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The catchword

Regional typifications

Regional typifications are usually regarded as a special form of non-administrative territorial classifications. While the so-called functional non-administrative territorial units subdivide the (entire) space by specific criteria of contents or subject-matter, typifications are made on the basis of criteria of homogeneity. Such criteria may either be of a simple nature – such as the formation of community size classes by the number of inhabitants – or have a rather complex form, such as the typification of areas to be supported within the scope of the Community task of "improvement of the regional economic structure" on the basis of the non-administrative (functional) labour market regions and the criteria unemployment, income, job development and infrastructure. For many national and international regional typifications, the number of inhabitants and the population density provide the basis for defining criteria of homogeneity.

Contrary to the functional non-administrative territorial classifications, space typifications cover the entire territory only in exceptional cases, since in most cases they refer to a rather specific political, planning or scientific issue (Cf. W. Görmär, E. Irmen, Nichtadministrative Gebietsgliederungen und -kategorien für die Regionalstatistik, in *Raumforschung und Raumordnung*, No. 6, 1991, p. 387). The selection of the typification variables and the definition of their possible values of course depend on these issues. The resulting territorial units are by definition comparable (homogeneous) – as types – with respect to the preset criteria, but they are no coherent spatial structures.

The above examples of regional typifications show that both administrative and functional non-administrative territorial units may serve as elements for typification. For reasons of feasibility alone it is customary or even indispensable to use the community or parts thereof as the most basic element. The most popular, and to German official statistics most important, territorial typifications covering the entire territory have been developed by the Federal Research Institute for Regional Geography and Regional Planning (BfLR): These territorial typifications refer to the settlement structure of areas of regional planning, "Kreise" and communities (Cf. *ibid.* p. 387 ff. and W. Görmär, E. Irmen, Neue siedlungsstrukturelle Gebietstypen für die Raumbbeobachtung, in *BfLR-Mitteilungen*, Bonn 1991, No. 4). What should be mentioned, too, are "urban areas" that have been formed on the basis of data of the 1987 population census and according to criteria of population density as defined by a research group of the University of Reading (Great Britain) on behalf of the Statistical Office of the EC (cf. Federal Statistical Office, Subject-Matter Series 1 "Bevölkerung und Erwerbstätigkeit, Volkszählung vom 25. Mai 1987", No. 8 "Ergebnisse für nichtadministrative Gebietsgliederungen", Part 2 "Zusammengefaßte Daten über Bevölkerung und Erwerbstätigkeit", p. 13 and tables 14 and 15 as well as Annex 2). In the meantime, the work on the European level has made further progress and is focussed on the EC-wide typification of homogeneous zones with high, medium and low population density.

Population projections

Projections of the population show its development in size and structure on the basis of relevant assumptions concerning the determining factors, i.e. births and deaths on the one hand and arrivals and departures on the other. Projections serve as a basis for manifold purposes of planning and decision-making. They apply first to a foreseeable period of some 10 to 15 years. Statements on the development over this period are relatively reliable as the majority of the population already lives at the beginning of the projection period. However, long-term model calculations are needed, too. Because of the long periods covered, the assumptions made in this context are not very reliable. Nevertheless, hypothetical calculations of this kind show the results of the imputed reproductive behaviour that will be effective for a long period of time or become obvious only after some time.

The method used by the Federal Statistical Office for its population projections is the Cohort Survival Method. Applying this method of updating by cohorts means to take as a basis the population classified by cohorts and sex. For each cohort, the number of births and deaths and net immigration or emigration are computed for the period of a year. Depending on the results, the number of the population will be altered. The new number thus obtained will be the basis for computations for the next calendar year. This procedure will be continued until the final year of projection is reached. In addition, the components of births, deaths and migration on which the development of the population depends can be covered separately for the German and foreign base population. Thus the differences between these parts of the population as they currently exist in respect of a higher level of fertility and lower level of mortality of the foreign population can be taken into account. If the differentiation is made by citizenship, naturalizations will have to be considered as an additional component.

The assumptions regarding the mortality and fertility of the population are expressed in terms of an age or birth cohort-specific probability of death and birth rates, respectively, for women between 15 and 50 years of age. Migration is presented in the form of an absolute net migration per year of age. Provided cases of naturalization are taken into account, they will also be shown in the form of arrivals (as regards the German population) and departures (as regards the foreign population) per year of age. The assumptions are based on past, foreseeable and

probable future developments or are designed as a model development of the individual components for long-term projections.

Apart from cross-sectional results, longitudinal results are available for analysing such components as births and deaths in the past. Cross-sectional results reflect the year-to-year changes resulting from the behaviour of those persons having a definite age in the year under review. Hence, the group of persons under review changes from year to year. Here the effects are clearly shown which above all the social and economic framework conditions have on the reproductive behaviour in the period concerned. Longitudinal sections allow more extensive examinations. Thus, for instance, the reproductive behaviour of women of certain birth cohorts may be characterized by the fact that births are postponed to an older age as compared with women of preceding birth cohorts. This effect of "postponing" can be realized only if the relevant cohorts are observed over a longer period of time. The cross-section analysis examining for each year the reproductive behaviour of women of different cohorts, namely of an age between 15 and 50, reveals at the beginning of the phase of "postponing" a declining fertility in the years of age concerned. This decline is not immediately balanced by cohorts of an older age. Considering these age-specific low fertility figures as a durable change of the reproductive behaviour would however mean to underestimate the actual fertility in the present example as the later increase in fertility at an older age is neglected.

To take such changes of behaviour into due account, cohort-specific fertility figures may in advance be defined for population projections. The assumptions concerning the future behaviour of these cohorts will then for instance include information about both their increased age at marriage and changes occurring in previous birth cohorts. Thus the postponement of births has so far been accompanied by a decreasing ultimate fertility of the cohorts concerned. The further development however has to be estimated as is the case with cross-sectional examinations current results of which are available. Particularly in cases where the information on cohorts is insufficient, age-specific rather than birth cohort-specific values will be used for projection purposes. This applies in particular to mortality assumptions since approximately complete cohort results will be available only after a period of 80 to 90 years.

