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# THE PRESENT AND FUTURE DATA SITUATION IN EU COUNTRIES FOR INFORUM MODELLING

## I. INTRODUCTION AND BACKGROUND

Empirically INFORUM modelling is based on the available statistical data. Economic reality is perceived through the eyes of the statistical system of the country. Input-output (IO) tables and national accounts are of particular importance. The availability and the access to this data are limiting factors for all modelling activities.

Statistical data is not only the basis for economics but also already the outcome of economics, of combining facts and hypotheses. Statistical data is man-made, although "one tends to suppose that national accounts just naturally appear every month like the new moon. In fact, they are perhaps the single greatest success of economic science" (Almon 1998, p. 83).

National accounts can be considered to be the language of macroeconomics. The "text of the economy" (see Brown 1994) is written in this language, empirical economists have to interpret this text. On the other hand national accounts are a language not very well spoken and understood. The "widespread illiteracy in national accounting among researchers should therefore be regarded as a threat to economics as an empirical science" (Bos 2003, p. 3).

During the last ten years national accounts (and input-output statistics as part of national accounts) were subject to a number of revisions. There were modifications in concepts and conventions, but more important than that – and more or less unnoticed by many users – a reorientation of the system in the European Union.

In this contribution an attempt will be made to describe the present statistical environment for INFORUM modelling in the European Union. In addition some future developments which are already in the pipeline will be outlined. Hopefully this information will be helpful for both INFORUM model builders in old and new Member States who are not familiar with the actual tendencies in the European Statistical System.

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The contribution is based on the paper delivered at the Twelfth World INFO-RUM Conference, held in Ascea, Italy in September 2004. As far as possible, the discussion of new developments was incorporated. The chapter on the role of national accounts in the European Union was added in order to provide some general background to the details presented.

## II. THE ROLE OF NATIONAL ACCOUNTS IN THE EUROPEAN UNION

In the European Union (EU) the compilation of statistical data is to a high degree standardized and regulated. Statistics is not longer primarily viewed as a scientific discipline in order to provide a well organized perception of reality. Statistics has to play a direct operational role. This statement holds in particular for national accounts.

National accounts results are directly used for many administrative purposes; they play a fundamental role:

–   for the budget of the Commission, the own resource system,

–   as the basis for the financial contributions of the member states to the EU budget

–   serve as the informational infrastructure for the administration of the regional and structural funds

–   as the basis for the excessive deficit procedure and

–   the pact for stability and growth.

National accounts figures also constitute the basis for many of the structural indicators required by the European Council.

National accounts results are relevant for calculating the contributions of the member States to the EU budget in two respects. Gross National Income (previously Gross National Product) constitutes the basis for allocating the GNI based so-called "fourth resource". Because of the financial implications EUROSTAT[1] (assisted by the GNI Committee) verifies the reliability, comparability and exhaustiveness of the data provided by the countries each year. The other source is the VAT based "third resource". For this purpose the VAT receipts of the Member Countries are adjusted using detailed national accounts results to correct for the fact that the VAT rules differ between member countries, especially as far as coverage and rates by products are concerned. Member states have to provide a detailed VAT declaration including the calculation of adjustment factors based on national accounts every year. These "declarations" are also carefully checked

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[1] EUROSTAT is the Statistical Office of the European Communities and part of the European Commission under the Commissioner for Economic and Monetary Affairs.

by EUROSTAT. The VAT-based "third resource" and the GNI-based "fourth resource" represent about 80% of the EU budget.

The extremely strong emphasis laid on the administrative role of national accounts results in the EU is a new element in the history of national accounts. A closely related characteristic is the accent put on up-to-date information and on short term development.

## 2.1. Historical background

National accounting started many decades ago with quite distinct analytical goals in mind. On the one hand measuring national income and/or total production was in the centre of interest. These early attempts are associated with names like Clark and Kuznets although even these pioneers had their predecessors. In 1939 experts of the League of Nations recognized the need for a certain degree of standardization and guidance in the measurement of national income. After the Second World War there was a demand for comparable estimates of national income also for administrative purposes, "for apportioning the expenses of international organizations (see SNA 1993, p. xxxvii).

On the other hand national accounts were a direct result of so called the "macroeconomic revolutions of the interwar period" (see Van Eijk 1993). "The essence of national accounts is the extension of a system of accounts from being an instrument used by individuals, enterprises or other institutions to an instrument used by nations or rather national authorities" (Tinbergen 1993, p. 13). When business cycle theory grew in importance there was the need to formulate these theories but also of statistical testing of these theories. Similar research was undertaken in many different countries like the United Kingdom (Meade, Stone), Norway (Frisch, Aukrust), the Netherlands, the United States and others. The activities carried out under the League of Nations Economic Intelligence Service and associated with the names of Von Haberler and Tinbergen were of special relevance and turned out to be highly influential for futures developments. "The introduction of the systematic application of macroeconomic theory to national accounts permitted the integrated statistical treatment of the main economic processes; moreover the acceptance of double-entry accounting provided the means for implementing this integration" (Kennessy 1993, p. 37).

In these days and also under the influence of the works of Keynes national accounts established itself as the framework for macro-economic reasoning, as the standard language of macro-economics. National accounts became the empirical basis for macro-economic analysis in general and macro-economic model building in particular.

