

Methods . . . Approaches . . . Developments

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Dear Reader,

This is the first edition of a new informational brochure in the English language which will in future be issued by the Federal Statistical Office at semi-annual intervals. As is indicated by the title, the brochure is to inform especially on methods and approaches used in the Federal Republic of Germany for compiling, processing and presenting federal statistics. The main emphasis will thus be on contributions dealing with new developments.

This brochure of the Federal Statistical Office is intended for all interested agencies abroad and for bodies of international and supranational organizations which attend to questions of statistical methodology. Its aim is to contribute to the worldwide endeavours made towards harmonizing national statistics.

Please let us know if you need additional copies of this brochure. We should also be grateful to receive your suggestions or comments.

Wiesbaden, July 1989

Egon Hölder

President of the Federal Statistical Office

The Catchword

Statistical registers

Statistical registers are (EDP-based) files comprising enumeration units (e.g. persons and households, enterprises and establishments, buildings and dwellings) which are arranged according to selected characteristics. These registers are used for the implementation of statistics as well as for the processing and evaluation of their results.

Statistical registers are employed in the first place as a means to prepare and conduct surveys. During the preparatory phase of a statistics, the registers can be used for determining the universe of the survey, for drawing samples and for realizing rotation schemes. Registers also have important auxiliary functions during the execution of statistical surveys, e.g. for organizing the dispatch of the survey documents in the case of mail inquiries.

Statistical registers are also of great importance during the processing and evaluation phase of statistics. They can, for example, be used as a reference basis for the completeness check.

The clear identification of the enumeration units in the registers permits to match in the process of evaluation data from surveys of differing content and periodicity, thus creating the prerequisites for their combined processing and evaluation. It is especially this form of evaluation which can considerably ease the respondents' burden of providing information.

Finally, these registers may themselves be the object of research. Analyses of this kind are for instance mere counts of the number of units included. Statistical registers moreover provide the bases for longitudinal analyses of the enumeration units.

Statistical registers thus are instruments contributing a good deal to rationalizing the operation of statistical surveys, extending substantially the possibilities of evaluation and analysis of the statistical material and also to easing the informational burden of the respondents.

It is therefore little wonder that the statistical offices all over the world have compiled voluminous registers for the most different kinds of enumeration units. Federal statistics, however, is presently maintaining only registers of enterprises and establishments for a number of economic sectors. These comprise in particular

- the file of production industries
- the register of agricultural holdings.

The Federal Statistical Office is at present considering whether to establish a file of enterprises in trade, hotel and restaurant industry.

There are in part controversial discussions about registers under aspects of data protection. Doubts have been voiced about the matching of data from different surveys on the basis of registers. For the activities within the strictly closed-off sphere of federal statistics, the main concern should however be to ease the burden of the respondents and to rationalize the surveys.

Further development of the collection, processing and presentation of data

Recording of services in production industries

In the past few years, enterprises of production industries have been offering increasingly specific services closely connected with the production of commodities. These services include for instance research and development, engineering, the generation of software, leasing, assembly and dismantling, repairs and maintenance work. Although these services have already been performed by enterprises of production industries so far, they were as a rule only part of the intermediate input for the own commodity production of the enterprise.

In consequence of the general structural changes, however, the business policy of the enterprises in production industries has been modified at least in partial spheres. In addition to the traditional commodity production, the enterprises of the secondary sector are also increasingly offering services. These services have however so far been included in production statistics only in cases where separate reporting numbers are provided for the individual services in the commodity classification (e.g. repairs and assembly work). Otherwise, they are not being covered by production statistics (see: "Gedanken zur Weiterentwicklung der Statistik des Produzierenden Gewerbes" in: *Wirtschaft und Statistik*, No. 7/1985, p. 555 f.). When studying more closely that part of the structural change to which the enterprises of production industries are contributing, it

becomes evident that production, marketing and purchase of services may differ considerably for the individual enterprises, inter alia as to production programme, manufacturing engineering, channels of distribution and customer requirements. Among others, the following questions will have to be clarified:

- whether and to what extent the production of services is significant for the entire sphere of production industries, and in which branches these services are particularly concentrated,
- whether the services are to be produced on a permanent basis,
- which types of services are supplied,
- to what extent services directly marketed as such are to be covered statistically,
- with which periodicity and regional analysis data on services are to be covered, and
- to what extent the enterprises of production industries receive services from other enterprises.

All these questions should first be settled in a pilot survey. Art. 6 of the Federal Statistics Law provides for this possibility, admitting such pilot surveys on a voluntary basis for methodological investigations. The pilot survey has meanwhile come to an end. The results are now being evaluated.

On the whole, the main objectives of the pilot survey could only be to test the questionnaires and the survey procedures so as to get an up-to-date overview of the possibilities of enterprises to provide information. Consequently, the pilot survey is a first but crucial step towards a better statistical presentation of the services furnished or received by enterprises of production industries.

