Standard national accounting concepts, economic theory and data compilation issues; on constancy and change in the UN-Manuals on national accounting (1947, 1953, 1968, 1993)

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On constancy and change in the United Nations-Manuals on National Accounting (1947, 1953, 1968 and 1993).

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Abstract

In this paper, the four successive guidelines of the United Nations on national accounting are discussed in view of economic theory (Keynesian analysis, welfare, Hicksian income, input-output analysis, etc.) and data compilation issues (e.g. the link with concepts in administrative data sources). The new guidelines of the EC should complement those of the UN and be simpler and more cost-efficient. It should define a balanced set of operational concepts and tables which is attainable for most EC countries within 5 years. Furthermore, for international flows, a distinction should be made between those between EC-countries and those with non-EC countries.

Contents

1. Introduction

In 1947, the United Nations published the report "Measurement of national income and the construction of social accounts" (UN, 1947). The report was a landmark in the history of national accounting for two reasons. First, it contained the first fully elaborated and detailed national accounting system. Secondly, it contained for the first time international recommendations on compiling national accounts.

Since that time, several international guidelines on national accounting have been published. In order to help planning the Marshall-aid, the OEEC developed a "Standardised System of National Accounts", which was published in 1952 (OEEC, i.e. the forerunner of the OECD, 1952). In the next year, rather similar guidelines were published by the United Nations; it is commonly known as 'the first SNA' (System of National Accounts) (UN, 1953). The similarity was not surprising, as Stone played a major role in constructing both guidelines. The OEEC guidelines and the first SNA can be dubbed as the second generation of international guidelines on national accounting.

The third generation started by the publication of a new SNA in 1968 (UN, 1968). In revising the SNA, Stone again played a central role. In 1970, the EC issued their own guidelines: the European System of National Accounts (ESA) (Eurostat, 1970). Its basic concepts are rather similar to the second SNA. The ESA is intended to be in line with the UN guidelines, while clarifying some of the SNA-concepts and taking more explicit account of the needs of the EC-countries.

At present, a new revision of the SNA and the ESA is under way. This fourth generation of international guidelines is expected to be approved in 1993.

Since their first appearance, the international guidelines have been of great practical importance to national accounting because of their function as pedagogical instrument and international standard for harmonizing the national accounting concepts employed throughout the world.

Their role as a pedagogical instrument was crucial in spreading the idea of national accounting. The guidelines made clear why national accounts figures should be compiled, explained the basic logic of national accounting and provided a clear example of how a national statistical system could be set up. Furthermore, they employed concepts on which consensus was reached by leading international experts.

The international organizations played a major role in spreading the use of the conventions adopted in the international guidelines. They stimulated their use by providing free statistical help and advice. And they enforced the concepts by obliging member countries to submit figures following these concepts and by employing these figures also in taxing and subsidizing their member countries.

A major purpose of the international guidelines was to improve the international comparability of national accounts figures by providing standard concepts and classifications. This is clearly expressed in the 1947 report "The Sub-Committee hopes that the guiding principles and recommendations formulated ... will be applied to the widest possible extent in each country in the computation of national income and related accounts in order to secure greater international comparability than in the past" (UN, 1947, Preface).

In 1984, Richard Stone was awarded the Nobel-prize to a main extent for his role as principal architect of the international guidelines on national accounting. In this way, also the importance of the international guidelines to economic science was acknowledged.

In this paper, the four successive guidelines on national accounting by the United Nations are described and compared. A special focus is put on the relationship with concepts in economic theory and data compilation issues. The relationship with economic theory involves issues like: how Keynesian or welfare-oriented are the successive guidelines? or: is attention paid to human capital and micro-macro links? Examples of data compilation issues are the relationship with concepts in business accounts and customs data or the estimation of the value of unpaid household services or the services of owner-occupied dwellings.

It should be realized that in devising a standard system of national accounts, compromises are unavoidable. It is impossible to meet simultaneously the wide-ranging data needs and possibilities all over the world (see Bos, 1989a). In this paper, we try to reveal the compromises, priorities and internal logic by discussing the constancy and change in view of economic theory and data compilation issues.

This paper does not pay attention to the historical context of the international guidelines. For this aspect of the guidelines, we refer to Bos (1992b).

In section 2, the scope, global content and purposes of the guidelines are discussed. In sections 3-10, the three reports are compared for specific issues, like the production boundary and the asset boundary. Most issues are dealth wit in a section containing two subsections. The subsections Description shortly summarize the basic concepts enhanced by the Manuals. The subsections Discussion subsequently discuss the logic behind the choices made in the reports. Conclusions are drawn in sections 11 and 12. Section 11 provides an overview of the major differences and similarities in the guidelines. The relationship between the standard national accounting concepts and economic theory and data compilation issues is summarized in section 12.

2. Scope and global content

2.1 Description

The reports have several differences in purpose, content, scope and amount of detail. We will limit ourselves in this section to some general remarks.

No simple chronological sequence can be found in the reports, e.g. that the successive reports grow bigger and only add subjects and detail. In fact, the report of 1953 is in most respects simpler and less ambitious than the 1947 report. It is also the smallest in size. However, if we disregard the 1953 report, there is clear trend of increasing scope and detail which culminates in the 1993 report.

In the 1947 report, relatively much attention is paid to the purposes and advantages of national accounting. In general it is stated that: "It is necessary to know in quantitative terms how the national income is related to its constituent transactions and to other totals of transactions. Thus modern enquiries which had their origin in an attempt to measure certain broad totals have changed their emphasis and now concentrate more on the structure of the constituent transactions and on the mutual interdependence of these transactions. It has come to be realized that for different purposes certain related but distinct aggregates are useful" (UN, 1947, p. 24). Thus, the computation of national aggregates is just one of the main concerns of the 1947 report.

In contrast to the 1947 report, the compilation of broad totals seems to be the only objective in the 1953 report; this is evidenced by the sector accounts: these should be registered in a very specific way in order to obtain national aggregates directly from the sector accounts (see section 5).

The 1968 and 1993 reports adopt an approach similar to the 1947 report. The 1968 report states that: "For many purposes of both analysis and policy, however, it is not sufficient to work with aggregates alone; it is also necessary to look at many aspects of the economy in greater detail. As a result, economic models are now built in which the main aggregates are subdivided, or disaggregated" (UN, 1968, para 1.10). In the 1993 report, in addition, also the multi-purpose character of the guidelines is stressed: "The System is primarily intended to provide disaggregated data to meet the needs of analysts and policy makers interested in the behaviour of markets and the factors responsible for major disequilibria such as inflation and unemployment. The design of the System and its coverage of economic activities has to be a compromise intended to yield the maximum benefits to users of all kinds and may not therefore be ideally suited for any purpose taken in isolation" (UN, 1992, Ch. I, p. 22).

Only in the 1993 report, the limitations of GDP and national income as measures of welfare are discussed. For example, "[a]ggregate indicators such as GDP do not reflect any changes in distribution [of wealth and income] that may be taking place over time, so that such indicators need to be supplemented by micro-data for purposes of analysing changes in welfare" (UN, 1992, Ch. I, p. 21). Similarly, "a natural disaster may well lead to an increase in GDP by creating extra demands, even though the community may be no better off than in the previous period if the loss of welfare caused by the disaster exceeds the increase in welfare from the extra production and consumption" (UN, 1992, Ch. I, p. 20).

In the 1947 and 1993 reports, concepts are quite extensively discussed. In general, both the 1947 and the 1993 report can be regarded as introductions into the logic and basic principles of national accounting. The 1953 and 1968 reports are better characterized as systematic enumerations of recommended booking conventions. In these reports, the considerations underlying the choice of concepts are discussed much more sparingly. A major motivation for revising the 1968 report was that "its manner of exposition makes it inaccessable to many users especially those new to the System of National Accounts" (Harrison, 1990, p. 336). So, in the 1993 report, "key concepts [are] defined by rationale and not by enumeration" (Harrison, 1990, p. 336).

A problem with the discussion of concepts in the 1947 report is that sometimes more than one alternative is proposed, for example in the case of the concept of residency. Only in the 1947 report, some advice is given on how to estimate the various items and aggregates.

The accounting systems recommended in the reports, contain flows for which the values can readily be observed as well as flows for which values have to be imputed (e.g. income in kind or imputed services of owner-occupied dwellings) (see also Gorter, 1988). The fundamental problems with such imputations are already noted in the 1947 report: "The items in the tables may be divided, from one point of view, into cash terms and imputed items, the former being those elements which reflect market transactions, and the latter being those for which a calculation has to be made in the absence of market transactions. In view of the difficulty of finding a commonly accepted basis for the second type of estimate it is desirable that, as far as possible, items of this kind should be shown separately" (UN, 1947, p. 18). In the 1993 report, the distinction between imputed items and other items is explicitly incorporated in its supplementary classifications.

In the 1947 report, guidelines on national accounting are regarded as a flexible instrument in achieving better and more comparable national accounts figures. According to the report, flexibility is required because national accounting conventions can not take account of all institutional differences in the world and all specific uses of national accounts figures. For example, it is clearly expressed that "in applying this [national accounting] system it will frequently be necessary to extend and adapt it to the particular circumstances of different countries" (UN, 1947, p. 18, para 11). Furthermore, "[e]xperience shows that unavoidable differences of opinion arise in the treatment of certain transactions due in large measure to institutional differences in different countries" (UN, 1947, p. 18, para 10). As a final case in point: "where income and expenditure components are used to work out behaviouristic or institutional coefficients such as the propensity to consume, the relation of imports to national income, etc., [it] may be argued that ... those definitions should be chosen which give rise to the simplest enduring regularities. Thus such questions as whether corporate taxes should or should not be included in national income may, if they cannot be settled on theoretical grounds, be decided by econometric analysis" (UN, 1947, p. 24). In the 1953 and 1968 reports, such remarks on the interaction between national accounting concepts on the one hand, and particular circumstances and uses on the other are absent.

The 1993 report returns to the philosopy of the 1947 report: "A prominent new feature of the revised SNA is that it emphasizes flexibility. The revised SNA includes a decription of how the central framework can be applied to policy and analytical requirements, data availability and other specific circumstances of different countries. Also, it describes how satellite accounts with alternative product and income concepts can be elaborated as an extension of the central framework" (UN, 1992, Annex changes from the 1968 SNA).

The national accounting system outlined in the 1947 report is "based essentially on the model of an advanced industrial economy in which transactions in money are dominant" (UN, 1947, p. 24). This contrasts with the approach in the later guidelines, which are also intended for countries in which barter transactions and own-account production play a more dominant role. In the 1968 report, there is even a separate chapter dedicated to supplementary classifications especially useful for the description and analysis of the economies of developing countries. The 1993 report intends to take care of the specific needs and data possibilities of developing countries (and countries in transition) by means of its flexible approach.

A novel feature of the 1968 report was that the national accounting system is explained on the basis of a matrix. This matrix presents an overview of the accounts and their main classifications.[1] It also integrates the input-output and supply and use tables with the sector accounts. Such an overall presentation of the system is absent in the 1947 and 1953 reports. In the 1993 report, the matrix is one of the

1. In fact, the matrix is more complete than the accounting system described in the remainder of the report: in the matrix, balance sheets and a revaluations Account are shown, but they are not at all discussed in the 1968 report.

alternative types of presenting national accounts (balancing statements, diagrammatic presentation, equations and matrix). The matrix plays of course the central role in the 1993 chapter on Social Accounting Matrices.

In the 1947 and 1953 reports no attention is paid to the registration of balance sheets, make and use-tables, input-output tables and figures in constant prices; these are all discussed for the first time in the 1968 report. Residency, the time of recording and the principles of valuation of transactions are only discussed in very general terms in 1947; the 1953 report contains a somewhat more elaborate treatment of these topics, but detailed recommendations are only presented in the 1968 report. The 1968 report pays only lip-service to the balance sheets and their link to the flow accounts. In fact, the 1993 report is the first report to discuss balance sheets and other changes in assets accounts.

Only in the 1993 report, attention is paid to the concepts of employment and unemployment. In its basic system, the focus is only on employment in terms of jobs, hours-worked and full-time equivalents (UN, 1992, Ch. XVII). However, employed persons and unemployment are also incorporated in the SAM framework presented in the report (UN, 1992, Ch. XX).

2.2 Discussion

The absence of balance sheets in the 1947, 1953 and 1968 reports limits the usefulness of the national accounts for various types of applied economic analysis. To name a few: growth accounting and productivity analysis, testing portfolio theories, estimating vintage models and - more in general- the analysis of intertemporal decisions on investment, saving and consumption (see also Goldsmith, 1985, pp. 65, 66). The absence of balance sheets is somewhat surprising from a historical point of view, as several of the early estimates of national income were accompanied by estimates of national wealth, e.g. those of Petty and King (see Bos, 1992a). In the Netherlands, the important estimates of

1938 were also accompanied by a presentation of balance sheets (see Den Bakker, 1992).

The inclusion of input-output and make- and use-tables in the 1968 report served not only analytical purposes, but was also very important from a statistical point of view. Such tables are used by a rapidly increasing number of countries as the framework for integrating national accounts data and checking the consistency of their data sources and estimates.

The neglect of employment and unemployment in all reports but the 1993 report, implies that the national accounts presented a description of a national economy excluding one of the most important policy targets. Another drawback is that labour is a crucial variable which can hardly be ignored in describing production. For statistical reasons, this neglect is also strange. As part of the statistical process, preliminary estimates on variables like compensation of employees, intermediate consumption and value of production are often related to volume of labour figures as a check on the plausibility of these estimates. In the absence of separate data sources on variables for some enterprises (e.g. the small ones), such ratios may even be the main basis of estimation. Recommendation of a definition of employment consistent with definition of e.g. compensation of employees is therefore of foremost importance to the quality of national accounting figures.

3. Production boundary

3.1 Description

In the reports, the definition of the production boundary is linked to transactions in money: in general, only the generation of goods and services which are exchanged for money is to be accounted for as production. However, the production boundaries are enlarged by four major exceptions to this rule:

- Types of production that are not paid for separately at market prices:
  * production of government services;
  * banking services not explicitly charged for;
  * services by pension funds;
  * services by life and casualty insurance companies;
  * services of non-profit institutions.

  (A more extensive discussion of indirectly financed production can be found in section 4)
- Own-account production of capital goods;
- Imputed services of owner-occupied dwellings;
- Output used for compensation of employees.

The 1953 and 1968 reports have extended the production boundary even further. In the 1953 report, own account production by primary producers, that is those engaged in agriculture, forestry, hunting, fishing, mining and quarrying, is included (UN, 1953, para 30). The 1968 report draws an even wider production boundary by encompassing all production of primary products plus the processing by the producers of primary products. Examples of such processing are making butter, cheese, flour, wine, oil, cloth and furniture (UN, 1968, para 6.19). The production boundary in the 1993 report differs in some respects from the one in the 1968 report:

- "With regard to own-account production of goods by households, the revised SNA has removed the 1968 limitations which excluded
  [*] the production of goods not made from primary products,
  [*] the processing of primary products by those who do not produce them,
  [*] and the production of other goods by households who do not sell

any part of them on the market" (UN, 1992, Annex on Changes, p. 9).
- "The storage of agricultural goods produced by households is included ... as is supply of water (water carrying)" (UN, 1992, Annex on changes, p. 9).
- "The revised SNA includes in gross output literary artistic works (i.e., the writing of books, composing music, etc.) which are produced for sale" (UN, 1992, Annex on changes, p. 18).

Despite these differences, the production boundaries in the successive guidelines correspond in many important respects: they all include the services of owner-occupied dwellings and they all exclude unpaid household services, do-it-yourself activities, voluntary work and the services of consumer durables. These types of production are ignored despite the existence of paid counterparts that are counted as production.

The services of labour, financial capital and land are often also exchanged for money. Nevertheless, in none of the three reports such services are regarded as being 'produced'. For example, payments of wages, interest and dividends are not registered as payments for output by households or enterprises.

3.2 Discussion

In delineating the production boundaries, all reports start from a concept of production for markets where it will be exchanged for money. This is not surprising in view of the clear merits of this starting point in terms of relevance and measurability.

Explaining and discussing the recommended extensions to this 'market production boundary' is more difficult, because for each extension arguments pro as well as contra can be found. The force of these arguments depends on the specific purpose and national circumstances in mind. The accounting system recommended in the guidelines are necessarily compromises between the needs of widely varying specific purposes and national circumstances. Our discussion therefore mainly serves to grasp the logic and merits of these compromises.

