THE FUTURE OF THE NATIONAL ACCOUNTS

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Abstract

This paper investigates the consequences of globalisation, European unification, automation and more market-oriented government for the national accounts. National accounts statistics will continue their role as a central overview on the progress of national economies and become more internationally standardized with respect to concepts, data quality and range of the national accounts statistics published. However, links to current policy issues (environment, social security, Research and Development, Human Capital, small enterprises, employment by sex, age and education) and specific data needs (e.g. for estimating tax revenues, tax expenditure and tax burdens) should be improved. National accounts statistics should also be made more transparant and attractive. Research is in particular required on the use and misuse of national accounts statistics and on compilation methods.

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1. Introduction

Globalisation, regionalisation, electronic highways, automation, deregulation, privatization and decentralization. These are fashionable words. They show that on the brink of the twenty-first century the world is undergoing dramatic changes. The national accounts, being a product of this world, is changing too, e.g. data inputs, data processing techniques, data presentation and data needs are developing (at a moderate pace). In this paper, we investigate the future of the national accounts in such changing times.

The future of the national accounts is best discussed on the basis of a clear notion of what actually constitutes the present, e.g. what are the characteristics of the national accounts as they exist today? This is the topic of section 2.

Four of the trends that are shaping the future of the national accounts are the subject of this paper: globalisation, regionalisation like the European unification, automation and more market-oriented government. In sections 3-6, the future of the national accounts is sketched in view of these four general trends. Each trend will be discussed starting from the recent developments in national accounting.

Conclusions are drawn in section 7.

2. What is the present national accounts?

The national accounts started life as experimental, unofficial, efforts
to compile figures on national income, production and expenditure. Early
estimates usually served a specific purpose, e.g. whether and how a war
could be financed (see Bos, 1992a). If we look at what constitutes
national accounts at present, we see an enormous development. The
showpiece and *principal product* of the national accounts have become the
*official, internationally standardized, national accounts statistics:
they are the world's standard overview of the progress of national
economies.* This standard statistic and its conceptual framework serve as
an universal statistic and language for economic discussions, analyses
and decision-making. This can be regarded as one of the major
achievements of economic science in the twentieth century.

The national accounts as an official, internationally standardized,
overview statistic can be described on the basis of *ten characteristics*.

Firstly, the national accounts figures provide an overview of *the
whole or a sizeable part of the economic circuit, usually broken down by
group of resident units (industries/sectors).* For example, the national
accounts can give a quantitative picture of production, income
distribution, income redistribution, capital formation and the financing
of these expenditure.

The second characteristic is that the national accounts figures
provide *a complete picture for all the resident units by type of
transaction (/other economic flow/stock/balancing item).* For example,
the national accounts figures do not only show output for manufacturing
but for all industries in the national economy.

The third characteristic is that the national accounts figures are
compiled and presented as part of an *accounting framework* that is not

only *complete* but also *coherent and consistent.* This framework consists of a set of tables and accounts that shows economic flows and stocks by sector, industry and types of transactions. The consistency of the concepts greatly contributes to the usefulness of the national accounts figures, as all concepts within the framework can be related to each other in a meaningful way. Examples are figures on GNP per capita, productivity figures and government deficit as a percentage of GDP.

The fourth characteristic is that *the core of the accounting framework* contains only national accounts figures *in current prices. All other national accounts figures* have a logical and consistent relationship with these figures but *are presented aside.* This applies to national accounts figures on prices, volumes, values in constant prices, ratios (e.g. productivity), changes in values, relative shares in values, time-series and international comparisons. A major part of the national accounts statistics are thus not explicitly presented as accounts (though they have a direct relationship with them).

The fifth characteristic is that the national accounts figures are usually an annual *set of overview-statistics,* e.g. consisting of quarterly accounts, provisional annual national accounts of last year, semi-definitive annual national accounts for the year before last year and definitive annual national accounts for two years before last year. These overviews *differ in timing, detail, accuracy and coverage of the economic circuit:* the more recent the year (period), the less detail, accuracy and coverage.

The sixth characteristic is that the official national accounts figures are mainly based on *internationally standardized concepts and classifications.* This enables international comparison of national accounts figures. These international standards imply also that the official national accounts figures (see also ESA95, paras 1.05-1.23 and Bos, 1993):
-       *focus on stocks and flows that are readily observable in monetary terms or that have a clear monetary counterpart.* For

example, unpaid domestic services and voluntary work are not
taken into account in measuring production, final consumption,
income and employment. Nevertheless, this does not imply that
the national accounts statistics measure merely gross money
flows: money flows are included on a transactions basis, most
money flows are included in a consolidated form (e.g. within an
industry or sector or with the Rest of the World), a rerouted
form or a deconsolidated form and various flows and stocks are
included without a directly corresponding money flow (e.g. the
services of owner-occupied dwellings, income in kind and capital
consumption).

- are *based on multi-purpose concepts and classifications*; these
  are to some extent flexible but may not be the most suitable for
  specific purposes.
- are *based on concepts and classifications relevant and
  applicable all over the world*; these may not take full account
  of specific national circumstances.
- are based on concepts and classifications that are *well-
  established and fixed for a long period* (on this constancy of
  concepts, see Bos, 1994b); this reduces the vulnerability to
  political pressure.
- are *not based on administrative or specifically national
  concepts and classifications*, like business accounts, tax data
  and targets and agreements formulated in national policy.

The seventh characteristic is that the national accounts figures will
*reflect the data sources, statistical techniques and compilation
strategies used.* For example:
- biases in national accounts figures are most likely for the
  parts of the economy on which data are sparse or merely absent,
  e.g. on services industries or on small enterprises;
- deflating values with Laspeyres-price indices result in Paasche-
  volume indices;
- using input indicators for deflating output and value added
  ignores productivity increases;

-       a common compilation strategy is the 'strategy of continuity'.
        This amounts to a choice in favour of a proper recording of
        changes in levels instead of aiming at a proper recording of the
        levels themselves;

-       a strategy of full consistency amounts to not accepting any
        statistical discrepancies, while a less rigid strategy of
        consistency will amount to accepting and publishing some
        discrepancies (e.g. between net lending according to the capital
        account and according to the financial account).

The eighth characteristic is that the official national accounts
figures of countries all over the world have some *core statistical
programme in common* (e.g. figures on GDP are available for nearly all
countries in the world), *but also show an enormous range of differences
in priorities and resources*. Examples of the latter are:

-       only some countries in the world publish annually input-output
        tables;

-       some countries in the EU regard monthly and quarterly national
        accounts figures as their major national accounts output, while
        others do not publish such figures at all;

-       some countries regard price-indexes that account well for new
        products and changes in quality a top-priority, while most other
        countries spent relatively few resources on capturing such
        changes;

-       some countries regard achieving consistency between the national
        accounts and statistics of employment a priority, while others
        do not take efforts to ensure such consistency.

The ninth characteristic is that the *national accounts figures serves
as a frame of reference for other statistics*. However, it should be
realized that the links with other statistics are usually not
straightforward. Common linkage problems are:

-       differences in concepts;

-       differences in classification;

-       differences in statistical units and population;

- inconsistencies between the statistic and the data sources used for estimating the national accounts figures;
- differences due to the balancing of the national accounts figures;
- differences due to different strategies of continuity.

The tenth characteristic is that the *national accounts figures are compiled and published officially*, i.e. by an official institution like a Central Statistical Office, the Ministry of Finance or the Central Bank. This official status is important for ensuring the financing of the compilation process and for national and international acceptance of the figures. However, when the government tries to influence the national accounts figures for political purposes (e.g. the economic growth figures or the employment figures), this official status can also have adverse effects on the quality and reliability of the national accounts figures.

The present national accounts is thus dominated by the official, internationally standardized, national accounts statistics. However, also two important *alternative types of national accounts statistics* exist:
- non-official but based on the international concepts;
- not based on the international concepts.

Non-official figures based on the international concepts usually intend to fill the *gaps in the officially published national accounts statistics*. This pertains e.g. to the historical time series compiled by Maddison (1982). Non-official figures based on the international concepts may also *try to improve the official estimates* by using other data sources or other estimation procedures. Examples of this are:
- the standardized productivity estimates compiled by Maddison and van Ark (1994): in order to obtain consistent productivity estimates, he uses the same data source for estimating output and employment; this link between output and employment is indeed a frequent weakness of the official figures, see above;

- official estimates of GNP corrected by adding guesstimates of the black economy assumed to be missing in the estimates (the Economist).

Some national accounts statistics are also based on concepts other than the international concepts. Over time, many of such concepts have later been incorporated in the international guidelines. For the most recent set of guidelines this applies e.g. to the chain indices already used by the Dutch national accounts and Eisner's estimates on holding gains and losses in 1985. However, for some concepts this is unlikely to happen, as they are fundamentally different from the ones in the international guidelines. This applies e.g. to extended accounts by Eisner (1988) and to national accounts figures based on purely national administrative concepts or business accounts concepts.

All these non-official or non-standard efforts for compiling national accounts figures have an important signalling function: they show where there is a concrete demand for extension, change or improvement of the official, internationally standardized, national accounts statistics.

3. Globalisation

Globalisation refers to the increasing interactions between countries
and regions all over the world: goods, services, financial flows,
information (faxes, phone-calls, tv-news and communication via
internet), pollution and people (tourists, business men, politicians and
refugees): they all move rapidly and in increasing quantities over the
globe. This establishes a world market (e.g. for McDonalds hamburgers,
CocaCola, Swiss watches, Dutch tulips, Windows-software and financial
capital), a global production process (e.g. a car may have been produced
partly in Asia, partly in the USA and partly in Europe) and universal
norms and ideologies (e.g. capitalism, democracy, human rights).

Globalisation is not a recent development. For example, World War II
can be regarded as the first real 'world' war as it involved Northern
America, Europe, major parts of Asia and North Africa. However, during
the last decade, globalisation seems to have accelerated its pace, e.g.
the era of communism has ended suddenly and internet is rapidly
conquering the world.

