NEW REVISION POLICIES FOR THE DUTCH NATIONAL ACCOUNTS *

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Summary

The 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 revision policy has changed. In the beginning, revised data for relatively many years were published simultaneously. Later on, new data were published in two steps. Firstly, results for a couple of years and secondly (with a considerable delay) time-series (of modest length). Recently, the revision policy has changed again. The aim is to publish relatively long time-series shortly after the publication of the revised benchmark year data.

Contents

1. Introduction

In the index of the new System of National Accounts 1993 (UN, 1993) the word 'revision' does not appear. In the text of the 1993 SNA the word does occur, but only in the sense of the revision of the System of National Accounts itself. Although revisions of SNAs are one of the motives to revise national accounting data, the ins and outs of revisions are not discussed. The fact that a session of the Twenty-third General Conference of the International Association for Research in Income and Wealth is devoted to Policies for Revisions of National Accounts is an indication that the revision of national accounts is a problem with no clear answers.

The fact that the SNA does not discuss revisions of national accounting data is probably one of the reasons that different revision policies occur in different countries. This concerns differences with regard to the frequency, the choice of the benchmark year to be revised and the frequency and the level of detail at which the benchmark year is revised, the length and detail of the time-series and the publication policy (publication of a revised year as soon as the results for that year are available, followed by the revised time-series, or publication of benchmark year results and time-series together).

In the Netherlands, official national accounting data are available from 1900 onwards. In the course of time, national accounts were revised repeatedly. Among the reasons for these revisions were availability of new basic data, improved estimation methods and changes in concepts. Initially, a revision concerned a revision of a 'revision year'. For that year, data were compiled both according to the original methods and according to the revised ones. Usually, a revision is followed by a recomputation for a number of years prior to the revision year. Thus consistent time-series of a moderate length are obtained.

However, it was not possible to carry out these revisions for the whole period from 1900. Consequently, the data consist of series for a number of separate subperiods, each with their own definitions, methods and level of

detail. At present, there are consistent time-series of Dutch national accounting data available for the periods:

a. 1985-present;[1]

b. 1969-90 and 1921-39 (1990 and 1989 provisional figures);

c. 1948-69;

d. 1938, 1946-49 (1948 and 1949 provisional figures);

e. 1940-45, only net national income at factor costs, figures consistent with (d);

f. 1900-1920, only domestic product and national income data.

In order to allow users to make linkages, the data for the borderline years are given twice: both according to the methods and concepts of the period before the revision and according to those of the subsequent period. This is done for current price data. In the case of volume and price data, the problem of intertemporal consistency is sidestepped by providing annual changes instead of constant price values or indices based on a fixed reference year. The latter are affected far more by changes in definitions and concepts than the annual changes are. For instance, in case of annual changes, the choice of the index number formulae has less influence on the outcomes than in case of fixed weighting schemes. Nevertheless, many users of national accounting data are interested in long-period comparisons. To facilitate these, the annual changes of prices and volumes have been chained in order to obtain chain indices for a limited number of years.

Of course, 'short period' revisions with time-series of moderate length are no real solution to the problem of the absence of long consistent time-series. The only way to achieve the latter is to revise the data for historical periods. Some years ago, Statistics Netherlands has begun to do so. These historical revisions cannot be done in such great detail as the 'short-period' revisions, nor as quickly. This would require too many resources. Therefore, only the most important inconsistencies are removed and each period is tackled separately, the results being published whenever they become available. The first period was 1921-39.

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1. The year 1985 is part of the revision for the period 1969-85, which is currently carried out. However, the 1985 results have already been published.

In Van Bochove (1987) the revision strategy of Statistics Netherlands is described:

'The gradual evolution of the national accounts and the integrative nature of the system have significant consequences for the dynamics of the national accounting data. Changes in underlying statistics, changes in classifications, changes in the definitions, and so on lead to the need to revise methods and concepts; this, in turn, leads to inconsistencies in time-series. Moreover, the fact that the national accounts integrate data from so many individual statistics leads to lags in the availability of the national accounting data. But these are too important to be available with lags of more than two years. Therefore, a system of short-term and provisional data has been designed, as well as a strategy for revising final data.'

The most timely national accounting data are monthly data, not integrated but compiled according to national accounting concepts. Next to these come the quarterly accounts and the provisional and revised provisional annual accounts. Afterwards, final national accounting data are available two and a half years after the reference year.

