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Contents

	Page
The catchword	
CBS-IRIS – An interactive data collection program	3
Methods of federal statistics – Further development	
First all-German consumer price index after shift to base year 1991 = 100 ...	3
Air transport statistics – An example of rationalising work processes through the PC supported and largely automated generation of flight reports at the airports	5
Concept of an accounting system for land use and land cover	6
Computation of the final consumption expenditure of households in the new Länder and Berlin-East by the user and the supplying-sector approach	
Preliminary remarks	7
Computation of the final consumption expenditure of households in the new Länder on the basis of household survey results	8
Computation of the final consumption expenditure of households based on the supplying sectors	11
Comparison of the two methods of computation	12

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Information:

Statistisches Bundesamt
General Information Service
D-65180 Wiesbaden

- Phone: + 6 11 / 75 24 05
- Fax: + 6 11 / 72 40 00
- T-Online (Btx): *48484#
- Internet: <http://www.statistik-bund.de>

Further information on this publication may be obtained from:

Division I B

Phone: + 6 11 / 75 20 77

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The catchword

CBS-IRIS – An interactive data collection program

Since 1996, the Federal Statistical Office has offered enterprises obliged to provide information for intra-Community trade statistics (i.e. German foreign trade within the European Union) an interactive data collection program for preparing their reports. The program named CBS-IRIS was developed by the Netherlands Central Bureau of Statistics (CBS) in 1991 and adapted to national German regulations in cooperation with the Federal Statistical Office in 1994. On account of the favourable experience gathered during a one-year test, early 1996 the decision was taken to start using the program for reporting. The program enables the user to enter data in the interactive mode as regards commodity movements he is obliged to report. To this end, a program mask for data entry is displayed on the screen which resembles the official questionnaire. The program also offers numerous functions supporting the entry of data into fields reserved for variables, e.g. coding lists and options to preassign information. The data entered are subjected to completeness and validity checks and can then be stored on diskette to be sent to the Federal Statistical Office. The program's major support function for efficient reporting, however, enables the user to import data from existing files, for instance accounting, via an ASCII interface. The program has been designed for multi-user operation (within a network), so several users can work with it at the same time, and also for clientele processing, i.e. third persons logging in may report data for several respondents. The Federal Statistical Office has established a specific hot-line service to help with the installation and any problems arising when the program is used.

So far, the use of this interactive program has been regarded positively without exception by both the enterprises and the Federal Statistical Office. There have been no installation problems, only few problems handling the program, and the data records transmitted could be integrated into the established processing channel without difficulty. On top of that, the quality of the data reported increases considerably since the program runs a plausibility check of valid key figures when the data are entered.

Thus using interactive data collection programs with a comparable structure does not only accelerate the processing and improve the currentness of the respective official statistics as the time-consuming process of entering data subsequently is rendered superfluous, it also improves the quality of the statistical data. To assess the application of a data collection software in all aspects, one has to take into account also its consequences for enterprises obliged to provide information. The test showed that using such a program to report data on a monthly basis made the process much easier and quicker for enterprises who can access existing data via interfaces or work with preassigned data.

To simplify data reporting even further and in view of the technological progress, there are plans to offer remote data transmission as an additional option. For this purpose, enterprises require an adequate PC communication software transforming the information so that it can be understood by extraneous systems and – if applicable – a modem for accessing a data communications network. Since mid-1993, the users of the Dutch program package CBS-IRIS in the Netherlands have been offered a PC communication software for direct transmission of the data to the CBS via a Datex P network in addition to the data collection program. This alternative has been very well received by the enterprises obliged to report in the Netherlands and was used by some 1,200 enterprises for the transmission of foreign trade data in 1996. As German enterprises have repeatedly expressed an interest in this type of data transmission, too, a group of some 50 selected enterprises will be given the opportunity to use the existing PC communication software in 1997 already. Depending on the experience gathered in this test, the software will be made generally available.

Methods of federal statistics – Further development

First all-German consumer price index after shift to base year 1991 = 100

In September 1995, the Federal Statistical Office presented its first consumer price index for all private households in Germany. The new base year of the index is 1991, and figures have been dated back to January 1991. However, separate consumer price indices still have to be calculated for the former territory of the Federal Republic and the new Länder incl. Berlin-East at the present time. This is due to differing consumption habits and price developments. Contracts with stable-value clauses will thus retain their bases, but new contracts should not contain a clause referring to regional indices as calculations will be discontinued at some point in the future.

In the Federal Republic of Germany, price indices are usually rebased at five years' intervals. Most neighbouring countries follow a similar pattern. Due to German unification, however, Germany was not in a position to introduce 1990 as the new base year for price indices although that year had been agreed upon at the international level. Instead, the former base year 1985 (or 2nd half of 1990/1st half of 1991 for the new Länder) was replaced by base year 1991. Nevertheless, federal statistics will return to five-year intervals (1995, 2000 etc.).

On the occasion of a rebasement in the Federal Republic of Germany, figures are usually taken back for a certain period and compared with the previous ones. This was done this time also, to avoid misinterpretation and to be able to differentiate between recent price movements and the consequences of altered consumption habits or changes in methodology.

When an index is rebased, altered consumption habits of households often lead to somewhat lower rates of price increase. This is due to the fact that households react to price changes and resort to less expensive products if possible. This substitution effect is limited though because comparable commodities and services are usually subject to similar price changes.

Occasional methodological and conceptual adjustments are inevitable since consumer price indices – like all other statistics – have to take account of altered conditions and requirements. Discussions about "best practices" of calculating consumer price indices in the context of their harmonization within the European Union have shown first consequences for national index calculation on the occasion of the rebasing, even though such discussions will continue for a long time.

For instance, the fact that the consumer price index for all private households is increasingly used as a general yardstick for measuring inflation would suggest basing it on the domestic concept. This means, for example, that the money domestic tourists spend abroad is not included in the price index, while foreign tourists' expenditure within the country is. That conceptual change affects a large number of commodities and services, but its effect on the results is only marginal.