A second step would then be to provide for the basic requirements for a current recording of services in production industries. This includes the necessary adaptation of the legal foundation and the extension of the Classification of Goods for Production Statistics.

Environmental satellite system of national accounts

At least in the Federal Republic of Germany, the development of satellite systems still is a new field of activities of national accounts. The purpose of satellite systems is to better comply with new demands made on these accounts with regard to comprehensive presentations of social concerns and subjects, such as health, environmental protection, tourism, education, research, household production. Besides the development of general concepts for satellite systems (see Edition 1/87 of "Methoden . . . Verfahren . . . Entwicklungen"), the Federal Statistical Office has in the past few years been working above all on the development of an environmental satellite system.

An environmental satellite system shows the interactions between the economy and the environment. Since the system is linked to national accounts, the main emphasis is on the economic aspect. Owing to the inclusion of the non-monetary description of the ecological situation, an environmental satellite system is however also a link between national accounts and a merely ecologically-oriented reporting system.

The purpose of a complete environmental satellite system is to provide data especially on four subject fields:

1. Environmental protection activities of the economic sectors,
2. Noxious emissions by the economic sectors,
3. Changes of environmental quality, and
4. Consequential costs of environmental degradation.

The pivotal part of the environmental satellite system is the presentation of the environmental protection activities of the economic sectors in monetary terms. Computation results on fixed capital formation, current expenditure and fixed assets relating to environmental protection in the spheres of waste disposal, water protection, noise abatement and air-pollution control are already available and regularly being updated.

Plans are to further push ahead in the near future with the conceptual and empirical work in the other partial spheres. For many questions concerning the interactions between the economy and the environment it is imperative to present the emissions according to economic units. The allocation of the emissions to the emitting sectors reflects both the influence of environmental protection measures and, for the economy as a whole, the effects of structural economic changes on the state of emissions. Activities in this respect have already been started.

As far as the recording of changes of environmental quality is concerned, proposals to consider environmental quality by means of a system of environmental indicators contrast with the demands for a monetary assessment of environmental quality and its changes. It will first be necessary in particular to prepare the theoretical ground in this field. The approaches to be followed will in the first place be studied jointly with scientists from outside the Office. It will be necessary to find out whether a meaningful theoretical concept can be developed

for assessing environmental degradation on the basis of the economy as a whole. The next question is in how far it will be possible to realize the theoretical concept statistically.

As far as the consequential costs of the compensation of damages due to environmental degradation are concerned (e.g. damages to buildings or injuries to health due to environmental effects), there are besides theoretical problems considerable difficulties especially of statistical recording. It is particularly difficult to establish a causal connection for allocating the damages to the deterioration of the environmental conditions. Prerequisite for defining and determining an "ecological national product" as part of an environmental satellite system is the availability of concepts and data for all four ranges of topics.

Further information on the environmental satellite system is contained in the article entitled "Umwelt-Satellitensysteme zu den Volkswirtschaftlichen Gesamtrechnungen" by C. Stahmer (Allgemeines Statistisches Archiv, No. 1/1988, p. 58 ff.). A first presentation of results concerning the environmental activities of the economic sectors is the contribution entitled "Bausteine für eine monetäre Umweltberichterstattung" by A. Ryll/D. Schäfer (Zeitschrift für Umweltpolitik und Umweltrecht, No. 2/1986, p. 105 ff.).

Updated results for this article may be ordered from the Federal Statistical Office. Volume 6 of the publication series "Forum der Bundesstatistik" entitled "Satellitensysteme zu den Volkswirtschaftlichen Gesamtrechnungen" by U.-P. Reich, C. Stahmer and others (issued by the Federal Statistical Office) further comprises three more voluminous articles on the environmental satellite system.

Cooperation with science and research

Research project: "Development of an anonymized microdata file for scientific purposes"

Conjointly with the chair of methods of empirical social research and applied sociology of Mannheim University (held by Prof. Dr. Walter Müller), the Federal Statistical Office is presently working on a research project for the development of an anonymized microdata file for scientific purposes. The University of Mannheim, in turn, is cooperating closely with the "Zentrum für Mikrodaten" which is a department of the "Zentrum für Umfragen, Meinungen und Analysen, ZUMA" in Mannheim.

Under the chairmanship of Prof. Dr. Klaus Allerbeck (University of Frankfurt) a project-related advisory council has been established to advise and support the participating scientists. The council comprises a total of 10 representatives of social sciences and economics, of the statistical offices, data protection, and last but not least the Federal Minister for Research and Technology who is supporting the project financially.

Starting point for the project is the provision of the Federal Statistics Law of 22 January 1987 which stipulates that for the purpose of scientific projects the statistical offices may transfer individual data to institutions of higher education or other institutions entrusted with tasks of independent scientific research if an allocation of these individual data is possible only by employing an excessive amount of time, expenses and manpower (Art. 16, para. 6, Federal Statistics Law). The statistical offices of the Federation and the Länder are thus entitled to transfer to a specific group of users and for specific purposes so-called "practically anonymized individual data" from the sphere of official statistics.

