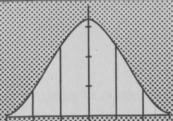
Approaches





Methods

Developments

Information of the German Federal Statistical Office

Number 2/94

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The catchword

Unit to contact for research projects in statistics (ZAF)

A support unit at the Federal Statistical Office, the ZAF has provided assistance to federal ministries since 1982. Its function was laid down in an amendment of Art. 55 of the Provisional Administrative Provisions on the Federal Budgetary Regulations in 1983. The ZAF can be contacted for research projects of the federal ministries requiring economic, population, social or environmental data – possibly in a specifically edited or processed form –, including statistical evaluations or analyses, or dealing with issues of statistics as such.

For such projects which are of relevance to statistics, the Federal Statistical Office should be consulted before commissioning a research contract, especially on the subject of adequate contractors. In this context it is also investigated whether a participation of the Federal Statistical Office itself may be considered, for instance by supplying, editing or processing data, by taking over parts or the entire research project. For research projects completely awarded to a contractor other than the Federal Statistical Office, the question is whether the data required for the research work can be obtained from this Office. This means that the Federal Statistical Office offers not only preliminary advice but also cooperation and may even offer to undertake the entire commission work if this is regarded as the best solution.

A major objective of such consultation is cutting costs. Such cuts may be possible where the data in question are already available at the Federal Statistical Office or will be available in the near future anyway so that there is no need to conduct a survey only for the purposes of the research project. The chance to economize on account of required data material available would be reflected in the Federal Statistical Office's calculation of costs and thus its quotation. It would influence also the calculation of any other prospective contractor who is able to use data provided by the Federal Statistical Office instead of conducting own surveys. In both cases, there is a chance to cut costs since duplication of data collection work is avoided.

Methodology of federal statistics - Further development

Raw material balancing as part of a concept for a resources reporting system for Environmental-Economic Accounting

Sustainable use of natural resources is the main precondition for maintaining the functions and performance of nature for the vital needs of future generations. Thus it is planned under the concept of Environmental-Economic Accounting (Umweltökonomische Gesamtrechnungen – UGR) of the Federal Statistical Office to employ various collection methods and informational fields in order to cover through a reporting system the individual aspects of the use of the environment by economic activities. Regarding the origin of environmental loads, both material changes (by the consumption of raw materials and the production of emissions) and structural changes (by direct physical interference and land use) have to be included. The UGR overall programme, which also covers the state of the environment and the measures for environmental protection, has been presented in detail in various issues of the periodical *Wirtschaft und Statistik* (Economy and Statistics).

In this context, a resources reporting system is being developed at the Federal Statistical Office which, on the basis of material and energy flow accounting, will allow to provide information on the intensity of, and changes in, the ecological efficiency of raw material utilization. This is to be achieved both for the national economy as a whole and for individual sectors or economic activities. A major objective of such ecological balancing at macro-economic level is to cover with maximum detail the ecological side effects of raw material extraction and further utilization, and to show them in a problem-oriented way. This leads to specific requirements to be met by the methodology of the concept and the realization of its contents.

The informational field of "raw material consumption" deals with the coverage of the flows of material and energy which are extracted from nature and used in the economic sectors of production or for consumption. In this sense, the extraction of raw materials is the first element in a process leading through the stages of further treatment and processing, and the production of semi-finished and finished goods to the use and consumption of products. This area is closely linked with the informational field of "emissions" which covers the return of transformed and economically utilized materials from the economic sectors back to nature.

It is obvious that balancing data on ecological side effects of material flows and the corresponding economic activities requires the development of extensive new methodology and evaluations of existing information to enlarge the database. To represent all relevant material flows, it is necessary to cover, for instance, even the excavated

material, emissions, and structural changes occurring in the stage of raw material extraction. In a similar way, this is true of the spheres of activity of all economic sectors.

Another focus is to determine the share of raw materials in imported and exported goods in order to draw conclusions concerning the resource intensity due to foreign trade. This aspect is important especially for the study of material flows for the Federal Republic of Germany as only about 5 % of imports (in terms of value) are unprocessed raw materials. Most of the other goods are more or less preprocessed products and have thus caused some degree of resource utilization in addition to the mere imported quantity. Problems arising here are mainly differences in intermediate consumption and production structures in the countries of origin. Thus a limitation to selected imported goods seems suitable for the time being.

An indispensable element of complete material flow balancing is the presentation of the recycling area. This is necessary for performing an overall examination including changes in the ecological efficiency achieved by measures for using secondary raw materials. For this purpose, the Federal Statistical Office carries out a research project in cooperation with the *Deutsches Institut für Wirtschaftsforschung* (German Institute for Economic Research). This research serves to analyze the preconditions for the statistical coverage of secondary raw materials, to discuss its implementation through an appropriate classification, and to test it by way of practical examples.

To sum up, it should be mentioned that for the coverage of the data and information needed for material and energy flow accounting, and for the selection of the parameters to be included, priorities have to be set which permit quick development and suitable shaping of the methods used. In the empirical practice of official statistics, it is difficult in this context to choose one single approach while disregarding others. Possible approaches are not only material and energy flow accounting but also resource accounting and simple material balancing. From practical aspects, it will hardly be possible to clearly distinguish between the methods, all the more so since the boundaries are rather blurred. The criteria to be defined for a selection of contents will have to be based mainly on the environmental relevance of material flows and activities, with major importance being attributed to aspects like quantitative relevance and ecological toxicity.