International discussion also shows that the share of insurance companies' services in the weighting scheme should not be measured by the gross premiums but the "service fee" charged for the insurances. This means that deductions have to be made from the gross premiums, in particular of benefits paid by the insurance companies to households when an insured loss occurs. Double counting of price changes can thus be ruled out in the consumer price index. This methodological change has far-reaching consequences.

Prices of package tours may be included in the consumer price index either at the time of purchase or at the beginning of the journey. Consumer price statistics generally uses the "concept of purchase", i.e. prices are recorded at the time the purchase is made. As a consequence, no seasonal price changes could be shown for package tours so far, although the season (early season, peak season and post-season) plays an important part in this particular field. The shift to the "concept of use", i.e. recording prices at the time a journey begins, can thus be considered good progress in terms of methodology. This methodological change does not affect year-on-year comparisons, however it affects comparisons with the preceding month.

The consumer price indices for the former territory of the Federal Republic and those for the new Länder including Berlin-East are now computed on the basis of completely identical methods and concepts. Before, the most comprehensive consumer price index calculated for the new Länder was an index for all households of employees. Now a price index for all private households is available as in the former territory of the Federal Republic. The greatest difference between the consumer price indices for the former territory of the Federal Republic and those for the new Länder was the treatment of owner-occupied dwellings. In the former territory of the Federal Republic, imputed rents are used which correspond to those paid for privately financed dwellings of a comparable size, equipment and location. In this respect, there first were large information deficits in the new Länder. For this reason, only incidental expenses incurred by the owners were included (e.g. for water supply, waste water disposal, garbage collection, etc.) and – as a makeshift solution – some renovation costs. The latter are not contained in the index for the former territory of the Federal Republic because they are investment expenditure. With the rebasing of the price indices to base year 1991, a methodological adjustment is made in this field also.

Air transport statistics – An example of rationalising work processes through the PC supported and largely automated generation of flight reports at the airports

As a result of the rapidly growing number of flights, the airlines that are subject to compulsory data supply for official statistics have had to employ more and more time and manpower in order to provide data for the statistical offices, for the airports, and for their own internal data processing systems. At the same time, the work caused by that statistics increased overproportionately both for the airport operators in their function as reporting units and for the Federal Statistical Office. This is why the competent bodies of the above institutions searched for opportunities of rationalising the work processes, which would benefit all parties involved. The aim was to find solutions for how the airlines could largely automate their manual processes of preparing the flight reports for the airport administration and those for official air transport statistics (over 50,000 per month). The second goal to be achieved at the same time was that manual coding and data entry of the flight reports at the airports and at the Federal Statistical Office should be replaced by EDP procedures.

The result of these efforts is the PC supported and largely automated FLIRT*FRA system (Flight Information Report and Transfer System) described below. Commissioned by the Frankfurt airport (FAG), it was developed by the Fiplan company (Bad Soden) in close cooperation with the Working Party of German Airports (ADV) and the Federal Statistical Office. The programme generates a data record defined by the Federal Statistical Office, containing all flight report data and, at the same time, meeting the data demand of the airports and airlines. The responsibility for this project, in particular the funding and the practical development on the spot, was taken over by the FAG. This organisation had been strongly affected by the drastic increase in the number of reports, both in its function as a "handling partner" of many airlines regarding the compilation of flight reports and as a "reporting unit" collecting and checking all flight reports compiled at the airport.

The underlying concept of EDP supported collection of flight data for airlines, airports, and the Federal Statistical Office was to retrieve data from messages that are largely based on standards set up by the International Air Transport Association (IATA). Such messages are exchanged among airlines and airports through the worldwide SITA network (SITA: Airlines Worldwide Telecommunications and Information Services) and supplemented by "basic data" from databases of the airlines or airports.

For every flight movement, messages for the purpose of flight management, containing any information relevant to the flight, are sent by airlines and airports through the SITA network to all subsequent stations, e.g. airports or airline locations. For these messages, Fiplan developed identification and interpretation programmes. The SITA messages relevant to that project were LDM (Load Message), MVT (Movement Message) and PTM (Passenger Transfer Message).

For the PC controlled generation of flight reports, basic data – such as date, airline, flight number, and aircraft registration data – had to be supplied in addition to the processed data obtained from the SITA network. Such data are stored in local databases and retrieved by the airport or airlines before they are automatically integrated into the reports.

The system has been designed to be applied efficiently for the compilation of the required data records both at large and small airports by handling partners, by airlines, and by the Federal Statistical Office for the manual processing of the remaining flight reports. Different levels of development permit choosing either fully automated creation of flight reports based on the SITA messages or, if desired, database supported and partly automated manual creation of the reports.

The FLIRT system has been applied successfully by most of the large German airports and airlines as well as by the Federal Statistical Office; it has had rationalization effects for all parties involved. It is expected that, in Germany, from reference year 1997 more than 95% of all flight movements at the 17 airports selected for detailed air transport statistics will be processed by means of that system. In addition to the rationalization achieved, this will improve the quality and accelerate the compilation of air transport statistics. At the Federal Statistical Office, the programmes required for the new overall data record (one flight report = one data record of 1018 bytes) have been developed and the new programming for the entire compilation process for air transport statistics has been commenced. Applying a new plausibility check and abandoning the maximum data record length of 80 bytes, which has been compulsory for the existing programmes, will permit more efficient processing of air transport data. In addition to the above advantages for official air transport statistics, airlines and airports too profited from the new system in that they optimized their operation processes and gained improved internal performance statistics needed for marketing and other business decisions.

