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# MICRO-MACRO LINK FOR GOVERNMENT

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Summary

In the Dutch statistics on government finance a micro/macro link is established. This paper describes why and how this has been done. It will appear to be of relevance to the users of the statistics to present two different data sets: one according to an accounting/administrative point of view and one fitting in the National accounts. The main features of the way in which these data sets are derived from the underlying bookkeeping documents are given and it is shown how they relate to the accounting and juridical structures of the various government agencies. It will appear that to arrive at homogeneous data sets, adaptations are in order, mainly bearing on the entries; for the National account data further transformations, relating to transactions as well as transactors, will appear necessary. It will be enunciated how the relation between these data sets is shown in the statistics on government finance and how, in the same course a micro/macro link is provided for.

Contents

## 1. Introduction

The attention given to the linkage between the macro/meso data as published in the National accounts (NA) and the micro data on which these are based, is mainly focussed on the business and household sectors. This is probably due to the fact that micro analysis and research on these sectors generate a more widespread interest in academic circles. Analytical and reserarch purposes, however, are not the only reason why micro/macro linkages are important. The more pedestrian use the subjects of the statistics themselves can make of the macro data - for instance for comparison with their own data - also makes the link between micro data and the macro data derived from them relevant.

The latter goes, of course, more for the business sector than for households. There is, however, another sector for which this is of particular relevance, albeit it may not at first glance. This concerns the sector government. For instance, local government agencies, like municipalities, turn out to be interested in comparing their data with national (or regional) totals. This requires a certain degree of comparability which is, odd as this may seem, not automatically ensured. There also is a need to see the economic picture of a particular government agency or level of administration against the background of the more general description of the total of the national economy, offered by the NA. The same holds for the government as a whole and for subsectors. For instance, because an important political issue like the government deficit is expressed as a percentage of the Gross National Product, it is of great relevance to know what lies behind it, in a macro-economic as well as in an accounting sense.

This paper deals with the micro/macro linkage for government, as elaborated in the Dutch economic statistics on the subsectors central and local government. These statistics, which were started in the middle seventies, have two distinct but equally important

goals:

- they aim to provide for a picture of these government levels according to the specific views of the economic subjects in this sector
- they aim to provide a macro-economic picture within the NA-framework of the various levels of government concerned (i.e. central government, provinces and municipalities) and, furthermore, for specific kinds of governmental agencies belonging to the subsector local goverment (like polders) as well as the total of the subsectors.

To attain both goals in a coherent way, the link we are concerned with here, i.e. the link between the respective pictures, is of primary importance. This subject will be dealt with in chapter 2 in general and in chapter 4, section 4, in a more concrete way. As background information some knowledge is needed on the structure of the Dutch government and the accounting practices of the government agencies. This will be supplied in chapter 3.

The relations between the Dutch government agencies are a mixture of centralized control and decentralized independence. Because of the former, one would expect some centralised bookkeeping system. This, however, does not exist, mainly due to the great degree of heterogeneity of the juridical and accounting structures of government agencies, particulary municipalities. Therefore, no data on national totals of payments and receipts of the various levels of local government would be provided for in the Netherlands, if it wasn't for the statistical information the CBS supplies on these subjects. Statistical information of this kind is therefore considered as highly valuable. Chapter 4, section 2, describes how this kind of information is provided for.

To be useful to the actors in this field, the statistical information should fit as closely as possible on the bookkeeping structures and practices they are familiar with. It should, therefore, have a strong bookkeeping and administrative leaning. To be of value, however, in a more general economic sense, the data

should also fit in the NA. It is of relevance here that the accounting systems of the various government agencies are quite intricate and require translation before the entries make sense in a more general economic way. A particularity in this is the peculiar system of bookkeeping in use with some government agencies, known as the "cameral style". The intricacies have as a consequence that the bookkeeping data have to be transformed to NA-data to achieve the second aim mentioned above. How this is brought about is enunciated in chapter 4, section 3. It is important to note here that the government statistics designed to satisfy this second aim have been developed along the lines of the UN System of National Accounts (SNA) (UN, 1968) and the European System of Integrated Economic Accounts (ESA) (Eurostat, 1979).

As will be shown in the next chapter, the micro/macro link provided in the statistics on government finance does not go all the way. In the direction of the NA one more step has to be taken to make for a complete link. This will be discussed in chapter 4, section 5.

## 2. Micro/macro link for government sectors and agencies

As stated in the introduction, the reason why the attention given to micro/macro links is mainly focussed on business and household sectors is, probably, a more widespread interest in micro analysis and research on these sectors. For some reasons the interest in micro analyses of government seems much more restricted to specific professional circles. This is to be regretted. Nevertheless, analitical purposes as such make it worthwhile to establish a micro/macro link for the government as well. For this sector, as for those mentioned above, such a link provides "simple means of separating the changes observed into structural and behavioural components" and furthermore "a framework within which the microdata fit and makes it possible to obtain an overview of the whole picture" and "convenient summaries of important aspects of the microdata at intermediate levels of aggregation" (Ruggles, 1986).

These obvious advantages of a micro/macro link induce some almost self-evident questions: why not avert the linkage problems, why not compile the microdata in such a way that they would fit right into the NA and construct the latter in such a fashion that the microdata could be integrated into them easily. A simple solution of this type is atractive at first glance. Of course all kinds of institutional problems could be thouhgt of which would make this simple solution hard to attain, NA and microdatabases being what they are. These problems, however, are not insurmountable: the international frame of reference for the NA, the UN System of National Accounts (SNA), is subject to a revision and microdatabases are known to change too. As for the revision of the SNA, on this occasion much of the linkage problems could be solved, at least conceptually. If the proposals on an institutional meso-core for the NA were to be accepted, the NA side of the problem would be dealt with to a large extent(1). In fact, linkage problems are one of the reasons for these proposals; how these problems are structured in the Dutch case will be discussed in a later chapter. As to the microdatabases: these are not

sacrosanct either. Microdatabases are subject to change as their statistical sources develop. Sometimes new statistics can bring about fresh sets of microdata without historical impediments. For instance, the new statistics on goverment accounts which have been established in the Netherlands some years ago, have resulted in completely new data sets, the structure and contents of which could be chosen without traditional or other restraints.

However, even in instances where freedom of choice exists with respect to definitions and structure of a microdatabase, there are other, more fundamental reasons why the simple solution mentioned above cannot be adopted. These have to do with the fact that microdata sets can - and maybe even should - have a purpose of their own. As stated in the introduction, actors themselves may wish to use the statistical information on the sector they belong to. If this is the case, their requirements and views should play a distinct and even decisive role in the decisions to be made on the compilation of the microdata bases.