Methodology of federal statistics – Further development

Business registers for internal statistical purposes

– Possibilities and limits –

In July 1992, the Federal Statistical Office completed a study on the feasibility of business registers for statistical purposes on which it prepared a final report. See also the contribution of S. Schnorr-Bäcker and P. Schmidt on the basic conditions for establishing a comprehensive business register for statistical purposes which was published in *Wirtschaft und Statistik*, No. 8/1992, p. 500 ff. The study was commissioned by the EC Statistical Office which has for quite some time been dealing with the harmonization and extension of business registers existing in the statistical offices of the member states. The "Draft Version of a Council Regulation on Coordinating the Establishment of Enterprise Registers for Statistical Purposes within the EC" was submitted to the EC Council for discussion.

The above feasibility study focussed on the following questions:

- What is the use of such a register?
- What are the sources from which it can be fed, updated and maintained?
- What are the costs and time involved in setting up this register?

In all phases of the process of collecting and processing data, business registers are necessary and efficient instruments for obtaining statistical results. The use of these registers considerably increases the efficiency not only in the phases of planning and preparing statistical surveys (in particular determining the group of respondents as such and also individual respondents), conducting these surveys (e.g. sending out questionnaires), processing the results (e.g. extrapolating the results of sample surveys) and evaluating them (e.g. with reference to the business demography). At the same time, they are an indispensable prerequisite for distributing the burdens among respondents in a way as even and just as possible (incl. an efficient rotation). When amending the Federal Statistics Law, the legislators also considered the importance of business registers by providing in Article 13 and the later introduced Article 13a for general regulations on keeping (internal) address files for economic and environmental statistics.

Based on the experience gained with the existing registers for federal statistics, a so-called coordination frame for establishing a comprehensive business register was developed in the context of the feasibility study. This coordination frame which is meant to consider the given organizational, institutional and financial background and also the specific structural features of the economy, describes a largely moderate way of establishing in the medium or long term a complete business register for all sectors which is to a great extent maintained in line with uniform

principles. For this purpose, statistically important sectors which have not yet been covered by files, are to be gradually included.

Determining and defining a binding and uniform catalogue of variables for all sectors in conformity with the existing legal regulations is a prerequisite for this development. If required by the specific features of a sector, indispensable variables which have to be covered by relevant legal provisions can be added for the sectors concerned.

The conditions for an extensive use of the register will be created by providing a uniform and exactly defined data set structure for the individual sectors, at least with respect to the (minimum) catalogue of variables concerning various sectors, and also by using up-to-date electronic data processing procedures which are adequate as regards the problems to be solved. An important task is to develop and employ – if necessary, gradually – a user-friendly software that is as flexible in use as possible. This software should be suited for maintaining and updating the register and also for the other manifold purposes the register must serve with regard to individual sectors.

Obtaining the information required is a central criterion for establishing (sectoral) registers. The costs of keeping a register and safeguarding good quality can vary considerably depending on the diversity, topicality, origin (primary or secondary statistics), availability (particularly access) and scope of the address sources. Checking the different potential and existing address files thoroughly for their suitability for the above-mentioned purposes is therefore an indispensable requirement. Complete surveys of primary statistics provide a particularly good basis for extending existing registers and establishing new sectoral registers because of the synergic effects and the statistical relevance of the data on economic units obtained in this way. Attempts should be made to anticipate the additional burden caused for statistical offices and to consider it by farsighted planning. Efficiency in the long-term keeping of a register will be achieved only if the costs of implementing and updating a register are more than compensated by its benefit and the efficiency effects produced.

European matters

Reform of European wage statistics

Apart from a labour cost survey conducted in production industries and the service sector every four years, the European Communities do not have a comprehensive, harmonized system of reports on the earnings of dependently employed persons. Due to the national historical conditions, even the continuous statistics of earnings of the member states which, presenting average earnings and working hours, are an important component of the system of wage statistics, so far do not correspond to the agreement on the so-called Harmonized Statistics of Earnings, be it in terms of the completeness of their results or their topicality. Taking into account the relevant definitions of the International Labour Organization, the EC Statistical Office (EUROSTAT) made the above agreement with the individual member states in the 1960s.

Currently, the structure and grades of earnings of employees by wage-determining variables at a definite point in time are presented, if at all, on the basis of differing concepts in the member states. The most recent uniform structural survey was conducted for 1978. Its standards were considered in the German structural surveys for 1990 (former territory of the Federal Republic) and 1992 (new Länder and Berlin-East).

Because of this unsatisfactory basis for evaluating the wage and labour cost structures within the EC in view of a comparison with the major competitors in the world market, EUROSTAT prepared in spring 1991 an initiative to better adapt the EC wage statistics to the specific requirements of the Common Market. The EUROSTAT Conference on the Future of European Wage and Labour Cost Statistics held in North Grantham/Stoke Rochford, United Kingdom, from 17 to 20 March 1991, discussed this issue. Apart from EC national statistical offices, several member states of the European Free Trade Area, countries in transition to a market economy, the United States, the EC Commission, the International Labour Organisation, the Organisation for Economic Co-operation and Development and also national labour ministries and employer and employee organizations were represented at this conference. There was general agreement on the necessity of responding in a new survey concept to the extended scope of employment in the service sector and new activities and job outlines resulting from technological change. In addition to labour cost surveys possibly to be combined with the annual cost structure surveys in production industries and the current surveys of earnings which should be further standardized, surveys of the salary and wage structure should again be conducted every four years and the feasibility of the US Employment Cost Index be checked under European conditions. Providing data on earnings from household surveys was discussed as well. The above proposals were put in more concrete terms at various sessions of the EUROSTAT Working Group on Wage Statistics and discussed and basically agreed on by the Conference of Directors General of the National Statistical Institutes of the EC Member States at the beginning of December 1991.