After the Second World War there was a strong tendency towards harmonisation and codification. Import milestone of this developments were:

United Nations 1947
Document "Measurement of National Income and the Construction of Social Accounts" with the appendix "Definitions and measurement of the national income and related totals" by Richard Stone

Organisation for European Economic Co-operation (OEEC) 1950
A Simplified System of National Accounts

Organisation for European Economic Co-operation (OEEC) 1952
A Standardized System of National Accounts

The 1953 SNA – United Nations 1952
A System of National Accounts and Supporting Tables

The 1953 SNA provided a clear definition of the production boundary and took the needs of the developing countries into account explicitly. At the same time it recognized that guidelines on economic and financial statistics and on national accounts should be consistent.

The 1968 SNA – United Nations 1968
A System of National Accounts

„An important development behind the 1968 SNA was the construction of disaggregated economic models as an aid to economic analysis and policy. More detail was added to the accounts to respond to the **growing needs of economic analysis** (SNA 1993, pp. xl, emphasis added). One of the major extensions were to disaggregate the production account into input-output accounts, thus making Leontief's intellectual approach an important and integral element of national accounts (see Kennessy 1993). The structure of the system was presented in the form of matrices.

This strong emphasis laid on the needs of economic analysis and of IO analysis in particular was heavily due to the fact, that one of the main authors of the 1968 SNA, Richard Stone had already been involved in IO modelling for many years (see Stone, Brown 1962).

The 1968 SNA also proposed a radical break with the notion of a single-product industry. In distinguishing two matrices, a make matrix and a use matrix a great step forward was made from a descriptive point of view (see Steenge, Konjin 1993).

The 1993 SNA – EUROSTAT, IMF, OECD, United Nations, World Bank (1993)
System of National Accounts 1993

The present 1993 SNA attempts to reconcile various overall accounting systems into one coherent system. Many elements were added, special emphasis laid on the integration of the accounts displaying the links between an economy and the rest of the world.

The 1993 SNA is explicitly designed as a multi-purpose system. According to the Introduction ( "F – Uses of the SNA") its main objectives are

- Monitoring the behaviour of the economy.
- Providing the empirical basis for macroeconomic analysis.
- Assisting economic policy making and decision-taking.
- Allowing international comparisons.
- Serving as a coordinating conceptual framework for the statistical system.

Providing the empirical basis for analysis and modelling is not the only goal, but it is mentioned as one of the principal specific uses: "National accounts are used to investigat the causal mechanisms within an economy. Such analysis usually takes the form of the estimation of the parameters of functional relationships between different economic variables by applying econometric methods to time series of data at both current and constant prices compiled within a national accounting framework" (SNA 1.33).

## 2.2. SNA 1993 – The European System of National Accounts ESA 95

The ESA 95 is seen as the European version of the SNA 1993, "adapted to the structures of the Member States' economies, which must follow the layout of the SNA so that the Community's data are comparable with those compiled by its main international partners". Despite this definition given in the introduction to the ESA Regulation ( "Whereras" (7)) and despite the fact that EUROSTAT was among the "authors" of the SNA 1993 there are two important differences.

The first distinction refers to the legal nature of the documents. The SNA 93 has the character of a recommendation. The ESA 95 on the other hand is a Regulation (Council Regulation (EC) No 2223/96 of 25 June 1996) and therefore legally binding in all Member States of the EU. This specific legal nature has severe implications for the role of national accountants. "Compilation of national accounts is essentially execution of a law, subject to audit and burdened by far-reaching economic and financial consequences" (Franz 1997, p. 54). National accounting is not longer seen as part of economic science, "the implementation of legal norms may become a target predominating over scientific interpretation, canonistic understanding is promoted, thinking in alternatives is discouraged, casuistic tendencies may creep in as to solve borderline cases" (Franz 1997, p. 56)

The second major difference – closely related and the rationale behind the first one – can be seen in the general orientation of the system. The ESA 95 is not seen as a multi-purpose system. There is a clear hierarchy of objectives that have to be met, the needs of economic analysis are recognized in the system but do not show up among the high ranking priorities. The basic considerations behind the ESA 95 are spelled out in the introduction of the Council Regulation, the so-called "Whereases".

The role of ESA 95 in the context of managing the EU and carrying out the business of the Commission is addressed explicitly many times. Here are some quotations (many of them abridged) to illustrate this unambiguous orientation.

Strong emphasis is put on international comparability:

> The implementation and supervision of Economic and Monetary Union require comparable, up-to-date and reliable information (Whereas (1))
> The system set up by this Regulation is gradually to replace all other systems as a reference framework of common standards, definitions, classifications and accounting rules for drawing up the accounts of the Member States for the requirements of the Community, so that results that **are comparable between the Member States** can be obtained; (Whereas (12)), emphasis added.
> The creation of common statistical standards so that **comparable information** can be produced is a task that can only be dealt with effectively **at Community level** (Whereas (18)), emphasis added.

At the same time ESA 95 aims at fully comparable results but almost completely ignores the fundamental differences in the substructure of the statistical data base (see Franz 1997).

