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THE CONCEPT OF (TRANSACTOR-)UNITS IN THE NATIONAL ACCOUNTS AND IN THE BASIC SYSTEM OF ECONOMIC STATISTICS

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Summary

Units in legal-administrative reality are often not suitable as statistical units in describing economic processes. Some transformation of legal-administrative units into economic statistical units is needed. This paper examines this transformation and furnishes definitions of economic statistical units. Proper definitions are especially important because of the forthcoming revision of the SNA.

Contents

1. Introduction

The National Accounts comprise a schematic description of the economic processes that constitute a national economy. This implies that a multi-form actual situation is stylized and reduced to quantifiable simplicity in accordance with a set of definitions and definition equations which in turn are based on underlying economic theories. Traditionally, in the National Accounts two main lines can be distinguished. One is aimed at the description of production processes. The other one focuses on the estimation of macro economic data such as national income etc. or on the description of how these macro-aggregates are generated, distributed and spent. For both approaches it can be said that they lead to a description of reality which is not objective and which, if considered from another point of view, incorporates certain distortions. These are a consequence of the axioms and definitions of the underlying theories and the way in which they are made operational.

According to Archipof (1985) National Accounts data are created as a projection of basic data, a projection which involves aggregation and transformation processes. In this view the transformation processes are based on a set of a priori equations which determine the coherence of the system and establish which confrontations must be made. The commodity flow method can be seen as an example of this. It starts out from the equivalence of the sum of production and imports to the sum of consumption, investment, exports and changes in stocks. Depending on the set of equations chosen several National Accounts systems can be realised. It must be stressed though, that National Accounts are meant to be a description of economic reality.

The transformations necessary to realise a description of reality relate to a variety of aspects; for example, the description of economic agents and the deeds of these agents. In the National Accounts and the underlying statistics these concepts are made operational in the form of transactors and transactions; transactors are made operational in the

shape of statistical units. In this paper problems related to the transformation of economic agents to statistical units will be examined. This is fundamental for the National Accounts, as the way in which the units are formed is an important determinant of the picture of reality they present. In an OECD paper on statistical units (1984) it is rightly stated: "The way in which statistical units are defined is thus of primary importance, it implicitly determines our view of economic reality as seen through the National Accounts".

There are two major reasons for reconsidering the problem of statistical units. These relate to the increasing multi-form manner in which the economic agents present themselves and to the ideas about the structure of the system of National Accounts that now have been commonly accepted. This will be the subject of chapter 2. A subsequent chapter will examine the economic process and its description according to the National Accounts. Next, attention will be paid to how economic agents can be transformed into statistical units in present-day circumstances keeping up with the structure for the National Accounts as it now emerges.

It is important to note that, so as to better focus on the most important issues, no attention is paid to regional or local aspects.

2. Relevant developments

2.1 The system of the National Accounts

The revision of the SNA is a reason for renewed and fundamental reflection on the nature and aims of the National Accounts. One of the most important points on which already consensus has been reached concerns the structure of the next SNA. The present state of affairs is reflected in the report containing the conclusions and recommendations of the expert group meeting on the SNA structure (ECE, 1986). According to this report it has been agreed that the National Accounts should comprise an integrated meso system in addition to macro aggregates, with the implication that input/output tables (I/O tables) are an essential component of this. What is new is the nature of the connection between the I/O tables and the system of accounts. The basic idea is that the connection between the generation of value added and its distribution can and must be described on a meso level, while the present SNA effects this connection on a level of sectors; and even then only partly. Only on the level of the total of the economy it provides a complete connection. In the present SNA the link is established by an approach via activities, production sectors and institutional sectors. However, this is not a real solution as it does not show a link between the activities and the institutional sectors. The solution mentioned in the report on the expert group meeting is to have the production accounts comprise a specification of value added and its components by industry as well as by institutional sector.

Consequently, the principle of dual sectoring acquires a completely different meaning. The most important rationale for the production sectors has expired under the present proposals: the whole economic process can be described coherently with a classification by economic activities and institutional sectors. In the revision of the SNA this is another point which is generally agreed upon. In this context it is relevant that the connection between the units used in the description of the production process and the units used in the description of the

processes of income distribution, redistribution, expenditure and financing must be known and must be retained in the statistical production process.