However, suggestions to integrate the labour cost survey of establishments conducted every four years into the annual cost structure survey of enterprises and to provide detailed data on earnings based on household inquiries

are still regarded as problematic particularly by the German side. The generally positive assessment of the suggestion to develop a labour cost index is also restricted by the additional burden caused for the business sector by new surveys and the planned coverage of the variable of "Occupation". Therefore, from a German point of view, at least the chance of further improving and bringing up to date the existing procedure of updating the results of the labour cost surveys conducted at four-year intervals should be investigated together with the test survey EUROSTAT has planned for preparing a short-term labour cost indicator. In line with the results of the sessions of the EUROSTAT Working Group on Wage Statistics and the following session of the Task Force on Short-Term Wage Indicators held from 20 to 22 October 1992, this voluntary test survey was scheduled for autumn 1993. Afterwards, the remaining suggestions are planned to be put in more concrete form as regards their contents and the survey procedures used in order to have an integrated and harmonized reporting system for European wage statistics as from 1996.

Statistics worldwide

Training offered during the transition to a market economy

Adjusting the system of official statistics of the states of the former Soviet Union and the Central and Eastern European states of the former COMECON to the new, market economy-orientated demand of statistical information requires high standards of qualification of the statisticians involved. To adapt their statistical instruments to the new requirements without delay, they have in the shortest possible time to acquire detailed knowledge of the standards, methods and procedures used for economic statistics on the international scale.

Introducing the system of federal statistics in the new Länder, the Federal Statistical Office has gained extensive experience in the past few years which can efficiently be used in this context. In line with a comprehensive EC project programme to support the above states, the Federal Statistical Office organizes a number of seminars and is substantially concerned with the training of multipliers. For preparing and coordinating all training and cooperation projects, the "Centre for Questions of the Transition of Statistics in Central and Eastern Europe" was set up in the form of a working group at the Berlin branch office of the Federal Statistical Office. An international workshop on agricultural statistics which took place in Berlin in May 1992 marked the successful beginning of the training programme. For a report on this workshop see *Wirtschaft und Statistik*, No. 6/1992, p. 335 f.

Another seminar on Statistics on the Labour Market and the Participation in Economic Life was held from 3 to 12 November 1992. Participants were 34 specialists and executives working with statistics from 21 countries of Central, South-Eastern and Eastern Europe and also from Central Asia and the Caucasus region of the former Soviet Union. The transition to a market economy-orientated order in these countries also requires new statistical instruments for monitoring and analysing the labour market and the participation in economic life. A labour force sample survey or a household survey designed as a multi-purpose sample survey such as the microcensus do not yet exist in these countries. For this reason, points of emphasis of further seminars of this kind will be, among others, the microcensus, but also statistics on persons employed and unemployed and estimations of the persons engaged as well as labour force sample surveys. The Federal Statistical Office conducted the above seminar in cooperation with lecturers of the Land statistical offices of Bavaria and Saxony-Anhalt, the Federal Institute for Employment in Nuremberg and its Institute for Labour Market and Occupational Research.

Events

International Seminar on Statistical Confidentiality

An International Seminar on Statistical Confidentiality was jointly convened by the Statistical Office of the European Communities (EUROSTAT) and the International Statistical Institute (ISI) in Dublin (Ireland) from 8 to 10 September 1992. Discussing the broad spectrum of the subject at six working sessions, the 125 participants from 23 countries concentrated on the following issues:

- the necessity of statistical information and confidentiality
 - philosophy and aspects of definition -
- legislative, administrative and logistical aspects of confidentiality
- mathematical aspects of confidentiality
- technological and data processing-related aspects of confidentiality
- confidentiality of personal and household-related statistical data
- confidentiality of economic statistical data.

The seminar provided an excellent overview of the fundamental set of questions of safeguarding confidentiality together with ensuring a maximum of uses of statistical data and familiarized the participants with specific problems of the individual countries and also the EC. Besides, it presented practical, and to a greater extent even currently used approaches to problems. In terms of its contents, the seminar was above all based on the views and working methods of official statistics and the statistical offices. EUROSTAT therefore plans to hold another seminar on this subject in about two years time which, among other things, will also emphasize the views of the users of data, for instance those working in the field of science.

Scientific Colloquium on the Quality of Statistical Data

On 12 and 13 November 1992, a Colloquium on the Quality of Statistical Data was convened in Wiesbaden by the Federal Statistical Office and the German Statistical Society. Participants were representatives of the suppliers and users of official statistical information. In lectures and discussions, they dealt with the subject from different angles, concentrating mainly on quality criteria and their individual weighting. Apart from these requirements discussed particularly by representatives of the economy, science and ministries, representatives of data suppliers from statistical offices provided information on the measures applied there to safeguard the quality of data. On the whole, the colloquium at which information was exchanged between consumers and producers of official statistical data could contribute to a greater transparency in this field. In addition, it was a forum for the dialogue between representatives of science and official statistics.

Apart from the accuracy and reliability of data, their availability without delay, i.e. the topicality of data was emphasized particularly by the representative of the economy as an essential quality criterion. However, other aspects were discussed as well. Examples are the technical, temporal and international comparability which is especially important for scientific purposes, the consistency of the individual statistics within the entire system of official statistics, an appropriate adequation of statistical surveys with the questions concerned, the kind and volume of documents accompanying the data provided, e.g. on error computations and sources, and also the anonymity of data which is indispensable not least in the interest of official statistics.

A more flexible response to the requests made by users was generally regarded as desirable. Though the principle of scientific independence, objectivity and neutrality prevents official statistics from being integrated by other administrations, limits resulting from too detailed standards set by the legislators may however pose a danger to its flexibility. In this context, the President of the Federal Statistical Office, Hans Günther Merk, stressed that the most comprehensive fulfilment of user requests can be striven for only within the scope of the existing legal regulations.