The Commission of the EU and other European bodies such as the Council and the European Central Bank are viewed as the key user of the data. The scientific world and the public in general are not mentioned among the potential beneficiaries of national accounts:

> The Commission must play a part in the administration of Economic and Monetary Union and, in particular, report to the Council on the progress made by the Member States in fulfilling their obligations for the achievement of Economic and Monetary Union; (Whereas (2)).
> The Commission must use aggregates of national accounts for Community **administrative** and, in particular, **budgetary calculations** (Whereas (4)), emphasis added.

Because of the role for budgetary calculations adaptation procedures by Advisory Committees such as Statistical Programme Committee of the European Community (SPC) are limited to amendments which have no financial implications. The standard concern in all the debates among national accounts experts

on the European level on methodological issues therefore is "does it influence GDP or not?"

The results of national accounts are used as parameters for political decisions (excessive deficit procedure, control of budgetary discipline) the figures result in flows of big sums of money and have automatic consequences. Consequently, no room is granted for flexibility, critique, scientific discussion or alternative concepts.

> Economic accounts are a basic tool for analysing the economic situation of a country and/or region on condition that they are drawn up on the basis of a **single set** of principles that are **not open to differing interpretations** (Whereas (3), emphasis added).

In the light of the operational importance of national accounts figures revisions in national accounts may attract big and undue attention by the general public (s. Franz 1997). National accountants may be tempted not to make such revisions even if they feel that such revisions might be necessary from a purely statistical viewpoint. Other users then will have to rely on figures which are not the best possible estimates.

To have a clear timetable is essential for any good administration. Therefore the data necessary for operational purposes has to be delivered at fixed dates.

> The information essential to the requirements of the Community must be processed and communicated to the Commission on precise dates (Whereas (15)).

The fact that certain problems can only be solved by a convention, which is just one out of a number of more or less meaningful competing concepts, is not recognized.

> A decision on how financial intermediation services indirectly measured (Fisim) are to be broken down should be taken at a later date; (Whereas (17)).

The problem of how to treat Fisim was "solved" by the Commission Regulation (EC) No 1889/2002 of 23 October 2002. According to Whereas (2) of this Regulation tests in some countries showed that "the allocation yielded more reliable results than the present zero allocation for the correct measurement of the economic activity concerned".

For what do the notions "reliable" and "more reliable" stand in the context of a phenomenon which is not observable at all? This question remains unanswered despite the existence of a Regulation. No doubt, international comparability can be increased by such a Regulation. The terms "reliability" and "correct", however, are misleading in this context.

According to the ESA 95 Regulation all countries have to produce national accounts figures based on the ESA 95 methodology. On the other hand "this Regulation does not oblige any Member State to use the ESA 95 in compiling accounts for its own purposes" (ESA 95 Art 3).

Little use is made of this freedom. Budget restrictions and the fear of a public debate over competing results can be made responsible for this deplorable statistical monoculture in Europe.

## III. THE PRESENT DATA SITUATION IN EU COUNTRIES FOR INFORUM MODELLING

### 3.1. ESA 95 and IO statistics

Since the compilation of statistical data in the EU is to a high degree standardized and regulated the provisions of the ESA 95 Regulation are of paramount importance for the statistical environment for INFORUM modelling in the EU Members Countries. Fortunately enough IO statistics is seen as an essential part of the system and an entire chapter (Chapter 9) is devoted to the IO framework.

The most relevant paragraphs of the ESA 95 Regulation (excerpts and abridged) are:

1.02. The ESA framework consists of two main sets of tables:
(a) the sector accounts (1); (b) the input-output framework (2) and the accounts by industry (3).

The input-output framework and the accounts by industry describe in more detail the production process (cost structure, income generated and employment) and the flows of goods and services (output, imports, exports, final consumption, intermediate consumption and capital formation by product group).

The ESA encompasses concepts of population and employment (4). These concepts are relevant for both the sector accounts and the input-output framework.

The IO framework is viewed as an integral part of the accounts and not as a kind of annex, a satellite of the system. Consistency between the IO framework and the rest of the system both conceptually and numerically is a big advantage for INFORUM modelling.

Chapter 9 of the Regulation makes a clear distinction between the descriptive side of IO statistics and the analytical use.

9.01. The input-output framework consists of three types of tables: (a) supply and use tables; (b) tables linking the supply and use tables to the sector accounts; (c) symmetric input-output tables.

9.10. The format of the supply and use tables is designed to fit in with this type of statistical information (i.e. industry by product). By contrast, information of a product by product or industry by industry nature as required by the symmetric input-output table is not often available. The industry by product information in the supply and use tables can be converted into product by product or industry by industry statistics by adding extra statistical information on the input structures or by assuming constant input structures by product or by industry (see paragraphs 9.54–9.60).

The link between the IO framework and the rest of the system is provided by the supply and use tables.

9.06. Supply and use tables are the central framework for all tables by industry, e.g. those on employment, gross fixed capital formation and capital stock.

9.07. The supply and use tables contain all the flows in the following accounts: (a) the goods and services account; (b) the production account; (c) the generation of income account.

