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IMPUTATIONS AND RE-ROUTEINGS IN THE NATIONAL ACCOUNTS

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Abstract

Imputations and re-routeings clearly constitute deviations from some preconceived concept of "actual" transactions and "actual" transactors in the international recommendations for the construction of the National Accounts. This paper attempts to pin down a definition for those "actual" phenomena. Starting out from this definition an inventory of all positive and negative imputations and re-routeings in the 1968 SNA and the Dutch national accounts is undertaken. It is suggested that some of these should be retained in the core of a flexible system of National Accounts. An important conclusion of this paper is that the presentation of the data on imputations and re-routeings is to be accompanied by standard accounting rules. Finally a numerical example for the main transaction categories in a core system is elaborated.

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1. Introduction

Imputations and re-routeings are in the limelight. In the discussions on the revision of the SNA, several authors advocated a core system that would be as far as possible free from such constructions. Even those arguing for more extensive systems often agree with distinguishing imputations and re-routeings separately. Moreover, in the attempt to further improve the analytical usefulness of the SNA, the desirability of even expanding the number of imputations and re-routings was expressed, in order to enhance the comparability of the National Accounts data in time and space could be enhanced.

Imputations and re-routeings belong to the part of the National Accounts in which the economic flows are registered (the other domains being the balance sheets and the reconciliation accounts). In defining flows a large number of mutually dependent decisions have to be taken, such as those concerning the question of which actions will be taken into account, at which unit the flow should be registered, which units are deemed to be transaction partners, what the economic relevance or classification of the flow in question is, at which moment it should be registered, how the value (or the volume and the price of the transaction object) should be determined and so on.

This paper focuses on the first two decision points mentioned above, namely the delimitation of the transaction boundary and the identification of the active transactor unit. First of all it attempts to establish the general points of departure of the usual way of registration. Next it investigates the deviations from those general rules in the SNA and the Dutch National Accounts. These deviations can be considered as imputations and re-routeings. It is discussed which of those could be retained in a core system as advocated by several Dutch authors. Finally, the question is examined how and under which conditions data on imputations and attributions can be included in the system of National Accounts.

2. The actual transactions and transactors in the national accounts

2.1 General remarks

The meaning of the concepts "imputation" and "re-routeing" is not defined in the international recommendations for the construction of the national accounts. In the SNA only a number of specific imputations and re-routeings are discussed. From the relevant passages it can be inferred that an imputation constitutes a supplement to the "actual" transactions. A re-routeing would involve the registration of a transaction with another unit than the "actual" one. However, neither are the characteristics of an "actual" transaction or transactor given. So, in this chapter first of all the concepts of actual transactor and transaction are examined. Next follows the discussion on imputations and re-routeings.

A general definition for an "actual" transaction as made implicitly in the SNA is:

An actual transaction is an action
that is economically relevant and
that has a value that is easily established.

The first requirement in this definition is that there should be an action. Thus, a transaction is not a stock datum. Neither does it concern any change that is not brought about by some action of an economic unit. So a reclassification, a change in prices of existing stocks or a loss due to unforeseen events are no transactions. Although an action without an acting unit is inconceivable, this definition does not put restraints on the nature of the unit involved. The second part of the definition, which contains the requirement of economic relevancy, limits the concept to an action involving scarce means. The third requirement contains a further restriction, whose objective is to ensure some degree of objectivity and additivity.

There are two types of actions that can be regarded as belonging to the thus defined actual transactions: transitive and non-transitive ones. These are discussed separately below. In section 2.4 their relationship is examined.

2.2 Transitive actual transactions

Without any doubt the following actions qualify as actual transactions:

Changes of ownership of goods, services, land, intangible assets and financial assets between two units, that are accompanied by monetary settlements.

This type of actual transaction, which hereafter is called transitive transaction, is characterized by firstly the element change of ownership and secondly a monetary settlement. The existence of a monetary settlement is a very attractive position for the economic statistician, because it implies the existence of an observable value of the transaction, which is of paramount importance for a reliable registration. One is tempted to ask therefore whether a system solely and directly built from settlements would not suffice. However, a system exclusively consisting of money flows has some major setbacks for economic analysis. These are avoided if the principle of change of ownership is applied as a secondary criterion.

This may be illustrated by three examples. Firstly, registration of the transactions on the basis of the direct paying and receiving unit results in outcomes which are less relevant for economic analysis in cases where an intermediary acts by order of the principal of the transaction. This occurs i.a. with banks and giro institutions, agents (not acting on own account) and central government, which in a number of cases serves as a cashier to local government, social security institutions and the European Community. (Ref. ESA 215.) This problem is solved if change of ownership is used as a criterion to identify the transactors. Secondly, in just one payment several, sometimes very different, real flows can be settled. A system that co-opts for changes of ownership, facilitates the unravelling of the various economic flows. Thirdly, registration of the transactions by settlements implicates recording on a cash basis. A drawback of such timing is that the flows underlying the settlements are inadequately accounted for. An example is a purchase which is settled by partial payments. Again change of ownership as a second criterion will remove the disadvantage. Furthermore, in doing so a close link is established with the many statistical sources which are based on the system of double book-keeping.

Transitive transactions as defined above are very much in accordance with legal concepts. As they are actually in part defined by the legal concept of "ownership", this type of transaction can only be carried out by legal entities. Therefore, transitive transactions and transactors are elements of an institutional system.

A transitive transaction appears in several entries in the system at the same time, namely both with the former and the new owner under a main heading and an accommodating heading. The latter is mostly a financial claim. For instance: the purchase of a good has as its accommodating entry the establishment of a short-term credit. In the international recommendations the main heading is classified in the same transaction category in the accounts of the old and the new owner. This also applies to the accommodating entry.

Some transitive transactions appear in pairs, in which one applies primarily to the transfer of real assets and the other to a financial settlement. In the example mentioned above the purchase of the good may be accompanied by a second transitive transaction, in which the extension of short-term credit is terminated on account of a payment to the former owner of the good.

More often than not the new and the former owner of the financial resources will coincide with the former and the new owner of the real means respectively. In some cases, however, they do not coincide. Then it has to be established who the "actual" transactors are. Generally the paying and receiving units of money flows are more readily identified than acquiring and supplying units of real flows. Hence it is assumed that the new and the former owner of the finances should be regarded as the actual transactors. This point of view seems to be in line with the train of thinking in the SNA.

2.3 Non-transitive actual transactions

The second group of actions that should be considered actual transactions may be referred to as the non-transitive transactions. These transactions meet the requirement of easy valuation to a lesser extent, but they are essential to the description of the processes of supply and use. Not at all transfers themselves, they do have an explicit relation to transfers. Five categories can be distinguished:

Transaction category	Description
Market production	Producing goods and services for the purpose of selling them against payment of money
Intermediate consumption	Absorbing purchased non-durable goods and services in the market production process
Gross fixed capital formation	Destining purchased durable goods for use in the market production process
Final consumption	Absorbing purchased goods and services for the direct satisfaction of needs
Changes in stocks	Using stocks built up in previous periods; not yet destining goods bought in the described period for intermediate consumption, gross fixed capital formation or final consumption; not yet having sold own production of the described period.

As the direct relation to the legal system is lacking, the unit involved in a non-transitive transaction is not strictly required to be a legal unit. However, there is a clear relation to the formal system, because only flows of goods and services which will be sold at some stage are taken into account. Due to the fact that the moment of selling does not coincide with

that of the transaction itself, the valuation of non-transitive transactions is more difficult than that of transitive ones. This is particularly true for that part of use which consists of goods acquired in a previous period and the share of the goods produced in the described period which has not yet been sold. In principle very different valuation methods can be applied. The economic subjects themselves will often cautiously use rather low values, the National Accounts conventions prescribe a valuation in conformity with the goods that did change hands during the period. In a fully fledged system non-transitive actual transactions appear, apart from leaks such as those with the rest of the world, in two entries, i.e. a supply and a use category. Change in stocks may serve as a buffer in this respect.

2.4 The relation between transitive and non-transitive transactions

Transitive and non-transitive actual transactions have a clear relationship. The requirement of monetary settlements regarding the transitive transactions is mirrored in the rigorously applied criterion of market selling. As a consequence in principle every transitive transaction in goods and services has its counterpart in one of the non-transitive transactions categories. However, there may be timing differences between transitive transactions and the related non-transitive ones. Such timing differences, which only occur where goods are concerned, are absorbed by subsequent additions to, and withdrawals from stocks.

In so far as additions and withdrawals do not occur in the same period of time there are leaks in the link between transitive and non-transitive transactions. Such leaks consist of withdrawals from stocks built up in previous periods or additions to stocks to be used in later periods. Similar leaks can originate from desinvestment or from durable goods which re-enter the economic flows after being previously classified as final consumption.

Apart from such leaks, transitive transactions in goods and services are equal to their non-transitive counterparts, under the assumption that the purchasing value of goods is equal to their value at the moment of use and that production value is identical to selling value. Accordingly in the SNA,

in which these assumptions are made implicitly, no pure transitive transactions in goods and services are recorded. Imports and exports are the only exceptions. In the Dutch R-series sector accounts, however, they have been retained as "delivery of goods and services". The function of these flows is to emphasize the coherence of the system.

The equalization of the transitive and the non-transitive transactions comes to light at several instances in the SNA. Thus, clearly non-transitive designations such as "commodities produced" and "gross fixed capital formation" appear along with names like "non-commodity sales" and "final consumption expenditure" which refer to transfers (SNA table 8.2). Likewise, gross fixed capital formation is defined by way of net purchases (SNA 6.115 and 6.118) and not its installation. The accommodating, financial, side of the transitive transactions for that matter, is not influenced by the equalization. So in a fully fledged system, for every transaction in goods and services, as a rule four entries are made: an action in goods and services with the producer unit and the consumer unit under their own specific non-transitive transaction categories, and with both units an accommodating entry in the same transaction category. When a non-transitive transaction cannot be allied to a transfer of ownership by force of a leak in time or a correction on the destination, there are fewer than four entries. An example is production that is temporarily stored.

The equalization of transitive and non-transitive transactions has some consequences for the transactors in the system as well. A first consequence is that all transactors in principle belong to the formal system, in other words are legal entities. A second effect lies in the identification of the acting units. In section 2.2 the convention was introduced that the old and new owner of the money funds are deemed to be the actual transactors. Regarding the non-transitive transactions this implies that the unit that is to receive the currency in selling production is considered to be the *producer*, and that the unit that incurs the expenses to buy a good or service is seen as its *consumer*.

3. Deviations from the "actual" transaction concept in the present systems

In a great number of places the recommendations of the international systems SNA and ESA and the Dutch National Accounts deviate from the concept of "actual" transactions as defined in chapter 2. These deviations can be divided into four groups, namely additions, reductions, adaptations and inconsistencies. The first two of these can be considered to be positive and negative imputations; it may be recalled that in section 2.1 imputations were defined as supplements to the actual transactions. The third group consists mainly of re-routeings; re-routeings involve the registration of transactions with other units than the actual ones. The words "in general" and "mainly" are used because imputations and re-routeings often have consequences for both the transaction concept and the identification of the transactors.