New concept of performance statistics in freight transport by road

The former survey concept of performance statistics in freight transport by road was closely linked to the control of national regulations concerning the transport market. The freight bills to be submitted by German carriers in commercial long-distance road haulage and the monthly reports in long-distance transport on own account were evaluated as secondary statistics. In addition, the frontier customs offices continue to compile statistics of cross-frontier freight transport by road. For the following reasons, it has not been possible any more to maintain this system of different surveys:

- As part of the introduction of the Single European Market, the Law on the Abolishment of Customs Tariffs, entering into force on 1 January 1994, was an important step towards the liberalization of the national goods transport market. As a result of the tariff liberalization, submitting freight bills is not required any more, which means that the secondary-statistical basis for covering commercial long-distance freight transport by road is no longer available.
- The abolishment of more and more frontier formalities at the internal frontiers of the European Union leads to a
 deterioration in quality of the statistics of the cross-frontier freight transport by road.
- Data on short haulage, whose quantitative importance is considerable, have been estimated since 1978 when
 the latest survey providing primary data was conducted. Continuing these estimations is not desirable from the
 methodological aspect, considering the obsolete database for the former territory of the Federal Republic and
 the inadequate basis for the new Länder and Berlin-East. On the other hand, an EC Directive requires the supply
 of data on short haulage also in the future.
- The former secondary statistics proved inadequate to meet the changed data demand of national and supranational decision makers in the sphere of transport policy. The statistics are expected to provide not only basic data on the quantity of goods carried, tonne kilometres performed, and regional traffic flows but also information on the carriage of hazardous goods, combined transport, percentage of unloaded journeys, distance run, and on other characteristics regarding vehicles, journeys, and goods.

In this situation, a new concept for transport performance statistics in freight transport by road has been developed. The objective was that supplying the requested information with sufficient accuracy should involve minimum burdens for the respondents. To prepare the statistics, the Federal Statistical Office had commissioned an institute to carry out a test with 200 enterprises to see whether it would be possible to cover the characteristics, and to submit a proposal for an ideal survey procedure. The results of this methodological study have been taken into account in the discussions on designing the survey concept.

The sampling frame for a permanent sample survey is the Central Vehicle Register of the Federal Office for Motor Traffic. The population covers – with only a few exceptions – all lorries and road tractors registered in Germany; they are allocated to 530 strata organized in a hierarchical structure. The stratification characteristics are closely correlated with the transport performance or are of particular importance in the tabulation programme; they comprise the type of vehicle, the type of body or the group of owners, the region of registration, the distance to the border, and the payload or the total permissible laden weight. This differentiated stratification allows to limit the sample size to the absolute necessary minimum while meeting specific accuracy requirements. Moreover, the burden on the vehicle owners, who are obliged to provide the information, will be kept small by the following measures:

- The reporting period is only half a week.
- Rotation marks are allocated to all vehicles selected so that, during the calendar year, they will not be included
 in the sample a second time.

When the sample design was developed, it was calculated that, to obtain statistically reliable results, an annual sample size of 360,000 vehicle half-weeks would be needed. This means that, with a total stock of vehicles of about 1.8 million, less than 2 ‰ of the vehicles in the population are selected per reference half-week. In order to make use of the advantages of the continuously updated Central Vehicle Register, 13 samples covering eight half-weeks each are drawn every year from the current stock of vehicles. The sample is allocated evenly to the individual reporting half-weeks. A questionnaire is sent to the owners of the selected vehicles who have to enter the relevant data and return the questionnaire to the Federal Office for Goods Transport or the Federal Office for Motor Traffic. These authorities produce the statistics in cooperation with the Federal Statistical Office which is responsible for methodological issues. Due to the heterogeneous patterns of vehicle use, a considerable amount of time will have to be spent for explanations and answering queries of the respondents.

While the above survey concept will allow complete coverage of goods transport by German vehicles, the transport performed by foreign vehicles in Germany cannot be included. Such information is however indispensable for traffic planning. Over the medium term, it will be possible to draw on a database which is to be set up at the Statistical Office of the European Communities; it will contain comparable data to be submitted by the Member States on the basis of a Directive.

New publication series entitled Spektrum Bundesstatistik

Spektrum Bundesstatistik (Spectrum of Federal Statistics) is another new publication series on organizational and methodological questions that has been introduced by the Federal Statistical Office. It replaces the series Ausgewählte Arbeitsunterlagen zur Bundesstatistik (Selected Working Papers on Federal Statistics) which was discontinued with Number 26 Quellen und Forschungen zur Historischen Statistik von Deutschland (Sources of and Research on Historical Statistics of Germany). The new publication, which can also be obtained at the bookseller's, is complementary to the series Forum der Bundesstatistik (Forum of Federal Statistics); it will also be a platform for the discussion of important problems of official statistics and is to give an impetus to the further development of federal statistics beyond everyday work. The publications will provide methodological information on the concepts of the data collection, processing, and presentation systems in the various fields of official statistics. In addition, it is planned to publish at irregular intervals project and research information arrived at by the Federal Statistical Office – or obtained from external institutes commissioned by the Office – and selected conference reports.

The first volume of the publication series Spektrum Bundesstatistik is entitled Internationaler Workshop 1992 zur Umgestaltung der Agrarstatistik in den Staaten Mittel- und Osteuropas (International Workshop, 1992, on the Transformation of Agricultural Statistics in the States of Central and Eastern Europe). It is a report on a conference held jointly by the Federal Statistical Office and the Institut für Agrarsektoranalyse of Bonn University in May 1992. Other publications planned for 1994 include a volume on the Bewertung des Waldes im Rahmen der Gesamtwirtschaftlichen Vermögensrechnung (Forest Evaluation as Part of the Wealth Accounts of the National Economy). It will present the theoretical and practical approaches to forest evaluation and an analysis of possible statistical sources of forest evaluation as part of the wealth accounts of the national economy. It will also include a calculation of alternative evaluations of the forest soil and forest stands in Germany. Other publications to be included in the series are two reports from the research area of Umweltökonomische Gesamtrechnungen (Environmental-Economic Accounting) concerning projects that have been conducted by external scientists and institutes commissioned by the Federal Statistical Office. The first project report (Joachim Klaus et al.: Umweltökonomische Berichterstattung – Ziele, Problemstellungen und praktische Ansätze – Environmental-Economic Reporting – Objectives, Problems, and Practical Approaches) was published in March 1994.