9.52. The information in the supply and use tables should be linked to the sector accounts, to ensure that the supply and use table is consistent with the sector accounts. This is achieved by introducing a table with variables cross-classified by industry and by sector

ESA 95 acknowledges explicitly that supply and use tables serve both statistical and analytical purposes. Among the statistical uses special reference is made to:

9.11. (a) identifying gaps and inconsistencies in basic data sources; (b) weighting and calculation of index numbers and price and volume measures; (c) making estimates by residual (estimating a variable by first estimating all other variables in the identity), e.g. for the production or final consumption of specific products; (d) checking and improving the consistency, plausibility and completeness of figures in the supply and use tables and the derived figures (such as those in the production accounts). To this end, the balancing process should not be limited to the supply and use tables at current prices.

The second statistical purpose made the compilation of supply and use tables vital for the operational role of national accounts. The Commission Decision (2002) on the principles for measuring prices and volumes in national accounts decided that the calculation of volumes at constant prices should rely on a Laspeyres concept of volume measurement based on the prices of the previous year. This decision calls for up-to-date and annual supply and use tables and was motivated by the fact that the growth rate of GDP at constant prices has to play an important role in the evaluation of the excessive deficit in Member States. Therefore the calculation should be based on an up-to-date weighting scheme.

The derogation for the delivery of constant price calculations based on the prices of the previous year ends in 2005.

The implications for INFORUM modelling are twofold. On the one hand there is a lot of pressure on the Statistical Offices to produce annual use- and supply tables in good quality. These tables will be produced in current and constant prices (prices of the previous year). Within a few years INFORUM model builders will have (hopefully) nice time series of consistent supply and use tables at their disposition. On the other hand they will be faced with the problem of non-additivity of all their constant price data except for the previous year. "This lack of additivity consistency can be a serious disadvantage for many types of analysis in which the interrelationships between various flows in the economy are the main focus of interest. Most macroeconomic models fall within this category" (SNA 1993, 16.75).

For analytical purposes the ESA 95 asks for the calculation of product-to-product tables as the most important variant of what is called "symmetric tables". The following three steps of converting the supply and use tables to one "symmetric table" are recommended:

9.54. (a) allocation of secondary products in the supply table to the industries of which they are the principal products; (b) rearrangement of the columns of the use table from inputs into industries to inputs into homogeneous branches (without aggregation of the rows); (c) aggregation of the detailed products (rows) of the new use table to the homogeneous branches shown in the columns, if appropriate.

9.55. Step (a) involves transfers of outputs in the form of secondary products in the supply table. Since secondary products appear as 'off-diagonal' entries in the supply table, this kind of transfer is a comparatively simple matter. These secondary products are treated as additions into the industries for which they are principal and removed from the industries in which they were produced.

9.56. Step (b) is more complicated, as the basic data on inputs relate to industries and not to each individual product produced by each industry. The kind of conversion to be made here entails the transfer of inputs associated with secondary outputs from the industry in which that secondary output has been produced to the industry to which they principally (characteristically) belong. In making this transfer, two different approaches might be taken: 1. by means of supplementary statistical and technical information; 2. by means of assumptions.

In this process of transforming the descriptive system into an analytical version supplementary statistical and technical information should be utilized as much as possible. *Ultimately it will usually be necessary to resort to simple assumptions to make the transfers (9,47).*

## 3.2. Transmission of results

European legislation does not only define all the standards and concepts in very great detail, it also regulates which data in which classification has to be delivered to EUROSTAT at which date. The advantage of this situation for the user is, that he knows well in advance which data of which kind he can expect.

The Regulation (EC) No 1267/2003 of the European Parliament and of the Council governing the time schedule for the transmission of national accounts data comprises 22 pages, 17 of them are devoted to derogations. As might be seen from the first page of the Annex I displayed in Table 1 supply tables at producer prices and use tables at purchasers' prices have to be produced annually, "symmetric tables" and cross classifications of production account by industry and by sector five yearly.

Almost all the national accounts aggregates have to be provided at current and constant prices, this provision also applies to the annual transmission of supply and use tables.

Table 1

REGULATION (EC) No 1267/2003 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 June 2003

amending Council Regulation (EC) No 2223/96 with respect to the time limit for transmission of the main aggregates of national accounts, to the derogations concerning the transmission of the main aggregates of national accounts and to the transmission of employment data in hours worked

(Text with EEA relevance)

ANNEX I

Amendments to the table "Overview of the tables' of Annex B – Transmission Programme of National Accounts Data – of Regulation (EC) No 2223/96 (ESA 95)

TRANSMISSION PROGRAMME OF NATIONAL ACCOUNTS DATA

*Overview of the tables*

| First transmission | Delay t*month (days where specified) | Transmission for years | Subject of the tables | Table No |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 2002 | 70 days | 1995–2001 | Main aggregates, annual | 1 |
| 2002 | 70 days | 1995–2001 | Main aggregates, quarterly | 1 |
| 1999 | 8 | 1995–1998 | Main aggregates general government | 2 |
| 2001 | 3 | 1997–2000 | Main aggregates general government | 2 |
| 2000 | 9 | 1995–1999 | Tables by industry | 3 |
| 2000 | 9 | 1995–1999 | Exports and imports by EU/third countries | 4 |
| 2000 | 9 | 1995–1999 | Household final consumption expenditure by purpose | 5 |
| 2000 | 9 | 1995–1999 | Financial accounts by sector (transactions) | 6 |
| 2000 | 9 | 1995–1999 | Balance sheets for financial assets and liabilities | 7 |
| 2000 | 12 | 1995–1999 | Non-financial accounts by sector | 8 |