In this respect, two points are of immediate relevance. The first one relates to the question of how these actors see themselves and the collection of actors they belong to. For instance, government agencies see themselves in a juridical-administrative way as "ministries " or "municipalities" and not as "economic actors" or "transactors"; they see "local government" as a collection of administrative units and not as a sector consisting of transactors. The second point has to do with the question what the actors want to know about themselves: what kind of variables do they want to see and how do they interprete them. Again, government agencies see financial data strictly in a bookkeeping sense in which the entries are just payments and receipts. The concepts of transactions and economic processes, so dear to national accountants, do not fit into this view at all and are alien to these agencies. Thus, following bookkeeping views, payments and receipts can be - and often are - netted when they would be quite distinct transactions in a NA sense. Likewise, entries are recorded which make no sense as a transaction.

The policy of the Dutch CBS on the micro-macro link is the result of a development over a long range of years, in the course of which accents have shifted. At first instance, the economic statistics were set up to serve some specific goal: to measure the production, consumption, imports and exports of a commodity or group of commodities. Data were collected and compiled according to the specific wishes of the branches involved. As gradually a more and more complete coverage evolved, the need emerged to coordinate these statistics and to attain consistency. One of the important reasons why input-output tables were developed was to improve the consistency; compilation of these tables began during world war II. The post-war decades have seen a continuous growth of the statistical coverage of production, along with an increase in efforts directed at the coordinaton and integraton of the statistics. These efforts first aimed at obtaining a full picture of the economy on the basis of the various statistics, with an emphasis on completeness and unambiguity, both to be achieved by means of confrontation procedures. The statistics as such were seen as self-contained and no attempt was made to standardize them. The latter has changed, mainly in the last fifteen years: the statistics on productive activities now have to comply with uniform and coordinated definitions of transactions and transactors, so that they can be integrated in the NA more easily. This does not mean, however, that specific uses of the statistics are neglected: these statistics still have a purpose of their own, apart from the NA, namely to supply significant information on the various branches.

This policy has been implemented most thoroughly in the statistics on government. The statistical description of this sector had long been relatively neglected, which made a fresh start appropriate. This start was made in the seventies, statistics for all government levels were operational at the beginning of the eighties. In these circumstances it became possible to adopt the insights developed over a range of years right from the beginning. These insights have led to statistics which, in a coherent system, supply two connectable

data sets: one from the administrative point of view and one fitting in the NA. The first one deals with government in an administrative way - just like government agencies see themselves - and contains information of an administrative nature; the second one employs (sub)sectors in a NA sense and provides data on transactions according to the NA definitions - the connection between these two data sets providing a micro-macro link.

It must be said in advance that this micro/macro link is not (yet) complete. On the macro side the link is still incomplete as the data which are provided by the statistics on government are still to be adapted before they are integrated in the NA. This has to do with the compilation of the NA as such but also with the fact that the present Dutch NA do not yet have the meso-structure needed to show the link completely. On the micro-side, a more fundamental problem impedes a complete link. This problem derives from the very nature of the statistical process: it almost always involves homogenization of the individual data. This means that data on individual agencies have to be adapted to arrive at a significant data set and in this sense a link can never go all the way. How this works out for the government sector will be elucidated in the next chapters.

# 3. Accounting practices and organisation of the Dutch government agencies

## 3.1 Introduction

Accounting procedures have long been subject to legislative action of the government. Probably, the desire to prevent fraudulent manipulation and presentation of the data on business performance has played a major role in this, along with a need for comparability of business accounts. Whether the resulting acts have succeeded on both accounts is a matter of judgement; in any case the legislative efforts involved make it rather surprising that government agencies themselves do not come up with a kind of self-imposed comparablity. This is not due to a lack of diligenge on the part of the legislator: the accounting practices of the Dutch goverment agencies are all regulated by acts, one for every level of government. The degrees of homogeneity these acts invoke for the goverment agencies they bear upon, however, differ considerably; by themselves they are a major cause for differences between the various levels of government. Most of these acts go, on the one hand, into minute detail on the contents of entries but leave much choice for the accounting structure as a whole on the other. For instance, the Municipal Accountability Act of 1985 stipulates very precisely how municipalities should record their receipts and disbursements but leaves ample room for a wide variety of organisational forms. The latter leads to a great differentiation of municipal structures, ranging from simple monolithical ones to vastly differentiated, highly complex organisations. This again leads to differing degrees of financial complexity. The following subsection will deal with the bookkeeping practices of government agencies, the next one with the accounting structures.

## 3.2 Bookkeeping practices

Until recently, all Dutch government agencies basically followed the principles of an ancient bookkeeping system known as the "cameral style" or "new cameral style" (the latter dating probably back to the 17th century). This system is designed for the needs of disbursement units without important capital goods and with no pursuits of profit; hence it simply records cash flows. In its purest form it is just an enumeration of all receipts and disbursements during a year, in which entries are recorded only once; there is no profit and loss account, nor a balance sheet. No provisions are made for the obsolescence of capital goods, (unforeseen) risks, or for future events, there is neiher depreciation nor are reserves formed. Changes in inventories are not taken into account either. All payments are recorded in the period in which they actually are made, on a strict cash-base.

The dealings of present-day government agencies have become too complex to adhere to a simple form of cameral style bookkeeping; thus, these agencies now often possess important amounts of capital goods. Several governmental levels have therefore changed to a system of double entry bookkeeping, most recently the municipalities. As the new Municipal Accounting Act which prescribes to do so only dates from 1985, the municipalities are presently going through a transformation period. The central government, however, up to now has stuck to a kind of cameralistic bookkeeping system and shows no inclinations for a change in this respect.

Amongst other things this implies that the registration of the entries in the bookkeeping of the central government is on a cash basis. Up to 1985, the introduction year of the new accountability act, municipalities adhered to registration rules that were somewhere between cash and transaction basis: the records of a particular calendar year were kept open till the middle of the next year, entries bearing on that particular year were to be made in the books of that year. This boils down to what can be called a near-transaction basis. The new Municipal Accountability Act enforces a

strict transaction basis, other government agencies like provinces already used this form of registration.

### 3.3. Accounting and administrative structures

The yearly accounts of the government agencies are the documents with most relevance for the eventual financial reporting. It is mainly by means of those documents that these agencies report to the various representational bodies like parliament, city council or polder board. They are also the main source for the statistics on government finance. To preclude a possible misunderstanding it has to be stressed that these accounts bear no resemblance whatsoever with the National accounts. Slightly exaggerating, one might say that the only feature the government accounts share with the NA lies in the fact that they contain figures. In their structure they reflect the accounting and also the administrative structure of the agency they bear upon. As said before, these structures differ from level to level and, on a specific level, from agency to agency. A full description of the various structures one would find on the different levels would greatly overstep the limitations of a conference paper like this. Some insight is needed however, because in several ways these structures also determine the basic structures of the statistics. Therefore, restraint in the description is sought; it is found in the restriction to two government levels: the municipalities and the central government.