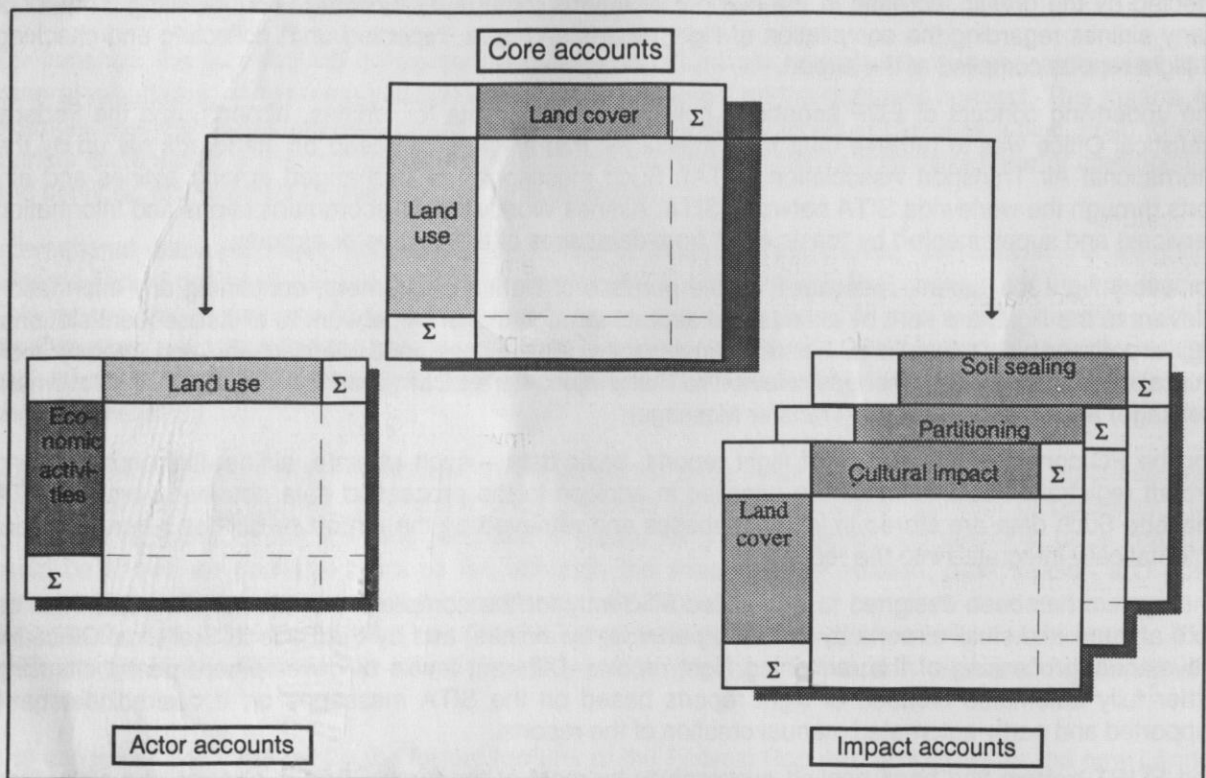
Concept of an accounting system for land use and land cover

As part of the activities of the task force on "Physical Environmental Accounting" (PEA) of the Conference of European Statisticians (CES), the Federal Statistical Office tested a concept of an accounting system for land use and land cover and published the relevant final report.

The term of PEA refers to an approach describing, by means of physical values, the relations between economic activities and their impact on the environment. The above task force of the CES at the United Nations Economic Commission for Europe (ECE) developed the PEA concept. This concept and its areas of application (material flows and land use) make a major contribution to the Environmental-Economic Accounting system (*Umweltökonomische Gesamtrechnungen – UGR*) of the Federal Statistical Office (cf. Radermacher/Stahmer 1994 and 1995). At the same time, it represents the concretization of a major part of the System for Integrated Environmental and Economic Accounting (SEEA) proposed by the United Nations (cf. United Nations 1993).

As described in the final report published in October 1995, the basic structure of PEA as a concept of an accounting system based on accounts was developed for the field of land use and land cover and implemented for a specific test area (the administrative district of *Main-Taunus-Kreis* in the Land of Hesse) (Krack-Roberg/Riege-Wcislo/Wirthmann 1995). The following chart illustrates the system of accounts.

Core accounts and supplementary accounts (actor accounts and impact accounts) on land use and land cover



The **core accounts** describe land use (broken down by Dwelling, Industrial and commercial use, Housekeeping and commercial use, Private and public administration/culture/education/health services, Supply services, Disposal services, Mineral extraction, Transportation, Recreational areas, Agriculture, Forestry, Mixed use of water bodies, Transitional land and construction sites, Mixed use of natural and semi-natural areas) and land cover (broken down by Artificial cover, Woody vegetation, Grass and other non-woody vegetation, Woody and non-woody vegetation, Land with sparse or without vegetation, Water surfaces) for various periods. By comparing the data for two one-year periods, the change that occurred between the two years may be represented. **Supplementary accounts** are formed to analyze the structure and extent of human impact on the environment. The supplementary accounts may be divided into actor accounts and impact accounts. In the **actor accounts**, land use is shown in a breakdown by

economic activities. **Impact accounts** subdivide land cover to represent selected environmental problems; for the time being, structural environmental issues are dealt with, such as soil sealing, partitioning effects caused by traffic routes, and human cultural impact (*Hemerobie*).

Altogether, the final report focuses on the presentation of methodological aspects rather than the presentation of results. This is why it comments on just a few selected results for the test area.

In a **pilot study**, the accounts were set up for the test area and results at two levels of scale were calculated and compared with each other; one survey was on the scale of 1 : 25 000, the other on the scale of 1 : 100 000. The advantages and shortcomings of the two methods with regard to the application in question are presented in the report. Also, practical problems are discussed concerning the determination of land use and cover in the context of evaluating satellite images and aerial photographs.