2.2 The organization of enterprises

Recent decades have seen trends towards greater complexity and multi-form legal structures of the institutions participating in the economic process. A number of factors have played a role in this respect. First of all, especially in the seventies, in many countries there was a trend towards the formation of larger and larger units. Mergers led to large conglomerations of enterprises with often a wide variety of activities. The roots of this development were, among other things, the need to spread risks, a wish for additional financial possibilities and the desire for product differentiation. Secondly, this desire for product differentiation led to enterprises turning their attention to various production processes and entering new markets. A third factor pertains to changes in legislation, making it possible for enterprises to split up into smaller legal units without obligations regarding financial reporting. In the EC the fourth directive on company accounts particularly enhanced this process. In practice fiscal, legal and administrative aspects often prevailed over organizational and production ones.

In the Netherlands for example, the so called "mortuary construction" has become quite popular. Enterprises facing bankruptcy often introduce a legal re-structuring with the sole purpose to split up the concern into viable branches to be saved and non-viable branches to be allowed to go bankrupt. Moreover, viable enterprises came to the conclusion that the creation of distinct legal units for their real-estate or capital goods could be a way to play safe. It also turned out that from the point of view of social security premiums it was profitable to allocate staff with deviant professional risks to separate units. These kinds of developments have led to enterprises being split up into legal units for administration, real-estate, marketing, security, production etc. etc. They also cause vertically integrated production processes to be split up

in separate legal entities and the creation of distinct legal entities for secondary activities.

From these examples it should be clear that the concept of "enterprise" is far from unambiguous and that the motives for legal structures are often other than purely organizational. They are frequently rather associated with tax-legislation, social security regulations etcetera, than reflecting economic reality. It is questionable whether the chosen legal structure corresponds with the way in which economic agents perceive reality themselves. It is even very likely that their view of economic reality is a very different one. In fact respondents often refuse to supply data on each and every legal unit claiming that such has no economic meaning. For the statistician, who is supposed to present a picture of economic reality, this means that he cannot afford to remain passive, but must himself - from the legal/ administrative reality - restore economic reality by introducing statistical units which are relevant for the description of the latter. Accepting legal entities which produce goods or services without any staff nor capital goods as statistical units would heavily distort the picture of economic reality the National Accounts aim to give.

This is not a problem peculiar to the Netherlands though. Postner (1985) and Ryten (1985) have shown that that these unit problems also occur in Canada. These two authors point especially to the problems involved in breaking down complex concern structures into homogeneous units with respect to the production process. Fergie (1986), in an paper on statistical units and registers states that: "It is in fact a problem for any country which has a significant modern sector with large multi-activity undertakings" and points out that these problems are relevant for both developed and developing countries.

Chapter 4 will look into the question of how to discern units which, based on legal/administrative reality, are meaningful from the point of view of a description of economic reality: the statistical units. However, first of all attention should be paid to the economic reality as such, seen as an economic process.

3. The units for the description of the economic process

The National Accounts describe the economic process as a circulation flow, in Keynesian tradition on a macro level. They show how production leads to income generation, how the income is distributed and redistributed, how the resulting means are added to or subtracted from via the financing process and finally how they are spent on consumer and investment goods which are produced in the production process thus completing the circle, albeit that each phase has an international aspect. All these sub-processes are described by means of accounts. In addition, the production process is described, in Quesnay/Leontief tradition, in the form of I/O tables.

For the argument in this paper, a distinction of two important components is relevant in this respect: the production process on the one hand and the processes of income distribution, income redistribution, expenditure and financing on the other. In the remainder of this paper the latter processes together will be called financial processes.

A very fundamental idea, common both to present SNA and the European System of Economic Accounts (ESA) (SOEC, 1984) is that the description of the production process and the description of the other sub-processes should be based on different units. It stems from the fact that the production process is essentially different from the financial processes. In the 1968 SNA establishments[1] on the one hand and "enterprise" and "household type units" on the other are distinguished; for the description of the production process and the financial processes respectively. That this "dual actoring" should be retained in the next SNA is generally agreed upon and will not be argued here. What seems to be in discussion however, is whether the SNA concept of establishment as we understand it should be retained, or should be replaced by a unit resembling the ESA concept of "homogeneous production unit".

This controversy relates to the dilemma concerning the desired degree of homogeneity. From an economic point of view, I/O tables are to provide

a depiction of an economic process of the production of goods and services in which choices have to be made with respect to the employment of staff, the use of capital goods, the input of raw and auxiliary materials, marketing etc. From a technological point of view, I/O tables serve the purpose of a technical process description. For users of input-output data both approaches are important. An economic description deals with the real world and real world agents, obviously in an economic sense. It provides the information needed for employment-, regional- or income-policies. Incidentally, industrial statistics also aim to provide the latter type of information. A technical description depicts physical processes; it gives useful information for instance for policies on energy consumption and the effects of production on the environment.