The Dutch municipalities are all independent corporate bodies, though other levels of government like provinces and the central government have some control over them. This regards mainly financial and accounting as well legislative aspects. The legal status of the municipalities is set down by the Municipality Act of 1851, the bookkeeping procedures by the Municipal Accountability Act.[2]

The core of the accounting system of every municipality consists of the so called "general account". This is divided into two main parts: the "ordinary account", and the "capital account". On the ordinary account the current payments and receipts are recorded and on the capital account the capital and capital finance transactions. The ordinary account and the capital account have a corresponding subdivision along a functional classification of purposes, like education, social welfare, energy (viz. the municipal interference with energy supply) etcetera.

The Municipal Act which sets down, as mentioned above, the legal status of the municipalities, also allows for a further juridical structuring of a municipality by offering the possibility of creating intra-municipal corporate bodies. These are called branch of civil service. Three types of branches of service can be discerned:

- -branches selling goods or services to the general public
- -branches providing goods or services to the general public for free or low nominal payment
- -branches supplying goods or services (mainly services) to the government agency they belong to.

Combinations of these three different types occur frequently. The reason for creating corporate bodies like this may lie in the wish to record the transactions on specific functions or activities in more detail than can be done on the general account and/or to have them performed with some managerial independence. They have a bookkeeping of their own, apart from that of the rest of the municipality. However, the connections with the general account are tight. Thus the balances (whether positive or negative) have to be transferred to the corresponding headings of the ordinary account of the general account. In most cases, the bookkeeping of these bodies, just like that of the municipality itself, knows an ordinary account and a capital account. Sometimes, especially when large investments are involved like in the case of branches dealing with real estate development, a kind of double entry bookkeeping system is followed. When the balances of the branches of civil service are to be set apart as provisions of reserves (whether in total or partly) these

reservations can be transferred back to these corporate bodies, which then again have to transfer them to the capital account of the general account as an investment. As these intra-municipal financial flows do not quite contribute to the comprehensibility of municipal finance, sometimes municipalities opt for more simple ways to deal with the provisions of reserves of branches to allow for a better understanding. We do not elucidate these other procedures here; of importance to note, however, is that these different procedures contribute to the heterogeneity of municipal bookkeeping.

As the recording of payments and receipts and the treatment of balances and provisions of reserves shows, the independence of the municipal branches of service is quite limited. This also appears from the fact that in the case of market activities prices are very often set in the course of the debate on the budget. Furthermore, from the fact that the branches of civil service can have no financial dealings with the outside world, they are for example not allowed to contract loans on their own. These are contracted by the municipality itself and accounted for on the capital account of the general account and only then put at the disposal of a branch. This procedure brings about another type of intra-municipal transfer, to wit loans, redemptions and interest payments.

Some towns are too small to perform all municipal tasks by themselves. Therefore the possibility is created to join with other municipalities or with a province in a so called "joint arrangement". These too can have independent legal status, which in most of these cases is set down by the Joint Arrangement Act. These bodies are much more independent from the municipalities they work for than a municipal branch, if only because of the fact that several different agencies are involved. Furthermore, the accounting of these joint arrangements is completely apart from that of the participating agencies; even the treatment of the balances is not for an individual participant to decide upon.

The above mentioned types of intra-municipal transfer payments, to

which much more could be added, are, although meant to give better insight in the (intra-)municipal responsibilities, the main reason for the intricateness of municipal bookkeeping. They lead to accounts that, for the unaccustomed user, are rather impenetrable and opaque. Together with the variety in structures they lead to a lack of comparability between the government agencies in question.

The variety of structures is not so much of a problem in the case of the central government: this is composed of just some 14 ministries with a rather limited number of branches. The accounts of the central government are opaque for yet another reason: the variety of entries and the differences between them. These entries can bear on the total of payments and receipts of sub-units, on specific policies, on various subsidies or on rather loose cost categories like "general costs" or "personnel costs" or "material costs".

These two kinds of problems are, to a larger or smaller extent, met within all goverment levels. Together they give cause to an important purpose of the statistics on government finance: to provide a homogenized economic picture of the government agencies. This is the subject of the next chapter.

## 4. Government statistics

### 4.1. Introduction

As stated before, the CBS government statistics which this paper is concerned with, aim at providing an economic picture of the various levels and kinds of government belonging to the subsectors general and local government, viz. the central government, provinces, municipalities, polders and joint arrangements; an economic picture which should be twofold in that it accomodates the data requirements of the actors in the government sector and at the same time fits in the NA. They therefore provide sets of data both from an accounting point of view and from a macro-economic one. That these data sets

have to differ is mainly due to the intra-agency transfers and structures, which arise from administrative purposes and therefore do not always suit the NA registration and classifications. Another reason for dissimilarities lies in the NA conventions which, generally spoken, lead to registrations, imputations and attributions which appear peculiar from the point of view of the actors. In the case of the government the imputations and attributions are of minor importance. (In fact only one imputation is to be mentioned, this will be dealt with in due course.) The conventions on registration, however, play an important role.

## 4.2. The accounting point of view data set

As stressed above, for the data relevant from the angle of incidence of the actors in the government sector, it is indeed of importance that they depart as little as possible from the views of the actors involved. As mentioned before, this implies two requirements. The first one is that the actors must be enabled to recognise themselves as subjects of the statistics, the second one that the statistics supply information that makes sense to them. In the government statistics the first requirement is met by using the administrative organisation of the government agencies as a point of departure. For the accounting point of view data set this means that the administrative units as such are the statistical units. In the case of the statistics on municipal accounts the municipalities as well as the branches of civil service are the basic units for this data set. The second requirement is met by fitting the data set as closely as possible to the data found in the basic documents, i.e. the accounts. It must be recognised, however, that even this data set cannot be arrived at by simply assembling and aggregating the basic data. This is caused by the heterogeneity of the entries and the structures of the agencies.

As we have seen from the description of the municipal accounting

system, given as an example in the preceeding chapter, the structure of an agency can bring about all kinds of intra-agency transfers. Because the complexity of the agencies differs, this leads to incomparability of the basic data. This is enhanced by the fact that these transfers can be recorded in different ways. A first adaptation to be made therefore is the elimination of a number of intra-agency transfers.