Employment at Kreis level in a new series entitled Erwerbstätigenrechnung der Länder – Results of the working group on "Federal and Länder employment calculations" –

For many purposes of economic and social policies, employment is an important indicator. Relevant data in this context are not only the level and trend of overall employment with regard to the Federation but also information on smaller administrative units. The working group on "Federal and Länder employment calculations" has the task to calculate annual average employment figures down to the *Kreis* (administrative district) level; these figures are further broken down by sectors of economic activity. Issue No. 1 of the series *Erwerbstätigenrechnung der Länder* (Länder employment calculations) entitled *Erwerbstätige in den kreisfreien Städten und Landkreisen in der Bundesrepublik Deutschland (in den Grenzen vor dem 3. Oktober 1990)* (Employment in the towns not attached to a *Landkreis* and *Landkreise* in the Federal Republic of Germany - in its territory before 3 October 1990) presented for the first time the results for the period from 1987 to 1990. The regional breakdown comprises the levels of *Länder* (federal states), *Regierungsbezirke* (administrative regions), and *Kreise* (administrative districts). For each of these regional units, a breakdown by sectors of economic activity is given, i.e. by "agriculture, forestry, fisheries", "production industries", "trade, transport, and communications", "other business services", and "general government, households, private non-profit institutions". Information given in addition to these tables are Länder data, with a more detailed breakdown by sectors of economic activity and by status in employment, and comprehensive methodological explanations.

This new series is published by the Statistisches Landesamt Baden-Württemberg (Postfach 10 60 33, D-70049 Stuttgart, tel. (0)7 11 / 641 - 28 66). Issue No. 1 has about 100 pages and costs DM 12.20 (article No. 8551 90001; ISSN 0944-0345).

Cooperation with science and research

Developing an overall concept to cover the expenditures for biotechnological research and development

Biotechnology is regarded all over the world as one of the key technologies of the 21st century. It is expected that, with its manifold applications in the fields of medicine, pharmacology, chemistry, agriculture, the food industry, the environment, and computer science, biotechnology will trigger a technological revolution comparable to that of information technology. Since, until recently, only few reliable data on the extent and structure of biotechnological research and development (R & D) were available in Germany, the Federal Ministry for Research and Technology commissioned the Federal Statistical Office to carry out a research project with the objective to determine the expenditures for biotechnological R & D.

Covering the expenditures for biotechnological R & D involves problems which are due to several factors: First, biotechnological R & D is performed by enterprises of different economic branches to develop different products and by research institutions of different scientific fields. Thus there is no official classification showing the entire area of biotechnology under one single heading. Second, there is no generally accepted definition of biotechnological R & D even outside the sphere of official statistics. Therefore, the first task was to develop an operational definition which would then be used as a basis for carrying out special surveys.

In cooperation with biotechnology experts, a definition of biotechnological R & D has been developed which is both to define the survey subject and to serve as a criterion for the respondents to properly allocate their research activity. The statistical requirements to be met by a definition of the survey subjects conflict with the characteristics of the research field of biotechnology. On the one hand, a definition suitable for statistical purposes should clearly delimit the survey subject and remain unaltered over a considerable period of time to allow identification of changes occurring over time. On the other hand, being a rather new research field, biotechnology is continuously changing, since new research areas and applications are discovered or since the assessment of the importance of individual research areas and applications is changing. In addition, biotechnology is a multidisciplinary research field integrating knowledge and methods of various traditional areas of teaching and research. As this technology is rather new, it is moreover closely linked to fundamental research with many overlapping areas that cannot clearly be allocated. For statistics, further problems of delimitation arise for the wide range of biotechnology applications. Biotechnological R & D is characterized by polyhierarchical interconnections; consequently, it may be structured and delimited in various ways, depending on an expert's prime interest of research.

A definition of biotechnology, originally developed by the European Federation of Biotechnology, has been modified to include genetic engineering; the generally accepted definition of R & D has been integrated, too. Thus the definition used for the research project has been the following: Biotechnological research is systematic creative work integrating knowledge from biochemistry, microbiology, molecular biology, and engineering disciplines in order to utilize or enlarge the potential of living organisms or their cellular, subcellular or molecular components for the development of products, processes, and services.

The structure of the further developed and detailed delimitation is not based on the different areas of application but on the contents of biotechnological R & D since the contents are relevant to different areas of application and are

thus more suitable as delimitation criteria. Since the authorities ordering statistics and the users show more and more interest in expenditures for genetic engineering R & D, biotechnological R & D has been subdivided into biotechnological R&D excluding genetic engineering, on the one hand, and genetic engineering R & D on the other. To permit comparing the collected data with other statistics, and thus to obtain informative indicators, a detailed breakdown of the expenditures for biotechnological R & D is based on the relevant official classifications.

For R & D statistics, a distinction is made between the activity concept and the funding concept. Consequently, data on expenditures for biotechnological R & D could be collected either from the institutions performing R & D activities or from those funding R & D. As expenditures for biotechnological R & D are partly financed through institutional promotion funds which cannot be allocated to individual research areas, the surveys cover the institutions carrying out biotechnological R & D activities.

Collecting data on the expenditures for biotechnological R & D is based on the four sectors into which, for purposes of research statistics, the national economy is subdivided in accordance with international conventions. In the general government sector, expenditures for biotechnological R & D can be covered as part of the regular survey of revenues and expenditures of public, and publicly promoted, institutions of science, research, and experimental development. The research institutions which generally are not publicly promoted were covered by a follow-up survey based on Art. 7 ("Surveys for special purposes") of the Federal Statistics Law. This survey included questions on expenditures for biotechnological R & D. Special surveys had to be conducted for the higher education sector and the business sector. For the latter, the survey was actually carried out by the company SV-Gemeinnützige Gesellschaft für Wissenschaftsstatistik m.b.H. which regularly collects data from enterprises with regard to expenditures and personnel for research and experimental development. In the higher education sector, the Federal Statistical Office conducted a voluntary-response survey on the basis of Art. 7 of the Federal Statistics Law. The final report will presumably be published in spring 1995.

Events

Scientific Colloquium

"National accounts: Established procedures - New perspectives"

The above colloquium was organized jointly by the Federal Statistical Office and the German Statistical Society (Committee on the Methodology of Statistical Surveys) and was held in Wiesbaden on 11 and 12 November 1993. It was the second colloquium of this kind in a series of events which started in 1992. A total of some 120 persons participated, about half of whom came from the statistical offices of the Federation, of the Länder, and of foreign countries, while the other half belonged to spheres other than official statistics, i.e. mainly institutions of higher education, but also non-university research institutes and federal ministries.