1993 Sample Survey on Income and Expenditure

Preliminary remarks

Thirty years ago, more exactly in 1962/63, the first sample survey on income and expenditure was carried out in the Federal Republic of Germany. It was to collect for the first time data on the receipts and expenditure of households of all population groups and to provide information on their overall economic and social situation¹⁾. Meanwhile, there have been six surveys of this kind. While the seventh survey to be conducted in 1993 will correspond to the former ones in many respects, there will also be some major differences. The most important point is of course the fact that the 1993 Sample Survey on Income and Expenditure in the now unified Germany will be carried out according to uniform criteria and methods. Another new feature of the 1993 Sample Survey on Income and Expenditure is the inclusion of the households of foreigners. Due to the great language problems existing at that time, and the complicated data collection method (notation of receipts and expenditure in housekeeping books over a period of one year), it seemed impossible at the beginning of the 1960s to have foreigners participate in this survey. Now it can be assumed that in most households where the reference person is a foreigner, at least one family member has sufficient command of the German language to understand the explanations given by the interviewers as well as the notes and comments in the survey documents, and to translate them – if necessary – for the other household members. Therefore, identical survey documents are used for both the households of Germans and those of foreigners. For testing purposes, households of foreigners had already been included in the 1988 Sample Survey on Income and Expenditure, their number and composition can however not be regarded as representative. Many of them were largely assimilated households of foreigners belonging to medium and upper size classes of income. In the 1993 Sample Survey, such systematic distortions must be recognized and eliminated in time if the results are to be regarded as representative for all households of foreigners in Germany. On 31 December 1989, there were about 5 million foreigners in Germany, i.e. 6.4 % of the overall population²⁾. The main purpose of including them in the

¹⁾ See Horstmann, K.: "Die Einkommens- und Verbrauchsstichprobe 1962" in *Wirtschaft und Statistik* No. 10/1961, p. 563 ff.; with more detail in *Subject-Matter Series M Preise, Löhne, Wirtschaftsrechnungen, Series 18: Einkommens- und Verbrauchsstichproben "Aufgabe, Methode und Durchführung der Einkommens- und Verbrauchsstichprobe 1962/63"*.

²⁾ See *Statistical Yearbook 1991*, Table 3.19, p. 72.

sample survey on income and expenditure is not so much presenting German and foreign households separately but showing results for all private households; only households with particularly high incomes then will not be represented in the sample survey on income and expenditure since, judging from past experience, they participate in the survey only in insufficient numbers.

Statistics of family budget surveys in Germany

In Germany, the recording, presentation and analysis of private households' receipts and expenditure were largely left to private scientists until the middle of the 19th century. They studied in particular the economic situation of households belonging to lower income groups and for this purpose mainly used either the monographic or "isolating" method, describing the living conditions of one single household in minute detail [the main exponent of this line was Schnapper-Arndt³⁾], or the "book of accounts method", i.e. evaluating the households' records of their receipts and expenditure. Especially the Director of the **Königlich Sächsisches Statistisches Bureau** in Dresden, Ernst Engel, occupied himself intensively with this subject. When he discovered the "law" which later was named after him, that the proportion a household has to spend on food is the higher the poorer the household, he had to confine himself to examining the housekeeping books of Belgian industrial workers since corresponding material was not available from German households. It was only in October 1879 at the Conference of Directors of the Statistical Offices of German Cities that a decision was taken on the necessity of examining budgets, which was followed by surveys carried out in Berlin⁴⁾. The Statistical Office of the German Reich conducted the first larger family budget surveys in 1907⁵⁾, 1927⁶⁾ and 1937. Due to the outbreak of World War II it was not until 1970 that the Federal Statistical Office could terminate the publication of the results of the last survey⁷⁾.

After the war, structural surveys of the receipts and expenditure of selected groups of households were carried out in the Federal Republic of Germany from 1949 to 1959. Since 1949, the living conditions of three selected types of households have been examined which are narrowly defined with regard to size and structure, and allocated to a certain income level by a lower and upper threshold value established for the household income. These income thresholds are annually adjusted to the development of pensions and earned incomes; so the households remain at the same "relative place" within the income pyramid. It was advantageous to work only with very homogeneous household groups as a relatively low number of survey units (altogether a maximum of 1,000) was sufficient to guarantee representative results for the respective household types. The obvious disadvantage was that the development of receipts and expenditure shown could not be representative of all private households, not even of a larger population group as for instance "the" households of pensioners or "the" employee households⁸⁾. With continuing economic growth and rising incomes of private households, the limited informational value of the results obtained by the so-called continuous (i.e. annually conducted) family budget surveys was increasingly felt to be unsatisfactory. After extensive preparatory work, the legal basis for a survey of receipts and expenditure of all private households was created in January 1961 with the Law on Statistics on Family Budget Surveys (Bundesgesetzblatt I p. 18).

The statistical coverage of household budgets started early also in the territory of the former GDR, more exactly in the fourth quarter of 1947⁹⁾. The number of households included in the statistics of household budgets rose from an initial 1,200 to 4,000. In addition to households of wage earners and salaried employees that were covered initially, households of members of agricultural producer cooperatives and of pensioners were included in the survey. Similar to the sample surveys on income and expenditure, the statistics of household budgets was the only source of information on the development of the demand for consumer goods and the consumption habits of private households. It thus provided important indications for the structural policy of the state as well as for the production and sales planning of enterprises¹⁰⁾.

In addition to the household budget survey, sample surveys on the income of households of wage earners and salaried employees were conducted in the former GDR since 1959 at intervals of two to three years. With these

³⁾ Examples of his monographs are: "Nährkeile" in Vorträge und Aufsätze, Tübingen 1906, "Ausgaben einer Familie von sechs Personen auf einer Hallig" in Zeitschrift für die gesamte Staatswissenschaft, 1879, "Beschreibung der Wirtschaft und Statistik der Wirtschaftsrechnungen eines Uhrschilbmachers im badischen Schwarzwalde" in Zeitschrift für die gesamte Staatswissenschaft, 1880. Quoted from Albrecht, G.: "Haushaltsstatistik - Eine literarhistorische und methodologische Untersuchung", Berlin 1912.

⁴⁾ See Albrecht, G.: "Haushaltsstatistik ...", p. 38.

⁵⁾ See "Erhebung von Wirtschaftsrechnungen minderbemittelter Familien im Deutschen Reich", 2nd Special Number of the Reichs-Arbeitsblatt, Berlin 1909.