The 1969 SNA presented a number of alternatives which together achieved to accommodate both points of view. First of all it suggested a connected pair of tables: an input or "use" table and an output or "make" table. These tables can be made to correspond directly with the basic statistics, especially with the statistics on production like the industrial statistics. From the make and use tables an industry * industry I/O table can be derived. For this table all activities remain in their original industry groups; in other words, the units the tables are based upon are not broken down. Both types of tables can be regarded as "institutional", in the sense that they relate directly to real world transactors; real world, of course, in an economic sense. Thus, they accommodate the economic point of view. Secondly, a homogeneous I/O table can be compiled of the type activity * activity or commodity * commodity. A breakdown of activities is required to construct these kinds of tables, in the sense that secondary activities are separated from the basic units. These tables are no longer of an "institutional" nature as they do not relate directly to the original units. They can be called "analytical" or "functional" and accommodate the technological point of view.

The two terms "establishment" and "homogeneous production unit" to be found in present SNA and ESA respectively, reflect in our view these different approaches. For the institutional approach the relevant units

are the establishments. These are essentially actors which control production, meaning that they can take necessary decisions on the production process. What, according to the 1969 SNA, should be taken into consideration is "the manner in which the industries of single proprietors are organized, managed and accounted for" (SNA, paragraph 5.17). Unfortunately, only the last aspect of this quote seems to have been taken into account generally. The other aspects, relating to the independence, have not been given much attention but appear to be considered already at the time the 1969 SNA was conceived. The functional approach is not really about the performance of units, but concerns the production processes which take place therein. Here, homogeneity of the production processes is, therefore, the most characteristic. The units relevant here, the homogeneous production units, are a proxy for these processes. Obviously, a description of the production process in which units are seen as proxies for technological processes will not correspond with the economic agents' perception of economic reality.

The fact that the homogeneous production units are just proxies, not corresponding with the perception of economic reality by the agents, is one good reason why statistics describing the production process should, instead of using these units, focus on the institutionally defined establishment. Again, institutional is used here in the sense that it corresponds with the perception of the actors.

A second and even more important reason for taking the establishment as point of departure is that the technological description of the production process in functional tables can be pursued by further homogenising the information about these units on the basis of the goods and services produced. Present SNA provides the techniques needed to realize such a transformation process. This can be based on actual information on the different production processes in establishments or, if no such information is available, techniques can be used based on the "technology" or the "industry" assumption. It is not necessary though, to actually create units for this as it does not generate any extra basic information. If so desired, the functional tables can be seen as describing "homogeneous production units". The transformations, however,

can only go one way: from institutional make and and use tables functional input-output tables can be derived, not the other way around. When the information on the combination of production processes in establishments is not provided by the basic statistics, these establishments can never be reconstructed. Then neither institutional make and use tables nor institutional I/O tables can be compiled, which would mean a serious loss of information compared with the present situation.

For these reasons the establishment as a real-life unit should be the basic unit for the description of the production process. Real-life unit meaning a unit which makes sense from the point of view of the organisation of the production process, i.e. having independence regarding the decisions to be taken in this process.

Independence should not be confused with data availability: Sometimes legal entities are accounted for in a very detailed manner without having any independence at all, for instance because prices are set by other entities by way of transfer prices. Thus, data availability can only indicate independence, whether a certain entity is really independent has to be decided on the basis of other criteria. We will come back on this later.

The emphasis on independence as a necessary characteristic of the establishment does not imply that homogeneity should not play any role for establishments at all. A classification of elements does not make much sense when the resulting groups are not more or less homogeneous. What is stressed here is that the basic statistical units for the description of the production process should reflect real world units. However, in some instances a splitting up might be considered for the sake of homogeneity. This also will be dealt with later on.

In transforming the legal-administrative entities to "enterprise and household type units" (for the remainder of this paper to be called "enterprises" for short) the same controversy between independence and homogeneity is met. The homogeneity sought for here of course is of a

different nature, having to do with financial processes and not with the production process. On financial processes also both institutional and functional information is wanted as information is needed for policies on institutional sectors as well as on money markets. An example of the first are policies with regard to the finance deficit of government and of the latter policies designed to controll credit expansion.

Statistical information would not be very useful if it would describe the government sector as containing large parts operating as financial or non-financial enterprises. This is one of the reasons why present SNA stresses very much the need of excluding governmental enterprises from the government sector. Similarly, having the sector non-financial enterprises include merchant banks or insurance companies would seriously impair the usefulness of data on both sectors involved. Monetary policies are a case in point for the need of functional information: for these policies information is needed e.g. on the availability of financial assets and on borrowing requirements. Once more it can be argued that functional information can be derived from institutional real world information on real world transactors; not the other way around.

