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REGISTRATION OF TRADE IN SERVICES AND MARKET VALUATION OF IMPORTS AND
EXPORTS IN THE NATIONAL ACCOUNTS*)

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Abstract

The value of trade in services as registered by the National Accounts depends crucially on the valuation of merchandise imports and exports. The present conventions of cif and fob registration are inconsistent with the registration of domestic transactions and lead to major distortions in the description of imports and exports of transport-, insurance- and distribution services. Therefore, the present paper argues that the registration of external trade transactions in the main tables of the National Accounts should be based on invoice values. This would bring the valuation of the external transactions more in line with that of the domestic transactions and clarify the registration of trade in services. In some supporting tables in the National Accounts which serve specific analytic purposes, such as input-output tables, other valuations than invoice valuation may be preferred. None of these other valuations however, coincides fully with the cif and fob valuation of imports and exports of merchandise which are presently recommended by the SNA, the ESA and the IMF Balance of Payments Manual (BPM). Invoice valuation of imports and exports of merchandise is not only conceptually very attractive, but is also very suitable for purposes of data collection. Consequently, the comparison and linkage of data from several sources is greatly facilitated.

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1. Introduction

The present paper is a condensed version of a discussion paper intended to stimulate thinking within the Netherlands Central Bureau of Statistics on the linkages between the National Accounts, the foreign trade statistics and the balance of payments. These topics have assumed a new urgency as a consequence of the increased need for information on foreign trade in services and the perspective of the establishment of the internal EC-market in 1992. The present paper should also be viewed as a discussion paper. The viewpoints advocated are provisional and do not necessarily represent the final position of the Netherlands Central Bureau of Statistics. Nevertheless, it seems important to present the paper to the Voorburg-group, in view of the common ground covered by the paper and the group. Discussion in the Voorburg-group may lead to a further elaboration of the paper.

A major proportion of foreign trade in services consists of transport-, insurance- and distribution services that are connected with imports and exports of merchandise. In calculations on behalf of IMF-balance of payments statistics, the total cif-fob margin is often set at 10% of the merchandise imports cif. This already gives an indication of the quantitative importance of the connection between trade in services and merchandise imports and exports. Whether or not these services are actually registered as trade in services depends on the valuation of trade in merchandise. Consequently, the latter is crucial to any discussion of the size of trade in services. The present paper discusses the valuation of merchandise imports and exports from the perspective of its effects on the registration of trade in services. In section 2, it is recalled that market valuation is the general principle for recording transactions in the National Accounts. Registration according to invoice value is only a logical consequence of this principle. The invoice value is the cost of goods and services in the market to the point of delivery to the purchaser; this will nearly always coincide with the value which appears on the invoice. Invoice value equals purchasers' value as used and defined in the System of National Accounts

(SNA) and the European System of Integrated Economic Accounts (ESA). However, in this paper the term invoice value is employed instead of purchasers' value, because it is a more neutral term which discriminates neither buyer nor seller. The valuation of imports and exports according to the recommendations of the United Nations, the European Communities and the IMF is the topic in section 3. According to these international recommendations the imports and exports of merchandise are to be valued cif and fob at the customs' border. In section 4, the conceptual as well as practical implications of invoice valuation of external trade are discussed.

2. Market valuation in the National Accounts

2.1 The principle of market valuation

The SNA and the ESA employ the principle of market valuation in the National Accounts: as a general rule, transactions should be recorded at the value in the market.¹⁾ Invoice valuation could be called the natural expression in monetary terms of a market transaction. Unavoidably, if there are no invoice values another principle of valuation must be used, but if they are available invoice values are the measures of market valuation. The invoice value of a specific individual transaction need not always be accepted as a "true" market value. But it is quite suggestive that the question whether or not the invoice value of, e.g., a transaction between affiliated enterprises is at market value, is usually concluded from comparison with invoice values of transactions in similar goods and services. Invoice valuation does not only correspond closely with the concept of market values, but it is also the most easy and reliable principle of valuation to observe. In the accounts of all kinds of transactors, transactions are usually recorded at invoice value. The information about the invoice value of a transaction can, in principle, be obtained from all transactors involved because it does not depend on the specific view of just one of the two parties to a transaction. In a questionnaire, the term invoice value is almost directly intelligible and needs little explanation; misunderstanding is therefore reduced and the burden on respondents is lessened.

