CENTRAL BUREAU OF STATISTICS
The Netherlands
National Accounts Sectors Division

THE INSTITUTIONAL SECTOR CLASSIFICATION

Towards a standard classification of units which are independent with respect to financial processes

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The views expressed in this paper are those of the author and do not necessarily reflect the views of the Netherlands Central Bureau of Statistics

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Summary

At the CBS work is in progress on the revision of the system of national accounts in the Netherlands. One of the major problems to be solved in this context is the developement of a proper sector classification for financing units. This report describes the present phase of the discussion on the conceptual side of such a classification. In the revision of the SNA also attention is paid tot the sector classification but, until now, for the system as a whole little work has been done on the clarification of the conceptual side of the problem. This report may serve as an background paper on this issue and is meant as an initiative towards that clarification. It deals with the classification of units which are independent with respect to financial processes (i.e. processes of income formation, outlay and capital finance) in the economy. The starting point is the view of the national accounts as worked out in the latest years in the National Accounts Department of CBS. In accordance with this view a limited number of criteria have been formulated to form a basis for the classification of the financing units. It is proposed that the resulting classification be used in the core of the system. The classification is constructed in such a way that the sector classification of the SNA and the ESA can be derived from it.

Contents

1. Introduction

The Dutch system of economic statistics distinguishes two important groups; statistics describing production and income generation and statistics describing financial processes such as income distribution, financing and the use of net resources.

The basic units in the description of the process of production and income generation are the establishments. These can be classified into more or less homogeneous groups according to the nature of their production process and/or the goods they produce. The classification distinguishes groups, classes and branches of industry on the basis of the SBI (the CBS standard industrial classification).

The description of financial processes is based on institutional units. These are classified by sector according to their role in the economic process. This is not a very satisfactory classification from a statistical-technical point of view, but there is no available standard for classifying these units in more detail.

This report attempts to outline just such a standard classification. In doing so it strives to fit in with the ideas on the development of a system of national accounts as purported by what is now sometimes called the "Dutch School"[1].

C.A. van Bochove and A.M. Bloem (1986) give a good summary of the ideas of the "Dutch School". The School's view also has implications for how the units are defined. This report takes the proposals of Bloem (1987) as starting points.

The report is also intended as a contribution to the elaboration of the sector classification in aid of the current revision of the SNA[2]. Whereas this revision pays extensive attention to the sector classification of family households, the sector classification of the other institutional units remains underexposed. This is partly the reason that this report focuses especially on the development of classification criteria for the latter institutional units.

The CBS has already developed classifications for some groups of institutional units, especially financial institutions (CBS; 1983). There has also been done a lot of work on the analysis of administrative government[3]. In principle, the classification of financing units developed in this report connects up with this.

The report is set up as follows. Section 2 inventories the starting points for a classification of institutional units. Section 3 gives an initial inventory of the types of units authorized to take decisions on financial matters independently. Subsequently section 4 classifies the units according to specific characteristics of the financial processes, i.e. processes of income, outlay and capital finance. A further elaboration of this classification based on more specific characteristics of the units is given in section 5. Section 6 contains a summary and some suggestions for the further elaboration of the classification.

2. Starting points

According to the Dutch School, the core of the national accounts should consist of an institutional meso-system. The institutional character is embodied in defining the actors in such a way that they can be considered as actual decision-taking units with respect to the transactions and processes to be analysed. The core distinguishes the analysis of the process of production and income generation in the form of make and use matrices on the one hand and the analysis of financial processes in the form of accounts on the other. The institutional unit used for the analysis of the production process is the establishment. Here the institutional unit for the analysis of the financial processes will be termed the financing unit. Such a financing unit which produces commodities may consist of one or more establishments. These establishments can be classified under several various groups, classes and branches of industry.

In the view of the Dutch School (see e.g. Al; 1986), the connection between the analysis of the process of production and income generation classified by groups, classes and branches of industry and the analysis of the financial processes classified by groups of financing units is realised by simultaneously classifying the value added and its components for each group, class and branch of industry according to the groups of financial units. For an accurate dual classification of the value added it is necessary to have information on the classification of financing unit and the typification of the establishments belonging to this unit.

To obtain a definition of institutional units (establishments and financing units) which is relevant for statistics, we need to look beyond the legal forms of these units and realise a classification which meets the desires concerned. The relevant unit for the financial processes is the financing unit. Bloem (op cit. p 23) defines this as follows: "An institutional unit (in the present report: a financing unit) is an ownership/control cluster (of legal units) or a part thereof, which is independent with respect to its role in the financial processes and at the same time as homogeneous as possible with respect to these processes." (The comments between brackets have been added by the present author).

The tension between independence and maximum homogeneity is relieved to a certain extent by two conventions (Bloem op cit. p. 22).

"The first is that every legal unit whose role with repect to the financial processes deviates significantly from that of the ownership/control cluster as a whole is an independent unit. Obviously there are drawbacks to such a convention; for example, a legal unit actually under independent control is not recognised as such. This is a general convention and may be departed from in individual cases. Another disadvantage is that strictly according to this convention, all sorts of legal units which actually have only a supportive function could also be considered as independent institutional units. The second convention serves to prevent this; this states that only units which undertake financial transactions with third parties, i.e. with units outside the ownership/control clusters to which they belong are actually independent".

The meso-character of the system ensues from the three principles to which the core information must conform. According to C.A. van Bochove and A.M. Bloem (1986, op cit. p 20): "The first of these is the intersection principle. It consists of two parts.
- the core should contain as few special purpose elements as possible, special purpose elements being constructions (e.g imputations and attributions) that are useful for one purpose but have to be removed again for other purposes. Clearly, this alone will lead to an institutional oriented cored
- the core should contain all the basic structural elements that are essential for the construction of the major alternative descriptions of the economy as a whole. This requirement implies that the core should not only be a macro-system, but an integrated meso-system as well.

The second principle of the core is the parsimony principle, which might also be dubbed the comprehensibility principle: in the core, the perceptions of economic agents should be accepted as far as possible and constructions imposing analytical views that depart from these perceptions should be used sparingly. This principle guarantees that linkage between core concepts and micro/meso concepts is quite direct and that the core will serve as an excellent frame of reference for the latter. Naturally, this principle too generates an institutional core, on which alternative functional analyses can be based. Finally, the principle implies that core data are easily comprehended by most users and are - as Rushbrook and Wells (1985), quoted above, argued - well suited for analysis of economic behaviour.

The third principle is the consistency principle: the core must be a true system of national accounts. This means e.g. that aggregates must be the consolidations or aggregations of disaggregate data, that the data from different sources must be made consistent with each other, that principles of valuation should be uniform. It also implies that the system must have internal cohesion: the linkages between different subsystems must be as disaggregate as possible. Of course, the latter is also a requirement that follows from the need for a meso-economic description of the economy."

With this we have outlined the framework within which the classification of financial processes takes place. The following section inventories the financial processes and the types of financing units.