Another source of dissimilarities between agencies lies is differences in classification of the entries. This can be due to differences in the interpretation of the various accounting acts. When the accountability acts provide for a classification of entries, the ways the entries are to be made according to those classifications turn out to be understood differently, even mis-interpretations occur. This also leads to a need for homogenization. When the accountability act for a government level does not bother with categories for payments and receipts, as is the case for the central government, statistical activism has to go further even: a classification must be provided that is suitable for the governmental agencies in question. When, for instance, expenses of the Ministry of Defence in the account of the central government are recorded as "material cost", these are to be separated in "investments" (for example tanks) and "current expenses on materials" (for example gasoline) in order to generate the data for the accounting data set .

A third important dissimilarity between the agencies is caused, as we have seen from the municipal example, by the differing structures as such. Here a dilemma arises. Doing away with these dissimilarities would greatly distort the picture of the agencies; preserving them, however, would very much impair the required comparability and homogeneity. In this matter a compromise is therefore sought. This is brought about by describing the structures as they are on the one hand and by giving, on the other, the data according to a homogeneous classification of functions, abstracting from accounting and organisational structures.

The resulting data sets provide, for every level and kind of government, information on current cost, capital costs and finance per function, specified according to a classification of transactions. (Both, the functional classification and the classification of transactions, appropriate to the specific government level and kind.) In addition to this they supply the same kind of information on the corporate bodies belonging to a specific government level, grouped according to the functional classification and specified in accordance with the classification appropriate to that level.

## 4.3. The macro-economic point of view data set

### 4.3.1. Introduction

To fit into the NA, the data on the government agencies have not only to be adapted, as in the case of the accounting view data set, they also have to be transformed. This need for transformation of the basic data is not unique. As Archipof (1985) rightly argues, it can generally be said of NA data that they originate as a projection of basic data, whereby the projection takes place by means of aggregation and transformation processes. In the course of these processes the data change of nature like a caterpillar turns into a butterfly: the entries become transactions and the administrative units change into transactors. We will pay attention to the transformations with relevance to the transactors first and on the transactions in a next subsection.

### 4.3.2. Transactors

A very basic idea in national accounting is the need for different types of statistical units for the description of the different economic processes. As indicated by, for example, the SNA (UN, 1968, sections 5.3 and 5.4 ) the actors that perform the production process often differ from those participating in the income (re)distribution

and financial processes. One of the reasons for this is that the decisions on the production process are often taken at a lower level in the organisation than those on the income (re)distribution and financial processes. The SNA therefore recommends to distinguish different statistical units for the description of the production process on one side and the income (re)distribution and financial processes on the other: establishment-type units, enterprise/household type units, respectively. This duality is also suggested for the government sector.

The ideas on statistical units for the government sector, as given in SNA (UN, 1968) have, to a large extent, been implemented in the Dutch statistics on government finance. The idea, however, of discerning auxiliary activities (by means of which goods and services are supplied to the government agency which also can be bought at the market) as establishment type units, at one time adhered to and implemented in the CBS statistics on government accounts, has now been dropped because it turned out to add little to the information content of the statistics and because it is now seen as being at variance with the ideas on statistical units in other sectors.

The above implies that the government agencies have to be transformed to units for the description of the production process and units for the depiction of the income (re)distribution and financial processes. Again it would overstep the limits of this paper to describe how this is done for all levels and kinds of government, whilst some insight in this is of great importance for the understanding of the links between the accounting data set and the macro-economic one, which, as these links bring about the micro-macro link, are the very core of this paper. Therefore we discuss just the example of municipalities.

The first thing to be said about them in this respect is that as a starting point every single municipality should be taken as a whole, abstracting from juridical structures like corporate bodies. This is because, as we have seen, the latter only are of administrative

interest and do not have importance from an economic point of view. Furthermore, as we have seen in the preceding chapter, the municipalities perform, beside governmental tasks, activities that lead to the production of goods and services meant for sale to the general public. An example of such activities are those performed by the public utilities. As agencies like these carry out processes which can be seen as quite different in nature and purpose, having to do with diverging principal roles and with quite different input structures, it was decided that every market activity of a municipality, irrespective of the place in the organisational structure where it is performed, should be distinguished as an establishment type unit. As non-market activities can differ a lot too, it was decided to set apart, in principle, all activities different from the main activity of a municipality. For instance, education is an activity in which many municipalities are heavily involved in and which differs so considerably from, say, general government that it is of interest to show it apart on the basis of establishment type units. Of course some limitating rules had to be developed to prevent that every undifferentiated and modest activity would turn up as an establishment type unit. These rules are partly based on considerations on the value of the information concerned and partly on pragmatic considerations. The first kind of considerations led to the rule that an activity should diverge substantialy from the main activity of a municipality in order to be considered as an establishment type unit. This was given concrete form taking recourse to the industrial classification of the CBS, the SBI. This classification has four hierarchical levels: branches, classes, groups and subgroups of industries. When a municipality performs an activity which belongs to a group in this hierarchy other than the activity group "general government" it is taken to be so different that it is worthwhile to distinguish it as a separate activity. A similar consideration led to the rule that an activity, when recorded on the general account, should at least have a total of expenses of ca. 2.5 mln gld. if it is to be transformed into an establishment type unit and to the rule that a market activity should at least amount to a total of receipts of 0.1 mln gld. if it is to be treated

as such a unit.

In the course of the transformation from the municipalities and their corporate bodies to statistical units, the communal arrangements are to be taken into account too, insofar as municipalities are involved. From a NA point of view there is no real difference between these agencies and the municipal corporate bodies, the only difference being a juridical-administrative one. Therefore, the same rules have to be applied on them in order to decide whether they are statistical units or not. When they are not accepted as statistical units a practical problem arises: in these cases they should be consolidated with the participating municipalities. This would lead to very difficult accounting operations. For practical reasons, therefore, it is decided to treat these communal arrangements here as a kind of observational units which are to be consolidated on an aggregate level.

The SNA (UN, 1968, section 5.53) proposes to include large governmental enterprises selling goods and services to the general public in the same institutional sector as private corporations, mainly because of international comparability. It also suggests, for reasons of analytical requirements regarding information on income and outlay and capital transactions, to set apart financial and non-financial enterprises belonging to the same family of entities. This is done in order to include each group of enterprises in separate institutional sectors (sections 5.60 to 5.62). Considerations of this kind have played an important role in the choices regarding the transformation of government agencies to these kind of units. Eventually these considerations have led to the conclusion that governmental and market activities should be set apart in separate enterprise-type units. This has been elaborated in a method in which every establishment within a government agency which performs a market activity is considered and treated as a separate enterprise type unit, as well as the remainder of that agency as a whole. The units with a market activity can be both financial or non-financial.