Furthermore, money flows are based on invoices. The information on invoice values can thus be obtained both from all transactors involved and from direct observation of the money flows; this makes it possible to compare the data from these sources on a very detailed level as well as on a more aggregate level, such as a comparison of the total invoice value per commodity group or per group of economic activities. Invoice valuation of transactions in the National Accounts brings the National Accounts' registration more in line with the data sources underlying the Balance of Payments statistics; therefore it also facilitates comparison of data sources in later stages of the statistical process. In a national accounting system, invoice valuation as a basic principle,

consequently, turns out to be not only conceptually preferable, but also very suitable with regard to the collection and estimation of (basic) data.

2.2 Problems of market valuation

Although invoice values correspond closely to the concept of market valuation and are also very suitable for the compilation of economic and social statistics, invoice valuation of transactions is not without problems. Most of these problems stem from the fact that invoice valuation does not correspond perfectly with the delineation and classification of transactions. One item on an invoice sometimes pertains to several transactions which may belong to different transaction categories. Consequently, for the purposes of the National Accounts such an item should be splitted. The extent to which items have to be splitted depends on the transaction classification. An example is the distinction between, on the one hand, transactions in goods and services and, on the other hand, primary income flows and unrequited transfers. Invoice values comprising transactions in both of these categories must be decomposed, otherwise central aggregates such as Gross Domestic Product and National (Disposable) Income cannot be calculated. The analytical purposes of some supporting tables make a detailed transaction classification indispensable in these tables. As a consequence, the invoice values in these specific supporting tables need to be decomposed very often. Transforming an invoice value into the "market values" of several transactions is possible, firstly, by selecting transactions with an invoice value that are similar to the transactions on the invoice, and, secondly, by analytical construction. An example of analytical construction of market values is estimation of the costs involved. In the SNA, the ESA and the BPM several transformations of invoice values are recommended.²⁾ A specific problem relates to money flows. The observed money flows sometimes reflect the net result of transactions between transactors. Proper registration would require disentanglement of the netted money flows into gross money flows.

A second set of problems of market valuation relates to the preferred point of valuation. Input-output analysis may be quoted as a case in point: in, e.g., the SNA market values at the establishment of the products are employed. Inevitably, economic data other than invoice values or pure summations of invoice values are, to a degree, arbitrary constructions. Therefore, they should be avoided except when economic analysis strictly calls for them; the use of decomposed or transformed invoice values should, as much as feasible, be restricted to supporting tables.³⁾

A final set of problems which may be mentioned here, relates to data collection. Although invoice valuation is usually the easiest way to observe market values, there are a number of exceptions to this rule. Sometimes no invoice value exists. Examples are own account production and services of owner-occupied dwellings. In other cases invoice values exist but fail to be a good approximation of market values. Transfer pricing is a case in point. In these cases, market values have to be approximated by means of estimation procedures. In some specific cases market values have to be approximated by another principle of valuation, because a reliable estimate of the market values is not possible. Government services is an example of such a case. Another problem with data collection is that it sometimes depends on information recorded for non-statistical purposes. Examples are tax records and customs data.

3. Valuation of imports and exports in the international recommendations

In the SNA, the ESA and the BPM the recommended valuation of imports and exports of merchandise is a transformation of the invoice value to the values at the customs' frontier. According to the SNA and the ESA imports of merchandise are to be valued cif and exports of merchandise fob; the BPM recommends to register both imports of merchandise and exports of merchandise fob. The SNA, the ESA and the BPM seem to agree that this deviation from the invoice values should not influence the balance of the total imports and exports of goods and services. To achieve this, while still employing a valuation of merchandise trade that differs from invoice valuation, some imputations are introduced in the National Accounts. An example is the registration of resident transport charges in the imports of merchandise cif in the SNA and the ESA. These transport charges are not part of the invoice value of imports of merchandise, but -being part of the imports of merchandise cif- they are registered as imports. In order to correct for this undesired influence on the balance of imports and exports, the resident transport charges in the imports of merchandise cif are also to be registered as exports of transport services.