The results of the pilot study show that linking economic activities (actor accounts) with data on the state of the environment (impact accounts) by means of core accounts is not yet fully satisfactory for all areas. For instance, it was not possible to allocate economic activities to specific changes in the environment, because covering individual structural environmental changes reached its limits, which was due to problems of breakdown, different times of taking satellite images, different processing techniques for such images, as well as a lack of data. Further research is required here, for example, with a view to collecting the data base for individual indicators, if suitable, by means of area samples. This approach is followed with the Ecological Area Sample (*Ökologische Flächenstichprobe – ÖFS*) of the Federal Statistical Office (cf. Hoffmann-Kroll/Schäfer/Seibel 1995).

However, the results of the pilot study also show that, despite the problems that emerged, it is possible to set up a PEA for the sphere of land use and cover on the basis of physical data. For this purpose, cartographic information is aggregated in a meaningful way by means of accounting methods. After the above problems will have been solved, it will be possible to use the PEA with its linkages as a basis for developing indicators with regard to assessing the state of the environment and indicators of the sustainability of economic activities.

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Computation of the final consumption expenditure of households in the new Länder and Berlin-East by the user and the supplying-sector approach

Preliminary remarks

The final consumption expenditure of households consists of the value of the goods and services bought by domestic households for consumption or other use purposes and of the services provided free of charge by non-profit institutions serving households. Computing the value of the final consumption expenditure of households can be generally based either on data on the purchases of households inquired in household surveys or on information provided by suppliers about their sales to households. It is however useful to base computation on both approaches. The first approach supplies immediate data on the purchases of domestic households by purposes, while the second approach requires an estimation of the share of purchases of households for their final consumption in the turnover of each supplier. The result thus obtained is the total of purchases in the country concerned. As a next

step, the expenditure of foreign households in that country will have to be subtracted and the purchases of domestic households abroad be added to the above total. In both approaches, free services of non-profit institutions serving households are calculated separately and then added.

In the former territory of the Federal Republic of Germany, the supplying-sector approach has always been preferred as the data base of that sector has been more adequate than the data base derived from household surveys. The sample survey of income and expenditure conducted at five-year intervals cannot be used for continuous computation since its results are available rather late. Because continuous family budget surveys only cover very narrowly defined types of households, they are suitable for the computation of the final consumption expenditure of households to a very limited extent only. As mentioned before, the reliability of results derived from surveys of enterprises is usually better than that based on household surveys. To compute the final consumption expenditure of households, monthly and quarterly indicators of turnover are available in particular for major suppliers as there are retail trade, the crafts sector, and the hotel and restaurant industry. The computation based on the supplying-sector approach distinguishes between approximately 350 supplying sectors and is supplemented by nine special calculations for specific types of products. A breakdown by purposes is made for each supplying sector in line with the *Systematik der Einnahmen und Ausgaben der privaten Haushalte - SEA* (Classification of receipts and expenditure of households), 1983 edition.¹⁾

Immediately after reunification, a detailed data base of the above kind, encompassing nearly the whole statistical system of monthly, quarterly or annual surveys, was not available in the new Länder and Berlin-East. Particularly in the first year after reunification, the data system still showed wide gaps which did not permit a computation based on the supplying-sector approach. For this reason, the computation in the new Länder was initially based on analysing household surveys. At the same time, however, the basis was gradually created for applying the supplying-sector approach with the aim of a harmonised all-German computation.

Computation of the final consumption expenditure of households in the new Länder on the basis of household survey results

The Statistics Adjustment Law of 26 March 1991²⁾ stipulated that the statistics of household budgets were to be continued in the new Länder and Berlin-East until the end of 1992. Based on voluntary housekeeping books, those statistics had reflected the income of households and their expenditure for goods and services in a breakdown by purposes and also changes in savings and other deposits in the former GDR. The 1991 and 1992 household budget surveys covered an average 2,500 households of wage earners and salaried employees, 400 households of former members of co-operative farms and 600 households of pensioners without earned income. Inquiries were made at monthly intervals. In general, results were available three to four months after the month of data collection. The three types of households covered represented about 85% of all households in the new Länder and Berlin-East. The only types of households missing were those of self-employed persons, other pensioner households and households with foreign reference persons, the latter playing a minor role in the new Länder at that time.

A decisive factor in evaluating the household budget survey as a basis for computing the final consumption expenditure of households was that the households covered were basically the same that had participated in the statistical surveys before reunification. And since wages, salaries and also transfers continued to be paid at a 1:1 ratio upon completion of the monetary union on 1 July 1990, the data on the final consumption expenditure of households computed before and after the monetary conversion were directly comparable.

Usually, the results of population censuses, which are updated by microcensus surveys at annual intervals, constitute the basis for expansion. However, that conventional approach could not be used immediately for the new Länder since the last population census in the GDR was conducted in 1981. For this reason, the data of a so-called residents data register were analysed in summer 1990. The

1) See Bolleyer, R./Burghardt, M.: "Privater Verbrauch im früheren Bundesgebiet sowie in den neuen Ländern und Berlin-Ost" in *Wirtschaft und Statistik* 4/1994, p. 299 ff. and Eichmann, W.: "Die Berechnung des Privaten Verbrauchs im Rahmen der Volkswirtschaftlichen Gesamtrechnungen unter Berücksichtigung aller verfügbaren Quellen, special issue of the *Allgemeines Statistisches Archiv*, Volume 13/1978.