However, nothing is final in national accounting. After the final accounts have been published, gradually a large number of corrections piles up that one would want to make. However, to correct the data for just one year would break the consistency of the time-series, because usually preceding years have to be corrected as well. But it is too expensive to revise the whole time-series annually. Therefore, a revision strategy has been adopted that ensures continuity of time-series, adequate revisions and a manageable workload.[2]

The Dutch revision strategy starts with the basic rule that rates of change are more important than levels. Thus, if for a given year corrections are found to be necessary in the level of a variable, they are not carried out immediately; but the data for the next year are determined in such a way that the rate of change is as correct as possible. This may

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2. For more details on the revision strategy of the CBS, see for instance Algera, Mantelaers and Van Tuinen, 1982, and Van Bochove, 1987.

imply that the levels of the variables for the most recent year are consciously adjusted to be 'wrong'. After a number of years, these errors cumulate and a large scale revision is made (say, once every five to ten years). In these revisions, concepts, classifications and so on are also changed if desirable or necessary. Immediately after such a revision, revised time- series of a limited length are published. Thus the revision, pertaining to 1977, has been calculated backwards to 1969.

After the completion of the revision of the benchmark year 1987 a new revision policy was formulated. A project was set up with the aim to compile relatively long time-series of relatively detailed national accounting data within a relatively short period. This is only possible if the level of detail is less than in the regular national accounts publication. After the completion of the project consistent time-series of national accounting data from 1969 to present will be available. The project, which is still in progress, will be described in section 3.

The next section presents revisions carried out in the past. In section 3 the present revision is described and in section 4 some provisional time-series results are presented. Some concluding remarks are given in section 5.

2. Revisions in the Past

2.1. Introduction

In the course of time, several major revisions of national accounting data (see table 1 for some quantitative results) have been carried out in the Netherlands. These revisions are, in chronological order of publication:

- Revision 1948-57, comparable data for 1948-57, published in 1958;
- Revision 1968 SNA, comparable data for 1960-72, published in 1973;
- Revision 1977, comparable data for 1977-80, published in 1981;
- Revision 1921-39, comparable data for 1921-39, published in 1987[3];
- Revision 1987, comparable data for 1987-91, published in 1992.

Table 1. The effect of revisions of national accounting figures

	Gross Domestic Product at market prices			Net National Income at market prices		
	Before revision	After revision		Before revision	After revision	
	mln gld		%	mln gld		%
Revision 1948-1954						
1948	15440	15013	-2.8	14240	13535	-5.0
1954	26030	26738	+2.7	24310	24657	+1.4
1968 SNA revision						
1969	103359	101715	-1.6	95289	93797	-1.6
Revision 1977						
1977	261410	274930	+5.2	237760	251100	+5.6
Revision interwar period						
1921	6236	5679	-9.0	5780	5777	-0.1
1938	5624	5446	-3.2	5395	5399	+0.1
Revision 1987						
1987	430170	440580	+2.4	383960	390890	+1.8

In the next section, six revisions of Dutch national accounting data are described. Besides, some minor or 'tacit' revisions are mentioned. The latter concerns 'low profile' revisions. Not discussed are revisions which were carried out without an 'accompanying letter'. Only by comparing the figures in successive publications it was possible to recognize the corrections. However, this 'revision policy' was seldomly used and concerned only very minor corrections.

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3. This concerns macro-economic data. Detailed figures may be published in 1994/95.

2.2. Policies and Some Results of Earlier Revisions

In 1948 (CBS, 1948), the first revision of Dutch national accounting data
(referring to the years 1921-39) was published. This publication replaced
the first official national income estimates (CBS, 1939). Both the
estimates by the income and the production method were corrected. The time-
series were published in one run.

In 1954 (CBS, 1954), revised figures for 1938 and 1946-52 were
published. This second revision encompassed both new estimates (better
basic data had become available) and changes in definitions. In the
introduction to the publication it was mentioned that the development of
the system of national accounts had reached a phase, both nationally and
internationally, in which no great changes were to be expected in the
coming years. Explicitly, the CBS revision policy was mentioned:
comparability over time had a higher priority than the accuracy of the
level estimates.