In this chapter the deviations from the "actual" transaction concept found in the SNA and the Dutch National Accounts (DNA) are enumerated. They are listed according to the classification in four groups mentioned above. Deviations which stem from specific estimation problems are left out.

3.1. Additions

Five types of additions to the "actual" transaction concept are distinguished here: additions to the production of goods and market services, those to the production of non-market services, transfers of ownership without monetary settlements, flows between partitioned legal entities and consumption of fixed capital. Of course in future further amplification of types is possible, for instance to accommodate imputations of the type *fiscal benefits* (income transfers that take the shape of tax measures).

3.1.1 Additions to the production of goods¹⁾ and market services

This category comprises additions to the production concept of non-marketed goods and services that are comparable in every other respect with marketed ones. The purpose of these additions is mainly to promote the comparability of the data in time: certain kinds goods and services may be marketed relatively more in one period than in another. Though not explicitly stated in the SNA another objective is the interregional comparability: in less developed countries a relatively high proportion of consumption stems from own account production. As in principle additions are limited to output with a market equivalent, valuation is not much of a problem.

The additions are not restricted to the transaction category "output": several other production related flows have to be amplified or changed in their classification. This has to be done in order to arrive at the correct values of intermediate consumption, consumption of fixed capital and the operating surplus.

The category additions to the production of goods and market services comprises:

- subsistence production of primary products (the characteristic products of agriculture, fishing, forestry and logging, and mining and quarrying) (SNA 6.19)
- own account output of other commodities which households also produce for the market (SNA 6.19)
- processing of primary commodities by the producers of these items for their own use, though they may not sell any of these manufactures (e.g. such goods as butter, cheese, flour, wine, oil, cloth or furniture (SNA 6.19)
- services of owner-occupied dwellings (SNA 6.22)
- tips by non-employers to employees. These are contained in the production value of the relevant employers (SNA 7.13)
- own account fixed capital formation (SNA 6.23)
- production of goods and services on behalf of compensation of

1) The convention of the ESA is followed that all goods are considered to be market goods (ESA 305).

employees in kind (SNA 6.25), ditto on behalf of barter and gifts (additions by the author).

A probable extension of the production concept considered for inclusion in the next SNA concerns *do-it-yourself* activities. This would serve a better comparability in time, particularly for developed countries. In former days the SNA contained explicitly an addition for rent in respect of *buildings owned and occupied by civilian government* such as office premises, schools and hospitals (SNA 1953, section 147).

3.1.2 Production of non-market services

With exception of household services, the additions in the category production of non-market services pertain to so-called collective services. Just as in group 3.1.1 these additions to production bring about ample corrections to the system. Additions regarding non-market services are (SNA 6.41 et seq.):

- domestic services which one household renders to another
- production of collective services by government
- production of collective services by non-profit institutions. These are private institutions which engage in producing collective services and derive their principal resources from voluntary transfers - they may or may not coincide with non-profit institutions in a legal sense).

Probable extensions in this category are the various services of *household activities* and the *services of durable consumption goods*.

3.1.3 Transfers of ownership without monetary settlements

Group 3.1.3 comprises a number of transfers which are mainly of a simple nature:

- transfers of ownership without payments but with a *quid pro quo*; this category includes wages in kind and barter (SNA 7.15/16)

- transfers of ownership without a quid pro quo; this category includes gifts in kind, e.g. food aid (SNA Table 7.1) and confiscations by the government
- remission of bad debts (SNA Table 7.1). Whether involuntary write-offs are regarded as a transaction is not quite clear.

The transfers (not mentioned in the SNA for that matter) which take the shape of a reduction in prices, such as in low interest credit extended to employees or developing countries, are rather difficult to quantify. The items social security benefits and social assistance kind are discussed under item 3.3.1.

3.1.4 Flows between partitioned legal entities

The additions in the category flows between partitioned legal entities stem directly from the decisions made concerning the statistical units. This kind of imputations is difficult to define precisely, because the criteria used up till now such as transfer of ownership do not apply, and so the transactions concept in this respect is in danger of becoming rather vague. As far as flows of goods and services within legal entities are concerned, *physical flows* may be of help. These are a good starting point in those instances where the transactions in goods and services are registered in the divisions of legal entities, while the other transactions (the money sphere processes) are registered in the legal unit as a whole. The financial consequences of the registration of the flows in goods and services are then, as it were, consolidated within the legal unit. When the divisions of a single legal entity have their own *book-keeping*, as is generally the case with quasi-corporations, these administrations can be a good source. This presupposes that the ends which are pursued by partitioning the legal entity are faithfully reflected in the accounts. This may not always be true, e.g. when certain overhead costs are laid with top organs or ancillary services or when transfer pricing is exercised. When such internal accounts are not available, as will apply for much of the sole proprietorships, some way or other a *functional split* of the external flows will have to be made. This will not always be an easy task. Examples are dwellings which are partially in use for business purposes, company cars and apparatus which in part serve final

consumption ends, etc. Often fiscal rules can be followed. Of course the internal flows "shares and other equity" (direct investment) and "entrepreneurial income of private unincorporated enterprises" will have to be fixed too.

Often the partitioning of legal entities serves the description of the production process only. This is not expressed very clearly in present-day Dutch National Accounts, because these do not yet apply dual sectoring. The result is that there is a tendency to split the income and capital finance transactions as well. For instance, mortgage interest is registered as a transaction of the part of the legal unit which produces services of owner-occupied dwellings. However, this is not correct: in the description of the processes of income distribution and finance, partitioning of the legal unit is not relevant.

Imputations related to the partitioning of legal entities stem from:

- the partitioning of legal entities in establishment type units regarding the transactions of the production, consumption expenditure and capital formation accounts and the input-output tables in the SNA. Several reasons are given. Firstly, in this kind of units the operating decisions are taken. Secondly, it allows the distinction between market production and other production. Thirdly, the activities of households as producers can be separated from their transactions as consumers. Also, producers can be grouped more readily according to their main product and finally, functions can be attached to the activities of government and non-profit institutions (SNA 5.3/6). One of the most important consequences of the introduction of establishments is that the figures for output and intermediate consumption are inflated with the flows of goods and services that exist within legal entities. By definition there are no effects in the other accounts (in particular the financial accounts), because there the institutional unit is used.
- the segregation of quasi-corporations from households, general government and also, in DNA, from insurance companies (SNA 5.50 et seq.)
- the delimitation domestic/rest of the world (SNA 5.95 et seq.)
 - . residents who produce for longer than one year abroad and vice versa
 - . residents who own land and buildings abroad and vice versa

- the registration of sole proprietorships as economic units (DNA)
- the division of the productive and the consuming activities of PNP-households (DNA)
- the segregation of units which administer social security in certain big firms. These units are included in the sector social security funds (DNA)
- the registration of the administration of military pensions as a separate fund belonging to the sector insurance companies and pension funds (DNA).

3.1.5 Consumption of fixed capital

One of the most important problems of business accounting involves the proper assessment of costs on the various output produced. To that end the various disbursements are not simply assigned to the period in which they are paid, but allocated to the period in which the production in question took place. The main charges in this respect are constituted by durable capital goods. Depending on the required analysis, the cost of durables chargeable to various periods (in other words: the depreciation) is computed in different ways: in relation to the quantities produced in every period, equally disbursed over all periods of the economic lifetime of the durable, at historic costs, at replacement costs etc. Also elements such as uncertainty about future technical and economic developments, tax regulations and and similar aspects can be taken into consideration.

The SNA defines the transaction category:

- "consumption of fixed capital", i.e. the the value of reproducible fixed assets of enterprises, producers of government services and private non profit organizations used up by normal wear and tear, foreseen obsolescence and the normal rate of accidental damage at current replacement cost. Exceptions are roads, dams and forms of construction other than structures of the producers of government services, and also military durables (SNA 7.19 et seq.).

3.2. Reductions

In the SNA and the Duch National Accounts many reductions of transactions exist. They can be divided into two types: consolidations and netting, which are discussed in separate subsections. The most important reason to reduce the number of transactions in the system is to simplify and improve the workability of the accounts. Reductions on the number of transactions can be regarded as negative imputations.

3.2.1 Consolidations

Consolidation is the non-registration of transitive transactions that take place between the units that belong to one group or one sector.

- consolidation in constructing an economic unit from several legal units (SNA 5.61 "family of enterprises")
 - consolidation in a sector in respect of purchases of land (SNA 7.85)
 - consolidation of a number of financial transactions of monetary institutions and general government (SNA 7.105)
 - consolidation of all transactions between the units of one sector.
- Exceptions are indirect taxes, bills and short-term bonds, long-term bonds and shares and other equities (ref. ESA 715) (DNA).

3.2.2 Netting

Netting is the registration of the value of one or several transaction categories on a non-gross basis, that is to say, only the net value is recorded under either the resources or the uses. Netting covers:

- net recording of changes in stocks
- net recording of purchases and resales of goods of distributed trade units (SNA 6.14)
- net recording of final consumption expenditure and desconsumption of households (SNA 6.80)
- net recording of gross fixed capital formation and desinvestments (SNA 6.115)

- net recording of purchases of land (SNA 7.83)
- net recording of intangible assets (SNA 7.86/7)
- netting the additions to and the deminuations of assets c.q. liabilities in the financial accounts (DNA)
- payments for food, medical treatment etc. is netted with military wages (DNA)
- property income to be paid by government on rented buildings in conformity with the user criterion is netted with land rent received by government (DNA)
- losses of public enterprises are netted with property income received (DNA)
- interest flows between government and public quasi-corporations are netted (DNA)
- netting the position in international monetary institutions (DNA)
- netting insurance casualty premiums and ditto benefits (DNA).

The position of the SNA vis-à-vis net recording of financial transactions is not quite clear: it is supposed that a full gross recording is preferred (SNA 7.104).

3.3. Adaptations (re-routeings)

Four types of adaptations or re-routeings are distinguished here: those which are made on the ground of the "economic" course of flows, those which introduce functional aspects regarding the production process, adaptations from forced valuation and adaptations connected with the availability of sources. The various types are examined subsequently.

3.3.1 Adaptations on the ground of the "economic" course of flows

This important group comprises a number of registration conventions that constitute corrections from an economic stance to the legal point of view. It is not primarily the volume of the transactions that is at stake, but rather the identification of the acting units. The occurrence of this kind

of corrections has various reasons. Sometimes the standpoints of the two transactors involved in a transaction diverge, while for reasons of consistency just one point of view can be adopted in the accounts. An example of this type is the registration of the transactions concerning pensions and life insurance. Sometimes it is preferred to enter the flow of goods and services with the ultimate consumer rather than some interim holder, or it may be considered desirable to register goods and services that are paid partially by several units with just one unit. Again a very important reason is the promotion of international comparability. To this end it may be attempted to describe a particular economic phenomenon independently of its institutional setting.