Table 1 (continued)

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 2000 | 12 | 1995–1999 | Detailed tax receipts by sector | 9 |
| 2000 | 24 | 1995–1998 | Tables by industry and by region, NUTS II, A17 | 10 |
| 2001 | 12 | 1995–2000 | General government expenditure by function | 11 |
| 2001 | 24 | 1995–1999 | Tables by industry and by region, NUTS III, A3 | 12 |
| 2001 | 24 | 1995–1999 | Household accounts by region, NUTS II | 13 |
| 2001 | 24 | 1995–1999 | Fixed assets for total economy and by product (Pi3) | 14 |
| 2002 | 36 | 1995–1999 | Supply table at basic prices including transformation in to purchasers' prices, A60×P60 | 15 |
| 2002 | 36 | 1995–1999 | Use table at purchasers' prices, A60×P60 | 16 |
| 2002 | 36 | 1995(*) | Symmetric input-output table at basic prices, A60×P60, five yearly | 17 |
| 2002 | 36 | 1995(*) | Symmetric input-output table for domestic output at basic prices, A60×P60, five yearly | 18 |
| 2002 | 36 | 1995(*) | Symmetric input-output table for imports at basic prices A60×P60, five yearly | 19 |
| 2003 | 36 | 2000 | Gross classification of gross fixed capital formation by industry and by product, A31×P60, five yearly | 20 |
| 2003 | 36 | 2000 | Gross classification of production account by industry and by sector, A60×(S11, S12, S13, S14, S15), five yearly | 21 |
| 2003 | 36 | 2000 | Gross classification of gross fixed capital formation by industry and by product, A31×P60, five yearly | 22 |
| see table | see table | see table | Backward calculations | 23 |

t: reference period (year or quarter).
(*) The five yearly table for the year 2000 has to be delivered in 2003.

### 3.3. European classification systems

At present the classification by activities and by commodities is standardized by the following two Regulations:

Commission Regulation (EC) No 29/2002 of 19 December 2001 amending Council Regulation (EEC) No 3037/90 on the statistical classification of economic activities in the European Community.

Commission Regulation (EC) No 204/2002 of 19 December 2001 amending Council Regulation (EEC) No 3696/93 on the statistical classification of products by activity (CPA) in the European Economic Community.

Both systems are well integrated in the international (UN) system of classifications, both classifications are multi-purpose instruments. They pay little attention to the specific needs of national accounts in general and IO analysis in particular.

As may be seen from the Transmission Programme the standard for national accounts data and IO data is the A (activity) 60 and P (product) 60 level of dis-

aggregation, corresponding to the two digit level of the classification systems. The following Table provides an overview of the standard disaggregation by product groups.

### The European Standard Classification of IO Data

CPA    PRODUCTS

| 01 | Products of agriculture |
| 02 | Products of forestry |
| 05 | Fishes and products of fishes |
| 10 | Coal and lignite; peat |
| 11 | Crude petroleum, natural gas |
| 12 | Uranium and thorium ores |
| 13 | Metal ores |
| 14 | Other mining and quarrying products |
| 15 | Food products and beverages |
| 16 | Tobacco products |
| 17 | Textiles |
| 18 | Wearing apparel; furs |
| 19 | Leather and leather products |
| 20 | Wood and products of wood |
| 21 | Pulp, paper and paper products |
| 22 | Printed matter and recorded media |
| 23 | Coke, refined petroleum products |
| 24 | Chemicals, chemical products |
| 25 | Rubber and plastic products |
| 26 | Other non-metallic mineral products |
| 27 | Basic metals |
| 28 | Fabricated metal products |
| 29 | Machinery and equipment n.e.c. |
| 30 | Office machinery and computers |
| 31 | Electrical machinery and apparatus |
| 32 | Radio, TV and communication equipment |
| 33 | Med., precision, opt. instruments; watches, clocks |
| 34 | Motor vehicles, trailers and semi-trailers |
| 35 | Other transport equipment |
| 36 | Furniture; other manufactured goods n.e.c. |
| 37 | Recovered secondary raw materials |
| 40 | Electrical energy, gas, steam and hot water |
| 41 | Water; distribution services of water |
| 45 | Construction work |
| 50 | Trade and repair services of motor vehicles etc. |
| 51 | Wholesale and comm. trade serv., ex. of motor vehicles |
| 52 | Retail trade serv., repair serv., except of motor vehicles |
| 55 | Hotel and restaurant services |

| 60 | Land transport and transport via pipeline services |
|----|----|
| 61 | Water transport services |
| 62 | Air transport services |
| 63 | Supporting transport services; travel agency services |
| 64 | Post and telecommunication services |
| 65 | Financial intermediation services (ex. insurance serv.) |
| 66 | Insurance and pension funding services |
| 67 | Services auxiliary to financial intermediation |
| 70 | Real estate services |
| 71 | Renting services of machinery and equipment |
| 72 | Computer and related services |
| 73 | Research and development services |
| 74 | Other business services |
| 75 | Public administration services etc. |
| 80 | Education services |
| 85 | Health and social work services |
| 90 | Sewage and refuse disposal services etc. |
| 91 | Membership organisation services n.e.c. |
| 92 | Recreational, cultural and sporting services |
| 93 | Other services |
| 95 | Private households with employed persons |

## IV. THE NEAR FUTURE

### 4.1. The IO Manual

EUROSTAT is preparing the publication of an IO Manual. Starting from ESA 95 concepts the Manual focuses on compilation issues in greater detail. Its main purpose is to provide "best practices" and harmonised solutions and to help member states as well as other countries in the production process of the tables.

