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# Consistency and Beyond

## Improving Quality of National Accounts Estimates in Practice

Preliminary version

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## CONSISTENCY AND BEYOND

*Summary: The macro-economic estimates emanating from national accounts are of major importance. Consistency is the key word in national accounts statistics but consistency is not a guarantee for good quality. Adjustments and extensions of the system can improve the quality of the estimates. Moreover several additional quality measures can be taken. All of these actions are all the more necessary, because of the increasing complexity of economic reality. This paper refers to national accounts practice in the Netherlands.*

*Keywords: National Accounts, Quality, Consistency*

### 1. Introduction

The importance of national accounts figures like Gross Domestic Product (GDP) and Gross National Income (GNI) can hardly be overestimated. The figures continue to be relevant for national economic policy purpose but the international (European) dimension has become immensely important. Again for economic policy reasons, Brussels (European Commission) and Frankfurt am Main (European Central Bank) are very keen on these figures and on faster and more detailed statistics. Besides this use, DG-budget of the European Commission calculates part of the contribution of the member states on the basis of the estimate of Gross National Income. This so-called fourth own resource amounted to some 41 billion euro in 2002, about 43 percent of the total receipts of the European Union. Also on the expenditures side macro-economic figures play an important role. About 35 percent (or 33 billion euro) of the total expenditures of the European Union in 2002 was destined for the Structural funds. Part of this amount is allocated on the basis of Gross Domestic Product per region.

In this light, it is obvious why the topic of quality<sup>1</sup> of national accounts figures is found so important. National Statistical Institutes but especially international organizations like Eurostat, IMF and UN are active in this field. Because of the administrative use of the national accounts figures, also the European Court of Auditors is engaged in this subject.

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<sup>1</sup> For this paper the meaning of the word quality is narrowed down to the aspects reliability and accuracy. Reliability is the extent to which provisional estimates of a statistics predict the final estimates. Accuracy refers to the extent to which the final estimates of a statistics describe reality.

There is an extra reason to raise the efforts on the subject of quality. The national accounts are supposed to give a comprehensive and systematic, quantitative description of economic phenomena in a country. Economic reality, which is tried to be captured in the national accounts, however, evolves rapidly in a way that makes statistical monitoring more complicated. Or to put it in a positive way, the work of statisticians gets more challenging. What are those changes? First of all the increasing importance of services in our western society. Transactions of services are by their nature more difficult to measure than transactions of goods. More than 70 percent of Gross Value Added in the European Union is generated by services.

Secondly, the increased speed of changes in the economy. Companies are faster set up, removed or closed down than in earlier days. Also the scope (type of industry) of companies can change rapidly. These are all circumstances why statisticians easily can miss economic transactions or value them not correctly.

The third complicating trend is of course the globalization. The increased economic relations with other countries (and at the same moment the lack of detailed data on cross border trade because of the disappearance of the internal borders in the European Union) are a real challenge for statisticians. Especially the transactions of multinational firms are very complex to observe and interpret. With the increased possibilities in the field of IT and Internet, traditional geographical ties are completely lost. A consumer or a company can buy a product on the Internet. The sales are managed from country A, the product is shipped from country B and the invoice comes from country C. The head office of this multinational firm may very well be located in yet another country. Internal transactions in this multinational firm must be valued for national accounts purposes. Numerous obstacles and pitfalls for compiling good national accounts statistics.

Consistency is good but not good enough, that is for short the message of this paper. The national accounts estimates are compiled in a system with several consistency rules. This works as a sort of safeguard for the quality of the estimates. The amount of a certain good or service that is produced and imported, must be used in one way or another, intermediate or final. The aspects of the different consistency rules are discussed in paragraph 2. Paragraph 3 treats adjustments and extensions already implemented or planned for the Dutch national accounts. Some additional quality measures taken or planned are discussed in paragraph 4 and paragraph 5 contains the conclusions.

## 2. Consistency of national accounts

Consistency is a great advantage of the national accounting system over a loose collection of partial statistics. The different parts of the latter statistics may be consistent within themselves, but need not to be (and rarely are in practise) mutual consistent. Due to consistency, figures can be related to each other throughout the whole accounting framework. This guarantees that ratios derived from the framework are consistent. Examples of such ratios are: value added per hour worked, national disposable income per capita and government debt as a percentage of domestic product.