An explicit motivation of the production boundary chosen can also be found in the 1993 report (UN, 1992, Ch. VI). In the 1947 report, it is stated in general that "We are not unmindful of the need for certain additional information in connexion with some uses of the system, but we think that most of the practical uses are best served in the present state of knowledge by avoiding as far as possible those types of estimate for which the operational basis of calculation is obscure (UN, 1947, p. 8, para 4).

We will first present general arguments pro and contra inclusion of non-market production and then continue by discussing the actually recommended in- and exclusions of non-market production.

As general arguments <u>contra</u> inclusion of some type of non-market production can be mentioned:
- The nature of non-market production is fundamentally different from market production. Some goods and services are produced for the market and others are not, because of differences in transactions costs (Coase, 1937) or due to differences in motives (e.g. in providing government health care services and private health care services).
- The standard National Accounts are a description expressed in monetary units and it is therefore not the most appropriate framework for an analysis of various types of non-market production. For example, household production should be described in terms of time use and not in monetary terms (cf. Kazemier and Exel, 1992 or Pyatt, 1991).
- A limited but precise concept may be preferred over an all encompassing but hardly measurable one. Imputations on the basis of rather unreliable shadowprices/opportunity costs could make it impossible to make reliable statements about changes in overall product and income. This would severely invalidate the usefulness of compiling figures on product and income at all. In this respect, each extension of the production boundary diminishes the information content of national

accounting figures.

- Imputing on the basis of market prices implies that only first-order effects are taken into account. If such 'market prices' actually had been charged, the activity might not have taken place, and the economy as a whole would have looked very differently.
- Aiming at a better link with 'welfare' is like searching for the Holy Grail: the link will always be incomplete (due to the existence of consumer surplusses, problems of additivity of individual welfare, etc.) and an infinite number of quantitatively important extensions can be suggested (distributional issues and all kinds of external effects).
- The production boundary is part of a system of national accounting concepts. For reasons of consistency, extending the production boundary with non-market production bears also consequences for the other concepts in the system. These consequences may affect the usefulness of the other concepts and the overall usefulness of the national accounting system. A concrete example pertains to unpaid household services. Recording unpaid household services as production would necessitate that the concept of employment includes the provision of these services. Similarly, household income would include imputed income from unpaid household services. These concepts of employment and household income diverge substantially from those that are actually used in employment and tax policies of governments. They also do not seem potentially useful for such purposes. For example, should households be taxed on their imputed income on unpaid household services or should they pay social insurance premiums on this type of employment? This would really turn the world upside-down. So, extending the production boundary with unpaid household services[2] clearly limits the usefulness of national accounts figures for some specific purposes.

As important general arguments pro including some type of non-

2. For different items of non-market production, the consequences are different. In some cases, extending the production boundary may even result in concepts that are better tuned to the concepts employed in the national government policies. For example, taxable household income may include own-account production of primary products. On the interaction between the choice of the production and asset boundaries, we refer to section 6.2.

market production, we can think of:

- Some items of non-market production may be relevant for economic analysis or economic policy. Indeed, non-market production is different in nature from market production, but in some cases ignoring would be a greater mistake than disregarding this difference in nature. This extension of the production boundary is also quantitatively very important in supplying some crucial type of goods and services (e.g. food and shelter). Not including some types of non-market production would result in a hardly relevant production boundary.
- The usefulness of national accounting figures depends to a great extent on their comparability over time and between countries. National accounting figures should be fairly independent of differences in institutional arrangements and the specific scope of markets at a certain period or country. Inclusion of some items of non-market production may therefore arise in attaining better international comparability.
- There is a large amount of (potential) substitution between some items of non-market production and its marketed counterparts. In that case, using market values to estimate non-marketed output may result in relatively reliable figures on non-market output. Overall reliability of national accounting figures is therefore not (or hardly) affected by the extension.
- There is not much substitution between some items of non-market production and its marketed counterparts. However, the difference in nature between non-market and market production is reflected by the choice of a different principle of valuation: non-market production at costs and market production at market prices. The costs of this type of non-market production can be assessed in a relatively reliable way. The extension will therefore not affect overall reliability of national accounting figures.

The extensions actually recommended in the reports can best be understood by the wish to increase the <u>relevancy</u> of the national accounting figures, while at the same time keeping the reliability of the national accounting figures within reasonable bounds. Some extensions are nearly indispensable in this regard. Ignoring government production for example would imply ignoring the concept of collective goods and services. In that case, one of the main reasons for levying taxes would be overlooked. In addition, the government is an important employer (comparable in most respects to employers in the market sector). Consequently, government production should be included in order to link production and employment. In developing countries, monetary exchanges are less widespread and disregarding own account production of basic food stuffs would imply e.g. that the means of subsistence of large groups of the population would be ignored. The relevance for economic analysis and economic policy of the production boundary and the resulting national accounting figures would then be seriously impaired.

For the purpose of <u>welfare</u>-oriented types of economic analysis, a much more extensive concept of production in the national accounts has often been advocated. This has resulted in the extended product and income accounts as presented by e.g. Eisner (1988). The authors of the successive guidelines never intended to devise a welfare-oriented accounting system as it conflicted with other uses of the national accounts (see Bos, 1992a, p. 23).

A basic <u>distinction</u> in all four reports is that <u>between purchases of goods and services</u> and <u>payments to 'factors of production'</u>. Only in the 1947 report, the reasons for this distinction are spelt out. A quotation of this passage seems useful: "Payments to employees on operating account are normally regarded as payments to factors of production and the value of this work is regarded as part of the net product of the branch of activity by which they are paid. Such payments are not regarded as payments to enterprises", "mainly because of the practical impossibility of deciding how much of what individuals buy is a cost of their work and how much represents enjoyment or the cost of merely staying alive" (UN, 1947, pp. 56, 43).

"[I]nterest on loans is usually [also] regarded as a payment to a factor of production and not the purchase of a service from an enterprise. Setting aside for the moment borrowing from financial intermediaries, it is recognized that operating costs are involved in obtaining interest just as they are in obtaining wages and salaries, but they are either neglected as unimportant or an attempt is made so to define the consideration in these cases that the payment is relatively pure, and the payments can be regarded as part of the net product or income generated in the branch of activity which makes them" (UN, 1947, 56).

For non-financial enterprises all four reports recommend to regard dividends and interest received not as revenues of their "normal" business, but to exclude it from their value of production. In none of the reports the notion is accepted that payments for the use of money, like dividends and interest payments, are payments for the provision of a service (product). Use of money could be regarded as the use of other property, like dwellings, fixed assets and consumer durables. Enterprises, governments and households are prepared to pay for the use of money, probably because lending money makes it possible to change at will the time and amount of investment and consumption. Furthermore, purchasing power now is in general preferred to purchasing power in the future. This also explains that interest should be paid for lending money. The willingness to pay evidences that the use of money is a service just like the use of other kinds of property. The main reason behind the conventions[3] is that if payments for the use of money are to be recorded as payments for a service, the classical division between the production process and the financing of the production process would collapse. If payments for the use of money are recorded as payments for a service, the GDP increases by amount of the final consumption expenditure (of the government and households) on the use of money. Of course, this would be nothing more than the consequence of regarding use of money as a commodity.

With respect to the treatment of rents, the 1947 report again deserves to be quoted:
"While interest payments seem most conveniently regarded as payment to factors of production, rentals are better handled as purchases of

3. Another reason is that the interest payments are also not regarded as payments for services in the business accounts.

services. [R]ents cannot be made to appear as a separate factor share without resort to cost-accounting methods ... This is probably not of much importance since in the factor share -rent- only land and similar natural resources should be included and then only at their unimproved value so that, from a practical point of view, it is hardly to be expected that a clear distinction can be drawn. So-called rents-i.e., the net return on land and buildings- will appear partly in the operating profits of firms owning their own land and buildings, partly in the operating profits of real estate companies and partly in the operating profit of individual landlords. Only the last can be termed net rent even in the loose sense of the term. Thus rent as factor share is almost impossible to estimate..." (UN, 1947, p. 56).

"It is of interest to consider what happens if one refuses to treat any payment as a payment for a factor of production and instead requires that all such payments be classed as purchases of services. This is clearly a logical procedure since no payments of the kind normally made represent pure income nor as a rule do they represent the return on a single factor of production. For example, it is usual to treat the payments made to a jobbing carpenter as wages, but in so far as the man supplies his own tools and organizes the work he is engaged to undertake, his income is not really a return to labour pure and simple. The immediate effect of this change would be to restrict the net product of a branch of activity to the sum of the operating surpluses of the enterprises of which it is composed. The next effect would be that what had previously been regarded as factors of production would now become branches of activity whose contribution to the national product would be measured by their operating surpluses. A breakdown similar to what was previously regarded as a classification by factor shares would now appear as a classification by branches of activity while the old classification by branches of activity would disappear. Thus a refusal to recognize factors of production as distinct from goods and services leads to the disappearance not of the breakdown by factor shares, though this has now another name, but of the breakdown by branches of activity in the ordinary sense. The distinction is therefore important despite the fact that in certain respects it appears to require arbitrary conventions" (UN, 1947, pp. 56,57).

These elaborate motivations in the 1947 report contrast sharply with the later reports which do not comment at all on the distinction between goods and services on the one hand and 'factors of production' on the other hand. It was perhaps regarded as self-evident.

4. Principles of valuation

4.1 Description

In this section, we will start with a description of the general principles of valuation employed. We then continue by describing some specific valuation conventions, e.g. the valuation of the output of pension funds, insurance companies and the government. At the end constant prices will be discussed.

In the four reports, market prices are the dominant principle of valuing transactions and transformations (i.e. production and consumption). Current market prices are generally preferred to a valuation at costs. In the 1953 and 1968 reports, this preference for market prices is made clear for e.g. barter trade, own-account production, changes in stocks, services of owner-occupied dwellings and income in kind (UN, 1953, para 136; UN, 1968, 6.21); the 1947 report is only explicit about the services of owner-occupied dwellings (UN, 1947, p. 66). For practical reasons, the 1953 and 1968 reports allow for valuation at costs instead of at (producers') prices on the market. The 1953 report mentions own-account construction (UN, 1953, para 55) and the 1968 report mentions own-account capital formation and work-in-progress (UN, 1968, 6.24; UN, 1947, p. 55). Of course, for the collective services of the government valuation at costs is the only possible principle of valuation.

In the reports, nearly all invoiced values for the delivery of goods and services are accepted as 'true' market values. Payments for goods and services of fiscal monopolies of the government (e.g. on the sale of alcoholics), are by all reports fully regarded as a payment at market prices. In that respect, the 1953, 1968 and 1993 reports recommend to record the operating surplus reduced by the normal margin of profits of business units, as indirect taxes.

However, in some cases the reports do not accept the invoiced values (fully) as market values:

- Nominal payments to the government and payments mainly meant to increase government revenues, e.g. payments for driving tests and licenses.

- Transfer pricing. Only in the 1953 and 1993 reports, transfer pricing is rejected for national accounts purposes. In the other reports, the occurrance of transfer pricing is not mentioned at all.
- Charges in respect of delayed payment. Only in the 1968 and 1993 reports, it is explicitly stated that market prices refer to "the price at which the commodities are sold against immediate cash payment" (UN, 1968, 6.16).

In the 1968 report, input-output analysis and supply and use tables are introduced. Valuation principles are advocated which are particularly suited to this type of analysis. In the accounts[4], output is to be valued at producers' prices and intermediate consumption at purchasers' prices. The implication is that invoice values should not be used in case they include additional charges for trade and transport, i.e. when invoice values and producers' values do not coincide.

The 1993 report also incorporates input-output and supply and use tables. Like the 1968 report, intermediate consumption should be valued at purchasers' prices. However, unlike its predecessor, valuing output at (approximate) basic prices is preferred to a valuation at producers' prices (UN, 1992, production account, p. 64).

In the 1947 and 1953 reports, no valuation principles are mentioned for classifying goods and services produced and consumed.

In the 1947, 1953 and 1968 reports, the concept of value added employed in the accounts and tables is at factor costs. In the 1993 report, value added at basic prices is recommended.

The concepts of indirect taxes in the reports differ in some respects. The 1947, 1968 and 1993 reports define indirect taxes as as

4. In some supporting tables, a valuation at approximate basic values, that is producers' values exclusive of net commodity taxes (selected indirect taxes reduced by similar types of subsidies) is recommended.

those taxes that are "levied on goods and services and chargeable as a cost against the proceeds of sale" (UN, 1947, p. 31; UN, 1968, para 7.26; UN, 1992, Ch. VII, p. 17). The 1993 report therefore prefers the term "taxes on production". However, according to the 1953 report, indirect taxes encompasses also taxes on the possession or use of goods and services by households (UN, 1953, para 255). Examples given are motor vehicle duties and taxes on the operation of television sets. In the other reports, these are regarded as other current transfers paid by households to the government.

Another difference occurs with respect to profits of fiscal and other public monopolies. In the 1953, 1968 and 1993 reports, profits of fiscal monopolies, like tobacco and alcohol monopolies, are to be recorded as indirect taxes (UN, 1953, para 255; UN, 1968, paras 7.31 and 7.32; UN, 1992, Ch. VII, p. 24). The 1968 report also regards the monopoly profits of public enterprises (e.g. of public utilities) as indirect taxes. The 1947 report rejects this option "since private monopoly profit is usually treated as profit and not as a privately levied tax, there seems no advantage in choosing a different treatment in the case of public authorities" (UN, 1947, p. 59). The 1947 report is silent about fiscal monopolies, while the 1953 report is silent about non-fiscal monopolies. The 1993 report also includes in indirect taxes (and taxes on products):
- the profits of import and export monopolies;
- implicit taxes resulting from the operation of an official system of multiple exchange rates.

Both cases are not mentioned at all in the other reports.

Subsidies are in all the reports defined to encompass only payments to producers and not payments for consumption purposes (e.g. 'subsidies' for renting a dwellings). So, the 1953 report defines subsidies not fully as the mirror-image of indirect taxes.

None of the reports mentions the wide-spread occurrance of implicit or indirect subsidies. Cases in point are the remission of income taxes for industrial Research and Development or allowing that capital formation is written down in one or two years in determining taxable income.

Market prices may differ according to the type of purchaser. In some instances, e.g. compensation of employees in kind, a choice has to be made between imputing a market price from the point of view of the employer or the employee (e.g. wholesale trade prices or retail trade prices). In the 1953, 1968 and 1993 reports, a choice is made in favour of the producer's point of view regarding costs and revenues. The 1947 report does not discuss this issue.

In the absence of market prices (e.g. for government services or for not directly charged banking services), other principles of valuation have to be recommended. In such cases, there is a clear need for <u>specific conventions</u>. Below, we will shortly describe the major specific conventions concerning the valuation of production (output).

In all the reports, the value of <u>trade production</u> is not equal to the gross value of the sales, but is defined as the net value of the sales. So, the costs of purchasing the goods, services, etc. sold have to be deducted.

All four reports agree that many <u>banking services</u> are not separately invoiced, but are financed indirectly, namely by the margin between, simply said, interest rates for lending and borrowing. More precisely, they recommend to value the production of such banking services as the excess of the property income they receive over the property income they pay out (excluding the income on investment of 'own resources' and excluding the bank's own distribution of property income, e.g. the dividends they pay to their shareholders). The attribution of the use of indirectly financed banking services will be discussed in section 7.

The reports also agree that premiums paid to <u>casualty insurance companies, life insurance companies, pensionfunds and social security institutions</u> are not (fully) to be recorded as a payment for services (in the period they are paid or due).

The 1947 report defines the value of production of <u>life insurance companies</u> as the investment income plus the excess of premiums due over

claims due (UN, 1947, p. 42). According to the 1953 report, the value of production of life insurance companies should be equated to their expenditure on administration and control; in this case no operating surplus is mentioned. The 1968 report defines the value of production as:
"the excess of premiums received over the total of claims paid and net additions to actuarial reserves, excluding the interest on these reserves which accrues to policy holders" (UN, 1968, para 6.38).
The 1993 report recommends a similar, but more precise definition:
+ the excess of premiums earned over claims due and net additions to actuarial reserves and reserves for with-profits insurance
+ holding gains or losses on investments allocated to policy holders or claimants
+ net income from investments of the insurance technical reserves.
(UN, 1992, Ch. VI, p. 42).
This implies that there is a major difference between, on the one hand, the convention in the 1953 report and, on the other hand, those in the 1947, 1968 and 1993 reports. The latter three reports have rather similar conventions for life insurance.