The purpose of the research project is to make the concept of practical anonymity as defined by the legislator operational and to develop practicable anonymization and other procedural rules which, on the one hand, comply with the legal mandate and, on the other hand, are compatible with the interests of all parties involved, i.e. science, official statistics and data protection.

The final report about the findings and the recommendations for a transmission of individual data for scientific purposes is scheduled to be completed by the end of September 1989. From past close cooperation between all parties participating in the project it may be concluded that it will not only be possible to meet the deadline, but that the report will provide important findings for the practice to be followed by the statistical offices in the future with regard to the transmission of anonymized individual data to science and research.

Reactions from abroad

International initiatives for the further development of the statistics of services

In the past few years, the subject "statistics of services" has increasingly gained in importance both on the national level and for supranational and international organizations. These initiatives extending beyond the national sphere, are of great interest for the activities of the Federal Statistical Office with regard to the harmonization efforts of the international agencies, on the one hand, and for the development of concepts and methods, on the other.

The relevant international activities concentrate on two fields. Firstly, steps are being taken to compile, classify and analyse already available statistical data on services. The main emphasis is on those data which are urgently required for various international trade negotiations. Accordingly, data on the trade in services and its underlying methodology were compiled by the International Monetary Fund, the Statistical Office of the European Communities (SOEC), the United Nations Statistical Office (UNSO) and the Organisation for Economic Co-operation and Development (OECD).

Secondly, projects are being started with a view to further developing and improving the data basis on services. By revising the International Standard Industrial Classification of all Economic Activities (ISIC) and developing a Central Product Classification (CPC), the United Nations Statistical Office in close cooperation with the SOEC and the OECD is improving the systematic prerequisites for the statistical recording of services. The two classifications together are to form an integrated classification system of economic activities and commodities.

The extension of the international trade in services and its changes give rise to new demands. In close cooperation with other international institutions, the OECD has therefore begun to extend and improve the recording of the international exchange of services.

The year before last, the SOEC presented a concept for a comprehensive approach to the statistical coverage of the service sector and at the same time included in its medium-term work programme the project "services". It is the purpose of this concept to take a decisive step towards reaching the ultimate goal of establishing within the European Communities a comprehensive and harmonized statistical reporting system for this sector.

The various organizations are not pursuing their efforts separately; there is rather a close coordination and cooperation ensuring a high degree of conformity.

Research and Development Plan of the Federal Statistical Office

Introduction

The Law on Statistics for Federal Purposes of 22 January 1987 assigned to the Federal Statistical Office, inter alia, the task of further developing the programme of federal statistics. The Federal Statistical Office regularly reports on its activities of programme planning to the Advisory Committee, a body attached to the Federal Statistical Office pursuant to the Federal Statistics Law. The Committee has the task of advising the Federal Statistical Office on fundamental questions.

The 35th meeting of the Advisory Committee, convened in June 1988, dealt with the general subject

"The programme of federal statistics on their way into the nineties –
planning and development activities".

During this meeting, a new instrument of medium-term programme planning of the Federal Statistical Office, the Research and Development Plan, was presented to the Advisory Committee. As to its contents, this instrument is founded on the planning for the research activities of the Federal Statistical Office which have already been presented in the Office's monthly review "Wirtschaft und Statistik" ¹⁾. Apart from the methodological and procedural research projects, it includes however also development projects which are rather focussed on conceptual aspects or aspects of contents and in general are considered part of the planning concerning the contents of the programme.

The Research and Development Plan met with lively response on the part of the Advisory Committee. This encouraged the Federal Statistical Office to present the essential parts of the Plan to a larger public.

After a brief outline of the development of programme planning in federal statistics and the position of the Research and Development Plan within this overall framework, the concept and structure will be explained in detail, giving at the same time an overview of the various research and development projects. In order to provide a better insight into the operation of the Plan, a major project, i.e. the statistical coverage of services, will be discussed in greater detail.

1) See Südfeld, E.: "Zu einigen aktuellen Aspekten der Forschung und Entwicklung im Statistischen Bundesamt" in Wirtschaft und Statistik, No. 1/1987, p. 31 ff.

1 The Research and Development Plan as part of programme planning

Contents and functions of programme planning have been subject to considerable changes from the initial stages of federal statistics to this day¹). At the beginning, the main objective was to gradually achieve a statistical representation of the economic structure and process. Due to demands for an extension of the tools of economic policy, greater emphasis was since the mid-sixties put on providing an overall picture and representation of economic interrelationships. For the economy as well as for other subject fields, the traditional partial statistics could be coordinated more efficiently and adapted to new demands. The growing data requirements of the supranational and international organizations were also taken into account.

As of about the mid-seventies, the planning of the statistical tasks was to a growing extent determined by shrinking budget resources. The important function of the further material development of federal statistics, in accordance with changing requirements, as a basis for political and economic decision-taking has over the past few years often been pushed into the background due to the manifold endeavours towards an adjustment and debureaucratization of statistics as well as by the continuous discussion about data protection.