There are different aspects to consistency, four of which are worth mentioning here.

Firstly it is of importance that the figures of the national accounts are consistent, i.e. they have to satisfy a set of basic well-known identities. To give an example: for each product distinguished in the national accounts total supply (from imports and national production) must equal total use (intermediary and final consumption, export, capital formation and change of stocks). This rule applies for the value as well as for the volume of the products. This type of consistency also allows us to check both our basic sources and the reliability of national accounts estimates. In the above example one can calculate final consumption as the difference between domestic production and net export of the product (assuming neither intermediate consumption nor capital formation for this product). This figure could be compared with the consumption figures from the Household Budget Survey.

Secondly, underlying concepts and definitions in the national accounts system have to be consistent. If, for example, own-account production of housing services is recorded as production (as is the case according to ESA95), so has the income and final consumption expenditure it generates for these owner-occupiers. Of course, the reverse also holds. For example, since domestic services produced and consumed in the same household are not considered to be production and final consumption in national accounts, there is also no employment involved.

The two remaining items are consistency in time (important for meaningful time-series) and in space (i.e. consistency between countries). Since the Second World War a lot of effort has been made to compile meaningful international guidelines to assure the comparability of national accounts results from various countries. This has resulted in a worldwide set of rules (the 1993 System of national accounts or SNA) and a European set of rules (the 1995 European system of accounts or ESA). Although the latter specifically focuses on the circumstances in the European Union, it is fully

consistent with the 1993 SNA. To guard consistency in time and space, it is of the utmost importance to keep clear record of how the national accounts figures are compiled. Later we will look closer to this subject (see par. 4).

It is important to keep in mind that although consistency of the national accounts system and figures is a necessary condition for a solid GDP estimate, it is by no means also a sufficient condition. It is, for example very well possible to compile a set of Supply and Use tables that is fully consistent, but still contains wrong figures. In addition, in practise lacking data are sometimes estimated by applying the identity rules that have to be fulfilled. In those cases data become interdependent and the existence of consistency can no longer be used as a quality check. This means that, although consistency is a very important feature of national accounts, we still need other ways to check the results of our estimates. The fact that, as pointed out in the introduction, changes take place in an increasingly complex economic reality, which make statistical monitoring more and more complicated, adds to the need to find additional ways to assess the results of our accounting system.

In the Dutch method of compiling national accounts there are several aspects that are worth mentioning in this respect. In the next section we will elaborate them.

### **3. Adjustments and extensions**

In this section we will discuss some aspects of the Dutch national accounts compilation method that can help improving national accounts estimates. Some of the items mentioned are not (fully) implemented (yet), but are still in our opinion worthwhile to consider.

- *Simultaneous balancing of supply and use tables in current prices and in prices of the previous year.*

Fifteen years ago Statistics Netherlands started experimenting the simultaneous compilation of Input/output tables in both current and constant prices. These first tables were rather limited in scale. Five years later the system developed into a full-fledged set of supply and use tables describing 250 industries by 800 products. This system has a maximum of transparency as it makes optimal use of the data available. The main advantage of a simultaneous compilation of current prices and volume data is the use that can be made of the interrelation between the two. During the entire statistical process – from the processing and analysis of the basic data up to the balancing of the supply and use tables – data in

current prices and deflated data are obtained simultaneously and in consistency with each other. Another advantage is that price and volume measures for the important balancing items can be derived. In particular, gross value added can be measured at constant prices by subtracting intermediate consumption at constant prices from output at constant prices, the so-called “double deflation” method. Double deflation may be used at the level of the individual enterprise, industry or sector, or for the total economy as a whole by subtracting imports at constant prices from total final expenditure at constant prices.