The decision to consider every government establishment with a market activity as an enterprise-type unit has been discussed again of late. The main reason for this was that the independency of these agencies with respect to their financial decisions and behaviour is rather doubtfull. A good reason to stick with the view taken up to now, however, is the fact that these agencies differ a lot from the rest of the government agencies in their financial behaviour: they use their financial means mainly for fixed capital formation.

### 4.3.3. Transactions

The data on the transactions are obtained by a transformation of the entries found in the accounts. These transformations bear on three aspects: the registration basis, the nature of the transactions, both in itself and in relation with the structure of the agencies, and the classifications. In addition to this in some rare cases an imputation has to be made to meet present NA conventions.

As is well known, the registration in the NA is on a transaction basis. This is also the registration basis used in the accounting system of the provinces and the municipalities, so for these agencies no efforts have to be made in this respect. Some other agencies, the most important of which is the central government, however, register on a strict cash basis. The first transformation to be made in these cases is to change to a transaction basis. In some cases the possibilities to do so turn out to be rather limited.

By their very nature the entries differ from transactions: entries just bear on payments and receipts, transactions are part of economic processes. Some entries can readily been seen as transactions: wage payments cause entries and constitute transactions too (although the content may differ as we will see below). Some entries, however, have only a bookkeeping meaning. This can relate to the administrative structure: the different ways in which the agencies are structured administratively as opposed to the structure in the NA

sense sometimes lead to transformations. For instance, entries bearing on intra-municipal transfers have to be eliminated when the bodies involved are not considered as separate statistical units. When they are, these entries can change in nature. For example, a contribution from the municipalities to a corporate body has to be transformed in some cases into intermediate use on the paying side and production of goods and services on the receiving side or into a production subsidy (this example will be elaborated a bit more in the next section). The bookkeeping meaning can also relate to the obligation to account for all payments and receipts. When, for instance, a payment for an investment is made in advance, sometimes the amount paid can afterwards turn out to have been to high. When a repayment is made in such a case, both payments are to be found in the accounts in full. In such a case the NA would not record an outlay as well as a receipt, but both would be transformed to one (netted) outlay. The bookkeeping meaning of entries can in yet another way lead to distortions from a NA point of view: one entry can bear on distinct transactions. For instance, when a payment is made to a contractor for the upkeep of roads, this can from a NA viewpoint imply an outlay on intermediate consumption but also an investment (when the upkeep has the magnitude of a reconstruction).

For some of the government levels, viz. municipalities and provinces, a classification of entries in the form of accounting categories is now introduced in the present accountability acts that is based on SNA/ESA recommendations (for municipalities only from 1985 on). The application of these classifications, however, is not completely succesful, to use an understatement. This means that for some government agencies, and certainly for those which do not care for such a classification, transformations have to be made to arrive at a uniform classification in accordance with the NA. Another reason for this is that the accounting categories sometimes have a content different from the equivalent NA transaction classification heading. For instance, the payments to people working in social workshops (workshops which provide facilities to the mentally or physically impaired, viz. work in an adapted environment, under

surveyance and often with a therapeutical or training purpose) are treated as a wage payment in the accounting of municipalities, whilst in the NA these are considered as social benefits. Another example can be drawn from the accounts of the central government. As mentioned before, under the heading "material costs" entries are made which are interpreted in the accounting version of the statistics on the general goverment either as current expenses on materials or as investments. Some of these investments are on millitary durables like tanks, which according to the SNA conventions have to be recorded in the NA as intermediate consumption.

The sole imputation of importance for the government sector is the one for consumption of fixed capital. This imputation is needed because those government agencies which adhere to a strict cameral style bookkeeping system, like the central government, do not provide a depreciation allowance in respect of past investments.

The resulting data sets give the information for levels and kinds of government as well as the subsectors according to SNA/ESA rules. They are presented mainly in a set of accounts, much like the set of accounts for the government (sub)sector which the ESA (1986) proposes. These data then are the basic data to be used in the NA but they are meaningful in their own right too, for instance because they provide a degree of detail that would be overabundant for the NA. The way they are used in the NA will be the subject of the last section of this chapter. First, we will give some attention to the link between the two data sets described up to now: the one according to the accounting point of view as treated in the preceding subsection and the one according to the NA view which was the subject of this subsection.

## 4.4. The micro-macro link

Presenting two differing data sets on the same subject may be intelligible to stastisticians familiar with that subject, but

without an explanation many a user might judge this as bizarre. It might even invoke people to look upon it as yet another example of a kind of deceit sometimes phrased as: how to lie with statistics. This all the more because of the fact that the dissimillarities appear to be considerable. In the statistics on government finance, therefore, a lot of explaining is provided for. The explanations are given in three ways. First a description is given of the methodology which is followed to arrive at the results. As users of statistical data often have an inclination to a quantative approach, secondly a numerical presentation of the connections is supplied in the form of transformation tables. These form the basis for the third kind of explanation: a verbal presentation of the underlying transformations.

The transformation tables and the verbal record based upon them, constitute the heart of the matter we are dealing with here: the micro/macro link for the government. Examples of these transformation tables are presented as tables 1 and 2. These tables are taken from the statistics on the municipalities (see CBS, 1986). Table 1 presents the numerical connection between the municipal entries according to the accounting concepts and the receipts according to the macro-economic point of view, table 2 does the same for the macro-economic outlays. The tables report on 1983, the most recent year for which the statistics on municipal finance are available.

From the three aspects mentioned in section 4.3.3. which together cause the dissimilarities between the accounting data and the NA data, two can be illustrated by means of these tables: the differing nature of entries and transactions, and the effects of the differences in classification. The effects of differences in registration basis do not show: as the municipalities record on a (near-)transaction basis, no transformations have to be made in this respect.

The difference in nature of entries and transactions shows, for example, in the rows bearing on compensation of receipts and

compensation of payments. The entries involved have to do with the gross registration of repayments on advances. In the municipal accounts these are negatively recorded on the opposite side: a repayment received on an advance payment made, is recorded as a negative payment and vice versa. Thus entries are recorded on the receipts side of the accounts which for the NA are to be consolidated with payments on the outlay side (and again: vice versa). This also explains some of the entries in the columns second from the right in both tables, bearing on macro economic outlays on the income side and receipts on the outlay side. Furthermore, these columns contain entries which show the effects of differences between the admininistrative-organisational structure and the structuring in statistical units according to the NA point of view. For instance, in the row bearing on sales in table 1 a total of 26.4 mld gld. is found, which represent the total of sales of the municipalities. Of these sales 2.6 mld gld. is to intra-municipal bodies not treated as separate statistical units. For the NA these should therefore be deducted from the total of sales. The resulting amount is to be found in the first column under the heading production of goods and marketable services. This also illustrates that the change from sales to production of goods and marketable services is not just a semantical one: it has quantitative implications too. (As well as conceptual ones of course, but these are rather intangible.)