The category adaptations on the grounds of the "economic" course of flows includes the following items:

- purchases which employees are required to make under certain contractual arrangements (such as lamps and explosives by miners) which are registered as intermediate consumption by their employers (SNA 6.59)
- travel, entertainment and similar expenses of employees, for which they are reimbursed by their employers is registered as intermediate consumption of the employers (SNA 6.59)
- employers' social contributions are registered as compensation of employees (SNA 7.13)
- welfare contributions from employers to their employees are treated as originating from special schemes (SNA 7.17 et seq.)
- the increase in technical reserves of pension funds and life insurance companies is treated as savings of the insured (SNA 7.93 et seq.)
- payments to producers for delivery of goods and services to third parties are re-routed via those third parties. In particular can be mentioned:
 - . social security (e.g. medical services) (SNA 6.73 et seq.)
 - . social assistance (e.g. unemployment provision, individual rent allowances) (SNA 6.73 et seq., Table 7.1)
 - . other current and capital transfers (e.g. foreign aid)
 - . casualty insurance
- registration of insurance benefits related to damages to third parties re-routed via the insured to those third parties (SNA 7.56)

- indirect taxes and subsidies of international bodies which are re-routed via national general government (SNA 8.91)
- payments related to insurance against political risks which are registered as flowing from enterprises to Central government (DNA)
- subsidies which often are registered as paid out to the most relevant economic activity. E.g., subsidies according to agricultural policy are registered as resources of the activity agriculture and hunting, even when the actual payments are received by establishments in the activity wholesale and retail trade (DNA).

This category includes several items which are brought up in the discussions on the revision of the SNA. One of those items concerns the imputed transfers of ownership in case of *financial leasing*. Another is the so-called *reinvested earnings* by a parent company from its overseas subsidiary (non-remitted earnings are registered as if paid out and invested additionally in the subsidiary). A third one pertains to *individual consumption* of general government (to be recorded as final consumption expenditure of households). Also the *destination principle* can be mentioned which probably is contained in ESA as concerns taxes and subsidies.

3.3.2 Adaptations by introducing functional aspects regarding the production process

Functional descriptions are used in order to reflect a certain process in an integral way, irrespective of the legal framework and the direction of eventual money payments. So each of the items included in the category adaptations on the ground of the "economic" course of flows can be considered as a functional description of a particular aspect of the National Accounts. However, by force of its importance the functional description of the production process constitutes a category by itself. The ESA input-output tables can be regarded as purely functional. The description of the production process in the present-day Dutch National Accounts also has a number of functional characteristics. On the one hand this is expressed in

the choice of economic units (ref. subsection 3.1.4). On the other hand these functional aspects appear from a number of re-routeings:

- maintenance, taxes and similar outlays in connection with land is recorded on the account of the user (SNA 6.47/8)
- gross fixed capital formation is recorded with the user (DNA)
- rented employees are recorded in the labour force of the unit where they are engaged (DNA)
- gross fixed capital formation of social security is recorded with Central government (DNA).

The functional registration of trade is closely connected to the subject of this subsection; this item is discussed in subsection 3.3.3, where the adaptations from forced are examined.

3.3.3 Adaptations from forced valuation

Forced valuation may be applied to the transactions in goods and services in general or more specifically to imports and exports. The latter are discussed in subsection 3.3.4.

- valuation at producers' value in the Class II Accounts and basic values in the input-output tables of the SNA. Basic values are defined as producers' values less net commodity taxes in respect of gross output. The object of this infringement on the actual transaction concept is the propagation of homogeneity: trade and transport margins differ significantly between various types of buyers, while net commodity taxes vary according to type of buyer and product within one group of products. Obviously, an attempt is made to measure a certain quality inherent to the various flows of goods and services, rather than the de facto exchange value of these flows. In the Dutch National Accounts output is recorded at producers' values. In accordance, as far as possible the activities of trade are attributed to specially created units. The results are that the "transformative" part of the production of goods is separated from their distribution and that trade is recorded functionally.

The term "forced valuation" has been used on purpose here, although of course the principle of market valuation is not abandoned entirely. In particular it has been avoided to present these adaptations as some kind of net registration. A number of reasons may be advanced. Firstly, the SNA itself uses exclusively terms like producers' value, basic value, fob value etc. in this respect. Secondly, the adaptations of this category have to be computed more or less arbitrarily. They do not correspond with the netting discussed in subsection 3.2.2, because they need not be founded on a set of actual transactions. Finally, contrarily to netting, forced valuation does not necessarily imply a reduction in value: it may raise the registered value equally well.

3.3.4 Adaptations on the grounds of the availability of sources

The adaptations in this category stem directly from the more or less forced use of certain sources. Not mentioned are the numerous incidental estimation problems, which can be regarded as unevitable imperfections.

The overwhelming amount of detailed information which becomes available from the foreign trade statistics makes it an indispensable source for the construction of the National Accounts. Some deviations from the transaction/Transactor principle can hardly be avoided when these statistics are employed. Such deviations are:

- the valuation of imports and exports of merchandise at the border instead of a valuation according to the terms of delivery (SNA 6.136/7). This causes re-routeings in i.a. the transport and insurance services on the shipment of these goods and leads to the attribution of indirect taxes on imports to trade (cf. the valuation according to producers' prices discussed in subsection 3.3.3);
- the volume of the flows are adjusted to the available source, resulting in a gross registration of processing shipments (SNA 6.134), while goods on consignment and returned goods are included in the imports and exports (DNA, cf. ESA 380);
- the moment of registration is in conformity with the foreign trade statistics (SNA 6.138), which deviates from the transaction moment.

The production of the financial institutions is called "imputed" in the SNA, probably because the payment for the actual service cannot be isolated from other flows. However, the opinion seems to be justified that it constitutes not so much an imputation as only a grave estimation problem. In any case this holds true for the insurance institutions, but in point of fact also for the so-called imputed bank services, because it is difficult to segregate pure interest payments and the service charge of the banking institutions. It is true that, also due to these estimation problems, the allocation of the service charge in question over consuming units poses a real problem. The convention to regard it as intermediate consumption of enterprises can justly be labelled an "attribution" (rather than a re-routing). In the former SNA these service charges were spread over enterprises and households alike. Problems in connection with the production of financial institutions are:

- the inclusion of the interest margin of banks and similar financial intermediaries as production (SNA 6.32/33)
- the output of bank services according to the interest margin is registered as intermediate consumption of enterprises (SNA 6.32 et seq.)
- the assessment of output of casualty insurance companies as the difference between premiums received and benefits paid (SNA 6.37)
- the assessment of life insurance company output as the difference between premiums received on the one hand and benefits paid and the net increase in actuarial reserves on the other hand (SNA 6.38)
- the equalisation of output of pension funds with their administration costs (SNA 6.40).

Finally two other important adjustments in the main Dutch input-output table can be mentioned which originally were connected with the availability of sources:

- strict registration on the basis of use. In the presentation of the input-output tables it may be considered difficult to specify the net change in stocks both by origin (or types of goods in the make and use matrices) and by economic activity of the owner. A alleviation can be attained by dropping the latter specification. In the Dutch input-output tables this finds expression in the strict registration on the basis of use: in this way the ownership of the stocks is attributed to the

economic activity of origin.

- attribution of VAT (and the SIR, a selective levy on capital formation) to the final use categories, in view of the impossibility to distribute VAT over the economic activities of origin. This attribution leads to a registration of VAT as a use of the transactions on which it finally is supposed to weigh.

3.4 Inconsistencies

The category inconsistencies covers the transactions of which the definition diverges from the general concept of transactions in the National Accounts. It concerns mostly the relevation of components from the reconciliation accounts to the transaction accounts. Strange as it may sound, still this group might be enlarged as well, e.g. if for analytical reasons the transaction accounts should be corrected for *inflation*. The following items can be regarded as inconsistencies in the present-day accounts:

- the registration of profits and losses on arbitrage transactions in foreign exchange with non-residents as commodities (SNA Table 6.4)
- the recording of the reclassification of gold from industrial to financial or v.v. as exports and imports (SNA Table 6.4)
- the recording of the allocation of IMF special drawing rights as a transaction (cf. ESA 511/515)
- the inclusion of migrants' household and personal goods and effects (and inheritances) in the rest of the world accounts (SNA Table 6.4 and 7.1, cf. also ESA 4113).

4. The transactions in the core system

4.1 Introduction

In chapters 2 and 3 subsequently the general principles of the transaction and transactor concepts in the National Accounts and the exceptions made in the SNA on these principles were discussed. In chapter 4 the question is examined whether these exceptions should be abolished, changed or even amplified in the next SNA. As the National Accounts gradually evolve into a flexible system with a complex configuration, the answering of this question is confined here to the tables which may be regarded as the heart of such a system. The train of thinking followed in this chapter is fully in line with a number of of releated Dutch papers which deal with the revision of the SNA. In section 4.2 the relevant Dutch proposals in respect of the revision of the SNA are relevated shortly with an accent on the criteria set for the core system. These criteria are applicated to the transaction/transactor question in section 4.3. Section 4.4 contains the conclusions of this investigation.

4.2 Criteria for the core system

Several Dutch authors have advocated that an extensive and flexible system of National Accounts should be designed as a core system supplemented by a number of modules. This core should be a simple system, easily understood and suited for many analytical purposes. The aim of the modules is to allow for reconstructions of the core in a number of other systems, which are suited for more specific purposes.

These authors have undertaken efforts to sketch the contours of the core system. According to Van Bochove and Van Tuinen (1986) a core system should satisfy the following three principles:

"intersection principle" - it should contain as few special purpose elements as possible, but on the other hand include all structural components that are essential for the construction of the major alternative descriptions of the economy as a whole (such as sector specifications and archetypical concepts of the meso-economic approach);

"parsimony" or "perceptions principle" - it should reflect the perceptions of the economic agents as far as possible. In other words, interpreting constructions should be used sparingly;

"consistency principle" - this principle requires not only that the core is logically sound, but also that it constitutes a complete system. The latter implies i.a. that it should furnish a system-wide integrating framework for basic statistics, contains exhaustive classifications, leads to economically relevant aggregates etc.

According to Van Bochove and Bloem (1986) the avoidance of imputations and re-routeings in the core are a consequence of the application of the intersection and the perceptions principles²⁾. On the other hand, the principles, in particular the second part of the consistency principle, leave room for a certain degree of choice. So it makes sense to discuss the additions, reductions and adaptations enumerated in chapter 3 systematically and decide which of those items might be retained in the core system.

In principle, imputations and re-routeings will be recorded separately in the next version of the SNA. At first sight this seems to imply that it is not very important which of them are to be included in the core. However, there are two reasons why this choice remains important. Firstly, if the perceptions principle and the consistency principle are applied carefully, the core system will be very important for presentation purposes. Secondly, in choosing a particular core system, there are fixed limits to the data to be gathered, as, in principle, the modules with additional data will apply to the core only, not to the core and all other modules. From this it might be concluded that the core should not be chosen too small.

2) It should be recalled, that the definition of imputations of Van Bochove and Bloem is somewhat different than the one used in this paper: "Imputations can be defined narrowly as a valuation in terms of money output of goods and services that does not lead to a monetary remuneration of the production factors involved" (op. cit. section 3.2).