The quality of the National Accounts depends very much on the basic data. One important element in this is the coherence between the statistics that supply these data and the National Accounts. Differences in definitions and concepts between these basic statistics mutually and with the National Accounts are particularly harmful, the same goes for differences regarding the statistical approach and the statistical units. Ideally, these should all be brought in line. Throughout this paper a completely coherent system of National Accounts and basic statistics is considered a self-evident ideal. This means i.a. that the units for these statistics should be the same as for the National Accounts, especially with regard to the industry statistics and the finance statistics. The next section will attend to the problems of the transformation of the legal-administrative entities to the relevant statistical units and propose some solutions for the independence-homogeneity controversy; these are meant to apply for the National Accounts as well as for the basic statistics.

4. The statistical units

4.1 Introduction

The enforced link between the description of the generation of value added and the financial processes as foreseen in the next SNA (ref. chapter 2), requires an explicitation of the relationship between the two types of units employed. The link between establishments and enterprises will have to be determined at an individual level. Thus, the value added of the establishment and of its parent enterprise can be related at the micro level of individual units. This makes it possible to retain this link when compiling make and use tables and input/output tables. In this statistical process of integration and confrontation often adjustments have to be made, affecting i.a. value added per industry. When the link just mentioned is retained these adjustments can be assigned to the institutional sectors. Thus the value added per industry group resulting from the make and use tables can also be asigned to institutional sectors. These ideas have been more fully elaborated in papers by Van den Bos (1985) and Al (1985).

On the basis of the statistical process a strict demand must be made on the connection between the two types of units, viz. additivity. In other words, if a number of units, as they exist in a legal-administrative sense, are transformed into enterprises and at the same time into establishments, these two types of statistical units must sum up to the same total. Obviously, if this condition is not fulfilled the assignment of the adjustments resulting from the confrontation process on which the processing of make and use tables is based will not be possible and the link between the activities and the sectors will be lost.

Since, as will become apparent, the enterprise is larger than the establishment - in the sense that an enterprise may encompass more than one establishment and not vice versa - it would only be logical to formulate the additivity criterion in such a way that establishments must add up to enterprises. This means that transformations to enterprises and

establishments are on one line. It would then also be logical to start the transformation by forming the largest unit, the enterprise, and to carry on from there to the establishments; this is also the line of development taken in the following sections.

4.2 Enterprises

4.2.1 The ownership-control cluster

To work out both the independence condition and the homogeneity criterion, it is important to establish first of all a relevant frame of reference: with regard to what is the independence to be substantiated and what is to be made homogeneous. Common usage provides us with concepts such as "company" and "concern". Against the background of the proliferation of legal constructions described in section 2.2, however, these concepts are too vague to serve as a basis for statistical units. First of all, therefore, an explanation will be given of what should be considered as the basis for discerning enterprises in the present situation, charting the relations and links between the forms of the economic agents. It is not proposed to derive these units directly, but to realize sub-constructions on the basis of which this can be achieved (the fact that these sub-constructions may correspond with the units is a minor detail). For reasons that will become clear later on, these sub-constructions shall be called ownership-control clusters.

More often then not the primary sources of data about economic agents consist of registers and data-banks which have a legal-administrative orientation, and are thus of a legal-administrative nature. In such a situation it would only be logical to start out from these legal-administrative units in the registers and data-banks to define units relevant for economic statistics.

The first step in this process must be abstracting from legal fiction: many units in these registers have a legal form which in principle implies legal independence, whereas in reality they are not independent at all as other legal units actually control such a unit on

the grounds of an ownership-control relationship. First of all it must be established which units are really independent, in the sense that no other units have authority over them on the grounds of ownership or control. What these grounds are has to be further developped. For the time being independance could be made operational in the requirement that no other party has a majority interest in the unit. Subsequently it must be established whether any other units belong to these independent units in the sense that the independent units have actual authority over them. This too can be made operational with the majority interest criterion, but inversely applied. In this way clusters of legal units are delineated, each to be considered independent on the grounds of ownership-control relationships. Such a cluster may consist of a concern with widely branching structures and very diverse activities, it may also be one legal unit - it may sometimes even be a natural person. It can be defined as follows:

> **An ownership-control cluster consists of one or more legal units, natural or legal persons, which, on the grounds of an ownership or control relationship are connected, and which are independent as a totality, in the sense that no unit outside the cluster has any authority over them.**

In the example described in section 2.2 where within one concern real-estate, production, administration, security etc. are all assigned to separate legal units, applying this should result in all these units being brought together under one ownership-control cluster.

