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The catchword

Compilation of short-term economic indicators in the service sector based on several data sources

1. Background

So far, the information required to compile short-term turnover and employment indicators in the service sector has been gathered by conducting quarterly sample surveys among a total of about 35,000 enterprises. However, this approach has been considered a temporary solution right from the time when the survey was introduced in 2003. Already at that time, the idea was developed to derive the information required for indicator compilation exclusively from the administrative data of the regional revenue offices and the Federal Institute for Employment[1].[2] The reason was not at all that methodological problems would be encountered in producing time series on the basis of a sample survey. Due to limited resources, certain phenomena in the universe, such as structural changes in enterprises, can be covered only in part or even not at all and hence cannot be considered sufficiently in the results.[3] Already at that time, the reason rather was a politically intended reduction in the burden placed on enterprises. To judge the adequacy of the data provided by the regional revenue offices from advance turnover tax returns and by the Federal Institute for Employment from social insurance statements for purposes of short-term economic monitoring, detailed methodological studies were carried out both at the microdata level and the aggregated level of branches of economic activity. In that context, a large number of qualitative data problems emerged, which were largely attributable to the fact that, generally, the main purpose of collecting administrative data is not the compilation of short-term economic indicators. The reason for data collection rather is the authorities' internal need for information to calculate the payable amounts of turnover tax or social insurance contributions. Therefore, the requirements made on the data are almost inevitably different. The differences refer both to the definitions of variables and variable carriers and to reporting deadlines and periodicities.[4] Against this background, it was not possible to compile, exclusively on the basis of administrative data, short-term economic indicators that would meet the timeliness and accuracy requirements set for these important indictors of the national economy.

2. Methodology

The primary surveys conducted so far have been part of a largely integrated system characterised by the following components:

- sampling
- data collection in the form of primary surveys
- processing of the data collected
- compilation of results based on the data collected

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[1] Today: Federal Employment Agency.

[2] See also: Lorenz, R./Schmidt, B.: Registergestützte Umsetzung der EU-Konjunkturverordnung im Dienstleistungsbereich, in: Wirtschaft und Statistik, no. 5/2000, p. 315 ff.

[3] See also: Kaumanns, S. C.: Konjunkturerhebung in bestimmten Dienstleistungsbereichen, in: Wirtschaft und Statistik, no. 2/2005, p. 118 ff.

[4] A detailed description of the differences between the data at both the microlevel and the macrolevel and of the processing of administrative data is included in Kaack, I.: Verwendung von Verwaltungsdaten für konjunkturstatistische Zwecke, in: Statistische Analysen und Studien Nordrhein-Westfalen, vol. 28, Düsseldorf 2006, p. 27 ff.

The mixed-mode model[1] to be introduced now, which relies upon the use of administrative data and data of a primary survey, is by far more comprehensive. As a rule, data are collected in the form of a complete count from the following three sources: data of a primary survey, turnover tax data of the regional revenue offices, and employment data of social insurance funds. On the whole, however, the mixed-mode model comprises more components than data collection. It focuses much more on the indicators to be compiled and hence is output-oriented. That means that the data which are best suited to achieve the goal of indicator compilation are collected from different sources and are then processed.

Actually, the mixed-mode model is a complex system of computation whose components include, among other things, a primary survey and evaluations of existing administrative data sources which, when taken as separate elements, would however not yield self-contained results.

The political goal set in this context was to completely relieve small and medium-sized enterprises from the burden of compulsory statistical reporting for purposes of short-term economic monitoring in the service sector. From the perspective of both federal and European statistical requirements, however, this could only be an additional condition (though a desirable one), but not a goal.

The statistical objective is to produce timely high-quality indices of turnover and employment at the federal and the Länder level. This goal can only be achieved if data are combined from different sources with the aim to produce a common result. Data from administrative sources are used in those cases where, compared with the data actually needed, the overall bias would be justifiable in the result. This refers in particular to small enterprises. Large enterprises, each of which has a substantial impact on the result, continue to be covered by direct enquiries. This approach represents a significant change from the previous sample survey. Although large enterprises had an important impact on the results, too, this was also true for small enterprises because, due to the expansion factor, a multiple of their actual value was considered in the results. In accordance with the mixed-mode model, the data of individual small enterprises are no longer weighted more heavily. Instead, the actual values of all enterprises are included in the result. At the same time, the new methodological approach will solve another major problem of the primary survey. Due to restricted resources, the primary survey did not allow to cover structural changes to a sufficient extent. This will however be possible without larger problems when the mixed-mode model is applied. The relevant information on small enterprises is included in the administrative data, while the number of large enterprises which still have to be covered directly is relatively small so that, in individual cases, it will be much easier to monitor them more closely. The threshold for direct coverage is set at 250 persons employed or an annual turnover of EUR 15 million. These alternative cut-off thresholds are required because the service sector is highly heterogeneous. There are areas where small numbers of personnel realise considerable turnover and other areas where turnover is rather small despite the fact that large numbers of staff are employed. The comparatively high cut-off thresholds have been designed to keep the number of enterprises to be directly interviewed at a relatively low level (4,000). By applying this method, about two thirds of turnover and more than one third of the persons employed will be directly covered across all branches of the service sector.