In the 1947 and 1993 reports, the definitions of the gross output of casualty insurance companies are similar to their definitions for life insurance companies. The 1953 and 1968 reports employ different definitions for casualty insurance and life insurance companies. The 1953 report recommends to value the output of casualty insurance companies as the sum of administrative expenses plus operating surplus. A definition of operating surplus is not given. So it remains unclear, e.g., whether it should depend on accounting practice, or whether capital gains should be included or excluded in principle. A comparison to the conventions in the 1947 and 1993 reports is therefore difficult. The 1968 report regards the excess of premiums due over claims due as the value of production of casualty insurance companies. So, unlike in the 1947 and 1993 reports, net income from investments of the insurance technical reserves are not included.

The 1947, 1953 and 1968 reports agree that the value of production of pension funds is equal to their expenditure for administration and control. However, the 1993 report recommends a valuation principle similar to that for insurance companies[5].

Full agreement exists with respect to the value of production of social security institutions. The 1947, 1968 and 1993 reports advocate a valuation equal to the expenditure for adminstration and control. The 1953 report is not explicit on this issue. So, the 1947 and 1968 reports propose similar conventions for pension funds and social security institutions, while the 1993 report treats the pension funds on a par with life insurance companies.

The reports agree that the value of production at 'market prices' of the government and of non-profit organizations should be defined as equal to at least the sum of intermediate consumption, capital consumption, compensation of employees and indirect taxes paid (UN, 1968, para 6.41). However, according to the 1947 report, the value of government production also includes the payment of interest on government debt as far as it arises "in connexion with government enterprises or the provision of ordinary peace-time service such as education, public sanitation, etc." (UN, 1947, p. 72). Excluded are however interest payments related to public debt that "has been incurred in meeting such charges as the cost of war or temporary deficits on social security funds and as a consequence has little or no counterpart in the form of productive assets" (UN, 1947, p. 72).

Furthermore, only in the 1953 report, gross rent is imputed for buildings owned and occupied by the government[6]. However, an exception is made for historical buildings and museums. The imputation implies that a large part of interest on goverment debt as was to be included in the value of government output according to the 1947 report, is also

5. In the draft report, the new SNA still agrees with the previous reports (UN, 1992). However, in a special meeting of experts, it was decided to change the convention (ISWGNA, 1992).
6. The draft 1993 report adopted the point of view of 1953 report. It also recommended the imputation for valuing the output of non-profit institutions. (UN, 1992, Ch. VI, p. 28). However, in a special meeting of experts, it was decided to side with the 1947 and 1968 reports in this respect (ISWGNA, 1992).

covered in the 1953 report.

In none of the reports, a similar imputation is recommended for the use of infrastructural works, like bridges and roads.

Only the 1968 and 1993 reports pay attention to volume measures and constant prices. Both discuss in general terms the major problems, like changes in quality, new products and measuring the volume of non-market services. Both reports favour the use of Laspeyres indices. The 1993 report stresses the importance of regular rebasing of these indexes and recommends also the use of chain indices. The 1993 report also shortly mentions purchasing power parities.

4.2. Discussion

All reports enhance registration of current market prices. This amounts to ex post accounting. No attention is paid to recording expectations (ex ante). As a consequence, concepts like net present value, risk and uncertainty which play such an important role in economic theorizing are fully ignored. Recording (some) ex ante values may help explain economic behaviour. The differences between ex ante and ex post figures can then be used as additional explanatory variables (see also Bos, 1989, pp. 18-22).

The reports recommend to add up a lot of rather heterogeneous 'market values' in compiling the National Accounts. Actual market values may differ according to season, region, the quantity or quality bought, different conditions of guarantee and payment, type of purchaser (a household or an enterprise, price discrimination), the presence of implicit contracts and monopolies, changes in related prices (e.g. exchange rates for imported goods and services) and subsidizing. As a consequence, actual market values are difficult to translate into constant prices and 'volumes'. If market values are estimated by multiplying prices and volumes, the distinction between prices and volumes does not present any practical problems. A drawback of the heterogeneity of market prices and market values in practice is that it affects the possibilities of interpretation, as simple statements about changes in prices and volumes do not need to hold.

Interpretation of the market values in the National Accounts is also difficult for other reasons. Market prices bear an imperfect relation with individual marginal utilities, individual marginal utilities are not proportional to individual total utility and individual utilities can not be added in a meaningful way. As a consequence, drawing inferences about welfare from the National Accounts market values, is in principle not justified.

The four reports recommend to add up and subtract market prices that pertain to different times and different places. From the point of view of standard economic theory, the consistency of this type of aggregation can be doubted. For example, to what extent does it make sense to add up all the values for a particular transaction during a year, while we know that -from a cash-flow point of view- values should be discounted for differences in time? A similar remark applies to differences in space, as also distance is often not without a price tag. In a strict sense, addition is only allowed for fully homogeneous transactions, which means that they pertain to the same time and place. As according to the reports only values within a period of one year are to be added, there is a clear limitation to the amount of heterogeneity due to differences in time (although high interest rates and inflation rates may cause very substantial heterogeneity even within a year). Heterogeneity due to differences in space is limited (mainly) by a country's borders. In the three reports, these potential price differentials are disregarded just like differences due to monopoly and price discrimination. The rare exceptions can be found in a concept like producers' value (1968 and 1993 reports): this principle tries to homogenize with respect to distance as far as it concerns the transport costs that are actually paid to other producers.

We will now focus on the specific valuation conventions employed in the reports.

In the perception of the consumer, many banking services are provided without charge at all. From the point of view of the banks, providing banking services without direct charge is an unavoidable category of costs: it is needed as an instrument to attract savings. Following the point of view of the individual consumer, the market price of uncharged banking services is simply zero, just like that of some government services and clean air. Following the point of view of the producer, the relevant price of providing banking services is equal to its direct plús indirect revenues. Therefore, banking services are a case in which perceptions on the price differ widely between individual consumers and individual producers.

In case of life and casualty insurance, the individual's vulnerability to risk differs from that of the insurance company. In case of pension funds, income is redistributed usually not only in time, but also among individual households. For individual households, there is often no direct relation between the premiums paid and the claims to be received. In case of government services, individual households and producers only pay in a very indirect way for these services. Sometimes, they were probably not even prepared to pay at all for the provision of such services, think of a pacifist who pays for military expenditure.

The National Accounts provide an integrated description of consumption as well as production at a meso and macro level. As far as meso- or macro-economic decisions should be described and analyzed as the aggregate of micro-economic decisions, the latter are of importance as well (cf. the debate on the micro-foundations of macro-economics, e.g. Phelps, 1970 and Weintraub, 1979; see also Bos, 1989, pp. 28-34). Asymmetries in perception pose a fundamental problem to such a framework, because consistency requires that only one perception can be followed.

In the reports, government production and non-profit production are valued at 'costs'. With the exception of government production in the 1947 report, these costs exclude any financial costs, e.g. interest payments. From the point of view of the concept of opportunity cost this is rather strange: in the absence of wear and tear and economic obsolescence, the annual opportunity costs of large investments in infrastructure are at least equal to interest revenues foregone on the financial capital invested in the infrastructural works. Such an accounting procedure is consistent with the concept of value added in business accounting, as operating surplus also includes a remuneration on money invested. The consequence of such a convention would be that the costs of capital formation, in particular those with long lifetimes and therefore a low annual rate of capital consumption, substantially increases in comparison to the situation where solely capital consumption is recorded as costs. The result of this alternative accounting procedure would be an entirely different picture of the costs of providing government services.

It must be remarked that the concept of (foregone) opportunity revenues should not be confused with the payment of interest on government debt in general. Government debt need not (fully) pertain to present capital stock, but may pertain to former war expenditure or may be used to finance transfer payments. The concept of (foregone) opportunity revenues also differs from the interest payments to be included according to the 1947 report. The latter only pertain to the interest payments actually paid: therefore, no opportunity interest revenues are to be imputed for investments that are wholly financed out of taxes.

In the 1953 report, it is argued why interest payments on government debt should not be included at all in the value of production: "If this were done the product originating in general government would become dependent on past and present methods of financing government expenditures. This would be inappropriate since it would result in a concept of product at variance with the concept adopted for enterprises. In the case of enterprises, the concept of product depends on the difference between output and input and is therefore invariant to the method of financing adopted" (UN, 1953, para 33). With some minor qualifications, this argument is valid for the convention recommended in the 1947 report. This criticism does not apply to the above explained opportunity revenue concept, but the latter concept has two other drawbacks.

Firstly, which interest rate is to be applied in calculating opportunity revenues? If the interest rate at the time of the investment is taken, should this interest rate be used during the whole economic lifetime of the capital good? Or should some current interest rate be used? In case of fluctuating interest rates and government loans of different lengths of life (5 year, 10 year, 30 years), both options could result in rather arbitrary calculations. A second drawback of the opportunity revenue concept is that the accounting logic forces to make countervailing imputations of government loans and payments of interest. This chain of new imputations casts serious doubts on the merits of incorporating the opportunity revenue concept. Therefore, it seems wise to regard the total interest payments on government debt as the upper limit of the amount to be imputed.

The absence of constant prices in the 1947 and 1953 reports indicates that these reports were only halfway in improving the international and intertemporal comparability of national accounts figures. For example, the absence of the notion of constant prices implies that (real) growth rates of national income are not defined in the 1947 and 1953 reports. A somewhat similar remark applies to the absence of purchasing power parities in the 1947, 1953 and 1968 reports.

5. Sectors, units and accounts

In this section, the sectors and accounts in the four reports are discussed and compared. The sectors and their statistical units are investigated in subsection 5.1 and the accounts are the topic of subsection 5.2. Both issues are discussed in one section, because in the reports the accounting structure and the sector classifications are not independent.

5.1 Sectors and units

5.1.1 Description

In tables 1-4, the sector classifications in the four reports are represented.

In the 1947 and 1953 reports, one sector classification is used for all the accounts. In the 1993 report, the Production Accounts are not only presented by sector, but also by economic activity. In a separate table (table XV.7), value added is broken down simultaneously by sector and by economic activity. All the accounts other than the Production accounts pertain only to the sector classification. The 1968 report distinguishes two sets of accounts:

- For Production Accounts and Goods and Services Accounts[7] an economic activity classification should be used;
- For the Income and Outlay and Capital Finance Accounts the 'institutional' sector classification is recommended.

In this case, the economic activity classification is really presented as an alternative sector classification (dual sectoring). In the input-output and make and use tables of the 1968 and 1993 reports, the classification by economic activity should also be employed. In both reports, separate statistical units are used for the classification by economic activity (establishments, establishment-type units) and for the (other) sector classification (enterprises).

7. In the report, they are called the Production, Consumption expenditure and capital formation accounts.

Table 1. Sectors, sub-sectors and accounts in the 1947 report.

Sectors and sub-sectors	Accounts*)
1. Productive enterprises	
1.1 Business enterprises. This includes, next to privately controlled enterprises, public authority enterprises, unincorporated enterprises and some non-profit institutions.	O, A, C, Res
1.2 Persons (house-ownership)	O
2. Financial intermediairies	
2.1 Banking system	O, A, C&Res
2.2 Other financial intermediairies	O, A, C&Res
3. Insurance and social security agencies	
3.1 Insurance companies and societies	Rev, O, A, C&Res
3.2 Private pension funds. This consists of voluntary pension schemes.	Rev, C&Res
3.3 Social security funds. This includes all "compulsary funds organised by the government" (UN, 1947, p. 70).	Rev, C&Res
4. Final consumers	
4.1 Persons. This includes private non-profit institutions	Rev
4.2 Public collective providers. This includes pension funds of the government.	Rev, C&Res
5. The rest of the world (all economic entities)	Cons

*) Explanation of the abbreviations used:

O	Operating Account
A	Appropriation Account
C	Capital Account
Res	Reserve Account
C&Res	Combined Capital and Reserve Account
Rev	Revenue Account
Cons	Consolidated Account

Table 2. Sectors, sub-sectors and accounts in the 1953 report

Sectors and sub-sectors	Accounts*)
1. Enterprises	
1.1 Unincorporated private enterprises	
1.2 Households and private non-profit institutions in their capacity as landlords of dwellings whether or not they occupy their own properties	
1.3 Private corporations other than private non-profit institutions mainly serving households	
1.4 Non-profit institutions mainly serving enterprises	
1.5 Public enterprises	
1.5.1 Government enterprises (financially integrated with general government)	
1.5.2 Public corporations	
2. Households and private non-profit institutions, which are not established primarily with the aim of earning a profit and are not mainly rendering services to enterprises (included are pension funds)	
3. General government (included are social security funds, if their activities may be regarded as an instrument of the social policy of the government)	

*) The following accounts could be set up for all sectors:
- the Production Account
- the Appropriation Account
- the Capital Reconciliation Account
- the External Account

Table 3. Sectors and sub-sectors in the 1968 report

A. Sectors of the Production, Consumption Expenditure and Capital Formation Accounts	B. Sectors of the Income and Outlay and Capital Finance Accounts
A.1 Industries. This sector includes: - establishments the activities of which are financed by producing goods and services for sale in the market at a price that is normally designed to cover the costs of production; this includes such establishments of the government - all the dwellings which households or private non-profit institutions own and use on their own account - the own-account construction of dwellings, non-residential buildings and other projects by households and private non-profit bodies, as well as by government organs - the own-account production by households of primary commodities, where the producer activities of the households had not already been set off as industries by virtue of sale of the products on the market - private non-profit institutions primarily serving business	B.1 Non-financial enterprises, corporate and quasi-corporate 1.1 Private enterprises. This subsector includes private non-profit institutions serving business 1.2 Public enterprises B.2 Financial institutions 2.1 The central bank 2.2 Other monetary institutions (banks) 2.3 Insurance companies and pension funds 2.4 Other financial institutions (for example building and loan associations, hire-purchase companies and investment funds)
A.2 Producers of government services. This sector includes: - government units, like local and central government (excluded are the establishments of the government classified in the sector industries) - social security schemes and non-profit bodies which, by virtue of the relations with the government, are clearly instruments of the social and economic policy of the government	B.3 General government 3.1 Central government 3.2 State and local government 3.3 Social security funds
A.3 Producers of private non-profit services to households. Excluded are: - their activities classified in the sector industries - fraternal groups, social clubs and similar bodies, which have the equivalent of less than two full-time employees; these are to be included in the sector households	B.4 Private non-profit institutions serving households
A.4 Households. This sector includes: - paid domestic services which one household renders to another - fraternal groups, social clubs and similar bodies, which have the equivalent of less than two full-time employees - the activities of individuals as consumers	B.5 Households, including private non-financial unincorporated enterprises. Included are, i.a.: - all the dwellings which households own and use on their own account - the own-account production by households of primary commodities

Table 4. Sectors and sub-sectors in the 1993 report.

Sectors and sub-sectors

1. Non-financial corporations
   1.1 Public non-financial corporations
   1.2 National private non-financial corporations (incl. non-profit inst. serving business)
   1.3 Foreign controlled non-financial corporations

2. Financial corporations*)
   2.1 Central Bank
   2.2 Other depository institutions
      2.2.1 Deposit money institutions
      2.2.2 Other (e.g. savings banks, mortgage banks, building societies)
   2.3 Other financial intermediairies except insurance corporations and pension funds (e.g. investment corp., hire purchase corp., corp. engaged in financial leasing)
   2.4 Financial auxiliaries (e.g. securities brokers, loan brokers, insurance brokers)
   2.5 Insurance corporations and pension funds

3. General government

3.1 Central government	3.1 Central gov.incl. related social security
3.2 State government	3.2 State gov.incl. related social security
3.3 Local government	3.3 Local gov.incl. related social security
3.4 Social security institutions	

4. Households (by major source of income; in this sector also the services of owner-occupied dwellings are recorded)
   4.1 Employers (owners of household unincorporated enterprises with paid employees)
   4.2 Own-account workers (owners of household unincorporated enterprises without paid employees)
   4.3 Employees
   4.4 Recipients of property and transfer income

5. Non-profit institutions serving households (e.g. trade unions, political parties, churches, sports clubs, charities organisations) .

6. Rest of the world

*) For the subsectors 2.2-2.5 a distinction between Public, National Private and Foreign Controlled should also be made.

Only the 1993 report provides a clear definition of the statistical units to be used for the institutional sector classification. Enterprises in the corporate sector are defined as "the smallest legal entity for which complete accounts are available" (UN, 1992, Annex on changes, p. 4). In the 1968 report, also the family of enterprise could be used. The 1947 and 1953 report do not discuss this statistical unit. An exception pertains to the delineation the national economy (see section 9).

