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METHODS – APPROACHES – DEVELOPMENTS
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The catchword

The European Labour Cost Index

In 2003, with the adoption of the EU regulations on the Labour Cost Index, an important interim goal was reached in the persistent efforts to introduce a methodologically harmonised European index for the measurement of labour cost trends. The European Labour Cost Index is a core component in a system of indicators already adopted or planned as yet, which improves the availability of information needed for monetary policies and business-cycle analysis in Europe. It allows not only to get an insight into the cost situation of an economy and its changes, but it makes it also possible to analyse the two large blocks of costs, i.e. wages and salaries and employers' social contributions between the secondary and tertiary sectors of the economy as well as between the various industries. This greatly improves the conditions for overall economic analysis, as it brings together data on labour costs with productivity and employment data. Besides, the labour cost index is an important addition to the set of price indicators already available. The European harmonisation of definitions and concepts has made it possible to compare labour cost trends between all of the 25 European Member States.

The regulations commit the Member States to quarterly publication of indices to be released 70 days after the end of the quarter at the latest, as follows:

- index "Total labour costs" (LCI_TOT),

- index "Wages and salaries" (LCI_WAG),

- index "Employers' social contributions plus taxes paid by the employer less subsidies received by the employer (LCI_OTH),

- index "Total labour costs excluding bonuses" (LCI_TXB).

Indices LCI_WAG and LCI_OTH contribute essentially to improved analysis regarding total labour cost changes (LCI_TOT). This makes transparent the different reactions or changes that occur in these two large blocks of costs. In addition, index LCI_TXB illustrates the changes in payments made regularly in each pay period. However, the influence of bonuses, such as e.g. Christmas allowance, extra vacation pay, etc. is left out of account in this calculation.

As official statistics in Germany do not have a quarterly source of primary labour cost data, computations of quarterly labour cost indices are based on a broad variety of data sources. Annual data on labour costs and hours worked are extracted from the four-yearly labour cost survey. The main objective of the labour cost survey consists in quantifying the cost level and the cost structure of labour as a factor of production. Wages and salaries as well as fringe costs with their constituent parts are recorded as major elements. As labour costs are broken down into more than 20 sub-items, specific weights can be assigned to the various cost constituents of each individual industry so that sub-annual estimations can be used for updating the specified indicators, until the results of the next labour cost survey become available.

The labour cost index is based on the value of labour costs per hour worked. After assessing and evaluating the various possible estimation procedures, we have come the conclusion that the labour cost index will apply separate estimations for the numerator (labour costs) and for the denominator (hours worked).

To estimate regular payments of wages and salaries we use the figures on average gross monthly earnings from the Current Earnings Survey for NACE divisions C-G (Industry including construction and trade, repair of motor vehicles and personal goods) and J (financial intermediation). Using this primary source of statistics ensures that the labour cost index is always based on current structural data on employees. The figures on gross wages and salaries for NACE divisions H (hotels and restaurants), I (transport, storage and communication), K (real estate, renting and

business activities), L (public administration and defence, compulsory social security), M (education), N (health and social work) and O (other community, social and personal service activities) are updated on a quarterly basis using indices of standard wages and salaries.

Gross wages and salaries paid in compensation for hours not worked are broken down, as a proportion of the days of sickness, vacation and feasts, into the cost constituents "Payments for days not worked" and "Employee sick leave benefits". The number of days actually worked influences the size of the cost constituent "Direct remuneration". This approach guarantees precise and meaningful results for the indices "Wages and salaries" (LCI_WAG) and "Employers' social contributions plus taxes paid by the employer less subsidies received by the employer" (LCI_OTH). For example, a rise in the number of people away sick will lead to a reduction in the cost constituent "Wages and salaries" and a parallel increase in "Employers' social contributions".