The official, internationally standardized, national accounts figures
are typical products of globalisation:
- all four generations of guidelines have been written and issued
  under the auspices of the United Nations and other international
  organizations (the World Bank, OECD, IMF and Eurostat);
- since the guidelines of 1953, guidelines are provided for
  compiling national accounts in countries all over the whole
  world, i.e. for all types of developed and developing countries
  but until recently excluding the (former-)communist countries;
- the United Nations publishes voluminous statistical yearbooks
  with national accounts figures from all countries;
- the United Nations, other international organizations and some
  countries have provided much technical assistance in setting up

and improving the national accounts all over the world;
- the contributions to the United Nations are based on the official GNP figures.

Recently, a new set of universal guidelines on national accounting (the SNA93) has been issued. For the national accounts, the SNA93 is an important step forward. It has drastically improved the links with other statistics and their guidelines (e.g. Balance of Payments Statistics), it has completed the accounting system by introducing balance sheets and the other changes in assets accounts (e.g. now also holding gains and losses are included), input-output tables are now well-explained and presented as statistical tables with a clear link to the rest of the accounting system, chain indices and purchasing power parities have been introduced, the many new financial instruments have been taken account of, satellites and Social Accounting Matrices have been incorporated and the text has become much more readable and accessible and explains a lot of the motivations behind the national accounting concepts.

The influence of globalisation on the SNA93 is evident in many respects:
- the sectors Non-financial and Financial Corporations are now subclassified into those that are foreign controlled and those that are not. In this way, foreign influence via direct investment can be monitored in the national accounts.
- a new and separate chapter is devoted to an environmental module supplementing the standard national accounts. This reflects an increased attention for one of the most typical global problems, i.e. the environment.
- the end of communism had as a direct consequence that the SNA93 is now also applied in the former-communist countries; previously, they applied a fundamentally different system of national accounts (the Material Product System);
- countries, e.g. the USA, are more willing to comply to the international concepts and classifications than before. Differences between the national system of accounts and the

international standards are considered to be less desirable and acceptable;

- the explicit requirement in revising the European guidelines on national accounting (ESA95) was consistency with the SNA93. So, despite having guidelines of their own, the EU-Member States fully accept the SNA93 as a world and European standard.

Globalisation has influenced the demand for and supply of national accounts statistics in many ways. These changes determine the future of the national accounts.

Changes in the demand for national accounts statistics are:
- increased demand for describing relations and interactions with other countries and regions all over the world; these relations can pertain to imports and exports, direct investments, intra-company flows, establishment trade, financial flows, flows of information and knowledge and human flows;
- increased demand for statistics that are comparable all over the world; this suggests a further extension and standardization of official, internationally standardize, national accounts figures.
- increased demand for statistics that describe the world economy as a whole and the roles played by the various regions; this implies that national accounts figures compiled by various national authorities should be added and made consistent;
- increased demand for statistics that describe phenomena with a strong global dimension, e.g. the environment, Research and Development, financial flows and intangible assets.
- increased demand for statistics that describe factors that induce globalisation, e.g. deregulation (abolishment of intra-EU customs borders or GATT agreements) and technological progress (computers, satellites, internet).

These changes in the demand will lead to further changes in the supply of national accounts figures. Globalisation influences the

national accounts figures also by changing the availability and quality
of data sources used for compiling these figures. Some major examples
are:
-       increasing problems in obtaining accurate national information
        from internationally operating enterprises;
-       decreasing completeness and reliability of administrative data
        sources due to an increase in the mobility of companies and
        persons;
-       increasing importance of transfer-pricing;
-       increasing importance of cross-border activities that are
        relatively difficult to measure, e.g. construction, engineering
        projects and processing to order.
These examples suggest that the quality of national accounts figures
will deteriorate due to globalisation and that some changes in the
present compilation methods are required. The latter could imply e.g.
that extra attention is paid to multinationals to ensure consistency
between their financial and non-financial figures and between their
output in various countries (to avoid double-counting of output).

   Globalisation and the fundamental changes in economic structure
influence also the relevance of the national accounts statistics.
National accounts statistics that focus on measuring flows of goods,
tangible assets and production as defined in the SNA93, become more and
more an incomplete overview on what is happening in national economies.
Production can only be understood when also the revenues from holding
gains (e.g. hedging and speculation), the wide ranges of intangible
assets (e.g. copy-rights, broadcasting rights) and services (e.g.
insurance services, various types of consultancy, pay-per-view tv,
information services provided by telephone, cable wire or internet-
connections) and the financing of production are seriously taken account
of. The present classifications of services and intangible assets need
fundamental reconsideration (see e.g. Postner, 1994). Similarly,
employment can only be understood when the various types of 'employment'
like employment via temporary agencies, subcontracting, au-pair work,
volunteer work, do-it-yourself activities and unpaid-household services

are seriously taken account of (though imputing values for e.g. volunteer work is not suitable for the core system of accounts). For understanding consumption expenditure, measuring assets, liabilities and holding gains and losses of households (e.g. on their dwellings) become also more important. National accounts statistics should thus provide a complete and balanced overview that keeps track of all these fundamental changes in the national economies.

The process of unification in Europe can be regarded as globalisation at a regional level. The European unification is already drastically changing the national accounts of the EU-Member States. These changes suggest also changes that are to come at the world level, as other countries and regions will face data demands similar to those in Europe and will want to have data comparable to those of the EU-Member States. When new Member States enter the European Union (e.g. Hungary, Poland and Turkey; they are now labelled PACs: Pre-Accession Countries) and other OECD-countries like the United States, Japan and Australia will follow (part of) the work done in the EU, this will be a further stimulus for non-OECD countries to follow also the European example.

4. European unification as an example of regionalisation

4.1 Introduction

Soon after the second World War, first attempts were made for European integration. In 1952, the European Coal and Steel Community was created. Six countries participated: France, West-Germany, Italy, the Netherlands, Belgium and Luxemburg. This limitation to coal and steel lasted till 1958. Then, the same countries established the European Economic Community (EEC) and the European Community for Atomic Energy (Euratom). By leaps and bounds, European cooperation has expanded and intensified, but they kept its economic focus: over the years it has mainly coordinated national economic policies, established a common agricultural policy and removed barriers that impede the free flow of goods, services, persons and financial capital. In 1972, the United Kingdom, Ireland and Denmark joined. Later also Greece (1981), Spain and Portugal (both in 1986) joined. In 1995, after a new group of countries had been admitted (Austria, Sweden and Finland), a European Union (EU) of fifteen Member States was established.

The process of European unification created a large and increasing demand for economic and social statistics on Member States. This pertains to national accounts statistics as well as to many specific economic and social statistics. A European Statistical Office (Eurostat) was established in 1958 (on the European Community and its statistical system, see DeMichelis, 1993). The first European guidelines on national accounting were issued in 1970; a second edition appeared in 1979. Now regularly a limited set of national accounts statistics on the Member States are published.

Recently, five major developments have revolutionized European national accounting:

- the work of the GNP Committee on validating and improving the
  quality and comparability of GNP estimates of the Member States;
- changes to the major inputs for the national accounts, e.g. new
  regulations on business registers and various statistical
  surveys;
- the use of national accounts figures as entrance criteria for
  the European Monetary Union.
- the new European guidelines on national accounting (ESA95);
- the European statistical programme for national accounts
  statistics.

We will discuss these five developments in subsections 4.2-4.6. Lessons
that can be drawn from the European experience are the topic of
subsection 4.7.

4.2. The GNP Committee

In 1989, the Member States' GNP figures became the basis for a new,
fourth, own resource of the Commission. This fourth resource will
gradually become the Commission's largest financial (budgetary)
resources. A committee consisting of representatives from all Member
States was created to validate and help improving the quality and
comparability of the Member States' GNP estimates. This GNP Committee
has initiated a lot of pioneering work:

- discussions and jurisprudence on the proper interpretation of
  ESA concepts. For example, Commission Decisions on the
  interpretation of the ESA79 were issued with respect to taxes on
  products and services of owner-occupied dwellings;
- documentation of the Member States' data sources and methods for
  compiling GNP. Such quite accurate, complete and up-to-date
  descriptions did not exist in most Member States and hardly
  exist anywhere in the world.
- auditing missions to validate the quality of the Member States
  GNP figures and the compliance with the ESA79;
- discussions of the Commission's auditing reports in the GNP

Committee;
- discussions on the merits and limitations of various types of data sources and estimation methods for compiling GNP figures;
- discussions and concrete proposals on how to estimate some well-known problem areas in the national accounts, e.g. the underground economy, services of owner-occupied dwellings, income in kind and inconsistencies between the Foreign Trade Statistics of EU-member states; a Commission Decision even prescribed how to estimate the services of owner-occupied dwellings;
- validation of employment underlying the Member States' GNP estimates on the basis of alternative estimates of employment.
- conceptual modifications in order to comply to the ESA79 instead of the SNA53 (i.e. not the ESA1979 or the SNA68 but the anachronistic guidelines of 1953 were still applied by some Member States!).
- drastic revisions of the national accounts in some Member States; they also resulted in sizeable adjustments in the GNP estimates, e.g. 10%.

An overview of the work of the GNP Committee is about to be published in the Official Journal of the European Communities (in 1996).

The success of the GNP committee has been possible thanks to a combination of various factors: -the positive attitudes and expert skills of all the people involved, from Eurostat and from the Member States; -the political and financial pressure on making clear progress; -the existence of a legal framework for the GNP Committee and the possibility to legalize some of its proposals in the form of Commission Decisions, -confidentiality of the country-specific discussions, reports and inventories (however, several inventories of Member States have been made public by the Member States themselves, e.g. Bos and Gorter, 1993); -money to compensate the Member States for all the extra work imposed by the GNP Committee, e.g. the writing of inventories and reports, responding to detailed questionnaires, validating employment underlying GNP estimates and improving the estimation methods. For some

Member States, also a substantial amount of technical assistance was
arranged. Each of these factors has been essential for this success.

4.3 Developments in the inputs for the national accounts

For good-quality GNP estimates, an up-to-date and complete business
register and statistics covering major parts of output, expenditure or
income are indispensable. The work of the GNP Committee revealed that in
many Member States business registers needed improvement and that the
coverage of their basic statistics showed some major lacunae, in
particular with respect to the services industries. Recently,
regulations were issued by the Commission covering also these weak and
for the national accounts very important areas. So, in some years time,
it will be much easier for EU-national accountants to make good GNP
estimates. Nevertheless, a lot of work still remains to be done. Perhaps
the most disappointing issue are the statistical units: the various
official EU-regulations are in this respect not at all harmonized and
even conflicting: e.g. the structural business surveys are based on
institutional units while the national accountants have to compile
figures on industries based on local Kind of Activity Units, i.e. for
parts of the institutional units.