- *Detailed dual actoring.*

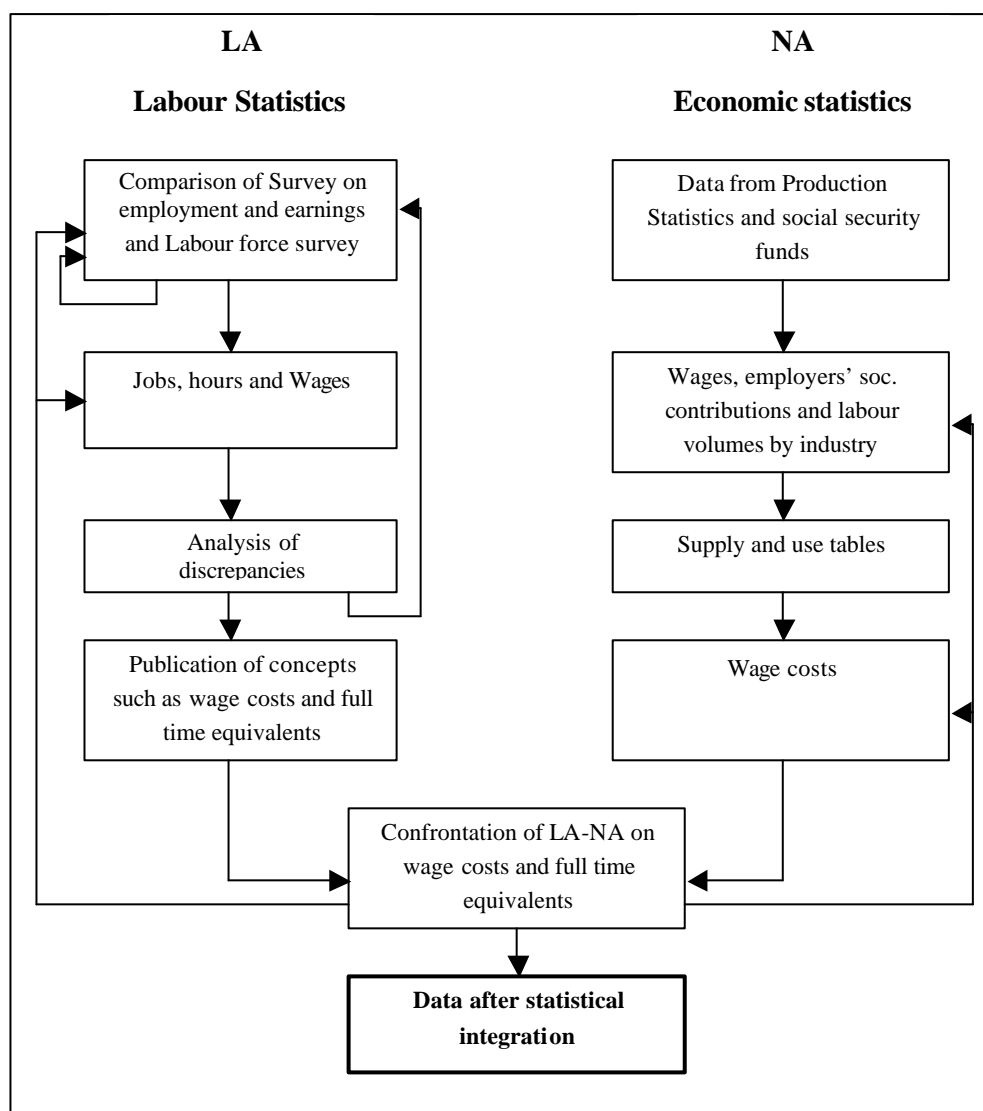
Since the last major revision (reference year 1995) of the Dutch national accounts, the linking of the supply and use tables to the Sector accounts is performed at the most detailed level available in the national accounts (i.e. 250 industries) and for all relevant transactions (output, intermediate consumption, taxes/subsidies on products, value added, compensation of employees, operating surplus). Before the 1995 revision the linking of the supply and use tables to the sector accounts was done at a much higher level of aggregation and only for gross value added and compensation of employees. This procedure results in very detailed tables that provide a better tool for analysing discrepancies between the production accounts and the rest of their current account of the sectors and for analysing discrepancies between the current account and the financial account.

- *Link with Labour Accounts.*

Also since the 1995 major revision the national accounts figures on labour (for example labour volumes of own account workers and employees, compensation of employees, etc.) are made fully consistent with the Dutch labour accounts. The labour accounts provide a full and consistent overview of the Dutch labour market. It uses, just like the national accounts, a large number of statistics that are balanced in a similar way as national accounts. The balancing between the national accounts and the labour accounts is schematically displayed in figure 1.

The advantage of this integration with labour accounts is obvious: more extensive use has been made of the available statistical information, which makes it possible to judge the figures that result from the balancing process of the S&U-tables more thorough. For example, in the national accounts we only have figures on compensation of employees and labour volumes by industry. The labour accounts also give us information on levels of education and gender of the labour force by industry.