In 1955 (CBS, 1955), corrections of earlier published figures were
carried out. These corrections concerned, amongst others, recalculations of
fixed capital formation and the change in stocks. In this publication, the
royalties etc. received from the rest of the world were booked as exports
of services (so far, they had been booked as income from abroad). The
corrections were not announced as a revision but in fact they were a
revision. It is remarkable that the corrections were carried out only one
year after the publication of the last revision.

In 1958 (CBS, 1958) a complete revision of the national accounts for the
years 1948-57 was published. This can be considered as the third revision.
The years 1946 and 1947 were left out because they were too much influenced
by the war. Therefore it was decided that these years should be deleted
from the time-series for use in economic model-building. The explicit
purpose of the revision was to obtain time-series which were fully
comparable as regards accuracy, definitions and classifications. New basic
statistics made it possible to improve upon the estimates. The
international definitions as given in the publications of the United
Nations (United Nations, 1953) and the OEEC (OEEC, 1952) were now

completely implemented. Finally, new and more detailed classifications were worked out. These were needed for purposes of domestic economic policy and for submission to international agencies. The 1948-57 revision resulted in higher growth rates of national income and final private consumption expenditure.

From the reporting year 1969 onwards the Dutch Standard Classification of all Industrial Activities was used (introduced in the National Accounts 1971 (CBS, 1972), together with time-series as from 1960.

In the National accounts 1972 (CBS, 1973) the definitions of the transactions and the aggregates have been adapted to the 1968 SNA and the 1970 European System of Integrated Economic Accounts (Eurostat, 1970). The sectorial breakdown remained unchanged and the industrial breakdown still followed the Dutch Standard Classification. Time-series of detailed data were presented for the years 1960-72. This SNA revision was the fourth revision of national accounting data in the Netherlands.

The 1980 National Accounts (CBS, 1981) contained the 1977 revision. This fifth revision was needed because the years prior to 1977 were ones of major extensions and improvements of the statistics on which the national accounts were based. The extensions primarily involved a number of new statistics in services (e.g. medical services, business services, hotels, cafés and restaurants), while improvements particularly concerned a far better co-ordination of existing statistics (for instance, the general implementation of the Dutch Standard Classification of all Industrial Activities). The 1977 revision resulted in an increase of the gross domestic product at market prices by 13,500 million guilders, or 5.2%. In 1985 (CBS, 1985), four years after the publication of the revised benchmark year 1977, revised time-series for 1969-76 were published, fully comparable with the revised 1977 estimates. The revised input-output tables for these years then also became available on machine-readable tape.

The sixth revision is in a way a special one. It concerns a revision of historical national accounting data. As already mentioned in chapter 1, several years ago, Statistics Netherlands embarked on a project dealing

with the compilation of long consistent time-series of national accounting data. In this project, each period is tackled separately, the results being published whenever they become available. The first period to be revised was the interwar period. In the revision of the 1921-39 data, the concepts and methods that were in use before the 1987 revision have been applied. Moreover, new series have been compiled. The first results of this revision have been published (see, for instance, Den Bakker, Huitker and Van Bochove, 1990).

3. **The Present Revision**

3.1. **Methodology of the Present Revision**

The methodology of the present revision can be summarized as follows:

- Detailed revision of the 1987 benchmark year, reconciliation of data within a framework of supply and use matrices;

- Compilation of time-series backwards to 1977 and afterwards to 1969, reconciliation of data on the basis of input-output tables.

The compilation of the time-series concerns:

- Integration of current price data within an input-output table (59 economic activities, domestic production plus imports);

- Input-output tables are compiled for all years, starting with 1985 and backwards to 1969;

- Analysis of the resulting time-series and if necessary corrections of the series;

- Simultaneous compilation of figures in current and in constant prices;

- Integration of constant price data within an input-output table (22 economic activities, domestic production plus imports).

The present revision started with a detailed revision of the benchmark year 1987. The results were published in 1992 (CBS, 1992). This revision is characterized by a greater emphasis on the institutional aspects of the system, particularly when recording goods and service transactions and the generation of income. From this revision onwards, aggregation and integration of the basic data is based on the supply and use matrices (instead of the input-output tables), estimated both in current and in constant prices. This allows for a better link to basic statistics and for a more sophisticated comparison and mutual balancing of data from different sources. Over the period 1978-1987 a number of new sources have become available and some existing sources have become more complete. For instance, in this revision a better use is made of data from CBS surveys on household consumption expenditure and on gross fixed capital formation. It is also the first occasion in which the production statistics for trade have been utilized.