3. Work organisation designed to meet future requirements

In the past few years, a wealth of experience has been accumulated in the context of the quarterly survey of certain service areas which is now intended to be replaced by the mixed-mode survey described above. Problems encountered in relation to the completely decentralised survey and processing operations were identified and related conclusions incorporated into the process

[1] See also: Kaumanns, S. C., Schelhase, K.: Erstellung von Konjunkturindikatoren im Dienstleistungsbereich aus mehreren Datenquellen, in: Wirtschaft und Statistik, no. 8/2007, p. 768 ff.

of planning the new methodology and organisation of work. Work will be organised based on partial decentralisation, which combines the advantages of a decentralised survey and a centralised exchange of data (that is highly advantageous, in particular, with regard to enterprises with subsidiaries in several Länder or enterprises which move to another Land) with those of a largely common use of IT processes and operations. This division of work is designed as an efficient system which, in a consistent manner, pools competencies and processes precisely there where this is useful in terms of subject and methodology. This workflow optimisation avoids a large number of the time-consuming and error-prone operations carried out so far. At the same time, it will lead to an improvement of the results, in particular, at the Länder level. Hence the mixed-mode model is not only characterised by a new, output-oriented methodology, it also sets new standards of co-operation between the individual offices. Compared with the previous status quo, all those involved will profit from the application of the mixed-mode model. The quality of the results will be considerably enhanced while, at the same time, the burden on both the respondents and the statistical offices will be significantly reduced.

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Methods of federal statistics – Further development

“International sourcing“ – Relocation of economic activities

Survey for special purposes

In the context of globalisation, enterprises increasingly relocate business functions to foreign countries. However, there scarcely is reliable information on the phenomenon and its consequences for competitiveness and the labour market so far. In co-operation with Eurostat, a pilot survey is therefore being conducted on the subject of “international sourcing“. It is based on Art. 7 of the Federal Statistics Law and covers a limited number of respondents who participate voluntarily. The statistical offices of the Länder of Hessen, Nordrhein-Westfalen and Thüringen also take part in the survey. The pilot survey analyses the causes, the extent and the effects of relocating economic activities.

Goals and content

The survey implements a methodology which was developed in co-operation with Eurostat and takes into account the growing need for data on the various aspects of globalisation. The results provide decision-makers at national and European level with statistical information on

- factors driving international sourcing;
- effects on the competitiveness of relocating enterprises;
- consequences of international sourcing for employees and economic growth.

Attention focuses on the prime reasons why enterprises relocate specific functions to foreign countries. Also covered are obstacles perceived to impede international sourcing. Light is shed upon the economic consequences for enterprises from sourcing activities. Finally, the survey is to gather information on the effects which relocations have on the labour market. These comprise both quantitative data on the creation and reduction of jobs, and information on the qualifications which employees require. The data obtained are evaluated to identify structural differences within and between industries due to relocation and show consequences of the interpenetration of enterprise structures.

Sourcing concept

The sourcing concept used in the survey comprises the relocation of functions, be it entirely or in part, which have so far been performed in the enterprise itself. These may be relocated either to an affiliated enterprise which has already existed, was purchased or founded especially for the purpose of sourcing, or to an external enterprise which is not economically related with the enterprise in question. Enterprise functions may be sourced both to the domestic territory and to foreign countries.

When relocation aspects are considered, enterprise groups are of special importance. Affiliated enterprises with a joint management are called an enterprise group. Irrespective of whether the headquarters of the enterprises are located in the domestic territory or abroad, the term "insourcing" means a relocation within the group and "outsourcing" stands for a relocation to external enterprises.

Enterprises surveyed

The survey covered enterprises with 100 employees and more in manufacturing (Sections C to F of NACE Rev. 1.1) and business services excluding financial intermediation (Sections G to I and K). For the purposes of the survey, an enterprise is defined as the smallest legal unit keeping books/preparing annual accounts for reasons of commercial and/or fiscal law. The information on respondents required for conducting the survey comes from the business register.

Against the backdrop of globalisation, another important question is whether sourcing activities play a different part in technology and knowledge intensive industries than in the other economic branches. Therefore, the breakdown of enterprises surveyed by branches is supplemented for the purpose of analysis. There is an additional presentation by the categories "technology intensive manufacturing", "less technology intensive manufacturing", "knowledge intensive business services" und "other activities".

Methodology

The enterprises selected were surveyed by mail. The questionnaire comprises four issue areas concerning the sourcing of economic activities:

- Part A: motivation and impediments to sourcing activities
- Part B: past and intended sourcing activities
- Part C: impact of sourcing activities on the enterprise
- Part D: future development of sourcing

Part E of the questionnaire is for enterprise feedback, especially on the time needed to fill in the questionnaire, the relevance of questions, and difficulties answering individual questions. Enterprises could also indicate whether they wanted to have a brief report on the survey results.

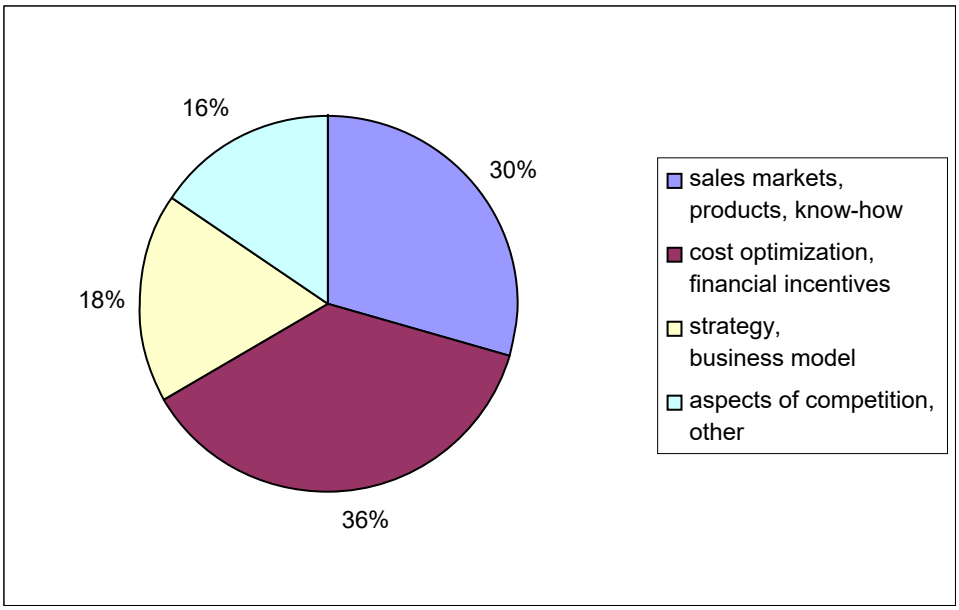
At the end of March 2007, 19 619 enterprises were asked to complete the questionnaire. By a second wave, false non-response was replaced by other enterprises where possible. About 45 % of responses were received only after reminders had been sent out. A total of 10 449 responses can be used to extrapolate results.