In schemes 1 and 2 the registration of imports and exports of merchandise according to the SNA, the ESA and the BPM is compared with a registration fully based on invoice valuation; these international recommendations are interpreted with the restriction mentioned above that the balance of the invoice values of imports and exports is not influenced. The imputations invoked by this restriction are not systematically discussed in the international recommendations. For example, in the SNA the imputed imports of services by the amount in which invoice values exceed cif values (scheme 1, C) are not mentioned. The invoice value of an import transaction exceeds the cif value at the customs' frontier, e.g., if the invoice value includes all costs incurred up to delivery at the establishment of the importer. In the BPM no attention is paid to the cases in which the invoice value falls short of the fob value (scheme 2, B), for example if the invoice value corresponds to the producers' value.

Scheme 1. A comparison of invoice valuation of imports of merchandise
with the recommendations of the SNA, the ESA and the BPM

A. Invoice valuation of imports of merchandise

<u>disbursements</u>	<u>receipts</u>
*invoice value of imports of merchandise	

B. Forced fob valuation of imports of merchandise (the BPM)

<u>disbursements</u>	<u>receipts</u>
*imports of merchandise at fob value	*imputed exports of services by
*imputed imports of services by the amount in which invoice values exceed fob values	the amount in which invoice values fall short of fob values

C. Forced cif valuation of imports of merchandise (the SNA and the ESA)

<u>disbursements</u>	<u>receipts</u>
*imports of merchandise at cif value	*imputed exports of services by
*imputed imports of services by the amount in which invoice values exceed cif values	the amount in which invoice values fall short of cif values

Scheme 2. A comparison of invoice valuation of exports of merchandise and the recommendations of the SNA, the ESA and the BPM

A. Invoice valuation of exports of merchandise

disbursements

receipts

*invoice value of exports of merchandise

B. Forced fob valuation of exports of merchandise (the SNA, the ESA and the BPM)

disbursements

receipts

*imputed imports of services by the amount in which invoice values fall short of fob values

*exports of merchandise at fob value

*imputed exports of services by the amount in which invoice values exceed fob values

A consequence of the introduction of these imputations is that the description of transport-, insurance- and distribution services is severely affected. Thus, a serious drawback of the international recommendations is that their concept of imports and exports of transport-, insurance- and distribution services is confusing and unsuitable for analysis of trade in these services.⁴⁾ Schemes 1 and 2 also reveal that, even if the imports and exports of merchandise are valued cif or fob, the registration still implicitly uses the concept of invoice value. If the data of imports and exports of merchandise at invoice value are not available in addition to cif and fob data, some difficult estimation problems arise. For example, without these data the amount of resident transport services in the imports of merchandise cif must be estimated. Particularly difficult in these respects is the estimation of resident own account transport services incorporated in the imports of merchandise cif.

4. Conceptual and practical issues relating to invoice valuation of external trade

4.1 Imports and exports at invoice value: conceptual issues

Section 3 mentioned some of the problems associated with the cif and fob valuation of imports and exports of merchandise. In subsection 4.2 the data collection issues relating to registration of all imports and exports at invoice value are discussed; the conceptual issues will be examined in this subsection.