2) See Statistics Adjustment Ordinance of 26 March 1991 (Federal Law Gazette I, p. 846 ff.)

analysis, which served as a basis for expansion, yielded information on the number of households and the distribution of household sizes. The 1991 and 1992 microcensus surveys provided first data on the social distribution of households and their incomes. However, the expansion frame had to be corrected in two respects. On the one hand, the criteria of delimitation applied in the household budget survey and the microcensus had to be harmonised and, on the other, the expansion frame had to be adjusted at quarterly intervals due to rapid social changes. The household budget survey covered households of wage earners/salaried employees, households of former members of co-operative farms, one and two-person households of old-age pensioners without earned income and finally households of unemployed persons, i.e. households of the aforementioned types in which the reference person had become unemployed. The analysis of the 1991 and 1992 microcensus was based on those four types of households which represented 86% of all households in 1991. The remaining 14% of households included those of former members of producer co-operatives (mainly craftsmen), self-employed persons, recipients of other pensions, households where the reference person was either on early retirement or received transitional old-age payments, and households whose main subsistence consisted of public assistance, payments according to the Federal Law on Education and Training Promotion, own property or the like. Those households were to the best possible extent included in the expansion procedure by estimates. As regards self-employed persons, for instance, estimates were based on the households of wage earners/salaried employees in the upper net income brackets. Adjustments for social changes were by far more difficult. Because of considerable changes in the social structure and, in particular, the household net income groups due to reunification and the introduction of a market economy, it was not useful to use exclusively the microcensus reference day results for expansion purposes (see Table 1). For this reason, a separate expansion frame was estimated at quarterly intervals on the basis of updated and back dated data on the population movement and economic activity.

**Table 1: Number of households by the reference person's labour force participation and status in employment and the structure of the monthly household net income
New Länder and Berlin-East**

Microcensus results

Specification	Number of households	Household net income from DM to under DM ...						Self-employed farmers, no indication
		under 1000	1000 - 1800	1800 - 2500	2500 - 3000	3000 - 4000	4000 and over	
		%						
		May 1992						
Self-employed persons	283	3.9	10.6	15.5	11.7	18.7	22.3	17.3
Salaried employees and civil servants.....	1 625	2.3	17.2	18.3	13.9	25.7	18.1	4.5
Wage earners	1 710	2.7	18.4	27.0	18.6	21.8	7.4	4.1
Unemployed persons	550	28.5	27.5	19.8	8.7	7.3	1.8	6.4
Inactive persons.....	2 489	25.2	39.3	21.7	5.5	3.8	1.2	3.2
Total	6 657	13.3	26.3	21.8	11.4	14.7	8.1	4.4
		April 1991						
Self-employed persons	247	7.7	18.6	20.2	13.4	15.4	8.9	15.8
Salaried employees and civil servants.....	1 795	6.8	24.2	27.3	16.6	15.8	6.2	3.1
Wage earners	1 999	8.4	29.4	34.0	13.9	9.3	2.5	2.6
Unemployed persons	407	35.6	30.7	17.7	5.9	2.2	0.0	7.9
Inactive persons.....	2 224	50.0	33.0	11.2	2.6	1.5	0.3	1.5
Total	6 672	23.5	28.9	23.1	10.3	8.4	3.1	2.7

As a next step, the expanded result of the household budget survey had to be adapted to the concepts of national accounting. This referred both to the so-called imputed purchases, which are not covered by household surveys, and to components which - though they are part of the expenditure of individual households - have to be subtracted because, being part of the household sector, they are consolidated in national accounting. In this respect, purchases and sales of used products, particularly used passenger cars, are of special importance. Household surveys cover any expenditure for passenger cars, whether bought from another household, an enterprise, government or a

non-profit institution serving households. On the other hand, the value of sales is recorded on the income side. As regards recording in the system of national accounts, it is necessary to eliminate any expenditure due to purchases from another household. Because of separate calculations for the two German territories, it also had to be ensured that only the purchases from eastern German households were subtracted. Information provided by the Federal Office for Motor Traffic on property flows served as a basis for those calculations. The Office supplied detailed data on the number of used passenger cars that were purchased or sold either between households in the old and the new Länder or between households on the one side and enterprises, government or non-profit institutions serving households on the other. The resulting so-called net purchases of households were valued at average prices.

Another form of *net accounting* refers to insurance services and also betting and lottery. The final consumption expenditure of households in those two areas is considered only to be the balance of the expenditure for premiums or lottery tickets and the incoming revenue from payments for insured events or winnings. Like for the purchases of passenger cars, household surveys cover the total expenditure, i.e. premium payments and the value of lottery tickets, under the final consumption expenditure of households, while payments for insured events and winnings are recorded on the income side. Therefore, separate calculations are made for those items of expenditure and the results are used as substitutes subsequent to a household survey.

In line with the concepts of national accounting, any expenditure for repairs incurred by owners of rented dwellings or houses is excluded from the final consumption expenditure of households since the renting of dwellings is considered to be an entrepreneurial activity. However, interior decorative repairs to be paid by tenants are regarded as part of the final consumption expenditure of households. The statistics of household budgets included any expenditure for wall paper, paint, building materials and external construction services irrespective of the fact who paid for them – owners or tenants. To obtain a basis for estimation regarding a separate presentation of the expenditure for interior decorative repairs and of other expenditure, the statistics of household budgets were subjected to a specific evaluation. It was assumed that the expenditure of tenants could be allocated to the category of interior decorative repairs, while the expenditure of owners of dwellings was allocable to intermediate housing consumption or investments of housing construction.

Upon the initial conceptual adjustment, imputed purchases derived from national accounts were added in a next step. They encompassed the following items:

- agricultural and food products produced by farmers for their own consumption,
- clothing of the German armed forces,
- imputed rents for owner-occupied dwellings,
- pro rata private use of company cars, and
- "net" results for insurance services and also betting and lottery.

The expanded and corrected result of the household budget including the imputed purchases should theoretically conform to the final consumption expenditure of households. As international experience has however shown, the results of the final consumption expenditure of households based on the supplying-sector approach are always 10% to 30% higher than those obtained by direct interviews. That deviation is attributable to a number of reasons some of which are mentioned below:

- unprecise or incorrect expansion frame,
- voluntary participation in household surveys; for this reason, households with a very high income, households of young families and households of persons in need of long-term care are not represented sufficiently,
- participation in a survey of that kind leads to a greater extent of economising; households control their expenditures,
- households do not indicate certain expenditures like those for tobacco, alcoholic drinks, casino visits, etc.,
- households forget minor expenditures.