3. The processes and units to be analysed; a further reconnaissance

3.1 Introduction

As indicated above, the processes of production and income generation are analysed in the framework of "make" and "use" matrices. The institutional unit upon which this information is based is the establishment. According to criteria concerning the nature of their production process and the commodities they produce, these establishments are classified into more or less homogeneous groups, classes and branches of industry according to the SBI. The income generated in the context of the production process is then specified by the following income components: wages and salaries, social taxes, consumption of fixed capital, indirect taxes etc., subsidies and the operating surplus.

The statistical analysis of the financial processes is related to obtaining and using (financial) resources. The institutional unit from which the information in aid of the analysis is derived is the financing unit. In the context of the analysis of the financing units too, it would be desirable to form groups of financing units which are homogeneous with respect to these processes. From a statistical-technical point of view such a classification offers a good basis for an optimal analysis of the transactions concerned. Such an approach implies that the criteria for the classification of units are incorporated in the nature of the transactions to be analysed. This creates room for a more intensive analysis of the financial processes and thus for more reliable estimates. This in turn will intensify the confrontation between the results of the analysis of the production process on the one hand and the analysis of the financial processes on the other, by which the quality of the whole system can be improved.

In the SNA (UN, 1968) and ESER (EEC, 1970) the criterium chosen for the classification of the financing units is their role in the economic process. This is subsequently given further form by concentrating the classification criteria on the nature of the produced commodities. The criteria used are actually those related to the production process, only the unit differing from the units used for analysis of the production process. Also, the suggestions for further specification of the institutional sectors formed in this way are to a significant extent based on classifications used in the analysis of the production process. This is particularly true as far as the sector non-financial institutions is concerned. The conclusion should indeed be that the criteria for classifying financing units proposed in the SNA and the ESER take insufficient account of the specicifc nature of the processes and transactions to be analysed.

If the formulation of criteria for classifying financing units with a directer relationship with the analysed processes is opted for, it is conceivable that a separate institutional unit could be defined for each of these processes. However, this is not the case; as Bloem (1987 op cit.) has already stated, such an approach would lead to too great a fragmentation of the system of national accounts.

Before dividing the financing units into homogeneous groups with regard to the financial processes, it is important to have a further insight in the population of financing units and a brief outline of the relevant financial processes. In the following sections both the types of financing units an the financial processes are inventoried further.

3.2 The population of financing units, a further acquaintance

There are various ways to get to know the population. An inventory could be made of all forms in which financing units are manifested, but this would result in a motley collection. Therefore a starting point was sought which is closely linked with the common characteristic of all financing units, while at the same time relevant for a number of financial processes. This common characteristic is the capital of the financing unit. It constitutes a good starting point for a further acquaintance with the population.

All financing units have capital. Insight in this capital can be obtained from a balance sheet, which gives a description of the composition and use of the capital. The asset side of the balance sheet shows the components in which the capital of the financing unit are fixed. The liability side gives an overview of the sources from which the capital is obtained (see scheme 1).

Scheme 1 A strongly simplified balance sheet of a financing unit

Assets	Liabilities
A: non-financial assets	D: (risk-bearing) equity capital
i.a.	i.a.
-fixed capital goods	-paid-up share capital
-intangible assets	-reserves
B: financial assets	C: credit capital
i.a.	i.a.
-shares and other equities	-incurrences
-(granted) credit	-accounts payable
-cash	-provisions

In scheme 1 two groups of capital components are distinguished on both the asset and the liability side of the balance:

A: Non-financial assets

These include:

- value of property
- immaterial assets such as copyrights, goodwill etc.

B: Financial assets

These are also called claims and are connected with

- credit granted to third parties
- holdings and shares
- cash resources etc.

C: Credit capital

These include debts of the financing unit such as outstanding loans etc.

D: (Risk-bearing) equity capital

This is defined as: $D = A + B - C$

Together, items A, B and C form the (risk-bearing) equity capital (D).

The sum of the assets (A + B) equals that of the liabilities (C + D) and is indicated by the term (total) capital.

Each of the mentioned groups of capital components is related to important income flows from property. The non-financial assets - if used for income generation - are closely related to the operating surplus. Financial assets can result in the receipt of interest, dividends, etc. Interest has to be paid on interest-bearing financial liabilities regardless of the revenues obtained from the components in which the capital of the financing unit is fixed. The income available in recompense for the risk-bearing capital is called profit. This is calculated as - grosso modo - the sum of the operating surplus, received interest and dividend payments minus interest paid.

These profits accrue to the owners, i.e. the participants in the equity capital. The owner will often not be the same financing unit as that in which the profits were generated: in a significant number of cases the owner transfers control to the supervisor of the financing unit concerned. This entails that the owner has no say in how the profits are used etc. The following section looks into this in more detail.

3.3 The identification of a number of financing units on the basis of ownership and control of capital and legal form

Financing units can be legal entities or natural persons. A number of important basic financing units can be classified on the grounds of whether the ownership of the equity capital coincides with the control over it and the corresponding legal form (see scheme 2).

Scheme 2 Classification of financing units into basic types on the ground of control and ownership of equity capital and legal form

Basic types of financial units	Equity capital control	ownership
companies	yes	no
institutions		
private	yes	yes
gov'ment	yes	yes
natural persons (households)	yes	yes

First of all there is a basic type of financing unit which only has control over the equity capital; the capital is owned by other financing units. These are called companies. This term covers (clusters) of incorporated enterprises and cooperative associations. The companies are authorised to undertake economic transactions because they have a legal form on the basis of which they can participate as a legal entity. Rights and obligations resulting from the ownership and control of equity capital are often legally arranged. The distinction between control and ownership forces the financing unit to maintain a precise and accurate administration which gives an insight in the claims by both the tax department and the owners on the income from the financing unit, and helps the owners form a picture of the policy implemented by the financing unit. companies often concentrate on the commercial use of capital. In this respect, the concept commercial should be interpreted as "with the intention to create income (profits) by using equity capital and, where necessary, credit capital, often in combination with labour"; these profits fall to the owners.

The second basic type of financing unit comprises things like government organizations, clubs, foundations, etc. The income received by these units can lead to the formation of equity capital. The contributors have no rights of ownership with respect to the equity capital formed. The owner is the financing unit itself. These will be called institutions. Institutions are also authorised to act in the economic process as they too have a legal form on the basis of which they can operate as a legal entity. With one or two exceptions, institutions do not operate on a commercial basis. To a significant extent they aim at providing collective needs, promoting the interests of certain groups, propagating certain ideas, ideals, etc. These aims can be implemented by private or government institutions.

Companies and institutions have in common that they are legal entities or clusters thereof. Basically, they are legal constructions created in aid of the efficient economic, administrative and legal organization of economic and social traffic. They nearly always have a financial administration on the basis of which their role in the economic process can be traced and scrutinized.