The degree of involvement of Eurostat with the Member States's
statistics range widely. Traditionally the role was limited to
disseminating the Member States data, to issuing guidelines on concepts
and classifications and to initiating regulations on the scope of the
data to be submitted. The fourth own resource has started the active
monitoring and auditing of the concepts, data sources and statistical
methods used by the Member States in compiling GNP figures. The European
experience also reveals an even more active role by Eurostat in
achieving comparable statistics: *the processing of the Member States'
data by Eurostat*. The latter occurs now for the harmonized Labour Force
Survey and the purchasing power parities.

Deregulation is also part of the process of European unification. In particular the removal of the customs formalities at the intra-EU borders is having significant consequences for compiling the national accounts (see Bos, 1992c and 1996b). The European experience can learn us about the consequences of customs-unions and free trade zones for the national accounts.

In order to establish a single European market, on 31 December 1992 customs formalities at the intra-EU borders were been abolished. At the same time, a new system to register imports and exports of goods between Member States has come into force: the Intrastat-system. Under the Intrastat system, enterprises are obliged to send a monthly statistical declaration on intra-community trade in merchandise to the relevant administration in each Member State. The replacement of customs data on intra-EU trade by Intrastat-information has had direct effects on the Foreign Trade Statistics: they became in most Member States less detailed, less accurate and less timely.

The Foreign Trade Statistics are a major data source for the national accounts statistics. They are not only used for estimating imports and exports, but -as they are very detailed and available monthly and with limited delay- they also play a major role in balancing the accounts and in compiling figures on other variables via commodity-flow estimates (e.g. production and value added). This applies both to short term figures, to the annual accounts and to the detailed input-output tables. Furthermore, imports and exports figures play an important role in the expenditure estimates of GDP.

The changes in the quality of the Foreign Trade Statistics due to the abolition of the intra-EU customs borders has influenced the quality of all these estimates (see Bos, 1996). However, assessing the net effect of the introduction of the Intrastat-system is not straight-forward, for various reasons: some of the problems are temporary, some Member States do not seem to have serious problems, the Intrastat-system offers opportunities that are perhaps not fully exploited by the national

accountants (e.g. for linking imports and exports figures with other
data at the enterprise level), the Intrastat-system is now being
reconsidered and inconsistencies between the imports and exports figures
of trading partners already existed before the Intrastat-system. The
Intrastat-system may therefore also be a stimulus to reconsider present
national accounts compilation strategies and be more critical about the
former Foreign Trade Statistics: their detail and timeliness suggested
an illusory degree of accuracy and completeness (see also van Bergeijk,
1995)

4.4 National accounts figures as entrance criteria for the EMU

In the Treaty of Maastricht, the entrance criteria for European Monetary
Union are based on national accounts figures: government deficit (i.e.
net lending by the sector government) should not exceed 3% of GDP and
government debt should not exceed 60% of GDP or show a downward movement
towards this percentage. This has stimulated the work of the GNP
committee and in other Eurostat fora (conceptually and in estimation
practice GNP and GDP are very close: GNP is just one extra step),
induced discussions on the proper interpretation of the national
accounts concepts involved (e.g. how to account for privatization? and
what is the sector General government?) and has accelerated in most
Member States the compilation of financial accounts and balance sheets,
in particular for the sector General government. Moreover, several
auditing missions have been held.

A stable rate of inflation is another entrance criterion for the
European Monetary Union. This has led to the development of an European,
harmonised, consumer price index. Such harmonization was urgently
needed, because the concepts and product ranges used by the Member
States for their national consumer price indices differed substantially.
This work may also induce improvements in the quality and comparability
of price-statistics used for compiling the national accounts. This will
then improve the Member States national accounts' estimates on

inflation, volume changes, constant prices and economic growth rates.

The European Monetary Union is now the major political project of the EU. The entrance criteria in terms of national accounts figures created a large political interest in these national accounts figures, in particular at the Central Banks and the Ministries of Finance. As a consequence, the national accountant's work on the sector government is now much more actively monitored.

In the Netherlands, an important external effect of the EMU-entrance criteria is that the macro-economic reporting on the central government's budget will be revised in order to comply with the new European guidelines on national accounting (ESA95). This will facilitate drastically the work for the national accountants, as most modifications for conceptual differences become superfluous (except for e.g. differences between the time of recording).

The creation of the EMU has increased the demand for statistical information on financial flows within the European Union and national Balance of Payments data. However, in the long run, after the EMU has been established for some time, statistical information on intra-EMU money flows and national Balance of Payments data will become superfluous for European monetary policy. For the national accounts, this will mean a decreased interest in national financial accounts and national Rest of the World accounts and an increased interest in European financial accounts and European Rest of the World accounts.

4.5 The ESA95

Immediately after the completion of the SNA93, the drafting of the new European guidelines on national accounting (ESA95) started. The final draft was officially approved by the Member States's statisticians in 1995; it will be published in 1996. The ESA95 is fully consistent with the SNA93 but has some clear value added for EU Member States, and also

for national accounting in general.

A novelty of the ESA95 is that it is part of an official regulation of the EU and thus a *legal document*. This contrasts with the SNA93 and ESA79: these are 'gentlemen's-agreements' that were written as guidelines but their application is binding in some situations. The explicit legal character of the ESA95 is necessary considering the many and important administrative uses made of the national accounts figures. This pertains not only to the fourth own resource and the entrance criteria for the European Union. Examples of other administrative uses by the European Union are:

- the ceiling for the total own resources of the European Commission is determined as a percentage of the Member States' GNP figures;

- at present, the major own resource of the Commission is the VAT-own resource. The contributions by the Member States for this resource are largely affected by the national accounts figures (in order to calculate the average VAT-rate);

- the sizeable expenditure for the Structural Funds of the European Union (granted to 'poor' and backward regions) are based on regionalised national accounts figures (regional domestic product per capita);

- several other types of expenditure by the Commission are indexed or linked to national accounts figures, e.g. those on Research and Development.

- the contributions by the national central banks for financing the European Monetary Institute ('the European central bank') are based on GDP figures (and on population figures).

In several respects, the ESA95 is *more accurate and precise* than the SNA93 (for a comparison of the ESA95 and the SNA93, see also ESA95, para 1.24). This reflects not only the different styles of presentation. It reflects also the focus of the ESA95 on economies in Europe instead of on the whole world and the fact that ESA95 was written some years later (accurate phrases in SNA93 were often copied and several inaccurate ones

and minor errors were modified for the ESA95; lessons were also learned from the conceptual and practical problems raised in the GNP Committee). It also reflects *the European need to have stricter rules and a greater degree of conceptual harmonization than at the world level.*

The major example of the latter pertains to the distinction between market and other non-market. This distinction is important for both the sector classification (e.g the sector government) and the measurement of output, value added, GDP and GNP. In drafting the SNA93 no agreement could be reached on a clear-cut definition and a rather general and vague phrasing was introduced. For European purposes, such a definition was not acceptable considering the uses made of the national accounts figures, e.g. for the GNP own resource and the European Monetary Union. The ESA95 contains therefore a much clearer and stricter distinction between market and other non-market (though there are still some problems of interpretation and application). Another example pertains to the consumption of the Financial Services Indirectly Measured: the SNA93 leaves a choice, while the ESA95 chooses one method of allocating these services (though, at the moment, it is not yet clear which method will be chosen).

4.6 The European statistical programme for national accounts statistics

The ESA95 was accompanied by a statistical programme for the national accounts statistics. This programme obliges Member States to compile an extensive set of national accounts statistics, e.g. quarterly accounts, supply and use tables, a whole range of sector accounts and regional accounts. For most Member States, meeting the demands of this statistical programme will imply a massive effort as it amounts to a drastic extension and speeding up of the national accounts statistics presently compiled. As a consequence of this ambitious statistical programme, in about 2005 a balanced set of national accounts statistics will be available for the EU-Member States.

4.7 Lessons that can be learned from the European experience

The European unification is a forerunner of regionalisations elsewhere in the world, e.g. of the economic union between the United States, Canada and Mexico (NAFTA). The European unification also has many similarities with globalisation. So, the European experience can give clues to what globalisation and regionalisation elsewhere in the world will mean for the national accounts. Will globalisation reduce the role of the 'national' accounts statistics?

The European unification has not made national accounts statistics superfluous. Quite the contrary, it has increased the demand for a balanced set of national accounts statistics that is comparable and available for all EU-Member States; this set includes not only 'national' accounts statistics but also regional accounts statistics. Some national accounts figures have been selected to play a special role in the European unification: GNP figures will probably be the Commission's major own resource in the future and national accounts figures on government deficit and debt will play central roles in coordinating and monitoring the European monetary policy.

Furthermore, the Member States and the Commission have been aware that the present national accounts do not suffice for such usages. They have therefore launched an ambitious programme for improving the quality and comparibility of present national accounts figures and for drastically extending the set of national accounts statistics that are available for all EU-Member States.

Also the need for a legal framework for the national accounts figures and concepts was acknowledged. A legal framework clarifies the responsibilities of all parties involved and indicates an objective way of resolving conflicts. Considering the great political and financial importance attached to the national accounts figures, such a legal framework is warranted.

The major contribution of the GNP Committee has been that it has shown *how to bridge the gap between the international guidelines and national compilation practice*. To achieve this, jurisprudence, auditing, special support programmes for statistically less advanced countries and further development of national accounts compilation techniques are required. Also clear minimum quality standards on data sources and estimation methods should be set for each type of national accounts statistics. These should be further developed at the European and global level.

The use of national accounts figures for important political or financial purposes can endanger the integrity and balance of the national accounts statistics. It may induce political pressure on the outcome of national accounts statistics, it can lead to an excessive focus on the national accounts variables used for these political or financial purposes and can paralyse the further development of the national accounts statistics. This issue was explicitly addressed by a paper from the Austrian Statistical Office, which was recently presented at a joint UN-ECE/OECD/Eurostat meeting (Franz, 1996). In Europe, these dangers have been contained by the establishment of a legal framework, auditing procedures, improvements of the inputs for the national accounts, linkage of the ESA95 to the SNA93 and a statistical programme that aims to provide a balanced set of national accounts statistics in about 2005. In the short run, these measures have drastically improved the comparability of European national accounts statistics. Nevertheless, in the longer run, care should be taken that some of the Austrian worries come true. The Austrian Statistical Office (Franz, 1996, p. 4) proposes therefore:

- to put the issue on the permanent agenda of the competent international fora;

- to establish regular links to the scientific level "to get feed back on the suitability of the various concepts with a view of theoretical needs";

- "to identify and maintain elements of flexibility felt necessary in the wider context. In particular, the anticipated effects of

ad hoc solutions by means of legalistic measures, and the
consequences of alternative solutions may be kept under study".