Gross monthly earnings data from the Quarterly Earnings Survey and the index of standard wages and salaries – both relate to people who are employed full time. That means that labour costs are overestimated, if they are based on these figures alone. To counteract such distortion we are using an estimation model which makes provision for the changes in the wages and salaries of part-time workers. An increased share of gross wages and salaries earned by people in part-time jobs curtails the growth rates of wages and salaries and also total labour costs.

Besides the changes in wages and salaries, we update employers' contributions on a quarterly basis, using current contribution rates for annuity insurance, unemployment insurance, health insurance and nursing care insurance.

The estimates of the time and the volume of work made by the Institute for Labour Market and Occupational Research (IAB) (Institut für Arbeitsmarkt und Berufsforschung) of the Federal Labour Agency (cf. Bach,H.-U., Koch, S.: The time and the volume of work; in: Kleinhenz, G. (editors) (2002): IAB-Compendium on Labour Market and Occupational Research. Contributions to Labour Market and Occupational Research, BeitrAB 250, pp. 57-70) provide quarterly data on the number of hours worked per person employed. The figures from this source are used in the context of the labour cost index in order to update the primary data from the Labour Cost Survey. In its estimations, the IAB uses the bottom-up approach. The hours worked, including hours worked overtime, are estimated on the basis of the contractually agreed number of working hours, taking into account data on vacation, sickness, weekends and feasts as well as paid hours of overtime work. The consideration of other factors affecting the time of work, such as e.g. short-time work, bad weather effect, labour disputes, finally leads to the number of hours worked per person employed. The different figures for full-time workers and part-time workers are compiled on the basis of numerical data on these groups of employees, which are extracted from employment statistics on persons gainfully employed.

In spring 2005, the Federal Statistical Office will publish the Labour Cost Index for the first time and in regular intervals later on. Seasonally adjusted figures, taking into account the varying number of working days and covering the various NACE divisions from C to K, manufacturing industries and the services sector as well as the entire economy, will then be released not later than 70 days after the quarter of reference.

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Methods of Federal Statistics – Further Development

"Living in Europe" – a new survey of official statistics

In 2005, the survey "Living in Europe" will be conducted in Germany for the first time. This new inquiry is part of the European System of Official Statistics and it is undertaken not only in Germany, but also in the other 24 Member States of the European Community as well as in Iceland, Norway and Switzerland. The European Statistics on Income and Living Conditions (EU-SILC), as it is called on the European level, replaces the European Community Household Panel (ECHP), which ended in 2001.

Legal basis

Unlike the ECHP, the EU-SILC is based on European legislation, which means that it is much more binding to the Member States involved. Regulation (EC) No. 1177/2003 of the European Parliament and of the Council (OJ EU, No. L165, p. 1) stipulates the overall methodological conditions and rough contents of the EU-SILC. It is supplemented by a number of implementing regulations, in which the methodological details are anchored. The said legal basis aims at the harmonised use of methods and definitions, which is supposed to ensure the provision of Europe-wide comparable results.

Survey contents

In the future, the EU-SILC will be the European source of reference for the analysis of income distribution, poverty and social exclusion. Emphasis has been laid, in particular, on getting a detailed picture of gross household income and disposable household income. Non-monetary aspects of households living conditions are also recorded. They include, for example, the dwelling situation, the economic activity of respondents, features indicating a household's social exclusion and the health situation of respondents. The information mentioned above is collected annually. Besides, in longer time intervals, usually once in four years, additional information is being collected which focuses on specific aspects of poverty or social exclusion. In 2005, for example, the focus will be on inter-generational "inheritance" of poverty.

Methodology

"Living in Europe" is conducted as a panel survey, i.e. households covered by the survey are requested in four consecutive years to supply information. A major reason for this panel design is the intention to understand the changes that occur in a household's income situation during the four year a household participates in the survey. After four years, households will be dropped from "Living in Europe".