The third basic type of financing unit is the natural person, where the ownership and control of equity capital coincide. There is an important difference between natural persons and legal entities. The role of natural persons in the economic process is a complex one. Unlike legal entities there is a great diversity in their aims and corresponding behaviour, hardly any of which is reported explicitly. Moreover, to a significant extent the economic behaviour of natural persons and their classification into more or less homogeneous groups will be determined to a significant extent by different factors from those which apply for legal persons: aspects such as age, household composition, state of health and industrial disability, time use etc. The present paper does not aim to give an exhaustive classification of natural persons in view of the specific character of this group. This will be examined in a separate report in the light of relevant developments both at the CBS in the context of the socio-economic accounts (CBS; 1987), and internationally in preparation of the revision of the SNA. However, in anticipation of this further elaboration, from here on we shall call natural persons "households". This links up with the usual term for this group of financing units, thus preventing any suggestion of a deviant classification of the group concerned.

3.4 The financial processes

Financial processes are connected with obtaining and using (financial) resources. They are characterized by the fact that they nearly always involve two financing units, a "paying" and a "receiving" party. A number of important basic forms of financial processes can be indicated which create financial flows:

- participation in the production process
- property
- income transfers
- withdrawing or investing capital
- capital transfers
- use of net financial resources

Participation in the production process

Participation in the production process results in claims on the value added formed during this process. The most characteristic transactions in this respect are the wages etc. which employees receive in return for labour, and the operating surplus which (in this respect) falls to the financing unit in which the value added was generated.

Property

Income from property is characterized by the relevant transactions being based on assets and liabilities. This is closely related to the composition of the capital of the financing unit discussed in section 3.3. Important transactions in this respect are interest paid and received, dividends, etc.

Income transfers

In this kind of transaction, payment and receipt take place without there being any apparent corresponding quid pro quo. We can distinguish between obligatory and voluntary income transfers. Well-known obligatory income transfers are taxes, social security contributions and social security benefits payable under law. Voluntary transfers comprise things like donations to foundations, clubs etc. for which no apparent commodity is received in return.

Withdrawing and investing capital

This covers for example: individual debts to third parties (loans), acquiring resources by means of share issues, the transformation of financial titles.

Capital transfers

These are generally small items such as death duties etc. In addition, given present registration conventions, this process also covers pension premiums, and payments and capital transfers under the WIR, the Dutch legislation encouraging industrial investment.

Use of net resources

In principle, the above-mentioned acquisition of (financial) resources and the corresponding contradictory transactions result in net resources for the financing unit that can be used for expenditure. This can be consumer expenditure by, for example, households and the government, on the one hand, or the purchase of durable production means such as buildings, machines and land on the other. In this respect, in the statistical analysis of the financial processes the accent lies mainly on the relation between this expenditure and the other financial processes. This is where this analysis differs from those in the "make" and "use" matrices, which direct their main attention towards the relation between this expenditure and the production process.

Section 3.1 pointed out the desirability in the context of the financial processes of forming groups of financing units which are homogeneous with respect to these processes. The acqaintance with the population and the processes makes it clear that this would be a fairly complex business, as the the processes dealt with above occur in a combined form - though in varying degrees of intensity - in nearly all units. The obvious method would seem to be to introduce a further specification by means of a cross classification of the most important transactions from the processes with the basic types of units. This is the subject of the following section.

4. Classification of types of financing units according to financial processes

4.1 Introduction

The financing units can be grouped according to the basic types described in section 3.3. However, this classification is not detailed enough for reviewing the various types of financial processes, and so the division into basic types is further refined by crossing these with the important transactions in the financial processes. In this way, for each basic type, groups of units which are more homogeneous with respect to the financial processes are formed. Such an approach is rather complex though. When high levels of detail are required, in particular, there will be a need for further differentiation of the processes as such by kind of transaction as well as by kind of unit. As this may lead to an obscure situation, we shall first of all attempt to achieve a certain systematization, by which at least an outline of a classification can be formulated. This is based on the following principles:

- As the system of accounts concentrates on the analysis of financial processes, the first classification focuses on the most important elements of these processes and is based on criteria derived from the processes. The groups thus defined form the first digit classification of the financial units.

- Each first digit group is further specified according to types of units. This classification constitutes the second digit level of the first digit group.

- If any further specification is required, it can be implemented as following digit classifications.

The use of digit classifications actually sets a random limit to the classification: "only" 10 groups can be distinguished on the first and following levels. However, the advantage of this is that it demands a certain sobriety and a careful weighing up of the possibilities. This report concentrates on the first and second digit classification.

The procedure first of all refines the specification of types of unit with the aid of a cross-classification between basic types and a number of important transaction categories of a certain financial process; (in the terminology of the principles discussed above this leads to the formation of the second digit group). These second digit groups are subsequently regrouped thus creating more or less homogeneous groups with respect to the financial process concerned; (this regrouping results in the formation of the first digit classification). This is done on a step-by-step basis. The financial processes are successively crossed with basic types. The specification by types of units achieved on the basis of the cross classification with the important transactions from the first financial process is thus crossed with those of the second financial process, and so on. This is done in detail for the processes income from participation in the production process and income from property. In the treatment of the other processes, however, the first digit classification considered to be relevant is applied directly.

4.2 Income from participation in the production process

The most important components of income from participation in the production process are the generated operating surplus and the wages, salaries and social security contributions (see scheme 3). The relative size of the operating surplus will vary strongly between the types of unit. Companies will generally use their capital commercially, i.e. to make profits for the suppliers of the equity capital. They usually have a relatively extensive operating surplus with which they can pay write-offs and interest, dividend and tax claims by the suppliers of the equity and credit capital and the inland revenue respectively. As institutions generally use their capital for non-commercial purposes, with a few exceptions the operating surplus is of secondary importance. The exceptions are things like public utilities[4)] which are organised according to public law and private insitutions which the inland revenue considers to be enterprises on the grounds of their commercial nature. These types of units are distinguished separately (see scheme 3). Both companies and institutions pay wages. As they are legal entities they cannot receive wages.

For households, those with an enterprise (the entrepreneurs) generate an operating surplus and pay and receive wages etc. The operating surplus is created in households with a one-man firm etc. run by one or more members of the household. In addition income may be received if one or more members of the household participate in the production process as a wage-earner. For the other households wages etc. are one of the most important sources of income[5]. The costs side includes payments connected with claims to value added due to participation in the production process for all the distinguished units except the households without enterprise. The latter group only have very limited wage payments if they employ domestic staff.

Scheme 3 Breakdown of basic types on the ground of components of income from participation in the production proces

	components of income		
	incomes		outlays
	compensation of employees	operating surplus	compensation of employees
companies		+++	+++
institutions			
private			
commercial		+++	+++
non-comm.		+	+++
gov'ment			
commercial		+++	+++
non-comm		+	+++
households			
entrepreneurs	++	+++	+++
other	+++		+

+++ relatively important
++ regular
\+ incidental

On the basis of the classification in scheme 3, the following classification of financing units with respect to the financial process income distribution on account of participation in the production process is the most obvious (see scheme 4):

- companies together with institutions operating on a commercial basis. These constitute a fairly homogeneous group from both the assets and liabilities point of view.
- non-commercial institutions. These differ from households and companies etc. by their small operating surplus.
- households with enterprise. These differ from companies and non-commercial institutions in that wages etc. occur as both assets and liabilities.
- households without enterprise. They receive wages only on account of their participation in the production process.