Part of these conceptual issues arise because the SNA and the ESA require imports of merchandise to be valued cif and exports of merchandise fob; in the SNA and the ESA no conceptual arguments are given to motivate these conventions. A possible defense of the cif valuation of imports and the fob valuation of exports is that they would be appropriate if a national accounting system would describe the economic process within a specific territory, regardless of the residency of the transactors. There is however no evidence of support for this view in the SNA. In fact, application of this notion to the whole national accounting system would imply that national income is defined as all primary income earned on the domestic (ESA: economic) territory, thus excluding revenues of residents during a temporary stay abroad and including those of non-residents on the domestic territory. Consistency would then require that transport services rendered outside the domestic territory by residents on behalf of residents, do not contribute to the domestic product; for example, a tourist tour abroad with a resident bus organized by a resident travel organization would not contribute to the domestic product. Clearly, this is not the position taken by the SNA and ESA, nor would such a position be useful for analytical purposes. Thus a national accounting system does not describe the economic process on the domestic territory, but the economic behavior of resident transactors. Gross domestic product is the aggregate of the gross value added of all resident producers, national income is the aggregate of the primary incomes of residents, national consumption is the consumption of all residents and total imports and

exports are defined as the aggregates of the transactions in goods and services between residents and non-residents. National aggregates are, clearly, defined as summations over residents. In order to obtain a consistent set of definitions, there should be no exceptions to this rule.

Invoice valuation of imports and exports in the National Accounts is a logical consequence of the principle of recording transactions at market value. In the central tables of the National Accounts, all transactions with the rest of the world should be recorded -as far as feasible- at invoice value in order to reflect "market values". In these central tables, there is no need to split the invoice values of imports and exports of goods and services into the market values of several transaction categories.⁵⁾ This does not mean, however, that alternative valuation rules are not useful at all: they may appear in supporting tables.⁶⁾ In supporting tables, a decomposition of the invoice values of imports and exports in many transaction categories is even inevitable. Also, for specific analytic purposes, another point of valuation is preferable in some supporting tables. In some use-tables, for example, all transactions may be valued at the establishment of the user in order to achieve optimal comparability from the users' point of view. In these tables the values, not just of goods purchased domestically but also of goods from abroad, should be registered including all costs incurred up to the physical arrival at the user. And supporting tables decomposing the latter values in transaction categories like transport services, import duties and producers' values could be added.⁷⁾⁸⁾

It is not altogether clear for which specific analytical purposes supporting tables should be drawn up showing cif or fob values. One purpose could be that cif and fob values might be described as (artificially created) market values at the border; these artificial values are perhaps a suitable basis for taxes like import duties, to be shown in a satellite table. The producers' value and the value at the establishment of the user have a much wider application in analysis. But they are usually difficult to register. In the specific case of small countries cif and fob values might be acceptable as approximations of,

respectively, producers' values and values at the establishment of the user. For most countries, however, these approximations are unreliable.

Summarizing: in order to achieve an optimal registration of trade in services, imports and exports of goods and services should be valued at invoice value in the main tables of the National Accounts. In a supporting table, a decomposition of the invoice values of imports and exports into many categories of goods and services should be presented. The cif and fob valuation of merchandise imports and exports does not lead to an adequate registration of trade in services.

4.2 Imports and exports at invoice value: practical issues

Imports and exports are transactions in goods and services between residents and non-residents. A major problem with the collection of imports and exports data is that the transactions of residents have to be distinguished in transactions with other residents and transactions with non-residents. This distinction is usually not very prominent in the perceptions of the economic subjects. Thus, in the accounts of a firm usually no distinction is made between resident and non-resident creditors or between purchases of transport services from residents and those from non-residents. The resident/non-resident distinction is mainly of importance to economic subjects if it is stressed by institutional arrangements like customs control, the payment of import duties and the existence of national currencies.

A sizable part of the registration of trade in transport-, insurance- and distribution services is closely connected with the registration of imports and exports of merchandise. At present, customs data are a major source for the registration of imports and exports of merchandise. This source yields detailed, timely and fairly complete information on values and volumes of imports and exports of merchandise and its related services. The only problem with this pre-eminent data source is that the imports of merchandise are valued cif and the exports of merchandise fob

and thus not at invoice value. The specific principle of valuation in the customs data probably induced the adoption of a similar valuation of imports and exports of merchandise in the SNA, the ESA and the BPM. Although it clearly simplifies some statistical procedures if customs data are employed without transformation of the valuation, this adoption of the customs-specific valuation causes a number of statistical problems that are absent in case of invoice valuation and that are frequently overlooked. These statistical problems seriously affect the reliability of the registered data on trade in services.