4.2.2 Homogeneity and independence

In most cases these ownership-control clusters will be directly appropriate as units in the description of the financial processes: the enterprises. However, sometimes within such an ownership-control cluster there are units whose role in the financial processes is so deviant that it constitutes a reason to break down the cluster into different units for the sake of homogeneity. An actual case relevant in this in the Netherlands, is the one of a large retail company owning and operating also a merchant bank. In cases like these homogeneity would require to split up the cluster in a financial enterprise and a non-financial

enterprise. Put more generally: when a cluster is involved in different financial processes, there is a case for splitting up the cluster in separate enterprises. To make this operational the requirement could be made that this should demand a difference on the level of institutional sectors of the SNA.

Before coming to a decision to split up, it should be decided whether the various financial processes are inter-linked or independent. If the same retail company where to establish a legal unit only in order to raise money to invest in the retail business, this would just be an ancillary activity. Indeed, there are actually cases in the Netherlands of legal units only administrating debenture loans for their parent company. Therefore, in the case of differing financial processes in a cluster independence should be made conditional.

In making the criterion of independance operational several approaches can be followed. First of all a set of requirements could be developed bearing on the power to decide on financial processes. These could relate to specific aspects like decisions on the distribution of income, the retaining of profits, the choice of financial instruments, the competence to attract loans and to negotiate on their conditions. However, it is very likely that in practice many nuances of independence would be found which would make it hard to decide. A second, more simple approach would be to establish a kind of third party criterion. Such a criterion could rest upon the quite realistic assumption that dealings with third parties always entail some kind of independance. This criterion could be made operational in a very straightforward way by requiring transactions with third parties outside the cluster; in the case of financial operations it would demand mediation between third parties[2].

When the ownership-control cluster does not coincide with just one enterprise it should be decided what has to be done with legal units performing only ancillary functions. When such units just serve one of the main activities this is not much of a problem. They then obviously could be best assigned to the unit they serve and be consolidated with

it. If, however, they have a more general role a real problem arises. If economic reality is to be restored, they are to be split and allocated to the units they work for. This could run into difficulties because of lack of data. However, data availability should not play a fundamental role in deciding on the concepts. Furthermore, with present-day computerized bookkeeping devices it seems very unlikely that companies would not have at their disposal data needed to judge the performance of the ancillary units in relation with the "demanding" units. Leaving this problem aside the definition of the enterprise that matches the line of thinking presented here would run like this:

An enterprise is an ownership-control cluster, or part thereof, which is independent in its role in the financial processes, and at the same time homogeneous with respect to these processes.

Schemes A and B may serve as an illustration. Scheme A represents an ownership-control cluster consisting of four legal entities which on the basis of relevant criteria are deemed to be related. Of these only A&B Department Stores Ltd. and Silver Bankers Ltd. have dealings with third parties, A&B Marketing Ltd. provides services to both but not to other parties and A&B Securities Ltd. is created just to administrate a debenture loan needed to finance new stores and buy more trucks for A&B Department Stores. Thus, in this example two enterprises are discerned: Enterprise A comprising A&B Department Stores, A&B Securities and part of A&B Marketing Ltd. and Enterprise B consisting of Silver Bankers Ltd. and part of A&B Marketing Ltd. This is illustrated in scheme B. Incidentally: the example is drawn from reality.

In working out the homogeneity criterion for the financial processes it should be kept in mind that <u>different</u> processes are involved here. To cope with this, present SNA chooses a three-fold approach to homogeneity as it states that the "enterprises" are distinguished by financial role, behaviour and experience (paragraph 5.49). This, however, turns out to be to restricted still, as the institutional sector classification of the SNA has an obscuring effect on some sub-processes.

This is most obvious in the household sector: what distinguishes this sector essentially from the others is not its financial behaviour as much

as income expenditure: households are the only economic agents which consume in the real sense of the word. There are great differences between households in their financial behaviour: households which own an enterprise not being a legal entity in particular differ very considerably from other households, both with respect to putting out and attracting money. Putting out money in the sense that they can use their savings to finance directly investment in their own company, and attracting money as they can use company credit for consumer purposes.

This can be overcome in either of two ways: by introducing a separate type of unit for every financial process, or by applying a set of homogeneity criteria which take account of differences in the nature of the sub-processes. The first solution would result in the system becoming more complex and fragmented and on these grounds alone should be rejected. This means the second solution will have to be opted for, which entails drawing up a set of criteria which differentiates sufficiently for all the sub-processes in the financial sphere. Such a set of criteria must thus be connected with the parts played in the process of income distribution and redistribution, income expenditure, and the acquisition, putting out and use of financial assets.