First results

Some 90 % of the responding enterprises belong to an enterprise group, about one third of them being group head. Every third of these enterprises heading a group has sourcing experiences. In contrast, only one fifth of the other enterprises have sourced any functions. This also holds for independent enterprises not belonging to a group.

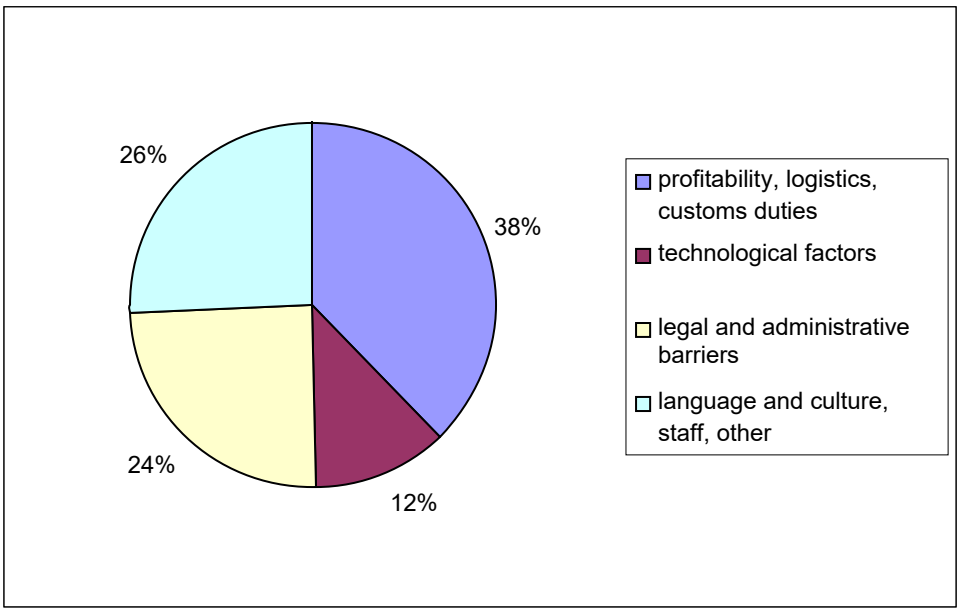
Around 10 % of all responding enterprises plan to source functions in the next two years. This percentage, too, is slightly surpassed by enterprises in the lead of a group and marginally undercut by the other enterprises.

Chart 1: Motivation factors for sourcing economic activities



Cost considerations play an important role for sourcing activities. The optimization of labour costs, the use of other cost advantages, tax and other financial incentives account for markedly more than a third of all the motivation factors described as “important“ or “very important“. With nearly a third of the answers given, considerations regarding sales markets expansion, product range adjustment and access to technical know-how are also important. Accounting for less than a fifth of the answers, respectively, business strategy considerations (including the implementation of business models) and aspects of competition also are motivating factors when it comes to sourcing activities.

Chart 2: Impediments to sourcing economic activities



With almost two fifths of the answers given, cost factors are regarded as the most essential impediment to relocation. “Important“ or “very important“ are in particular the increased expenditure for logistics, trade tariffs, and in general the worsening of the cost-benefit ratio

expected in the case of sourcing. Government provisions (e.g. tax legislation, standards) and administrative regulations accounting for a fourth of the answers are major obstacles just like cultural and language problems, ethical considerations and the interests of the staff to be taken into account. Technological problems, however, should not be that much of an obstacle to sourcing activities (one tenth of answers).

Outlook

The analysis of international sourcing deals with part of the extensive globalisation issue. At the Eurostat Task Force "International Sourcing" proposals are presently being prepared of how to develop globalisation indicators on the basis of the survey results. A possible starting point, which also accounts for the suggestions made by the OECD[1] on that issue, considers linking the results with data of structural and trade statistics and with figures from other sources, e.g. on foreign direct investment or affiliates controlled by foreign enterprises[2].

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The new producer price indices for business services – Background and methodology

While a multitude of services is covered by statistics at the level of consumer prices, there were yawning data gaps in the official coverage of service prices at producer level for a long time. This holds in particular for services sold by enterprises to enterprises, "business services", as they are called. These data gaps are being closed in the member states of the EU by the official statistics agencies since the EU regulation concerning short-term statistics was passed in 2005[3], if not before. In Germany, the first producer price indices for services (SPPIs) were released at the end of October 2007. The following contribution is to provide a brief overview of the background and methodology of developing the new indicators.[4]

The methodological framework for developing the new SPPIs was largely prepared at the international level. Major platforms are the Voorburg Group, which was established at the instigation of the United Nations, the OECD and Eurostat. The latter institutions define the SPPI as an "... output price index for the service production of resident producers."[5] This means that such an index measures the development of output prices for services provided by enterprises resident in the domestic territory. It does not matter whether the customer is an enterprise, the state, a household or a foreign party; however, generally only services rendered to business partners are being considered in practice.[6] Imports are not covered.

The price indices are based on the Laspeyres formula, with the weighting shares of different services being calculated from their share in total sector turnover. At elementary index level, geometric means of individual prices are calculated according to the Jevons formula as this best

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[1] Organisation for Economic Co-operation and Development.-

[2] Foreign Affiliates Statistics (FATS).-

[3] Regulation (EC) No 1158/2005 of the European Parliament and of the Council of 6 July 2005 amending Council Regulation (EC) No 1165/98 concerning short-term statistics (Official Journal of the EU No L 191, p.1).