Scheme 4 The building of homogeneous groups of financing units on the ground of the financial proces income distribution from participation in the production proces

Second digit	First digit			
	companies and comm.inst.	non-comm. institutions	households entrepren.	other
companies	*			
institutions				
private				
commercial	*			
non-comm.		*		
gov'ment				
commercial	*			
non-comm.		*		
households				
entrepreneurs			*	
other				*

This report does not attempt a further specification on the basis of income transactions directly related to the production process, such as indirect taxes and subsidies. In the context of this analysis these transactions are included under the obligatory and voluntary income transfers.

The classification in scheme 4 is subsequently further considered in the light of the financial process income distribution from ownership.

4.3 Income from ownership

The most important components of income from ownership are interest and dividends etc. Nearly all the units distinguished receive interest on outstanding debts, but these amounts are very considerable for companies and institutions and households which specialize in acquiring and putting out financial resources among a wide public. Moreover, relatively speaking, households receive large sums of interest (see scheme 5). Some non-commercial and non-financial institutions also receive relatively large sums of interest, for example if they receive income primarily from funds. The same pattern can be found for dividends etc. On the outlay side, interest can be found for all groups of units, but it is highlighted in the case of the financial companies, institutions and households. (Although a further specification of the financial companies etc. could be made on the basis of interest paid, this should preferably be dealt with in the process of acquiring and putting out financial means).

Scheme 5 Break-down of the groups of units formed in scheme 4 on the ground of the financial process income distribution from ownership

	components of income			
	income		outlays	
	interest	dividend etc.	interest	dividend etc.
companies and comm. institutions				
non-financial	+	+	++	+++
financial	+++	+++	+++	++
non-commercial institutions				
private				
financial	+++	+++	+++	
non-fin. fund	+	+	+	
gov.ment				
financial	+++	+	+++	
non-fin.	+	+	++	
households				
entrepen.				
financial	+++	+	+++	
non-fin.	+	+	++	
other	++	++	+	

The analysis in scheme 5 can serve as a basis for the further refinement of the first digit division into homogeneous groups of units presented in scheme 4 (see scheme 6). In view of the considerable interest flows of the financial institutions, it is worthwhile grouping the units concerned separately. The households with a financial enterprise constitute a dilemma in this respect. It is assumed that the enterprise can be separated from the rest of the household and is subject to the relevant legal regulations thus making it distinguishable as a quasi-enterprise. If this is not the case, it is registered under the households. It should be mentioned that such problems do not occur in the Netherlands. As it is assumed that, relatively speaking, the non-commercial fund insitutions are of little significance, distinguishing them separately on the level of the first digit is not considered meaningful.

Scheme 6 Classification of financing units on the ground of the financial processes income distribution from participation in the production process and ownership

second digit	first digit: non-financ. comp. and comm. inst.	non-fin. non comm. inst.	fin. comp and inst.	households entrepen.	households other
companies					
non-fin.	*				
fin.			*		
institutions					
private					
commercial					
non-fin.	*				
fin.			*		
non-comm.					
non-fin.		*			
fin.			*		
fund		*			
gov'ment					
commercial					
non-fin.	*				
fin.			*		
non-comm.					
non-fin		*			
fin.			*		
households					
entrepen.					
non-fin				*	
fin.				(*)	
other					*

*) of no relevance for the dutch economy

4.4 Further specification of the groups of units on the basis of the financial process income distribution from income transfers

Income transfers can be split into voluntary and obligatory income transfers. The obligatory income transfers are laid down by Royal Decree or by law. They are used to finance matters for which the government administration is responsible such as safety provisions, legal security and a fair income distribution etc. The obligatory income transfers and their use play a particularly important part in the framework of the income distribution process. The financing units responsible for the execution of the tasks of the government administration are counted under the group of government institutions. These are nearly all government institutions not classified as commercial government institutions, plus a number of private institutions whose income consists of obligatory income transfers.

Obligatory income transfers in turn can be divided into contributions under social insurance schemes and other income transfers. Social insurance contributions are obligatory payments based on the laws governing these schemes. The revenues from the contributions may be used only for purposes of social security. The execution of these schemes is delegated to a number of private and public institutions, the so-called social insurance institutions. These institutions have a certain autonomy in implementing these schemes, though they are accountable. As the financial position of the funds they control is an important source of information for setting the level of the contributions, it would be useful to separate the social insurance institutions. The "government institutions" are then divided into "central government and other public and private government institutions" and "social insurance institutions".

The group "central government etc." in particular may require a further specification by level of administration. In the Netherlands a division into "central government" and "municipalities and other government institutions (OPL)" is usually applied. This specification can be incorporated in the first digit on the grounds of the authority to introduce certain kinds of levies and allowances. The group OPL can be further specified on second digit level into public and private institutions, and the latter in turn can be broken down by important levels of administration such as provinces, municipalities, water boards etc. More concrete proposals for this will be further specified in a follow-up to this report.

Here, benefits and assistance received by households under the social insurance laws are considered as obligatory income transfers. Important groups of households are completely dependent on these payments for their income and should preferably be presented separately.

Voluntary income transfers comprise matters such as donations from financing units to other financing units, for which nothing is received directly or individually in return. This is very common among households and does not constitute a reason to distinguish this additional groups. Idealistic institutions nearly completely depend on income from property or income transfers for the implementation of their objectives and therefore they do constitute a separate group of units. They are called non-profit institutions (NPI) and are distinguished in the analysis of the income distribution processes.

The groups of financing units discussed above, distinguished on the grounds of income transfers, are presented in scheme 7.

Scheme 7 Classification of financing units on the ground of the financial processes income distribution from (on account of) participation in the production proces, ownership and current transfers

second digit	first digit								
	non-fin. comp. and com. inst.	finan comp.& inst.	government centr	local etc.	soc.s funds	non-prof. inst.	households ent.	non-ent. wage	other
companies									
non-fin.	*								
fin.		*							
institutions									
private									
commercial									
non-fin.	*								
fin.		*							
non-comm.									
non-fin.						*			
fin.		*							
fund						*			
gov'ment									
commercial									
non-fin.	*								
fin.		*							
non-comm.									
non-fin			*	*					
fin.		*							
households									
entrepen.									
non-fin.							*		
fin.		*					(*)		
non-entrep.									
wages								*	
other									*

4.5 Acquiring financial resources and putting them out in the form of financial liabilities.

All financing units can acquire financial resources. The most important ways of doing this are:
- by putting stocks on offer, including shares and bonds
- other forms of credit.

Shares and bonds can be issued only by companies and institutions. The other forms of credit are accessible for companies, institutions and households. The second digit already gave a breakdown of the types of unit, a breakdown which can serve as a basis for the specification of companies (enterprises), institutions and households.

The units differ considerably in how they use the acquired financial resources. The financing units which put out these resources in the form of financial liabilities are discussed in this section. The units which use the resources mainly to finance non-financial assets and current expenditure are discussed in section 4.7.