With respect to the income distribution it is relevant whether the income is acquired through a production process, by supplying labor, putting out financial assets or levying taxes. For the redistribution of income it is important whether the acquired incomes are re-redistributed or not. Concerning expenditure it is necessary to know whether the income is spent only on consumption, is partly invested or all invested. And with respect to putting out and recruiting of financial assets it is relevant whether this is done with the process itself as the aim, or to adapt the spendable assets to the demand. These ideas have been further developed by van den Bos (CBS, 1988).

4.3 Establishments

The enterprise defined in accordance with the above-mentioned procedures will in practice often also be well suited for the description of the production process. However, in principle it is not intended for this.

Like argued before, what is needed is transactors independent regarding the decisions relevant for the production process which are, to some extent, also homogeneous in this respect. Many enterprises carry out different production processes or produce different products. In principal each enterprise could be divided into many sub-units as almost any production process can be disaggregated into sub-processes. It is obvious that for statistics aiming to reflect the real economic structure, creating statistical units for each sub-process would seriously distort reality. It should be avoided that a car manufacturer is subdivided in factories for wheels, engines, bodies etc. At the same time, not allowing for significant differences could generate a distorted picture also. Thus, the question is how to define the unit for the description of production, maintaining a link with the way these processes are organized while preventing undue heterogeneity.

To uphold a link like just mentioned, again the criterion of independence can be employed. Here too, independence can be made operational by requiring authority over the relevant economic process, in this case the production process, or as a third party criterion. Authority over the production process could be specified by demanding decision power on aspects like price setting, wage bargaining, choice of location, and product mix. This brief enumeration could be largely expanded without attaining completeness; applying such a list in practice would presumably lead to many undecided cases. A third party criterion, resting on the realistic assumption that dealings with the outside world imply always some degree of independence, would be much easier to apply. This would only require transactions with units outside the cluster; a fact easy to establish. Transactions with third parties could be defined by saying that the goods and services produced should be marketed.

If an independent unit engages in different activities resulting in commodities to be marketed, a split up should be considered for the sake of homogeneity. Whether this should be effectuated or not has to depend first of all on the degree of difference. This can be substantiated by the restriction to differences of activities on a high level of a classification of industries, which classification should then truly

reflect the way activities are organized in real transaction units. The differences should be thus, that inter-dependence of the decisions for the various activities is excluded: one process should be performed without any connection with the other. One could also say that in such cases it should be justified to assume independence, and thus maintain the criterion proposed earlier. A second provision has to be made regarding the size of the operations. Lower limits should be set to prevent units to small to be of importance from being split up just for the sake of homogeneity.

For an industry classification to meet the requirement made in the preceding paragraph it is fundamental that it is based on independent units in a strict sense. Thus it should be a reflection of the reality met in actual transactors. Once it has been drawn up, of course on the basis of specific criteria particular to an activity classification also, it can be used to substantiate the degree of difference required to split up an independent unit with various marketed activities. This means a three-step procedure: first of all strictly independent units are to be discerned, secondly on the basis of these an industry classification has to be processed, thirdly independent units with various marketed activities can be split on the basis of the industry classification. It is not proposed here to develop a new industry classification alongside the existing ones. Still, in developing the theory behind these classifications it could help to disentangle the hen-and-egg problem posed by an inter-dependence of units and classification.

Ancillary units and units delivering only to other units in the cluster should be allocated to and consolidated with the units they serve or deliver to. Like for the enterprise the problem of data availability could be a practical impediment but is not a fundamental issue. In general it should be stated that contact should be sought with the respondents and that what Franz (1985) calls "armchair breakdowns" must be avoided as far as possible. It may be necessary, though, to introduce more or less artificial divisions in some cases to achieve the best possible description of economic reality. Such divisions should however preferably be made after conferring with the respondents concerned. It is

very unlikely that companies would go for an intricate legal structuring without ensuring the availability of the data needed to judge the performance of the units.