The results of exhaustive surveys with compulsory response conducted among household suppliers were used to compute the final consumption expenditure of households in the new Länder and Berlin-East in 1989. In line with the concepts of national accounting as used in the former territory of the Federal Republic, the data on retail trade, crafts services, transport, housing, etc. of the former GDR were processed and market quotas specified for the proportion of household purchases. The result of the final consumption expenditure of households computed in this way was nearly 23% above the expanded result based on the household budget survey.

The computation of the final consumption expenditure of households was based on the supplying-sector approach for a total of 128 items of the statistics of household budgets. Subsequent comparison yielded the adjustment coefficients indicating the necessary correction of the results of the household interviews. The results of test computations for 1987 and 1988 were similar for the above items. The average value of the majority of coefficients was 1.2, however, values between 0.9 and 5.0 were obtained as well. The largest adjustment coefficients were computed for beverages in restaurants (nearly 5.0) and pharmaceutical products (3.5). However, the expanded household interview results for some items were slightly bigger than those obtained by the supplying-sector approach. That applied to the expenditure for coffee, ladies' wear and footwear. The factor, however, deviated insignificantly from the value of 1 so that the deviation was possibly due to the sampling error.

As for reference years 1991 and 1992, the above coefficients were applied, too, since it was assumed that the reasons for deviation had not changed. To say it precisely, the results of the household budget survey were corrected on the basis of the above adjustment coefficients. Because of basic economic changes in the new Länder, however, considerations were made regarding their possible effects on the magnitude of the coefficients, i.e. on consumption patterns. As a result of those considerations, 35 of the 128 coefficients were corrected. That referred in particular to commodities and services which were considerably subsidised before reunification. The subsidy policy of the former GDR and the resulting low consumer prices of food had, for instance, led to the phenomenon that products such as potatoes, milk and bread were – particularly in rural areas – bought from retailers for feeding livestock. And, since transport charges were low, they were not regularly entered in the respective documents. Since those subsidies were cancelled, the accuracy of the respective data collected in the context of the household budget survey has certainly improved so that the correction factor could be reduced.

Computation of the final consumption expenditure of households based on the supplying sectors

Between 1991 and 1993, the range of statistical information was too limited to compute sufficiently precise results of the final consumption expenditure of households based on the supplying-sector approach. The results of the first 1992 turnover tax statistics for the new Länder and Berlin-East were issued not earlier than in summer 1994. On the basis of the turnover data which were then available for retail trade, the hotel and restaurant industry and the services sector, too, an initial computation based on the supplying-sector approach became feasible. The turnover tax statistics served to compute the turnover of 140 branches of economic activity for the year 1992. It had to be noted in that context that the turnover tax statistics included the turnover of those legal taxpayers only who had their seat in the new Länder. For this reason, the computation for each branch of economic activity required separate considerations regarding the turnover made in the new Länder by enterprises seated in the former territory of the Federal Republic. In this respect, the turnover of western German retail enterprises in the new Länder was of particular importance. To estimate that turnover, data on enterprises with subsidiaries in several Länder were derived from the monthly retail trade statistics.

The turnover of the individual branches of economic activity determined in the above way was combined with market quotas specified for sales to households. For retail trade, which – as a supplying sector – accounted for more than 50% of the final consumption expenditure of households in the new Länder in 1992, market quotas were available from the annual surveys of 1991 and 1992. As regards the other branches of economic activity, the market quotas determined for the former territory of the Federal Republic were applied to the corresponding branches of the new Länder. As a result of the above computations, the domestic final consumption expenditure could be determined.

To obtain the final consumption expenditure of households in accordance with the national concept, purchases in the rest of the world were added and purchases of non-residents in the economic territory deducted. The proportion of purchases of eastern-German households in the old Länder was relatively high. To determine the extent of those purchases, detailed calculations were made in the former territory of the Federal Republic in particular for the second half of 1990. Though the citizens of eastern Germany were able to visit the other part of the country after the opening of the border in November 1989, their purchasing power was very small due to the limited D-Mark resources available to them at that time. However, their purchases in the former territory of the Federal Republic began to boom upon the introduction of the D-Mark on 1 July 1990. In the beginning, purchases were registered particularly in places close to the border and Berlin-West. To estimate the volume of those purchases, long-term analyses were made of the trends of turnover of western German retail enterprises seated in areas close to and further away from the border of the former territory of the Federal Republic. Purchases were estimated at the 2-digit level of the Classification of receipts and expenditure of households (SEA) for the second half of 1990. In accordance with the different trends of turnover of retail enterprises in the former territory of the Federal Republic in areas close to and further away from the border and with the development of trade in the new Länder and Berlin-East, the purchase values were gradually reduced in 1991 and 1992. Estimates of purchases made in the new Länder for the final consumption of western German households were based on a survey regarding the flows of members (as tourists) of western German and eastern German households into eastern and western Germany, respectively. The expenditure abroad of eastern German citizens was calculated on the basis of the household survey results and in correspondence with the balance of payments of the Deutsche Bundesbank. The final consumption expenditure of non-residents was determined via the balance of payments, too.

The 1992 final consumption expenditure of households in the new Länder and Berlin-East was obtained as the result of the above computations and the inclusion of special calculations for selected goods. The approach chosen for those special calculations for the new Länder was similar to that used for the former territory of the Federal Republic. The final consumption expenditure of households as computed on the basis of the supplying-sector approach was DM 2 bn higher than the final consumption expenditure derived from the household budget survey. However, the deviation of the two results was 1% only.

The approach applied to obtain data for 1991 was similar to the above methods of 1992 calculations. Turnover data for the individual supplying sectors (except for retail trade) were obtained by back extrapolation of the 1992 data. However, estimation was required in some places. The turnover of retail trade was basically estimated as the balance of the expanded household budget result and the total determined for the other suppliers incl. the balance of exports and imports of goods and services.