With respect to income transactions, considerably more information has become available since the 1977 revision. This particularly concerns the Business Finance Statistics compiled over the years 1977-1985. This statistic provides detailed data on the profit and loss accounts and the balance sheets of non-financial enterprises. Independent income estimates were arrived at by combining these data with information on sole proprietorships and partnerships obtained from production statistics. In fact, this meant a partial rehabilitation of the income method in compiling the Dutch national accounts.

Besides, various changes in definitions and concepts were carried through. Examples are changes from net to gross and from gross to net registration. Registration of indirect taxes changed from cash basis to accrual basis. Another example of a specific change concerns an improved estimation of imports and exports of services. For a description of the 1987 revision see, for instance, Van den Bos and Al (1994). For a detailed description of the compilation of the final estimate of Dutch GNP after the 1987 revision, see Bos and Gorter (1993).

After the detailed revision of the 1987 benchmark year, time-series backwards to 1969 are now being compiled. The data for the year 1986 were estimated in the same way as the data for 1987, thus, for instance, with supply and use matrices as an integration framework. The compilation of the time-series started with an analysis of the 1987 and 1986 data before and after revision on an industry level. On the basis of this analysis, it was decided that, as much as possible, branch specialists had to be involved in compiling the time-series backwards to 1977.

A plain extrapolation of the 1987 revision corrections backwards to 1977 is to be avoided, unless detailed information is not available. With regard to the time-series 1969-76, extrapolation methods will be used more frequently for several reasons. Firstly, there are not enough resources for a continued, detailed year-by-year revision available. Secondly, the revision corrections become smaller back in time, see chapter 4. The relatively small revision corrections don't justify a great effort of the national accounts staff. Thirdly, the extrapolation method leads to results

relatively quickly.

In the compilation of the time-series 1969-85, computerization plays an indispensable role. For the storage, processing, integration and analysis of data completely new software has been built by the project group. Without this software it is not possible to make the detailed long time-series within a short period.

An important difference between the revision 1969-85 and the revision 1969-77 is that in the earlier revision, all corrections were made on the figures available in the input-output tables before revision. In the present revision, all new data are re-integrated, starting from scratch. Only, a separation of the origin of transactions into domestic and foreign is done more or less mechanically.

Since the 1987 revision, an new method is used to estimate the volume growth of government value added. This method takes into account changes in the labour productivity of government employees. Changes in wages and salaries can be split up into a compensation for inflation and a compensation for productivity changes. A proxy for the first component is the index of basic wage rates according to collective agreements. The latter is used to deflate value added of the government. The introduction of the new method had a substantial impact on the growth rates of government value added. For example, for the years 1988-91 this growth rate is, on average, about 1.5 percentage point higher than on the basis of the old method and GDP growth is about 0.1 percentage point higher. For a description of the new method, see Kazemier (1992).

3.2. Estimation Methods of the Time-series

In this section, the estimation method for the current price time-series is described. However, these figures were estimated in relation with the estimates for the growth rates and the deflators. The estimation of the growth rates and the deflators is described in section 3.3.

The estimation method consists of two stages. Firstly, revised estimates

have been made by the branch specialists of the National accounts
department. Secondly, these estimates have been integrated, in consultation
with these specialists.

All corrections estimated for the 1987 benchmark year have also been
estimated for the years 1985-77. The cornerstones of this estimation
process are the new estimates by industry, made by the branch specialists.
These estimates have been made for all years and for each of the 59
industries. The specialists provided the following revised data:
- The value of total output;
- The value of total intermediate inputs, in some cases specific input
  items were provided;
- Gross value added at market prices;
- Wages and salaries;
- Operating surplus/mixed income.

This means that the knowledge of the specialists about the particular
nature of industries is very important. This procedure is preferable to a
method which heavily relies on extrapolation of the revision corrections of
the benchmark year. Of course, the latter method is less labour intensive.

Specialists on final expenditure provided data per product group for:
- Household consumption;
- Government final consumption;
- Fixed capital formation;
- Exports of goods and services;
- Imports of goods and services.

Besides, data on indirect taxes (value-added tax, excises etc.) and on
subsidies have been provided by the specialists.