In the 1947 and 1953 reports, the usefulness of additional classifications by economic activity is already noted. In the 1947 report, it is recommended to subdivide the sector Productive Enterprises into branches of activity. Statistical problems in employing a unit like the 1968 'establishment' for this subdivision are also noted: "enterprises frequently contribute to more than one branch of activity. In dividing out the different activities of a complex concern and in allocating costs, and still more profit, between them, cost accounting methods are unavoidably involved. In practice, these allocations are difficult to handle statistically. For certain purposes, it may be sufficient to use a classification of branches of activity coincident with the main activity of different groups of enterprises" (UN, 1947, pp. 55, 56).

Rather similarly, in the 1953 report, the notion of a separate statistical unit for describing the production process is already present, although it is not deemed practically feasible (UN, 1953, paras 90, 91). The 1953 report also suggests to divide its sector Enterprises by legal forms of organization.

In the 1968 report, establishments are characterized as units "which are relatively homogenous in respects of the character, cost-structure and technology of production. If data are to be classified according to region, the establishment should in addition draw distinction in respect of the location of the activities" (UN, 1968, p. 73, para 5.15). "Further it must be feasible to compile data on all of the gross output, employment, intermediate and direct inputs into the production, and capital formation of each establishment" (UN, 1968, p. 74, para 5.17). The 1993 report employs a rather similar definition: "An establishment is defined as an enterprise, or part of an enterprise, that is situated in a single location and in which only a single (non-ancillary) productive activity is carried out <u>or</u> in which the principal productive activity accounts for most of the value added" (UN, 1992, Ch. V, para 21).

The 1947 and 1953 reports do not contain a subsectoring of the sector Households over groups of persons or households. Therefore, such a distribution of income by types of persons/households is ignored de facto. In the 1968 report some suggestions are made for a subclassification of the sector Households for these purposes (UN, 1968, table 5.1, p. 79) and one table is presented (UN, 1968, table 23). It is explicitly stated that the subclassification should be regarded as not more than tentative (UN, 1968, p. 83, 5.75). So, in fact, the 1993 report is the first to incorporate income and expenditure by household types in its basic accounting system.

5.1.2 Discussion

In this section, we start by discussing the institutional sector classifications and its statistical units. A comparison of the sector classifications can best be made by having a specific purpose or criterion in mind.

The 1947 report intends "to keep the social accounts in such a way as to exhibit clearly the different classes of decision-making units in the real world and the type of distinction they have in mind in arriving at their decisions" (UN, 1947, p. 43). Decision-making is also mentioned as an important criterion for the sector classifications (and their statistical units) in the 1953 and 1968 reports. As the National accounts are to be used for describing and understanding economic decisions, the logic of this criterion is self-evident. Unfortunately, employing decision-making as criterion has some clear limitations for economic statistics.

The reports employ sector classifications that are actually in conflict with decision-making as a criterion. A first instance is that following the reports distinctions have to be made between:
- domestic and foreign activities of multinationals;
- financial and non-financial activities within enterprises (if separate establishments can be defined);
- banking and insurance activities within enterprises (if separate establishments can be defined).

Even if an enterprise is allocated to a sector on the basis of its main activity, the latter two distinctions are necessary. The reason is that the conventions (and accounts) recommended for valuing output depend on the type of activity. All these distinctions do not necessarily coincide with the organizational structure of enterprises. For example, a multinational could be organized primarily by type of product and not per country. For tax purposes, some national figures are produced like on taxable profit. However such limited data do not suffice the national accountants needs. Similarly, the banking and insurance activities of an enterprise may be integrated to a substantial extent (in some countries this will not occur, because it is forbidden by law).

Another case in point is that in the 1947 and 1953 sector classifications and the 1968 sector classification of the Production, etc. Accounts, the production of unincorporated enterprises and own-account production by households are not recorded in the same sector as the consumption expenditure by households. Major examples are production by farmers and the imputed services for owner-occupied dwellings. This remark does not apply to the 1993 sector classification.

A specific peculiarity of the 1947 sectoring is that purchase and sale of dwellings by households is to be registered in the sector Final consumers and the owner-occupied dwellings imputation in the sector Productive enterprises. Thus, in this case, production and the purchase and sale of related capital goods are not recorded in the same sector.

The sector classifications can also be judged on their appropriateness in describing the consequences of government policy. To this end, all enterprises and institutions which could be regarded as (potential) instruments of government policy, should be distinguished from those enterprises and institutions that could not. In this way, the information from the National Accounts could be used in describing, analyzing and forecasting the effects of government policy on a nation's economy. In the 1947 report, it is stated that all sectors should contain a subdivision based on the criterium of government control (UN, 1947, p. 38). The Keynesian spirit of this recommendation can be illustrated by a short quotation: "The most topical perhaps is the fact that public-authority enterprises, being more subject to social control than private enterprises, may be more readily used, through the timing of their capital formation, to help stabilize the general level of activity" (UN, 1947, p. 38). The 1953, 1968 and 1993 sector classifications also reflect the criterium of government control as the 1953, 1968 and 1993 subsectors Public Enterprises and Public non-financial corporations are all defined as encompassing the enterprises which are owned or controlled by public authorities (UN, 1953, para 82; UN, 1968, para 5.55; UN, 1992, Ch. IV, p. 19).

Another way to look at the sector classifications is to compare to what extent they reflect specific 'functions' that can be fulfilled by the government as well as by 'the market'. Major functions in this respect are:

- the provision of general infrastructure
- health care
- education
- insurance of income (life insurance, pension funds and social security).

The first three functions are not represented in the sector classifications of the reports. Only additional classifications, like a functional classification of government services and a classification in activities for industries, can meet such informational needs. The fourth function is represented in the 1947 sector Insurance And Social Security Agencies. In the 1953 sector classification, this function can not be discerned at all. In the 1968 and 1993 reports, two subsectors pertaining to different sectors are important in this respect, namely the subsector Insurance Companies And Pension Funds and the subsector Social Security Funds. A drawback of this sectoring is that the major differences between casualty insurance companies and pension funds are ignored.

Another function is that of financial intermediation. In the 1947, 1968 and 1993 reports, this function is fully reflected by separate sectors. The 1953 report explicitly rejects this option in order to limit the number of sectors (UN, 1953, para 285).

The role played by domestic and foreign multinationals could be made explicit in the classifications of domestic sectors and the Rest of the World. Such a classification would make sense in view of the specific characteristics of multinationals, e.g. in transferring technology, in financing their production processes or simply because of their size. The intra-firm flows of a multinational may be imports and exports to a country. It seems likely that the determinants of this type of imports and exports differ from imports and exports between independent enterprises. The role played by foreign multinationals is reflected in the 1993 sector classification. However, it ignored the role of domestic multinationals[8]. All the other reports are silent about the role of multinationals[9].

A subsectoring of the Rest of the World is proposed in none of the reports. However, in view of the drastically increased importance of international organisations, a distinction between International organisations and the rest of the Rest of the World seems useful (now). For EC-countries, a subsector EC is of clear importance. It would improve the additivity of the national accounts figures of the various EC-countries, show the relative importance of the other EC-countries for the national economy and reflect the special role of the EC as a supranational organisation for EC countries (its taxes, subsidies, etc.).

The 1968 dual sectoring present some specific difficulties as no linkage is provided for the two kinds of sectoring (except at the most aggregate level). This is defended by: "It would always be possible to show direct interaction between establishment and enterprise classifications, to classify compensation of employees in corporate and quasi-corporate enterprises, for example, simultaneously by major kind of activity of both of the constituent establishments and the parent enterprises ... The reason for not proposing the more ambitious treatment is that, while in principle it presents little difficulty, in practice it presents a great deal and in fact up to now has been attempted in only a few countries" (UN, 1968, p. 22, para 2.31). In the 1993 report, there is a cross-classification for value added, but a simultaneous classification by sectors and economic activity is absent for commodity-flows

8. In the Dutch Research and Development module, domestic multinationals are therefore introduced as a separate subsector (see Bos, et al, 1992).
9. An exception is the discussion in the 1947 report of the residency of enterprises (and their affiliates (see section 9).

(output, intermediate consumption, capital formation). However, cross-classifications of value added and commodity flows are important for analytical as well as statistical purposes.

Analysis is served by a linkage between sector and economic activity information as:

- the link itself is an important object of economic study, e.g. the interaction between capital formation and saving or the interaction between income generation and income expenditure;
- the link is important for (dis-)equilibrium models of an economy.

The estimation process would also benefit from such a linkage as it enables the comparison of data from various sources. In this way, the reliability and consistency of the data can be checked en improved. For example, without such a linkage the three ways of estimating Gross Domestic Product (based on production, final expenditure and income) can only be compared -by definition- at the very aggregate national level.

5.2 Accounts

5.2.1 Description

In table 5, the accounting structures in the four reports are compared. In contrast to the other reports, the 1953 report does not present a concrete set of accounts. The content of its four accounts is only described in general terms. Which specific items are to be distinguished or incorporated is not defined in the report. To some extent this can be deduced from the set of Standard Tables proposed or the general description of concepts.

Table 5. Accounts in the 1947, 1953, 1968 and 1993 reports.

1947 report	1953 report	1968 report	1993 report
		Prod.,Consumpt.Exp. and Cap. Form. Acc.	Goods and Services Account
Operating Account Revenue Account for Insur.Companies, Priv.Pension funds, Social Sec. Instit.	Production Account	Production Account	Production Account
Operating Account Revenue Account for Insur. Companies, Priv.Pension Funds, Social Sec.Instit. Appropriation Account	Appropriation Account	Income and Outlay Account	Generation of Income Account Alloc.of Primary Income Account Secundary Distr.of Income Account Redistr.of Income in Kind Account Use of Disposable Income Account Use of Adj. Disp. Income Account
Capital Account Reserve Account	Capital Reconciliation Account	Capital Finance Account	Capital Account Financial Account
Reserve Account (only realized holding gains and losses)		(Reconciliation Account) (Balance Sheet)	Other Changes in Volume of Assets Account Revaluation Account Balance sheets - Opening - Changes - Closing
Consolidated Account RCW	External Account - Current - Capital	Consolidated Acc. - Current - Capital	RCW Account]- Goods and Services - Primary Income and Current Transfers]- Capital Account - Financial Account - Other Changes in Assets - Assets and Liabilities Acc. (Balance sheets)

Only in the 1968 and 1993 reports, a Goods and Services Account, which records the supply and use of goods and services (output, imports, exports, intermediate and final consumption and capital formation) is employed. This account serves to establish a linkage to input-output and make and use tables. The inclusion of the latter are a specific feature of the 1968 and 1993 reports.

Operating and Production Accounts show the current costs and revenues related to production. In comparing these accounts in the reports, also the 1947 Revenue Accounts for Insurance Companies, Private Pension Funds and Social Security Institutions should be taken into account.

In the 1947 report, for Insurance Companies a Revenue Account is used in addition to the Operating Account. This Revenue Account registers the premiums received, imputed charges and claims and surrenders. For the Private Pension Funds and Social Security Institutions, only a Revenue Account and a combined Capital and Reserve Account are drawn up (see table 1). These Revenue Accounts register the current costs and revenues related to production and, furthermore, the distribution of income. They are therefore more encompassing than the Operating and Production Accounts.

The differences with respect to the Operating and Production Accounts are best revealed by comparing the balancing items. In the 1953 Production Account and the 1993 Production Account, they are value added concepts. In the 1947 Operating Accounts, the 1968 Production Accounts and the 1993 Generation of Income Accounts, the balancing items are operating surplusses. In fact, the 1993 report splits the 1947 Operating Account and the 1968 Production Account in two Accounts: a Production Account and a Generation of Income Account. A specific feature of the 1947 operating surplus is that interest payments are already deducted. In the operating surplusses of the 1968 and 1993 reports, interest still has to be paid out of the operating surplus (on concepts of income: see section 8).

All the balancing items are at factor costs, with the exception of the 1993 report which prefers basic prices.

A peculiar feature of the 1947 Operating Account is that, next to the operating surplus, several other transfers to and from other accounts are recorded on the Operating Account. Examples are "Transfer from capital account in respect of unsold goods, work in progress and unused materials", "Transfer to capital account in respect of depreciation and obsolescence" and "Transfer to revenue account of persons in respect of bad debts". In fact, there is no real balancing item. More in general, unlike in the other reports, the 'balancing items' in the 1947 report also do not 'trickle down' to the other accounts. For example, in the 1993 report value added is the balancing item of the Production Account, which is the start of the next account, the Generation of Income Account.

Another distinctive feature of the 1947 accounting structure is that the expenditure on own-account capital formation (including compensation of employees) is recorded at its capital account. The total value of own-account production should then also be registered at the Operating Account. In the other reports, expenditure on own-account capital formation are recorded at the Production Accounts.

The distribution of income and its use are recorded rather similarly in the reports. The major difference being that the 1993 report employs several accounts in order to describe several stages in the income distribution and use processes, while the other reports lump all these accounts together in one account (for each sector). The concepts of income and consumption in these accounts are discussed in sections 7 and 8.

A specific feature of the 1947 report is that realized capital gains and losses are (explicitly) to be registered as income. In the other reports are these gains and losses not included in any concept of income.

The 1947 Capital Account registers the changes in non-financial capital stock and the costs of maintaining the capital stock, like the purchase of capital goods, expenditure for own-account capital formation like wages, changes in stocks, capital consumption and the payment of insurance premiums related to capital stock. The Capital Account is balanced by the net amount of capital accumulation which has to be financed by the enterprise itself. Changes in financial reserves like transactions in securities, borrowing, and losses, subscriptions to new issues and obligations are to be registered on the Reserve Account.

In the other reports, rather similar accounts are used. For example, the 1968 Capital Finance Account is subdivided in two parts, corresponding respectively with the 1947 Capital Account and the 1947 Reserve Account or with the 1993 Capital and Financial Accounts. It is interesting to note that in the 1947 report the amount of detail offered on financial transactions is not much less than in the 1968 report. In the 1993 report, a substantial amount of detail and new classifications is added, while no detail at all is presented in the 1953 report (financial flows are absent in its Standard Tables). Financial assets are discussed in more detail in section 6.

Only in the 1993 report, serious attention is paid to establishing a link with balance sheets. According to the synoptic table 2.1 in the 1968 report, realized capital gains and other sorts of revaluations are to be registered on a Revaluations Account. However, in the rest of the 1968 report, the Revaluations Account is fully ignored. In the 1947 report, only the realized part of the capital gains are to be recorded in the accounting structure (at the Reserve Account and the Appropriation Account). In the 1953 report, it is suggested to provide some additional information on capital gains and losses on stocks in order to establish a link between the business accounts and the national accounts. In the synoptic table 2.1 in the 1968 report, also balance sheets are included, but they are in the remainder of the report fully ignored. We can therefore conclude that tables for balance sheet accounts are virtually absent in the 1947, 1953 and 1968 reports and that they therefore restrict themselves fully to flow accounting.

A major extension in the 1993 report is therefore that it also includes Balance Sheets and Other changes in assets accounts. In addition to realized holding gains and losses, also not (yet) realized holding gains and losses and other changes in volume (like those due to earthquakes and war) are incorporated.

In the consolidated account of the 1947 sector Rest of the World, no subaccounts are introduced, not even to reflect the distinction between current and capital transactions. Its sole balancing item therefore shows net lending to the Rest of the World; a current external balance is absent.

In the 1953 and 1968 reports, a distinction is introduced for current and capital flows. In supplementary tables, a more refined classification of flows with the Rest of the world is included (UN, 1953, Table XI; UN, 1968, Table 26)). Only in the 1993 report, such a refined classification is incorporated in the accounting structure (see table 5).

5.2.2 Discussion

Various issues involved in this section are discussed elsewhere, like balance sheets (section 2.2) and concepts of income that serve as balancing items (see section 8). We will therefore restrict ourselves to two short comments.

The 1993 accounting structure seems a major improvement: different economic processes are clearly reflected by the various accounts (e.g. income distribution and income redistribution) and for each sector the same accounts are employed. In the 1947, 1953 and 1968 reports, the accounting structures are much less transparent.

A remarkable feature of the 1947 accounting structure is that surplusses and deficits in international trade are not explicitly shown by a balancing item in the consolidated account for the Rest of the World. The absence of such a balancing item is a bit puzzling, because the variable was of great importance in economic analysis and policy and could have been shown very easily.