[4] More detailed information on the new indices are provided for instance on the homepage of the Federal Statistical Office, which can be accessed via the following path: www.destatis.de › English › prices › producer prices and wholesale prices › producer prices of services

[5] OECD/Eurostat (2005): Methodological Guide for Developing Producer Price Indices for Services. ISBN 92-79-01297-5, p. 15.

[6] On the one hand, this was laid down in the EU regulation concerning short-term statistics, on the other, services provided to households are covered by the consumer price index.

meets the axiomatic requirements made on a price index[1]. The base year of the new indices is 2006.

The about 20 branches of economic activity for which SPPIs are to be supplied are defined according to the Statistical Classification of Economic Activities in the European Community, NACE rev. 1.1. The range of branches comprises various transport services, postal and telecommunications services, IT services and a number of other business services, for instance advertising, legal and management consultancy[2]. When NACE rev. 2 is introduced, there will be changes of the index programme in a few sectors only.

The greatest methodological problem in developing the new price indices is price collection. This has much to do with the character of services:[3] they are very heterogeneous, rich in variants, intangible, often cannot be separated from the staff performing them, and in many cases they are provided only once in the same form. This makes it difficult to adhere to the principle of price statistics of comparing like with like over time. Therefore a specific methodology has emerged from international discussion of how to collect price data for the producer price indices for services. It centres on a number of pricing methods enabling the statistical institutes to reflect the mechanism of market price formation. The most important methods of price collection are[4]:

- Direct use of prices of repeated services, largely corresponding to the "traditional" price measuring used for goods and simple consumer services
- The contract pricing method with price changes in longer term contracts being monitored
- The unit value approach with price formation being determined by dividing turnover by quantities
- The component pricing method with prices of different service components being monitored separately and added together
- The percentage fee method enabling price information to be calculated by means of a third magnitude if the price is defined as a percentage of the third magnitude
- The model pricing approach with price estimates being recorded for exactly specified services
- Pricing based on working time for which hourly rates of personnel and also machinery are measured

The statistical institutes have to find out which pricing method has most advantages and the least shortcomings for which sector and what service under the national framework conditions. In Germany we decided in favour of the following methods for the indices published in October 2007:

[1] IWF (2004): Producer Price Index Manual – Theory and Practice. ISBN 1-58906-304-X. IWF, Washington D.C.; different ways to calculate elementary indices are compared on pages 215 ff. of that manual. As a result, preference is given to the Jevons index based on the geometric mean.

[2] The regulation comprises NACE sectors 60.24, 61.1, 63.11, 63.12, 64.11, 64.12, 64.2, 72.1 to 72.6, 74.11 to 74.14, 74.2 to 74.7

[3] Compare Zeithaml, V./Bitner, M./Gremler, D. (2005): Services Marketing. 4th edition, New York, McGraw-Hill, Chap. 1; Fisk, R./Grove, S./John, J. (2004): Interactive Services Marketing. 2nd edition, Boston, Houghton Mifflin, Chap. 1.

[4] For more detailed information see OECD/Eurostat (2005) p. 30ff; Roemer, P./Stroh, A./Lorenz, S. (2005): Entwicklung von Erzeugerpreisindizes für Dienstleistungen (Development of the producer price indices for services). In: Wirtschaft und Statistik 12/2005, p. 1248-1256; Voorburg Group (2007): Thesaurus of Producer Price Indices for Services. http://www.bok.or.kr/voorburg2007/

Sector / index	Pricing method
freight transport by road	contract and model pricing
cargo handling	model pricing
management consultancy	pricing based on working time
market/opinion research	model pricing and pricing based on working time
tax consultancy	percentage fee method
auditing activities	pricing based on working time
legal activities	percentage fee method and pricing based on working time

The sectoral weighting patterns and the price information of the new indices are generally determined by means of surveys. As the data are needed only at the national level, these surveys are conducted centrally and with relatively small sample sizes. Between 60 and 400 enterprises report data depending on the heterogeneity and the size of the sector. The results obtained by means of the percentage fee method are determined via rates of charges without questioning enterprises. Index results are calculated and released quarterly.

In Germany, further indices are being developed at the present time. It is planned to have this work completed by the end of 2008. In the first quarter of 2008, results should be available for the sectors of telecommunications, postal and courier services, warehousing and freight transport by rail.

A detailed methodology paper on the new producer price indices for freight transport and logistics was published in the periodical *Wirtschaft und Statistik* no. 11/2007.

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Pretest relating to the annual survey in domestic trade

1. Background

The annual survey in domestic trade covers about 55,000 enterprises. The results of the survey, namely structural data on German trade, have been received with interest by the general public. Business associations have however criticised a *lack of up-to-dateness and inconsistencies in relation to the results of other surveys*.[1] From the perspective of the enterprises covered by the survey, reducing their response burden is a major issue as they are obliged to submit reports for the purpose of the survey over a period of several years. Although it can be assumed that a certain routine evolves over time, responding is often felt to be a *burden*. Hence, the aim of an *optimised survey instrument* is to make work easier for all parties involved and, at the same time, enhance the quality of the data.

Against this background, the Federal Statistical Office decided to evaluate its survey instrument in a pretest. The decision was taken in line with the European recommendations of the European

[1] Federal Statistical Office (2007): Qualitätsbericht zur Handelsstatistik 2006 (http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Navigation/Publikationen/Qualitaetsberichte/Binnenhandel.psml).

Statistics Code of Practice which defines 15 principles as European quality standards for all areas of statistical work.[1] Principle 8 (Appropriate statistical procedures) requires, among other things, to systematically test all questionnaires before the data are collected.[2] In addition, the heads of the statistical offices of the Länder also supported a systematic introduction of pretests aimed at harmonising the quality assurance systems at the German and the European level.

2. Concept and objective of the pretest

In line with the recommendations to introduce systematic pretests, a concept was developed for the annual survey in domestic trade which included several test methods in order to look at the survey instrument from as many perspectives as possible. The paper questionnaire of the 2005 domestic trade survey which, with some few revisions, was also used in 2006, was put under close scrutiny.