The compilation of the input-output tables is done in two stages. In the
first stage, the data provided by the specialists are put in the columns of
the table. Data on final expenditure by origin are considered to be
relatively hard information. This means that the domestic production and
imports being 'known', for every row of the table a preliminary estimate of

the supply of intermediate inputs can be compiled.

In the next stage, the integration of the figures provided by the specialists took place. The integration process started by checking the data supplied by the specialists. Firstly, the completeness (e.g. coverage of all industries) and the correctness (e.g. valuation) of the data was checked. Secondly, the plausibility of the data: total output, intermediate inputs, value added and its components. An important check concerns a comparison of yearly rates of changes before and after the revision.

Afterwards, given total intermediate inputs by industry, intermediate inputs are specified by industry of origin. This is done column by column. For every input item, an estimation method has been determined. There are three possibilities:
- The annual change of the input item equals the change before revision;
- The annual change equals the change in total intermediate inputs of the column involved, after revision;
- The annual change equals the input, disposable for intermediate consumption, after revision.

The next step is to balance every column. This is done by the integration experts. In some cases, specific intermediate inputs were provided by the specialists. If necessary, the calculation method for the inputs were changed. In fact, this means that the input structure was adjusted.

In the final stage, the balanced columns are put together into the input-output framework. Of course, supply and use is then still not balanced. Next, all data are integrated.

In the integration process the major statistical decisions are taken by experts on the basis of their knowledge of the statistical system and the Dutch economy. Remaining, small differences between supply and use are eliminated with a RAS-method.

The input-output tables are then submitted for approval to the

specialists. They compare the final estimates after integration with the data they provided. They judge the levels, the annual changes and the whole time-series. This can lead to a final round of corrections.

In compiling the time-series 1977-1985 both the production and the income method were used. The first estimates from both methods showed considerable differences. This led to detailed analyses and changes of the estimates of both the income and the production method. It is no exaggeration to say that in this revision project the income method has been rehabilitated.

3.3. Estimation of Growth Rates and Deflators

In the revision, growth rates and deflators have been estimated in relation with the estimates in current prices. There was a feed-back between the estimates of the growth rates and the estimates in current prices. In some cases, analysis of the growth rates and the deflators led to the conclusion that the estimates in current prices had to be corrected.

Immediately after the provisional input-output tables in current prices were finished, input-output tables in prices of the previous year were compiled. However, the aggregation level was higher: 22 industries.

To begin with, matrices of deflators were calculated from the input-output tables in current and in previous-year prices before revision. With the help of these matrices the revised input-output tables in current prices (aggregated to 22 industries) were deflated. Afterwards, the resulting matrices of data in prices of the previous year were integrated to give input-output tables in prices of the previous year.

In the integration, an important role was played by the matrices of revised volume mutations, which were calculated from the deflated input-output tables and the current price input-output tables. The plausibility of these volume mutations was checked and compared with the figures before the revision. The plausibility of the input-output ratios in constant prices was also important in the integration process. In a few cases (for

example agriculture, imports and exports), volume mutations have been estimated by specialists.

3.4. Organization and Time-table

For the revision of the national accounting data 1969-85 a project group was set up at the end of 1992. This group is responsible for the co-ordination, the integration process, the time-series results and the publication of the results. This group consists of, on average, five persons. The group started in January 1993 and was set up for two years. Besides, many staff members (about 50 persons) of the National Accounts Department are involved: branch specialists and specialists of final expenditure categories, value added components and employment.

A steering committee was set up, consisting of chiefs of the National accounts divisions involved in the project and the project manager. The steering committee is responsible for the realization of the aims of the project and the time-series results.

As mentioned before, the aim of the project was to compile long time-series of national accounting data in a relatively short period. The time-table of the revision project is as follows:
- Publication of the 1985 figures in the publication National Accounts 1992 (September 1993);
- Publication of time-series 1977-85 medio 1994;
- Publication of time-series 1969-84 ultimo 1994, including an explanation of the methods and an analysis of the results.

The aim of publication of the 1985 data in September 1993 was reached. The publication of the time-series may be delayed for some months.

4. **Time-series Results**

At this moment, the results of the revision of the years 1977-84 are still provisional. To give an impression of the quantitative results of the revision provisional macro-economic aggregates are presented in the tables A1 and A2 of the appendix.