⁶⁾ See "Die Lebenshaltung von 2 000 Arbeiter-, Angestellten- und Beamtenhaushaltungen. Erhebungen von Wirtschaftsrechnungen im Deutschen Reich vom Jahr 1927/28", Einzelschriften Statistik des Deutschen Reiches, Nos. 22 I and 22 II, Berlin 1932.

⁷⁾ First results under the title "Wirtschaftsrechnungen von 350 Arbeiterhaushaltungen für das Jahr 1937" in Wirtschaft und Statistik No. 4/1939, p. 118 ff. and p. 323 ff. New calculations by the Federal Statistical Office in Subject-Matter Series M Preise, Löhne, Wirtschaftsrechnungen, Series 13, Special Number 4 "Verbrauch in Arbeiterhaushalten 1937, Teil I: Einzelhaushalte", 1960, as well as "Wirtschaftsrechnungen 1937 in Arbeiterhaushalten", working document, 1970.

⁸⁾ See also Kunz, D./Euler, M.: "Möglichkeiten und Grenzen der laufenden Wirtschaftsrechnungen" in Wirtschaft und Statistik No. 6/1972, p. 321 ff.

⁹⁾ See "Haushaltsrechnungen 1950" in Statistische Praxis, No. 12/1949, p. 189.

¹⁰⁾ The development of the statistics of household budgets is presented in Münich, M. "Laufende Wirtschaftsrechnungen" in the publication series Forum der Bundesstatistik, Volume 22, "Einführung der Bundesstatistik in den neuen Bundesländern", Stuttgart 1993, p. 203 - 232.

surveys, the money income of the household members was recorded by sources. In recent years, the surveys focussed on obtaining information on the realization of pay policy and improvements brought about for families with children¹¹⁾. The last survey of this kind took place in 1988.

The change of all basic economic data, especially the consumption patterns of private households, in the wake of German unification rendered it absolutely necessary not only to continue with the statistics of household budgets but even to extend them. As was laid down in the Unification Treaty (Annex 2, Chapter XVIII, Para. 3), the statistics of household budgets were to be continued until the end of 1992 and the number of households increased to 5,000. Furthermore, the number of households covered by the continuous family budget surveys was raised to 2,000 to make an investigation of three selected types of households possible also in the new federal Länder.

Due to the late submission of the 1991 Ordinance on the Adjustment of Statistics and the problems encountered when establishing statistical offices in the new federal Länder, a maximum effort was required of all persons concerned to get or keep the new or newly designed family budget surveys going.

Survey objectives

Basically, there have not been any fundamental changes with regard to the objectives of the sample surveys on income and expenditure since the first one was carried out in 1962/63:

What the survey aims at is no less than the most comprehensive insight possible into the economic and social situation of private households of all population groups. According to preliminary results of national accounting, DM 1.6 trillion or 56 % of the gross national product at market prices (DM 2.8 trillion) were accounted for by private consumption in Germany in 1991¹²⁾. It is true that these figures give an impression of the enormous economic potential represented by private households in Germany - as is the case in any fully-developed national economy - but in this form of presentation the figures do not provide any information as to how these purchases and imputed purchases of goods and services for private consumption are distributed among individual population groups, for example self-employed, employees and economically nonactive persons, single-person and multi-person households, the young and the old. This is the most important task of the sample survey on income and expenditure: presenting the data collected on receipts, expenditure, assets, debts, and the like with a breakdown as detailed as possible by socio-economic variables of households and, where this can be done, by persons. If these structures are not known, decisions of economic, financial and social policy taken by the state as well as entrepreneurial decisions of the economy are in danger of not sufficiently accounting for the actual situation; without them, many studies and analyses of social science are not feasible. Only the sample surveys on income and expenditure can be of use here due to the great number of survey units covered (considering comparable surveys conducted abroad or by private institutions; it is planned to include about 70,000 households in 1993, some 50,000 were covered in earlier surveys), and due to the extraordinarily large catalogue of variables. With the data from this sample survey, it was possible, for example, to provide information on the cumulation of government transfer payments (e.g. own pension paid by the public old age insurance fund and widow's pension from the pension entitlement of the deceased husband). On the basis of the household budgets of persons of a specific income class living alone, as compiled by the 1983 Sample Survey on Income and Expenditure, the **Deutscher Verein für öffentliche und private Fürsorge** developed a new assessment system for determining requirements (a "statistics model" instead of the shopping basket model which at last had been controversial) for standard public assistance rates for recipients of continuous subsistence payments. The data from the 1988 Sample Survey on Income and Expenditure for households with children provides the basis for a model permitting to calculate for the first time - as commissioned by the Federal Ministry for Family Affairs and Senior Citizens - the expenditure on children directly from surveys of household expenditure covering private households. In the 1983 Sample Survey on Income and Expenditure, the households of unemployed could for the first time be shown as a separate population group; in 1988, this will also be possible for the households of students, thus creating the basis for calculating a consumer price index for students on behalf of the Federal Ministry for Research and Technology.

Finally, the data of the 1988, 1983 and 1978 Sample Surveys on Income and Expenditure have been used for calculating poverty limits and a poverty potential under a research project commissioned by the Statistical Office of the European Communities¹³⁾¹⁴⁾. Use was made not only of data on the income and expenditure of the households but also of the households' answers to questions on their subjective opinion concerning their own economic situation. In 1988, such questions were for the first time part of the final interview of the sample survey on income

11) See Hartig, K.-H./König, E./Fiebiger, H.: "Übersicht über die regelmäßigen repräsentativen Bevölkerungsbefragungen des Statistischen Amtes der DDR", Statistical Office of the GDR, Berlin 1990, p. 15.

12) See Stroh, W. and associates: "Sozialprodukt in Deutschland im Jahr 1991" in *Wirtschaft und Statistik* No. 1/1992, p. 12.

13) See "Armuts in Zahlen: Europa zu Beginn der achtziger Jahre", study by the Institut für Sozialstudien (ISSAS) commissioned by EUROSTAT, EUROSTAT publication series 3.C.