Although it is not published yet, the very detailed Manual (EUROSTAT 2003, more than 300 pages) is already used as a guideline for the compilation in many countries.

Chapter 11 on the transformation of supply and use tables to "symmetric IO tables" deserves special attention. It evaluates the various assumptions and discusses the problem of negatives in some detail. In the sub-chapter on the calculation of the "symmetric IO table" on the basis of the commodity assumption Almon's purification method (Almon 2000) is mentioned, discussed – and to some degree – also recommended as one of two main approaches.

The alternative method called "matrix multiplication" starts with the standard model on the basis of the commodity technology assumption. In a non-formalized iterative procedure along the lines described in 9.54 of the ESA 95 errors in data should be eliminated and rearrangement of data is proposed in

order to reduce the number of negatives in the solution. The remaining negatives are set to zero and RAS is used to make sure that the table matches the totals.

Independent of the choice of the method, the Manual proposes to calculate a difference matrix, so:

Use table = IO coefficients matrix * Supply table + Difference Matrix

In one important aspect the basic philosophy of the IO Manual differs somewhat from the text of the ESA 95. Whereas it follows from Paragraphs 9.54 that the "symmetric tables" are not longer consistent with the supply- use framework, the Manual makes a strong plea for consistency (or at least for a well described and documented difference) between the "symmetric tables" and the basic supply and use tables.

In acknowledging the trade-off between comparability in classifications and values on the one hand and "quality" of the "symmetric table" on the other hand "a balance could perhaps be found in requiring comparability only at the level of aggregation at which tables are published (e.g. the level of 60 products and industries). Changes to classifications or re-arrangements can then be carried out in as far as it does not change e.g. the values of supply of goods by product at the publication level. Similarly, changes that would not affect aggregates such as total output, intermediate consumption, or even GDP, should then be avoided" (EUROSTAT 2003, p. 232).

Such a strategy would be highly welcomed by everybody who wants to combine time series information from national account and IO data. If consistency is not guaranteed by the Statistical Office they would have to construct their own set of IO data compatible with time series. If the "difference matrix" is published it could be used in the modelling process.

## 4.2. New dissemination policy

A big change in the data dissemination policy of EUROSTAT came into effect on 1st October 2004. After a certain transition period almost all statistical data will be available via internet free of charge.

This change in the dissemination policy is the result of numerous complaints, many struggles, a long discussion process and last but not least, probably the by-product of the so-called EUROSTAT scandal.

In his introductory speech to the Conference of the Directors General of Statistical Offices held in Palermo in September 2002, Romano Prodi, President of the European Commission, stressed that "statistics are vital if citizens are to take part in the life of the community in an informed way. They are an essential tool of democracy". In this respect he also emphasized "that statistical data must be both reliable and easy to grasp" (Prodi 2002).

Joachim Lamel, Vice President of CEIES (a users' organization always very active in lobbying for fair and better access to statistical data) argued in the same way: "The easy access to statistical results is of salient importance to users, better dissemination will be one of the crucial points in turning the European Statistical System into an instrument for the citizens of Europe"[2].

During the same Conference Yves Franchet, then President of EUROSTAT made the proposal to develop a new integrated approach in managing relations with users: "Statistics as a public good, free of charge, delivery from a common internet portal with the same data presentation standards"[3].

Although there remained some opposition against the new dissemination policy within the Commission and from some Statistical Offices the new system started on October 1st. 1994

The new system is characterized by the following features:

– New dissemination tools along the lines of existing instruments such as New Cronos and Comtex.

– EUROSTAT's website as the main tool. All EUROSTAT publications are downloadable free of charge in PDF format from this website.

– Bulk download facilities for "power users"

– Development of an elaborated meta data system

Limits to free dissemination are only given by:

– Confidentiality

– Micro data

– Some limitation: very detailed trade data and regional statistics.

The implications of this new dissemination policy on the European levels are widespread and very positive. National Statistical Offices which used to sell all their data at high costs have to change their own policy when all the national data becomes available free of charge from the EUROSTAT website.

## V. IMPLICATIONS FOR IO MODELLING

### 5.1. Positive implications of the European system

The high degree of standardization guarantees a considerable comparability of data. This homogeneity of statistics within the EU with respect to concepts, definitions and classifications is a big advantage for linking models for different countries.

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[2] Private communication.
[3] Private communication.

The legal status of the ESA 95 also provides a common language for researchers working in the EU. This facilitates communication and reduces the probability of misunderstanding.