Though the focus was on qualitative test methods, quantitatively oriented procedures were considered, too. All persons involved in the survey process (e.g. staff of the competent statistical unit and users) were included in the pretest. Another focus of the pretest was on giving above all the enterprises covered by the survey the chance to have a say. Eventually, the final concept encompassed the following five test methods:

Method 1: Comparing faulty data with plausible data

The analysis was aimed at identifying frequent corrections as an indicator of potential weaknesses of the survey instrument.[3] [4]

Method 2: Comparing the definitions of concepts (desk evaluation)

The definitions used in the context of business accounting were compared with the definitions applied in the area of federal statistics. The results were to be used to reduce the difficulties encountered in completing the questionnaire and also to enhance data quality.

Method 3: The hotline's experience regarding frequently asked questions

The aim of systematically listing queries and questions frequently asked on the phone was to identify, from a quantitative perspective, problems to be discussed subsequently in the course of company-site visits.

Method 4: Discussions with statistical experts

Problems arising in the context of statistical production were discussed with interested specialised statisticians of the statistical offices of several Länder. In a subsequent discussion, the staff of the competent units engaged in data collection and plausibility checks were encouraged to critically comment on the questionnaire.

Method 5: Semi-standardised interviews in enterprises (company-site visits)

Face-to-face interviews in the context of company-site visits were aimed at identifying the difficulties enterprises face in completing the questionnaire. The interviews focused on the

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[1] Eurostat (2005): European Statistics Code of Practice (http://www.epp.eurostat.ec.europa.eu/pls/portal/docs/PAGE/PGP_DS_QUALITY/TAB47141301/VERSIONE_TEDESCO_WEB.PDF). See also: Kopsch, G.; Köhler, S.; Körner, T. (2006): Der Verhaltenskodex Europäische Statistiken (Code of Practice), in: Wirtschaft und Statistik no. 8/2006, pp.793-804 (http://www.destatis.de/download/d/wista/wista0806.pdf).

[2] Eurostat (2006): Handbook of Recommended Practices for Questionnaire Development and Testing in the European Statistical System (http://epp.eurostat.ec.europa.eu/portal/page?_pageid=2273,1,2273_47143267&_dad=portal&_schema=PORTAL#METH).

[3] Australian Bureau of Statistics (ed.) (2001): Pretesting in survey development. An Australian Bureau of Statistics perspective. Research Paper. Canberra, Australia: Australian Bureau of Statistics.

[4] Eurostat (2007): Recommended Practices for Editing and Imputation in Cross-Sectional Business Surveys, p. 66ff. (http://edimbus.istat.it/).

following issues: interpretation of concepts, availability and origin of data, identification of appropriate contacts, and user-friendly design of explanations and notes.

The methods applied took into consideration the following central problems known from scientific research:[1]

(a) Depending on the focus of the survey and the size of an enterprise, appropriate contacts have to be found. While the contacts are clearly identified in household surveys, various units and persons could answer the questions in business surveys (such as business managers, competent staff, staff employed in controlling operations or in the human resources department). This situation is problematic as it makes the establishment of contacts and the provision of reliable information less transparent and clear.

(b) Depending on the actual survey, the extent must be identified to which the information requested from enterprises is available in a form meeting the needs of official statistics.[2]

(c) The question of data confidentiality in relation to the information requested is considered even more thoroughly by enterprises than by private individuals.

Depending on the survey, each of these largely generalised problems comprises a number of different elements. The problems are not encountered to the same extent in each of the business surveys.[3]

3. Results

The results of *comparing faulty data with plausible data* showed, in quantitative terms, the places where weaknesses were supposed to occur in both the survey design and the survey instrument. Although, in general, this method could not serve to gain information about the reasons for supposedly faulty data, the systematic analysis of error statistics provided first hints as to the issues to be discussed in the context of company-site visits. Partly, extremely high or low values gave an indication of the extent to which respondents had interpreted the concepts used in a broader or narrower sense. This referred, for instance, to data on expenditure for services, goods for resale, stocks of goods and stocks of raw materials. In addition, it turned out that mistakes occurred more frequently than originally expected in relation to supposedly easy questions (e.g. about part-time employment). Hence it can be concluded that, in certain areas, the concepts applied are interpreted differently by enterprises and official statistics.

Also, the *comparison between the definitions of concepts* of official statistics and of business accounting showed that the concepts do not always coincide and thus can lead to contradictory results.

The systematic listing of hotline calls provided important additional information. The calls made by respondents reflected the problems encountered by them. They seldom contacted the hotline with questions about the definition of concepts. The questions rather concerned general matters such as why a given enterprise was at all covered by the survey or what had to be done in cases where the information requested was not available. In turn, the competent department of the Federal Statistical Office contacted enterprises in cases where the plausibility checks had shown that the answers given to interrelated questions were not logical. Here again, the causes of the mistakes had very rarely been referred to or been addressed by the respondents.

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[1] Edwards, W.S.;Cantor, D. (1991): Towards a Response Model in Establishment Surveys, in: P.P. Biemer et al. (1991): Measurement Errors in Surveys. New York: John Wiley & Sons.

[2] Willimack, D.K.; Nichols, E. (2001): Building an Alternative Response Process Model for Business Surveys. Proceedings of the Annual Meeting of the American Statistical Association.

[3] Cox, B. et al (1995): Business Survey Methods. New York et al: John Wiley & Sons.

In the framework of *expert discussions*, specialised statisticians gave a number of hints which, on the one hand, were of an organisational nature (survey design, time schedules and feasibility) and, on the other, resulted from the experience gained with a slightly different questionnaire design of the previous years. The discussions with staff members of the trade statistics unit focused on potential weaknesses. Above all, frequent problems apparently relating to the questionnaire layout were discussed in this context. Regarding, for instance, several data that were missing in the completed questionnaire, it was assumed that the relevant questions were not placed optimally. While, in theory, this aspect is not new (a change in the sequence of questions may result in another response behaviour), it is only the practical test which shows potential side effects.