In the long run, the sample survey will cover more than 14,000 households drawn in a multiply stratified random sample. Quota sampling will be used to draw three quarters of the sample size in the first year only. However, these households will successively be dropped from the survey in subsequent waves of data collection, so that "Living in Europe" will be based solely on a random sample from 2008 onwards. For drawing the random-based share of the sample we will make use of a newly introduced instrument of official statistics – the "Dauerstichprobe befragungsbereiter Haushalte" (permanent sample inquiry of households willing to be interviewed, Access Panel). This instrument, which has been tested in the context of a Pilot Access Panel study, provides for a cost-minimised approach to the recruitment of households willing to participate in voluntary household surveys, such as "Living in Europe". For more information about the Pilot Access Panel, please, refer to *Methoden … Verfahren … Entwicklungen* (MVE) (*Methods … Approaches … Developments*), issue 1/2003.

Data use

In particular, the EU-SILC provides the data basis needed to estimate structural indicators on social cohesion in the so-called spring report of the European Commission. In addition, the information is also used for the drafting of European and national poverty reports. Furthermore, it is planned to make the data stock accessible to interested scientists for analytical purposes.

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Household Panel Surveys and International Comparability

Harmonisation and international comparability of household panel surveys is the central subject of an anthology entitled "Harmonisation of Panel Surveys and Data Quality", which was published in English in December 2004. The publication was issued by the Federal Statistical Office. It is based upon the results of the CHINTEX research project (The Change from Input to Ex-post Harmonisation in National Samples of the European Community Household Panel – Implications on Data Quality), which was supported by funds of the European Commission. The project consortium was composed of representatives from the Federal Statistical Office (Wiesbaden), the Johann Wolfgang Goethe University (Frankfurt), the German Institute for Economic Research (Berlin), Statistics Finland (Helsinki), the University of Essex (Colchester) and the Centre d'Études de Populations, de Pauvreté et de Politique Socioéconomique (Differdange).

The contributions are of a general scientific interest and deal with the quality of statistical results obtained by means of panel data. Thus, they are of importance to research and development projects, first of all, in official statistics, but also beyond this field. Below some results will be examined more closely to exemplify this.

The comparability of data is strongly influenced by survey methods

Comparisons of estimates based on Finnish survey data obtained from the European Community Household Panel (ECHP), on the one hand, and from Finnish register data on the same individuals, on the other hand, have revealed considerable discrepancies in net household income distribution. These discrepancies are stable over the time. As to the poverty rate, these discrepancies account for a relative error of 50 %. Discrepancies of this size have an influence on the ranking of European states regarding the indicators derived from the Household Panel Survey. It may be assumed that the situation is similar as to European Community statistics on income and living conditions (EU SILC), requiring further analytical efforts for the sake of international comparability. The reasons for the discrepancies in distribution figures are a strong overestimation of the gross earned income in the survey data regarding the lower deciles and a moderate underestimation of that income regarding the upper deciles.

In the field of non-response, the activities undertaken have shown that field work was actually very different between the various national sub-samples of the ECHP. This is related to the distinctions in the structure of panel attrition between countries. Furthermore, in the pattern of panel attrition and cases of non-response we can identify significant distinctions between various surveys in a country. Based upon the results of those research activities we must take it for granted that higher quality standards in field work would help to minimise both panel attrition and item non-response. Analysis has shown that it is very helpful, in particular, to retain interviewers as long as possible in a survey. As to interview-based panels, the most important

risks for panel survey attrition are changes in the set of housing units and substitutions of interviewers.

Changes in income are difficult to measure

An outcome of the research activities in data quality was the fact that surveys tended to underestimate changes in earned incomes. Using Finnish register data it could be shown that both changes in household incomes or earned incomes and changes in the marital status had an influence on attrition-related behaviour. As a matter of principle, one should assume some bias or even underestimation not only regarding the variability of household income, but also regarding income distribution measures. All distortions that were found confirm the hypothesis that changes in individual characteristics of variables increase the risk of panel attrition.