Last but not least some "economies of scale" can be expected in model building. Because of the similarity of the data situation modules of INFORUM models can be easily transferred from the model of one EU country to the model of another country.

The new dissemination policy will make access to data simpler and cheaper. It will become easier to use statistical results more adequately as soon as detailed metadata will be available.

## 5.2. Disadvantages of the European system

The high degree of standardization – one of the goals if the European Statistical System - has its (high) price. Given the fact that all the concepts and rules are laid down in Regulations and that these Regulations "are binding in its entirety and directly applicable in all Member States", little room is left for flexibility in general and for methodological alternatives in particular.

Not everybody will agree with all the concepts laid down in the Regulations. Many of the provisions were drafted with the operational, administrative role of national accounts in the EU in mind and cannot be considered as the most adequate solutions for the role of national accounts as the empirical basis of empirical economics.

One of the best examples how inadequate European solutions are for IO purposes are the standard classifications that have to be used.

The aggregates that are formed are neither homogeneous with respect to technology, nor homogeneous with respect to labour input. For illustration purposes the sub sectors of "70 Real estate activities" are displayed in greater detail in the following table. This industry comprises very labour intensive service activities such as "70.31 Real estate agencies" and activities such as "70.2 Letting of own property" in which no or almost no labour input is required.

| 70 | | | REAL ESTATE ACTIVITIES | |
|---|---|---|---|---|
| | 70.1 | | **Real estate activities with own property** | 701x |
| | | 70.11 | Development and selling of real estate | 7010x |
| | | 70.12 | Buying and selling of own real estate | 7010x |
| | 70.2 | | **Letting of own property** | 701x |
| | | 70.20 | Letting of own property | 7010x |
| | 70.3 | | **Real estate activities on a fee or contract basis** | 702 |
| | | 70.31 | Real estate agencies | 7020x |
| | | 70.32 | Management of real estate on a fee or contract basis | 7020x |

Vertical integration – with all it undesired consequences for IO analysis – can also be found quite frequently in the standard classification. One example is industry "40 Electricity", an industry in which both the production of electricity and the distribution of electricity are merged together. A second example is industry "21 Paper and paper products", a third example industry "20 Production of wood and wood products".

For most European countries the compulsory A60 classification is also not suited to give a balanced picture of economic reality. In the Austrian situation 2000 one sector is completely empty, in a second sector the number of units is so small that the figures cannot be published. The share of 13 industries out of 58 industries in total output is smaller than 0,3% of overall total output.

Under certain circumstances the priority give to comparability and ignoring underlying economic differences can lead to curious results. According to the CPA wine has to be classified under "15 Food products and beverages", under "15.93 Wines", just after "15.92 Ethyl alcohol" and is thus seen as characteristic output of industry NACE "15 Manufacture of food products and beverages". This might be an appropriate solution for countries like Denmark or The Netherlands. Because their climate does not allow for growing grapes they have to import grapes in order to produce wine. This is done in the beverage industry. On the other hand in countries like Italy, France, Spain, German and Austria farmers specialized in wine-growing harvest their grapes, press the grapes and produce wine. According to EU standards these farmers are to be classified under NACE "01 Agriculture, hunting and related service activities", the activity production of wine from self-produced grapes is even mentioned there explicitly. Their output, however, has to be classified as a non-characteristic output under CPA "15 Food products and beverages". This standard treatment of wine necessarily leads to big negative entries in countries like Austria if commodity technology assumptions are applied in deriving a product-by-product table.

## 6. CONCLUDING REMARKS

Which conclusions can be drawn from the considerations presented in the preceding paragraphs? The first one is that the statistical environment in which INFORUM modelling has to take place is regulated – one is tempted to say overregulated – by European legislation. This overregulation of the European Statistical System is also the background why so many quotations from legal texts were made. Much of this legislation was drafted with other goals in mind than providing the optimal empirical basis for modelling.

At the same time the standardized European Statistical System guarantees that more data and more up-to-date data is and will be available in most Euro-

pean countries than in the past. Planning will be easier because the data situation and the dates at which the data has to be made available will be quite transparent.

The negative effects of the standardisation mentioned in this paper can be limited if Statistical Offices can be persuaded to make the detailed material which is used internally in the process of compiling the data available to the qualified user. He will then find himself in a position to compile a data set which is more adequate to his needs than the standard product offered by the Statistical Office. No single set of supply and use tables can serve all analytical purposes for which the application of IO techniques is highly recommendable (s. Richter 1993).

Therefore a plea is made in favour of a dual strategy. Two or more different databases should be offered by the Statistical Agencies: One set of highly standardized and comparable IO data designed for "non-specific standard IO analysis" and fully compatible with the European legislation. Additional datasets should contain the most detailed IO information available in the various countries in order to carry out "in-depth-analysis".

A similar strategy is appropriate for constant price calculations. In addition to the standard results at prices of the previous year, INFORUM modelling needs an alternative set of "real" accounts in which additivity is guaranteed. Statistical Offices should be persuaded to produce such a second set of data for modelling purposes. This would be in full accordance with the recommendation of the SNA, that "disaggregated constant price data should be compiled and published in addition to the chain indices for the main aggregates. The need to publish two sets of data that may appear to conflict with each other should be readily appreciated by analysts engaged in macroeconomic modelling and forecasting" (SNA 1993, 16.75).