In general, the revision corrections of the macro-economic aggregates are getting smaller backwards in time, with the smallest corrections in the early 1980s. For instance, in the benchmark year 1987 the correction of the gross domestic product at market prices (GDP) was 10410 mln gld, that is 2.4%.[4] In 1982, the GDP correction was 4058 mln gld (1.1%) and in 1977 the correction was 3880 mln gld (1.4%).

The final consumption expenditures of households were raised by 1.5% in 1987, 0.6% in 1981 and 1.7% in 1977. The corrections of fixed capital formation range from 5.0% in 1987 to 3.7% in 1977.

The corrections of imports and exports are negative. These corrections are also getting smaller backwards to 1977.

In the Netherlands, the national accounting data are estimated in such a way that the rate of (annual) change is as correct as possible (see chapter 1). This is reflected in table A3 of the appendix which shows the annual mutations of the macro-economic aggregates before and after revision. In general, the GDP annual mutation after revision is higher than before revision. This is partly a consequence of the new estimation method of productivity in general government, see section 3.1.

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4. In this paper relative corrections are expressed as a percentage of the average of the before and after revision levels.

5. Conclusions

In this paper the successive revision policies of Statistics Netherlands were described. The changing Dutch revision policy reflects in a way the fact that there are two archetypes of revision policies:
- 'Short period' revisions: a revision of a benchmark year, followed by time-series of moderate length;
- 'Long period' revisions: a revision of a benchmark year followed by time-series backwards to the very first year with national accounting data.

In the Netherlands, the first revisions were of the 'long period' type. Of course, the choice of such a policy was relatively easy because the time-series of national accounting data were not that long in the early days of national accounts and the system of national accounts was relatively simple. But still, the first revision concerned the years 1921-39: time-series of nineteen years.

In the course of time, the revisions became more and more 'short period' revisions. For instance, the revision with 1977 as a benchmark year was followed by time-series backwards to 1969: time-series of nine years.

The last revision with 1987 as a benchmark year, is followed by time-series back to 1969: time-series of nineteen years. This is again more of the 'long period' type. Besides, recently, Statistics Netherlands has revised the national accounting data for the interwar period which makes the times-series longer. However, there is still a gap between 1939 and 1969.

After the 1987 revision, the Dutch estimate of GNP at market prices complies with the concepts in the European System of Integrated Economic Accounts (ESA). An exception is the calculation of value added of some types of non-market production. Besides, on specific practical issues, there are some small imperfections, see Bos and Gorter (1993).

In due time, the statistical description of the economy improved considerably. This is an explanation for the fact that, in general, the

quantitative corrections of the macro-economic aggregates, because of revisions, became smaller. For instance, the revision of the benchmark year 1977 resulted in a GDP correction of 5%. The revision of the benchmark year 1987 gave a GDP correction of 2.4%. However, at a meso-level the revision corrections are sometimes substantially greater.

The revision of the years 1977-87 led to a rise of most of the macro-economic aggregates. Imports and exports are lower after the revision. This is mainly caused by the net registration of many processing transactions. Final consumption expenditure of general government is lower after revision. This is the net result of a great number of corrections.

This paper started with the observation that different revision policies are used in different countries. This obscured comparisons of national accounting data across countries. For the European countries there is a special need to harmonize revision policies.

Since 1988, the member states of the European Community have to compile GNP data in accordance with the ESA definitions. These GNP estimates (fiscal GNP) are the basis for the calculation of the countries' contributions to the Community. For this purpose, mainly levels of GNP are of interest. This implies that in between two revisions, statistical GNP may not be equal to fiscal GNP, strictly speaking. These differences between the statistical and the fiscal GNP will disappear when a revision of the national accounts is carried out in such a way that the revised GNP for fiscal purposes is the same as the revised GNP for statistical purposes. For the Netherlands, such a revision is scheduled for the reference year 1995. Until the reference year 1995, the data to estimate the fiscal GNP will be sent to the European Community, but - because of the Dutch revision strategy - they can not immediately result in new estimates of the statistical GNP.

Probably, from the reference year 1996 onwards, fiscal GNP will deviate from the statistical GNP again, because new fiscal GNP requirements will not be incorporated into the statistical GNP estimates before a next revision. The Dutch point of view is that no continual revisions can be

carried out for fiscal purposes.