Cif and fob values often differ from the invoice values and the cif and fob values therefore have to be constructed by importers, exporters or customs personnel; the latter are mainly interested in a correct valuation of the transactions under import duties regulations. Constructing cif and fob values takes time and effort on which importers, exporters and customs personnel are naturally inclined to economize; at least if the computation of precise cif or fob values has only limited financial implications. The abolition of import duties and export subsidies in intra-EC trade has drastically limited the financial implications of the valuation of this trade, though, e.g., value added tax is formally levied on cif values. In practice, in many EC-countries a lot of transactions may now well be valued at invoice value, without serious attempt to arrive at true cif or fob values. Therefore, because cif and fob are usually only conceptual values without a counterpart in the perceptions of the transactors, it is very difficult to obtain "true" and reliable cif and fob values. Even if such an attempt is made, estimation, rules of thumb and so are involved. Consequently, for a very major part of world trade reliable cif and fob values do not exist.

Using a different principle of valuation for imports and exports, as in the data of the customs, needlessly complicates the comparison of the data of the imports with the corresponding exports data of other countries. This applies only to the recommendations of the SNA and the ESA. Both guidelines try to remedy this by proposing that the cif values of imports be decomposed in fob values and transport- and insurance

margins; but this proposal is ignored by (almost) all countries. Only in case of trade between neighbouring countries, imports cif and the corresponding exports fob are equivalent in theory and then of course no extra transformation is required for a comparison of bilateral flows.

If the customs data on imports and exports are used, a comparison with and a linkage to information provided by resident transactors is not without its problems. An adequate linkage is only possible if resident transporters supply information on the value of their services in the imports of merchandise cif. This would mean that they must divide part of the invoice value of their services into transport abroad and transport on the domestic territory. This is usually not practically feasible. Moreover, the same information would have to be obtained on own account transport. Next to this, data would have to be collected on the value of all resident transport, on behalf of non-residents, that is not related to imports and exports of merchandise; these data should include the resident transport, again: on behalf of non-residents, of merchandise in transit. If indeed it is already difficult to distinguish resident transport on behalf of residents from that on behalf of non-residents, a further distinction between transport included in imports of merchandise and other transport is virtually impossible to make. It might be added that data on international money flows related to imports and exports of goods and services can only be used in the statistical process after a laborious and difficult transformation into imports of merchandise cif, exports of merchandise fob, and after singleing out other imports and exports. In practice, only crude transformations at a high level of aggregation are made in most countries.

In comparing and linking customs data and money flow data the principal difference between the two kinds of sources is usually ignored. Customs data record transactions in goods and services, which do not always have a perfect counterpart in the international money flows. Put differently: there are differences between the recorded values of transactions in goods and services between residents and non-residents and the related money flows between residents and non-residents. Statistical discrepancies set aside, these differences occur,

firstly, if the moments of registration differ, secondly, if their principles of valuation differ and, thirdly, if their "direction" is not exactly opposite. The principles of valuation may differ e.g., if there is no related money flow or in case of transfer pricing. The related money flow is sometimes difficult to identify and a wrong assessment, as might happen in case of processing trade, might be mistaken for a difference in the principle of valuation. An example where the directions of both flows are not exactly opposite occurs if the purchase of a good or service by a resident is to be paid by a non-resident or by a resident of another sector. In the SNA and the ESA only the first difference is recognized and no attention is paid to the registration of the other differences⁹⁾ or to the resulting comparability and linkage problems. The best approach to tackle the latter is to work with invoice values at a very disaggregate level; a confrontation not based on the invoice values is most probably doomed to fail.¹⁰⁾