In the terminology of the preceding paragraphs the three principles of the core system can be formulated as follows: in principle the core should be built exclusively from "actual" transactions, and those transactions should be registered with the formal transactors. Exceptions might be accepted for reasons of consistency, indispensable structural elements, registrations that have to be brought into line with generally accepted views or lack of statistical sources. The three principles require also that the transaction classification is in line with commonly held opinions of the economic subjects. The transaction classification as such is not a subject for this paper, but it should be remembered that in this respect a good deal of difficult questions still have to be answered. Examples are questions on what determines the current or capital character of transfers; which grounds determine the classification of a particular government spending as a subsidy, a payment for services, a negative income flow or a transfer; whether costs made to mitigate the effects of pollution should be classified as intermediate or final expenditure.

4.3 Review of the deviations from the actual transactions and transactors

In this section the deviations from the actual transaction concept as enumerated in chapter 3 are confronted with the criteria for the core system discussed in section 4.2. The purpose of this examination is the formulation of proposals on the elimination casu quo the retention of the various imputations and re-routeings in the central tables of the SNA.

4.3.1 Additions to the concept of production

With regard to additions to the concept of production (subsection 3.1.1 and 3.1.2), first of all the two elements implied in the intersection principle, institutional simplicity and the exception of structural elements, seem to clash. In a less obvious way also the aspect of the perceptions principle is involved, i.e. in the factor payments. The units that furnish factor services generally do distinguish between market and non-market production. An employee draws no distinction between a payment for his efforts which he

receives from an employer which operates within the production boundary set by the National Accounts (in which case the wages are a remuneration of a production factor) and a payment which he receives from an employer which operates outside that boundary (those wages do not constitute a remuneration of a production factor and are to be classified as transfers). Application of the perceptions principle implies therefore that either the production boundary in the National Accounts should be wider than that according to the actual transactions, or the explicit distinction between factor payments and transfers should be relinquished.

As in the SNA the compensation of employees is perceived as factor income (SNA 7.2), the point of view of the employees and the definition of the production boundary can be brought into line by the following definition: "production is all output which is intended for market sale or which implies payments in order to compensate employees". An advantage of this definition is, that the output of government and private non-profit institutions and that connected with paid domestic services is introduced smoothly in the production concept. Such an inclusion is appropriate for most National Accounts purposes. Furthermore, when the proposed definition is adopted the addition of the services of owner-occupied dwellings is abandoned. This is not only in accordance with the perceptions principle, but also with the first requirement of the intersection principle.

However, this definition of the production boundary also has some disadvantages. A main disadvantage is, that it conflicts sharply with the additions in the present SNA. In particular the objective of the SNA to include the same kinds of goods and services in consumption over time is not met. This aim of the SNA is greatly valued (ref. Van Bochove and Van Tuinen, 1988, section 5.1). The same holds true for own account fixed capital formation. In developed countries this problem should not be overrated, because the production of capital goods is generally accompanied by payment of wages and is thus covered by the proposed definition of production. That may not necessarily be true for lesser developed agricultural societies. A third disadvantage is that output which implies compensation of employees but which is not intended for sale on the market, cannot easily be valued. A disadvantage of valuation conform market equivalents is that market

equivalents may not be available. Furthermore, an entrepreneurial income is imputed which has no significance regarded from the costs side. On the other hand, valuation on the basis of costs has the disadvantage that several costs, such as internal capital costs, are difficult to assess.

If the objections of the strong weight of the production factor paid labour, a certain loss of comparability in time and the problem of valuation are left aside, in terms of the three given principles the proposed definition of the production boundary seems to be a convenient one for the core system.

The question may be raised whether the train of reasoning followed above regarding the compensation of employees pertains to other primary incomes as well. Does the perceptions principle lead to possible extensions of the current definition of production in the SNA when applied to dividends, interest, rent and income from intangible assets? Indeed there appears to be some reason for answering this question affirmatively. In particular as regards interest there have been proposals in this direction, e.g. by Sunga (1984). However, the treatment of every kind of capital supply as the provision of a production factor implicates making a vexed theoretical choice, with which large groups of users will not agree. So, proposals to make the production boundary in the core co-dependent on the point of view of the units which furnish capital are in conflict with the intersection principle and must be abandoned.

4.3.2 Transfers of ownership without monetary settlements

By definition, transfers of ownership without monetary settlements (subsection 3.1.3) do not belong to the actual transactions. Still, there are a number of arguments for including them in the core system. A first argument regards transfers of ownership of items with a quid pro quo. If only actual transactions are registered these counter-transactions will not be accounted for as flows either. This may be regarded as a great disadvantage when the counter-transactions are of prime economic importance, such as the provision of labour.

A second argument says that the inclusion of transfers of ownership without monetary settlements leads to a better registration of consumption. This can be illustrated by an example. In registering purely actual transactions, goods which are bought by a production unit in order to serve as compensation of employees are entered as intermediate or final consumption of the production unit itself. This registration furnishes a deceptive description both of the nature of inputs in the production process of the production unit in question, and of the quantity and composition of the consumption of its employees.

Even if the transferred items are not consumed in the period described, there is an argument for inclusion in the core. That is because the only alternative to inclusion in the transaction accounts is incorporation in the reconciliation accounts. This must be regarded as less attractive, as the transfer is a deliberate act of the unit involved. Such acts are normally accounted for as flows.

A fourth argument is that in some cases a transaction is carried through in a non-monetary way for the sole reason that financial settlement is not possible. An example is the "payment" of imports by exports in the case of countries which are short of foreign currency. Such barter transactions comply fully with the general requirements set to an actual transaction and should thus be included in the core.

However, there are also arguments against inclusion of transfers of ownership without monetary settlement. The simplicity of the core system, in other words the parsimony principle, would be violated. The transaction boundary would become liable to uncontrollable expansion. Furthermore, substantial interpretative difficulties would have to be encountered. In reply to the pro-argument of a better registration of consumption e.g., it can be remarked that transfers often imply a certain degree of self-interest of the transferring unit. So not all of the value of the means transferred should be regarded as consumption of the new owner. Even when there is no self-interest from the part of the former owner, valuation is problematic. Examples are transfers from own production of the former owner, transfers by way of a reduction in prices, and transfers of goods and services which the

new owner would never have bought himself if the transfer had been obtained in cash. These disadvantages are important enough to consider it wise not to include transfers without monetary settlements in the core. An exception can be made for barter of goods, market services and financial assets. Expressly no exception should be allowed for non-market services or factor services.

The involuntary write-offs of bad debts mentioned in subsection 3.1.3 must be included in the reconciliation accounts and not in the transaction accounts, because they constitute a kind of revaluation item rather than a voluntary action. For write-offs which can be anticipated to a certain extent, a special category "write-offs on financial assets" in the reconciliation accounts could be considered.

4.3.3 Flows between partitioned legal entities (subsection 3.1.4)

The transaction concept follows passively the outcome of the decisions made vis-à-vis the economic units, so this paper refrains from a discussion on that subject apart from what has been said in chapter 3. The institutional character of the core leads to a certain limitation to the partitioning of legal entities in economic units. "Institutional" is employed in a wider sense here than is usual in the SNA. Establishment-type units, as the actual organizing units regarding the producing process, are also considered to be institutional to a certain extent (ref. Van Bochove and Bloem, 1986, section 4.3).

4.3.4 Consumption of fixed capital

The purpose of the transaction consumption of fixed capital (subsection 3.1.5), as defined in the SNA, seems to originate from the wish to correct the operating surplus from a macro-economic point of view for incidental big expenses, which are necessary to ensure the continuity of production. This could be inferred from the fact that this transaction is discussed in Chapter VII "Transactions on the income and outlay and capital finance accounts" of the SNA anyhow. Another raison-d'être for this transaction category is that

data on the change in the value of the stock of fixed capital are useful for the analysis of investment behaviour and, more generally, business cycles.

On the other hand there are serious arguments against inclusion of this imputation in the core. There is no unique, objective way of estimating the value of the consumption of fixed capital. In practice, the argument of incidental big expenses loses much of its importance at an aggregate level. As the macro figure will never correspond with the sum of the micro data in respect of depletion, the adequacy of the SNA consumption of fixed capital to studies of economic behaviour is doubtful. On the ground of these considerations it is proposed that consumption of fixed capital be considered as supplementary information, not to be included in the core system as such.

As a side-note it may be called to mind that consumption of fixed capital is also implicitly included in the system, namely in the value of government production and consumption. Here the same disadvantage applies: this cost category cannot be fixed objectively. The conventions ruling the determination of the consumption value of government however go far beyond the subject of this paper. So for the time being these conventions are adhered to.

4.3.5 Reductions

The various types of reductions in the SNA are discussed in section 3.2. The joining of legal entities to economic units constitutes the mirror image of partitioning which was discussed in subsection 4.3.3. As for the other types, there does not seem to be an overriding reason why net registration (in the sense of balancing) should be applied. Gross data can always be netted. This does not apply to consolidation: gross figures can be consolidated only if for every transaction category a division can be made between transaction partners that belong to the same group or sector on the one hand, and transaction partners that belong to other groups on the other. When the mutual relations between sectors are analysed, consolidated figures are more accurate than non-consolidated ones. Data on transaction partners can hardly ever be derived from available sources, so have to be computed. Therefore, the eventual advantage of consolidation does not appear to be

outweighed by the disadvantage of a diminishment in simplicity and solidity, which are the essential characteristics of the core system. Summarizing, it is proposed that in principle no netting and consolidation is applied to the transactions in the core.

4.3.6 Adaptations on the ground of the "economic" course of flows

The re-routeings in the SNA have to be analysed one by one, because very often there are sound reasons for both inclusion and exclusion of the core system. In the following the re-routeings enumerated in subsection 3.3.1 are discussed.

required purchases of employees

The recommendation of the SNA is to enter purchases which employees are required to make under contractual arrangements as intermediate consumption. In the Netherlands these purchases probably pertain less to the explosives which are mentioned as an example in the SNA than to working clothes. The correction recommended by the SNA conflicts with the parsimony principle and is consequently not favoured here. The same applies to its antipode compensation of employees in kind, cf. the conclusions of subsection 4.3.2.

travel expenses etc. reimbursed by employers

Travel, entertainment and similar expenses of employees, for which they are reimbursed by their employers are likewise classified as intermediate consumption in the SNA. The situation is similar to the item "required purchases of employees" above, the difference being the explicit reimbursements by employers. There are two options here. On the one hand there is the opinion that the employees act only as intermediates to their employers, who are the principals of the transaction. In this opinion there is no re-routeing. On the other hand there is the general principle that the unit which actually makes the payments is deemed to be the consumer of the acquired goods and services. According to this second view there is a re-

routeing. In this paper the line is taken that there is indeed a re-routeing here.

It is proposed not to adopt this re-routeing in the core system. The main reason is, of course, incompatibility with the first requirement of the intersection principle which states that the core should contain as few special purpose elements as possible. But there are two additional reasons. Firstly, not all reimbursements by employers are actually preceded by expenses. Secondly, travel costs and the like often are not reimbursed explicitly by employers. It is proposed that in the core the consumption in question is allocated to the employees and the reimbursements are classified as compensation of employees.

employers' social contributions

Employers' contributions to pension and social security funds are re-routed via employees in the SNA, because in this way a measure for all direct labour costs is obtained. However, this deviation from the registration with the formal actors does not tally with the point of view of employees, and consequently may better be abandoned. At all times by way of a simple transfer the present SNA concept "compensation of employees" can be regained. A real problem which comes up after removal of the re-routeing, is the question of which transactor consumes the services produced by the pension funds. Ruggles and Ruggles (1983) propose a partitioning of this consumption between employers and employees. The reasons behind this choice are not given in their article. Recording as final consumption by the pension funds themselves, in conformity with the administration costs of social security, appears more appropriate.