6. Assets, capital formation and capital consumption

6.1 Description

A basic distinction can be made between financial and non-financial assets. This is also reflected in the accounting structures of the 1947, 1968 and 1993 reports. For example, in the 1993 report, financial assets are to be recorded at the Financial Account and non-financial assets at the Capital Account.

All reports draw a rather similar boundary between financial and non-financial assets. The major exception pertains to the treatment of gold. The 1947 and 1953 reports regard gold as a commodity and not as a financial claim (UN, 1947, p. 67; UN, 1953, paras 183, 184). The 1968 report distinguishes three kinds of gold:

- monetary gold;
- commodity gold for industrial use;
- commodity gold held as a financial asset.

Only commodity gold for industrial use is regarded as a non-financial asset. In the 1993 report all gold that is not held by the authorities as part of their international reserves is treated like a non-financial asset.

There are substantial differences in the classifications, scope and amount of discussion of financial assets in the reports. In the 1947 report, various financial items are distinguished in the Reserve Account, like borrowing, net purchases of gold and silver bullion and coin, subscription to new issues, net purchase of existing securities, mortgage repaid and discounts and advances to business enterprises by banks. Financial assets are not discussed in the 1953 report (see also the section on accounting structure). The 1968 report offers a classification of financial assets in 14 categories which stresses the distinction between short-term and long-term loans and other financial assets. This distinction is absent in the 1947 report.

The 1993 report elaborates much more than all the earlier reports on financial assets. This partly reflects the rapid development of financial markets and new financial instruments in the last decades. Examples of such financial instruments not discussed in the earlier reports are financial leasing, repurchase agreements, deep discounted bonds, options and other derivatives. In the 1993 report, the long-term/short-term distinction is only present as a secondary distinction, because "of the improved facilities available in financial markets to re-finance short term financial assets" (UN, 1992, Annex on changes, p. 23).

In the 1968 and 1993 reports, the concept of capital formation does not encompass the accumulation of all non-financial assets. In both reports, the purchase of land, subsoil assets and some selected intangible assets are recorded as accumulation of non-financial assets, but not as capital formation. In the 1968 report, these intangible assets are i.a. "exclusive rights to exploit mineral deposits and fishing grounds, other concessions and leases in respect of land, patents, copyrights and trade marks" (UN, 1968, para 7.86). Purchased goodwill is not at all to be recorded.

In the 1993 report, intangible assets included in capital formation are expenditure on mineral exploration, computer software, and entertainment, literary or artistic originals. These are all called "produced intangible assets". The "intangible non-produced assets" are excluded from the 1993 concept of capital formation, but recorded at the 1993 Capital Account. This pertains to patents, leases and purchased goodwill.

We will now continue our description of the concepts of capital formation by focussing on specific items.

In all reports, the purchase and production of machinery, other equipment, dwellings and other buildings are regarded as fixed capital formation. The usual expenditure on repair and maintenance are excluded from their concept of fixed capital formation. However, the expenditure on goods and services which significantly enlarge the length of life or productivity of capital goods are to be registered as fixed capital formation.

In the reports, rather similar exceptions are made to the rule that the own-account production or purchase of tangible durables is fixed capital formation. This applies to the purchase of consumer durables as well as to military expenditure on weaponary and other specific military durables (e.g. tanks and military barracks). Durable goods to be used in the production process of which the value is relatively small are excluded from the 1953 and 1968 reports' concepts of capital formation (if the customary business accounting procedure is to treat them as a current expense); this specific case is not mentioned in the 1947 report.

A difference occurs with respect to the treatment of land.In the 1947 and 1953 reports, purchases and sales of land are regarded as fixed capital formation, while according to the 1968 and 1993 reports they should not be incorporated. In all reports, large incidental expenditure for the improvement of land are regarded as fixed capital formation.

Another difference pertains to military expenditure on durables that are not typically military. The 1947, 1968 and 1993 reports agree that military expenditure on family dwellings should be recorded as capital formation; the 1953 report is silent in this respect. In contrast to the 1953 and 1968 reports, the 1947 and 1993 reports recommend that military expenditure on infrastructure, schools and hospitals is recorded as fixed capital formation (UN, 1947, p. 77; UN, 1953, para 139; UN, 1968, paras 6.66 and 6.122; UN, 1992, Annex on changes, p. 18).

In the 1953 and 1968 reports, fixed capital formation is limited to the production or purchase of the above mentioned tangible durables. In contrast, in the 1947 report, some intangible durables are accepted as fixed capital formation: "It is clear also that certain receipts from professional services, rendered for example by lawyers, accountants and surveyors, would also appear here [on the capital account] in so far as they are incurred, not in connexion with current output, but for the future benefit of the concern. In the same way, it would seem that other expenses of a non-recurrent character such as certain types of advertising expenditure should appear as sale to capital account in the first instance, which are then written off out of operating revenue over a period of years" (UN, 1947, p. 54). Other types of intangible capital formation, like human capital, seem to be excluded in the 1947 report though. In the 1993 report, a more restricted amount of intangible assets is included in the concept of fixed capital formation. For example, expenditure on mineral exploration and computer software are included, but capitalizing the expenditure of a massive incidental advertisement campaign is not allowed.

The 1953 and 1968 reports reject natural growth as capital formation, e.g. of standing timber or crops (UN, 1953, para 182; UN, 1968, para 6.103). Only changes in farm stocks such as grain or livestock are incorporated; the 1947 report neglects this issue. In the 1993 report, only natural growth under control of human activities are to be recorded as capital formation; other natural growth is regarded as an other change in assets. In fact, the differences between the 1953 and 1968 reports on the one hand, and the 1993 report on the other hand, mainly amount to a difference in the time of registration.

In all the reports, capital formation is subdivided into fixed capital formation and changes in stocks/inventories. The 1993 report incorporates valuables in capital formation as a third category. It defines valuables as "goods of considerable value that are not used primarily for purposes of production or consumption but are held as stores of value over time" (UN, 1993, Ch. X, p. 3). Examples of valuables are precious metals and stones, jewellery and works of art. The reports of 1947, 1953 and 1968 do not record changes in the stock of valuables at all.

Only in the 1953 and 1993 reports, the fundamental distinction between stocks as inputs (materials and supplies) and stocks as outputs (work in progress, unsold output) is made.

Exhaustion of natural resources is in neither of the reports regarded as changes in stocks or as consumption of fixed capital.

In general, the four reports recommend to record capital consumption on fixed capital formation. However, the 1953 report proposes that no capital consumption should be recorded for all general government assets except buildings (UN, 1953, para 208). In the 1968 report, only infrastructure should not be written down (UN, 1968, para 7.20). In the 1947 and 1993 report, in principle all assets included in fixed capital formation should be depreciated (if necessary).

The concept of capital consumption is in all the reports defined in terms of the replacement value of capital stock. The 1947 report gives a more precise description on what is to be maintained intact: "capital needed to yield a given amount of product" (UN, 1947, p. 60). The 1953, 1968 and 1993 reports agree that capital consumption should be based on expected economic lifetime, that unforeseen obsolescence should be excluded from the concept and that straightline depreciation is in most case a practical solution (UN, 1953, para 440; UN, 1968, paras 7.19, 7.21; UN, 1992, Ch. VI, p. 57). The 1947 report discusses the concept of capital consumption in relation to maintaining either real capital or money capital intact. However, a concrete choice is not made.

6.2 Discussion

The concept of fixed capital formation is instrumental in describing the production of goods and services. This role is clear from e.g. the definition in the 1993 report "assets that are used repeatedly, or continuously, in processes of production for more than one year" (UN, 1992, Ch. X, p. 3). This definition allows to employ a very wide concept of capital formation. However, in the reports, the concept of fixed capital formation has been narrowed down drastically, e.g. with respect to consumer durables, military durables, intangible assets and human capital. This can best be understood by referring to the general requirements of consistency and measurability.

In the national accounts, the concepts of capital formation and production are closely linked for reasons of consistency. The concept of capital formation in the reports can partly be derived from the production boundaries chosen: as the services of consumer durables and of human capital are not regarded as production by the reports, expenditure on consumer durables and human capital are also not regarded as capital formation related to production. This implies also that the arguments for choosing a particular production boundary can be relevant to the choice of the concept of capital formation (and vice versa).

As is the case with the production boundary, operational (measurable) definitions are needed in defining capital formation. In order to grasp the merit of the definitions in the reports, it is important to realize that recording items as capital formation usually implies that also capital consumption on these items has to be measured (see also Bos, 1992). For example, in the 1953 report, lack of statistical information is put forward as an argument not to record consumer durables as capital formation (UN, 1953, para 64). Problems in measuring capital consumption are also prominent for concepts like human capital and intangible assets.

For individual items, also other arguments are used to defend their inclusion or exclusion. We will discuss these subsequently.

In the 1947 report, it is argued that consumption expenditure on durables should not be part of capital formation: "these two types of expenditure are subject to different broad classes of motivation. Consumers' purchases depend, once tastes and habits are given, on relative prices and income, wheras capital expenditure depends essentially on a comparison between the expected yield of the asset capitalized at the current rate of interest and the cost of production of the asset" (UN, 1947, p. 74). This argument could in fact also be used to make clear why owner-occupied dwellings are treated different from consumer durables.

The conventions with respect to military expenditure on durables raise two questions. Firstly, why is military expenditure on durables a specific case at all? The logic of investment for military purposes is perhaps somewhat different from non-military investment. However, this can be taken care of by introducing a separate category for military investment. Determining capital consumption for military durables is in general also not relatively difficult, as often explicit estimates of expected lifetimes are made by the Ministry of Defense or the military staff. A major operational problem is the delineation of 'military purpose' as the role of the army and the expenditure of the Ministries of Defense is in many countries not fully military: military hospitals may also serve the civilian population, the role of the police may be partly fulfilled by the army and part of education in the army is best be regarded as general (non-military) education. Furthermore, other Ministries than that of Defense (e.g a Ministry of Transport, Communication or Economic Affairs) can be involved in military expenditure as well. Therefore, the split of government expenditure on durables according to military purpose (as advocated by the 1953 and 1968 reports) is in many cases highly arbitrary.

The second question is: what is so typical about weaponary and other specific military durables, that they should be treated as exceptional in all the reports? The 1947 report argues that the longevity of military durables is fundamentally different from that of non-military durables. This is not very convincing in view of evidence from the Second World War: military as well as non-military durables were destroyed on a massive scale. The convention with respect to military weaponary seems to be inconsistent with recording current military expenditure as output: how can provision of defense and security be ackowledged as a form of production from which people derive satisfaction on the one hand, while military weapons are not regarded as capital goods on the other hand? Defense and security is provided not only in war time, but also in peace time. It seems reasonable to state that actual warfare and destruction is not the purpose of military expenditure in most countries. Therefore, there exists a case for recording expenditure on destructive weapons as fixed capital formation.

An argument against treating depletion of natural resources as a decrease in stocks is that the costs of depletion are generally external costs. These costs did not enter the decision-making processes (as such). In analyzing, understanding and predicting the national economy, e.g. the investment behaviour of enterprises, these costs are therefore also best be ignored. If depletion of natural resources is regarded as free of costs by enterprises, households and the government, they should also be recorded as free of costs in the national accounts. For a more profound discussion on the environmental issue, we refer to Keuning (1992).

In the 1968 and 1993 reports, the purchase or acquisition of land are not regarded as capital formation. The 1968 report argues that for a country as a whole total available land is constant and that -therefore- its purchase need not be included in the National Accounts (UN, 1968, para 7.85). In the National Accounts macro-economic aggregates as well as aggregates per sector/activity are recorded. For the meso economic aggregates -especially in describing agriculture-, it can be of importance to record changes in the amount of land available as capital formation and an increase in capital stock.

In theoretical economics, the concept of human capital has received wide attention. This is evidenced by awarding Gary Becker, one of the pioneers of human capital theory, the Nobel prize in economics in 1992. In development economics, it is even the general opinion "that the formation of human capital is important, perhaps even central, to the development effort in poor countries. When increased productivity results from formal education, health and nutrition, effective job search, migration, or on-the-job training, we see the results of past investments in human capital. Abstention from consumption (saving) and expenditure to increase investment together yield returns in future periods, just as investments in physical capital would yield returns" (Herrick and Kindleberger, 1984, p. 193). Large changes in the age structure of a country can even necessitate a large increase in government expenditure on formal education. A brain drain can drastically reduce the economic prospects of a country. Some enterprises spend large amounts of money on general and specific training as part of their policy. And individuals in households may want to increase their earning capacity and their opportunities on the labour market by taking courses.

Although incorporation of the concept of human capital in the national accounts is of importance for widely varying types of micro, meso and macro analysis, it is recommended in none of the reports. These consequences are the price to be paid in achieving fairly measurable concepts and consistency of concepts throughout the system (e.g. with respect to the production boundary, see above).

Neo-classical growth theory explained growth in terms of changes in the volume of labour and physical capital inputs. Technological progress was assumed to be exogenous and increases in the volume of inputs were supposed to have constant or diminishing returns to scale. 'New' growth theory regards technological progress as endogenous. It suggests increasing returns (spill-over effects) for specific inputs, like expenditure on Research and Development, innovation and human capital (on 'old' and 'new' growth theories, see Solow, 1992 and Grossman and Helpman, 1991). From this point of view, the 1953, 1968 and 1993 asset boundaries clearly reflect the old growth theory. However, the 1993 report also shows some influence of the new growth theory in recommending a Research and Development module.

In none of the reports, capital consumption is to be calculated on the basis of the net present value of capital stock. From a national accounting point of view, this value is indeed theoretic and unrealistic. Future income is at present unknown and uncertain and even expected future income flows can often not be attributed to individual assets. Therefore, the basis of calculation should be based on present market values of similar capital goods or on historical costs adjusted for changes in prices[10] (e.g. the Perpetual Inventory Method). Both options seem to be advocated in principle by the reports. Only the 1993 report contains a description of the PI-Method for calculating capital consumption. Although the option is mentioned in the 1947 and 1953 reports, no support is given to a calculation of capital consumption based on maintaining financial capital intact. This option amounts to a calculation based on historical costs with a general inflation adjust-

10. The prices of similar capital goods or the prices of the goods and services which are needed to produce such a capital good on own-account.

ment (consumer prices are probably the best choice; an index specific to the owning subsector/industry may also be chosen). If no replacement of the specific capital goods is intended at all, this option is to be preferred (cf. Scott, 1984). This option seems especially suitable for calculating capital consumption on unique assets, including most intangible assets.

According to the 1953 and 1968 reports, infrastructure is not to be written down. The logic of this convention was that estimates of capital consumption on these types of assets are highly arbitrary and that a simple solution to circumvent this estimation problem is to assume that such assets are well-kept (see e.g. UN, 1968, para 7.20). This is a clear example of a data problem inducing specific national accounting conventions.

7. Intermediate and final consumption

7.1 Description

Proper definition of intermediate and final consumption requires to define:

- all the boundaries between these categories;
- all the boundaries with other categories.

In sections 3 and 6, the boundary problems with respect to the production and asset boundaries have been discussed. In this section, attention will be focused on:

- Compensation of employees in kind and the distinction between intermediate and final consumption;
- The distinction between transfers and purchases of goods and services (intermediate consumption, final consumption and capital formation)[11];
- The use of goods and services that are not explicitly paid for, like government services and some banking services.

The reports draw the boundary between intermediate consumption and compensation of employees in kind (= final consumption) rather similarly. For example, contractual obligations for employees to purchase on own-account tools, safety-wear, etc. are regarded as intermediate consumption (or capital formation) of the employer (UN, 1947, p. 57; UN, 1953, paras 38 and 229; UN, 1968, para 6.59). The reports agree that the concepts of intermediate consumption and income in kind of the business or tax administrations are not appropriate for national accounting purposes. All reports employ a 'net benefit' principle. In the 1947 report, this is explained as: "an expenditure by an enterprise on behalf of an employee should, in order to be considered as part of the employee's remuneration, confer upon him a net benefit and not merely compensate him for a particular disadvantage arising out of his employment" (UN, 1947, p. 57). Nevertheless, there seem to be some

11. The distinction between subsidies and purchases of goods and services will not be discussed. The reason is that it would require disproportionate space: the subject itself is complicated, many alternative booking conventions are possible for various institutional arrangements of e.g. health care and the reports do not enhance one general principle, but have different opinions on different items (e.g. health care, education, housing and transport).

clear differences between the reports: the 1947 report enhances a broad interpretation of this principle, while the other reports employ much more rigid interpretations (suggesting invariance to differences in time and place).