The money saved because much data of the standard type will be available free of charge in the near future, could be spent for alternative tabulations and made to measure solutions. This would allow building INFORUM models according to the specific needs of different countries. European standards could nevertheless serve as the common denominators for models of somewhat different character and detail.

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## EUROPEAN LEGISLATION (BY DATE)

Council Regulation (EC) No 2223/96 of 25 June 1996 on the European system of national and regional accounts in the Community (ESA 95)

Council Regulation (EC) No 1466/97 of 7 July 1997 on the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies

Commission Decision of 30 November 1998 clarifying Annex A to Council Regulation (EC) No 2223/96 on the European system of national and regional accounts in the Community as concerns the principles for measuring prices and volumes

Council Decision of 29 September 2000 on the system of the European Communities' own resources

Commission Regulation (EC) No 204/2002 of 19 December 2001 amending Council Regulation (EEC) No 3696/93 on the statistical classification of products by activity (CPA) in the European Economic Community (CPA 2002)

Commission Regulation (EC) No 29/2002 of 19 December 2001 amending Council Regulation (EEC) No 3037/90 on the statistical classification of economic activities in the European Community (NACE Rev1.1)

Commission Regulation (EC) No 204/2002 of 19 December 2001 amending Council Regulation (EEC) No 3696/93 on the statistical classification of products by activity (CPA) in the European Economic Community

Regulation (EC) No 359/2002 of the European Parliament and of the Council of 12 February 2002 amending Council Regulation (EC) No 2223/96 as concerns the use of ESA 95 in the determination of Member States' payments to the VAT-based own resource

Commission Regulation (EC) No 1889/2002 of 23 October 2002 on the implementation of Council Regulation (EC) No 448/98 completing and amending Regulation (EC) No 2223/96 with respect to the allocation of financial intermediation services indirectly measured (FISIM) within the European System of national and regional Accounts (ESA)

Commission Decision of 17 December 2002 further clarifying Annex A to Council Regulation (EC) No 2223/96 as concerns the principles for measuring prices and volumes in national accounts

Consolidated Version of the Treaty Establishing the European Community; Official Journal of the European Communities of 24 December 2002

Regulation (EC) No 1267/2003 of the European Parliament and of the Council of 16 June 2003 amending Council Regulation (EC) No 2223/96 with respect to the time limit for transmission of the main aggregates of national accounts, to the derogations concerning the transmission of the main aggregates of national accounts and to the transmission of employment data in hours worked

Council Regulation (EC, EURATOM) No 1287/2003 of 15 July 2003 on the harmonisation of gross national income at market prices (GNI Regulation)

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## STAN OBECNY I PERSPEKTYWY ROZWOJU SPRAWOZDAWCZOŚCI STATYSTYCZNEJ W UE Z PUNKTU WIDZENIA POTRZEB MODELI INFORUM

Modele typu INFORUM budowane są w oparciu o analizę dostępnego materiału statystycznego, w szczególności bilansów przepływów międzydziałowych (input-output) i rachunków narodowych. System statystyczny Unii Europejskiej kształtowany jest pod

wpływem szczególnej roli, jaką rachunki narodowe odgrywają w unijnej administracji. Stanowią one podstawę dla planowania budżetu, służą do wyliczenia zobowiązań finansowych krajów członkowskich, są wykorzystywane przy zarządzaniu funduszami regionalnymi i strukturalnymi, a także dostarczają kryterium dla oceny wysokości deficytu budżetowego oraz realizacji strategii stabilizacji i wzrostu.

Z tego względu sposób gromadzenia danych jest w wysokim stopniu sformalizowany, co ma pewne zalety z punktu widzenia modelowania gospodarki. Zapewnia on porównywalność danych pochodzących z różnych krajów Unii, co z kolei ułatwia łączenie modeli krajowych w większe systemy. Można przypuszczać, że duże podobieństwo systemów statystycznych wprowadzi do procedur modelowania gospodarki swoisty efekt skali. Nowa polityka Unii Europejskiej powoduje, że dostęp do danych jest prostszy i tańszy.

Wysoki stopień formalizacji ma jednak swoją cenę. Wiele ustaleń zostało podjętych z myślą o wykorzystaniu rachunków narodowych do wspomnianych celów administracyjnych, i nie stanowi najszczęśliwszego rozwiązania z punktu widzenia wykorzystania rachunków narodowych dla celów empirycznej analizy gospodarki. Możliwości manewru w tym kierunku są niewielkie.

Opracowanie stanowi przegląd rozwiązań w zakresie systemu sprawozdawczości statystycznej, obowiązującego w Unii Europejskiej, mających szczególne znaczenie dla budowy i wykorzystania modeli typu INFORUM. Podane zostały przykłady niedostosowania obowiązujących standardów do potrzeb modelowania. Konkluzja prowadzi do apelu o zastosowanie podwójnej strategii gromadzenia danych, uwzględniającej zarówno wymagania unijnej administracji jak i specyficzne potrzeby ekonomistów modelujących gospodarkę.