Clearly, on the practical side usage of cif and fob valuation in the National Accounts, while meant to solve one problem, causes a lot of other problems elsewhere. In particular, the reliability of the registered data on a sizeable part of the trade in services and on imports and exports of merchandise is probably affected. It is also clear that these practical problems arise simply because deviations from the invoice values are introduced in the registration. Thus, the natural solution of these problems is to use the invoice value for imports and exports of merchandise. The only drawback to this solution is that it deviates from the principles of valuation officially used in the customs data. But it should be possible to adjust cif and fob customs data to invoice values, just like the invoice values of resident transport and international money flows are presently adjusted.¹¹⁾ Furthermore, at the customs the invoice values of imports and exports are frequently available. The disadvantage of using these invoice values for statistical purposes is that customs authorities do not check their reliability, but it is to be questioned whether the cif and fob valuations are more reliable. There may not be a strict verification of the valuation of exports at the customs; the same applies to the valuation of imports as far as they are not subject to import duties

levied on the basis of their cif value. To a large extent this already applies to intra-EC trade, a sizeable part of world trade. If imports and exports of merchandise are registered in the National Accounts at invoice value, the data of the customs could not only still be used, but at the end of the statistical process reliability of data on external trade in goods and services might as well be improved.

In the near future, due to the progress in the unification of the European Community (EC), the customs data of the EC-member countries presumably will not supply any information about intra-EC trade at all. In the EC-countries all information about intra-EC imports and exports has soon to be compiled on the basis of other sources. The statistical offices in the EC-countries must devise new compilation strategies and the adoption of invoice valuation of all imports and exports will not just facilitate data collection, but seems in fact a conditio sine qua non for a reliable registration of intra-EC trade in goods and services after 1992. This is of great importance in view of the substantial statistical problems that the establishment of the internal EC-market will create anyway.

5. Conclusion

The registration of a sizeable part of transport-, insurance- and distribution services is inextricably linked with the valuation of merchandise imports and exports. At present, the analysis of trade in these services is seriously hampered by the cif and fob valuation of imports and exports of merchandise. This paper argues that invoice valuation of external trade should be adopted in the National Accounts. This would lead to a far better picture of international trade in services and an improved consistency with the valuation of internal transactions in goods and services. From a practical point of view, invoice valuation of foreign trade in merchandise will, firstly, often yield more reliable source data than cif/fob valuation, particularly for the intra-EC trade after the establishment of the internal EC-market in 1992. Secondly, comparability with valuations of internal transactions is achieved and, consequently, some main parts of the national accounts balancing process would be facilitated.

Notes

- 1) A short quotation concerning the registration of intermediate consumption of industries illustrates the support in the SNA for invoice values as the market value of a transaction: "The commodities should be valued, as far as is possible, at purchasers' values (in other words, at the cost of the items in the market to the point of delivery to the consuming establishment) at the moment the items enter into the production of the unit." (United Nations, 1968, subsection 6.56)
- 2) For example in the SNA: "The Standard Class II accounts in respect of commodities require the subdivision of purchasers' values into producers' values and distribution and transport margins only. Purchasers' values are used in the other standard accounts and tables." (United Nations, 1968, subsection 6.57) and "In general, the appropriate price is the price at which the commodities are sold against immediate cash payment." (United Nations, 1968, subsection 6.16) "Charges made in respect of delayed payment for purchases of goods and services beyond the normal period of settling accounts should not be included in the producers' or basic values. These charges are, in principle, interest and/or service charges in respect of delayed payment." (United Nations, 1968, subsection 6.17)
- 3) This statement corresponds perfectly with the "perceptions-principle" (also known as parsimony principle) in van Bochove and Bloem (1986, page 383): "in the core [of the National Accounts], the perceptions of economic agents should be accepted as far as possible and constructions imposing analytical views that depart from these perceptions should be used sparingly."
- 4) In the SNA, the ESA and the BPM imports and exports are defined as transactions between residents and non-residents; although, as already has become clear from schemes 1 and 2, exceptions are made for imports and exports of some (imputed) services. It is also to be noted that the ESA uses a separate definition for imports and exports

of merchandise. Exported merchandise is defined as all goods which permanently leave the economic territory of a country and imported merchandise as all the goods which permanently enter the economic territory of a country. Probably, this deviation from the general definition of imports and exports is made in order to make allowance for the use of customs data. Although the quantitative consequences of this deviation from the general definition of imports and exports will be of minor importance in most circumstances, it puts some strain on the consistency of the concepts in the ESA. A second problem caused by the slight deviation of the ESA is that comparison and linkage with data on international money flows becomes more difficult.