Figure 1. Confrontation Labour Accounts with National Accounts



- The use of satellite accounts (SAM/NAMEA) and regional accounts

In the Dutch national accounts system there are two satellite accounts compiled on a regular (yearly) basis: The Social Accounting Matrix (SAM; since 1995) and the National Accounting Matrix including Environmental Accounts (NAMEA; since 1994). Recently a pilot Tourism Account has been drawn up for 1999. At the moment it is not yet clear whether the Tourism accounts will be compiled on a regular yearly basis in the near future. Statistics Netherlands is also developing a Health care module that will be linked to the national accounts and will describe health care in an institutional way. The health care module will provide insight in the contribution of health care to macro-economic aggregates (production, final expenditure, financing and income distribution).

Satellite accounts are not only useful to satisfy the need for data on specific subjects, they are also important tools for analysing the national accounts results. Similar to what has been said earlier for the linking with the labour accounts, the use of satellite accounts can also reveal inconsistencies in the national accounts data that are not visible at the higher level of aggregation used in the national accounts. Also, more comprehensive use is made of the available statistical information. In the case of the SAM the traditional national accounts data are complemented with specific data on the household sector (on income, expenditure and as suppliers of labour). In the NAMEA the conventional economic aggregates from the NA are complemented with a set of environmental aggregates. Although satellite accounts can play an important role in improving the quality of the national accounts figures, these possibilities of satellites have until now not fully been exploited in the Netherlands.

The same holds for the regional accounts. Regional production and more recently, household accounts are compiled on a regular yearly basis. The Dutch regional production accounts are compiled and analysed on the level of 53 regions. This almost micro look at macro-economic figures offers great opportunity to improve national accounts figures. See also paragraph 4 on this item.

- *Uniform treatment of multinationals.*

Due to the open character of the economy the development of the Dutch economy depends strongly on the relations with the rest of the world. The flows between the Netherlands and the rest of the world show up in a number of basic statistics, like Production statistics, Foreign trade statistics, Company Finance Statistics and Balance of payment. For some years it was obvious that in a number of cases the results of these statistics showed large discrepancies, due to the use of different units, definitions and so on. Recently Statistics Netherlands started a working party with the purpose to make a guide-line for the treatment of multinationals. In this working party members of all economic statistics mentioned above, complemented with national accountants are represented. At the moment a first version of this internal guide-line has been drawn up. The guide-line also contains a scheme to guide the decisions on "how to treat a unit in our statistics". Although the work on this subject is not completed (and probably never will be, since new developments will force us to find new solutions), an important step has been taken. Of course a next step would be to coordinate the actions of Statistics Netherlands with those of the other countries involved in the transactions of the multinationals.



- Use of mirror statistics.

The use of mirror statistics can be a useful tool to test the geographical consistency of national accounts figures. In the recent past the Ad Hoc Committee Asymmetries has dealt with the subject of foreign trade statistics. The data collected showed that, despite the uniform rules applied in the European countries concerned (as laid down in the Intrastat regulation), a lot of inconsistencies existed between the foreign trade figures of the countries involved.

Tourism is another possible field where mirror statistics could be used. In the Netherlands the information on incoming travel has deteriorated fast since the introduction of the common European currency. At the moment a model is used to estimate incoming travel. Given the fact that neighbouring countries are faced with the same difficulties, the use of mirror statistics seems a logical solution to this problem.