Data quality increases with the duration of a panel survey

As we found out, the longer a panel survey lasts, the more precise tend to be the replies of respondents in the survey. Thus, one may assume that the quality of data, for example, on incomes will improve slowly. Furthermore, the results of the analysis indicate that attrition-related behaviour changes over the duration of a panel survey. A possible reason for that may be seen in the growing cooperation between respondents and interviewers or in the survey as such. This leads us to the conclusion that cross-sectional surveys and, to a somewhat smaller extent, also panel surveys with time restrictions tend to be subject to a maximum measurement error and non-response bias. To some extent, either component can be reduced by prolonging the duration of a panel survey.

For further information on this project, please, refer to http://www.destatis.de/chintex/index.htm

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Further Development of Data Editing for German Statistics

1   Introduction

Increasing statistical requirements and decreasing resources have compelled statistical offices to streamline the production of statistics. A project group composed of representatives from the Federal Statistical Office and the Statistical Offices of the *Länder (federal states)* has developed a concept of methodological rules (data editing concept) for checking on the plausibility of statistics. It will lead to improved timeliness of the statistical results. Representatives from the Federal Statistical Office have implemented the concept of methodological rules by way of data processing, which they have been testing since July 2004. These applications will be available to all Statistical Offices from 2005 on.

2   Overview of the data editing concept

The said objectives and the heterogeneous needs of the various subject-matter areas have led to some modifications in planning and implementing data editing (DE).

2.1 The planning of data editing

The use of project management techniques has led to a sequence of action as follows:

Collection and analysis of relevant information

Quality requirements to be met by the expected results, available periods and resources for data cleaning, the survey concept and the practicability of verifying the contents of a survey – all that is relevant information needed for the elimination of errors. Using a new electronic guideline, subject-matter statisticians are to collect and to evaluate that information and, in the final analysis, they are supposed to draw first conclusions on the sequence of action for data editing.

<u>Rough planning</u>

An important element is the decision about the sequence of operations for data correction, which will serve as a general framework for follow-up action in terms of DE detailed planning. In the future, predefined and modifiable sequences with standardised DE processes, which both represent the best possible practices, on the one hand, and can also be used for documenting DE operations in use, on the other hand, will be available to subject-matter divisions.

<u>Detailed planning</u>

Subject-matter statisticians use the PL Editor, in particular, to specify those variables and checks that are directly integrated in data processing programs run to edit and to generate statistics. For the scheduling of DE processes (assessment of the time needed, planning of human resources, fixing of deadlines and cost estimation), use can be made of DE process managers, which are available as data processing applications.

DE planning ends with a description of possible risks caused by data cleaning and with a description of the concluding checks.

2.2 Changes in data cleaning

Major changes in data cleaning are related to the use of selective and macro editing methods and to the use of automatic editing and imputation techniques.

Selective DE methods set priorities with regard to erroneous records by relying on the fact that the accuracy of statistical results is influenced by both the size of an error and the number of underlying cases. Those methods advocate the supply of the latest results and help make a decision in favour of either manual or machine-made corrections. Macro editing methods supplement selective DE methods by using indices for the setting of priorities among the strata in a survey population. Since early July 2004, the Federal Statistical Office has successfully tested the two methods in a specific field of subject-matter statistics.

To improve the efficiency of data cleaning with the accuracy of statistical results being guaranteed at the same time, it is necessary for us to rely more strongly on automatic methods of error detection and imputation (please, also refer to the EUREDIT project: http://www.cs.york.ac.uk/euredit/results/results.html). Automatic editing procedures rely on subject-specific plausibility checks, on findings about the validity of data and on the methods of mathematical statistics to identify errors, which will then be replaced by using conventional imputation techniques. By now, the Federal Statistical Office has developed an automatic editing method, whereas freely available software is to be used for automatic editing for the time being. In the context of a research project, the Federal Statistical Office is momentarily examining the use of Artificial Neuronal Networks for automatic editing.

In the future, subject-matter statisticians will control data cleaning by relying on DE process managers, which will make it easier for them to quickly identify the causes of possible delays.