National accounts were discussed from quite different aspects as is illustrated, for instance, by the topics of lectures such as "The relevance of national accounts to economic policies", "The applied economic research community as a user of national accounts", "Regional accounts", "EC requirements to be met by national accounting concepts", "Economic statistics and national accounting concepts" or "The theoretical framework of national accounting". A lecture on "International systems of national accounting" provided information about the progress in terms of harmonization and comparability that is to be obtained by the current adjustment of the European System of Integrated Economic Accounts (ESA) to the United Nations system, on the one hand, and the future applicability of the revised ESA to national accounting also in the domestic sphere, on the other. The lecture on "Welfare models - opportunities and limits of national accounting" demanded that the clear turnover-oriented approach to national accounting should be abandoned; instead, more efforts should be made to show positive and negative contributions to a sustainable development, including the consumption of natural resources, for instance, by means of calculating material and energy flows. The lecture on "Satellite systems of national accounts", showed how statistical coverage of specific areas such as environmental protection or household production can be achieved to provide information in addition to, and compatible with, national accounts. The Federal Statistical Office published all lectures of the colloquium as volume 26 of its series Forum der Bundesstatistik (Forum of Federal Statistics) in the second half of 1994.

Intra-Community trade statistics - a look back after one year

Preliminary remarks

The previous edition of this periodical included a detailed article on German statistics on foreign trade within the Single European Market. A general survey discussed the necessity and importance of statistics relating to Germany's trading of goods with other EC member states. At the same time, it stressed the continued close links with statistics on Germany's trading of goods with other (i.e. third) countries and considered various data collection

methods for intra-Community trade statistics. Finally, the legal norms were briefly mentioned which applied to the production of German statistics on foreign trade within the Single European Market at the beginning of 1993.

A second paragraph discussed in detail the largest component of German statistics on foreign trade within the Single European Market, namely the statistics on trade between member states (intra-Community trade statistics). At the beginning of 1994, a legal basis did not yet exist for the two other components covering statistics of transit trade and storage statistics as parts of the trading of goods between member states. Consequently, the data reported were not yet reliable¹⁾. Right at its beginning, this paragraph outlined the legal and organizational bases of intra-Community trade statistics, followed by a detailed description of the underlying concept.

At the end, the problems expected to arise during the initial stage of intra-Community trade statistics beginning in January 1993 and their impact on the quality of the results to be obtained were outlined in brief.

The present paper may be seen as a continuation of the preceding one. For this reason, the concept of intra-Community trade statistics will once again be briefly outlined in its introduction (paragraph 1), followed by a detailed description of the measures taken by the Federal Statistical Office to introduce intra-Community trade statistics (paragraph 2) and the initial difficulties in collecting and processing intra-Community trade data (paragraph 3).

1 Concept

Intra-Community trade statistics are essentially based on regulations of the European Communities. National legislators are only concerned with some individual provisions supplementing the EC norms or regulating specific details.

Intra-Community trade statistics based on the businesses' obligation to provide information are compiled at monthly intervals. As a rule, all businesses liable to account for VAT are responsible for providing information. They may however be exempted from the obligation to submit a declaration for the purposes of intra-Community trade statistics if their annual scope of dispatches to other member states or scope of arrivals from those countries does not exceed the so-called assimilation/simplification threshold of DM 200,000.

Parties obliged to submit statistical declarations transmit the information required either on a special machine-readable form designed for the purposes of intra-Community trade statistics or on magnetic media (disks, magnetic tapes and magnetic tape cassettes) directly to the Federal Statistical Office. Contrary to extra-Community trade statistics, customs offices are not at all concerned with these matters any longer. The parties responsible for providing information often engage third parties (e.g. carrying agents, tax consultants) to submit the declarations for the purposes of intra-Community trade statistics. Though this is permissible, the commissioning party will not be exempted from its responsibility to ensure the timely submission of a complete and correct statistical declaration.

Apart from auxiliary variables (name, address, taxation code and period of declaration), the data collection based on EC legal norms covers such information as the partner country (for dispatches the member state of destination, for arrivals the member state of consignment), the amount and value of the commodity traded, the nature of the transaction and the active means of transport with which the commodity concerned has left or entered the statistical territory. In line with German national legislation, the country of origin (for arrivals only), the national region concerned (for dispatches the Land of origin, for arrivals the Land of destination), the statistical procedure and, for sea or air transport, the port or airport of loading and unloading (for dispatches and arrivals, respectively) are inquired additionally. In subject terms, the variables inquired are broken down corresponding to the eight-digit Combined Nomenclature of the European Communities (CN) and, in regional terms, in line with the EC Country nomenclature for the external trade statistics of the Community and statistics of trade between Member States.

With the aim of verifying and updating the data stored on the group of respondents and roughly checking the data submitted for their plausibility, the EC legislators have ordered the national tax authorities to regularly report to the national institutes responsible for intra-Community trade statistics (as for Germany, the Federal Statistical Office) the trade data (intra-Community deliveries and taxable intra-Community acquisitions) submitted by the parties who are liable to pay taxes under the VAT laws. In Germany, this is usually done at quarterly intervals on the basis of the monthly advance VAT returns. Besides, a register of intra-Community operators was for the first time established for the purposes of foreign trade statistics. Following the EC regulation, the German tax authorities are also obliged to assist the Federal Statistical Office in establishing and managing this register.

2 Preparatory work

Meanwhile adopted: Council Regulation (EEC) No. 854/93 of 5 April 1993 on transit statistics and storage statistics relating to the trading of goods between Member States (Official Journal of the European Communities 1993 No L90/1)

At national level, the preparatory work to introduce intra-Community trade statistics was started either rather late or in many cases even too late, as it turned out during the course of preparation. This was exclusively due to the difficult and prolonged discussions of the preparing bodies of the European Communities. Decisions of fundamental importance were taken at the end of 1992 only.

Germany repeatedly reminded the Commission authorities at all levels of the decisions still to be taken and stressed that, as a logical consequence, the time remaining would not be sufficient to complete the preparation of the new statistics properly by 1 January 1993.

This paper does not intend to examine whether the process of passing the legal provisions required could have been accelerated after it had become obvious that it would take more time than originally planned. In that case, however, it would certainly have been necessary to shift the balance between the principle of subsidiarity and the conception of a large-scale European harmonization.