14) On 21 January 1974, the Council of Ministers of the European Communities adopted corresponding measures to fight poverty as part of a socio-political activity programme. See also Hauser, R./Cremer-Schäfer, H./Nouvellet, U.: "Armuts, Niedrigeinkommen und Unterversorgung in der Bundesrepublik Deutschland. Bestandsaufnahmen und sozialpolitische Perspektiven", Frankfurt/New York 1981.

and expenditure, and they will be extended further in 1993 under a Community project of the Statistical Office of the European Communities.

The above list of examples for possible uses of data from the sample surveys on income and expenditure is to show how answers can be found to topical problems of politics or science by means of these data, without changing the survey programme, merely by an adequate control of the processing procedure. It is true, though, that the great variety of possible uses inevitably prolongs the time required for processing the data. It will be shown later how this shall be remedied in future.

Survey variables

As for all official statistics, the variables to be covered by the sample surveys on income and expenditure are determined by a valid legal basis, in this case the Law on Statistics on Family Budget Surveys of 11 January 1961¹⁵⁾. Accordingly, the following information has to be collected:

1. receipts of households by sources
2. use of the receipts for
 - private consumption (by type, quantity and amount)
 - taxes and related charges
 - contributions to social security funds and private insurance
 - repayment of debts
 - capital formation
 - other purposes.
3. Information on the composition of households and their economic and social situation as well as the equipment of households with technical durable goods, as far as this information is required for presenting the results.

In particular paragraph 3 provides a certain margin to account for the requirements of the users of statistics when determining what has to be understood by the economic and social situation of the households and which data are indispensable for presenting the results. When the Law was passed more than thirty years ago, the legislator could of course not foresee all economic developments and events of the long period of time which has elapsed since. Examples could be the effects of the oil crises, which were reflected and above all could be quantified by the results of the sample surveys on income and expenditure, and the significance poverty limits have for social and financial policy within the European Communities.

While external factors made it necessary here to control the data collection and processing accordingly, there are two survey fields whose inclusion is indispensable for obtaining materially correct, complete and reliable results of the overall sample: the coverage of assets and debts on the one hand, and the housing situation on the other.

As a special evaluation of the 1983 Sample Survey on Income and Expenditure has shown, private households' income from financial assets is a small but noteworthy part of households' total gross income¹⁶⁾. Recording this type of income is extremely difficult from a technical point of view as these capital yields usually take the form of gains shown on specific capital accounts, and therefore are often not entered in the housekeeping books as receipts by the households. In 1991, households in Germany received interest payments of some DM 34 bn¹⁷⁾ from savings deposits alone. A large part of these receipts would not be covered in sample surveys on income and expenditure if this under-enumeration could not be nearly offset by well-founded estimates of the receipts from financial assets, using the data provided by households on their assets.

The housing situation of households is also covered primarily to enable estimates to be prepared of the equivalent of living in one's own house or flat. Such estimates are necessary for making the incomes and expenditure of proprietors' and main tenants' households comparable. In national accounts, the rental value of owner-occupied dwellings is also determined; however, the procedure used is different and not applied separately for each individual owner of a dwelling, as is the case in the sample survey on income and expenditure. The calculation is as follows: first, an average rent per square metre is computed for rented dwellings proceeding from a certain equipment, age, and size of the town or city where it is located. This rent per square metre is then multiplied by the living floor space of an owner-occupied dwelling that is comparable with regard to the above variables; however, depreciation amounts cannot be calculated as there is no suitable further information on the kind of real estate owned.

¹⁵⁾ Bundesgesetzblatt I p. 18; supplemented by the Law Amending the Law on Statistics on Family Budget Surveys of 19 January 1968 (Bundesgesetzblatt I p. 97) and amended by the 1st Law on the Adjustment of Statistics of 14 March 1980, Art. 10 (Bundesgesetzblatt I p. 294).

¹⁶⁾ See Euler, M.: "Verteilung und Schichtung der Einkommen aus Geldvermögen 1983" in *Wirtschaft und Statistik* No. 8/1988, p. 565 ff.

¹⁷⁾ See Monthly Reports of the Deutsche Bundesbank, June 1991, Table 21, p. 42.

Survey concept, scope, periodicity, duration

From the very beginning, it had been the explicit wish of the legislators¹⁸⁾ to achieve by means of the sample surveys on income and expenditure an improved presentation of the income flows in national accounting and to cover purchases of commodities by fields of origin and final use¹⁹⁾. For this purpose, concept, definitions and systematic lists of the two surveys had to be harmonized as far as possible. Basically, this meant that

1. coverage concentrated on the withdrawal of products from the market, i.e. the recording of purchases and imputed purchases, according to their definition in national accounts. The imputed purchases are the rental values of owner-occupied dwellings, payments in kind and withdrawals of products from the own enterprise. The withdrawal of products from the market is not identical with final consumption as it does not include products which the household has received free of charge from the state, enterprises or other private households. It may well be assumed that the final consumption is markedly higher than the withdrawal of products from the market especially in specific population groups, e.g. families with children, as children usually get commodities and services as presents from grandparents, relatives and friends since early childhood;
2. the purchases are recorded with their full purchasing price at the time when the household assumes the power of disposal, irrespective of payment. This means that the purchase of a car that is worth DM 30,000 is recorded on the day the car is collected at the trader's, whether it is paid in cash or the purchase is financed entirely or in part by the trader or the producer. In the latter case, the monthly installments appear in the housekeeping books as repayment of debts;
3. in national accounts and in the sample surveys on income and expenditure, a joint Classification of Receipts and Expenditure of Private Households is used as a basis²⁰⁾.

However, it is partly for technical and partly for methodological reasons that completely identical survey concepts cannot be realized. Existing differences cannot be explained in detail in this paper; please refer to earlier publications²¹⁾. Particularly important is the differing treatment of all questions connected with privately owned real estate. In national accounts, all related transactions are not allocated to the household sector but the enterprise sector. There, purchases of real estate by private households and expenditure for repairing buildings and dwellings are shown as expenditure of the enterprise sector. In the sample surveys on income and expenditure, however, purchases of houses and flats as well as expenditure for the improvement and extension of existing privately owned houses or flats are presented as fixed capital formation.