It is conceivable to treat the employees' social contributions and even wage taxes, in so far as they are withheld from wages, in the same way as employers' social contributions. However, retaining of the present way of registration of these items agrees with both the principle of transfer of ownership and with the views of most economic subjects. Furthermore, the

entry of withheld taxes in the employers' accounts would hardly improve the intelligibility of the system.

welfare contributions from employers to employees

The amounts involved in welfare contributions from employers to employees are a component of several entries according to the SNA. Firstly, they are included in the compensation of employees in conformity with the previous item. But as the employers are treated as if they were managers of social funds, these amounts are also entered as transfers under the headings of welfare contributions and benefits. One could suspect the authors of the SNA of not being able to decide upon the true character of these payments - employers' social contributions or social benefits by employers - in the end choosing for both options. Only one of these can be included in the core system. Ruggles and Ruggles recommend inclusion in the compensation of employees. Indeed, this solution is to be preferred. In practice, more often than not the relevant payments have to be separated from wages on the ground of their function. Therefore, the option chosen by Ruggles and Ruggles meets the requirements of the intersection principle. An exception can be made as regards pension benefits; these are not labour costs of the period described and are paid to others than present-day employees. Entry as social benefits is more obvious in these circumstances.

technical reserves of pension funds and life insurance companies treated as savings of the insured

In essence the present SNA accounting rules represent the view of the insurers. This is, however, not necessarily identical to the view of the insured. They regard their transactions with most pension funds and with some of the life insurance companies as current transactions. That is because in those cases premiums and benefits are not remitted as lump-sum payments, but in the form of periodic instalments. In other instances the insured do relate benefits and/or premiums to their savings, because these payments cause mutations in their directly accessible wealth. The viewpoint of the insured

may be influenced by contractual conditions under which all or most of the technical reserves built up in their favour can be withdrawn. In this respect Ruggles and Ruggles propose to register mutations in the technical reserves of pension funds and life insurance companies no longer as savings of the insured, but instead as savings of the insurers. There is one exception. The increase in the cash surrender value of life insurance companies should be regarded as savings of households. No interest on equity is to be imputed to the insured. As regards the current or capital character of the flows Ruggles and Ruggles propose to regard all premiums and benefits as current, except lump-sum payments by life insurance companies. The latter should be entered in the capital-finance account of households and in the income and outlay accounts of life insurance companies.

The proposals of Ruggles and Ruggles regarding the allocation of savings are in accordance with the transactor/transaction principle, but the exception they allow is not. It may be asked whether this exception is justified. The cash surrender value is not an actual flow. Also, it may contain hidden revaluations; furthermore a contract with a life insurance company engages one more than e.g. saving with an investment fund. Therefore, it is does not seem advisable to give the cash surrender value a special position in the core.

The question of the current or capital character of flows constitutes an acknowledged hard classification problem. Strict adherence to the perceptions principle avoids the problem to a vast extent: the classification then depends on the viewpoint of the relevant transactor. This way is followed by Ruggles and Ruggles. However, the consequence of this is that a flow is classified in two different categories if the point of view of the transactors involved does not match. This does not agree with the consistency principle. In the core the simple convention could be followed of classifying recurrent payments as income transactions and lump-sum payments as capital flows. Even this convention is not without problems. If lump-sum pension premiums paid by employers are included in the value of the compensation of employees, it follows that those premiums are current transactions. However, according to the convention suggested above they should be classified as

capital transactions. It is proposed to adhere to the latter way of registration.

payments to producers for delivery of goods and services to third parties

The primary problem of payments to producers for delivery of goods and services to third parties is that the commodities in question are physically consumed by a different unit from the one which pays the costs. In such cases the choice has to be made with which unit the transaction will be registered: with the payer or the owner/consumer. This subject was previously raised in the last paragraph of section 2.2 where the transitive transactions were discussed and in the last paragraph of section 2.4, which dealt with the consequences of the equalization of transitive and non-transitive transactions. In these paragraphs the convention was introduced of considering the former and new owner of the monetary funds as the actual transactors.

However, a number of complications may arise. Sometimes it is not easy to assess who is the former owner of the monetary funds. An example is tied development assistance, in which the government of a developing country has a fund at its disposal, provided it is spent in the aiding country. Is the aiding country the actual transactor when such spending takes place, or does it only serve as an intermediary to the government of the developing country? A second complication occurs when two or more units each in part come up for the costs of a particular purchase. Does this imply by definition that they are each partial consumers of the acquisition?

The SNA does not deal with these questions in a systematical way. For the concrete case of a government service paying goods or services which are supplied by industries or PNP's to households, section 6.73 of the "Blue Book" contains a number of criteria. The transactor is identified by:

- i) the degree to which the government service organizes and controls the provision of the item
 - ii) the extent to which the individual can, and does, choose the unit from which, and the terms on which, the service or good is to be acquired.
- The goods and services in question have to be allocated to just one unit. So

they cannot be divided over a number of units, e.g. pro rata with the contributions in the costs.

It is of little use to declare these recommendations of the SNA, which only refer to certain specific cases, to be generally valid. They are not very suited to the core system, because they contain too many subjective elements. The criterion of the direction of the money flows must be considered as preferable by far for its practicality. Furthermore, this criterion is in line with the rule followed as regards transfers of ownership without monetary settlements (ref. subsection 4.3.2). This implies that if unit A pays for goods and services to be delivered by B to C, and it is not evident that C is the owner of the monetary funds, a transaction should be registered between A and B. The implications of this simple registration rule are discussed below.

A first implication of the simple rule is that the consumption of the goods and services concerned are designated to the paying unit (in casu A). Thus, relief in kind sent directly by the producer to countries in need would be recorded as final consumption of government in the core. In this respect some difficult border cases will remain, such as in the case of individual rent allowances, which in the Netherlands are paid to the beneficiary or to the house-owner by choice of the beneficiary. Direct payments of casualty insurance to repairers are a special case. Registration of these payments based purely on the direction of the money flow poses conceptional problems. Adherence to the simple criterion would lead to the absurd result that the consumption of casualty insurance would comprise repair services to goods that are owned by other units. Also, their final consumption could pertain to fixed capital formation of other units, with all the subsidiary unwanted implications for the definition of the consumption of fixed capital. Therefore it is proposed that if the payment of A takes place in the framework of an insurance contract by which the insured unit C pays premiums that are directly related to the risks incurred, by convention, unit C is considered to be the owner of the insurance benefits.

A second implication of the simple rule is, that the physical flow is divided if both A and C make payments to unit B. If, following the SNA, one

would want to avoid this implication, a transaction for the full value of the commodities would have to be registered between the producer and the main contributor. Also, a second transaction would have to be generated between the less paying unit and the main contributing unit. In certain cases the construction mentioned in SNA 6.74 could be followed, in which full consumption is registered in the government accounts, and the contribution of households is labelled as the purchase of a government service. The latter causes a reduction in the value of the final consumption of government and an equivalent enlargement of the consumption of households. Finally, the case should be mentioned where unit C pays its contribution to transactor A. Here the simple convention could be adopted that, irrespective of the size of the payment, the consumption of the real flow is attributed to A, and the contribution is classified as a transfer.

registration of casualty insurance

This re-routing concerns the registration of liability insurance benefits via the insured even when the insurance company pays directly to those which incurred the casualties. In conformity with the conclusions of the previous item, present-day registration of the SNA must be retained as the insured is the owner of the insurance benefits; the insurance company renders a service to him by settling the damages directly with the injured party.

4.3.7 Functional elements and forced valuations

Subsection 3.3.2 lists the re-routings aimed at furnishing a functional description of the production process. It concerns the registration of maintenance of land on the account of the user, recording rented employees in the labour force of the unit where they are engaged, etc. From the intersection principle it follows without doubt that these re-routings have to be relinquished in the core. As regards the adaptations from forced valuations included in subsection 3.3.3, in recommending basic values the SNA seems to promote two objectives:

- the division of the production of goods and their distribution. The

latter is regarded as a service rendered separately to the customer;
- the division of production and the related net commodity taxes.

Both concessions, which originate from a wish to improve the description of the production process, run counter to the intersection principle and the perceptions principle. The same holds true as regards valuation according to producers' values.

4.3.8 Sources

It is in accordance with the ideas underlying the concept of a core for the National Accounts to use actual and readily available data. The available sources may not satisfy the theoretically correct way of recording. It may be advisable then to accept a partial adaptation in the concepts of the system, rather than to construct in principle correct, but qualitatively very dubious figures. In the adaptation process on the grounds of available sources (cf. subsection 3.3.4) the connection with data from other sources must be scrutinized, otherwise there is the danger of only shifting the problems to other parts of the accounts. The computation and interpretation of the transport figures e.g. is greatly handicapped by the conventions ruling the valuation of imports and exports of merchandise. Also, enterprises will mostly report according to invoice value to the production statistics and not, as regards imports and exports, the border value. At the customs invoices often have to be handed in, so the argument of better availability does not point per se in the direction of border valuation. As the borders of the EC-countries will disappear to a large extent in years to come, it is advisable that at least the members of the EC concentrate on opportunities of observing the transaction value of the imports and exports instead of their border value³⁾.

As concerns the consumption of the interest margin of banks: the present convention of ESA to attribute this consumption to a special unit

3) A more extensive conceptual discussion of this topic can be found in Bos, 1988.

is a very workable solution in practice. Due to its technical complexity the allocation of this consumption to the various sectors is more suitable for inclusion in a module, than for being the object of a recommendation in respect of the core.