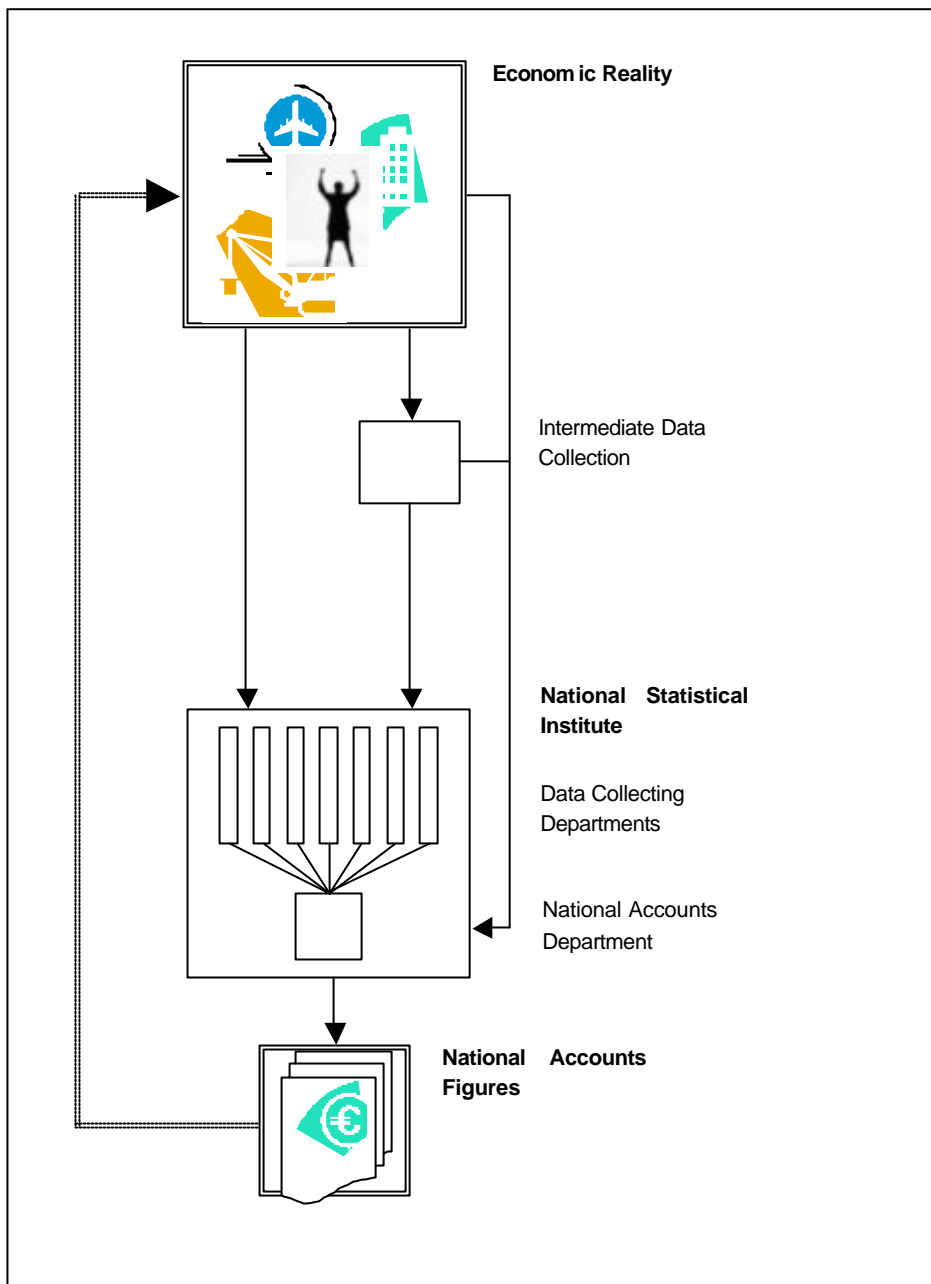
- Quarterly accounts.

Consistency in time is not only important for time-series but also for successive estimates for the same year (or quarter). To prevent inconsistencies in our first quarterly GDP estimates, a full set of S&U tables (be it somewhat more aggregated than the yearly S&U tables) is compiled for even the first quarterly estimate (the so-called flash estimate). The basis for such a supply and use table is the S&U table of the same quarter of the previous year. This table is extrapolated with all kind of short-term indicators (absolute or percentage changes and index figures), with scarce information on levels of transactions and with a set of assumptions (for example the assumption that technological changes will be limited in the short run). Often it is argued that the available information to compile supply and use tables on a quarterly basis is much too poor. In our opinion, especially with limited information, this approach makes optimal use of the information available and guarantees a consistent estimation method. Estimating quarterly GDP with the production method, the expenditure method or the income method will most likely result in three different estimates. It will be very difficult (if not impossible) to develop a method that guarantees consistency in transforming these three figures into one GDP estimate.