Section 4.3 and scheme 5 distinguish the group of financial companies and institutions on the grounds of the fact that the main income of these units is made up of interest and dividends on account of their financing function (i.e. the acquisition and putting out of financial resources among a wide public). The financial companies and institutions belonging to this group differ from each other in the target groups and the corresponding financial titles at which the collection, conversion and redistribution of financial resources are directed. This also results in characteristic differences in the structure of the balance sheet. There seems to be a national and international consensus with respect to the following classification:

- Central bank

Among other things the task of this bank is to maintain the value of the national currency in respect of foreign currencies. To this end it regulates the amount cash and transferable sight deposits by the emission of (non-fiduciary) currency, and, where necessary, intervening in the monetary transactions between individual residents and between residents and non-residents. The balance sheet of the central bank is characterized by financial assets such as liquid assets in foreign currencies, monetary gold and short-term claims on international, national and foreign financial institutions. The liabilities are mainly composed of issued notes and coin.

- money-creating financing companies and institutions

The money-creating financing companies and institutions characterized by the fact that changes in the financial assets (mainly short and long-term loans) result in or are the cause of simultaneous changes in the sight depositsand secondary liquidity (time deposits and saving deposits).

- Insurance companies and institutions

Insurance companies and institutions are distinguished by the fact that they insure financial risks (loss of income, destruction of financial and non-financial assets) of third parties. The liabilities consist mainly of insurance technical reserves, i.e. the capitalized value of the amounts to be paid to the insured parties according to the insurance contracts. The financial assets obtained from the premiums paid by the insured have a mainly long-term risk-evading character.

- Other financial companies and institutions

What this group has in common is that there is a certain degree of specialization in how they put out their financial assets. This specialization may be expressed in a certain financial title (venture capital, mortgage) or in a certain target group to which the emission is directed (municipalities, water boards etc.).
The liabilities consist of long-term resources acquired on the capital market.

The above-mentioned classification of financial institutions and companies need not necessarily be integrated in the first and second digits of the system. It is proposed that for the first digit, only a distinction be made between insurance companies and institutions and financing companies and institutions (scheme 8). The further specification of the units by types of financial assets and liabilities may be seen as an example of a third digit specification. (The criterium for such a classification can also applied for non-financial companies and institutions.)

For the sake of simplicity, scheme 8 does not give a detailed specification in the fore column (second digit) of the groups of types of units required for the realization of the first digit classification.

Scheme 8 Classification of financing units on the grounds of the financial processes participation in the production process, ownership, current transfers and financing

second digit	first digit									
	non-f. comp.& com.in.	fin. comp.& institut. credit	insur.	government centr.	loc. etc.	soc. funds	non prof. inst.	households ent.	non ent wage	ot
companies	*	*	*							
institutions										
private										
comm	*	*	*							
non-com		*	*	*	*	*	*			
gov'ment										
comm	*	*	*							
non-com				*	*	*				
households										
entrep.										
non-finan								*		
fin								(*)		
wage									*	
other										*

4.6 Capital redistribution as a result of capital transfers

By presenting the insurance institutions separately under the first digit, the considerable transaction amounts concerned and the specific registration methods are well localised to this group. The question remains of whether households, which pay premiums and receive benefits, have conflicting interests which would require their being placed in a separate group. In this respect, one idea could be to form a separate group of households which have to live on pension benefits. (Within this group a further distinction could be made by the type of provision, i.e. only state old age pension and the state pension with a supplementary pension. Proposals in this area will have to be considered in the light of the developments of Social-economic accounts and the revision of the SNA and will be dealt with in a separate report in due course).

The other capital transfers are either generic in character (Investment Account Act) or of very little significance and give no reason for a separate classification of units, at least not as far as the first and second digit are concerned.

4.7 Other uses of available resources

The use of available resources for consumption and investment is also considered as a financial process. Consumer expenditure occurs for households, the government and non-profit institutions. With respect to the latter two we see no reason to draw up proposals for further specifications on the basis of consumer expenditure. For households, on the other hand, this is a different matter. What is particularly important here is a further breakdown by specific spending patterns in connection with the relevant income components from participation in the production process, property and transfers. In a number of situations the transfers and expenditure will be closely related to specific but commonly occurring aspects, such as family composition, health, old age, etc. Tracing and expressing such relations can lead to a considerable deepening of the statistical analysis concerned. In this respect such a specification could conceivably be included at one of the digit levels. Proposals in this respect will be have to be considered in the light of developments of the Social-economic accounts and the revision of the SNA and will be dealt with in a separate report in due course.

Fixed capital formation occurs in all the distinguished groups. For households without enterprise the investment in the own home is obviously the most important. It might be worth considering splitting this group into a group with an own home and a group without. Buying an own home involves significant current transfers. Tenants of rented dwellings are also confronted with important current transfers such as the income-linked rent subsidies which also depend on the amount of rent paid. The desirability of a classification on the basis of this sort of criteria and the digit level on which this should then take place will be examined in connection with points already mentioned in a follow-up to this report.

Fixed capital formation is especially important for the groups central government, OPL and the non-financial companies. There are a number of important aspects with respect to capital formation and the financial processes. First of all there is the need for financial resources to finance the capital investment. Depending on the nature and application of investment goods, the financing can be done with relatively more or less equity capital. Housing associations, for example, will be able to finance the acquisition of dwellings mainly with the aid of borrowed capital, as there is a demand for the goods in which they invest, thus giving them a high market value. A rolling train, on the other hand, is by its nature and use very specific and will have to be financed more from equity capital.

If the stock of fixed capital makes up a relatively large part of the total assets, the long-term gross operating surplus will be relatively high. For, in addition to interest and dividend to be paid on the financing of these goods, considerable internal reservations (depreciation) are necessary to maintain the capital.

In addition to the concept of fixed capital intensity, the concept of total capital intensity is also important. In a number of important financing units supplier credit is an important aspect, thereby fixing financial capital. It would therefore seem worthwhile, especially for the non-financial companies and commercial institutions, to introduce a further classification (if possible in the first digit) on the basis of capital intensity (fixed and financial) of the production process. In this respect we may think of:

- processing industries; these usually have a considerable stock of capital goods;
- capital goods industries. Here there is long production cycle so that a relatively large share of the financial resources are fixed;
- trade companies and institutions;
- etc.

This aspect needs to be examined further. As there are no clear starting points for a classification, no relevant specification is proposed for the first digit.

The groups central government and OPL there also have considerable fixed capital formation. These are mainly concentrated in the municipalities, which are already distinguished in the second digit.

5. A further specification of financing units by type

5.1 Introduction

In an institutional meso-system the financing units are defined in such a way that they can be seen as real actors in the processes to be described. In principle, a definition proposed by Bloem (op. cit.) fulfills this demand. However, there are two reasons for sometimes deviating from this "optimal" definition. First of all in a number of situations a financing unit is "split" if within this unit a (quantitatively) significant part - as far as financial processes are concerned - deviates strongly from the rest of the original financing unit: commercial institutions organized on a public basis (electricity plants), a "financial" enterprise within a non-financial company etc. In this kind of situation, homogeneity prevails over "independence". Financing units are also split in the case of international companies: parts of international or transnational companies established in a certain country "own" foreign companies, or are owned by (parts of) international companies established abroad. In accordance with the consistency demand of the national accounts, the financing unit is split. Only the part established in the territory of the country concerned is included.