The scope of the survey, its periodicity and duration are prescribed by the Law, which stipulates that a maximum of 0.3 % of all private households may be covered by the survey (Art. 3.2). For 1993, a total of about 70,000 households are to be included in the survey. Art. 1.2 of the Law provides that sample surveys on income and expenditure, which cover a period of one year, are to be conducted at intervals of five years beginning with 1983. The Federal Government is entitled to reduce or extend this interval by one year for urgent reasons if the **Bundesrat** agrees.

Participation on a voluntary basis, quota sampling

According to the Law on Statistics on Family Budget Surveys, participation in the sample surveys on income and expenditure is voluntary (Art. 4). In view of the Federal Constitutional Court's decision on the Population Census and its explanations on the citizen's right of informational self-determination, it seems more than questionable that the obligation to provide information might be constitutional for a survey covering fields as sensitive as receipts, expenditure, assets and debts. In any case, a voluntary enquiry should for legal reasons be preferred here to an obligatory one as the "milder means". From the point of view of a statistician, this does not hold true in any case, as was shown by the recent discussion on the further development of the microcensus²²⁾. The problem with voluntary enquiries which are based on the random selection of households is keeping non-response at an acceptable level. The opinions as to what is "acceptable" differ widely. Depending on the subject matter of the survey, one is often satisfied if 60 to 70 % of the households selected provide answers for private and official enquiries in Germany, while the person in charge of the Current Population Survey in the United States thinks that even with a non-response ratio of only 5 % the results of his survey are useless²³⁾. When pilot surveys were conducted for the first

¹⁸⁾ See statement of reasons for the Law on Statistics on Family Budget Surveys, Bundestagsdrucksache No. 1623 of 16 February 1960, Part A: Allgemeiner Teil.

¹⁹⁾ See Spies, V.: "Verfügbares Einkommen nach Haushaltsgruppen" in *Wirtschaft und Statistik* No. 7/1992, p. 418 ff.

²⁰⁾ See "Systematik der Einnahmen und Ausgaben privater Haushalte - 1983 Edition", Stuttgart/Mainz, September 1983, which was published as part of the series "Systematische Verzeichnisse".

²¹⁾ See for instance Euler, M.: "Einnahmen und Ausgaben der privaten Haushalte im Jahr 1983" in *Wirtschaft und Statistik* No. 6/1987, p. 500 f.

²²⁾ See Volume 11 of the publication series *Forum der Bundesstatistik*; Esser, H./Grohmann, H./Müller, W./Schäffer, K.-A.: "Mikrozensus im Wandel - Untersuchungen und Empfehlungen zur inhaltlichen und methodischen Gestaltung".

²³⁾ See Wetzel, J. R.: "The United States Current Population Survey" in No. 9 of the publication series *Ausgewählte Arbeitsunterlagen zur Bundesstatistik* "Methodische Fragen bevölkerungsstatistischer Stichproben am Beispiel des Mikrozensus", p. 261.

sample survey on income and expenditure in 1961, as much as 69 % of the households selected at random had strictly refused to participate²⁴⁾.

Even if it might have been possible to reduce this percentage somewhat by adequate measures, the non-response ratio would in any case have been too high at that time already to ensure representative results. Even more so today.

Under these circumstances, there is no other possibility than to include only such households in the survey which are prepared from the outset to cooperate, and to refrain from random sampling. Instead, strata of households are prepared according to the social status of the reference person (for single-person and two-person households of economically inactive persons also by age and marital status of the reference person), the size of the household and the household income, using the microcensus of the preceding year, and quotas to be fulfilled are determined by means of preset variable percentage shares for each stratum. These quotas are used when recruiting the households and later for estimating the results for the entire population on the basis of the sample survey results.

This method of quota sampling is seldom used in official German statistics, and it is certainly not without problems²⁵⁾. The most important argument brought forward against the quota method is as follows: The mere fact that the households voluntarily subject themselves to the inconveniences necessarily connected with the completing of survey documents, in particular housekeeping books, proves that they are not typical of the stratum they represent. Instead, these are particularly well-informed and interested, in general also very economical households. Logical as this thesis may sound, without any proof it remains what it is: a theory that may be true. But this is just what could not be provided within the meanwhile 30 years of sample surveys on income and expenditure: evidence confirming the thesis according to which the consumption and savings pattern of the households participating in the survey deviates from what is normal. On the contrary, test calculations have shown that the results largely correspond to national accounts data and results of other statistics²⁶⁾.

Data collection procedure and processing method

The central part of the sample surveys on income and expenditure, the recording of receipts and expenditure, is based on the notations made by the participating households in housekeeping books. The survey period is the calendar year, but the households are asked to take down all receipts and expenses – even the smallest – for one month only; this so-called month of detailed notation is determined for each household by means of a rotation method which is to ensure that the notations of all households of one stratum are distributed as evenly as possible over the twelve months of the year surveyed. Without such a rotation procedure, it would have to be feared that in months with many public holidays, festivities, holiday and recreation trips the number of households keeping detailed records would be considerably lower than in the other months. As a result, purchases that occur in clusters at certain times of the year (typical examples in the food sector being potatoes laid in for the winter and Christmas geese²⁷⁾) would be under-represented in the sample survey.

In the months for which no detailed notation is required, all receipts are recorded, but only some selected expenditure groups. When selecting these expenditure groups, special attention is paid to goods which are purchased not very often or which are particularly important for the budget of the household due to the high amounts spent. These mainly include expenditure for

- housing and energy (main tenant and proprietor),
- proprietor's interest payments for and repayment of mortgages and building loans,
- purchase of real estate,
- purchase and maintenance of motor cars,
- outerwear and shoes,
- furniture, electric appliances, other durable consumer goods,
- health care (out-patient and in-patient treatment, dentures and the like, massages, nursing care for sick and elderly people),
- holiday and recreation trips,
- formation of financial assets, repayment of debts.

²⁴⁾ See Subject-Matter Series Preise, Löhne, Wirtschaftsrechnungen, Series 18 Einkommens- und Verbrauchsstichproben "Aufgabe, Methode und Durchführung der Einkommens- und Verbrauchsstichprobe 1962/63", Stuttgart/Mainz 1968, p. 20.