#### 4. Additional Quality Measures

Users should be informed about the quality of the statistics<sup>2</sup>. Moreover the producers of the statistics themselves should be informed. Monitoring quality is the first step in improving quality (or to counter the deterioration). What would statistical life be easy when the quality of the output of a national accounts statistics could simply be shown by only one or a few figures. The process of compiling national accounts statistics is shown in figure 2.

Figure 2. From economic reality to national accounts



<sup>2</sup> Although research in 2000 (Nijmeijer and Eding) showed that (regional) scientists are not extremely occupied with the uncertainty of statistical data.

Data collecting departments of the National Statistical Institute receive information from companies, government and households, directly or via an intermediary. This can be fiscal authorities, chambers of commerce, employers' organizations, etc. After collecting, grossing up and analysing the partial information is transferred from the data collecting departments to the national accounts department. Here the data are completed, sometimes adjusted for ESA95 concepts and then integrated. In case of missing elements, occasionally the national accounts department itself collects data.

A simple confrontation between the output of this process and the economic reality (the dotted line in the figure) is out of the question. First of all, entities and actions in the real world are translated into an economic world according to ESA95. Definitions and classifications are implemented. There is no one-to-one comparison possible. Secondly there is the problem of the multiple sources of errors. The European Court of Auditors has asked the GNI Committee several times to investigate the possibility of measuring the accuracy of GNI (at that time GNP) by means of confidence intervals. In their final report a task force of the GNI Committee on this subject concludes that the calculation of objective confidence intervals is not yet possible. Confidence intervals only cover errors associated with probability sampling. Errors associated with non-probability sampling and non-sampling errors are very difficult if not impossible to quantify and nothing guarantees that sampling errors associated with probability sampling make up the major part of total errors. (Eurostat, 2001). Also the IMF noticed that "The quality of the national accounts has from early stages on been an issue of concern to statisticians, who noticed that traditional mathematical techniques for the assessment of accuracy and reliability were not applicable to national accounts." (Bloem and Khawaja, 2001).

The solution for this problem is found by shifting the focus from the output of statistics to the process of compiling statistics. To put it simple: good source data, the right definitions and classifications, high quality national accountants and sound techniques and methods guarantee a good product. The key word in judging the process is transparency. National accountants have to show and justify which figures are used and which adjustments are made.

Apart from the reasons mentioned in the introduction, there is another more recent impulse for the work on quality. The call for faster dissemination of statistics is very strong. This request can only be answered by publishing (more recent) provisional figures. Because of the trade-off between timeliness and accuracy, the subsequent revisions should be monitored.

- Documentation

Documentation of the process of compiling national accounts is always a choice between extremes. A perfect complete and detailed set of documents leaves no time for the statistical work itself and the documentation is outdated at the moment of completion. The other extreme is no documentation at all. There is no transparency, calculations cannot be reproduced and a lot of time is wasted on discussions about the way things are done. Moreover, changes in the staff of the national accounts department are very time consuming without any documentation. So a balance between these extremes must be found. It is important to recognize that adequate documentation is efficiency and quality improving. The integration of the national accounts figures is always an iterative process. The results are reviewed and in many cases the used basic data or the adjustments are checked again on errors. Besides, information on the quality ('hardness') of the figures is very helpful for decisions made during the integration process. For all these reasons documentation is for the national accounts department of Statistics Netherlands a keystone of the work. Every delivery of figures to the integration system should be accompanied with information on sources, quality, adjustments, etc. The automation systems used, contains special commentary fields for this goal. In the job descriptions of the staff members of the national accounts department documentation is an important element.

In addition to the internal reasons for documentation there is of course the obligation to compile a gross national income inventory for the GNI committee. This inventory covers only part of the scope of the national accounts; the focus is on the supply and use framework. The inventories are the basis for information missions from Eurostat to member states. The Dutch inventory will be published in the year 2004 after correction and completion. Because the member states compile the GNI Inventory according to the same framework this gives a unique opportunity to compare sources and methods throughout the European Union.

- Process table

As stated earlier, the request of the European Court of Auditors for confidence intervals of the national accounts figures could not be satisfied. The task force however came up with an alternative. The compilation of a process table was proposed. In this table the quantitative dimension of the successive steps in the GNI compilation process are shown.