Based on the knowledge gained in the previous tests, a total of 14 enterprises engaged in trade activities were finally visited (company-site visits) and, in the form of semi-standardised interviews asked about their experience with the questionnaire. These test interviews allowed enquiries to find out the reasons for wrong entries in the questionnaire. The first result obtained showed that, in trade statistics, too, it is not only the business managers/owners of an enterprise who complete the questionnaire. Several other persons (like participating partners, bookkeepers or tax consultants) working in the most different units of the enterprise also fill in the questionnaire, which makes it more difficult to optimise the survey documents.

In addition, the definitions of individual concepts could be discussed in detail in the context of the interviews, which will help avoid some of the mistakes. Also, the way in which the respondents dealt with the explanatory notes became obvious. The majority of the test persons did not or only sporadically read the notes. The explanations were studied in cases where a concept was not understood. In all other cases, the concepts were interpreted and applied in the way they are generally used in the media, everyday life or business accounting. This insight is also important with regard to other questionnaires. Definitions of terms which are in everyday use, but are defined differently for the purposes of official statistics, should be placed directly below the questions concerned to reach at least part of the respondents. This issue became especially apparent in relation to questions, for instance, about part-time work, gross wages, and social expenditure. An essential problem was that the test persons were not aware of their "wrong" understanding of concepts (in terms of official statistics). Rather they were firmly convinced that their interpretation was correct. And some of them did not at all care about the definitions used by official statistics. Even though explanatory notes are less 'popular' among respondents, they are indispensable from a subject-based perspective. In this respect, the following should be taken into account: (a) Respondents are more likely to read definitions if the latter are placed right near the question. However, some explanations are too long to be placed near the question. (b) There are respondents who want to look up definitions. In the future, such criteria as the place, length and design of explanatory notes should therefore be reconsidered and tested.

4. Conclusions

Summing up, one can say that the concept of the pretest relating to the annual survey in domestic trade, which was based on different test methods, was useful to show various weaknesses of the survey instrument. The pretest could rely above all on information provided by the material in place (comparison of faulty with plausible data) and systematised internal knowledge (on the part of specialised statisticians, the staff of the competent unit and the hotline). In the course of the semi-standardised interviews, the enterprises concerned were additionally asked to indicate weak points in the survey, which had been recommended as a standard, for instance, by the U.S. Census Bureau.[1] [2]

[1] Vgl. U.S. Census Bureau (ed.) (2003). Census Bureau Standard. Pretesting questionnaires and related materials for surveys and censuses. Washington, Columbia: U.S. Census Bureau (http://www.census.gov/srd/pretest-standards.pdf).

[2] Statistics Canada (2002): Policy on the Review and Testing of Questionnaires. Statistics Canada Methods and Standards Committee, Ottawa: Statistics Canada.

The knowledge gained during the pretest will be gradually put into practice with the aim both to reduce the burden placed on all parties involved in future domestic trade surveys and other enquiries and to enhance the quality of the results.

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Advantages of using totals records as evaluation material in decentralised statistics, exemplified by health statistics

Evaluation material in the form of totals records, as they are called, facilitates the work of the statistical offices of the Federation and the Länder with regard to routine processes in decentralised statistics. In the following, the way in which totals records are produced will be explained and the resulting advantages highlighted.

In accordance with the principle of regional decentralisation, federal statistics as a rule are compiled and processed by the statistical offices of the Länder. Then the Federal Statistical Office produces figures for Germany as a whole from the Länder results.

Länder results are generally submitted to the Federal Statistical Office not in the form of microdata records but as tables stored with a uniform tabulation program. These tabulation programs often are very large as they pursue two conflicting goals:

1. The statistical offices of the Länder require tables which they can use for release purposes without having to modify them too much. As a consequence, these tables need to be rather short so they can easily be integrated into publications. Their breakdown must not be too detailed to keep the number of confidential cases as small as possible.

2. The Federal Statistical Office, however, is quite interested in tables which are as detailed as possible. Since the Federal Statistical Office as a rule does not receive any microdata material of decentralised statistics, such tables are needed to analyse developments and trends. They also make it possible to respond flexibly to individual customer requirements. Due to the complexity and great detail of variables for instance of hospital and causes of death statistics, the specialised department receives an increasing number of complex inquiries which cannot be answered on the basis of tables containing basic information.

Because of these conflicting positions, tables may be stored just in case they are needed, which requires a lot of work. In addition to that, it involves much effort for the Federal Statistical Office to publish results contained in tables with a rigid structure if variables or also tables have to be aggregated.

A solution to this problem may be evaluation material provided in the form of totals records, as they are called. Here the data material is not pressed into a pre-defined table structure but presented in the form of data records with the smallest possible breakdown. The following simplified example from the statistics of hospital diagnoses illustrates the differences:

Table:

Main diagnosis ICD	Total	Male	Female
…			
I20	250	200	50
I21	500	200	300
I22	300	150	150
…			

Totals record:

Data record description

Input field	Field name
EF1	sex
	1=male 2=female
EF2	main diagnosis
	acc. to ICD
EF3	number of patients

Data record structure

EF1	EF2	EF3
1	I20	200
2	I20	50
1	I21	200
2	I21	300
1	I22	150
2	I22	150

The data sets of the totals record are sorted by variables, and in one or several value fields the total is given of what is contained in the value fields (e.g. "number of patients"). It is easier to analyse the data if they are available in this form as the data structure is more flexible than in a predefined table with its rigid structure of lines and columns. The evaluation potential is not limited anymore by predetermined tabulation programs.