- 5) Total imports and exports of goods and services should be valued at invoice value in the accounts of the rest of the world, but a minor qualification must be made to this principle. Import duties are usually treated as indirect taxes. Indirect taxes are part of the GDP at market prices. It is questionable whether all import duties should be part of the GDP at market prices. If, for example, country 1 raises its import duties on goods from country 2 and the latter reacts by cutting prices by an equal amount, the import duties are probably best characterized as taxes on the second country's GDP. In national accounting it is not feasible to estimate the relevant elasticities for every import duty. Under the assumption of given world market prices for the imports of goods and services, import duties are indeed best characterized as an indirect tax burden for resident users. If some import duties are paid by non-residents and become part of the invoice values of the imports, these import duties have to be deducted from the invoice value in order to treat them in a consistent way as indirect taxes on resident production. The same reasoning could be applied to export subsidies, export taxes and import subsidies.
- 6) The distinction made in this paper between central tables and supporting tables corresponds with the distinction between the core in the National Accounts and modules in Van Bochove and Bloem (1986).

For instance, the core should include make and use-tables at invoice value; make and use-tables at other valuations, compiled for specific analytical requirements or because of statistical-technical reasons, should only be presented in the modules, because their valuation of transactions violates the perceptions-principle (see also note 3).

- 7) For some specific analysis it might be useful to split the services included in the invoice values of merchandise imports and exports into services performed by residents and those performed by non-residents. Suppose, for example, that the invoice value of imported shoes includes a charge for transport services and the transport services are performed by a resident transporter on behalf of the non-resident shoe exporter. In this case, the invoice value of the shoes, including an unknown transport charge, is registered as imports while exports of transport services are recorded simultaneously. The next year the resident producer might import the same amount of shoes, but the transport services are not included in the invoice value of the shoes; furthermore this year, the resident producer buys the transport services directly from the resident transporter. In this, almost identical, case the transport services are recorded neither in imports nor in exports. Proper analysis of such specific changes is possible if the amount of services performed by residents in the merchandise imports and exports is also registered.
- 8) Although the data collection problems are huge, it would also be very interesting to have a table decomposing the values of the exports at the establishment of the user into transaction categories, such as producers' value, transport services by type of transport and taxes. The inclusion in tables on imports and exports of some related qualitative information, such as import restrictions on major import and export commodities, would also be very useful for some analytical purposes. On non-tariff barriers and economic analysis see for example Ethier (1983), pp. 182-189.
- 9) One example is that of differences between transfer prices and market

values. These could, for instance, be registered as unrequited transfers, as an extension of credit or equity, or be registered on a reconciliation account; at least in theory.

- 10) Comparison and linkage of data would be greatly facilitated if some sources provide both kinds of information. This could, for example, be achieved if not only the invoice values of imports and exports, but also the direction and amount of accompanying money flows were to be recorded at the customs. In this respect, paying special attention to the money flows of multinationals is also important.
- 11) Sample survey data could be employed to achieve this. These could be used to establish a relation between cif and fob values on the one hand and invoice values on the other, taking account of the type of product, the distance between the countries and so on.

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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. Algera (1988).
In this paper a description is given of the Dutch system of quarterly national accounts. The backbone of the method is the compilation of a quarterly input-output table by integrating short-term economic statistics.
- NA/26 Imputations and attributions in the National Accounts, Gorter, Cor N. (1988).
Starting out from a definition of 'actual' transactions an inventory of all imputations and re-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 actoring as used in the 1968 SNA. Special attention is paid to the transformation of legal entities into units more suitable for economic analysis. Criteria for a precise delineation of the units are formulated. 'Establishment-type units and 'institutional units' turn out to be both institutional, that is both are really decision-making entities.

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