The basis for national accounts figures is subdivided in surveys and censuses, administrative data, estimates from models, etc. Figures can be adjusted for data validation or conceptual reasons and of course in

the balancing process. Ten member states participated recently in a pilot project for compiling process tables. In the next meeting of the GNI Committee (March 2004) the results of the pilot will be discussed. The Netherlands was one of the countries where a process table has been set up.<sup>3</sup> The main conclusion of the Dutch pilot was that it is a useful tool but it should not be interpreted as a quality table. The process table gives a condensed and structured quantitative description of the GNI compilation process. No more and no less. The table enhances the transparency of the process of compiling GNI but the numbers in the table give no information about quality. It can act as a link between the inventory and quality reports of the data used. Although compiling the process table was rather labour intensive and numerous problems of classification and interpretation have to be resolved, Statistics Netherlands intends to continue this route. The process table is expected to play an important role as a management tool (Van de Ven, 2003). The relation between national accounts and the different source statistics, the size of the adjustments in the different stages of the compilation process, the size of the revisions of successive estimates for the same reference period and the differences between the sources and adjustments from year to year, is vital information for the management of the national accounts department. The first organisational steps are taken to implement the process table in the regular production process of national accounts and the used automation programs will be modified in this direction.

Figure 3. Model of a process table

	Basis for NA figures				Adjustments				Final NA figures
Production approach									
Expenditure approach									
Income approach									
Gross Domestic Product									
Transition GDP -> GNI									
Gross National Income									

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<sup>3</sup> Simultaneously but independent with the compilation of the process table for GNI, the Dutch regional accounts department was working on a variant of a process table.

In the process table the three different approaches to compile Gross Domestic Product are further subdivided. For the production approach for instance, production, intermediate use and gross value added is shown for 17 branches of industry. In the databases which are used for compiling these aggregates, the source figures of the individual underlying units (Kind of Activity Units or KAU's) can be found. In the introduction of this paragraph it is stated that no one-to-one comparisons between national accounts figures and economic reality are possible. This may be valid for aggregate figures but information on individual units can be compared. Information from other sources like annual accounts, information in the media or Internet can very well be confronted with these figures used for the national accounts estimates. Because of privacy rules this can only be executed by Statistics Netherlands staff. Not only the level or the development of the figures can be compared, especially for smaller companies the crucial question is whether or not the company is present in the database. Missing one small company is not a disaster but what if the omission is representative for the omission of a great number of small companies?

When drawing up a process table becomes part of the regular production process and it is done each year, also the development of the different elements can be judged. In order to improve the quality assessment, a plea is made to involve satellite accounts and regional accounts in an earlier stage. The regional accounts for instance are compiled, like in most other countries, after finishing the national accounts. Developments in time of a certain branch of industry may look modest on a national level, the figure for the same branch of industry may look for certain regions implausible. In the regular production process this leads sometimes to frustration. If an error is detected, nothing can be done. The national accounts figures are already being published and the totals of the regional accounts have to equal the national accounts. If the regional element is brought in earlier, quality of the national (and the regional!) accounts could improve substantially. On a regional scale national figures not only are magnified, branches of industry are transformed in individual companies (with names!). The distance between regional economic reality and regional accounts is fairly small. Implausible figures can easily be checked by reviewing the data of a limited number of companies or for instance by consulting local experts. The sum of plausible regional figures makes plausible national figures, not the other way round.

- *Service Level Agreements*

In a Service Level Agreement (SLA) the specifications of data deliveries from data collecting departments to the national accounts department are described. Not only the figures to be delivered and the level of detail and the deadlines are specified, there is also a paragraph on the quality of the figures. Minimum response rates and for instance the comparability over time can be mentioned. The SLA is an increasingly important document within Statistics Netherlands for two reasons. First of all, because of ongoing government policy to economise, there is a continuous search for statistics which are not really indispensable. In practice this means that statistics which are not used to meet national or international obligations are in the danger zone. If a statistics is important for the compilation of good quality national accounts figures, as recorded in a SLA, this can help survive this statistics. The second reason is that a SLA is more than a formal contract. It is a means of communication. In former times data was often delivered on the basis of personal (oral) agreements. Drawing up a SLA, requirements for national accounts purposes and constraints from the data collecting side can be discussed and the outcome is made transparent. For the most important data deliveries SLA's are now applicable.