In addition, there may be units which are independent in a legal sense but which, on account of their income dependence, cannot be designated as actual decision-taking units as they fall under the supervision and policy of the money suppliers for major financial decisions.

These three types of financing unit are discussed in more detail below.

5.2 Homogeneity versus independence

Sometimes homogeneity prevails over dependence in the definition of financing units. The conditions for this are (see among others Bloem op. cit.):

- deviant behaviour with respect to financial processes
- sufficient importance

- describability (the profit and loss account and a balance sheet must be available)

Sometimes there is little tension between homogeneity and independence of these units; for example for financial companies and institutions owned by other groups of financing units. This is because financial companies and institutions often function within a legal framework in which demands are formulated with respect to the use and structure of capital. These frameworks leave relatively little headroom for the owners. If there is no such legal framework there is a greater possibility of the owner substantially influencing the financing unit. This possibility becomes increasingly significant in the analysis if the objectives of the owner deviate strongly from the group of units under which the separated unit belongs, thus generating tension between homogeneity and independence. This is the case for example for companies and institutions owned by government institutions. These institutions can, in accordance with their objectives, influence the financial processes of the separated financing unit. The behaviour of this financing unit may then deviate from the group of financing units to which it belongs.

Ideally, therefore, the "separated" financing units should be classified in a separate group if it may be assumed that the owner can influence their behaviour substantially. This could be further highlighted by restricting the separate group to the units which actually exert influence. However, there are two reasons for not doing this here. First of all the influence can be not continual but may be substantial even if only incidental. In this kind of situation the influence can only be recognised when an intervention has taken place. Even in units where there is a continual influence this might be difficult to recognise. In short, it is difficult to formulate operational criteria for a sharp definition of the separated units. Therefore in the light of the homogeneity versus independence dilemma, it is proposed to group the separated units separately only for companies and institutions which are owned by government institutions. The separate presentation of this group of financing units also offers the possibility of forming a "public sector". The formation of a public sector is also recommended in various international contexts (OECD, UN, EC). This sector can be seen as one of the important alternative classifications. The classification of financing units in the "core" of the system of national accounts must be able to accommodate this alternative sector classification (parsimony principle). This implies a further specification of the second digit of the classification of the financing units (scheme 9).

Scheme 9 Classification of financing units into public (government ownership) and private (non-government ownership)

second digit according to scheme 8	private	public
companies	*	*
institutions		
of civil law		
private		
commercial	*	*
non-commercial	*	*
of public law		
government		
commercial		*
non-commercial		*
households	*	

5.3 International companies

This report defines the following as international companies:

- financing units established in the Netherlands but owned by one or more companies and or institutions established abroad
- financing units established in the Netherlands which own one or more financing units established abroad.

  Both groups can be summed up under the term international financing units. They constitute an interesting and separate group for statistical and economic analysis.

As the national accounts must from necessity be confined to institutional units established on the national territory (consistency principle), the definition of these international financing units established on national territory has a somewhat contrived character; if the location of the financing unit was not taken into account, for example, a different definition would result for a significant number of these international financing units. The foreign subsidiaries of a parent company established in the Netherlands, for example, would be combined with the parent company thus forming one financing unit.

For these international financing units it must be taken into account that the composition and the use of the capital and related income flows are strongly influenced by intra-concern policy. Combining these data with those of other financing units can lead to a contorted picture of the sectoral economic development. It would therefore be better to present the international financing units established in the Netherlands in a separate category. This conclusion is also supported by the fact that presenting international financing units separately also provides information on the internationalization of the national economy, which is particularly important in an international context (GATT conferences etc.).

International financing units established on national territory can be divided into two groups:

- parent companies established in the Netherlands with subsidiaries abroad
- subsidiaries established in the Netherlands of parent companies established abroad. This will have to be worked out in more detail and given a more concrete form in a later report. A first step in this direction was taken in the statistics of finances of enterprises (CBS 1985).

Within the group of international enterprises the large multinationals form a separate subgroup. Their size and the strong international distribution of their activities means that they are able - with complete disregard of national scarcities and economic-political objectives - to conduct considerable (re-)allocation of resources. Partly in accordance with the recommendations in the RIO report (Reshaping the international order; the result of the report is an initiative from the UN in 1974), it would be desirable to draw up an internationally approved list of multinationals; (the number of enterprises included in the list will also be affected by problems of secrecy). Every country should analyse and present the information about the parts of multinational companies established in their country in the context of the national accounts in a separate building block "multinationals". This would result in a better view of the development of these giants and their influence on the national and world economy. The proposals concerning the separate grouping of international enterprises presented here are summed up in scheme 10 which is a further elaboration of scheme 9. For the present we abandon the idea of a separate grouping of the multinationals on the second digit level, as international consensus is prerequisite for this.

Scheme 10 Classification of financing units in national and international

	national	international	
		with participations abroad	owned by foreign companies
companies			
privately owned	•	*	*
publicly owned	•	*	
institutions			
of civil law			
private (privately owned)			
commercial	*	*?	*?
non-commercial	*		
public (publicly owned)			
commercial	•		
non-commercial	*		
by public law			
commercial	*	*	
non-commercial			
households	•		

5.4 Control due to income dependency

In the SNA control is also used as a criterium to classify the financing units. With respect to this aspect, a number of groups of financing units have been formed above. The specifications "public" and "international owned by foreign company" incorporate a dimension of control in the sense that the relevant groups formed concern financial groups which are susceptible to control. In principle, these groups were defined according to ownership relations. In the non-profit-making organizations in particular control can occur without participation in the ownership of the unit. Many of these institutions depend on income transfers and on the basis of this dependence they can have transferred the control of the financial processes de facto to the money suppliers, thus rendering themselves the executors of the policy of the financing units. For non-profit organizations, in particular, this is a reason to make a second digit distiction between institutions who obtain their current means mainly from income transfers on the one hand and non-profit institutions of which the principal resources consist of capital revenues on the other. The transfers-non-profit institutions could be further split at the third digit by the first digit groups that finance them, such as non-financial companics and commercial institutions, insurance companics and institutions, financial companies and institutions, central government, OPL, social security, households with enterprise, households with main income from wages and households in general.

6. Summary overview

6.1 Relevant groups of financing units to be included in the "core".

In sections 4 and 5 the classification of the population was elaborated, with a distinction being made by the nature of the financial processes in the first digit and the types of units in the second. The results are summed up in scheme 11.