5. Automation

Automation is changing the world and also the national accounts statistics. The national accounts statistics are affected in many ways. Automation changes the statistics used as inputs for the national accounts. Transmitting and processing of administrative and survey data will become faster and in general less prone to human error. However, when errors do occur the consequences can be much more dramatic as they are more unexpected, less likely to be detected and may more easily be drawn to ridiculous conclusions (as the statisticians can think too easily that 'the machine' has taken over responsibility).

Automation has also changed the dissemination of national accounts figures, e.g. in the form of a publicly available electronic data bases. In this section we will focus on two other changes due to automation:
- changes in the compilation of national accounts figures;
- changes in the presentation of national accounts figures.

Only some decades ago, compiling national accounts figures was paper and pencil work. Then, computers and adding machines started to help processing and storing the data. Since then, the computers' calculation speed and the software have drastically advanced. Common tools for national accountants are now networks of personal computers running spreadsheet- and database programmes for most of the normal processing work, a central computer for the most demanding calculations and pocket calculators for simple and short-cut checks of data.

The continuous developments in hardware and software involve a lot of *extra work* for national accountants. They have to get accustomed to the new hardware and software, modify their working habits and compilaton methods, convert and re-process old files and anticipate new changes. For example, for the Dutch national accountants, a transition to Windows95, Word5.0, Excel 7.0 and Paradox has just started.

The continuous developments in hardware and software imply also a lot of new *possibilities* with respect to the processing of data, the linking of data, the validation of data and balancing data. For various reasons, however, full automation of the compilation of the national accounts figures seems unlikely, even in the distant future.

National accounts figures are compiled on the basis of very heterogeneous sets of information which are incomplete, inconsistent and often changing from one year to another. These changes may pertain to:

- the accuracy of the figures, e.g. the accuracy of the Foreign Trade Statistics of most EU-Member States drastically decreased due to the introduction of the Intrastat-system for recording intra-EU trade;

- the timeliness of the figures, e.g. a statistic may suddenly arrive too late for compiling the national accounts figures in time;

- the completeness of the figures, e.g. the decentralisation of government actually is rapidly decreasing the coverage of the central government information, while in the short run no comparable information may be available on the decentralised government units;

- the concepts underlying the figures, e.g. changes in tax regulations change tax data and changes in the social security system may change the concepts of wages, social security contributions and social benefits used in many data sources, like industry-statistics, wage-data and social-security statistics;

- the classifications used in presenting the figures, e.g. the classification by product and by industry of the European industry-statistics has changed recently.

The economy is changing too, e.g. new products are introduced, enterprises merge, others go bankrupt, the social security system is reorganized, the government is privatizing, decentralizing, abolishing some types of taxes and introducing new ones, leasing cars and machinery

gets popular, people are more contracted out and working more via
temporary agencies and the banks are drastically automating a major part
of their services. Such changes in the economy are another reason that
the data to be used for compiling the national accounts change
frequently in coverage, definitions and accuracy. The changes in the
economy make it also difficult to anticipate incompleteness and
inconsistencies in the various inputs for the national accounts.

The national accounts is a whole range of statistics that is
consistent in its concepts, classifications and figures. This
consistency is a great merit for users of these statistics. However,
this consistency implies also that a numerical change in one part of the
system has repurcussions for many other parts. For example, a change in
output figures for the construction industry can influence the estimates
on its value added, its operating surplus, its taxes on output, its
value added per employee, capital formation of construction works by
other industries, Domestic Product and saving and net lending of the
national economy. Furthermore, all these figures should show plausible
changes over time. This implies that problems in a specific part of a
national accounts statistic (e.g. unexpected inconsistencies) can spread
like a disease over the whole range of national accounts statistics.

This 'disease' of inconsistency can only be cured by taking account
of the whole system of national accounts, all its interlinked statistics
and all available knowledge on the national economy and its recent
changes; the latter includes also various types of qualitative knowledge
(e.g. from newspaper-articles on a strike or disaster in one specific
branch or incidental reports and studies on a big company or a specific
issue, e.g. underreporting to tax authorities). *Compiling the national
accounts can best be regarded as solving a fuzzy problem: straight-
forward optimal solutions do not exist, but some solutions are clearly
better than others.*

The scope of the outputs of work on the national accounts is often
also frequently changing, e.g. in timing, detail, classification,

concepts and scope. These changes imply also that the inputs that can be used change (e.g. more timely publication of data can make it impossible to use data sources arriving late) and that the inputs should be used differently (e.g. changes in the modifications to correct for differences in definition and limitations in coverage).

Compiling the national accounts is an interactive and partly ad hoc procedure where also knowledge of a country's specific institutional arrangements and business practices is required. This implies that software for compiling the national accounts should be flexible and open for change very quickly and easily. Only in this way, a whole range of consistent national accounts statistics can be published on the basis of imperfect and incomplete inputs while these inputs, the economy and the data to be published change frequently and often unexpectedly.

Automation has already drastically changed national accounts procedures and will change it further. Some barriers to further automation will be removed. Data sources that serve as inputs for the national accounts will become more and more standardized. Know-how on national accounts compilation techniques (e.g. balancing detailed supply and use tables) and strategies (e.g. strategy of continuity: at what level of aggregation will it be applied?) will be further developed and spread internationally. For typical compilation problems (e.g. how to change from one product-classification to another? how to calculate time-series on the basis of this new product-classification?) standard solutions will be worked out. International software can be developed for processing and checking some standard inputs, for balancing the accounts, for a proper rounding off of the national accounts data and for calculating revised time-series. All these software should leave room for interactive and ad hoc adjustments and be flexible enough to cope with changes in the inputs, the economy (e.g. some new types of taxes) or the desired outputs.

Automation is also drastically improving the *presentation* of the national accounts figures: details and links can be better, clearer and

easier shown in an interactive data base system. Nevertheless, it should be realized that national accounts statistics often do not show more details for reasons of confidentiality or because the data at a more detailed level are not reliable or even absent. Automation can not solve these reasons for limited detail in the national accounts statistics.

National statistical offices like Statistics Netherlands are already starting to present their national accounts figures as part of publicly accessible data bases that include all available economic and social statistics. This presentation will make inconsistencies between statistics and their differences in concepts and classifications more visible and thus also more unacceptable to users of these statistics. This presentation will therefore stimulate the development of consistent sets of official economic and social statistics; in such a set, the extended national accounts statistics should play the role of the central overview-statistic.

6. More market-oriented government

6.1 Introduction

The economic crisis of the thirties, the second world war and the period of reconstruction immediately after the war, all stimulated a more active and larger role of the government. Keynesianism became the dominant economic ideology and theory. During these decades, official national accounting started to flourish (see Bos, 1992a). International guidelines were developed and national accounts figures were increasingly used for monitoring and managing the government and the national economies.

Since the eighties, the tide has turned: Keynesianism is out, communism has become an anachronism and the market-ideology has won: the government should privatize, decentralize and deregulate a major part of its tasks, should cut down on subsidies, taxes and social transfers and should reduce its deficits and debts.

What are the consequences for the national accounts of this turning of the tides? We will distinguish three types of consequences:
- changes in the demand for national accounts statistics (subsection 6.2);
- changes in the inputs for the national accounts statistics (subsection 6.3);
- changes in the production and management of the national accounts statistics (subsection 6.4).

6.2 The demand for national accounts statistics

The demand for national accounts statistics will change due to the

turning of the ideological tides but not dramatically. National accounts
statistics will maintain their role as internationally standardized
overview-statistic as there is no other statistic which can play this
role. This role is indispensable for the government and all other
parties interested in statistical information on national economies,
e.g. for financial investers, the political parties not in the
government and the international organizations. In fact, globalization
will increase the need for solid and comparable national accounts
statistics (see section 3).

Nevertheless, two types of changes will occur. The first change is
that the national government becomes less important as customer of
national accounts statistics, while other customers like national and
international companies and international organisations become more
important. These other customers have also often somewhat different
preferences for statistics than the national government, e.g. for
companies detailed supply and use tables are important because they can
reveal market shares and market opportunities.

A second change is that the statistical preferences of the national
government are likely to change. The national accounts statistics are
less important as a tool for macro-economic stabilization policies. They
should therefore address the new policy issues, like:
-     the link between the economy and the environment;
-     privatization, deregulation and decentralization;
-     globalisation and regionalisation;
-     the costs and benefits of specific infrastructural works, e.g.
  railtracks for high speed trains, the extension of airports or
  the construction of the Channel tunnel.
-     the costs, financing and accessability of health care in view of
  an aging population;
-     the costs, financing and accessability of social and private
  insurance.

6.3 The inputs for the national accounts statistics

The turning of the ideological tides has also affected the inputs for
the national accounts: they will decrease due to deregulation,
decentralization and privatization.

As part of deregulation by the government, the respondent burden of
statistical surveys and administrative procedures should be limited.
This will often be attained by reducing the number, frequency and detail
of surveys and administrative procedures. This will often imply a
reduction in the information available for compiling the national
accounts statistics. The respondent burden can also be limited by
automated reporting systems connected to the respondent's
administration, by combining various surveys or by combining statistical
surveys and administrative procedures. In Europe, an important example
of deregulation was the replacement of the administrative formalities at
the intra-EU customs borders by the introduction of the Intrastat-system
for both tax and statistical purposes (see subsection 4.3).

As part of decentralisation of the government, central administrative
regulations and practices are likely to be abolished or become less
strict. As a consequence, administrative information at the central
government on the local government units will decrease, e.g. some type
of information will disappear, other information will arrive later or
will be of lesser quality due to less strict supervision. Furthermore,
the way the administrations are kept become more heterogeneous and the
willingness of local government to provide information to a (central)
statistical office can decline. The implication for the national
accounts is that its information on the local government will decrease
in quantity and quality. This is even more a pity as local government is
becoming more important by taking over tasks of central government.