- *Analysis of revisions*

The first estimate of Dutch GDP growth (and a limited set of other macro-economic variables) is published some seven weeks after each quarter. This figure is called flash estimate. Six weeks later this figure is revised when the figures of the regular quarterly accounts are released. So mid February, when the figure of the fourth quarter is released, the first estimate of a yearly figure is available and at the start of April this figure is revised for the first time. The yearly figures of the Dutch national accounts are released in the month July; in the year t+1 provisional figures, in the year t+2 revised provisional figures and in the year t+3 definitive figures. The definitive figures are only revised after a major revision when new time series are constructed. For the analysis of revisions these last revisions are left out. In total Statistics Netherlands publishes five times a figure on GDP growth, the flash estimate is revised four times. For the flash estimate there is a limited set of basic data available, for some variables for instance only information on two of the three months, for other variables there are only indicators available. For the definitive estimate of the yearly national accounts figures after two and a half year a detailed set of variables is available. Supply and use tables with 250 industries and 800 products are balanced. For the provisional estimates this last estimate is the benchmark.

Recently it has been decided that the national accounts department will make an effort to monitor the revisions conscientiously. Every year in the spring an internal report will be drawn up as soon as the definitive figures are available (internally). The reasons for this effort are twofold. First of all it is embarrassing when users of national accounts statistics make mention of large revisions and national accountants are not aware of this themselves. The figures on the revisions should be available before releasing the macro-economic figures. For significant revisions explanations should be available in case of questions.

The second reason to monitor the revisions is of course to influence the quality of the provisional estimates. Here a critical observation should be added. The lack of revisions is easily interpreted as indicator of good quality but this is nonsense. If no new data is available the provisional estimates are 'upgraded' as final and no revisions are monitored but this is of course no sign of high quality. Moreover, it should be avoided that statisticians suppress improvements because revisions give a bad impression. So, the lack of revisions is not a guarantee of high quality, but large revisions should be investigated.

The framework of the yearly report on the revisions is as follows. Firstly the subsequent revisions of GDP of the (quarters of the) reference year are shown and compared with those of previous years. Then the revisions of underlying variables of the production approach and the expenditure approach are analysed. The share of the different variables in the revision of GDP is taken into account. Then specialists of the national accounts department are asked to comment upon the findings. The management of the department finally decides if additional measures have to be taken to improve the quality of the estimates.

In the output database of Statistics Netherlands on the Internet, StatLine, provisional estimates of GDP used to be replaced by new estimates. Users could not see afterwards which revisions were carried out. To inform users, an article in a publication of Statistics Netherlands is prepared and the original estimates of GDP will be included in StatLine.

## **5. Conclusions**

Consistency within the national accounts system is incredibly important but not a guarantee for good quality. Several extensions of the system of the Dutch national accounts are or will be implemented. The simultaneous balancing of supply and use tables in current and constant prices is an example of such a system improvement. The ultimate goal of good quality national accounts statistics is very difficult to measure. There is not a one-to-one relation between economic reality and national accounts statistics. Moreover traditional mathematical techniques for the assessment of



accuracy and reliability are not applicable. By shifting the focus from the output to the process of compiling national accounts quality can be assessed and improved. The key-word is transparency. Show to colleagues and users (if possible because of confidentiality limitations), how national accounts are compiled; which sources are used, which adjustments are made, which classifications and definitions are implemented, etc. This transparency is worked out through documentation, process table and service level agreements. The link with economic reality should not be forgotten. A plea is made to check how data on individual companies is represented in the databases used to compile national accounts. In this light the satellite accounts and the regional accounts could play a more prominent role in the national accounts production process. The distance between economic reality and regional accounts or for instance a social accounting matrix is much smaller.

The increased timeliness has also increased the importance of the analysis of revisions of subsequent estimates. Unfortunately the analysis of a reference year can only be executed after dissemination of the final estimates of that year, two and a half year afterwards.

Much can be done to improve the quality of the national accounts estimates. Regarding the use of these figures the effort is more than worthwhile. But is it enough? The world is changing fast. Economic reality becomes increasingly complex and what's more, the member states of the European Union are more and more integrated. Individual member states are less 'visible'. For making meaningful national accounts, nations must be 'describable' (analogous to the requirements of data availability of units in SNA and ESA). If this is still the case, will it continue to be so the next decades? Or are we moving towards European accounts and will the present national accounts change into a sort of European regional accounts?

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