic process will require fewer adjustments of the core than would be necessary in a more functionally oriented monolithic system. This is a consequence of the fact that—as we demonstrated by examining a number of proposals for revision of the SNA—changing institutional arrangements require revisions only if one adopts functional elements in the SNA. Similarly, novel functions carried out by existing institutional arrangements only necessitate revisions if a functional approach is adopted. Hence, defining a core with a high institutional content diminishes the need for revisions.

Future revisions of the SNA will, as a consequence, be easier to carry out if the approach proposed here is adopted. There will be no need for a single, overall, revision every 15 or 20 years. Instead, the central system can be revised simply by altering, replacing or adding standard modules to it, leaving the core intact. This, then, is the great advantage of our approach compared with proposals to leave the present SNA as it stands and just make explicit, in supplementary tables, the functional elements, like non-market imputations, attributions, and

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so on. With that approach, changes still necessitate revision of the whole system, adjustment of supplementary systems, satellite systems, specialized statistical systems and the like. Because in our proposal the core is much more durable and changes are concentrated in modules, revisions do not alter the linkage between the core and the other modules. Hence, changes can be implemented as soon as they are agreed upon and future revisions need not be such laborious processes of further classification, elaboration, extension, and reconsideration as the current one.

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