Table 1.Transformation of accounting categories to macro-economic income categories for the Dutch municipalities, 1983

| | Macro-economic income categories | | | | | | | | | Total macro-economic income categories | Internal transfers & macro-economic outlay categories | Total amount accounting categories |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Production of goods & marketable services | Property & entrepreneurial income | Taxes | Current transf. from central governm. | Other current transf. | Des-investments | Investment grants & other capital transf. | Shares & other equities | Medium- & long-term loans | | | |
| ESA codes | P11, 12 | R41,43, 44,45 | R20,61 | R65# | R65#, 30,69 | A1, P41,71 | R71,79 | F61,62 F89# | F89# | | | |
| | mld gld | | | | | | | | | | | |
| Ordinary account | | | | | | | | | | | | |
| Sales | 23.8 | | | | | | | | | 23.8 | 2.6 | 26.4 |
| Contributions from central government | | | | 31.1 | | | | | | 31.1 | | 31.1 |
| Contributions from others | | | | | 0.9 | | | | | 0.9 | | 0.9 |
| Taxes | | | 2.8 | | | | | | | 2.8 | 0.1 | 2.9 |
| Interest | | 2.8 | | | | | | | | 2.8 | 1.0 | 3.8 |
| Returns branches of civil service | | 0.5 | | | | | | | | 0.5 | | 0.5 |
| Disposal of reserves | | | | | | | | 0.4 | | 0.4 | 2.7 | 3.1 |
| Contributions in interest costs by branches of serv. | | 3.6 | | | | | | | | 3.6 | 0.3 | 3.9 |
| Compensation of receipts | | | | | | | | | | | 3.8 | 3.8 |
| Other internal transfers | | | | | | | | | | | 9.8 | 9.8 |
| Other receipts | | 2.0 | | 9.2 | 2.2 | | | | | 13.4 | 1.1 | 14.5 |
| Total ordinary account | 23.8 | 8.9 | 2.8 | 40.3 | 3.1 | | | 0.4 | | 79.3 | 21.4 | 100.7 |
| Capital account | | | | | | | | | | | | |
| Capital contributions from third parties | | | | | | 0.4 | 1.2 | | | 1.6 | | 1.6 |
| Capital grants | | | | | | | | 5.6 | | 5.6 | 1.1 | 6.7 |
| Sales of capital goods | | | | | | 3.0 | | | | 3.0 | | 3.0 |
| Loans raised | | | | | | | | | 9.0 | 9.0 | | 9.0 |
| Depreciations | | | | | | 4.2 | | | | 4.2 | | 4.2 |
| Redemptions of loans by branches of serv. | | | | | | | | 4.3 | | 4.3 | 2.0 | 6.3 |
| Deposits in reserves | | | | | | | | | 1.1 | 1.1 | 2.4 | 3.5 |
| Compensation of receipts | | | | | | | | | | | | |
| Other internal transfers | | | | | | | | | | | 185.1 | 185.1 |
| Other receipts | | | | | | 1.1 | 1.5 | 1.8 | 2.6 | 7.0 | | 7.0 |
| Total capital account | | | | | | 8.7 | 2.7 | 11.7 | 12.7 | 35.8 | 190.6 | 226.4 |
| Sum total of receipts according to the accounts | 23.8 | 8.9 | 2.8 | 40.3 | 3.1 | 8.7 | 2.7 | 12.1 | 12.7 | 115.1 | 212.0 | 327.1 |
| Compensation of outlays & various adaptations | | | | | | | | 0.7 | -1.1 | -0.4 | | |
| Sum total of macro-economic income categories | 23.8 | 8.9 | 2.8 | 40.3 | 3.1 | 8.7 | 2.7 | 12.8 | 11.6 | 114.7 | | |

# for a part

Table 2. Transformation of accounting categories to macro-economic outlay categories for the Dutch municipalities, 1983

| | Macro-economic outlay categories | | | | | | | | | Total macro-economic outlay categories | Internal transfers & macro-economic income categories | Total amount accounting categories |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Compensation of employees | Intermediate consumption | Consumption of fixed capital | Property & entrepreneur. income | Current transf. | Investments | Investment grants & other capital transf. | Shares & other equit. | Medium- & long-term loans | | | |
| ESA codes | R10 | P20 | A1 | R41,45 | R20,30, 64,65, 66,69 | P41,47 | R71,79 | F50,62, 63,89# | F89# | | | |
| | mld gld | | | | | | | | | | | |
| Ordinary account | | | | | | | | | | | | |
| Personnel costs | 16.6 | | | | 0.5 | | | | | 17.1 | | 17.1 |
| Purchases | | 21.9 | | | | | | | | 21.9 | 2.4 | 24.3 |
| Depreciations | | | 4.2 | | | | | | | 4.2 | | 4.2 |
| Interest costs | | | | 9.7 | | | | | | 9.7 | | 9.7 |
| Contributions in losses branches of civil service | | | | | 0.6 | | | | | 0.6 | 4.5 | 5.1 |
| Contributions & subsidies | | | | | 25.2 | | | | | 25.2 | | 25.2 |
| Deposits in reserves | | | | | | | | 1.1 | | 1.1 | 2.4 | 3.5 |
| Compensation of outlays | | | | | | | | | | | 0.7 | 0.7 |
| Other internal transfers | | | | 3.7 | | | | | | 3.7 | 11.5 | 15.2 |
| Other outlays | | | | 0.3 | | 0.2 | 0.3 | | | 0.8 | | 0.8 |
| Total ordinary account | 16.6 | 21.9 | 4.2 | 13.7 | 26.3 | 0.2 | 0.3 | 1.1 | | 84.3 | 21.5 | 105.8 |
| Capital account | | | | | | | | | | | | |
| Investments | | | | | | 10.8 | | | | 10.8 | 0.7 | 11.5 |
| Supply of capital to branches of serv. | | | | | | | | 5.9 | | 5.9 | | 5.9 |
| Redemptions of loans | | | | | | | | 5.1 | 4.3 | 9.4 | | 9.4 |
| Disposal of reserves | | | | | | | | | 0.4 | 0.4 | 2.7 | 3.1 |
| Compensation of outlays | | | | | | | | | | | 0.0 | 0.0 |
| Other internal transfers | | | | | | | | | | | 178.6 | 178.6 |
| Other outlays | | | | | | 0.3 | 0.8 | 6.3 | | 7.4 | | 7.4 |
| Total capital | | | | | | 11.1 | 0.8 | 17.3 | 4.7 | 33.9 | 182.0 | 215.9 |
| Sum total of outlays according to the accounts | 16.6 | 21.9 | 4.2 | 13.7 | 26.3 | 11.3 | 1.1 | 18.4 | 4.7 | 118.2 | 203.5 | 321.7 |
| Compensation of receipts & various adaptations | | | | | | -0.2 | -0.3 | -1.1 | | -1.6 | | |
| Sum total of macro-economic outlay categories | 16.6 | 21.9 | 4.2 | 13.7 | 26.3 | 11.1 | 0.8 | 17.3 | 4.7 | 116.6 | | |