Anyway, the Federal Statistical Office attempted to plan, organize and carry out the introduction of the new statistics as early as possible. The September 1991 issue of "Wirtschaft und Statistik"²⁾ included a first detailed reference to the new foreign trade statistics. In February 1992, the businesses were contacted which in the past had transmitted their foreign trade data on magnetic media to the Federal Statistical Office. These mainly large businesses were informed about the new statistics and asked to integrate this system into their existing data processing structure at an early time. Unfortunately, the businesses could only be provided with general information and a rough data record description at that time, since the details regarding the set of questions and the coding of data were not yet completely known. It was only in September 1992 that those details became available for a final data record description.

In May of the same year, the Federal Statistical Office informed the most important users of the results of foreign trade statistics about the new statistics on trade between member states of the European Communities. This group of users covered above all the umbrella organizations of the German trade and industry (Association of German Chambers of Industry and Commerce, Federation of German Industries, National Association of German Skilled Crafts) and some large professional organizations. They had agreed to prepare their member firms for the new organization of German foreign trade statistics starting in 1993. However, the above information comprised only an introductory description of intra-Community trade statistics and the innovations entailed.

In the middle of 1992, the Federal Statistical Office launched an intensive information campaign. Several experts of the Office visited chambers of industry and commerce, industrial associations, institutes of the industry and large corporate groups where they delivered papers on the statistical concept of intra-Community trade statistics and answered the questions of listeners who were interested not only in the production of the new statistics but also its links with the new VAT legislation and the fiscal administration. These lectures were delivered until spring 1993. As they met with general acclaim and a very favourable response, it was very unfortunate that, despite the considerably larger demand, they could not be continued mainly due to a lack of personnel.

Meanwhile, the preparations for automated data processing applications had been started in businesses which had decided in favour of data transmission on magnetic media and at the Federal Statistical Office as well. Many businesses incorporated the completion of declarations for the purposes of intra-Community trade statistics into their data processing systems with the aim of transmitting information on magnetic media in the future. Besides, some software manufacturers offered PC programs for compiling and transmitting intra-Community trade data. Originally, the European Communities had intended to early supply all businesses responsible for providing information at European level with one and the same PC program free of charge. So far it has however not been possible to put this intention into practice because a user-friendly and above all well-tested program version does not yet exist.

Within a very short period of time, the applications required for processing intra-Community trade data reported from January 1993 had to be developed at the Federal Statistical Office. At the same time, the data processing configurations available for the purposes of extra-Community trade statistics had to be adapted to the requirements of the new system of foreign trade statistics.

A special application based on a database system was designed and implemented for managing the new register of intra-Community operators³⁾. A sophisticated infrastructure had to be developed to receive, process and file the declarations on disks, whose number was expected to increase considerably (which later turned out to be correct). The process of selecting a document reader and adapting the related software to transcribe the intra-Community trade data from the forms submitted required almost one year. This preparatory work was of pilot nature, consequently requiring a lot of time. Part of the work could therefore be completed and hence prove itself to meet the requirements after the introduction of intra-Community trade statistics only.

²⁾ See Bergmann, W.: "Erhebung des Warenverkehrs zwischen den Mitgliedstaaten der EG ab 1993" in "Wirtschaft und Statistik" 9/1991, p. 611 ff.

A decisive phase of preparation encompassed such works as designing, printing and distributing the forms. The decision about the contents of the forms was finally taken in late autumn 1992 after the discussion of the catalogue of variables had been concluded. At European level, the discussion of the form design took a long time as well. Owing to the German position in the discussion, the final form was well suited for machine-reading, apart from being understandable and clear in its design (allowing an easy filling-in of items). The effort made had been worthwhile as became obvious during the first months of the operation of intra-Community trade statistics. There were almost no complaints about the forms and their readability largely met the expectations of experts. The latter could be achieved not least thanks to the respondents who completed the forms thoroughly.

The only point occasionally criticized in the beginning was the little space left for figures in the form. In this context, a fifty-fifty splitting of the page into a left part for entering commodity designations and a right part for entering the respective figures would have been welcome. This very useful design of the form for the purposes of intra-Community trade statistics would however not have met the EC Commission's requirement to largely follow the Single Administrative Document for the border-crossing trading of goods with non-EC member states with respect to the overall size and internal dimensions.

Only in November 1992, invitations to bid were issued and finally the contract awarded for the manufacture of approximately six million forms (individual sheets) and their free distribution to the respondents. An earlier date, which would have considerably supported the progress of preparations, was not feasible due to the lack of detailed information. For organizational and also financial reasons, the Federal Statistical Office neither added copies to the forms nor had them manufactured as continuous forms. Special requests of respondents such as printing their addresses or continuously recurring information on the forms could not be considered, either.

The fact that initially neither the group of respondents nor the demand for forms were known in detail was an obstacle to a well-aimed distribution of the forms to the parties responsible for providing information. To obtain the information required, a survey of all businesses would have had to be conducted before, inquiring both the 1992 EC transactions and their total value (to determine the group of respondents) and the expected number of individual transactions with partners from other EC member states in 1993 (to determine the demand for forms). However, the legal basis for a preparatory survey of this kind was not sufficient; and the time available to prepare it was too short. Only at the beginning of August 1992, the Federal government had taken a decision regarding the level of the assimilation/simplification threshold (DM 200,000) as a criterion to determine the group of respondents. Besides, the file-based survey would have had to be very extensive even if it had been conducted among businesses only (more than 2 million addresses). The reason is that initially each business would have had to be regarded as a potential supplier or demander within the Single European Market.

Part of the information required to define the group of respondents could finally be derived from the documents of the tax authorities which the Federal Statistical Office was provided with to establish the business register in the course of 1992. The fiscal administration had required all parties who were liable to pay taxes under the VAT laws to indicate in their 1992 monthly advance VAT returns whether they had delivered goods to other EC member states or acquired goods from there during the given declaration months. A declaration of this kind automatically led to the incorporation of the businesses concerned into the business register of the Federal Statistical Office.