In the future, all countries of the European Community should follow the same revision policies to achieve that changes will be introduced at the same time into all databases and publications. Only in that case, fiscal GNP and statistical GNP can be completely harmonized.

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Table A1. Macro-economic aggregates, revision corrections as a percentage of the average before and after revision levels[1]

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
%											
Gross domestic product, market prices	1.4	1.2	1.2	1.4	1.5	1.1	1.6	1.3	1.7	2.1	2.4
Wages and salaries	1.8	1.6	1.4	1.3	1.4	1.5	1.5	1.9	2.3	2.7	3.3
Employers' social contributions	2.0	2.5	2.8	2.6	2.8	2.6	2.5	2.5	2.2	2.9	2.4
Indirect taxes	7.7	4.6	5.9	2.2	1.5	4.3	3.2	4.3	3.6	4.5	3.6
Subsidies (-)	34.9	32.6	24.2	22.3	22.6	21.4	20.8	18.6	18.5	19.0	18.4
Operating surplus/mixed income	0.7	1.3	0.5	2.6	2.6	0.6	2.5	0.9	1.8	1.8	2.7
Imports (cif)	-1.4	-1.1	-1.2	-1.4	-1.2	-2.5	-2.8	-2.8	-3.0	-3.6	-2.7
Disposable for final expenditure	0.5	0.5	0.4	0.5	0.5	-0.1	0.1	-0.2	-0.0	0.2	0.7
Final consumption expenditure	0.9	0.8	0.8	0.4	0.1	0.7	0.9	0.9	1.4	1.0	1.0
Households	1.7	1.6	1.5	1.0	0.6	1.1	1.4	1.5	2.1	1.6	1.5
General government	-2.1	-2.1	-1.7	-1.7	-1.6	-1.0	-0.7	-1.1	-1.2	-1.2	-1.2
Fixed capital formation (gross)	3.7	3.5	3.1	3.1	3.6	3.4	3.9	3.9	4.2	3.6	5.0
Enterprises	3.6	2.6	1.8	2.0	2.5	2.1	3.1	2.9	3.2	3.3	4.1
General government	4.4	8.2	10.2	9.1	9.0	10.0	8.3	9.6	10.1	5.7	11.4
Increase in stocks											
Exports (fob)	-1.6	-1.1	-1.2	-1.3	-0.9	-2.0	-2.3	-2.4	-2.6	-4.7	-3.3
Total final expenditure	0.5	0.5	0.4	0.5	0.5	-0.1	0.1	-0.2	-0.0	0.2	0.7

1. Provisional figures.

Appendix. Macro-economic data before and after revision

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Table A2. Macro-economic aggregates before and after revision, annual mutations[1]