4.3.9 Inconsistencies

By their very nature, inconsistencies are in conflict with the formal part of the consistency principle, but some explanations may probably be given on the items mentioned in section 3.4.

gains and losses on arbitrage transactions in foreign exchange

The treatment of gains and losses on arbitrage transactions in foreign exchange is just an example of a more general vague aspect in the present system. It is well-known that in principle revaluations are not recorded in the flow accounts, but are included in the reconciliation accounts. However, there are a number of cases in which economic units appear to regard such revaluations as income from production. This is true for e.g. the arbitrageists mentioned here, but also for banks which appear to be capable of gaining continuously on their portfolios, for merchants etc. This subject is not discussed in a systematical way in the international recommendations. Thus, it is not indicated where this kind of "production" can take place; neither is it explained why this "production" is sometimes included when buying and selling occur in the same period but excluded when these transactions fall in different periods. Also, it is not discussed who should consume this "production". The arbitrage transactions in foreign exchange are mentioned here in particular, because in this instance not only the above mentioned problem plays a role, but in addition there is a difference in treatment between arbitrage with resident and non-resident transaction partners in the SNA.

reclassification of gold

The recommendations in the SNA concerning the reclassification of non-financial to financial gold and vice versa are based to a large extent on the convention to consider part of the holdings of gold as a financial asset, to which the rest of the world is the debtor. This convention may be regarded as an attribution in its own right. The reclassification of gold from industrial to financial or vice versa is recorded in the national accounts as exports and imports of goods respectively, with a corresponding entry in the gold category in the financial accounts. In view of the importance of monetary gold for international reserves, vis-à-vis the balance of payments the IMF recommends an entry in the category monetary gold and in a specially created counter-item. In this way as it were part of the reconciliation accounts are moved to the flow accounts. In the national accounts such an artifice is superfluous, the reclassification had better be included in the reconciliation accounts.

allocation of special drawing rights

Special drawing rights can be created and allocated by the IMF without the existence of a quid pro quo or any transfer. It is usage to register these allocations in the transaction accounts with a special counter-entry "counter-part of net allocation of SDRs" (ref. ESA 511/515). Just as with financial gold, such an entry in the IMF balance of payments statistics can be defended, but in a system containing reconciliation accounts it constitutes an inconsistency.

migrants' household and personal goods and effects (and inheritances)

The SNA recommends that migrants' household and personal goods and effects be registered as current transfers. The ESA includes them in the statistical difference between the balancing item of the capital account and that of the financial account. Again, however, the consequences of reclassification should be recorded in the reclassification accounts.

4.4 Summary of the proposals

With regard to the transaction boundary, in the previous sections contained the proposal to record in the core system only and all actual transitive and non-transitive transactions as defined in sections 2.1 and 2.2, with the following exceptions:

Additions

- all non-transitive transactions related to output and consumption of non-market goods and services, of which the production implies payments in order to compensate employees
- barter transactions in goods, market services and financial assets (other than money)
- transitive flows which are construed between partitioned legal entities
- bank services which are contained in interest payments

Reductions

- the transitive flows between legal units which constitute one economic entity

It has been proposed that in the core system the transactions should be recorded with the actual transactors, these are the former and new owner of the financial means. With respect to the cases in which there are no money payments, a number of conventions are introduced. The following units are then seen as transactors:

- regarding production which has not yet been sold: the unit that will receive the currency when the production is sold
- with respect to transactions in connection with production and use of non-market goods and services: the unit which pays the employees
- with respect to barter: the former and new owner of the relevant assets
- with regard to "actual" transitive and non-transitive transactions and internal flows of partitioned legal entities: the economic unit which is the most relevant in the light of the rules mentioned above
- with regard to the consumption of imputed bank services: a special unit.

In the some cases, it is not strictly clear who is the owner of the monetary funds, and specific conventions should fill the vacuum. In this paper it is proposed:

- to regard travel, entertainment and similar expenses of employees for which they are reimbursed by employers as final consumption expenditure of employees
- to regard employees' social security premiums and income tax retained by employers as the property of employees
- to regard benefits by casualty insurance companies, for which the insured have paid premiums which were directly related to the risks incurred, as the property of the insured.

Finally, as regards the transaction classification it is proposed:

- to record the production of services of pension funds and life insurance companies as final consumption of these institutions
- to consider premiums and benefits of pension funds and life insurance companies as current or capital transactions in accordance with the periodicity of the payments
- to classify employee welfare contributions as wages, with the exception of pensions, which are to be classified as transfers
- when two units jointly finance the purchase of goods and services, and the first unit pays the full amount to the producer while the second unit pays its contribution to the first one, to classify the latter contribution as a transfer.

As stated in subsection 3.3.1 the classification of several transactions of a producing unit depend on the decisions taken on the production boundary. This concerns in particular purchases which have to be classified as intermediate consumption, final consumption or fixed capital formation.

5. Imputations and attributions in a flexible system of National Accounts

5.1 Introduction

What are the modalities for the registration of imputation and re-routeing data in a flexible system of National Accounts? This chapter contains a first reconnaissance of this problem. The actual decisions on the contents, architecture and standard presentation of a flexible and comprehensive system of National Accounts require more investigation than can be done here. The general direction of Dutch thinking on these matters can be found in Al and Van Bochove (1988). The various modes of presenting imputations and re-routeings are discussed in section 5.2. In that section the owner-occupied dwellings imputation serves as an illustration. Section 5.3 touches upon a number of remaining problems to which solutions still have to be found. Section 5.4 contains an estimation of the value of some variables in the core system pertaining to the Dutch situation. The conclusions of this chapter are summarized in section 5.4.

5.2 The presentation of the imputation and re-routeing data

Inclusion of figures on imputations and re-routeings in the National Accounts can be accomplished in several ways. The most simple one is to record them separately, e.g. in a format as given in Text-table 1 regarding the owner-occupied dwellings imputation.

A disadvantage of this presentation is that it does not furnish any help to users of the statistics on how the data should be treated when one wishes to correct the global figures for the owner-occupied dwellings imputation. Text-table 2 gives such information.

Text-table 2 shows that there are several types of corrections: simple diminutions or additions such as in output, transaction reclassifications as is done with indirect taxes, and recording with other sectors like the interest flows. Combination of these types may occur. The corrections are not confined to the figures of the sectors most directly involved; they pertain

TEXT-TABLE 1. Data regarding the owner-occupied dwellings
imputation, 1984 ¹⁾

	mln gld
Output	17 600
Intermediate consumption	1 600
Consumption of fixed capital	4 000
Indirect taxes (net)	1 000
Entrepreneurial income from unincorporated enterprises	50
Interest payable to financial institutions	10 850
Ground-rent payable to general government	100
Direct taxes	1 700
Gross fixed capital formation	14 000
Capital transfers paid by general government	30
1. Fictitious data.	

TEXT-TABLE 2. Correction entries in order to remove the owner-occupied
dwellings imputation 1984 ¹⁺²⁾

	mln gld
Diminish the output of non-financial enterprises (industries)	17 600
Reclassify intermediate consumption of non-financial enterprises (industries) as final consumption of households	1 600
Diminish consumption of fixed capital of non-financial enterprises (industries)	4 000
Reclassify indirect taxes by non-financial enterprises (industries) as direct taxes by households	1 000
Diminish entrepreneurial income from unincorporated enterprises from non-financial enterprises (industries) to households	50
Register interest paid by non-financial enterprises as disbursements of households	10 850
Register ground-rent paid by non-financial enterprises as disbursements of households	100
Diminish final consumption expenditure of households	17 600
Reclassify gross fixed capital formation of non-financial enterprises (industries) as final consumption of households	14 000
Register capital transfers received by non-financial enterprises as receipts of households	30

1. Fictitious data.
2. Starting out from present-day Dutch national accounting conventions.

to other sectors as well, such as the government sector in the case of indirect taxes. The corrections enumerated in Text-table 2 are to be applied to the data of present-day national accounts. If e.g. the imputation of owner-occupied dwellings is to be added to the core system, the recipe of Text-table 2 should be followed in reverse.

A way of presenting the corrections which requires a more space, but which has the advantage of being easily applied automatically, and which furthermore furnishes all the implications on the aggregates, is found in Table 2. By subtracting Table 2 from Table 3, which contains the starting position, the figures corrected for the imputation of owner-occupied dwellings are computed quite easily (cf. Table 4). For reasons of storage and quick processing of data such a format is the most attractive. It is less suited for publication on paper. Table 2 can be regarded as a very simplified version of Table III in Al and Van Bochove (1988, p. 64/65).

5.3 Some theoretical and practical problems

The organization of a system of National Accounts which is flexible in respect of the inclusion or exclusion of imputations and re-routeings requires more than has been discussed in the previous sections of this paper. A number of remaining problems are sketched below.

From the examples in section 5.2 it follows that for dealing properly with imputations and re-routeings, two kinds of information are necessary: figures and accounting rules. In a sense, accounting rules diminish the flexibility of the system, because there are often several ways in which an imputation can be registered. In correcting the present-day SNA for non-market production e.g., there is the choice of whether to register the relevant fixed capital formation as intermediate or as final consumption expenditure. On the other hand such accounting rules are obligatory if there is to be an internationally co-ordinated flexible system. Furthermore, as has been remarked earlier, accounting rules give support to those users who are not acquainted with all the ins and outs of the National Accounts.

Accounting rules concerning imputations and re-routeings depend on the way of registration in the core system and in its modules, such as the present-day SNA. Chapters 2 and 4 contain a number of proposals in this respect. These proposals, however, are limited to some aspects of the core system. The choice of the statistical units, the moment of registration, the transaction classification and valuation are discussed only indirectly. It goes without saying that all these items have to be decided upon before the definite accounting rules regarding imputations and re-routeings can be fixed.

Problems of a more technical character in the organization of a flexible system of National Accounts originate from the large number of infringements on the actual transactions. In chapter 3 some fifty types of present-day and future imputations and re-routeings in the SNA are distinguished. Without doubt, like the Netherlands, every country has an important number of additional imputations and re-routings. Many of these deviations imply more than one correction entry. Examples are enlargements of the production boundary. These have implications which are not even confined to the value of output, intermediate consumption, gross fixed capital formation and consumption of fixed capital of the producing unit. More often than not, transactions of other units are influenced as well, as e.g. wages and final consumption of households. Other examples of multiple corrections are the partitioning or consolidation of units. This all puts a heavy load on the collection of data.

Another nasty problem is that some deviations of the actual transactions overlap. Own account production can be attended with wages in kind. If one wants to correct the National Accounts for consumption of fixed capital, it is essential to know whether any previous corrections took place regarding owner-occupied dwellings: the danger exists that part of the consumption of fixed capital is doubly corrected. Also one should take care of not correcting the wrong transaction category or sector: many corrections imply changes in the transaction category or in the identification of the transactors of the flows in question.

The conclusion of this discussion is that in order to achieve a flexible system of National Accounts a lot of work remains to be done on accounting

rules and data collection. Perfect flexibility, in the sense that data on any imaginable combination of imputations and attributions become available, will in all probability turn out to be too complicated and too costly. However, a semi-flexible constellation lies within reach and constitutes a big step forward in comparison with the present situation. Such a framework may e.g. consist of three full data sets: the core system as discussed in chapter 4, the 1968 SNA and the main presentation of the on-coming SNA.

5.4 Indication of the value of some variables in the core

The quantitative importance of the various deviations of the actual transactions as enumerated in chapter 3 varies considerably. This can be illustrated by figures for the Netherlands, which are presented in Text-table 3.

TEXT-TABLE 3. Indicative value of some deviations from the actual transactions, Netherlands 1984

	mln gld	% GDP (mp)
Government final consumption	66 390	16.6
Employers' social contributions	62 870	15.7
Consumption of fixed capital	41 190	10.3
Social security benefits in kind	23 610	5.9
Imputed bank services	16 420	4.1
Active processing to order and reparations, re-exports	10 150	2.5
Bad debts	7 580	1.9
Subsidies on account of international organizations	4 950	1.2
Social assistance in kind	4 720	1.2
Unfunded employee welfare benefits	4 610	1.2
Invoice/cif margin on imports	4 610	1.2
Own account fixed capital formation	2 960	0.7
Existing fixed capital sold to non-residents	770	0.2
Confiscations	2	0.0

On the basis of the available data, estimates are made of the main transactions in a core based on the proposals in chapter 4 of this paper. These are shown in table 5. The percentual differences with the figures according to the SNA recommendations is given in table 6. The most important differences are explained below.