Privatization of public corporations and government units can also
reduce the willingness to disclose information to statistical offices
and to meet statistical demands. The work involved in meeting the

statistical demands is an easy victim for reducing the costs of the privatized units. Privatization will therefore often decrease the national accountants' information on the privatized corporations and units.

6.4 The production and management of national accounts statistics

6.4.1 Efficient production

The turning of the ideological tides influences also the *production and management* of official national accounts statistics and statistical offices. All over the world, official statistics are being challenged to become *more efficient and more effective* in meeting data demands and raising resources. *Official national accounts statistics becomes thus more a product which should be produced efficiently, be improved continuously in view of changing data demands and be marketed actively.*

Efficient production of official national accounts statistics requires:
- regular investments in improving the compilation techniques and the skills and knowledge of the compilers;
- good communication and coordination with statistics and administrative data sources used as inputs for the national accounts statistics;
- an optimal balance between the efforts of processing and the relative importance of the outputs.

We will shortly explain what these requirements can imply for making and keeping efficient the compilation of national accounts statistics.

Investments in the compilation techniques and the compilers refer to further automation, critical evaluation of present compilation techniques, consideration of using alternative compilation techniques, more international sharing of knowledge on best practices, special

courses for training statisticians and targeted research on specific compilation issues.

Automation, evaluation, courses and research should preferably be taken up internationally: development of international standard software for compiling national accounts statistcs, audits on the efficiency of the compilation techniques by international consultants, international courses on simple as well as advanced national accounts compilation techniques and an international research programme on national accounts compilation issues. Such an international approach can exploit best all available know-how, can profit from the economies of scale involved and avoids doing double-work (see also Franz, 1996). This international approach can also be partly run on a commercial basis, i.e. by companies or national statistical offices selling their software, audits and courses to statistical offices and other compilers of national accounts statistics.

At present, the international approach on improving compilation techniques is limited to some beginners' courses on compiling the national accounts (e.g. the Dutch course on compiling the national accounts in practice) and the writing of handbooks commissioned by the international organizations. A weakness of this practice is that it is mostly based on the willingness of statistical offices to free temporarily one or more of their experts from their normal duties. This willingness is a clear risk for the statistical office involved: their best experts are also the backbone of the national compilation process, they are often working at the executive level and they are very difficult to replace, in particular in the short run. *For improving compilation techniques internationally, a less piece-meal and ad hoc basis is therefore urgently needed.*

The building-bricks for constructing national accounts statistics are various other statistics and administrative data sources. Efficient compilation of national accounts statistics therefore requires an efficient relationship with these data sources. This relationship is not

a one-way relationship, as the national accounts and its input-statistics share a lot of common interests. For the national accounts, an input-statistic is often not only an input but reflects also a user-group for the national accounts statistics. For the input-statistic and its data-users, the national accounts is not only a data-user but also a frame of reference to put the statistic in a national perspective, e.g. to express value added in construction as a percentage of GDP. In fact, both the input-statistic and the national accounts statistics may have common users.

To profit optimally from the joint interests, good communication and coordination are required on concepts, classifications, timing, formats of transferring data, etc. National accountants should clarify why and how they transform the data from the input-statistic into national accounts data. The processing of the data should also be coordinated, because some checks can best be done in compiling the input-statistic and some others in compiling the national accounts. Furthermore, national accountants may perform some plausibility-checks that have already been done or they may assume that some checks have been made that in fact have not. For most common input-statistics (e.g. Labour Force Survey, Family Expenditure Survey, Industry statistics), international quality standards that are regularly monitored seem to be an efficient solution.

Joint statistical products could also be developed, e.g. in the form of a module or satellite account. Examples of these are a module linking national accounts statistics and environmental statistics, a health care module, a Research and Development module or a social policy module (see e.g. Gorter and van der Laan, 1992, de Haan, Keuning and Bosch, 1993, Bos, Hollanders and Keuning, 1994 and Bos, 1996a). The joint products can also be a simple table showing the links and differences between the national accounts statistics and the input-statistic.

Efficient compilation of national accounts statistics also requires a good balance between the efforts of processing and the outputs, i.e. the

national accounts statistics and their uses. For estimating important parts of the national economy, sizeable compilation efforts are justified. However, not much compilation efforts should be put in estimating accurately a very limited part of the national economy which does not serve any special (important) data needs. There is always a tendency to focus the compilation efforts on parts of the economy for which already good data sources exist and to estimate and publish for these parts statistics at a very detailed and desaggregate level. At the same time, often few efforts are spent on quantitatively or politically important parts of the economy on which solid information is relatively scarce. This practice is not efficient in view of the outputs.

Similarly, there is often a tendency to balance the efforts in view of old data needs and to forget to serve and explore new data needs. For example, disproportionate attention is often paid to compiling statistics on manufacturing compared to statistics on services. In fact, efficient compilation should be biased towards measuring changes in the economic and institutional structures: even if these changes do not represent relatively large amounts of money, they are often the messengers of bigger changes that are still to come and a proper and early signalling of changes should be a major task of national accounts statistics.

Even with extra efforts, the accuracy of national accounts statistics on parts of the economy on which quantitative information is relatively scarce and on recent changes will be relatively low compared to the accuracy for other parts. Nevertheless, the value added to users will be relatively high: it provides the best estimate that can be made and has a high news value.

Typical national accounts compilation problems have a huge correlation with important policy issues. This applies e.g. to estimates for small enterprises (how well are they doing compared to the bigger ones?, are they the source for economic growth and innovation?) and underreporting of incomes, employment and sales (all the black economy

issues). These problems should not be a source of shame for national accountants, but should be regarded as a challenge with high news value. Separate publications of best estimates on these issues should even be considered. Cooperation with other parties interested in this output (e.g. a Ministery, a research institute, the tax authorities, etc.) can help financing proper estimates, can help exploiting data and know-how and can result in better and more tailor-made national accounts statistics.

6.4.2 Improving the product

In section 4, it was described how European unification has been improving the official national accounts as a product by:
- *increasing the international comparability of the national accounts statistics* (e.g. by audits and by setting minimum standards on the quality and coverage of the inputs for the national accounts);
- *extending the product range of the national accounts statistics* (e.g. with quarterly accounts, supply and use tables, balance sheets, good linkage to employment statistics, etc.);
- *increasing the international comparability of the product range.*

These improvements do not only serve international data needs but also national data needs, as international comparison is often essential for understanding what the national statistics indicate.

In the recent guidelines and handbooks drafted under the auspices of the international organizations we can also detect three other important suggestions how to further develop the present national accounts statistics.

The first suggestion is that more attention should be paid to *compiling and presenting national accounts figures for 'special' circumstances*. This suggestion can be detected in the handbooks that have appeared recently for national accounting under high inflation and

for countries in transition (the former-communist countries in Eastern Europe).

The second suggestion is that more attention should be paid to *serving specific purposes and to establish links with other statistics*. In the SNA93 and the ESA95 this is reflected in recommending the flexible use of the classifications in the central framework and the development of Social Accounting Matrices, satellite-accounts and supplementary tables. In this way, links can be established with non-monetary data (e.g. on the environment, education, health care and the population), with micro-data (e.g. household panel-data, household budget survey data and labour force survey data) and with administrative data (e.g. business accounts, government accounts and VAT-registers). For establishing these links and for serving specific data needs, the use of alternative concepts can be required, e.g. tax concepts, concepts used in national economic policy or concepts for applied economic analysis (e.g. gross capital stock for productivity analysis or introducing consumer durables as a memorandum item on the balance sheet) (see for more examples, ESA95 paras 1.15-1.23 and para 9.51).

The third suggestion is that more attention should be paid to *giving guidance to data users about the proper use and misuse of national accounts figures*. The SNA93 and ESA95 contain already some guidance in the introductory and other chapters, e.g. explicit warnings that GDP and National income are not welfare measures. The ESA95 chapter on the input-output framework (drafted by the present author) is an effort to provide simultaneously guidance to data compilers and data users. Attention is paid to the statistical and analytical purposes of input-output tables, to alternative calculations on the basis of these tables, to specific types of analysis served by these tables, to data problems in compiling these tables, to national accounts conventions crucial for a good understanding of these tables and to modifications to serve better some specific purposes. This approach should be elaborated and extended to the sector accounts and other parts of the national accounts.

National accounts figures reflect the data sources, statistical techniques and compilation strategies used. Providing information on these and their consequences for alternative types of use is therefore indispensable for a proper use of national accounts figures. Providing such information will also be a strong stimulus for further improving the international comparability of the national accounts statistics.

A lot of systematic research is required for investigating the consequences of alternative concepts and alternative estimates for various types of use (see also Richter, 1994 and Bos, 1994a). An example of specific user-oriented research is Bos (1992b), which focuses on the choice between net and gross figures of income and value added.

A systematic investigation of the links between economic theory and national accounting concepts is important to further develop and understand the national accounting concepts and to clarify the link with economic theory to those familiar or working with economic theory. Examples of this type of research are Bos (1993, 1995, 1996a and 1997)

Providing guidance to users also implies that the presentation of national accounts statistics should be straightforward and simple (e.g. distinguishing only two main sets of statistics: the sector accounts and the input-output framework) and not leaving too many, only slightly different, options open. For example, there is a tradition of emphasizing the subtle differences between Net Domestic Product at factor cost, Net Domestic Product at market Prices, Gross Domestic Product at factor cost, Gross Domestic Product at market prices, Gross National Income at market prices and Net National Income at market prices. However, for most users, these differences are irrelevant: they only want to use what they always used or what is the best according to offical or international standards. Furthermore, in most cases, the numerical differences in terms of growth are marginal and within the bounds of statistical insignificance. By stressing these 'bookkeeping' differences, attention has been drawn away from the real content of national accounts statistics and national accounts has come to be

regarded as an unattractive and inaccessable subject.

Paying more attention to using national accounts figures for specific purposes and for specific circumstances will also raise four other issues. Firstly, some of the present core-concepts and classifications will turn out not to be the best for most purposes and most common circumstances. These should thus be changed. Candidates for change are e.g. the present conventions to ignore interest payments in valuing non-market output (this seriously underestimates the costs of government output) and to value owner-occupied dwellings at market rents (this distorts the analysis of personal income and expenditure) (see Bos, 1995).