When this form of data presentation replaces deliveries in tabular format, preparing federal results also is less work for the Federal Statistical Office. Every Land only supplies its totals record, and data do no longer have to be matched at the Federal Statistical Office in a time-consuming procedure. The Länder data are stored in a file in successive order. The adding up of data to obtain results for Germany as a whole, which would be necessary if tables were used, is performed later by evaluation programs.

Thanks to their structure and in contrast to the tabulation programs, totals records can be evaluated by numerous programs used by the statistical offices of the Federation and the Länder (STATSPEZ, SAS, MS-ACCESS) in the competent specialised departments. So the specialised departments of the Federal Statistical Office can both release the data and analyse the data material.

As the statistical offices of the Länder are the sole users of the tabulation program, it can be tailored to the needs of the Länder. Then it is no longer necessary to keep in stock that many tables with results just in case they are needed. There is less programming work as only the totals records program and the reduced Land tabulation program have to be produced and maintained.

Another important advantage is that in particular STATSPEZ evaluations of the Federation can be applied by the Länder to their Land totals records. So specialised analyses undertaken at individual Land statistical offices can be transferred also to other Länder or the Federation without much effort, thus creating synergy effects.

These effects can be extended in a second step by preparing the tabulation program of the Länder, too, on the basis of the totals record instead of microdata material. So the totals record would become the only evaluation material used by the Federation and the Länder for standard and specialised analyses.

At the Federal Statistical Office, the preparation of publications is made easier by programs such as SAS und STATSPEZ because evaluation routines can be developed. Then the rigidly structured tables of the tabulation program do no longer have to be modified to prepare publications, which often is much work.

Division VIII A Health uses this evaluation material in different ways:

Since survey year 2000, such evaluation material has been used in the statistics of diagnoses of hospital patients, and since 2001 it has also been delivered to the Federation by the Länder. For the diagnosis data of patients in prevention or rehabilitation facilities with more than 100 beds this has been the case since reporting year 2003. As a consequence, the amount of work involved in preparing the releases at the Federal Statistical Office has been reduced considerably. Also, the Länder use the survey routines produced with STATSPEZ at the Federal Statistical Office for their own publications. From survey year 2006, the standard tabulation program of the Länder has also been prepared on the basis of such evaluation material.

In the causes of death statistics, only material in the form of totals records has been delivered to the Federal Statistical Office since 1998. Since that survey year, the material has also been adjusted to the form described above. This contributed to reducing release work.

As regards basic and cost data of hospitals, there presently exists evaluation material at Länder level. Before it can be submitted to the Federation, modifications have to be made. These statistics have a large number of classification variables and cover only a small number of survey units. Depending on the data record structure of the evaluation material, the resulting data material may in fact be microdata material. Here the totals record has to be adjusted so that material with a higher aggregation level can be delivered to the Federal Statistical Office.

Resumé:

By introducing totals records as evaluation material in a statistics, higher flexibility is achieved in the case of decentralised statistics. This enables the Federal Statistical Office to make efficient evaluations and analyses without having to be supplied with microdata material. Also, the statistical offices of the Länder can use a tabulation program tailored to their needs. The programming work and the delivery of data to the Federation are facilitated and it is no longer necessary to prepare tables just to have them available. By using STATSPEZ, both the Federation and the Länder may profit from each others' evaluation routines.

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eSTATISTIK.core: data for service statistics now available at the push of a button

Since November 2007, the new online reporting procedure eSTATISTIK.core of official statistics has been offered for use to both the approximately 150,000 enterprises and persons engaged in free-lance activities required to give information for the purposes of the annual structural survey and the about 4,000 parties responsible for providing information in the context of the quarterly surveys of short-term economic development in the service sector.

The new procedure will help significantly reduce the response burden placed on enterprises as it is designed to extract automatically (virtually at the push of a button) the data required by the bodies of official statistics from the business accounting systems of enterprises and to pass them on in a coded form via the internet to a central data entry point of the statistical offices.

There, the data packets are checked and then are automatically transmitted to the competent statistical office for further processing. The precondition is that the data required are available in electronic form in the enterprises and a statistics module has been integrated into the business software to organise the combination and delivery of the data packets. To obtain information on whether the business software used in an enterprise supports eSTATISTIK.core, the manufacturer of the software should be contacted.

A well-known software manufacturer provided a statistics module for the purposes of service statistics not later than in October 2007. However, further manufacturers are still to be encouraged to develop a module of this type.

The new procedure has been successfully used in the context of other business statistics. Examples are the surveys of earnings, the monthly surveys in manufacturing, and the surveys in trade and the hotel and restaurant industry.

The statistical offices in Germany developed eSTATISTIK.core together with partners of the business community with the aim to reduce the administrative burdens placed on enterprises. The procedure has been offered in addition to the usual reporting instruments, namely paper questionnaires and online questionnaires (IDEV - internet-based data collection of the statistical offices of the Federation and the Länder). As a result of automated data acquisition and transmission, enterprises will save working time and consequently costs. As manual entries are no longer required, copying errors can be completely ruled out. This will improve data quality and hence also reduce the number of queries addressed to enterprises which, in turn, will contribute to an accelerated processing of the data. In this way, not only the quality of the data can be enhanced, but the time required for data gathering be reduced, too.

Enterprises which intend to use the new reporting procedure should point out the new option to their software houses unless the latter already have the necessary module on offer. At http://www.statspez.de/core/download.html, software manufacturers and developers can access the software library CORE.connect to be provided with any information they require to produce the module.

If a software provider does not yet offer the statistics module required, an application called CORE.reporter can in many cases serve to extract statistical data at least in a semi-automated manner from the business accounting system. This application is designed to read in statistical data, for instance, from a predefined excel file, to include the data in an online questionnaire and to transmit them via the internet to the statistical offices. The CORE.reporter is particularly helpful to enterprises which do not use ERP software and are obliged to provide only a small amount of data. The relevant software and the operating instructions for the CORE.reporter can be accessed free of charge at http://www.statspez.de/core/downloads/tools/index.html .