As own-account production in respect of consumption and capital formation without any payment of wages hardly occurs in the Netherlands, the corrections in the value of gross production nearly entirely apply to the services of owner-occupied dwellings. Registration of rented labour with the actual employer instead of with the unit of engagement causes small shifts of production value between sectors. Analogue corrections apply to intermediate consumption.

The mutation of 24.8% in the operating surplus of non-financial enterprises is the result of a number of quite diverse corrections. The most important one pertains to gross registration, i.e. the removal of consumption of fixed capital from current costs (+33.1%). The exclusion of the imputation of owner-occupied dwellings has a negative influence (-10.5%). Smaller charges are i.a. due to the registration of lump-sum employers' premiums in the capital finance account. The operating surplus of government recorded in table 5 does not deserve much attention. It is largely the result of the deletion of the consumption of fixed capital from costs without changing the definition of government output. As stated earlier, the definitions of government output and consumption, together with the implications on the transaction classification should be investigated in another paper.

Differences in the primary income flows are caused to a large extent by the removal of the imputed interest on pension and life insurance reserves. By this factor alone property income of the household sector is reduced by more than 57%. The payments of interest of this sector on the other hand are multiplied by six as result of the reallocation of mortgages from the non-financial enterprises to the households. National income, which is defined exclusively on a net basis in the SNA, is 7.1% higher in the core than in the usual presentation due to the suppression of the imputations consumption of

fixed capital (+11.5%, inclusive that of government) and services of owner-occupied dwellings (-4.4%).

As concerns secondary income transactions, in the core the social security premiums payable by households are diminished by more than 38% as a result of the removal of the re-routeing of employers' contributions through their employees. The values of the social security benefits too are substantially lower, social security benefits e.g. decrease 28.9%. This is caused by the registration in the core of benefits in kind as final consumption expenditure of the donor unit. The transaction categories "current pension and life insurance premiums" and ditto benefits do not exist in the present-day SNA. On the other hand, the category "unfunded employee welfare contributions, imputed" is not included in the core system. As in the Netherlands unfunded employee welfare benefits do not comprise pensions, these benefits are included for their full value in the transaction category "wages".

The corrections in the consumption data are i.a. related to provisions in kind and the imputed services of owner-occupied dwellings. In the sector financial enterprises the consumption of pension and life insurance services is introduced. The mutations in the value of gross fixed capital formation is again the result of the suppression of the owner-occupied dwellings imputation.

The data pertaining to imports and exports differ in the core from those according to the usual presentation because border valuation is replaced by invoice valuation, net registration of the flows related to processing to order and the revised registration of gifts in kind. The surplus of the nation on current transactions is influenced negatively by the introduction of the transaction categories "current pension and life insurance premiums" and ditto benefits.

5.5 Conclusions

From the discussions in this chapter a number of conclusions emerge. The main conclusion is that both from a conceptual and from a practical point of view it is necessary to supplement the numerical data on imputations and attri-

butions with adequate accounting rules. As there is a certain degree of freedom in the choice of the accounting rules, these matters should be coordinated on an international level. From the global figures of a core system for the Netherlands it can be inferred that the advantages of the core over the present system (such as intelligibility, the close relation to the primary sources) do not imply land-slide changes in the main aggregates. The imputation for services of owner-occupied dwellings proves to be one of the major causes of the numerical deviation between the core system and the 1968 SNA.

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ANNEX 1.

MAIN CORRECTIONS IN ORDER TO OBTAIN THE CORE SYSTEM STARTING OUT FROM THE SNA CONVENTIONS

Own-account production of goods and market services without compensation of employees (SNA)

- reclassify the relevant intermediate consumption as final consumption
- diminish consumption of fixed capital and reclassify the relevant fixed capital formation as final consumption
- diminish output with the value of the own-account production
- diminish final consumption c.q. fixed capital formation with the value of the own account production
- if the own account production is destined for fixed capital formation: correct the consumption of fixed capital in later periods

(Cf. Text-table 2 in section 5.2 regarding corrections in respect of owner-occupied dwellings)

Compensation of employees in kind (SNA)

a) goods and services bought from other producers

- diminish wages with the value of the supplies
- raise intermediate consumption with the value of the supplies
- diminish final consumption of the employees

b) own-account production

- diminish wages with the value of the supplies
- diminish output with the value of the supplies
- diminish final consumption of the employees

Transfers in kind (SNA)

a) social security benefits

- diminish the value of the benefits
- raise final consumption of the social security institutions
- diminish final consumption of households

b) social assistance

- diminish the value of the grants
- raise final consumption of general government
- diminish final consumption of households

c) gifts

- diminish the value of the transfers
- raise final consumption of the donor
- diminish final consumption of the beneficiary
- make corresponding corrections on imports and exports

Bad debts (SNA)

- diminish transfers from the creditor to the debtor

Netting (SNA)

- register gross where possible, i.a. as regards sales of existing consumption goods and fixed capital formation

Purchases by employees under contractual arrangements (SNA)

- diminish intermediate consumption
- raise wages
- raise final consumption expenditure of households

Travel, entertainment etc. reimbursed by employers (SNA)

- diminish intermediate consumption
- raise wages
- raise final consumption expenditure of households

Employers' contributions to social security and pension insurance; technical reserves of pension funds and life insurance companies treated as savings of the insured; unfunded employers' welfare contributions (SNA)

- delete in the accounts of employees the receipt and payment of employers' contributions to social security
- delete in the accounts of employees the receipt of employers' periodic contributions to pension funds
- delete the imputed interest on pension and life insurance reserves
- introduce current and capital pension and life insurance contributions paid by the insured
- introduce current and capital pension and life insurance benefits
- reclassify final consumption of services of pension funds and life insurance companies from the insured to the insurance institutions
- reclassify unfunded employee welfare benefits (no pensions) as wages
- delete unfunded employee welfare contributions

Indirect taxes and subsidies of international bodies re-routed via national general government (SNA)

- reclassify the receipts of the relevant indirect taxes and the disbursements of subsidies from general government to the international bodies
- make according corrections in the transfers from general government to the international bodies and vice versa
- register eventual timing disparities between receipts and payments of general government as financial transactions with the rest of the world

Subsidies registered as paid out to the most relevant economic activity (DNA)

- route the subsidies to the activities which actually receive the payments
- correct accordingly the value of the flows between activities

Maintenance, taxes etc. in connection with land recorded on the account of the user (SNA)

- diminish intermediate consumption and indirect taxes of the user
- raise primary income paid by the user
- raise primary income received by the owner
- raise final consumption and direct taxes of the owner

Gross fixed capital formation recorded with the user (DNA)

- diminish fixed capital formation and consumption of fixed capital of the user
- raise intermediate consumption of the user with the value of the lease
- diminish primary income paid by the user
- increase output of the owner with rent
- diminish primary income received by the owner
- raise fixed capital formation and consumption of fixed capital of the owner
- make corresponding corrections in the financial accounts

Rented employees recorded in the labour force of the unit where they are engaged (DNA)

- diminish wages and employers' social contributions of the renting unit
- raise intermediate consumption of the renting unit with the value of the lease
- raise output of the actual employer
- raise wages and employers' social contributions of the actual employer

Forced valuations of goods, example of foreign trade (SNA)

- diminish imports of merchandise with the cif-invoice margin
- diminish exports of services with the cif-invoice margin on account of of resident transport and insurance producers
- raise imports of services with the cif-invoice margin on account of non-resident transport and insurance producers
- raise exports of merchandise with the invoice-fob margin
- diminish exports of services with the invoice-fob margin on account of resident transport and insurance producers
- raise imports of services with the invoice-fob margin on account of non-resident transport and insurance producers

Processing to order vis-à-vis the rest of the world (SNA)

- diminish im- and exports of merchandise in respect of active and passive processing to order
- introduce actual payments in respect of processing to order

Arbitrage transactions in foreign exchange, migrants' goods and effects (SNA)

- diminish imports and exports

Reclassification of industrial gold to financial gold (SNA)

- diminish the exports of merchandise
- delete the corresponding increase of financial assets

Allocation of SDRs

- delete the relevant increase of financial assets
- delete the special counter-entry

Table 1. Transactions in respect of owner-occupied dwellings (mln gld, illustration)

[illegible]

		SOURCES							USES						
		NFE	FE	GOV	HH	DOMESTIC	ROW	TOTAL	NFE	FE	GOV	HH	DOMESTIC	ROW	TOTAL
T1.0.	Gross output of goods and services	690030	29440	71390		790860									
T2.1.	Intermediate consumption								360140	8530	21940		390610		
T3.1.	Gross value added	329890	20910	49450		400250									
	Compensation of employees				208880	208880	1120	210000	153280	10310	46410		210000		210000
	Wages				159280	159280	1120	160400	119220	7950	33230		160400		160400
	Employers' social contr.				49600	49600		49600	34060	2360	13180		49600		49600
T3.3.	Cons. of fixed capital								38220	350	2620		41190		41190
T3.4.	Indirect taxes			47990		47990		47990	46740	830	420		47990		47990
T3.5.	Subsidies	12600	10			12610		12610			12610		12610		12610
T3.2.	Operating surplus	104250	9430	0		113680									
T4.2.	Comp. of employees from ROW				1270	1270		1270						1270	1270
T4.3.	Entrepren.inc.from uninc.ent.				31000	31000		31000	31000				31000		31000
T4.4/5	Withdrawals from quasi-c. ent.		1470	3400		4870		4870	4700	170			4870		4870
T4.6/7	Property income	26790	68940	29130	50100	174960	30250	205210	72340	71710	29860	1700	175610	29600	205210
	Interest	5300	82610	10500	14610	113020	22100	135120	39700	40260	29860	1700	111520	23600	135120
	Correction banking services	16420	-16420			0		0							
	Dividends, rents	5070	2750	18630	35490	61940	8150	70090	32640	31450			64090	6000	70090
T4.0.	National income					358560									
T6.1.	Direct taxes			51030		51030		51030	8900	1400		40730	51030		51030
T6.2.	Compulsory fees, fines etc.			2100		2100		2100				2100	2100		2100
T6.3.	Social security contributions			82860		82860		82860				82860	82860		82860
T6.4.	Social security benefits				80870	80870	700	81570			81570		81570		81570
T6.5.	Social assistance grants				25010	25010		25010		140	24870		25010		25010
T6.6.	Current transfers to prp.s.hh.				6510	6510		6510			6510		6510		6510
T6.7.	Unfunded empl.welf.contr.	820	100	3690		4610		4610				4610	4610		4610
T6.8.	Unfunded empl.welf.benefits				4610	4610		4610	820	100	3690		4610		4610
T6.10/12	Current transfers nec		140	67360	1060	68560	9400	77960			68730	2810	71540	6420	77960
T6.0.	Disposable income (net)	14100	6560	59720	274500	354880									
	Final consumption expenditure										66390	236750	303140		
T7.1.	Saving (gross)	52320	6910	-4050	37750	92930									
T2.5.	Increase in stocks								1990				1990		
T2.6.	Gross fixed capital formation								62680	440	11190		74310		
T7.6/7	Capital transfers	9820	870	5720	1930	18340	1110	19450	1150	740	15510	1430	18830	620	19450
T7.8/9	Net lending	-3680	6600	-25030	38250	16140									