As a next step in the computation procedure, the final consumption expenditure of households is broken down by uses according to the Classification of receipts and expenditure of households. As regards the vast majority of supplying sectors, allocation to uses is easy since their turnover reflects a relatively homogeneous commodity (use) owing to the detailed breakdown of branches of economic activity. Retail purchases were classified by uses on the basis of the survey of the range of goods in the retail trade of the new Länder in 1991. Due to a lack of more efficient information, the breakdown of purchases in the lodging trade of the new Länder had to follow the structural pattern used for the former territory of the Federal Republic. Subsequently, purchases in the rest of the world and purchases of non-residents in the economic territory were estimated in a breakdown by uses to provide a basis for comparing the 1991 and 1992 final consumption expenditure of households with the results obtained in the household surveys.

Comparison of the two methods of computation

Table 2 indicates the results obtained for the eight main groups of the Classification of receipts and expenditure of households. The quotient of the different results of the supplying-sector approach and the household surveys is called adjustment coefficient.

Table 2: Comparison of the results of the final consumption expenditure of households in the new Länder and Berlin-East based on the household budget survey and the supplying-sector approach

Specification ¹⁾	Household budget survey (expanded result)	Household budget survey (conceptually adjusted)	Total of supplying sectors including balance of exports and imports of goods and services	Absolute difference (columns 3-2)	Adjustment coefficient (columns 4:2)
	1	2	3	4	5
	bn DM				%
1992					
1 Food, beverages, tobacco products	47.2	48.3	60.5	12.2	25
2 Clothing, footwear	13.9	14.0	14.2	0.2	1
3 Rents, energy (excl. motor fuels).....	22.6	29.9	29.9	0.0	0
4 Furniture, household appliances and other commodities and services for household operation.....	25.2	19.9	22.8	2.9	15
5 Commodities and services for health and personal care.....	6.6	6.6	9.5	2.9	44
6 Commodities and services for transport and communications.....	28.4	31.7	41.4	9.7	31
7 Commodities and services for education, entertainment, leisure	15.6	17.6	22.5	4.9	28
8 Commodities and services for personal effects, services of the lodging trade and other commodities and services.....	10.0	11.2	12.1	0.9	8
Total	169.5	179.2	212.9	33.7	19
1991					
1 Food, beverages, tobacco products	43.2	44.2	55.1	10.9	25
2 Clothing, footwear	13.0	13.1	13.3	0.2	2
3 Rents, energy (excl. motor fuels).....	13.4	16.9	16.9	0.0	0
4 Furniture, household appliances and other commodities and services for household operation.....	19.5	16.4	19.5	3.1	19
5 Commodities and services for health and personal care.....	5.2	5.2	6.8	1.6	31
6 Commodities and services for transport and communications.....	29.1	30.6	37.9	7.3	24
7 Commodities and services for education, entertainment, leisure	13.9	15.2	20.2	5.0	33
8 Commodities and services for personal effects, services of the lodging trade and other commodities and services.....	7.3	8.7	9.3	0.6	7
Total	144.6	150.3	179.0	28.7	19

1) Preliminary result.

Before the revised computation results derived from the household budget surveys could be compared with the results obtained by the supplying-sector approach, a correction was required which, though not affecting the total value of the final consumption expenditure of households, had an impact on the distribution to main groups. Usually, household surveys cover the expenditure for travelling in a separate chapter. This refers in particular to the cost of package tours. In line with the supplying-sector approach, however, the components of the cost of a package tour such as the cost of transport, overnight accommodation, food and leisure activities, are allocated to the turnover of the respective branches of economic activity, i.e. transport, lodging trade, the restaurant industry, etc. For the purposes of computation, the individual shares of those costs were derived from the annual reports of travel agencies and hence the cost of package tours was split up. The household budget survey conducted in the new Länder inquired the expenditure in a breakdown by domestic journeys and journeys abroad. As regards domestic journeys, data were basically collected on package tours, while the expenditure for journeys abroad covered package tours and the exchange of DM for another currency. Consequently, the expen-

diture for journeys abroad also included purchases of goods and services. The individual amounts of expenditure had to be broken down and allocated to the above main groups.