#for a part

Another example of the effects of the transformation from administrative units to establishment- and enterprise-type units is provided by the treatment of the contributions of municipalities to their branches of civil service performing market activities. When those branches of civil service operate with a negative return municipalities often supplement them with a contribution. From the macro-economic point of view, this means, if the branches are not considered as establishment type units, a transfer within the same unit. Payments as well as receipts of the municipalities are therefore reduced with the amounts involved. In the case of a branch of civil service which is considered as an enterprise-type unit, the treatment of such a transfer is completely different. Under these circumstances, from the point of view of NA, it is a financial flow between separate enterprise-type units and hence has to be treated as such. This means that in such a case the transfers are, in the macro-economic data sets, accounted for as a production subsidy or as a transaction bearing on intermediate consumption and production of goods and services. The latter interpretation is followed when these agencies perform services not only to the general public but also to the municipalities they belong to.

The second kind of dissimilarities which are illustrated by these tables are those caused by differences in the classifications. An example of this can be found in table 2 on the first row, where part of the personnel costs in the municipal accounts has to be regarded as social benefits; this dissimilarity has to do with people working in social workshops. This example gives us an opportunity to demonstrate the third kind of explanation for the differences of the two data sets mentioned at the beginnig of this chapter, the verbal presentation of the underlying transformations. This explanation too is provided in a tabular form; for every row in the transformation table it is reported in which column the amounts can be found and which transformations are involved. Thus, the part of the explanatory table bearing on personnel cost is:

| Row of the transformation table | Transformation | Column of the transformation table |
|---|---|---|
| Personnel costs | The allowances to people put to work in social workshops are recorded in the macro-economic tables as social benefits whilst in the accounting tables they are recorded under the heading personnel costs. | Income transfers |

4.5. The statistics on government finance and the NA

As mentioned in the second chapter the micro/macro link for the government sectors is not complete. The two main causes for this are the statistical processes by which the NA are compiled and the sectoral structure of the NA. As a part of the compilation of the NA, the incorporation of the statistics on government accounts causes one more group of deviations from the accounting data. These are due to the projection of the basic data, as Archipoff (1985) calls this process, a projection by means of transformations corresponding to underlying definition equations. The equation most important here is that corresponding to the commodity flow method which lies at the very heart of Dutch NA, especially in the compilation of the annual input/output tables which constitute the cornerstone of the accounts. According to this equation the supply of goods and services (production, imports and decrease of stocks) has to equal the use (consumption, investment, exports and the additions to stocks). Due to the use of different (statistical) sources this equality does not come about of its own but has to be achieved by means of a statistical process of integration and confrontation. In this process, the data on government may have to be adapted. As, however,

the data on this sector seem to be amongst the most reliable data available, they usually are not heavily affected by this statistical process. Thus, the dissimilarities resulting from this process can be expected to be rather modest. One exception has to be mentioned, however. This concerns consumption of fixed capital. The statistics on government accounts contain depreciation data based on the respective entries in the micro records, at least when such entries are made. In these cases the amounts registered in the basis statistics have to be replaced in the NA with imputations calculated by means of the perpetual inventory method.

The most important reason for a flaw in the micro/macro link lies in the sectorial structure of the Dutch NA. Up to now, sectoring of government in the NA is almost completely of a macro nature. Only two subsectors are distinguished: the central and local government together constitute one subsector and the social security institutions the other. In the first subsector private non-profit institutions (PNP's) are included which do not belong to the subsectors as defined in the statistics on goverment accounts (Education, for instance, is for a large part provided by PNP's financed by the central government; these are included in the NA subsector central and local government but not in the respective subsectors in the basic statistics). Therefore, but also because the statistics on government accounts all relate to one particular level, a complete link cannot be reached without disaggregating the NA. This is one of the reasons why the need for a meso structure of the SNA must be stressed: the link with the basic statistics would become much clearer and direct[3]. (Bearing this in mind it would perhaps be better to rename the issue as micro/meso link!). The meso structure for the government which will be adopted for the Dutch NA has not yet been decided upon. It is seriously considered, however, to show central government as a separate subsector in the NA, as well as the municipalities. Doing the same for provinces and polders might be overdone, in view of the relatively small size of those government levels: perhaps they will be taken together as one sub-sector. The place of the government-financed PNP's is not yet decided upon

either: they could be taken together as one subsector either belonging to the sector government or to a separate sector containing all PNP's.

A third cause for the incompleteness of the micro/macro link for the government sectors has to be mentioned, though it is of a temporary nature only. It bears especially on the statistics on municipal accounts, which became available only recently. These new statistics are not yet incorporated in the NA because this would disturb the consistency in time of the NA estimates considerably. Because ad hoc changes in the NA estimates would greatly impair the usefulness of NA data for one of its major purposes, namely as data for economic modelling, a CBS policy of NA revisions has been developed which only allows for changes in the course of a revision once in so many years; then a large number of necessary changes in methods and sources are simultaneously introduced in the data for the most recent years and, at the same time, time series are provided that take the impact of the revision into account. Right at the moment a NA revision is being prepared relating to the year 1985, with time series going back to 1969. These will be published in 1989/1990, provided no budget cuts will interfere. This revision will then give the opportunity to incorporate the statistics on municipalities. The statistics on the other government levels have been incorporated at the occasion of the last revision, the one of 1977. They have not, however, been fully integrated either. This has to do with the truly institutional approach followed in the statistics on government accounts, which could not yet be followed in this revision of the NA (mainly because the statistics on the municipalities where still lacking at the time). This also will be corrected in the next revision.