Secondly, when for some specific purposes or circumstances the core-concepts induce serious misuse, internationally agreed upon modifications can be introduced that pertain only to such purposes or circumstances. This can apply e.g. to treating military expenditure as final expenditure (this shows military expenditure as a stimulus for economic growth and not as a burden for economic growth).

Thirdly, for some specific purposes and circumstances a complete or extended system of national accounts is definitely required. This applies e.g. to the convention to ignore the decrease in the value of subsoil-assets in measuring production and income. This limitation of the production and income concepts in the international guidelines is best overcome by also taking into account the balance sheet and net worth: depleting subsoil-assets will turn up as a reduction in the net worth of e.g. an oil producing country. The same applies e.g. to holding gains (an other changes in the value of assets accounts should be drawn up) or to environmental damage (a satellite on the link between the environment and the national accounts can best deal with this data need).

Fourthly, a major merit of the present national accounts conventions is that they require only a limited amount of modelling (e.g. in

estimating capital consumption via the Perpetual Inventory Method or in estimating the value of the services of owner-occupied dwellings). However, for a balanced comparison of national economies sticking to 'statistics' does not always suffice. For example, comparing social benefits from one country to another is seriously distorted as in some countries social benefits are net of taxes and social premiums while in others still taxes and social premiums are to be paid. Correcting for this difference between net and gross social benefits amounts to 'modelling', as only sophisticated calculations can do justice to the common fact that the taxes and social premiums depend also on many individual circumstances (e.g. being married, age or sex). Similarly, for calculating more welfare oriented or forward-looking concepts or for forecasting, modelling is required. So, for various data needs, national accounts statistics need to be supplemented with model-estimates.

As a consequence, national accounts statistics and model-estimates should be regarded and developed more as joint and complementary products. Only by joining efforts, national accountants can avoid some types of serious misuse and meet important data demands. Nevertheless, a clear division of tasks with model-builders is wise in order to stress the differences between national accounts statistics and model-building, to keep an independent position and in order to profit from efficiency gains of specialization. Modelling results should also be presented differently in the national accounts, namely as part of satellite accounts and not as part of the core accounts.

6.4.3.Marketing of the national accounts statistics

Like most public services, national accounts statistics are commonly not well marketed. The trend towards more market-oriented government reinforces a drastic improvement in the marketing of the national accounts. This marketing can take various forms: improve the presentation of the national accounts statistics, link the national accounts statistics better to specific data users and current popular

issues, give courses for users of national accounts statistics and
ensure all kinds of publicity.

The marketing efforts should stress the central purpose of the
national accounts statistics (to provide an overview of the national
economy), make the national accounts an attractive statistic by
presenting concrete cases and point to the value added of national
accounts statistics to efficient and democratic-decision-making. This
value added is often forgotten by the general public and politicians,
while being taken for granted by the statisticians themselves. Here is
clearly a task for marketing. For example, it should be stressed that
the costs of producing national accounts statistics are relatively small
compared to the costs of making wrong or untimely decisions (e.g.
misestimates of tax revenues, overestimating the importance of an
industry for the national economy, misjudging the seriousness of an
economic crisis). For the EU-Member States, the costs of producing
national accounts statistics are only a very small fraction of the
contributions to be paid to the EU on the basis of GNP estimates and the
political importance of the national accounts figures for the European
Monetary Union is very great. A good example of the marketing of
statistics is the work by Eisner (1989, 1992 and 1994): he has entered
public debates on various economic issues (like the government deficit)
by stressing what we can learn from the statistics.

7. Conclusions

In this paper, we have investigated the future of the national accounts in view of four general trends: globalisation, European unification as an example of regionalisation, automation and more market oriented-government.

National accounts statistics will continue their role as a central international overview-statistic on national economies. Our perspective on the future is a mixture of exploiting present and new potentials and coping well with dangers:

- globalisation and regionalisation will increase the political use of national accounts figures. This reinforces requirements on international comparability and standardization as evidenced by the European experience.

- globalisation and more-market oriented government will pose serious difficulties for the quality and completeness of the statistics and administrative data sources used for compiling national accounts figures. A pro-active response is essential for statisticians. The possibilities for national accountants may increased due to automation, putting minimum standards on the inputs for the national accounts statistics to increase their international comparability and advances in national accounts compilation techniques.

- more-market oriented government can stimulate the development of more efficient, effective and attractive national accounts statistics that appeal to a wide range of data users. However, it can also result in cutting down the resources for national accounts statistics and its major inputs below a minimum-level. National accounts statistics will then be in a type of liquidity trap: resources are not enough to meet a minimum standard of reliability, to make national accounts statistics more attractive and to find new users; the potentials of the national

accounts statistics are then trapped.

The major challenges for the national accountants are to clarify the need for good-quality national accounts statistics, to make national accounts statistics more attractive, to improve compilation methods and concepts, to give guidance on the proper use and misuse of national accounts statistics and to find the proper balance between the standardization required for international comparability and credibility and the heterogeneity required to meet specific purposes and circumstances.

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Statistics Netherlands
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 un-
derreporting 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 sta-
tistics concerned. In this respect it is important to differentiate be-
tween coordinated input-output tables, in which groups of units (indus-
tries) 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
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 flexi-
ble. 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.

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 institu-
tional sectors to which the establishments belong into account during
the construction of input-output tables. The extra burden on the con-
struction of input-output tables resulting from this approach is exa-
mined 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 of the UN System of National Accounts. The first is its 'size': reviewing this issue, it can be concluded that the next SNA should contain an integrated meso-economic statistical system. It is essential that the next SNA contains an institutional system without the imputations and attributions that pollute the 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).
This paper presents a proposal for the synoptic structure of the next SNA. This system is easier to explain than 1986 SNA; it provides a complete integration of input-output data and the income distribution data; it is more flexible and greatly facilitates micro-macro linkage.

NA/15 Features of the hidden economy in the Netherlands, Van Eck, R. and B. Kazemier (1986).
This paper presents the results of extensive and rigorous survey research into the black labour market in the Netherlands. It reveals the quantitative relevance of the hidden economy and gives detailed information on its structure.

NA/16 Uncovering hidden income distributions: the Dutch approach, Van Bochove, C.A. (1987).
The three modules in this paper constitute a system of Socio-Economic Accounts that provides a complete description of the distribution of income, both primary, secondary, tertiary and informal, as well as a complete description of the distribution of consumption and saving.

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 of the main problems associated with the compilation of long-term series. It is the purpose of this paper to make the historical series accessible to non-Dutch readers.

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).
A set of macro-economic time series for the Netherlands 1921-1939 is presented. The new series differ considerably from the data that had been published before. They are also more comprehensive, more detailed, and conceptually consistent with the modern National Accounts. The macro-economic developments that are shown by the new series are discussed. It turns out that the traditional economic-historical view of the Dutch economy has to be reversed.

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).
The issue of the proper way to account for the consequences of crisis and disaster is best brought into focus by studying a practical case. In this paper the damage caused by the second world war in the Netherlands is used as an example. Constant wealth national income is introduced as an alternative income concept.

NA/20 **The micro-meso-macro linkage for business in an SNA-compatible system of economic statistics**, Van Bochove, C.A. (1987).
The new system of national accounts will be a fully integrated meso system: not only will each process be described at the meso level, but the linkages between the processes will also be shown at the meso level. A central role is played by the three-dimensional generation of value added matrix.

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 to form a basis for the classification of these units. The system is constructed in such a way that the sector classification of the SNA and the ESA can be derived from it.

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, Oudde-ken, 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. (1990).
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).
Translation of the inventory report submitted to the GNP Management Committee of the European Communities.

NA/36 **The registration of processing in supply and use tables and input-output tables**, Bloem, Adriaan M., Sake De Boer and Pieter Wind (1993).
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. Net recording is in general to be preferred. An exception has to be made when processing amounts to a complete production process, e.g. oil refineries in the Netherlands.

NA/37 **A proposal for a SAM which fits into the next System of National Accounts**, Keuning, Steven J. (1990).
This paper shows that all flow accounts which may become part of the next System of National Accounts can be embedded easily in a Social Accounting Matrix (SAM). In fact, for many purposes a SAM format may be preferred to the traditional T-accounts for the institutional sectors, since it allows for more flexibility in selecting relevant classifications and valuation principles.

NA/38 **Net versus gross National Income**, Bos, Frits (1990).
In practice, gross figures of Domestic Product, National Product and National Income are most often preferred to net figures. In this paper, this practice is challenged. Conceptual issues and the reliability of capital consumption estimates are discussed.

NA/39 **Concealed interest income of households in the Netherlands; 1977, 1979 and 1981**, Kazemier, Brugt (1990).
The major problem in estimating the size of hidden income is that total income, reported plus unreported, is unknown. However, this is not the case with total interest income of households in the Netherlands. This makes it possible to estimate at least the order of magnitude of this part of hidden income. In this paper it will be shown that in 1977, 1979 and 1981 almost 50% of total interest received by households was concealed.

NA/40 **Who came off worst: Structural change of Dutch value added and employment during the interwar period**, Den Bakker, Gert P. and Jan de Gijt (1990).
In this paper new data for the interwar period are presented. The distribution of value added over industries and a break-down of value added into components is given. Employment by industry is estimated as well. Moreover, structural changes during the interwar years and in the more recent past are juxtaposed.

NA/41 **The supply of hidden labour in the Netherlands: a model**, Kazemier, Brugt and Rob van Eck (1990).
This paper presents a model of the supply of hidden labour in the Netherlands. Model simulations show that the supply of hidden labour is not very sensitive to cyclical fluctuations. A tax exempt of 1500 guilders for second jobs and a higher probability of detection, however, may substantially decrease the magnitude of the hidden labour market.

NA/42 **Benefits from productivity growth and the distribution of income**, Keuning, Steven J. (1990).
This paper contains a discussion on the measurement of multifactor productivity and sketches a framework for analyzing the relation between productivity changes and changes in the average factor remuneration rate by industry. Subsequently, the effects on the average wage rate by labour category and the household primary income distribution are studied.