The 1947 report stresses that "what is normally regarded as a net benefit is dependent on social valuations and changes as these valuation change. Thus, for example, the existence of pit-head baths at a coal mine would, a hundred years ago, have been something quite exceptional, in no sense a cost of doing business, and would doubtless have been regarded as a net benefit to the employee rather than as a compensation for the particular disadvantages of his trade. Nowadays, perhaps, the mattter would be differently regarded, as such amenities would hardly be regarded as income in kind" (UN, 1947, p. 57). Other interesting examples given are:

- "In contrast to payments to special schemes covering specific occupational diseases, payments in respect of general health insurance schemes are best regarded as compensation of employees" (UN, 1947, p. 57).
- "[I]n trades in which unemployment is negligible, such payments [payments in respect of unemployment insurance] confer virtually no benefit and on this argument the payments in industries with a higher rate of unemployment are merely an offset to this hazard" (UN, 1947, p. 57).

So, in fact, the 1947 report argues that items should be included in compensation of employees (or in intermediate consumption) depending on the specific national (or even regional) circumstances. This contrasts with the other reports. For example, in the 1993 report even a concrete list of items to be included in intermediate consumption is given (UN, 1992, Ch. VI, p. 47).

A second boundary issue is the distinction between transfers and the purchase of goods and services. An important case in point is the distinction between taxes and levies on the one hand and purchases of goods and services of the government on the other hand.

The reports agree that the purchase of goods and services refers in general to all payments in which there is a clear and reasonable link between the payment and the acquisition of the services or goods. So, entrance fees for museums and payments for catalogues and postcards in museumshops are regarded as the purchase of services (in this case: final consumption). However, charges mainly made for revenue purposes should be recorded as taxes. In the 1947 report it is for example stated that "in numerous cases government agencies compel registration, auditing and the like for which a fee is charged far in excess of the cost involved. In the case of registration, it may be argued that no service is rendered and the whole fee may be treated as an indirect tax. In the case of compulsory auditing, etc., where there is clearly an element of service, the difference between the fee charged and the cost of the service may be regarded as a tax" (UN, 1947, p. 59). Though this principle is mentioned in all the reports, there are differences in application. For example, in the 1953 and 1968 reports fees in respect of passports are taxes, while in the 1993 report these are part of final consumption expenditure. The 1947 report does not mention this specific case. Similarly, the 1947, 1968 and 1993 reports regard school fees as a payment for services, while the 1953 report regards them as transfers (UN, 1947, p. 59; UN, 1953, para 130; UN, 1968, p. 108, table 6.1).

With respect to payments to private non-profit institutions, the distinction between transfers and purchases of goods and services is discussed only in the 1968 and the 1993 report. They agree that membership dues, subscriptions, voluntary donations to Non-profit institutions serving households are to be recorded as transfers (UN, 1968, para 6.91; UN, 1992, Sec. distr. p. 32). This applies also to e.g. the membership fees of sports clubs and trade unions. The latter could have been regarded as payments for services. At the same time, the 1968 and 1993 reports also seem to agree that membership dues for Non-profit institutions serving business are a payment for services (UN, 1968, table 7.1, p. 128; UN, 1992, Ch. VI, p. 52). This could be regarded as an inconsistency.

The distinction between purchase and transfer is also important in case of bad debt allowances. In the 1947 report, bad debt allowances are regarded as operating expense (intermediate consumption), while the 1953 report records it as property income and the 1968 report recommends to record them as current transfers (UN, 1947, p. 61; UN, 1953, para 242; UN, 1968, table 7.1). In the 1993 report, it is recorded as an Other change in the volume of assets (UN, 1992, Ch. XII, p. 13).

Some goods and services are not explicitly sold (as such) to individual households or enterprises. Examples are government services, services of non-profit institutions, banking services and services of insurance companies. In such instances, specific accounting conventions are needed to define intermediate and final consumption and the consuming sectors.

All reports agree that it is too difficult in practice to split government services into intermediate consumption and final consumption; therefore all government services are to be recorded as final consumption of the government (e.g. UN, 1947, p. 33; UN, 1953, para 40). The implication is that by convention no export or import of government services is possible. This could pertain to e.g. the import by EC-countries of EC-government services or the export of military services by the United States to e.g. Saoudi-Arabia and Japan by amount of the latter's financial support to the USA in the Gulf-war.

In contrast to their recommendation with respect to government services, the reports seem to agree that the services of non-profit institutions are to be split into intermediate and final consumption. This can be deduced from the sector classifications in the reports: all split non-profit institutions in those serving households and those serving enterprises.

The 1947 and 1953 reports take the position that the domestic production of indirectly charged banking services should be allocated to the sectors and thus be recorded as either intermediate consumption, final consumption or as exports (UN, 1947, p. 41; UN, 1953, para 199). In contrast, the 1968 and 1993 reports recommend to record this domestic production as intermediate consumption of a nominal sector (UN, 1968, paras 6.34, 6.35; ISWGNA, 1992[12]). The implication is that -ceteris paribus- Domestic Product and National Income in the 1947 and 1953 reports is higher than that recommended in the 1968 and 1993 reports by amount of the final consumption and exports of imputed banking services.

The 1947 and 1953 reports allocate the indirectly charged banking services to the depositors (borrowers). The 1993 report allocates to lenders as well as to borrowers of funds. Those who indirectly finance the provision of free banking services are generally not the same as the actual users of these services. So, in fact, in none of the reports an allocation is made on the basis of the actual <u>use</u> of the banking services.

In the 1947 report, the <u>services of casualty insurance companies</u> are recorded as being consumed by resident producers and households, that is partly as intermediate consumption and partly as final consumption. The 1953 report follows with respect to the exports of these services, the IMF-Balance of Payments Manual, which recommends to record the inflow and outflow of premiums and pay-outs as imports and exports of services (UN, 1953, para 190). The 1968 report agrees with the 1947 report (UN, 1968, para 6.39, table 6.4). In the 1993 report, the services of casualty insurance companies are to be recorded as intermediate consumption, final consumption or exports (UN, 1992, Ch. IX, p. 14; UN, 1992, Ch. XIV, p. 36).

The 1947, 1968 and 1993 reports agree that the use of <u>services of life insurance companies, pension funds and social security funds</u> should be recorded as final consumption or as exports of services (UN, 1947, pp. 42, 53; UN, 1968, para 6.39, table 6.4; UN, 1992, Ch. IX, p. 14, Ch. XIV, p. 36). The 1953 report seems to suggest that only final consumption should be recorded (UN, 1953, paras 136, 152 and 240).

12. In the draft report, the new SNA sided with the 1947 and 1953 reports (UN, 1992, Ch. VI, p. 39). However, in a special meeting of experts, it was decided to adopt the 1968 convention. Allocating the indirectly charged banking services and its consequences for Domestic Product can be shown in a supplementary table (ISWGNA, 1992).

A unique feature of the 1993 report is that it employs a twin set of final consumption and disposable income concepts: final consumption expenditure and disposable income on the one hand and actual final consumption and actual disposable income on the other (see also section 5.2). In the 1993 report final consumption by the government is divided into two parts: individual goods and services and collective services. Actual final consumption by households is defined as the sum of final consumption expenditure by households plus individual goods and services by the government plus the services of Non-profit institutions serving households (All services by Non-Profit Institutions are treated as individual even though some are partly collective in nature). Actual final consumption by the government is equal to the government expenditure on collective services.

The 1993 concepts of final consumption expenditure and actual final consumption by households differ from the concepts of final consumption by households in the other reports. In contrast to final consumption by households in the other reports, final consumption expenditure in the 1993 report does not include social transfers in kind. So, the 1993 concept of final consumption by households is less encompassing. However, actual final consumption by households is more encompassing as it includes the services of non-profit institutions serving households and the individual services of the government as social transfers in kind.

7.2 Discussion

The choice of the production boundary has a large effect on the occurrance of many practical problems in distinguishing between intermediate and final consumption, e.g. at unincorporated enterprises where some goods and services are used for production as well as for final consumption (e.g. shelter and modes of transport). By extending the production boundary with primary own-account production, the 1953, 1968 and 1993 reports have substantially increased the statistical problem of distinguishing between final and intermediate expenditure.

The convention in the reports to record all government services as final, may affect international and intertemporal comparability of Domestic Product and National Income, as the intermediate or final character of government services can differ substantially. This pertains to the services provided by the government which might have been produced and sold by public or private enterprises. As the reports regard such government services (e.g. research, education, transport, security services) fully as final consumption, while their marketed counterparts are partly recorded as intermediate consumption, comparability of domestic product and national income figures can be affected.

According to the reports, only the expenditure actually made are to be recorded as costs; all kinds of possible external costs are not to be recorded as costs. Environmental costs are a case in point, some of them are internal and other external. Following the reports, only the expenditure by enterprises, government and households should be recorded as costs; expenditure that 'should have been made' are ignored. Regulations on maximum allowable pollution levels or expenditure by the government on cleaning the environment can internalize costs that were previously external to the national accounts.

In the reports, government production is valued at costs and all government output is recorded as final consumption. As a consequence, the distinction between payments for goods and services and factor services (primary income) on the one hand and income transfers on the other becomes more important. As part of the government's economic and social policy, groups of unemployed are sometimes given (temporary) 'jobs'. These jobs are not always intended to stimulate government output, but frequently serve social purposes (e.g. to get minorities out of their isolated social position) or they are just intended to keep people from the streets (e.g. in developing countries, but also in Sweden where the government is obliged to provide work for unemployed). From the purpose of measuring government output, the wage payments related to purposeful overemployment should actually be regarded as transfers.[13] Another solution is to treat these wage payments as wage payments, but to make a correction on real government output for a decrease in the efficiency of the government. The mirror-image of 'wages that are in fact transfers' are 'transfers that are in fact wages' or 'unpaid work'. This relates to volunteer work in all forms.

The 1947 and 1953 reports (for the 1993 report, see note 12) recommend to allocate the use of indirectly charged banking services to (non-nominal) sectors. In order to calculate national aggregates, a rough split between intermediate consumption, final consumption and exports is sufficient. A more detailed allocation to sectors has serious drawbacks. The micro-macro link is disturbed, because depositors do not know of this charge at all and there will be no connection to their economic behaviour. By imputing charges for banking services, the description of the production process as well as that of financial flows (actual interest flows are modified) is affected. In addition, it is unclear why the borrowers and lenders should be charged and not those who actually use the banking services (e.g. households making use of giro accounts). Furthermore, if the lenders/borrowers are unincorporated enterprises, a statistically very bothersome split should be made between intermediate and final use of the imputed banking services. For a more extensive discussion, see Keuning (1990). It seems that no analysis is served by imputing the use of indirectly charged banking services at the industry level. This convention certainly smells after bookkeeping for bookkeeping purposes.

13. An interesting borderline case can be found in the Netherlands (see Bos and Gorter, 1993). In 1988, gross value added of the workshops for disabled amounted to 520 million Dfl as only the payments to staff personell and management are recorded as compensation of employees. The payments to the disabled employed are regarded as social transfers and not as compensation of employees. In 1988, these payments amounted to 2.8 billion Dfl.

8. Primary and secundary income distribution and saving

8.1. Description

In this section, we will describe the primary and secundary distribution of income and saving in the reports. First, for each report some general statements are made. Then, attention will be focused on describing and comparing some elementary concepts of income and saving, namely:
- compensation of employees;
- operating surplus;
- property income;
- disposable income;
- saving.

In the 1947 report, the description of the distribution of income is scattered over various accounts. For example, in the Operating Account, the payment of compensation of employees and interest are recorded, while the payments of dividends, undistributed income and the payment of direct taxes are registered in the Appropriation Account (see section 5). The distribution of national income by type of income is shown in a separate table (UN, 1947, table 4, p. 14).

The 1953 report registers the distribution of income at the Appropriation Account. The balancing item of this account is saving. In this account, no distinction is made between the distribution of primary income and secundary distribution of income (redistribution of income). The distribution of national income by type of income is shown in a separate table (UN, 1953, table IV, pp. 21, 22).

The distribution and redistribution of income is described in the 1968 report in the Income and Outlay Account. In a separate table, the distribution of National Income by type of income and Disposable Income are shown (UN, 1968, table 18, p. 192).

In a supplementary table (UN, 1968, table 23, p. 198), attention is also paid to income and outlay by type of Household. The types are distinguished on the basis of the 'head of the household':

- Proprietors of unincorporated enterprises except owners of owner-occupied dwellings only:
  * Agricultural
  * Non-agricultural
- Employees
- Persons in other status (e.g. receiving pensions or social grants).

In the 1993 report, the description of the distribution of income is already contained in the accounting structure. Four accounts are employed to describe the distribution of income:

- Generation of income account;
- Allocation of primary income account;
- Secundary distribution of income account;
- Redistribution of income in kind account.

The standard sub-sectoring of the sector Households accomplishes that these accounts also show the (re)distribution of income by type of household (see section 5).

In the 1953, 1968 and 1993 reports, the concepts of compensation of employees (or 'wages and salaries') are rather similar. They all encompass e.g.:

* Employers' contributions to social security schemes;
* Employers' contributions to private pension schemes.

In the 1947 report, employers' contributions to social security schemes are not included, but regarded as a tax (UN, 1947, p. 59). Furthermore, our discussion in section 7, revealed that the 1947 report has a less rigid interpretation of compensation of employees in kind than the other reports.

The 1953 report does not employ a concept of operating surplus ('entrepreneurial income'). The concepts in the other reports are of course partly different due to differences in the production boundary, asset boundary and the concepts of intermediate and final consumption. However, there is also a fundamental difference in concept. The operating surplus in the 1968 and 1993 reports can be regarded as the compensation for the share-holders/owners and the lenders. However, in the

1947 report, interest payments are to be deducted like in calculating profits in the business accounts.

The types of property income distinguished are rather similar in the reports: they all include items like dividends and withdrawals, undistributed income, interest and rent. With respect to rent, there are some differences. This fully reflects differences in the production and asset boundary. For example, in the 1993 report payments for licenses are payments for services and thus not property income. In contrast, in the 1953 and 1968 reports, these payments are property income, i.e. rent. Furthermore, only in the 1947 report are realized holding gains included in property income (undistributed income). Finally, only in the 1953 report are allowances for bad debt regarded as property income (see section 7).

In all the reports, income of households also includes investment income of life insurance companies and pension funds attributed to households. Furthermore, employers' pension contributions are viewed as if they were paid directly to employees and included in household income. In order to avoid double-counting, the actual receipts of pension and life insurance payments are not recorded as household income.

In addition to indirect taxes and subsidies, economic subjects receive and pay all kinds of other transfers, like direct taxes, gifts and unemployment benefits. Secundary or disposable income can be defined as the sum of primary income received plus the net balance of current transfers received. Such a concept of disposable income is explicitly used in the 1953, 1968 and 1993 reports (UN, 1953, para 121; UN, 1968, para 7.5; table 18, p. 192). In the 1953 report, disposable income refers only to households. In the 1968 and 1993 reports, disposable income is used for each sector and the national economy.

A third type of income distribution is tertiairy income distribution. This distribution of income may differ from a distribution of secundary income in two respects. Firstly, individualizable final consumption expenditures by the government are distributed to final (or intermediate) consumption of specific groups of households (or enterprises) that benefit from this government production. Secondly, subsidies that lower the market price of some goods and services are classified as income of the households (enterprises) that buy these goods and services. A basic feature of tertiairy income distribution is that it amounts to a redistribution of imputed values.

Only in the 1993 report, a tertiairy income concept is employed, i.e. actual disposable income (see also sections 5 and 7). It only encompasses the individualizable final consumption expenditures by the government. They are all attributed -by definition- to households.

Saving is a balancing item in the accounts of all the reports. It is defined as disposable income minus final consumption expenditure. The latter concepts have already been discussed above. This therefore also applies in principle to the concept of saving.

8.2 Discussion

In our discussion, we will focus on the relationship with concepts of income in economic theory and administrative concepts of income.

It is a long tradition in economic thought to distinguish different factors of production and corresponding factor incomes. Such a distinction by type of primary income would be e.g.: Profit, Wages, Interest and Land rent (Pen, 1971, p. 163). This distinction is in several respects different from the ones recommended in the reports:

- 'Pure' profit and labour income do not exist in the reports as income of unincorporated enterprises is not split into compensation of employees and entrepreneurial income;
- Interest payments also include payments for some banking services;
- In addition to Land rent, various other categories of rent (e.g. royalties) are acknowledged;
- The net rent on imputed services for owner-occupied dwellings can

only arbitrarily be dubbed as 'profit' or interest.
Growth accounting tries to explain economic growth in terms of changes in the factors of production Labour and Capital and various other causes. So, the first step of growth accounting is always to modify national accounts figures in such a way that they *show factors of* production, e.g. the income of unincorporated enterprises is split (see Maddison, 1987).