Considering the present unfavourable framework conditions for official statistics, it must now be a special concern to make the general public and political decision makers permanently aware of the informational tasks of federal statistics, so as to obtain the necessary freedom of manoeuvre for the adaptation of the programme²). In terms of active programme planning, which now is explicitly provided for by the Federal Statistics Law, this means not only that official statistics will have to draw attention in good time to new trends and changed requirements, but also that it will be necessary to initiate activities for an optimum and timely adjustment of the programme of federal statistics to these demands, both under methodological and material aspects, as well as to ensure that the organizational prerequisites and the required working capacity are provided. For this purpose, official statistics will have to depend on the support of all quarters involved in statistics. Moreover, the programme planning will in future to a greater extent have to consider the ongoing methodological discussion, a duty embodied in the Federal Statistics Law of 1987 pursuant to the provisions to this effect in the Population Census Judgment.

The Federal Statistical Office adopted a multi-stage procedure in order to reach these ends. First of all, the prospective development of the need for quantitative information and the priorities were described for a long-term period of planning by way of relevant scenarios. It was then examined in how far federal statistics should in general assume the task of satisfying these information needs. Where this question was answered in the affirmative, the information needs had to be translated into concepts and systems of federal statistics and compared with the data supply of federal statistics. This comparison then permitted to ascertain the spheres where the programme of federal statistics will presumably have to be adapted. Against the background of this analysis, all the divisions of the Office were requested to list in a further step their current or intended research and development projects and to indicate the relevant programmatic, conceptual, methodological or procedural points of emphasis. The individual projects were compiled in a Research and Development Plan of the Federal Statistical Office. Included were projects meeting the following standards:

- They must contain innovative components for federal statistics.
- Scientific staff must be engaged in their implementation.
- Considering the paramount objectives of federal statistics, they must at least be rated as "important".
- It must be possible to take up these projects at the Federal Statistical Office within the next five years.

As compared with its programme planning in general, the Research and Development Plan of the Federal Statistical Office thus is orientated towards a shorter period of time, the selection of projects being more restrictive and their description more concrete. It is intended to continuously update the Research and Development Plan at year-end according to the principle of overlapping planning and to extend it for another year.

2 The conception of the Research and Development Plan

The first step in the conception of the Research and Development Plan was to determine the main objectives of this new instrument so as to permit an optimum adaptation to these aims. It was decided that the primary task of the Research and Development Plan would be to facilitate the control of the various activities undertaken at the Federal Statistical Office for the further development of federal statistics. Pursuant to these aims, it should not include a detailed description of the individual projects, but be confined to rather briefly outlining the intention, the structure and the results expected of the individual projects. It was further held that the

1) See Bürgin, G.: "Das Programm der Bundesstatistik in ständiger Anpassung an neue Schwerpunkte und Anforderungen" in Statistisches Bundesamt (ed.): "Bundesstatistik in Kontinuität und Wandel", Stuttgart and Mainz 1984, p. 36 ff.

2) See Hölder, E.: "Bundesstatistik heute und morgen - Strategien für ihre Weiterentwicklung" in Statistisches Bundesamt (ed.): "Bundesstatistik in Kontinuität und Wandel", Stuttgart and Mainz 1984, p. 14 ff.

Schedule 1: Research and development projects with emphasis on data collection

Development of new, or fundamental reorganization of existing, spheres of statistics

- a) Presentation of new trends in the field of services, comprising the following six projects:
 - Possibilities of an improved statistical reporting on service enterprises
 - Compilation of a national classification of services
 - Possibilities of collecting data for service statistics on a sampling basis
 - Possibilities and problems of the statistical recording of services as part of production statistics
 - Surveys of the cost structure in the service sector
 - Extension of price statistics on services furnished directly by enterprises to households and other services
- b) Improvement of data on land use, comprising the following three projects:
 - Pilot study: Statistical Information System on Land Use (STABIS)
 - Selection and testing of the software available for realizing STABIS, development of the data processing concept
 - Coverage of the type of use permissible pursuant to building law
- c) Concepts for an improved coverage of information and communication technologies
- d) Preparation of statistics on intra-trade
- e) Reorganization of population statistics:
 - Possibilities and limits of register evaluations
- f) User concept for fixed capital formation, comprising the following three projects:
 - User concept in the case of fixed capital formation
 - Fixed capital formation according to the user concept
 - Capital stock according to the user concept
- g) Household production, time budgets and shadow economy, comprising the following three projects:
 - Concepts for the statistical coverage of household production
 - Time budget surveys
 - Possibilities and limits of a statistical coverage of the shadow economy
- h) Reorganization of the statistics on public assistance

Developments in connection with the setting up and utilization of statistical registers

- a) Public federal registers and address files for utilization by federal statistics
- b) Setting up, maintenance and evaluation of an enterprise file in trade and the hotel and restaurant industry
- c) Longitudinal analyses on the basis of the file in production industries