NA/43 **Valuation principles in supply and use tables and in the sectoral accounts**, Keuning, Steven J. (1991).
In many instances, the valuation of transactions in goods and services in the national accounts poses a problem. The main reason is that the price paid by the purchaser deviates from the price received by the producers. The paper discusses these problems and demonstrates that different valuations should be used in the supply and use tables and in the sectoral accounts.

NA/44 The choice of index number formulae and weights in the National Accounts. A sensitivity analysis based on macro-economic data for the interwar period, Bakker, Gert P. den (1991).
The sensitivity of growth estimates to variations in index number formulae and weighting procedures is discussed. The calculations concern the macro-economic variables for the interwar period in the Netherlands. It appears, that the use of different formulae and weights yields large differences in growth rates. Comparisons of Gross Domestic Product growth rates among countries are presently obscured by the use of different deflation methods. There exists an urgent need for standardization of deflation methods at the international level.

NA/45 Volume measurement of government output in the Netherlands; some alternatives, Kazemier, Brugt (1991).
This paper discusses three alternative methods for the measurement of the production volume of government. All methods yield almost similar results: the average annual increase in the last two decades of government labour productivity is about 0.7 percent per full-time worker equivalent. The implementation of either one of these methods would have led to circa 0.1 percentage points higher estimates of economic growth in the Netherlands.

NA/46 An environmental module and the complete system of national accounts, Boo, Abram J. De, Peter R. Bosch, Cor N. Gorter and Steven J. Keuning (1991).
A linkage between environmental data and the National Accounts is often limited to the production accounts. This paper argues that the consequences of economic actions on ecosystems and vice versa should be considered in terms of the complete System of National Accounts (SNA). One should begin with relating volume flows of environmental matter to the standard economic accounts. For this purpose, a so-called National Accounting Matrix including Environmental Accounts (NAMEA) is proposed. This is illustrated with an example.

NA/47 Deregulation and economic statistics: Europe 1992, Bos, Frits (1992).
The consequences of deregulation for economic statistics are discussed with a view to Europe 1992. In particular, the effects of the introduction of the Intrastat-system for statistics on international trade are investigated. It is argued that if the Statistical Offices of the EC-countries do not respond adequately, Europe 1992 will lead to a deterioration of economic statistics: they will become less reliable, less cost effective and less balanced.

NA/48 The history of national accounting, Bos, Frits (1992).
At present, the national accounts in most countries are compiled on the basis of concepts and classifications recommended in the 1968-United Nations guidelines. In this paper, we trace the historical roots of these guidelines (e.g. the work by King, Petty, Kuznets, Keynes, Leontief, Frisch, Tinbergen and Stone), compare the subsequent guidelines and discuss also alternative accounting systems like extended accounts and SAMs.

NA/49 Quality assessment of macroeconomic figures: The Dutch Quarterly Flash, Reininga, Ted, Gerrit Zijlmans and Ron Janssen (1992).
Since 1989-IV, the Dutch Central Bureau of Statistics has made preliminary estimates of quarterly macroeconomic figures at about 8 weeks after the end of the reference quarter. Since 1991-II, a preliminary or "Flash" estimate of GDP has been published. The decision to do so was based on a study comparing the Flash estimates and the regular Quarterly Accounts figures, which have a 17-week delay. This paper reports on a similar study with figures through 1991-III.

NA/50 Quality improvement of the Dutch Quarterly Flash: A Time Series Analysis of some Service Industries, Reininga, Ted and Gerrit Zijlmans (1992).
The Dutch Quarterly Flash (QF) is, just like the regular Quarterly Accounts (QA), a fully integrated statistic based on a quarterly updated input-output table. Not all short term statistics used to update the QA's IO-table are timely enough to be of use for the QF, so other sources have to be found or forecasts have to be made. In large parts of the service industry the latter is the only possibility. This paper reports on the use of econometric techniques (viz. series decomposition and ARIMA modelling) to improve the quality of the forecasts in five parts of the service industry.

NA/51 **A Research and Development Module supplementing the National Accounts**, Bos, Frits, Hugo Hollanders and Steven Keuning (1992).
This paper presents a national accounts framework fully tailored to a description of the role of Research and Development (R&D) in the national economy. The framework facilitates to draw macro-economic conclusions from all kinds of data on R&D (also micro-data and qualitative information). Figures presented in this way can serve as a data base for modelling the role of R&D in the national economy.

NA/52 **The allocation of time in the Netherlands in the context of the SNA; a module**, Kazemier, Brugt and Jeanet Exel (1992).
This paper presents a module on informal production, supplementing the National Accounts. Its purpose is to incorporate informal production into the concepts of the SNA. The relation between formal and informal production is shown in the framework of a Social Accounting Matrix (SAM). To avoid a controversial valuation of informal production, the module constists of two SAMs. One expressed in actual prices with informal labour valued zero, and one which expresses the embedded informal labour input measured in terms of hours worked.

NA/53 **National Accounts and the environment: the case for a system's approach**, Keuning, Steven J. (1992).
The present set of main economic indicators should be extended with one or a few indicators on the state of the environment. This paper lists various reasons why a so-called Green Domestic Product is not suitable for this purpose. Instead, a system's approach should be followed. A National Accounting Matrix including Environmental Accounts (NAMEA) is presented and the way to derive one or more separate indicators on the environment from this information system is outlined.

NA/54 **How to treat multi-regional units and the extra-territorial region in the Regional Accounts?**, De Vet, Bas (1992).
This paper discusses the regionalization of production and capital formation by multi-regional kind-of-activity units. It also examines the circumstances in which a unit may be said to have a local kind-of-activity unit in the extra-territorial region and what should be attributed to this "region".

NA/55 **A historical Social Accounting Matrix for the Netherlands (1938)**, Den Bakker, Gert P., Jan de Gijt and Steven J. Keuning (1992).
This paper presents a Social Accounting Matrix (SAM) for the Netherlands in 1938, including related, non-monetary tables on demographic characteristics, employment, etc. The distribution of income and expenditure among household subgroups in the 1938 SAM is compared with concomittant data for 1987.

NA/56 **Origin and development of the Dutch National Accounts**, Den Bakker, Gert P. (1992).
This paper describes the history of national accounting in the Netherlands. After two early estimates in the beginning of the nineteenth century, modern national accounting started in the 1930s on behalf of the Tinbergen model for the Dutch economy. The development spurred up after World War II to provide data to the government for economic planning purposes. In the 1980s, the development was towards a flexible and institutional approach.

NA/57 **Compiling Dutch Gross National Product (GNP); summary report on the final estimates after the revision in 1992**, Bos, Frits (1992).
This summary report describes the sources and methods used for compiling the final estimate of Dutch Gross National Product after the revision of the Dutch National Accounts in 1992. Attention is focused on the estimation procedures for 1988. A more extensive report is also available (**NA/57_Ext.**).

NA/57_Ext. **Compiling Dutch Gross National Product (GNP); full report on the final estimates after the revision in 1992**, Bos, Frits and Cor N. Gorter (1993).
This report describes the compilation of the final estimate of Dutch Gross National Product after the revision of the Dutch National Accounts in 1992. Attention is focused on the estimation procedures for 1988. The description covers i.a. data sources, sampling features of the surveys, grossing up procedures, adjustments for underreporting and the integration process.

NA/58 The 1987 revision of the Netherlands' National Accounts, Van den Bos, C and P.G. Al (1994).
The 1987 revision that was completed in 1992 has improved the Dutch National Accounts in three ways. First, new and other data sources have been used, like Production statistics of service industries, the Budget Survey and Statistics on fixed capital formation. Secondly, the integration process has been improved by the use of detailed make- and use-tables instead of more aggregate input-output tables. Thirdly, several changes in bookkeeping conventions have been introduced, like a net instead of a gross registration of processing to order.

NA/59 A National Accounting Matrix for the Netherlands, Keuning, Steven and Jan de Gijt (1992).
Currently, the national accounts typically use two formats for presentation: matrices for the Input-Output tables and T-accounts for the transactions of institutional sectors. This paper demonstrates that presently available national accounts can easily be transformed into a National Accounting Matrix (NAM). This may improve both the transparency and analytic usefulness of the complete set of accounts.

NA/60 Integrated indicators in a National Accounting Matrix including environmental accounts (NAMEA); an application to the Netherlands, De Haan, Mark, Steven Keuning and Peter Bosch (1993).
In this paper, environmental indicators are integrated into a National Accounting Matrix including Environmental Accounts (NAMEA) and are put on a par with the major aggregates in the national accounts, like National Income. The environmental indicators reflect the goals of the environmental policy of the Dutch government. Concrete figures are presented for 1989. The NAMEA is optimally suited as a data base for modelling the interaction between the national economy and the environment.

NA/61 Standard national accounting concepts, economic theory and data compilation issues; on constancy and change in the United Nations-Manuals on national accounting (1947, 1953, 1968 and 1993), Bos, Frits (1993).
In this paper, the four successive guidelines of the United Nations on national accounting are discussed in view of economic theory (Keynesian analysis, welfare, Hicksian income, input-output analysis, etc.) and data compilation issues (e.g. the link with concepts in administrative data sources). The new guidelines of the EC should complement those of the UN and be simpler and more cost-efficient. It should define a balanced set of operational concepts and tables that is attainable for most EC countries within 5 years.

NA/62 Revision of the 1987 Dutch agricultural accounts, Pauli, Peter and Nico van Stokrom (1994).
During the recent revision of the Dutch national accounts, new agricultural accounts have been compiled for the Netherlands. This paper presents the major methodological and practical improvements and results for 1987, the base year for this revision. In addition, this paper demonstrates that a linkage can be established between the E.C. agricultural accounting system and the agricultural part of the standard national accounts.

NA/63 Implementing the revised SNA in the Dutch National Accounts, Bos, Frits (1993).
This paper discusses the implementation of the new United Nations guidelines on national accounting (SNA) in the Netherlands. The changes in basic concepts and classifications in the SNA will be implemented during the forthcoming revision. The changes in scope will be introduced gradually. Important changes scheduled for the near future are the incorporation of balance sheets, an environmental module and a Social Accounting Matrix.

NA/64 Damage and insurance compensations in the SNA, the business accounts and the Dutch national accounts, Baris, Willem (1993).
This paper describes the recording of damages to inventories and produced fixed assets in general, including damages as a result of legal product liability and of the liability for damage to the environment. In this regard, the 1993 System of National Accounts and the practice of business accounting are compared with the Dutch national accounts.