For the following two reasons, however, the information obtained from the fiscal administration was not satisfactory. On the one hand, it did not show whether a party who was liable to pay taxes under the VAT laws would actually become obliged to submit a statistical declaration, i.e. whether its dispatches to or arrivals from other EC member states would really exceed the annual threshold of DM 200,000. On the other hand, it could not serve to draw conclusions as regards the number and kind (dispatch/arrival) of forms needed by the individual parties obliged to submit statistical declarations. After a thorough consideration of the costs incurred and time required by the business sector and the Federal Statistical Office, the decision was taken to provide all businesses liable to account for VAT who were listed in the business register with a so-called initial set of equipment comprising 20 forms of the above two kinds, instructions for completing the forms, a form for ordering further supplies of intra-Community trade statistics forms, and a form for ordering the Commodity Classification for Foreign Trade Statistics, 1993 edition. The criticism often raised in this respect that this distribution did not yield any well-directed effects is justified. Because of the advantages mentioned, however, this situation had to be coped with. Corrections in the business register on the basis of firm names (Bäckermeister ...; Fahrer & Co., Taxi-Unternehmen) would not have been clear enough.

In line with our expectations, a huge amount of telephone queries had to be answered after the parties responsible for providing information had been supplied with the initial sets of equipment. To facilitate a prompt and unbureaucratic system of answering all the questions, a special telephone service was set up. Being available during the official working hours, this service was based on the knowledge of the experts of foreign trade statistics. During the first half of 1993, this service was offered without any interruption. The number of postal queries also increased drastically. To the extent possible, they were answered via phone, too, in order to ensure early replies.

Naturally, the questions mainly concerned problems of completing the declarations for the purposes of intra-Community trade statistics. Such issues as the obligation to provide information and the statistical treatment of special cases (e.g. chain transactions, transactions without financial compensation and replacement) were of prior importance. However, general questions regarding the purposes and use of intra-Community trade statistics within the Single European Market, authorized methods of declaration and declaration deadlines, and the concept of intra-Community trade statistics had to be answered as well. Quite a large portion of queries referred to the new VAT legislation entailed by the establishment of the Single European Market, in particular the introduction and application of the VAT identification number and the quarterly reports to be submitted to the Federal Tax Agency.

3 Initial stage

Despite the long-term experience with foreign trade statistics, a well-qualified team of experts and thoroughly planned preparations, difficulties which sometimes could not easily be overcome arose during the initial stage of intra-Community trade statistics. The causes were manifold. Thus, for instance, the enforcement of EC legal norms was characterized by considerable delays (see paragraph 3.1). Other causes originated from the new VAT legislation and the incorporation of the fiscal administration in the organizational preparations for and afterwards the production of intra-Community trade statistics at the Federal Statistical Office (see paragraph 3.2). In this context, the new declaration procedures for the purposes of intra-Community trade statistics should be mentioned as well (see paragraph 3.3).

3.1 Delays in passing and putting into force EC legal norms

The delays in preparing and putting into force the legal norms required were undoubtedly one of the main reasons for many difficulties. As mentioned before, the EC Basic Regulation came into force in November 1991 only, while the Implementing Regulation to the Basic Regulation, which was even more important for producing intra-Community trade statistics, was put into force not earlier than in October 1992. And finally, the EC Information Media Regulation, which was of substantial importance for the preparation of forms, had to be waited for until December 1992. Here, we do neither intend to go into the reasons for these delays and their grave consequences nor do we want to find out whether they could have been avoided. As a matter of fact, however, the preceding meetings of various EC working bodies to prepare the concept of the new intra-Community trade statistics took quite more time than had originally been planned. However, to reach an agreement between twelve member states and the EC Commission understandably takes time, since sometimes greatly varying interests and aims and the completely different initial situations have to be taken into consideration.

The delays in passing and putting into force the EC legal norms required had a very adverse impact on the planning procedures of businesses. Those businesses which in the past as well had transmitted their data for the purposes of compiling foreign trade statistics on magnetic media could finally be informed about variables, codes and data records in September 1992 only. Though the early information issued by the Federal Statistical Office in February 1992 was helpful for a general planning in the data processing departments of businesses, it was not sufficient for a detailed planning and in particular not for programming. Many of the test disks or tapes requested by the Federal Statistical Office from businesses for examination purposes therefore arrived only in the course of January 1993. More than 50 % gave cause for complaints and consequently had to be returned. In some cases, the test runs were repeated several times. Upon the deadline for submitting the January results, about 1,000 checked and usable magnetic media were available, i.e. approximately 50 % of the amount announced originally. Problems of this kind decreased remarkably only at the end of the first half of 1993. It should be considered in this context, that the number of businesses submitting their data on magnetic media increased from 2,000 in January to more than 3,000 in June. The current number of parties providing their information on such media amounts to approximately 4,000.

The delays in putting into force the EC legal norms required also adversely affected the provision of information on forms. Since the Information Media Regulation was issued very late, the printing order could be placed and the forms be printed in December 1992 only. As a result, a total of 120,000 businesses were provided with the initial set of forms for the purposes of intra-Community trade statistics only at the end of that month. Consequently, some businesses were informed too late about the introduction of intra-Community trade statistics or at least the details thereof. This, in turn, led to a postponed beginning of the phase of learning and making corrections which often took several weeks with parties submitting their declarations on paper as well.

Due to pending decisions of the European bodies, the Federal Statistical Office was not in a position to initiate essential work in the technical field and the area of machine preparation at the time originally scheduled. In the end, all work had to be carried out within a very short time, which led to both continuously recurring trouble in the organization of work and an accumulation of mistakes and consequently further delays. If the necessary decisions had been taken earlier, a longer, well-founded preparation and introduction period would have ultimately led to reduced costs and time and right from the beginning avoided temporary quality losses with regard to the first monthly results of intra-Community trade statistics.

3.2 Application of the new VAT legislation and the EC legal norms in producing intra-Community trade statistics

One of the problems in this context was discussed by the paper which was mentioned in the beginning and published in this periodical at an earlier time. The problem concerned the taxation codes whose length and structure differed from Land to Land. In line with the EC Basic Regulation, however, these taxation codes are an important auxiliary variable for the purposes of intra-Community trade statistics. Due to this lack of harmony, the Federal Statistical Office faced an increased administrative burden and the businesses of some Länder the necessity of using exclusively for statistical purposes a taxation code with an adapted structure. In Bavaria, for instance, the eight-digit VAT codes do not include the code of the competent local tax office. For statistical purposes, the parties responsible for providing information had therefore to be assigned special VAT codes extended by the code of the competent local tax office.