The relatively high adjustment coefficient of 25% specified for Food, beverages, tobacco products was mainly the result of undercoverage regarding the expenditure in restaurants, purchases of alcoholic beverages and tobacco products. The differences in the main group Clothing, footwear were almost negligible. The imputed purchases covered in that area were purchases of clothing for the German armed forces. The only difference apparent in the main group Rents, energy (excl. motor fuels) was of a conceptual nature. Unlike the sample survey of income and expenditure in the former territory of the Federal Republic, the household budget survey conducted in the new Länder did not cover imputed rents for owner-occupied dwellings. For conceptual reasons, the expenditure of owners of rented flats and of owner-occupied homes on repairs was deducted from the result of the household survey of Furniture, household appliances and other commodities and services for household operation. The adjustment coefficient mainly resulted from an undercoverage of purchases of small household appliances such as kitchenware, tools, brooms, etc. Like in other areas of use encompassing a large variety of small goods, the differences observed here were in many cases rather big, which indicates that households forget to mention those smaller expenses in answering the questions of household surveys. The largest adjustment coefficient was obtained for the main group Commodities and services for health and personal care. Since it can be assumed that households whose members suffer from severe health problems cannot be won for answering the questions of a survey, the problems regarding their representation are certainly rather serious. A number of estimation difficulties were encountered in comparing the expenses for Commodities and services for transport and communications. Conceptual adjustments first required the deduction of purchases of used passenger cars from/by households and the addition of the pro rata private use of company cars. The increase in the coefficient from 24% to 31% between 1991 and 1992 is striking. It is mainly attributable to changes in the factor applied to purchases of passenger cars. A more detailed quarter-based comparison of the results of the household survey and the special computation carried out for passenger cars for the period starting with the introduction of the monetary union until December 1992 showed that the results for the second half of 1990 and the first half of 1991 corresponded rather well, while later the purchases indicated in the household budget survey declined continuously though registration numbers continued to increase. On the one hand, it can be assumed that the sampling error relating to purchases of passenger cars as inquired in household surveys is rather big while, on the other, the increasing difference between the results allows the assumption that the households keeping household books satisfied their demand for passenger cars earlier than other households. As for the main group Commodities and services for education, entertainment, leisure, the betting and lottery balance was added for conceptual reasons. The rather large adjustment coefficient for that group related to almost all uses. The above main group comprises most of the small things just 'bought on the side' such as office material, toys, papers, flowers, etc. The comparison of results regarding the main group Commodities and services for personal effects, services of the lodging trade and other commodities and services was particularly difficult. There was little correspondence between the classification used in the household budget survey of the new Länder and the Classification of receipts and expenditure of households as applied in western Germany. Regrouping on a smaller or larger scale and related estimation were required for each 2-digit item of the Classification of receipts and expenditure of households, which had an essential impact on the overall result obtained for that group. Services included in the Classification of receipts and expenditure of households such as services of undertakers, legal counselling, bank charges, newspaper advertisements and others were not separately covered in the household budget survey. The expenditure on domestic journeys and journeys abroad had to be split up as outlined above. Main group 8 covered the lodging service and commission fees for tour operators and travel agents only. Insurance services were finally added for conceptual reasons. The coefficient indicated in Table 2 hence only refers to an undercoverage of purchases of jewellery and watches.

The small 1% difference between the results obtained for the 1992 final consumption expenditure of households, on the one hand, by the supplying-sector approach and, on the other, on the basis of household surveys (incl. adjustment coefficients) suggests that the approach used to compute the final consumption expenditure of households in the new Länder and Berlin-East for the year 1991 and 1992 was plausible.

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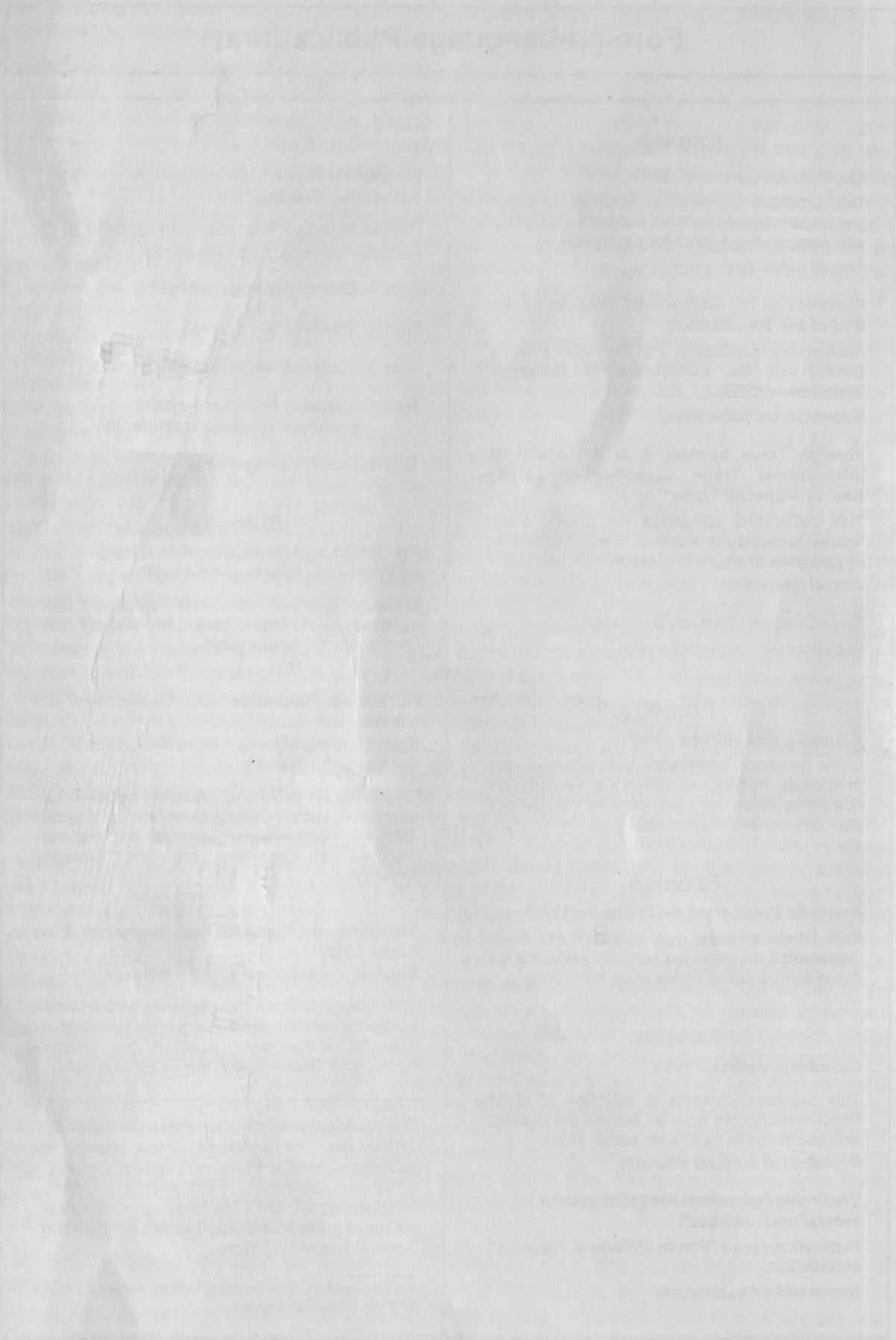
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