Development of classifications covering various statistics

- a) Revision and harmonization of the International Standard Industrial Classification of all Economic Activities (ISIC) as well as of the General Industrial Classification of Economic Activities within the European Communities (NACE)
- b) Compilation of the international Central Product Classification (CPC)
- c) Overall classification for annual accounts and consolidated accounts which are subject to mandatory disclosure

Handling of other methodological and organizational questions concerning data collection for various statistics

- a) Effects of extensive nonresponse on statistical results
- b) Alternative sample designs for small samples
- c) Possibilities of using telephone interviewing techniques
- d) Utilization of company documents, comprising the following two projects:
 - Direct collection of data for federal statistics from business accounting
 - Direct collection of data for wage statistics from payroll accounting

Further development of data collection for individual statistics

- a) Population and employment statistics, comprising the following six projects:
 - New conception of the microcensus for the nineties
 - Development of the sample design for the stock sample from the 1987 Population Census and for the microcensus samples as from 1990, considering the results of the microcensus test surveys
 - Approaches for defining consensual unions
 - Monthly estimates of the active population
 - Development of a methodological concept for estimating the number of economically active persons by economic sectors (workplace) as well as by "Kreise" (counties) on the basis of continuous surveys
 - Special survey of Research and Development personnel
- b) Economic statistics, comprising the following five projects:
 - Studies of sampling methodology for the regionalization of the cost structure survey in mining and manufacturing
 - Methodological study on quarterly statistics of inventories
 - Coverage of commodities requiring a longer production process
 - Coverage of building measures at existing buildings
 - Integration of commercial gardening into the survey of horticulture
- c) Income and expenditure, comprising the following three projects:
 - Survey of the consumption of food, beverages and tobacco
 - Investigations on the problem of underenumeration in the survey of the salary and wage structure
 - Comparison of the payroll procedure and the individualized approach for recording the development of the earnings of wage earners and salaried employees
- d) Transport statistics, comprising the following five projects:
 - Estimates of the volume and structure of transports of dangerous goods
 - Exploitation of the sources of foreign trade and production statistics for presentations of transport statistics
 - Utilization of foreign trade statistics for purposes of transport statistics
 - Examination of sea-borne foreign trade of the Federal Republic of Germany, using foreign and international sources
 - Adjustment of traffic accident statistics for "weather influences", quantification of the influence of measurable weather data on the number of accidents
- e) Statistics of the public sector, comprising the following six projects:
 - Conception of statistics of the foundation of enterprises on the basis of turnover tax statistics
 - Economic and social data in tax statistics
 - Survey concept for criminal statistics of the courts
 - Conception of student flow statistics
 - Development of an integrated overall system of statistics on youth welfare
 - Flat-rate housing allowances for recipients of public assistance
- f) Environmental statistics, comprising the following four projects:
 - Approaches for the statistical coverage of recycling processes
 - Possibilities of employing sample surveys for statistics on waste disposal
 - Methodological study "Current expenditure for environmental protection measures"
 - Methodological preparation of statistics on the industry producing environmental protection goods

Research and Development Plan should predominantly be used as an internal instrument of coordination. The information to be included on the time schedule for the individual projects, on their priority and their financial/manpower requirements thus was designed in a form appropriate for providing a quick internal overview; the information is however neither intended nor suitable for controlling the individual projects.

Transparency and an overall view of the projects were also the primary aims when designing the descriptive elements of the Research and Development Plan. Therefore, a formatted description of the projects by means of uniform criteria was drawn up so as to promote and facilitate the material harmonization of the individual projects.

Under aspects of coordination and control, such a condensed and comparable overall view of all projects on the one hand enables to discover at an early stage any parallel developments or possible duplications and to avoid them by arrangements between the divisions concerned. It also helps to establish priorities in the case of projects involving several divisions by indicating whether the project results must be available at a specific date for an important task of the Office, in how far they are to serve general or rather specific aspects of the further development of the statistical programme and whether they are regarded as particularly urgent by initiators of statistics, other users, respondents and the general public. Finally, a Research and Development Plan conceived along these lines may help to quickly make out which projects will have to be handled with particular urgency, for instance in order to meet their financial and manpower requirements.

3 The structure of the Research and Development Plan

Considering the conception of the Research and Development Plan as described above, the Federal Statistical Office could choose between two classification principles. The first is linked to the Organization Chart of the Federal Statistical Office. It arranges the Research and Development Plan according to the organizational units of the Office. The advantage of this form is that it permits to quickly attribute the individual projects to the responsible organizational units and reveals at an early stage any new developments calling for a reconsideration of the existing organizational structure.

A classification based on organizational criteria will however not always meet the requirement of providing for a quick overview of the allocation of the individual projects according to material interrelations. For this reason, an additional second version of classification was drawn up, allocating the projects according to their primary material emphasis. As main categories there were chosen the general functions of statistical work:

- collection of data
- processing of data to statistical results
- further processing of data for indices, overall systems, etc.
- presentation of statistical results.