A famous definition of income is by Hicks: "income is what you can spend in one period and be as well off at the end as at the beginning" (Hicks, 1946, p. 172). Hicksian income amounts to discounting (expected) future income and consumption and can be interpreted as the 'maximum level of permanently maintainable consumption'. It is only concrete in a metaphysical world without uncertainty and changes in prices, interest rates and wants. In applying Hicksian income to the nation as a whole, also (expected) changes in the size and composition of the population should be taken into account. In the national accounts, none of the income concepts like compensation of employees, operating surplus and National Income are therefore Hicksian (see also F. Bos, 1989, in particular pp. 18, 19).

In a lot of administrations, various specific concepts of income are employed. Examples of such administrations are business accounts, administrations of the tax authorities and administrations of social security institutions. They use concepts like 'profits before tax', 'profits after tax', 'taxable income' and 'wages' (e.g. excluding compensation of employees in kind).

Establishing a link between administrative concepts and the national accounts is important for two reasons. First, administrative data sources serve as a source to the National Accounts. Deviating from their concepts complicates this usage. Secondly, the behaviour of economic subjects is influenced by the administrative concepts. For example, managers, investors and banks may (partly) base their decisions on information in the business accounts. So, in order to explain their behaviour the National Accounts should not deviate (too) much from the concepts in the business accounts. This pertains to e.g. explaining investments and tax payments by enterprises and to fluctuations in the stock exchange rates. Despite these reasons, the link between administrative concepts and those recommended in the reports is often rather blurred.

Business accounts are compiled on the basis of national guidelines that differ substantially among countries (see e.g. Nobes and Parker, 1985). Furthermore, these national guidelines often allow the use of several accounting conventions, e.g. the valuation of capital stock at historical costs and at replacement value. So, national guidelines as well as national practice determine the exact content of the concepts employed in the business accounts. As a consequence, general inferences about concepts in the business accounts and the national accounts are difficult to make.

We will therefore limit ourselves to listing some possible differences between their concepts of income:
- Different concepts of capital formation may be employed (e.g. with respect to intangible assets);
- Different concepts of capital consumption may be employed (e.g. different life times, historical costs vs replacement costs);
- Different valuation principles may be used for changes in stocks; as a consequence, intermediate consumption will be valued differently;
- Capital gains and losses may be treated differently, i.e. included in business income;
- The sale of property (buildings, financial assets) may be recorded as current revenue in business accounts;
- Specific national accounts conventions are not reflected in the business accounts, e.g. those with respect to banking services, casualty insurance services or unfunded employee welfare funds.
- In the business accounts, exceptionally large, incidental costs, like the costs of reorganization, may be deducted as a current cost.

For analytical reasons presented above, it may be useful to show -next to national accounting income of enterprises- also the differences with income in the business accounts.

Taxable income of households may differ also in many respects from the concepts recommended in the reports. This concerns pensions, the investment income of life insurance companies and the valuation of own-account production, the services of owner-occupied dwellings and fringe benefits. If the National Accounts concept of household income is to be "useful in connexion with the analysis of the demand for consumer's goods and services" (UN, 1947, p. 9), these deviations should be abandoned or shown in a separate table (see also Ruggles, 1986 and Bos and Verma, 1992).

The concepts of income in the international guidelines do not coincide with those in the national administrations, like taxable profits (see above) and income subject to personal income tax (e.g. differences with respect to fringe benefits or the imputed services of owner-occupied dwellings). As a consequence, the concepts of income in the reports are not suited for planning and describing for specific administrative purposes. For example, in calculating the consequences of a change in tax rates on tax revenues or on after-tax income of individual households the national accounting concepts and figures should be modified.

Although interest for personal income distribution issues was one of the major stimuli in the history of national accounting (see Bos, 1992a), the 1947, 1953 and 1968 reports have ignored the issue. Even the 1993 report retains its macro-economic interpretation of e.g. pensions.[14] Several explanations can be given. First, directly after the war, for many countries, in particular those involved in drafting the guidelines, national recovery was much more important than issues of income distribution. However, this argument does not seem fully convincing for the drafting of the 1968 SNA, in particular if the data needs of the developing countries are taken into account. Secondly, for conceptual reasons, a clear choice had to be made between describing issues of income distribution or taking a more macro-economic point of view with respect to, e.g. the treatment of pensions. Only in a flexible

14. An exception is the SAM chapter in the 1993 report. It explicitly suggests also to employ micro-economic concepts of household income. Explicitly showing the imputations and rerouteings in the standard accounts (as recommended by the 1993 report) helps to construct a micro-economic concept of household income.

system (see van Bochove and van Tuinen, 1987), both conflicting views can be incorporated in one accounting system. Thirdly, the ideas about the classifications to be used were not yet worked out and it was therefore thought premature to present guidelines on the issue.

As income in the reports does not bear a direct relation to micro-economic concepts of income, a similar remark applies to the concepts of saving in the reports.

9. The boundary of the National Economy: domestic territory, residency, imports and exports

The concept of a national economy is not a priori clear. It can be defined in two fundamentally different ways. Firstly, the national economy consists of all economic activities and possessions on the domestic territory. Secondly, the national economy consists of all economic activities and possessions of a group of economic subjects (persons, enterprises, government). That these definitions are indeed different, may be grasped by referring to a nomadic economy: in describing such an economy, only the second type of definition makes sense.

In the four reports, the territorial notion is very important in describing production and income. In general, production which takes place on the domestic territory should be recorded as domestic production. Exceptions pertain to temporary projects abroad.

There are also several instances in which the employment of a pure territorial delineation is rejected and the recommended delineation is based on the features of the economic subjects involved:

- Temporary (shorter than one year) production abroad and production by embassies, consulates and military establishments abroad are regarded as domestic production in the 1953, 1968 and 1993 reports; their counterparts on the domestic territory and the production of international bodies located on the domestic territory are not regarded as domestic production. The 1947 report is silent on these cases.
- Some production taking place in international territory is regarded as domestic production by the 1968 and 1993 reports: e.g. "fishing fleets, vessels and floating platforms which residents of the country operate wholly, or mainly, in international waters and ... fishing vessels, oil and natural gas rigs, and platforms engaged in extraction in areas in which the country has the exclusive rights of exploitation by virtue of international agreements or pronouncements' (UN, 1968, para 5.100); the 1947 and 1953 report do not mention these cases.

- In general, the 1953, 1968 and 1993 reports recommend to record the production of transport services as production of the owners of the modes of transport (ships, aircraft, trucks). Again the 1947 report is silent in this respect.
- Income of a normal resident who is temporarily abroad is part of National Income according to all reports.

So, the recommendations in the reports are a mixture of a territorial delineation and a delineation based upon features of economic subjects.

The 1947 report also suggests another delineation of the national economy: "in the economy of the home country all those enterprises and only those enterprises which are controlled by normal residents of the home country [are to be included]" (UN, 1947, p. 77, 78). According to this concept, the production of multinationals need not to be split on the basis of territorial criterions: the production of a multinational belongs to its home country. In modern times, it becomes increasingly tricky to give an operational definition of a multinational's home country: should it be determined on the basis of its major stock holders, the composition of the board of directors or the residence of the 'head quarters'? In the 1993 report, 'foreign controlled corporations' are defined on the basis of the majority of shares.

A peculiarity of the 1953 report is that the concept of <u>domestic capital formation</u> is not fully linked to the concept of domestic production: "The construction of buildings for use by embassies, consulates and international governmental agencies should be considered part of the domestic fixed capital formation of the country of location irrespective of ownership" (UN, 1953, para 48). Thus, the value of production by e.g. an embassy abroad is part of domestic production, while the related capital formation abroad is not recorded as domestic capital formation. In the 1968 and 1993 reports, this inconsistency is not recommended anymore: the related capital formation (and capital consumption) is to be recorded as domestic capital formation.

In the 1947 and 1953 reports, both the country of residence and the country of employment are mentioned as criterions for determining the residency of persons. In the 1968 and 1993 reports the country of residence is chosen. Such a choice is crucial in cases of massive international forensism, for example Mexicans working in the United States. A temporary stay abroad, for example being on holiday abroad, does not influence the residency of persons.

The concept of domestic territory is of course also subject to choice. It could, for example, be defined to include as well as to exclude extra-territorial possessions and colonies. In the 1953, 1968 and 1993 reports, exclusion is recommended; in the 1947 report no position is taken.

Linked to the two ways of delineating a national economy, there are two ways of defining imports and exports:

- According to the strict territorial notion, imports and exports amount to the transport of goods, services and other property from inside the territory to abroad and vice versa.
- According to the alternative view, imports and exports are to be defined as transactions between resident economic subjects and non-resident economic subjects.

In general, imports and exports of goods, services and other property are defined in the reports as a transaction between resident economic subjects and non-resident economic subjects. However, there are some exceptions to this rule. We will mention two.

In the 1947, 1953 and 1968 reports[15], imports of merchandise are valued including the costs of insurance and freight (c.i.f.) up to the national border. If merchandise is bought abroad and the merchandise is transported by domestic producers, valuation at cif overestimates imports. In order to present a proper trade balance, a counter balancing item 'export of services' is introduced (see Bos, 1989b). This 'export' does not involve a transaction between a resident and a non-resident. The convention to value imports of merchandise at cif and exports at fob

15. In the 1993 report, imports of merchandise are valued at fob values in the aggregate tables, because this is the convention of the IMF on compiling balance of payments figures.

is recommended in the reports, because these valuation principles are used in the customs data and -therefore- in the international trade statistics. So, this convention is also an excellent example of a concept recommended mainly for data reasons.

The second example pertains only to the 1968 report. If gold for industrial use is employed for financial purposes, the 1968 report recommends to record an export in order to reflect the change in financial claims. A similar procedure is recommended when financial gold is to be used for industrial purposes: in that case, an import should be registered (UN, 1968, table 6.4). Also in this type of 'imports' and 'exports', no transaction between residents and non-resident occurs.[16]

In section 7, some specific national accounting conventions on government production, banking services and the services of pension funds, insurance companies and social security institutions have been discussed. These conventions have also some clear implications for the concept of imports and exports of goods and services. By convention there can exist no imports and exports of:

- government services;
- indirectly charged banking services (only in the 1968 and 1993 report);
- services of casualty insurance companies (not in the 1953 and 1993 reports).

16. The 1993 report proposes to record such reclassifications of gold as an other change in the volume of assets.

10. Main aggregates of product and income

10.1 Description

Table 6 presents a general overview of the main aggregates of product and income in the standard accounts of the reports. It shows that:

- The 1947 report does not contain a concept of Domestic Product; Its Gross National Income at market prices serves rather the same role as Gross Domestic Product at market prices in the 1953 report.
- The 1968 report does not include a concept of National Income;
- The 1947 and 1953 reports do not employ a concept of National Disposable Income;
- The concept of factor costs is only used in the 1947 and 1953 reports;
- Aggregates at constant prices are only used in the 1968 and 1993 reports and the 1968 report does not deflate National Disposable Income.
- The 1993 report does not provide a clear choice between net versus gross concepts, both are regarded as useful.

Below we will discuss some specific features of the main aggregates in the reports and pay also attention to aggregates recommended in supporting tables.

Table 6. Main aggregates of product and income in the 1947, 1953, 1968 and 1993 reports.

Main aggregates of product and income	1947 report	1953 report	1968 report	1993 report
Domestic Product				
- Gross		x	x	x
- Net				x
- Market prices		x	x	x
- Factor costs				
- Current prices		x	x	x
- Constant prices			x	x
National Income/Product				
- Gross	x			x
- Net	x	x		x
- Market prices	x			x
- Factor costs	x	x		
- Current prices	x	x		x
- Constant prices				x
National Disposable Income				
- Gross				x
- Net			x	x
- Market prices			x	x
- Factor costs				
- Current prices			x	x
- Constant prices				x

In the 1947 report, two aggregates play the central role: National Income ('Net National Product at factor costs') and 'Gross National Product at market prices'(or 'Gross national expenditure at market prices'). The concept of Gross National Product at market prices is designed in such a way that it can be derived by adding various categories of expenditure (final consumption, capital formation, the balance of imports and exports). National income can obtained by deducting from Gross National Product at market prices:

1. 'Depreciation and obsolescence allowances'
2. 'Allowances by enterprises for bad debts'
3. 'Insurance claims paid to enterprises and transfers to insurance reserves in respect of the increase in accruing liability to business policy holders'
4. 'Indirect taxes, less subsidies'
5. 'Social security contributions of employers' (UN, 1947, table 5, p. 14).

In the other reports, the difference between a gross and net concept amounts only to capital consumption (item 1.). In the 1947 report, there are two more differences. Both are regarded by the 1947 reports as imperfections in its concept of Gross National Product as a measure of (factor) income. Allowances by enterprises for bad debts are regarded as an operating expense and should thus be deducted in order to obtain factor income. Furthermore, charges in respect of business insurance met out of the investment income of insurance companies should be deducted, i.e. imputed as a cost to enterprises (UN, 1947, p. 13).

The difference between market prices and factor costs includes not only indirect taxes and subsidies like in the other reports, but also social security premiums paid by employers. The latter reflects that the 1947 report regards these premiums not as compensation of employees (see section 8), but as transfers.

The aggregates of the 1947 report include realized holding gains. This contrasts with the aggregates in all the other reports.

In the 1953 report, the central aggregates are 'Gross Domestic

Product at market prices' and 'National Income' (= Net National Income at factor costs). The difference between Domestic and National amounts to the balance of the primary income flows with the Rest of the World. For the sector Households and Private Non-profit Institutions and the sector Government, the aggregate of their current account is respectivily called 'Income' and 'Current Revenue'. Both are equal to primary income plus net current transfers received from other sectors. They could therefore be regarded as some sort of Disposable Income. For the nation as a whole, no such concept is presented.

In the Standard Accounts of the 1968 report, the main aggregates of product and income are Gross Domestic Product at market prices and (Net) National Disposable Income at market prices. In some of the supporting tables, Gross Domestic Product is presented at producers' values and basic values[17] (UN, 1968, supporting table 9), while Net Domestic Product at factor costs ("Domestic factor incomes", UN, 1968, supporting tables 1, 17 and 18) and (Net) National Income at market prices (UN, 1968, supporting table 18) are also shown.

In the 1993 report, it is shown how value added at basic prices, producers' prices and factor costs can be derived from Domestic Product at market prices. The report also states that value added at factor costs is absent in its accounting system, but that it nevertheless can easily be derived from it.

10.2 Discussion

With respect to the distinction between Domestic, National and National Disposable, it can be argued that these aggregates pertain to alternative processes in the National Accounts:

- Domestic Product relates to the description of domestic production and its generation of value added. It can be regarded as the balancing item of a Consolidated Production Account of the nation.

17. The table provides for true as well as for approximate basic values (UN, 1968, p. 190). However, approximate basic values seem to have been preferred by the experts (UN, 1968, p. 48).

- National Product/Income relates to the description of the net accrual of primary income. It can be regarded as the balancing item of a Consolidated Income Appropriation Account of the nation. Therefore, the term National Income is a more suitable term to indicatin this aggregate than National Product is.
- National Disposable Income relates to the description of the net accrual of primary as well as secondary income. It can be regarded as the balancing item of a Consolidated Income and Outlay Account of the nation.

From this point of view, each aggregate stresses a different part of the economic circuit; they serve distinct purposes.

The 1947 report disagrees with this point of view as it takes an 'either ... or' position with respect to the choice between Domestic Product and National Income. It suggests that for "certain primitive economies in which foreigners have large economic interests" Domestic Product may be "more useful for most purposes" than National Income/Product (UN, 1947, p. 39).

The practical importance of the distinction between Domestic Product and National Income (Product) could be rather small in many countries. This distinction only has practical importance in case of large net primary income flows from abroad due to direct investments, financial investments or massive forensism. A similar remark pertains to the distinction between National Income and National Disposable Income.

In Bos (1992b), it is argued that for most purposes Net Domestic Product, Net National Income and Net Disposable Income are to be preferred, because employing e.g. Gross Domestic Product implies that capital consumption is fully ignored as a category of costs. In international comparisons of product and income, countries with a capital intensive mode of production are judged too favourable.