NA/65 Analyzing economic growth: a description of the basic data available for the Netherlands and an application, Van Leeuwen, George, Hendrie van der Hoeven and Gerrit Zijlmans (1994).
This paper describes the STAN project of the OECD and the Dutch national accounts data supplied to the STAN database, which is designed for a structural analysis of the role of technology in economic performance. Following an OECD analysis for other industrial countries, the importance of international trade for a small open economy such as the Netherlands is investigated. The STAN database is also available on floppy disk at the costs of DFL. 25, an can be ordered by returning the order form below (Please mention: STAN floppy disk).

NA/66 Comparability of the sector General Government in the National Accounts, a case study for the Netherlands and Germany, Streppel, Irene and Dick Van Tongeren (1994).
This paper questions the international comparability of data concerning the sector General Government in the National Accounts. Two differences are distinguished: differences due to lack of compliance with international guidelines and institutional differences. Adjustments to National Accounts data are reflected in a separate module which comparises Germany versus The Netherlands. The module shows that total General Government resources as well as uses are substantially higher in the Netherlands.

NA/67 What would Net Domestic Product have been in an environmentally sustainable economy?, Preliminary views and results, De Boer, Bart, Mark de Haan and Monique Voogt (1994).
Sustainable use of the environment is a pattern of use that can last forever, at least in theory. This pattern is likely to render a lower net domestic product than the present economy. The coherence between reductions in pressure on the environment and changes in net domestic product is investigated with the help of a simple multiplier model. This model is based on a National Accounting Matrix including Environmental Accounts (NAMEA).

NA/68 A Social Accounting Matrix for the Netherlands, concepts and results, Timmerman, Jolanda G. and Peter J.M. van de Ven (1994).
In this paper a Social Accounting Matrix (SAM) for the Netherlands is presented. Two years are covered: 1988 and 1990. The SAM is an integrated data framework based on national accounts extended with information on distribution of income, consumption and wealth among household. Furthermore, labour income and employment are subdivided into several labour categories. The tables of the SAMs of both 1988 and 1990 are available on separate floppy disks at the costs of DFL. 65 each.

NA/69 Analyzing relative factor inputs of Dutch exports: An application of the 1991 Social Accounting Matrix for the Netherlands, Corvers, Frank and Ted Reininga (1996).
The paper analyses the human and physical capital content of Dutch trade and tests the validity of the controversial Heckscher-Ohlin-Vanek (HOV) theorem of international trade for the Netherlands. The factor content analysis shows that the Netherlands is abundant in machinery and equipment and low-skilled labour and is poor in intermediate and high-skilled labour and construction. These findings are in line with the true Dutch factor endowments. This underlines the relevance of the HOV theorem in the Dutch case.

NA/70 SESAME for the evaluation of economic development and social change, Keuning, Steven J. (1994).
This paper elaborates on the concept of a System of Economic and Social Accounting Matrices and Extensions, or SESAME for short. The SESAME-concept serves to meet the criticism that conventional national accounts take a too limited view at social, environmental and economic development. SESAME details the monetary accounts and couples non-monetary information in an integral system approach. SESAME is meant as a synthesis of national accounts and the social indicators approach.

NA/71 **New revision policies for the Dutch National Accounts**, Den Bakker, Gert P., Jan de Gijt and Robert A.M. van Rooijen (1994).
This paper presents the (new) revision policy for the Dutch National Accounts. In the past, several major revisions of national accounting data have been carried out in the Netherlands. In the course of time, the policy has changed several times. Recently, the aim has become to publish relatively long time-series shortly after the publication of the revised benchmark year data.

NA/72 **Labour force data in a National Accounting framework**, Den Bakker, Gert P. and Jan de Gijt (1994).
This paper deals with the Dutch interwar labour force data. Starting with census data the estimation of the working and non-working labour force by industry and by occupational type is described and the results are discussed. The data have been estimated within the national accounts framework. It is the first time that labour market figures at a meso-level have been estimated which are linked to other national accounting figures.

NA/73 **Integrated estimates of productivity and terms-of-trade changes from a Social Accounting Matrix at constant prices**, Keuning, Steven J.(1994).
This paper demonstrates that measures of real income change for the total economy can best be derived from real income changes per subsector. For this purpose a Social Accounting Matrix (SAM) at constant prices has been compiled. By breaking down value added at constant prices into constant price estimates for each primary input category, productivity changes by industry can be estimated as an integral part of the regular national accounts compilation. The national total trading gain or loss from a change in the terms of trade is as well allocated to subsectors, thus embedding the estimation of this macro-measure into a meso-consistency framework. These ideas have been applied in a case-study for Indonesia.

NA/74 **Taking the environment into account: The Netherlands NAMEA's for 1989, 1990 and 1991**, De Haan, Mark and Steven Keuning (1995).
The National Accounting Matrix including Environmental Accounts (NAMEA) contains figures on environmental burdens in relation to economic developments as reflected in the National accounts. NAMEA's for the Netherlands in 1989, 1990 and 1991 have now been completed. They include a more detailed industrial classification and a series of environment taxes and levies, plus environmental protection expenditures by industry and households. Further, the depletion of two important mineral resources in the Netherlands is now incorporated in the NAMEA's.

NA/75 **Economic theory and national accounting**, Bos, Frits (1995).
This paper describes the relationship between economic theory and national accounting. This relationship is often misunderstood, by economic theorists and national accountants alike. Attention is drawn to the consistency required in a national accounting system, to national accounts figures as a transformation of primary data and to the fundamentally different valuation principles employed in economic theory and national accounting (forward looking and analytic versus backward looking and descriptive). The gap between economic theory and national accounting can only be bridged by satellite accounts, as in these accounts consistency with the overall system and valuation at current exchange value are not strictly required.

NA/76 **An information-system for economic, environmental and social statistics**, Keuning, Steven J. and Jolanda G. Timmerman (1995).
The 1993 SNA mentions that a SAM can also be extended to deal with environmental issues. This entails the integration of a SAM and a NAMEA into a SAMEA (Social Accounting Matrix including Environmental Accounts), a further extension into the direction of a so-called SESAME (System of Economic and Social Accounting Matrices and Extensions). This paper shows how environmental data and environmental indicators can be integrated into such a system. A Dutch case-study shows the interrelations between e.g. the employment of various types of workers (by sex/educational level) and the environmental problems caused by the activities in which they are employed. Moreover, this pollution is also allocated to the subsectors that receive value added. This enables a comparison with the consumption-based pollution by subsector. The SAMEA yields a framework for an integra-ted analysis and modelling of social, economic and environmental issues.

NA/77 **Material flows, energy use and the structure of the economy**, Konijn, Paul J.A., Sake de Boer and Jan van Dalen (1995).
Many environmental problems are connected to production and use of materials and energy. It would therefore be desirable to have an information system that gives consistent, complete and detailed information on material and energy flows. Such a system would even be more useful if it could be connected directly to economic data. This paper presents such a system. Based on the foundation laid by the national accounts the authors construct a system for the analysis of flows of materials and energy through the economy. In this paper the proposed system is illustrated with an application to the flows of iron/steel and energy. An input-output table is presented that describes the production processes in the ferrous metal branch entirely in physical units. Subsequently, steel contents of final products are calculated, and an analysis is made of the consequences of a new technology in the basic steel industry on total energy use in the economy.

NA/78 **Calendar effects on quarterly GDP-growth rates**, Reininga, Ted K. and Brugt Kazemier (1996).
Since 1986 Statistics Netherlands publishes Quarterly National Accounts. The earliest estimates of quarterly GDP, the so-called flash estimates, are published some seven weeks after the reference quarter. In this paper we examine a new, faster flash estimate, some three to four weeks earlier than its original counterpart. The gain is made by using a simple regression technique and incomplete data. To compensate for the lack of data, information on the number of working-days and shopping-days was added to the regression. It turns out that these calendar-aspects significantly affect GDP-growth: 0.30%-points extra GDP-growth for one extra working-day. One extra shopping-day accounts for about 0.17%-points extra GDP-growth.

NA/79 **The NAMEA experience. An interim evaluation of the Netherlands' integrated accounts and indicators for the environment and the economy**, Keuning, Steven J. (1996).
The national accounts publication in the Netherlands contains not only the conventional economic accounts and indicators, but also an integrated system of environmental and economic accounts, the NAMEA (National Accounting Matrix including Environmental Accounts). This paper reports on the present status of the NAMEA-approach and gives a concise summary of this approach. It reviews the present applications of this framework in the Netherlands and, finally, a comparison with the SEEA is made and various common misunderstandings regarding Green National Income are set out.

NA/80 **What's in a NAMEA? Recent results of the NAMEA-approach to environmental accounting**, Keuning, Steven J. and Mark de Haan (1996).
The National Accounting Matrix including Environmental Accounts (NAMEA) shows environmental pressures in physical units that are consistent with the monetary figures in the national accounts. This paper introduces the NAMEA-concept, provides some illustrative analyses of the recently cpmpleted NAMEA time-series, and demonstrates that social accounts and social indicators can easily be intgrated. This results in a fairly broad, multi-purpose statistical information system.

NA/81 **Balance sheet valuation: produced intangible assets and non-produced assets**, Pommée, Marcel and Willem Baris (1996).
This paper deals with the estimation of opening and closing stocks of produced intangible assets such as mineral exploration, computer software and artistic originals and non-produced assets such as land, subsoil assets, patented entities and purchased goodwill. The first section elaborates on the main conceptual issues related to the compilation of stock data such as the asset boundary, the relation between flows and stocks and principles of valuation. The following sections discuss each of the asset categories in detail.

NA/82 Micro-meso-macro linkage for labour in The Netherlands, Leunis, Wim P. and Jolanda G. Timmerman (1996).
This paper describes recent developments in the area of labour market statistics and shows the advantages of integrating these data in the system of Labour accounts and in Social Accounting Matrices. The benefits of such integrated information surpasses the sum of the benefits of various source data. A subsequent effort to adjust the micro data and aggregate figures increases the possible uses of statistics even further.

NA/84 The future of the national accounts, Frits Bos (1996).
This paper investigates the consequences of globalisation, European unification, automation and more market-oriented government for the national accounts as a central international overview-statistic on national economies. The perspective on the future is a mixture of exploiting present and new potentials and coping well with dangers.

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