In addition, the differences between the taxation codes of the individual Länder had indirect, though far-reaching consequences. Because of the lack of harmonized taxation codes in the Federal Republic as a whole, the German fiscal administration was forced to develop a completely new system of numbers as VAT identification numbers harmonized at the national level which, according to the new VAT legislation, had to be introduced by the Federal Revenue Administration for the purposes of a European-wide control of VAT and revenues taxation. This new system is in no way compatible with the existing system of specific Länder taxation codes. In other member states, the VAT identification number differs from the VAT code only in so far that it is preceded by the national code in the form of one or two letters. It is only logical that the existence of two substantially different numbers with almost identical structures had to lead to confusion. As a consequence, the Federal Statistical Office received a huge amount of queries, and correction work required a lot of time. This was one of the main reasons for the delays later observed in the processing and compilation of foreign trade statistics and in the planned comparison of taxation values and invoiced amounts. Just to mention it, these difficulties have not yet been overcome.

Another reason connected with taxation was the late availability of the addresses of parties liable to account for VAT who were engaged in EC transactions. Since less than 40,000 businesses had only indicated their EC transactions by July 1992, the fiscal administration had to initiate a comprehensive action to once again point out the EC trade passage in the advance VAT returns to the parties liable to account for VAT. Not least due to this action, the known number of businesses engaged in EC transactions increased considerably by the end of the year. However, the Federal Statistical Office got the information about a larger portion of these businesses only upon the end of 1992, after 120,000 businesses had been provided with the survey documents in December. At the beginning of 1993, another 90,000 businesses finally received their documents in the context of a second supply.

3.3 New declaration procedures

Many of the difficulties faced by both businesses and the Federal Statistical Office were, among other things, due to the new organization of the declaration procedures. As intra-Community trade statistics were partially brought into line with the provisions of VAT legislation, namely with respect to the obligation to provide information, the exclusion of certain flows of goods, and taking commercial invoices as a basis for the values to be indicated in the statistical declaration, the majority of businesses shifted the task of providing data for intra-Community trade statistics to their accountancy units. Until that time, the dispatch departments of businesses had usually been concerned with the physical treatment of foreign trade transactions and the closely linked provision of statistical declarations. As far as extra-Community trade is concerned, the above responsibilities in general still lie with the dispatch departments. The new situation however required the accountancy units to learn from the knowledge and experience gained by the dispatch departments. In the beginning, working with the Commodity Classification for Foreign Trade Statistics and allocating the goods to individual groups posed great problems to the accountancy units. The lack of experience in handling product classifications was very clearly noticeable. Such operations as characterizing and coding a transaction with another country according to its nature (final purchase/sale, barter transaction, financial leasing, return of goods, replacement, delivery of goods for or after processing under contract, deliveries under repair or maintenance agreements, etc.) were also unfamiliar. The concept of the statistical value was also new to the staff of accountancy units. Until that time, it had not been a task of accountancy units to derive statistical values from the invoiced amounts using adequate and permissible estimation methods. Today, all these difficulties have been overcome and, consequently, the number of queries regarding these issues has decreased

Data transmission on magnetic media, which is strongly advocated by the European Communities, has been chosen by businesses to an ever greater extent. They either use their own data processing programs for this purpose or buy standard programs from software houses for submitting statistical declarations. In view of an earlier submission of declarations (no more manual completion of forms by businesses) and a shortening of the processing period (no more manual data entry at the Federal Statistical Office), the Federal Statistical Office has been supporting this development though almost in each case the changeover from providing information on paper to submitting magnetic media has caused additional problems requiring time- and energy-consuming checks and corrections.

As a result of the establishment of the Single European Market and the abolition of customs formalities between the EC member states, the German customs authority also ceased to operate at the internal borders. Consequently, the valuable support for statisticians as regards the recording of trade between member states was discontinued as well. Until that time, the authority had not only received the statistical declarations for exports and imports, but also initially checked them for completeness and, based on the Commodity Classification for Foreign Trade Statistics, for a correct allocation of the goods traded. Since 1 January 1993, this very first quality check has been an integral part of the responsibilities of the Federal Statistical Office. It has of course caused additional work, but, what is even more, it cannot be made at the time of dispatch or arrival any longer and has to be carried out without the involvement of customs offices. A lasting effect of this situation on the results of intra-Community trade statistics cannot be denied.

In the previous paper on German statistics on foreign trade within the Single European Market, concern was expressed that all declarations for the purposes of intra-Community trade statistics might arrive at the Federal Statistical Office during the first few days each time a reference month has expired. Submitting declarations each time a dispatch or arrival takes place (as it is the case for extra-Community trade statistics based on continuous customs control) is not stipulated by the EC regulations in order to allow businesses to combine similar cases at monthly intervals and save transmission costs. Besides, the use of magnetic data media does not allow a continuous data transmission. Characterized by an uneven workload, the first year of intra-Community trade statistics has justified the concern expressed in the beginning.

3.4 Other causes

To provide a more complete picture of the difficulties faced during the introduction and implementation of the system of intra-Community trade statistics, this paragraph is going to show two more causes thereof. Difficulties at the Federal Statistical Office were not seldom caused by its own, necessarily very complex organization of data processing in the foreign trade statistics area. Whenever an error occurred in the network of machine processing, the whole process was interrupted and sometimes even a repetition of operations already completed became necessary.

Linking the obligation to provide information to VAT liability made the introduction of intra-Community trade statistics even more difficult with regard to integrated groups of companies (developed for VAT purposes). An integrated group of this kind provides a joint VAT declaration for all its integrated companies. For statistical purposes, however, each of the companies usually submits its own declaration. To compare the statistical information with the information entered in the advance VAT returns, the statistical information of the individual integrated companies hence has to be brought together. As regards the above integrated groups of companies, their individual components therefore had to be listed, marked and be additionally incorporated one by one as declarants into the business register. This was a time-consuming process requiring the cooperation of the parties responsible for providing information. However, this task can never be regarded as completed, as new integrated groups of companies are born, others die, and existing groups expand or become smaller.