The classification of financing units by first and second digit presented in scheme 11 is nothing more than a more or less theoretical division with the aid of which it was possible to create some order in the classification problem. The following specification by first and second digit still contains a number of imbalances. Relativley speaking, the first digit group of non-financial companies and commercial institutions in particular is fairly large. There have been proposals for further studies into the possibility of further specification by the first digit. For households there is a second digit classification, which should be studied further. It seems important in this respect that the second digit classification to be chosen should connect up with the classification in the Social-economic accounts.

Scheme 11 Summary of the first and second digit classification of money sphere units

first digit	second digit
0 non-financial companies and commercial institutions	0.1 national private companies
	0.2 national publicly owned companies
	0.3 international private companies with direct investment abroad
	0.4 international private companies direct investments of the rest of the world
	0.5 international publicly owned companies with direct investements abroad
	0.6 national private commercial institutions
	0.7 international private commercial institutions with direct investments abroad
	0.8 id. direct investments of the rest of the world
	0.9 national public commercial institutions
1 insurance companies and insurance institutions	1.1-1.8 ref. 0.1-0.9
2 credit companies and credit institutions	2.1-2.8 ref. 0.1-0.9
3 central government	3.1 non-commercial public bodies
	3.2 civil law non-commercial institutions
4 other public and government institutions	4.1 civil law institutions belonging to local government
	4.2 counties
	4.3 municipalities
	etc.
5 social security institutions	5.1 and 5.2 ref. 3.1 and 3.2
6 non-profit institutions	6.1 npi pricipally engaged in transfers
	6.2 npi principally engaged in fund management
7 households owning unincorporated enterprises	7.1 hh owning uninc. non-financial enterprises
	7.2 hh owning uninc. financial enterprises
	etc.
8 households, principal income being wages	
9 households, principal income being transfers	

In the context of the demands formulated by the Dutch School with respect to a institutional meso-system, the groups of units resulting from the preceding sections must provide the possibility to accommodate the most important alternatives for the definition of insitutional sectors. In addition they should make a good link-up possible with the basic statistics in the context of the necessary micro-macro link. Finally the classification must offer a good link-up possibility with important related statistical systems such as the Social-economic accounts. The presented classification certainly contains an initiative towards this. By alternatively grouping the first and second digit groups, various sector definitions can be realized, including the present classification of the SNA and ESA. The classification by type of unit offers a good basis for the connection with registers of units and the statistics based on them.

It is proposed that the classification presented in scheme 11 be used in the "core" of the institutional meso-system. However, this will undergo inevitable adjustments in the context of collaboration with the parties concerned on possibilities and desires of the classification and its implementation before a definite classification is realised. In addition to the classification of units in aid of the core, further specifications may be desired for more specific analyses. In as far as they constitute a more or less regular occurence in the statistical analysis, third and fourth digit classifications can be designed to meet this demand. A number of these are worked out further in the following section.

6.2 Some suggestions for further digit specifications

For the third digit level, a classification of units based on capital components would seem to be important. Both for the non-financial and the financial institutions and enterprises, such a criterium offers good starting points. For households, too, a similar criterium can be applied, especially as education and/or function are included in the assets.

A dual classification of the value added components is very important for desired connection between the analysis of the processes production and income formation in the "make" and "use" matrices and the financial processes in the accounts. In this respect it would be useful to split the financing units into two groups (see C. van den Bos, 1985), namely multiple financing units (i.e. units consisting of more than one establishment), and single financing units (the financing unit equals the establishment). This specification could be a statistical-technical aid to realise the dual classification of the value added components, but offers few starting points for a separate grouping in the framework of the financial processes. Inclusion in the core would therefore not be meaningful, as it would only lead to a sharp increase in the groups of units with all the problems this involves. However, it is a meaningful criterium for the classification in aid of the statistical process and can be included as a fourth digit classification.

Notes

1. The term "Dutch School" was first used at the ECE conference organized by the UN in Geneva in 1985. It was used to refer to the ideas of the Netherlands Central Bureau of Statistics with respect to the revision of the System of National Accounts.

2. The statistical office of the United Nations is working on a revision of the SNA. This revision should be completed around 1990.

3. The analysis of the administrative government is being revised under the coordination of the steering group Government Register. The revision focuses on an accurate definition of units and their classification into institutional sectors.

4. If commercial public organizations or parts thereof are designated as (independent) financing units, in principle, these units can also be classified as enterprises. The suppliers of the capital are the public organizations from which these financing units have been separated. There is thus a separation between who owns and who holds the capital. This report, however, has opted to classify them as commercial institutions. Reasons for this are, among others:
   - The perception of these units, assuming that the public character is dominant.
   - Simplification of the classification. The public commercial institutions are nearly all organised according to public law. The public enterprices are nearly all clusters of incorporated enterprices.

5. For wages, salaries, etc. received by households, it would be meaningful to introduce in the third digit a further specification by level of position, and/or nature of employment etc.

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Van den Bos, C., 1987, Integration of input-output tables and sector accounts; a possible solution. National Accounts Occasional Paper Nr. NA-007. (Netherlands Central Bureau of Statistics, Voorburg).

Available National Accounts Occasional Papers

NA/01 **Flexibility in the system of National Accounts**, Van Eck, R., C.N. Gorter and H.K. van Tuinen (1983).
This paper sets out some of the main ideas of what gradually developed into the Dutch view on the fourth revision of the SNA. In particular it focuses on the validity and even desirability of the inclusion of a number of carefully chosen alternative definitions in the "Blue Book", and the organization of a flexible system starting from a core that is easier to understand than the 1968 SNA.

NA/02 **The unobserved economy and the National Accounts in the Netherlands, a sensitivity analysis**, Broesterhuizen, G.A.A.M. (1983).
This paper studies the influence of fraud on macro-economic statistics, especially GDP. The term "fraud" is used as meaning unreporting or underreporting income (e.g. to the tax authorities). The conclusion of the analysis of growth figures is that a bias in the growth of GDP of more than 0.5% is very unlikely.

NA/03 **Secondary activities and the National Accounts: Aspects of the Dutch measurement practice and its effects on the unofficial economy**, Van Eck, R. (1985).
In the process of estimating national product and other variables in the National Accounts a number of methods is used to obtain initial estimates for each economic activity. These methods are described and for each method various possibilities for distortion are considered.

NA/04 **Comparability of input-output tables in time**, Al, P.G. and G.A.A.M. Broesterhuizen (1985).
It is argued that the comparability in time of statistics, and input-output tables in particular, can be filled in in various ways. The way in which it is filled depends on the structure and object of the statistics concerned. In this respect it is important to differentiate between coordinated input-output tables, in which groups of units (industries) are divided into rows and columns, and analytical input-output tables, in which the rows and colunms refer to homogeneous activities.

NA/05 **The use of chain indices for deflating the National Accounts**, Al, P.G., B.M. Balk, S. de Boer and G.P. den Bakker (1985).
This paper is devoted to the problem of deflating National Accounts and input-output tables. This problem is approached from the theoretical as well as from the practical side. Although the theoretical argument favors the use of chained Vartia-I indices, the current practice of compilating National Accounts restricts to using chained Paasche and Laspeyres indices. Various possible objections to the use of chained indices are discussed and rejected.