In order to emphasize the material grouping, all the projects were additionally classified within these main categories to groups according to functional criteria.

4 Projects of the Research and Development Plan in a functional analysis

Within the scope of the above functional classification, the individual projects of the Research and Development Plan are allocated according to the primary emphasis of their contents. As is always the case with classifications by primary emphasis, the allocation is difficult especially in cases where a project serves more than one purpose.

The following explanations therefore are subject to the reservation that the projects are discussed with regard to their primary material emphasis even if they serve, or may serve, further purposes at the same time.

As regards the projects relating primarily to the collection of data (see Schedule 1), almost 20 of them contribute to the development of new or to the fundamental reorganization of already existing spheres of statistics. In order to exemplify the structure of a rather complex project, the activities aimed at presenting new developments in the service sector will be briefly described in Chapter 5.

It is in particular in view of the endeavours to gather statistical information without increasing the burden on the respondents that the developments relating to the setting-up and utilization of statistical registers are of special importance for the future. This applies all the more since these developments will also help to ensure the quality of statistical results and at the same time open up new possibilities of implementing federal statistics in a particularly efficient and economical form.

The development of classifications applying to several statistics plays an important role with respect to the harmonization and comparability of statistical figures. This holds true especially when considering the

growing international interdependencies and the ensuing need for comparability of statistical data across national borders.

Almost 30 projects basically serve the further development of data collection for individual statistics. Six projects relate to population and employment statistics, five each to economic and transport statistics and four to environmental statistics. Three projects are designed to further develop income and expenditure statistics and six relate to statistics of the public sector. There is a smaller number of projects relating to methodological and organizational problems of data collection applying to various statistics, but these often are of general importance as bases for a variety of further developments concerning individual statistics.

As regards the category of processing (see Schedule 2), a distinction is made between developments of processing relating to various statistics and those concerning individual statistics. The first group includes for example three projects for the further development of anonymization techniques and five for further developing time series analyses.

Schedule 2: Research and development projects with emphasis on data processing

Development of data processing for various statistics

- a) Anonymization, comprising the following three projects:
 - Development of an anonymized file of microdata for scientific purposes
 - Anonymization of individual data by random aggregation using differing concepts of distance; effects on the informational content
 - Automated anonymization for quantitative characteristics with a dominating function
- b) Time series analysis, comprising the following five projects:
 - Comparison of various methods of time series analysis
 - Lead-lag studies of time series
 - Improvement of the adjustment of extreme values in time series analysis according to the "Berlin procedure" BV4
 - Possibilities of calendar adjustment in time series analysis
 - Possibilities of calendar adjustment procedures
- c) Use of EDP, comprising the following four projects:
 - Integration of text processing, tabulation and plotting
 - Development of standard procedures for interactive post-editing of tables for publication
 - Interactive post-editing of diagrams
 - Robust estimation methods

Further development of processing of individual statistics

- a) Further development and improvement of the forecasting method for crop yields on the basis of meteorological data
- b) Linking of accommodation statistics and statistics of the hotel and restaurant industry
- c) Further development of the methodological bases for calculating the expenditure per student and field of studies and for university places, respectively

With emphasis on further processing (see Schedule 3), there are listed projects aiming at a further development of index computations, the general extension of national accounts or at creating the bases for extending national accounts by satellite systems. Another ten projects are to serve the development of other problem-oriented reporting systems.

Schedule 3: Research and development projects with emphasis on further processing

Further development of index computations

- a) Price indices, comprising the following three projects:
 - Concepts for the inclusion of owner-occupation of dwellings in the consumer price index
 - Calculation of a price index for computers
 - Calculation of indices of purchasing values of agriculturally-used areas
- b) Environmental indices:
 - Methodological development of an index of water quality

General extension of national accounts

- a) Volume on the methodology of national accounts
- b) Treatment of software in national accounts
- c) Overall economic volume of work
- d) Treatment of insurance companies in national accounts
- e) Valuation of land
- f) Stratification of household income in a detailed socio-economic breakdown for national accounts
- g) New delimitation of the functional distribution of net income

Extension of national accounts by satellite systems

- a) Approaches for establishing satellite systems of national accounts
- b) Establishment of a satellite system on environmental protection
- c) Establishment of a satellite system on tourism
- d) Establishment of a satellite system on public health

Establishment of other problem-related reporting systems

- a) Extended system of code numbers for the stock market
- b) Calculation of the costs of children
- c) Establishment of an information system on tourism
- d) Environment, comprising the following three projects:
 - Methodological further development of the reporting on public expenditure for environmental protection
 - Establishment of an overall system of ecological statistics
 - Approaches for a coordinated evaluation of environmental measurement data
- e) Public health, comprising the following three projects:
 - Establishment of a reporting system on public health
 - Establishment and extension of specific problem-related fields of statistics, here: Health risks
 - Methodological preparations for an information system on hospitals
- f) Concept for determining the economic significance of art and culture

Mention should finally be made of the category of presentation (see Schedule 4). This involves on the one hand the further development of already existing or the design of new publications, respectively, and on the other hand projects dealing with the utilization of new media of presentation.