	1978 Before revision	1978 After revision	1979 Before revision	1979 After revision	1980 Before revision	1980 After revision	1981 Before revision	1981 After revision	1982 Before revision	1982 After revision	1983 Before revision	1983 After revision	1984 Before revision	1984 After revision	1985 Before revision	1985 After revision	1986 Before revision	1986 After revision	1987 Before revision	1987 After revision
%																				
Gross domestic product, market prices	8.0	7.8	6.4	6.4	6.6	6.8	4.8	4.8	4.5	4.1	3.3	3.8	5.0	4.7	4.5	4.9	2.5	2.9	0.4	0.7
Wages and salaries	8.5	8.2	7.1	6.9	6.1	6.0	2.0	2.1	3.3	3.4	-0.3	-0.3	0.5	0.8	3.5	3.9	4.1	4.6	3.4	4.0
Employers' social contributions	7.7	8.3	9.4	9.6	7.5	7.3	1.5	1.7	1.7	1.5	5.5	5.4	-0.7	-0.7	2.3	2.0	3.2	3.9	1.9	1.4
Indirect taxes	10.8	7.3	5.1	6.6	7.1	3.2	1.6	0.9	2.4	5.3	5.7	4.6	6.5	7.7	5.4	4.7	6.2	7.2	6.9	5.9
Subsidies (-)	16.3	13.5	20.6	10.7	5.7	3.7	-2.9	-2.5	14.9	13.5	12.9	12.1	13.5	11.1	6.4	6.3	3.6	4.2	21.9	21.2
Operating surplus/mixed income	7.1	7.6	5.6	4.8	6.6	8.8	10.8	10.8	8.7	6.5	6.8	8.9	12.7	10.9	6.0	7.0	-0.4	-0.4	-3.7	-2.9
Imports (cif)	4.6	4.9	17.6	17.5	14.0	13.8	7.6	7.8	2.4	1.1	4.3	3.9	11.0	10.9	7.8	7.6	-13.2	-13.8	0.1	1.0
Disposable for final expenditure	6.9	6.9	9.9	9.8	9.0	9.1	5.8	5.8	3.8	3.1	3.6	3.9	7.1	6.8	5.7	5.8	-3.3	-3.1	0.3	0.8
Final consumption expenditure	9.2	9.2	7.7	7.7	6.6	6.2	3.7	3.4	4.0	4.5	3.3	3.5	2.3	2.3	4.0	4.5	3.0	2.6	3.0	3.0
Households	9.0	9.0	7.4	7.3	6.9	6.4	3.6	3.2	4.0	4.6	3.6	3.8	3.0	3.1	4.6	5.2	3.4	2.9	3.0	3.0
General government	9.9	9.9	8.7	9.1	5.4	5.5	4.1	4.2	3.8	4.5	2.2	2.5	-0.3	-0.6	1.9	1.8	1.3	1.3	3.0	3.0
Fixed capital formation (gross)	9.3	9.0	5.0	4.7	6.5	6.5	-4.5	-4.1	-0.6	-0.8	3.4	3.9	7.0	7.0	8.0	8.3	7.4	6.8	1.1	2.5
Enterprises	10.4	9.3	5.6	4.8	5.5	5.7	-5.6	-5.1	0.1	-0.2	4.8	5.8	6.5	6.3	9.8	10.2	9.1	9.2	1.7	2.5
General government	3.9	7.9	1.7	3.7	11.9	10.7	1.2	1.1	-4.3	-3.4	-4.0	-5.7	9.8	11.2	-2.2	-1.7	-3.4	-7.6	-3.1	2.6
Increase in stocks																				
Exports (fob)	2.0	2.4	16.3	16.2	14.0	13.9	15.7	16.1	3.9	2.8	3.4	3.0	13.1	13.0	6.8	6.6	-12.4	-14.2	-2.5	-1.2
Total final expenditure	6.9	6.9	9.9	9.8	9.0	9.1	5.8	5.8	3.8	3.1	3.6	3.9	7.1	6.8	5.7	5.8	-3.3	-3.1	0.3	0.8

1. Provisional figures.

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).

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

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

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

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

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

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

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

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

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

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

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

NA/27 Registration of trade in services and market valuation of imports and exports in the National Accounts, Bos, Frits (1988).
The registration of external trade transactions in the main tables of the National Accounts should be based on invoice value; this is not only conceptually very attractive, but also suitable for data collection purposes.

NA/28 The institutional sector classification, Van den Bos, C. (1988).
A background paper on the conceptual side of the grouping of financing units. A limited number of criteria are formulated.

NA/29 The concept of (transactor-)units in the National Accounts and in the basic system of economic statistics, Bloem, Adriaan M. (1989).
Units in legal-administrative reality are often not suitable as statistical units in describing economic processes. Some transformation of legal-administrative units into economic statistical units is needed. This paper examines this transformation and furnishes definitions of economic statistical units. Proper definitions are especially important because of the forthcoming revision of the SNA.

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

NA/31 The use of tendency surveys in extrapolating National Accounts, 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 employ-- ment 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/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, conceptual issues and results, (forthcoming) Timmerman, Jolanda (1994).
In this paper a Social Accounting Matrix (SAM) for the Netherlands is presented. Two years are covered: 1988 and 1990. The SAMs integrate statistics on the distribution of income, and consumption expenditure among various household groups in a national accounts framework. Simultaniously, labour income and employment are disaggregated into several labour categories.

NA/69 Analyzing relative factor inputs of Dutch exports: An application of the 1990 Social Accounting Matrix for the Netherlands (forthcoming), Reininga, Ted (1994).
In this paper the validity of neoclassical trade theory for explaining Dutch international trade patterns is studied. The analysis is carried out with the use of a Social Accounting Matrix for The Netherlands. This study corroborates the outcome of other recent analysis in this field: classical trade theory offers a better starting-point to understand Dutch trade patterns than neoclassical trade theory. Moreover, these recent studies point to the increasing relevance of insights derived from modern trade theory. The results presented here seem to support this point of view.

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.

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