The definition of the establishment may read as follows:

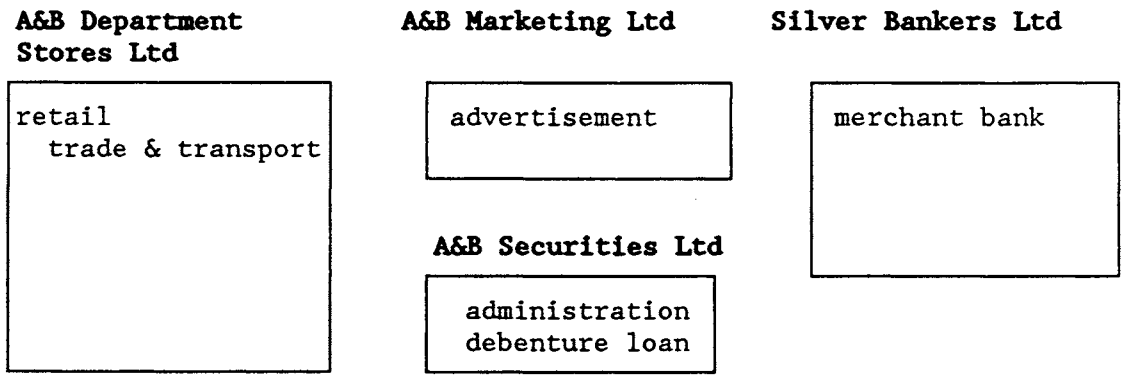
> **An establishment is an enterprise, or part of an enterprise, independent with respect to decisions concerning the production process and to a certain extend homogeneous.**

This is illustrated by scheme C. Enterprise B in this example only has one activity so it fully coincides with Establishment B. Enterprise A however, markets two very distinct and also quantatively important activities: retail trade and transport. For this reason it has to be split up into two establishments: A1 for the retail trade and A2 for the transport activity.

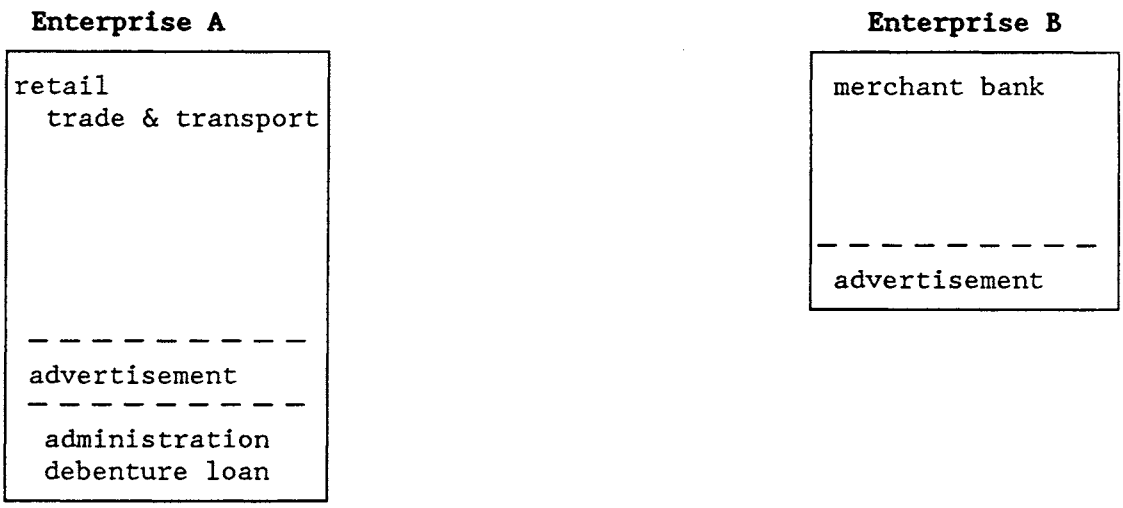
5. Conclusions

In the present situation, with complex legal structures, it is still possible to derive from legal-administrative reality units which are applicable for the description of the economic processes. The statistical units, enterprises and establishments, can be chosen in such a way that the description of the production process is interrelated with the description of the financial processes. Here it is proposed that independence (with regard to the relevant processes) is applied as a basic criterion in defining both enterprises and establishments. This criterion is maybe best operationalised as a third party criterion. At present, the viability of this approach is subject of research in the Dutch CBS.