Schedule 4: Research and development projects with emphasis on the presentation of data

Further development of publications

- a) Statistisches Taschenbuch (Handbook of statistics)
- b) Handbook entitled "Begriffe aus der amtlichen Statistik" (Terms of official statistics)
- c) Re-edition of "Lange Reihe seit 1872" (Long-term series as from 1872)

Utilization of new media of presentation

- a) Problem-related presentation of data on floppy disks
- b) General catalogue of the Statistical Information Systems (AKIS)
- c) Extension of the business-line service

5 The statistical presentation of new developments in the service sector

Over the past few years, increasing interest has been attached to information on the service sector, and in the course of this development various quarters emphasized the necessity of adjusting the programme of federal statistics accordingly.

In cooperation with the statistical offices of the Laender and in agreement with the initiators and users of federal statistics, the Federal Statistical Office is therefore endeavouring to draw up a comprehensive and harmonized system of both topical and problem-related statistical information on services.

As part of the further development of the overall programme of federal statistics, it is intended to build up a user-oriented, comprehensive and topical supply of information on the general sector "services" to fit in with the overall system of economic statistics. However, these research and development activities have to take account also of restrictive incidental conditions, such as the burden imposed on the respondents, the budget funds available and the working capacities of the statistical offices.

In order to achieve this objective, it is necessary to work out methodological concepts for a realistic development of the statistical programme in those spheres where the current supply of figures from federal statistics reveals urgently-to-be-closed gaps as compared with the need for statistical data on services. At the same time, it must be considered how the figures obtained from the various statistics on the sphere of services can be made available to the greatest possible number of users in a topical and flexible form.

The projects and measures currently being undertaken with this objective for the purpose of extending the supply of information on services comprise:

- the work on the classifications
- the extension of existing statistics
- the test concerning the possibility of covering services in production industries
- the recording of services furnished by service enterprises and liberal professions.

The sine qua non for improving the presentation of services and for drawing up a harmonized reporting system is the further development of the classifications, and in particular the complementation of the national Classification of Goods for Production Statistics by a part on services.

The present draft of a classification of services newly includes services provided by enterprises, establishments and other institutions of divisions 5 to 9 (transport and communications, credit institutions and insurance business, services if provided by enterprises and liberal professions, non-profit organizations and private households, central and local government and social security) of the German Industrial Classification of Economic Activities, Edition 1979.

Structure and contents of the draft classification of services closely follow the draft of the Central Product Classification (CPC). To take the CPC as a working basis seems to be the obvious solution as it can be assumed that after its final version has been drawn up on the EC level, the CPC will also provide the basis for the national classification of goods in the nineties.

The current programme of federal statistics on the service sector provides, inter alia, information from cross-section statistics. This includes above all the statistics of the cost structure, the turnover statistics, the statistics of persons employed and the price statistics. Measures taken with a view to further developing and extending these statistics therefore are of interest also under aspects of an improved recording of services.

The statistics of the cost structure are conducted every four years on a voluntary basis in partial spheres of the service sector. At present, these surveys cover trade, parts of transport and communications as well as the hotel and restaurant industry, the publishing trade, public health and veterinary services, legal advice and tax consulting, auditing, offices of architects and consulting engineers. For the reference year 1987, there were for the first time also included management and business consultants and non-medical practitioners. For the reference year 1991, the voluntary cost structure surveys might be extended to further service fields, such as data processing, advertising and the letting on hire of movables.

The turnover tax statistics furnish data on all economic sectors including the service sector, which is covered only incompletely by other statistics. The statistics record data on the number of taxpayers, their turnover, the amount of turnover tax, the amount of allowable pretax and of turnover tax paid in advance. They offer data not only on commercial enterprises, but also on liberal professions. The statistical figures are in part presented in a detailed analysis by economic sectors, regions, turnover size classes and legal organization.

So far, the turnover tax statistics have been compiled at two years' intervals. Because of their importance it was however suggested already in 1986 that they should be performed annually. The supply of data may be improved by this reduction of the intervals of processing without increasing the burden on the respondents. Therefore, it is intended to include a corresponding provision when the Law on Tax Statistics will be amended.

The statistics on persons engaged are based on the reports the employers have to file with the social insurance institutions. Persons employed subject to social insurance contributions are covered by these statistics according to various criteria of analysis. The figures are processed quarterly and annually.

Already at the present time, the statistics on persons engaged are supplying extensive information on employment in the service sector. For the future there are plans to even more intensively use the annual data of the statistics on persons engaged together with the information on gross earnings also for compiling statistics on the service sectors.