NA/06 **Revision of the system of National Accounts: the case for flexibility**, Van Bochove, C.A. and H.K. van Tuinen (1985).
It is argued that the structure of the SNA should be made more flexible. This can be achieved by means of a system of a general purpose core supplemented with special modules. This core is a fully fledged, detailed system of National Accounts with a greater institutional content than the present SNA and a more elaborate description of the economy at the meso-level. The modules are more analytic and reflect special purposes and specific theoretical views. It is argued that future revisions will concentrate on the modules and that the core is more durable than systems like present SNA.

NA/07 **Integration of input-output tables and sector accounts; a possible solution**, Van den Bos, C. (1985).
The establishment-enterprise problem is tackled by taking the institutional sectors to which the establishments belong into account during the construction of input-output tables. The extra burden on the construction of input-output tables resulting from this approach is examined for the Dutch situation. An adapted sectoring of institutional units is proposed for the construction of input-output tables.

NA/08 **A note on Dutch National Accounting data 1900-1984**, Van Bochove, C.A. (1985).
This note provides a brief survey of Dutch national accounting data for 1900-1984, concentrating on national income. It indicates where these data can be found and what the major discontinuities are. The note concludes that estimates of the level of national income may contain inaccuracies; that its growth rate is measured accurately for the period since 1948; and that the real income growth rate series for 1900-1984 may contain a systematic bias.

NA/09 **The structure of the next SNA: review of the basic options**, Van Bochove, C.A. and A.M. Bloem (1985).
There are two basic issues with respect to the structure of the next version the UN System of National Accounts. The first is its 'size ': reviewing this issue, it can be concluded that the next SNA must be 'large ' in the sense of containing an integrated meso-economic statistical system. It is essential that the next SNA contains an institutional system without the imputations and attributions that pollute present SNA. This can be achieved by distinguishing, in the central system of the next SNA, a core (the institutional system), a standard module for non-market production and a standard module describing attributed income and consumption of the household sector.

NA/10 **Dual sectoring in National Accounts**, Al, P.G. (1985).
Following a conceptual explanation of dual sectoring, an outline is given of a statistical system with complete dual sectoring in which the linkages are also defined and worked out. It is shown that the SNA 1968 is incomplete and obscure with respect to the links between the two sub-processes.

NA/11 **Backward and forward linkages with an application to the Dutch agro-industrial complex**, Harthoorn, R. (1985).
Some industries induce production in other industries. An elegant method is developed for calculating forward and backward linkages avoiding double counting. For 1981 these methods have been applied to determine the influence of Dutch agriculture in the Dutch economy in terms of value added and labour force.

NA/12 **Production chains**, Harthoorn, R. (1986).
This paper introduces the notion of production cains as a measure of the hierarchy of industries in the production process. Production chains are sequences of transformation of products by successive industries. It is possible to calculate forward transformations as well as backward ones.

NA/13 **The simultaneous compilation of current price and deflated input-output tables**, De Boer, S. and G.A.A.M. Broesterhuizen (1986).
A few years ago the method of compiling input-output tables underwent in the Netherlands an essential revision. The most significant improvement is that during the entire statistical process, from the processsing and analysis of the basic data up to and including the phase of balancing the tables, data in current prices and deflated data are obtained simultaneously and in consistency with each other.

NA/14 **A proposal for the synoptic structure of the next SNA**, Al, P.G. and C.A. van Bochove (1986).

NA/15 **Features of the hidden economy in the Netherlands**, Van Eck, R. and B. Kazemier (1986).
This paper presents survey results on the size and structure of the hidden labour market in the Netherlands.

NA/16 **Uncovering hidden income distributions: the Dutch approach**, Van Bochove, C.A. (1987).

NA/17 **Main national accounting series 1900-1986**, Van Bochove, C.A. and T.A. Huitker (1987).
The main national accounting series for the Netherlands, 1900-1986, are provided, along with a brief explanation.

NA/18 **The Dutch economy, 1921-1939 and 1969-1985. A comparison based on revised macro-economic data for the interwar period**, Den Bakker, G.P., T.A. Huitker and C.A. van Bochove (1987).

NA/19 **Constant wealth national income: accounting for war damage with an application to the Netherlands, 1940-1945**, Van Bochove, C.A. and W. van Sorge (1987).

NA/20 **The micro-meso-macro linkage for business in an SNA-compatible system of economic statistics**, Van Bochove, C.A. (1987).

NA/21 **Micro-macro link for government**, Bloem, A.M. (1987).
This paper describes the way the link between the statistics on government finance and national accounts is provided for in the Dutch government finance statistics.

NA/22 **Some extensions of the static open Leontief model**, Harthoorn, R. (1987).
The results of input-output analysis are invariant for a transformation of the system of units. Such transformation can be used to derive the Leontief price model, for forecasting input-output tables and for the calculation of cumulative factor costs. Finally the series expansion of the Leontief inverse is used to describe how certain economic processes are spread out over time.

NA/23 **Compilation of household sector accounts in the Netherlands National Accounts**, Van der Laan, P. (1987).
This paper provides a concise description of the way in which household sector accounts are compiled within the Netherlands National Accounts. Special attention is paid to differences with the recommendations in the United Nations System of National Accounts (SNA).

NA/24 **On the adjustment of tables with Lagrange multipliers**, Harthoorn, R. and J. van Dalen (1987).
An efficient variant of the Lagrange method is given, which uses no more computer time and central memory then the widely used RAS method. Also some special cases are discussed: the adjustment of row sums and column sums, additional restraints, mutual connections between tables and three dimensional tables.

NA/25 **The methodology of the Dutch system of quarterly accounts**, Janssen, R.J.A. and S.B. Algera (1988).
In this paper a description is given of the Dutch system of quarterly national accounts. The backbone of the method is the compilation of a quarterly input-output table by integrating short-term economic statistics.

NA/26 **Imputations and attributions in the National Accounts**, Gorter, Cor N. (1988).
Starting out from a definition of 'actual' transactions an inventory of all imputations and re-routeings in the SNA is made. It is discussed which of those should be retained in the core of a flexible system of National Accounts. Conceptual and practical questions of presentation are brought up. Numerical examples are given.

NA/27 **Registration of trade in services and market valuation of imports and exports in the National Accounts**, Bos, Frits (1988).
The registration of external trade transactions in the main tables of the National Accounts should be based on purchasers' value; this is not only conceptually very attractive, but also suitable for data collection purposes.

NA/28 **The institutional sector classification**, Van den Bos, C. (1988).
A background paper on the conceptual side of the grouping of financing units. A limited number of criteria are formulated.

NA/29 **The concept of (transactor-)units in the National Accounts and in the basic system of economic statistics**, Bloem, A.M. (1988, forthcoming).
This paper provides a fundamental discussion of the dual actoring as used in the 1968 SNA. Special attention is paid to the transformation of legal entities into units more suitable for economic analysis. Criteria for a precise delineation of the units are formulated. 'Establishment-type units and 'institutional units' turn out to be both institutional, that is both are really decision-making entities.

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