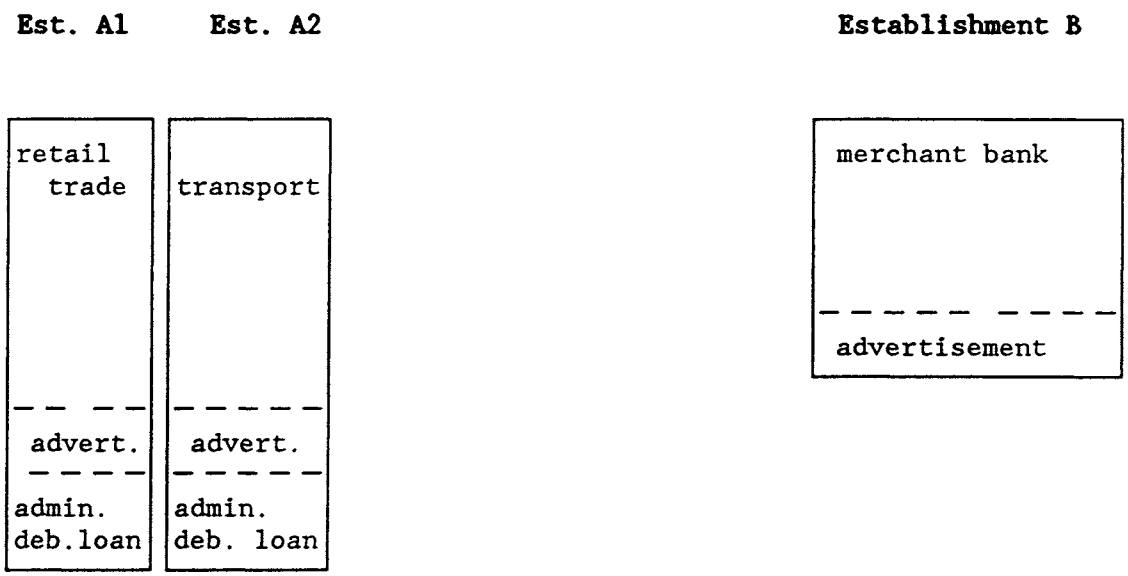
SCHEME A: Ownership-control cluster



SCHEME B: Enterprises



SCHEME C: Establishments



Notes

1) In the SNA also the concept of "kind of activity unit" can be found. This concept relates to the establisment concept: establishments are the regional components of kind of activity units. When, like in this paper, regional aspects are left aside, the two concepts coincide.

2) Applied to ancillary activities of establishments, an idea close to this third party criterion can be found in the proceedings of the SNA-revision expert group on input-output tables (UN, 1989, paragraph 23).

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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 colunms refer to homogeneous activities.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

NA/27 **Registration of trade in services and market valuation of imports and exports in the National Accounts**, Bos, Frits (1988).
The registration of external trade transactions in the main tables of the National Accounts should be based on invoice 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, Adriaan M. (1989).
Units in legal-administrative reality are often not suitable as statistical units in describing economic processes. Some transformation of legal-administrative units into economic statistical units is needed. This paper examines this transformation and furnishes definitions of economic statistical units. Proper definitions are especially important because of the forthcoming revision of the SNA.

NA/30 **Regional income concepts**, Bloem, Adriaan M. and Bas De Vet (1989).
In this paper, the conceptual and statistical problems involved in the regionalization of national accounting variables are discussed. Examples are the regionalization of Gross Domestic Product, Gross National Income, Disposable National Income and Total Income of the Population.

NA/31 **The use of tendency surveys in extrapolating National Accounts**, Ouddeken, Frank and Gerrit Zijlmans (1989).
This paper discusses the feasibility of the use of tendency survey data in the compilation of very timely Quarterly Accounts. Some preliminary estimates of relations between tendency survey data and regular Quarterly Accounts-indicators are also presented.

NA/32 **An economic core system and the socio-economic accounts module for the Netherlands**, Gorter, Cor N. and Paul van der Laan (1989).
A discussion of the core and various types of modules in an overall system of economy related statistics. Special attention is paid to the Dutch Socio-economic Accounts. Tables and figures for the Netherlands are added.

NA/33 **A systems view on concepts of income in the National Accounts**, Bos, Frits (1989).
In this paper, concepts of income are explicitly linked to the purposes of use and to actual circumstances. Main choices in defining income are presented in a general system. The National Accounts is a multi-purpose framework. It should therefore contain several concepts of income, e.g. differing with respect to the production boundary. Furthermore, concepts of national income do not necessarily constitute an aggregation of income at a micro-level.

NA/34 **How to treat borrowing and leasing in the next SNA**, Keuning, Steven J. (1989).
The use of services related to borrowing money, leasing capital goods, and renting land should not be considered as intermediate inputs into specific production processes. It is argued that the way of recording the use of financial services in the present SNA should remain largely intact.

NA/35 **A summary description of sources and methods used in compiling the final estimates of Dutch National Income 1986**, Gorter, Cor N. and others (1990, forthcoming).
Translation of the inventory report submitted to the GNP Management Committee of the European Communities.

NA/36 **The registration of processing in make and use tables and input-output tables**, Bloem, Adriaan M., Sake De Boer and Pieter Wind (1990, forthcoming).
The registration of processing is discussed primarily with regard to its effects on input-output-type tables and input-output quotes. Links between National Accounts and basic statistics, user demands and international guidelines are examined.

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