As regards price statistics, there exists already a comprehensive survey programme concerning the prices of household services. Not considering the service items included in the index of building prices, services furnished to enterprises, however, are almost entirely left out of account by the programme of price statistics. In the course of an amendment of the Law on Price Statistics, the legal prerequisites will therefore be created for collecting prices also in this part of the service sector, studying at the same time however also the methodological possibilities of including in the survey programme of price statistics the services furnished to enterprises.

Improvements of these statistics are helpful for establishing a comprehensive reporting system on services. The extension of existing statistics, however, is not sufficient in itself to bridge the gaps between the imperative and pressing need for data, on the one hand, and the data which will be available from federal statistics in the foreseeable future, on the other.

The statistical coverage of services rendered by enterprises of production industries has gained increasing importance over the past few years. This is attributable to the fact that the enterprises of production industries more and more often supply – but also demand – specific services which are closely interrelated with commodity production. These include for example services of research and development, engineering, development and construction, the production of software, leasing, assembly and dismantling, repair and maintenance work.

At the present time, a pilot survey is being conducted in order to find out whether it will be possible to record these product-related services of enterprises in production industries. Since much importance is attached to this subject, the Federal Association of the German Industry is supporting the pilot survey.

While the above measures and projects are appropriate for improving the service data offered by federal statistics, they are not sufficient by themselves for achieving the objectives pursued. Gaps exist in particular in the sphere of the so-called modern service enterprises which under aspects of economic policy are especially important not only because of their increasing significance for the labour market, but also due to their key role for international competitiveness. This refers to service enterprises in the spheres of data processing, software development, engineering, leasing, management consultancy, etc. It is urgently necessary to close these gaps and to provide up-to-date and reliable statistical data on services since they are required as a basis for impending political decisions the consequences of which will reach far into the future.

In coordination with the Federal Minister of Economics, the Federal Statistical Office is conducting a pilot sample survey, with the emphasis being on modern services furnished to enterprises, for preparing the corresponding service statistics and in order to derive from the experience acquired by means of this survey valuable information for the conception and organization of service statistics.

This pilot sample survey is presently being conducted. The experience to be derived from it will first of all be used for preparing comprehensive service statistics. Besides, the survey will provide some basic data on the sphere of service enterprises producing the so-called modern services furnished to enterprises.

6 Conclusion

The activities relating to the statistical presentation of new trends in the service sector as outlined above are integrated in several projects of the Research and Development Plan. The individual projects come within the material competence of different organizational units of the Federal Statistical Office. The Research and Development Plan is to provide for the coordination and general control of these projects. This applies not only to developments concerning the statistical recording of services, but also to various other projects which are mutually linked with further plans or are influencing current statistical activities in other subject fields. The Research and Development Plan thus is primarily designed to serve as an internal instrument of coordination and control and for that reason will not be published in its entirety.

The Federal Statistical Office, however, would welcome any suggestions concerning the design of its Research and Development Plan as well as comments on the contents of individual projects.

Title of the original German article published in "Wirtschaft und Statistik", No. 9/1988:

"Forschungs- und Entwicklungsplan des Statistischen Bundesamtes".

Foreign-Language Publications

English

Survey of German Federal Statistics

This abridged issue is intended above all for users looking for a general outline of statistical activities rather than the details. It therefore comprises from the detailed version the full text part describing the objectives, bases, methods and results of federal statistics.

Published at irregular intervals.

Present and Future Tasks of Official Statistics

Non-recurrent publication.

Statistical Compass

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

Annual publication.

Foreign Trade according to the Standard International Trade Classification (SITC-Rev. II)

This publication comprises the foreign trade figures according to the SITC-Rev. II with data by countries of production/consumption.

Annual publication.

Studies on Statistics

Published at irregular intervals. Issues which are still available:

No.	Title
23	The German Microcensus
24	Fertility, Mortality, Age Structure and Population Development
25	International Comparison of Consumer Prices
26	Census of Agriculture, 1971
27	Family Budget Surveys
28	Revised Computations of Price Indices, Base 1970
29	Regional Statistics
30	Indices of Foreign Trade Prices, Base 1970
31	Environmental Statistics
32	Employment Statistics
33	Reform of Statistics of Production Industries
34	Distributive Trades
35	Price Indices, Base 1976
36	Statistical Information System of the Federation

- 37 Surveys and Registers
- 38 Indices of Production and Productivity
- 39 Concentration Statistics
- 40 Kind-of-Activity Units in Mining and Manufacturing
- 41 Dissemination of Statistical Information
- 42 Indices of Orders Received and Unfilled Orders
- 43 Calendar Adjustment of Time Series
- 44 Information Campaign for the Population Census 1987

French

Aperçu de la statistique fédérale allemande

Cette édition abrégée 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

Cette brochure comprend une sélection des principaux chiffres de référence de tous les domaines ainsi que des chiffres comparatifs pour des années antérieures.

Publication annuelle.

Spanish

Guía Estadística

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

Publicación anual.

Trilingual

Trilingual List of Statistical Terms (German – English – French)

Non-recurrent publication.

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

Published at irregular intervals.

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