Incorporating data from government agencies on a scale and in a detail that will become possible with the 1985 revision , will lead to major improvements in quality but cause some problems too. One of the questions not yet resolved bears upon the way activities of government agencies should be treated in input/output tables,

especially those of agencies which produce goods and services that are also provided by private agencies (other then PNP's). If, for example, in a use matrix they would be simply combined with some activity performed by such private agencies, this could lead to a quite heterogeneous column structure. This for two reasons: firstly because the cost-structures of the agencies can differ and secondly because the value added is calculated in another way. The first reason can materialise when government agencies choose other technological processes, which is reflected in the cost-structure. They can for instance, as part of an employment policy, decide on processes which are more labour- and less capital-intensive. The second reason is caused by NA conventions bearing on the nature of value added and the way it has to be calculated. In the case of a government agency, e.g. one operating a swimming pool, the value added will just consist of wages whilst the value added of a swimming pool operated as a private business is calculated as sales minus intermediate costs. When a contribution in the cost is given in both cases, the value added at factor costs for the private pool will go up whilst that of the government agency will stay the same, the contribution in the latter case being transformed, in the NA, to an income subsidy or simply consolidated (in the case of an inter- or intra-unit flow respectively). It is still a matter of further research whether these problems will materialize in a substantial way. If so, a solution could be found for the first problem along the lines suggested by Reich, who proposes to treat the private and the governmental activity as different activities (Reich, 1986). This would result in separate columns in the matrices. Another way would be to introduce an extra dimension in the input/output tables, namely that of the institutional sectors. Ideas on this subject have been examined in papers by van den Bos and Al (van den Bos, 1985, Al, 1986), which lead to the conclusion, however, that a complete sectoring of input/output tables to activities as well as institutional sectors would be very demanding in a technical sense[4]. The second problem could be solved by changing the way in which value added is calculated for government agencies producing goods and services which are also provided by private agencies other

then PNP's. For these agencies one could choose to follow the method in use for the private agencies and calculate value added as production minus intermediate costs. This, however, would be a rather fundamental decision to be taken only after thorough consideration. It would be very far-reaching too: quite a lot of services provided by the government turn out to be provided by other sectors as well, certainly when an international point of view is adopted. (Education is a good example: in some countries it is provided mainly by government agencies or by government financed PNP's, in others by private agencies not being PNP's.) Relevant to our subject is that this would lead to yet another deviation from basic statistics, which of course could be remedied in due course by adapting these statistics.

One more as yet unresolved question, which is in fact quite a problem, bears on the commodity classification of the services of government agencies. Internationally, work on this subject has not yet resulted in a generally accepted classification; the CBS has not implemented one either. Consequently, virtually no data on the commodities produced are available in the statistics on government accounts. Of course in the make tables of the nature now being prepared by the CBS, which are of a commodity/activity type, such a commodity classification of production is essential. What is available, however, is a purpose classification of the transactions of the government (sub)sectors. It has been decided to draw, for the time being, on these data for a commodity classification of government production and consumption. Whether this will turn out to be an acceptable solution remains to be seen: commodity and purpose classifications, although possibly coinciding occasionally or maybe even largely, differ fundamentally in principle (commodities can be thought of which can serve different purposes). At this time it is hard to tell how important all this will be for the micro/macro link, quantitatively and/or qualitatively. The result could be an extra flaw in the link, which however might be repaired (again: by amending the basic statistics).

## 5. Conclusions

Transformation tables form the core of the micro/macro link for the government agencies and sectors in the Dutch statistics on goverment finance. They provide a relatively simple and concise connection between the two data sets published in those statistics: the data set relevant from the accounting point of view and the data set fitting in the NA. The micro/macro link is incomplete for several reasons. In the direction of the NA the link suffers from some flaws, mainly because the statistics on goverment finance are not yet fully integrated in the NA and because a more disaggregated sectoring is needed for a seamless link than is found in the actual Dutch NA. Much of this will be remedied in the course of a revision of the Dutch NA now being on its way. Some of the implications of this are still a matter of research. More thought will be devoted to this as well as to a further development of the statistics of government finance themselves.

Notes

(1) See for example van Bochove and van Tuinen, 1986, and van Bochove and Bloem, 1986.

(2) As the act of 1985 is not yet fully complied with by all municipalities and because the most recent statistics on the municipal accounts, from which we will draw later for numerical examples, relate to the situation before this act came into force, the description to be given here will bear on the pre-1985 situation. However, the differences in the successive accounting acts have no great relevance for the basic features of our main subject: the micro/macro link.

(3) Of course a meso-structure has other advantages too, as argued in the papers referred to.

(4) It should be noted that this point is not the main concern of these papers, which focus in particular on the connection between the description of the production process and the processes of income(re)distribution and finance; this connection can be provided in a less demanding way.

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Available National Accounts Occasional Papers

NA/01 *Flexibility in the system of National Accounts*, Eck, R. van, 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 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*, Eck, R. van (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)
In this paper 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*, Bochove, C.A. van and H.K. van Tuinen (1985)
This paper examines the purposes of the SNA and concludes that they frequently conflict with one another. Consequently, the structure of the SNA should be made more flexible. This can be achieved by means of a system of a general purpose core supplemented with special modules. This core is a full-fledged, detailed system of National Accounts with a greater institutional content than the present SNA and a more elaborate description of the economy at the meso-level. The modules are more analytic and reflect special purposes and specific theoretical views. It is argued that future revisions will concentrate on the modules and that the core is more durable than systems like present SNA.

NA/07 *Integration of input-output tables and sector accounts; a possible solution*, Bos, C. v.d. (1985)
In this paper, the establishment-enterprise or company 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. The proposed approach contains perspectives on further specification of the institutional sectors,

households and non-financial enterprises and quasi-corporate enterprises.

NA/08 *A note on Dutch National Accounting data 1900-1984*, Bochove, C.A. van (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*, Bochove, C.A. van 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)
The economic process consists of various sub-processes, each requiring its own characteristic classification when described from a statistical point of view. In doing this, the interfaces linking the sub-systems describing the individual processes must be charted in order to reflect the relations existing within the overall process. In this paper, this issue is examined with the special refernce to dual sectoring in systems of National Accounts. 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*, Boer, S. de and G.A.A.M. Broesterhuizen (1986)
This paper discusses a number of aspects of the procedure according to which input-output tables are compiled in the Netherlands. A few years ago this method underwent an essential revision. The most significant improvement means 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. Data in current prices first used to be compiled and data in constant prices and changes in volume and prices used to be estimated only afterwards. With the new method the opportunity for the analysis of the interrelations between various kinds of data, and thus better estimates is used.

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*, Eck, R. van 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*, Bochove, C.A. van (1987)

NA/17 *Main national accounting series 1900-1986*, Bochove, C.A. van 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*, Bakker, G.P. den, 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*,Bochove, C.A. van and W. van Sorge (1987)

NA/20 *The micro-meso-macro linkage for business in an SNA-compatible system of economic statistics*, Bochove, C.A. van (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*, Laan, P. van der (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.

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