Please have a look at http://www.statistik-portal.de/Statistik-Portal/datenOnline.asp for further information on eSTATISTIK.core.

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Events

16th Scientific Colloquium: “Composite Indicators – Boon or bane?“ / “Zusammengesetzte Indikatoren – Fluch oder Segen?“

In co-operation with the German Statistical Society, the Federal Statistical Office held the 16th Joint Scientific Colloquium on the topic of “Composite Indicators – Boon or bane?“ / “Zusammengesetzte Indikatoren – Fluch oder Segen?“ on 22 and 23 November 2007 at the Hotel Crowne Plaza in Wiesbaden. For the first time, the event was in two languages; on the first day, the conference language was English, while the contributions were presented in German on the second day. The colloquium was moderated by Prof. Dr. Ralf Münnich of Trier University, who also gave an introduction into the subject.

The specialist discussion was opened by Dr. Asterios Chatziparadeisis from the Greek Ministry of Development with his contribution on the “Political Impact of Composite Indicators”.

In his paper "Coping with Complexity: the Role of Composite Indicators”, Dr. Stefano Tarantola from the Joint Research Centre of the European Commission in Ispra, Italy, treated the question what composite indicators may contribute to reducing complexity.

In the following paper, Nikolaus Wurm and Dr. Klaus Reeh of Eurostat in Luxembourg explained the relevance of composite indicators in the European Statistical System.

In the last contribution of the first colloquium day, Gyorgy Gyomai from the OECD in Paris presented the OECD Composite Leading Indicator System.

At the close of the first day, the Gerhard Fürst Award 2007 was presented by the President of the Federal Statistical Office, Walter Radermacher, as part of the Scientific Colloquium in a ceremony. This year the prize could be awarded for as many as three scientific papers closely related with official statistics. Further information on the Gerhard Fürst Award of the Federal Statistical Office is provided by the article contained on the subject in this publication and under “Scientific forum“ on the English website of the Federal Statistical Office at: http://www.destatis.de.

At the beginning of the second day, Dr. Heinz-Herbert Noll from the Centre for Survey Research and Methodology (ZUMA) in Mannheim discussed the pros and cons of composite indexes as exemplified by the summary measures of wellbeing and quality of life.
Under the heading “Between Microdata and Visual Aggregation“, Andrea Scheller from the Federal Office of Statistics in Neuchâtel, Switzerland, then introduced the MONET Indicator System.

Dr. Nicole Thees from Trier University analysed the statistical quality of composite indicators as exemplified by the knowledge economy.
Then Dr. Axel Dreher from the Economic Institute of the Swiss Federal Institute of Technology in Zurich presented the KOF globalisation index with its three dimensions, namely economic, social and political globalisation.

The event was concluded with an outlook on the future of indicator systems in German official statistics by Dr. Susanne Schnorr-Bäcker of the Federal Statistical Office, Wiesbaden.

For abstracts of all papers please refer to the internet pages on scientific colloquia at: http://kolloq.destatis.de/. From the beginning of 2008, the full texts of the papers will also be available there as free downloads.

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2007 Gerhard Fürst Award

On the occasion of the 16th Scientific Colloquium, which was held jointly with the German Statistical Society, the 2007 Gerhard Fürst Award was presented to the winners. Based on the recommendations of the panel of independent jurors, Walter Radermacher, President of the Federal Statistical Office, awarded the 2007 Gerhard Fürst Award to three scientific papers closely related to official statistics.

In the category of dissertations (doctoral theses), the thesis by Dr. Michael Beer (University of Fribourg, Switzerland) on "Hedonic Elementary Price Indices: Axiomatic Foundation and Estimation Techniques" and the thesis by Dr. Matthias Schmid of Munich University on "Estimation of a Linear Regression with Microaggregated Data" were regarded by the jury as equally outstanding and worth an award. The two theses were awarded the 2007 Gerhard Fürst Award in the category of dissertations (doctoral theses). The prize money of EUR 5 000 was shared between the two prize winners.

In the category of diploma/master's dissertations, the diploma dissertation by Max Friedrich Steinhardt of Hamburg University on "Labour Market and Migration – an Empirical Analysis of the Wage and Employment Effects of Inward Migration for Germany", which was regarded by the jury as an outstanding achievement, was awarded the 2007 Gerhard Fürst Award. The dissertation won a prize money of EUR 2 500.

By offering the Gerhard Fürst Award every year, the Federal Statistical Office seeks to strengthen the existing links between the work of the official statistics bodies and that of institutions of higher education. At the same time, the award is intended to encourage junior scientists to make extensive use in their empirical research of the wide variety of data offered by official statistics.

An appropriate setting for the annual Gerhard Fürst Award was provided by the 16th Scientific Colloquium on the subject "Composite Indictors – Boon or Bane?". This scientific colloquium was held by the Federal Statistical Office in co-operation with the German Statistical Society in Wiesbaden on 22 and 23 November 2007. For more information about the 16th Scientific Colloquium please refer to the relevant chapter in this publication or to the Internet at: http://kolloq.destatis.de/. There, you will find abstracts of all papers and, from the beginning of 2008, the papers themselves for free download.

More detailed information on the Gerhard Fürst Award is available under the heading "Scientific forum" on the website of the Federal Statistical Office at: http://www.destatis.de. There you will find, for example, abstracts of the award-winning papers and information on the conditions of participation for the 2008 Gerhard Fürst Award, whose deadline for submissions is 31 March 2008. Professor Dr. Hans Wolfgang Brachinger (University of Fribourg/Switzerland), the chairman of the independent Gerhard Fürst Award jury, delivered the laudatory speeches at the award-giving ceremony on 22 November 2007. These speeches were published in Volume No. 12/2007 of the journal "Wirtschaft und Statistik". In addition, the award-winning authors published detailed articles on their dissertations in the journal "Wirtschaft und Statistik" at the beginning of 2008.

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