Table 4. Illustration of SNA transactions for the Netherlands excluding the imputation of owner-occupied dwellings

		SOURCES							USES						
		NFE	FE	GOV	HH	DOMESTIC	ROW	TOTAL	NFE	FE	GOV	HH	DOMESTIC	ROW	TOTAL
T1.0.	Gross output of goods and services	672430	29440	71390		773260									
T2.1.	Intermediate consumption								358540	8530	21940		389010		
	Gross value added	313890	20910	49450		384250									
T3.1.	Compensation of employees				208880	208880	1120	210000	153280	10310	46410		210000		210000
	Wages				159280	159280	1120	160400	119220	7950	33230		160400		160400
	Employers' soc.contr.				49600	49600		49600	34060	2360	13180		49600		49600
T3.3.	Cons. of fixed capital								34220	350	2620		37190		37190
T3.4.	Indirect taxes			46990		46990		46990	45740	830	420		46990		46990
T3.5.	Subsidies	12600	10			12610		12610			12610		12610		12610
T3.2.	Operating surplus	93250	9430	0		102680									
T4.2.	Comp. of employees from ROW				1270	1270		1270						1270	1270
T4.3.	Entrepren.inc.from uninc.ent.				30950	30950		30950	30950				30950		30950
T4.4/5	Withdrawals from quasi-c. ent.		1470	3400		4870		4870	4700	170			4870		4870
T4.6/7	Property income	26790	68940	29130	50100	174960	30250	205210	61390	71710	29860	12650	175610	29600	205210
	Interest	5300	82610	10500	14610	113020	22100	135120	28850	40260	29860	12550	111520	23600	135120
	Correction banking services	16420	-16420												
	Dividends, rents	5070	2750	18630	35490	61940	8150	70090	32540	31450		100	64090	6000	70090
T4.0.	National income					346560									
T6.1.	Direct taxes			52030		52030		52030	8900	1400		41730	52030		52030
T6.2.	Compulsory fees, fines etc.			2100		2100		2100				2100	2100		2100
T6.3.	Social security contributions			82860		82860		82860				82860	82860		82860
T6.4.	Social security benefits				80870	80870	700	81570			81570		81570		81570
T6.5.	Social assistance grants				25010	25010		25010		140	24870		25010		25010
T6.6.	Current transfers to pnp.s.hh.				6510	6510		6510			6510		6510		6510
T6.7.	Unfunded empl.welf.contr.	820	100	3690		4610		4610				4610	4610		4610
T6.8.	Unfunded empl.welf.benefits				4610	4610		4610	820	100	3690		4610		4610
T6.10/12	Current transfers nec		140	67360	1060	68560	9400	77960			68730	2810	71540	6420	77960
T6.0.	Disposable income (net)	14100	6560	59720	262500	342880									
	Final consumption expenditure										66390	234750	301140		
T7.1.	Saving (gross)	48320	6910	-4050	27750	78930									
T2.5.	Increase in stocks								1990				1990		
T2.6.	Gross fixed capital formation								48680	440	11190		60310		
T7.6/7	Capital transfers	9790	870	5720	1960	18340	1110	19450	1150	740	15510	1430	18830	620	19450
T7.8/9	Net lending	6290	6600	-25030	28280	16140									
T1.10.	Imports of goods and services						227750	227750	183740	1440	3730	38840	227750		227750
T2.10.	Exports of goods and services	246920	980	660		248560		248560						248560	248560
T7.2/3	Surplus of the nation on current transactions					16630									

Table 5. Indication of the main values in the core system for the Netherlands, 1984 (mln gld)

		SOURCES							USES						
		NFE	FE	GOV	HH	DOMESTIC	ROW	TOTAL	NFE	FE	GOV	HH	DOMESTIC	ROW	TOTAL
T1.0.	Gross output of goods and services	673020	29440	71490		773950									
T2.1.	Intermediate consumption								358580	8690	22170		389440		
T3.1.	Gross value added	314440	20750	49320		384510									
	Compensation of employees								151420	10150	46120		207690		207690
	Wages				165100	165100	1120	166220	120310	7920	37990		166220		166220
	Employers' soc.contr.		9750	31720		41470		41470	31110	2230	8130		41470		41470
T3.3.	Cons. of fixed capital														
T3.4.	Indirect taxes			46790		46790		46790	45540	830	420		46790		46790
T3.5.	Subsidies	12600	10			12610		12610			12610		12610		12610
T3.2.	Operating surplus	130080	9780	2780		142640									
T4.2.	Comp. of employees from ROW				1270	1270		1270						1270	1270
T4.3.	Entrepren.inc.from uninc.ent.				30980	30980		30980	30980				30980		30980
T4.4/5	Withdrawals from quasi-c. ent.		1470	3400		4870		4870	4700	170			4870		4870
T4.6/7	Property income	27870	68940	30210	21470	148490	30250	178740	62540	43080	30940	12580	149140	29600	178740
	Interest	6110	82610	11310	14610	114640	22100	136740	29710	40260	30670	12500	113140	23600	136740
	Correction banking services	16420	-16420			0		0							
	Dividends, rents	5340	2750	18900	6860	33850	8150	42000	32830	2820	270	80	36000	6000	42000
T4.0.	National income					384010									
T6.1.	Direct taxes			52230		52230		52230	8900	1400		41930	52230		52230
T6.2.	Compulsory fees, fines etc.			2100		2100		2100				2100	2100		2100
T6.3.	Social security contr. 1)			51140		51140		51140				51140	51140		51140
T6.4.	Social security benefits				57260	57260	700	57960			57960		57960		57960
T6.5.	Social assistance grants				20290	20290		20290		140	20150		20290		20290
T6.6.	Current transfers to pnp.s.hh.				3550	3550		3550			3550		3550		3550
T6.7.	Unfunded empl.welf.contr.														
T6.8.	Unfunded empl.pension benefits				0	0		0	0	0	0		0		0
	Current p. & l.i. premiums 1)		8730			8730	20	8750				8560	8560	190	8750
	Current p. & l.i. benefits				12360	12360	540	12900		12790			12790	110	12900
T6.10/12	Current transfers nec		140	67360	860	68360	8980	77340			68610	2510	71120	6220	77340
T6.0.	Disposable income	50830	41230	93910	194320	380290									
	Final consumption expenditure									3240	97800	200580	301620		
T7.1.	Saving (gross)	50830	37990	-3890	-6260	78670									
T2.5.	Increase in stocks								1990				1990		
T2.6.	Gross fixed capital formation								48680	440	11190		60310		
	Lump-sum p. & l.i. premiums 1)		4430			4430		4430	2210		740	1480	4430		4430
	Lump-sum p. & l.i. benefits				2580	2580		2580		2580			2580		2580
T7.6/7	Capital transfers	9820	130	5720	1190	16860	1110	17970	1150	0	14770	1430	17350	620	17970
T7.8/9	Net lending	6620	39530	-24870	-5400	15880									
T1.10.	Imports of goods and services						220100	220100	176290	1440	3730	38640	220100		220100
T2.10.	Exports of goods and services	239050	980	660		240690		240690						240690	240690
T7.2/3	Surplus of the nation on current transactions					16370									

1) Excluding employers' contributions

Table 6. Deviation of main transactions in the core system from current SNA values (%), the Netherlands, 1984

USES									
SOURCES									
	NFE	FE	GOV	HH	DOMESTIC	ROW	TOTAL	NFE	FE
T1.0. Gross output of goods and services	-2.5	0.0	0.1		-2.1			-0.4	1.9
T2.1. Intermediate consumption	-4.7	-0.8	-0.3		-3.9			-1.2	-1.6
T3.1. Gross value added					-100.0	-100.0	-100.0	0.9	-0.4
T3.2. Compensation of employees					3.7	0.0	3.6	-8.7	-5.5
T3.3. Wages					-100.0		-16.4	-100.0	-100.0
T3.4. Employers' actual soc.contr.					-2.5		-2.5	-2.6	0.0
T3.5. Cons. of fixed capital	0.0	0.0	-2.5		0.0		0.0	0.0	0.0
T4.0. Indirect taxes	24.8	3.7			25.5				
T4.1. Subsidies					0.0		0.0		
T4.2. Operating surplus					-0.1		-0.1		
T4.3. Comp. of employees from ROW					0.0		0.0		
T4.4. Entrepren.inc.from uninc.ent.					-0.1		-0.1		
T4.5. Withdrawals from quasi-c. ent.					0.0		0.0		
T4.6/7 Property income	4.0	0.0	0.0		-57.1	0.0	-12.9	-13.5	-39.9
T4.8 Interest	15.3	0.0	7.7		0.0	0.0	1.2	-25.2	0.0
T4.9 Correction banking services	0.0	0.0			1.4				
T5.0 Dividends, rents	5.3	0.0	1.4		-80.7	0.0	-40.1	0.6	-91.0
T6.0 National income					-45.4				
T6.1 Direct taxes					7.1				
T6.2 Compulsory fees, fines etc.			2.4		2.4		2.4		
T6.3 Social security contributions			0.0		0.0		0.0		
T6.4 Social security benefits			-38.3		-38.3		-38.3		
T6.5 Social assistance grants			-29.2		-29.2		-28.9		
T6.6 Current transfers to pnp.s.hh.			-18.9		-18.9		-18.9		
T6.7 Unfunded empl.welf.contr.			-45.5		-45.5		-45.5		
T6.8 Unfunded empl.pension benefits	-100.0	-100.0	-100.0		-100.0		-100.0	-100.0	-100.0
T6.9 Current p. & l.i. premiums					-100.0		-100.0		
T6.10/12 Current transfers nec					-100.0		-100.0		
T6.0 Disposable income	260.5	528.5	57.3		-0.3	-4.5	-0.8	-0.2	-10.7
T6.1 Final consumption expenditure					7.2			47.3	-15.3
T7.0 Saving (gross)	-2.8	449.8	-4.0		-15.3				
T7.1 Increase in stocks									
T7.2 Gross fixed capital formation									
T7.3 Lump-sum p. & l.i. premiums									
T7.4 Lump-sum p. & l.i. benefits									
T7.5 Capital transfers	0.0	-85.1	0.0		-38.3	0.0	-7.6	0.0	-100.0
T7.6/7 Net lending	-279.9	498.9	-0.6		-114.1	-1.6		-7.9	0.0
T7.8/9 Imports of goods and services									
T7.10 Exports of goods and services	-3.2	0.0	0.0		-3.2	-3.4	-3.4	-4.1	0.0
T7.2/3 Surplus of the nation on current transactions					-1.6				
T7.4 Total									
T7.5 Total									
T7.6 Total									
T7.7 Total									
T7.8 Total									
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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 columns 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 compiling 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 chains 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 processing 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 than 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. Algra (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-routings 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 accounting 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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