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The Estimation Method Applied to the Monthly Telephone Survey on the ILO Economic Activity Status

Preliminary remark

In addition to the ongoing labour market reports of the Federal Labour Agency, the Federal Statistical Office will publish the latest activity figures, in particular, figures on unemployment, in accordance with the recommendations of the International Labour Organisation (ILO), starting with figures for January 2005 as the first month of reference. The figures will be obtained from a monthly telephone survey covering 30000 individual respondents. (For details on the ILO concept of economic activity and the backgrounds of a pilot survey already terminated, please, refer to Riede/Sacher 2004.)

1　The sample design of the telephone sample survey

The target population covers all individuals living in households and aged between 15 and 74. However, it should be noted that in order to be actually eligible for a sample indivuals must have a fixed-line telephone (circa 95% of the population). A random sample of the telephone numbers is drawn by using the Gabler-Häder method, which makes it possible, in principle, to reach even those telephone numbers that are not registered in the publicly accessible directories (cf. Gabler/Häder 1997). One out of all individuals living in a household reached by telephone is randomly selected for the sample.

In order to reduce random errors the sample size is allocated between the federal states of Germany in a somewhat disproportionate way; the sampling rate used for the eastern states is slightly higher. Telephone numbers are drawn with a regional stratification. Sample sizes are defined for the approximately 300 strata as a proportion to the number of households in the western and the eastern federal states. The monthly sample survey has been conceived as a rotating panel (for a more precise estimation of the changes over time), i.e. the ideal case is that each individual covered by the sample is interviewed in the course of six successive months, before he or she will be excluded from the sample. However, owing to the voluntary nature of the interviews there is a certain amount of non-response (over 50% of those interviewed for the first time, circa 10% in follow-up inquiries during the pilot survey), so that the actual degree of rotation is higher than indicated above.

2　Estimation technique of telephone sample surveys

2.1　Inclusion probabilities

For the purpose of estimation it is necessary, first of all, to define each person's probability of being drawn for a sample (the so-called inclusion probability π_k). For those interviewed for the first time π_k agrees with the inclusion probability; whereas for those interviewed repeatedly (panel cases) during a given month the determination of π_k is somewhat more expensive, as it is additionally necessary to take into account what is called panel mortality.

All telephone numbers of households that can be reached by using the Gabler-Häder method have one and the same inclusion probability. Individuals, however, have different probabilities of being included, as exactly one individual is selected per household and as a household may have several telephone numbers. As to an individual in a certain regional stratum, who will be interviewed for the first time, these probabilities can be estimated by approximation, proceeding from the number of persons of that stratum in the sample, the number of households in the stratum and the number of telephones and target persons in the household of the selected individual.

2.2 Longitudinal non-response

While no information is available about cases of non-response for individuals to be interviewed for the first time (apart from regional information as revealed by area codes), we have such information in the case of follow-up inquiries, since we have the data collected during the preceding month, enabling us to estimate the response probability θ_k by using a logit model:

$$\log\left(\frac{\theta_k}{1-\theta_k}\right) = \alpha + \sum_{i=1}^{l}\beta_i x_{ik}$$

(x_{ik} = the value of variable x_i in the previous month for individual k; α and β_i are model parameters estimated according to the maximum likelihood approach.)

Analysis has shown that the strongest influence on continued participation is exerted by variables such as sex, age, nationality, activity status in the previous month, place of residence (West/East and size classes of BIK regions), educational level and the duration of survey coverage. The parameters of the logit model with the variables mentioned above are estimated every month anew. Based on the estimates of response probabilities θ_k derived from these values and on the inclusion probabilities with regard to individuals interviewed for the first time in the prewaves , we are also able to determine inclusion probability π_k for the panel cases.