²⁵⁾ See also the comments of Verma, V. on "Probability versus quota sampling" in his contribution on "Household Surveys in Europe: Some Issues in Comparative Methodologies" presented at the TES Seminar on "International Comparison of Survey Methodologies" from 30 March to 1 April 1992 in Athens; printed version, p. 13.

²⁶⁾ See Subject-Matter Series 15, Einkommens- und Verbrauchsstichprobe 1978, No. 7 "Aufgabe, Methode und Durchführung", p. 57.

²⁷⁾ The seasonal changes in the purchases of food, beverages and tobacco have last been examined in detail in the 1973 Sample Survey on Income and Expenditure. See Euler, M.: "Aufwendungen privater Haushalte für Nahrungs- und Genußmittel im 2. Halbjahr und im Jahr 1973" in Wirtschaft und Statistik No. 8/1975, p. 517 ff.; in particular p. 518 and p. 522.

It can be assumed that with these types of expenditure about 70 % of a household's total expenses are covered. Food, beverages and tobacco are recorded only in the month with detailed notation. In 1993, simplified notation by 15 groups of expenses will be practiced for the first time without any indication of quantities. This considerably reduces the burden on the households and the statistical offices. Only for a small subsample of 15,000 households, the purchases of food, beverages and tobacco are recorded in detail with the respective quantities. In the long run, it is planned to shift the collection of such data to a survey with a separate legal basis, as part of which additional questions could be asked on aspects that are of interest for reasons of nutrition physiology (e.g. on losses of food due to spoilage, diminution, preparation and waste, on meal plans and eating habits). In addition to the notations in the housekeeping books, the households are interviewed at the beginning of the survey year on the composition of the household, its equipment with selected consumer durables, the housing situation, the net income of the household and some other variables that are relevant for technical reasons. At the end of the data collection period, there is an interview on existing assets and credit obligations of the households.

For quite different reasons, the results of the sample surveys on income and expenditure could in the past be presented only with considerable delay after the survey period. In part, this is due to the range of survey variables covered, which is probably unique also in international comparison, and the continuously growing requirements with regard to the differentiation of the processing program. The more complicated the material problems, the bigger become the requirements and wishes of those using the results of sample surveys on income and expenditure, with regard to the detail of the breakdown by survey variables and socio-economic variables of households and persons. As a consequence of the understandable criticism of the long processing period, new approaches will be followed for the 1993 Sample Survey on Income and Expenditure not only concerning the data collection procedure – especially for food, beverages and tobacco – but also with regard to the processing method used. After the substantial financial means required for this purpose will have been provided, it will be possible for the first time in 1993 to shorten the manual part of processing considerably by changing over to interactive processing using the database management system ADABAS and the programming language NATURAL. The major advantage is that plausibility checks can already be carried out in the interactive mode; mechanical addition work and auxiliary computations will no longer be required, and this also applies to the preparation of data collection records and the like.

In connection with the efforts to shorten the time required for processing the results of the sample surveys on income and expenditure, the question has been considered at the Federal Statistical Office how the entire system of statistics of family budget surveys would have to be newly structured in order not to provide structural results for all private households only at longer intervals but to be also able to present up-to-date figures on the economic and social situation of the entire population on a continuous basis. This process of consideration is not over yet. It will presumably become necessary in the medium term to change existing legal bases and/or create new ones if a convincing and adequate solution is to be found. Furthermore, the Statistical Office of the European Communities plans a number of new surveys and the harmonization of the family budget surveys within the European Communities. For example, a household and income panel will be conducted in 1993 at least in the form of a pilot survey. It remains to be seen if and in how far European and German ideas overlap or if they can be integrated.

Survey organization

Like the earlier surveys, the 1993 Sample Survey on Income and Expenditure will be conducted jointly by the statistical offices of the Länder and the Federal Statistical Office. For most official statistics, the work is generally distributed as follows: the Federal Statistical Office prepares statistics for federal purposes in agreement with the statistical offices of the Länder, which then prepare the Länder results, which are compiled for the Federation by the Federal Statistical Office, and published and presented for general purposes²⁸⁾. In the case of the sample surveys on income and expenditure, however, the data are processed centrally at the Federal Statistical Office²⁹⁾. This regulation makes sense because often problems, which have to be solved rapidly and uniformly, arise only during the processing phase. The great number of transactions reflected in the housekeeping books can hardly or not at all be followed by means of written instructions. Therefore, the experience and the sensitiveness of the individual staff member is much more important than in the case of statistics for which plausibilities can be checked on the basis of formal guidelines. Moreover, processing in the dialogue mode is presently possible at the Federal Statistical Office only, which had newly to carry out the project required for this purpose.

This means that the main task of the statistical offices of the Länder is recruiting the households; they are supported in doing so by the general public relations work of the Federal Statistical Office. As part of this general public relations work, the population is informed about the objectives and purposes of the sample surveys on income and expenditure as well as their importance for politics, science, enterprises, the society and not least for the participating households themselves. This is done by means of contributions in the media, seminars for journalists, a short film on the sample survey on income and expenditure, posters, the distribution of brochures and the like. The statistical offices of the Länder are also responsible for recruiting and training the interviewers or survey helpers who

²⁸⁾ See Art. 3 of the Law on Statistics for Federal Purposes of 22 January 1987, Bundesgesetzblatt I p. 462 ff.

²⁹⁾ See Art. 5 of the Law on Statistics on Family Budget Surveys of 11 January 1961, Bundesgesetzblatt I p. 18.

are to assist the households during the whole survey year, for supervising the distribution and the returning of the survey documents as well as first completeness and plausibility checks. Finally, after the successful termination of the survey, the statistical offices of the Länder pay out the participation premium to the households, which they determine according to their own criteria and possibilities. On average, it should amount to about DM 100. It is being considered to provide further incentives. In view of the amounts in question, these payments and benefits are rather of a symbolic nature. On the other hand, it should not be neglected that only in the case of the sample surveys on income and expenditure and the continuous family budget surveys the participating households receive a financial compensation, however small it may be.

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