3.5 Effects

The difficulties mentioned considerably impaired the quality of the results of intra-Community trade statistics. This refers to both their up-to-dateness and reliability. Originally, the deadline scheduled for the availability of the results of intra-Community trade statistics was two months after each reference month has expired. In the first half of 1993, the results were partly issued more than four months later than planned. This delay could be reduced only gradually.

Late submissions of data, repeated corrections, incorrect period allocations (which were noticed too late), and processing delays often did not allow a precise delimitation of the monthly periods. Even for the annual adjustment which this time will be many times as comprehensive as the previous ones, a precise delimitation will not be fully possible. As a consequence, the current monthly results are issued with a reservation regarding their temporal delimitation.

In addition, the reliability of data has been adversely affected by mistakes in the declarations which at least during the first months of the new foreign trade statistics occurred rather often and could not always be disclosed. This was true particularly for the allocation of goods to the individual categories of the Commodity Classification for Foreign Trade Statistics. The above considerable problems faced by the businesses with respect to the allocation of goods became smaller only in the course of time and with increasing experience.

The quality of information about invoiced amounts and statistical values became satisfactory only in the second half of the 1993 reference year upon the completion of the exchange of experience with and learning process in the businesses, both of which had lasted several months.

Any deterioration of the results of intra-Community trade statistics automatically had adverse effects on the results of foreign trade statistics as a whole, which the interest of politicians, trade and industry finally focuses on. For this reason, the idea of the Federal Statistical Office to provide the users of foreign trade statistics first with the results

of extra-Community trade statistics (which are available earlier than the other results) did not meet with the expected positive response. It should be mentioned in this context, however, that the issued extra-Community trade data were not complete, particularly with regard to imports. A not negligible portion of the German imports from third countries enter the internal market via another EU member state from which they are moved to Germany in a second step only. In German foreign trade statistics, these operations appear only once, namely in the form of intra-Community trade in goods and in particular goods coming from another EU member state. Only when intra-and extra-Community trade data are finally combined and the goods from other countries are listed by their origin, imports from third countries will be recognisable.

4 Prospects

Though intra-Community trade statistics have been compiled for more than one year and all aforementioned preparations completed, planning and carrying out preparatory works will continue to be necessary in the context of a further development of statistics in the future. Right from the beginning of the production of intra-Community trade statistics, information has been collected about conceptual contradictions, difficulties in implementing the concept, ambiguities or a lack of detail in the provisions, organizational difficulties in data transmission and also incompatibility with VAT legislation. This information will considerably contribute to the preparations for an amendment of the legal norms for intra-Community trade statistics in the next few years.

The Federal Statistical Office will in good time get prepared for the application of the PC software for transmitting intra-Community trade data which the businesses have been promised to be supplied with free of charge. As soon as this software is available, it will be tested by some selected businesses. Upon the completion of this test and necessary improvements which may result from it, the program concerned will be distributed free of charge among the interested parties responsible for providing information. At present, the ways are checked in which counselling during the implementation phase and a proper management of the data processing programs can be ensured.

Intra-Community trade statistics and its underlying, in part completely new concept of foreign trade statistics suggested new ways of data collection and new processing procedures, the aim of which was to fulfil the requirements of the concept of intra-Community trade statistics and to implement it in an efficient way. Some of the new methods and approaches which are of particular interest are discussed in the 1994 "Wirtschaft und Statistik" periodical. Thus, for instance, one of the papers examines the opportunities of an early estimation of foreign trade results in a rough breakdown. Another paper deals with the register of intra-Community operators. It discusses the legal bases, functions, structure and uses of the register and the first experience gained with its application. And last but not least, a third paper refers to aspects of both intra- and extra-Community trade statistics. It shows the inter-relations between extra-Community trade statistics and the customs authority on the one hand, and intra-Community trade statistics and the fiscal administration on the other. Finally, it describes the conclusions for statistical work.

Foreign-Language Publications

English

Survey of German Federal Statistics

The present edition primarily comprises updated summary contributions on the organization of federal statistics, their legal foundations, tasks and objectives as well as their implementation, on public relations work and the cooperation with international organizations.

Published at irregular intervals.

Federal Statistics - Users and Purposes *)

Non-recurrent publication.

Zahlenkompaß - Key Data on Germany

This brochure presents a selection of major benchmark figures from all subject fields along with comparative figures for back years.

Annual publication.

Statistics in the Democratic Process at the End of the 20th Century

Anniversary publication for the 40th Plenary Session of the Conference of European Statisticians (CES).

Non-recurrent publication.

Foreign Trade according to the Standard International Trade Classification (SITC-Rev. 3) – Special Trade

This publication comprises the foreign trade figures according to the SITC-Rev. 3 with data by countries of origin/destination.

Annual publication.

Studies on Statistics

Census 1987

Published at irregular intervals. Issues which are still available:

No.	Title
23	The German Microcensus
37	Surveys and Registers
39	Concentration Statistics
40	Kind-of-Activity Units in Mining and Manufacturing
41	Dissemination of Statistical Information
42	Indices of Orders Received and Orders on Hand
43	Calendar Adjustment of Time Series
44	Information Campaign for the Population

French

Aperçu de la statistique fédérale allemande .

Cette édition abrégée de 1976 a été préparée surtout à l'intention des utilisateurs désireux de se renseigner sur les grandes lignes des activités statistiques plutôt que sur tous les détails. Elle contient donc de la version intégrale l'ensemble des textes décrivant les buts, les bases, les méthodes et les résultats de la statistique fédérale.

Publié à intervalles irréguliers.

Boussole des chiffres 1991

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La France et l'Allemagne en bref *)

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Russian

Introduction of Federal Statistics in the New Federal Länder

Publication series "Forum of Federal Statistics", Volume 23.

Non-recurrent publication.

Spanish

Guía Estadística 1991

Este folleto contiene una selección de datos importantes en todos los campos así como los datos comparativos de los años anteriores.

Trilingual

List of Major International Abbreviations (German – English – French)

Published at irregular intervals.

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