2.3 Calibration

As reliable data are available on the resident population from external sources, the additionally recorded variables are calibrated on the basis of generally known totals ("benchmark figures") in order to offset the systematic bias caused by non-response, on the one hand, and to reduce the amount of standard error, on the other hand. For this purpose we use a regression estimator, which can be written as a linear estimate for a total t_y as follows (cf. Särndal et al. 1992):

$$\hat{t}_y = \sum_{k=1}^{n} w_k y_k$$

where y_k = the value of variable y to be examined for individual k in the sample

n = (net) sample size

w_k = a weight, which depends on the concrete sample and is estimated for individual k as follows:

$$w_k = \frac{g_k}{\pi_k}, \qquad \text{where} \quad g_k = 1 + (\mathbf{t_x} - \hat{\mathbf{t}}_x)'\left(\sum_{k=1}^{n}\frac{\mathbf{x}_k \mathbf{x}'_k}{\pi_k}\right)^{-1}\mathbf{x}_k.$$

Here, $\mathbf{x}_k$ is the vector with all values of the auxiliary variables of individual k, $\mathbf{t}_x$ is the vector of known totals of the auxiliary variables (benchmark figures), $\hat{\mathbf{t}}_x$ is the vector of estimates of the auxiliary variables from the sample using the weights of the Horvitz-Thompson estimator (reciprocal value of the inclusion probability).

The choice of benchmark figures (i.e. auxiliary variables x_i) depends on which information is available. What would be imaginable is a crosswise combination of all those variables collected during a survey (source variables), for the totals of which information is available from external sources. However, because of a presumably low cell frequency of the sample this approach would tend to make the variance of the estimator unreasonably large. For that reason, several new variables have been introduced, which are derived from a crosswise combination of a few, partly classed source variables. After extensive analysis it has been found that the most suitable

model is one with eight new variables; it is a combination of the variables age, federal state (partly classed into West and East or so-called Nielsen areas), sex, nationality, completed vocational training and school leaving certificate as well as notification made to the Labour Office (yes/no). The known (or precisely estimated) benchmark figures stem from the Federal Labour Agency (people registered as unemployed), the microcensus (school leaving certificate and completed vocational training) and from currently updated population estimates (other variables). To reduce, in particular, the amount of random error in monthly changes we use the (estimated) activity status of the previous month (in a West/East combination) as an additional benchmark figure for the panel cases.

3 Variance estimation

The variance of the regression estimator for totals can be approximated on the basis of the variance of the Horvitz-Thompson estimator by substituting weighted residuals for the target variables in the respective formulas. A Taylor linearization is used to estimate variances for the employment and unemployment rates as well as variances of monthly changes. This ensures permanent control over the level of precision to be achieved (the central quality requirement of a sample).

Literature

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On the Coverage of Public Health Services by the Consumer Price Index

The estimates include just that share of the costs which is borne by households

Health care has a weight of 35.46 per mille in the German consumer price index. That means that in 2000, the base year of consumer price statistics, households spent a little more than 3 ½ percent of their entire consumer expenditure on public health services. This figure has to be supplemented by expenditure on private health insurance, which is separately recorded in a different position. The payments of compulsory legal health insurance, as social security contributions, are not covered by the consumer price index. The consumer price index includes just those items of household expenditure which are not refunded by compulsory health insurance. This also explains the comparatively small share of health spending in overall household expenditure.

The Federal Statistical Office ascertained the effects of the public health reform launched at the beginning of this year, which in spite of a rather small share of public health in overall consumer spending amounted to as much as 0.6 percentage points, i.e. these effects accounted for half of the entire rise in prices. The regulations which became effective as of 1 April concerning cost coverage by compulsory health insurance for ethical drugs on the basis of an exception list made

the prices rise by another 0.2 percentage points. Many observers were astonished by the extent to which the consumer price index was affected by the public health reform.