Hicks made a famous distinction between a measure of productivity and a measure of welfare. For a measure of productivity, the price relevant to the producers are to be used. For a measure of welfare, the prices relevant to consumers are to be preferred (Hicks, 1940). If the primary purpose of Domestic Product is regarded to serve as a measure of productivity, it follows from Hicks' reasoning that Domestic Product should be valued at basic prices, producers' prices or factor costs. Similarly, if the primary purpose of National Income and National Disposable Income is regarded in relation to 'welfare', it follows that both should be valued at market prices.

The 1947 report states that National Income (= 'National Product') is generally to be valued at factor costs and not at market prices:
"If, for example, a comparison is being made between the proportion of current product devoted to war expenditure in two countries, an analysis based on the constitutents of gross national product [at market prices] may prove highly misleading. The principal reason is that the two countries may have a very different distribution of indirect taxation. One country may levy all its indirect taxation on the items of consumers' expenditure, while the other may adopt an indirect tax system in which the taxes are spread more or less evenly over the whole of final output. In the first case, it may in practice make an appreciable difference to the answer whether or not the taxes are taken off consumption before the proportion of war to total expenditure is calculated, while, in the second case, it will make no difference at all. In such cases, it is clearly best to work at factor costs rather than at market values, since, working at market values, the proportionate war expenditure of the country whose indirect taxes are all levied on consumers' goods in unduly depressed, while its proportionate expenditure on consumers' goods and services is correspondingly inflated. This inflation has nothing to do with the greater use of resources for the satisfacton of the needs of consumers in the one country, but is due simply to the character of its tax system" (UN, 1947, p. 37).
So, differences in the degree of (un)evenness of the distribution of indirect taxes are regarded as a reason to favour the use of National Income at factor costs and not at market prices.

The 1947 report suggests that its concept of Gross National Product at market prices can be obtained by adding and substracting categories of expenditure. However, the link with 'actual' expenditure is not that direct. For example, capital formation includes changes in stock (i.e. not expenditure) and own-account production of capital goods and final consumption includes the imputed services of owner-occupied dwellings.

11. Constancy and change in the United Nations Manuals on national accounting

For decades, all over the world, national accounts figures are being compiled on the basis of the concepts in the guidelines of the United Nations. The first international guideline was published in 1947 and the drafting of the fourth guideline has just been completed.

The 1947 report was a pioneering effort as it showed for the first time a detailed and fully worked out national accounting system. Its successor, the 1953 report, contained a much simpler national accounting system with a very limited number of accounts and sectors. The 1968 report employs a number of sectors and accounts similar to the 1947 report. In the 1993 report, the amount of detail offered is drastically increased. For example, six accounts are employed to describe the distribution and use of income, while in the 1968 report only one account is used.

A fundamental change in the 1993 sector classification is its institutional character. In contrast to the other reports, production and final consumption by households (e.g. of imputed services of owner-occupied dwellings) are not recorded in different sectors, but in the same sector.

In addition to the drastic changes in the accounting structure and the sector classifications, major changes also occurred in the scope of the reports. In the 1968 report, for the first time recommendations concerning constant prices are presented; input-output and make and use-tables were also added to the standard national accounting framework. The 1993 report introduced balance sheets, purchasing power parities, Social Accounting Matrices, satellite accounts and the concepts of employment and the labour force.

A change in concept, in particular important for developing countries, was the inclusion in the 1953, 1968 and 1993 reports of primary production for own-account. Other important changes were:

- Only in the 1947 report, government production is valued at costs including part of the interest paid on government debt;
- Only in the 1947 report, operating surplus excludes interest paid, realized holding gains are included in national income and compensation of employees does not include social security premiums paid by employers.
- Only in the 1953 report, gross rent is imputed for buildings owned and occupied by the government;
- Only in the 1947 report, some intangible durables are included in capital formation; in the 1947 report this may also include the costs of a massive advertisement campaign;
- In contrast to the 1968 report, the imputed service charge for banking services is to be attributed to the various sectors in the 1947 and 1953 reports.
- All reports recommend a different set of central aggregates of income and product.

It is interesting to note that in the preliminary drafts of the 1993 report, some of the concepts in the 1968 report were left and replaced by concepts from the earlier reports. Cases in point are the attribution of indirectly charged banking services and the imputation of rent on government buildings. However, in the final draft, the concepts of the 1968 report are retained.

The 1947 report argues that it will frequently be necessary to adapt and extend its concepts for specific national circumstances. The 1953 report does not pay much attention to specific needs and circumstances. An exception pertains to the choice of the production boundary: own-account production of primary products is included because of its importance in developing countries. In the 1968 report, a separate chapter is dedicated to the data needs and possibilities of developing countries. The 1993 report advocates a flexible system which takes account of all kinds of specific purposes and national circumstances. This is achieved by incorporating chapters on "Applications of the integrated framework to various circumstances and needs", "Social Accounting Matrices" and "Satellite analysis and accounts".

In the 1947 report, the concept of income in kind is already defined in terms of national norms and habits. In this respect, it is more radical than all the other reports, because they treat income in kind as a concept invariant to differences in time and place.

Balance sheets, the concepts of employment and labour force and the distribution of income and expenditure by type of household are not discussed in the 1947, 1953 and 1968 reports. The 1993 report breaks with this tradition and drastically extends the scope of the standard national accounts by incorporating all these subjects.

Substantial constancy in concepts is evidenced by e.g. the production boundaries. All the production boundaries exclude unpaid household services and do-it-yourself-activities and they all encompass imputed services of owner-occupied dwellings. Even specific national accounting conventions like the imputed charge for banking services, the valuation of government production at costs and recording all government production as final consumption are all advocated since 1947. Considering that the guidelines have just been revised, they will most probably constitute an established core-set of conventions for more than 50 years.

12. Standard national accounting concepts, economic theory and data compilation issues

The Keynesian revolution stimulated and shaped the development and use of national accounting concepts and figures. It was a revolution in economic theory, economic policy as well as in national accounting. These developments reinforced each other.

The international guidelines on national accounting can be regarded as children of the Keynesian revolution. The introduction of a sector government, the distinction between public and private enterprises, the all pervading macro-economic focus and the stress on expenditure and flows are the most distinct Keynesian features. They moulded the national accounts into a practical tool for macro-economic government policy.

In drafting the guidelines, the welfare-oriented approach to national accounting has four times lost the battle with the Keynesian heritage, e.g. with respect to including unpaid household services in the production boundary. The proponents of the micro-macro link also continuously lost their battle, e.g. with respect to the treatment of pensions. From both points of view, the Keynesian spirit has always been vivid and strong in the guidelines. The absence of constant prices in the 1947 and 1953 reports can also be explained by the relative unimportance of prices in Keynesian types of analyses.

However, it is also true that two major Keynesian policy targets, namely employment and unemployment, are absent in the 1947, 1953 and 1968 reports. The absence of the concept of employment is even the more puzzling considering the world-wide and longstanding use of employment figures in compiling national accounts figures, e.g. in grossing up. Furthermore, all reports reject administrative concepts and classification (e.g. of income and of the sector government), while these are most useful in planning government policy.

The 1953 report clearly states that it regarded the national accounts mainly as a tool for (macro-economic) government policy (UN, 1953, p. 1). In the other reports, other uses of the national accounts are also taken seriously.

In the 1947 report, the important role of financial intermediation is acknowledged by the separate sector financial intermediation and by including a financial account. The 1947 report stresses that in order to understand the national economy one should analyze by sector and economic activity. Meso-economic analysis of the national economy is also regarded as a major use in the 1968 and 1993 reports.

The 1968 and 1993 reports incorporate input-output and make and use tables in their national accounting system. In this way, the commodity-flow approach and input-output analysis were honoured. It implied a drastic extension of the standard national accounts as an analytical tool of information, in particular with respect to the analysis of production processes. This extension also served and stimulated the use of commodity flow-methods as a tool for compiling national accounting figures.

The 1993 report is in fact the first report to incorporate balance sheet accounting, other changes in the volume of assets and capital gains and losses. This extension greatly improves the usefulness of the national accounts for many purposes, ranging from productivity analyses to financial analyses.

Another important extension of the 1993 report involved the subsectoring of the sector households and the introduction of the twin concepts actual consumption and actual disposable income. In this way, the analysis of household income and expenditure is greatly served (though a micro-macro link is still absent).

In all the reports, international comparisons are regarded as an important use. Nevertheless, purchasing power parities are only discussed in the 1993 report.

By incorporating satellite accounts and social accounting matrices, the 1993 report shows in principle an open mind to all kinds of alternative approaches. The report explicitly discusses functionally oriented satellite accounts (e.g. on Research and Development, Healthcare or Human capital) and a satellite describing the interaction between the environment and the national economy. Welfare oriented extensions of the production boundary are also suggested as a satellite. Nevertheless, some important alternative approaches are not mentioned at all, like:

- Linking the national accounts and time use studies.
- Incorporating legislative and administrative concepts. For example, depending on the national law 'illegal activities' may cover various kinds of activities, like drugs trade, prostitution, robbery, kidnapping and smuggling. Figures on the money and employment involved in such illegal activities are important to economic and social policy. An example of an administrative concept is taxable income. Figures on the basis of this concept are indispensable in estimating tax revenues and calculating the consequences of alternative tax regimes.
- The classification of establishments by size. This could provide answers to questions like: how important are the small firms?, what is the role of large companies in transferring technology and what is the relative efficiency of the small and medium-size firms? Furthermore, if establishments of smaller size are not surveyed, they are usually grossed up on the basis of information on the larger establishments (see e.g. Bos and Gorter, 1993). By systematic comparisons of the features of the various size-classes (the economies of scale), such grossing up procedures can be improved.

In designing national accounting concepts, analytical needs should be weighed against considerations of data compilation, as both may lead to different concepts.[18] The four reports provide a wealth of conventions and motivations which illustrate the issue at stake.

Analytical needs are preferred in case of all kinds of imputations

18. The specific institutional structure of a country partly determines analytical needs as well as the possibilities of data compilation. For a concrete example, see Bos (1992c) on the consequences of Europe 1992 for Dutch national accounts and economic statistics.

and rerouteings. Examples are the imputed services of owner-occupied dwellings or the concept of compensation of employees in kind, which will usually not coincide with administrative concepts.

Considerations of data compilation are given priority in cases like:
- Not recording unpaid household services (in this case, there are also analytical reasons);
- The distinction between goods and services in the external account reflects the use of customs data;
- The introduction of a nominal sector for the use of banking services in the 1968 and 1993 report;
- Not recording expenditure on various intangible assets as capital formation (in this case, there are also analytical reasons);
- Recording all government production as final consumption;
- The absence of capital consumption on infrastructure in the 1953 and 1968 reports.

Analytical needs and data compilation also conflict in choosing the scope and amount of detail in the accounting system. The 1947 report was decades ahead of the data compilation possibilities of nearly all statistical offices. Therefore, its successor, the 1953 report, contained a very simple national accounting system, much more in line with the data practice of its time. The 1968 and 1993 report present national accounting systems more complicated and detailed than that in the 1947 report. Full implication of these systems seems to be too ambitious for most countries, even for most developed countries. Cases in point are the input-output tables and the Capital Finance Accounts which are compiled by only few statistical offices on an annual basis. The inclusion of Balance Sheets in the 1993 report further increases the imbalance between the scope and detail in the international guidelines and national accounting practice.

This imbalance should be reduced in two ways. First, in many countries the amount of resources spent by the government seems to underscore the importance of reliable, up-to-date economic statistics with a wide coverage. This can only be solved by an increase in resources for compiling economic statistics. However, this will not be easy to achieve as this purpose of government expenditure has to compete with many other purposes within the limits of the government's budget. To a limited extent, the international organizations are also providing financial and human resources. Their resources can also be of great help. For example, the EC now taxes its member states partly on the basis of their GNP and therefore wants to improve the reliability of the GNP estimates. To this end, EC-funds have been made available to national statistical offices.

The other way to reduce the imbalance is to tackle the cost-inefficiency and complexity of the guidelines. Denison signalled these defects already in the 1968 report: "for every series of any real interest that is developed, at least a dozen series of trivial or no value must be estimated to fill out the "accounts". Because most of the series called for are of no appreciable interest, existing systems of data collection do not provide the information required by the new SNA; either collection of trivial data would be required or the number would have to be imaginary. The new SNA has another weakness; it is so complicated that not even serious and expert users of national income and product data (and few producers, for that matter) can be expected to understand it or the meaning of the numbers it is to contain. A very simple set of accounts ..., supplemented by supporting tables to provide analytically interesting detail and alternative breakdowns, is a far better approach, in my opinion" (Denison, 1971, p. 38).

In discussing the programme for revising the 1968 report, Stone took a somewhat similar position: "The main need at present is to simplify the work of national statistical offices rather than to force them into innovations that would be difficult to implement. Tidying up existing concepts and definitions ... will help in the process of simplification" (Stone, 1986, p. 464).

A major reason for the complexity and cost-inefficiency of the recommendations in the 1968 and 1993 reports is that they are intended to be of use for all countries in the world. However, analytical needs and data compilation possibilities differ widely all over the world. For most countries the reports contain a lot of concepts, classifications and detail which are quantitatively unimportant or that do not fit to its data compilation possibilities. So, strictly following the international guidelines amounts to clear cost-inefficiencies: small items have to be estimated at relatively large costs and no money remains for extending the scope and detail or for improving overall reliability of the national accounting system. International comparability is not served by this state of the art: the actual amount of figures available for comparison remains limited and the reliability of these figures is still not guaranteed. For example, insufficient attention may be paid to to the coverage of the national accounting system with respect to services and various illegal activities. Another case in point is the use of too simple constant price calculations, e.g. by in fact ignoring changes in the quality of products.

The forthcoming revision of the guidelines of the EC offers the opportunity to provide another type of guidelines. The EC guidelines should contain clear standards that are attainable for most EC-countries in the near future. The guideline should do away with vague and inoperational concepts. It should make clear to what extent adjustments are obliged to be made for differences in concepts between administrative data sources and those in the 1993 United Nations report (e.g. with respect to income in kind or capital formation)[19]. A minimum quality standard is also necessary for the constant price calculations (e.g. for all kinds of services or for changes in the quality in products). A first step towards such a guideline is to investigate the concepts and compilation procedures actually used by the various EC countries. Only then can be decided on the standards that should be incorporated in the EC-guidelines.

The EC guideline should also contain a core set of tables reflecting the desired (minimum) scope of the national accounting systems of EC countries. The merits of tables and classifications with a lot of impor-

19. The adjustments actually made in compiling the Dutch national accounts are described in Bos and Gorter (1993). When detailed information is available, adjustments of administrative figures are made, e.g. for parts of the government sector. However, in the absence of such information, adjustments can not be made.

tant uses or that are relatively easy to compile should be stressed[20]. A case in point is a table on the relationship between figures in the national accounts and those in the business accounts. Compiling this table is often relatively cheap as business accounts data are generally used as inputs in compiling national accounts figures. Furthermore, this table serves a lot of uses, like planning tax revenues. Such a table may also stimulate national governments in providing more resources for compiling national accounts figures. The implication of stressing the importance of some tables and classifications is that other tables and classifications are given a lower priority[21]. This should definitely pertain to the Other changes in assets accounts. Instead of compiling this 'luxury' account, EC countries could better devote their resources to compiling e.g. environmental accounts, a Research and Development module or welfare-oriented accounts.

Such much more practical guidelines of the EC would be a great help in increasing the cost-effectiveness and international comparability of national accounts figures in EC-countries.

20. A third distinctive feature of the EC guidelines should be that it employs for international flows like those of commodities, financial capital, interest and labour the distinction between those between EC-countries and and those with non-EC countries. This would i.a. improve the additivity of the national accounts figures of EC countries (see also subsection 5.1.2 on the subsectoring of the Rest of the World).

21. Finding the balance between data needs and data possibilities is a general problem of economic statistics. The imbalances in the type of figures actually compiled by statistical offices are often the fruit of history. Outdated priorities can sometimes also be discerned in the international guidelines and the data to be provided to international organizations. A clear case in point are figures on international trade. In many countries reliable and very detailed data on imports and exports of merchandise are available monthly, while the figures on imports and exports of services are published only annually and in general not at all detailed and reliable. Information to be provided to international organizations, like the UN, the OECD and the EC reflects this practice. Also in devising new statistical regulation for intra-EC trade after Europe 1992, old practice dominates thinking about future statistics (see Bos, 1992c).

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