Different treatment of individuals: compulsory versus private health insurance

As private health insurance is not a constituent part of the social insurance system, members of private insurance schemes are included in consumer price index calculations much more strongly than members of compulsory health insurance. The calculation of the consumer price index makes provision for payments in terms of both private health insurance contributions and health services consumed and paid for by those privately insured. As private health insurance contributions are covered with the amount actually paid for the service[1], the expenses on public health services, incurred by persons under a private health insurance scheme, are always considered, irrespectively of whether or not these expenses are refunded by a private health insurance company. That means that individuals covered by a private health insurance scheme are not directly affected by the public health reform[2], thus, they cannot serve, either, to explain the public health reform's current implications.

Determination of price changes

- for pharmaceutical products

The Federal Statistical Office determines prices for the circa 450 best selling medicaments, differentiated by the most popular packaging sizes. The prices recorded in this context include both the pharmacies' selling prices (for privately insured persons and for non-refundable medicaments) and the prescription charges. Shortly it is planned to newly introduce decentralised price surveys[3] and price surveys via the Internet on those medicaments that are available without prescription, the sale being restricted to pharmacies, and which are subject to competitive prices in terms of the public health reform. Prices for other pharmaceutical products such as vitamin preparations or Melissa alcohol are being collected in a decentralised way as before. The weighting share of pharmaceutical products in the consumer price index amounts to 10.31 per mille, the changes introduced by the public health reform (January and April 2004 taken together) in the rules for extra-payments for medicaments push the inflation rate up by 0.20 percentage points. [4]

- for therapeutical utensils and equipment

The prices recorded are those of blood pressure meters and eyeglasses. Blood pressure meters represent all therapeutical utensils, which are bought and completely financed, as a rule, by households in a health care context without a particular prescription. In the future, prices will be collected as now in a decentralised way in the municipalities under review. As to eyeglasses, we make allowance for the bonus share paid by the companies of compulsory health insurance (as an item to be subtracted from the payment to be made by the patient), although such bonus shares are presently still being granted to children and people with a severe visual handicap

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[1] To put it more simply, the sums refunded to those insured (in the case of sickness or as a premium refund) are subtracted from the amount of premiums paid by households.

[2] Indirectly they even profit from the public health reform, if – as is intended – the prices for public health services decrease by that or if their further rise is at least slowed down. The effect would be shown by the consumer price index.

[3] That means price surveys undertaken by the Statistical Offices of the Federal States in the municipalities under review.

[4] The indication of two decimal places should not be misinterpreted as a result of exceptionally high computing accuracy. However, using one decimal place only would hardly allow showing a differentiated picture of the effects. – Other medical products such as band-aid, clinical thermometers or condomes have together an overall weithing share of 0.56 per mille; their prices being obtained in a decentrealised collection, and the public health reform having not had an influence on their trends.

only. Prices for frames and glasses are collected in a decentralised way; refunds are subtracted centrally by the Federal Statistical Office. With the weighted share of therapeutical utensils and equipment amounting to 5.46 per mille, the almost complete abolition of bonus payments for eyeglasses, which were made by companies of compulsory health insurance, has been the cause for a price increase of 0.15 percentage points.

- for medical services

The Federal Statistical Office is collecting prices for the 20 medical services most frequently applied in accordance with the Scale of Fees for Medical Doctors (GOÄ). As a matter of course, the newly introduced quarterly charge to be paid by members of compulsory health insurance companies for seeing a doctor in his practice has also been included in the calculation of the index. With the weighting share of medical services amounting to 6.62 per mille, the introduction of the quarterly charge for seeing a doctor (excluding dentists) has made the prices rise by 0.08 percentage points.

- for dental services

The prices for dental services also include the costs of dental technicians. The costs are covered in respect of the 20 most popular services of dentists in accordance with the Scale of Fees for Dentists (GOZ) and the costs of a bridge and a crown are also included. As to dentists, price changes are centrally recorded by the Federal Statistical Office, whereas the changes in prices for dental technicians are recorded in a decentralised way. As a matter of course, the newly introduced quarterly charge to be paid by members of compulsory health insurance companies for seeing a dentist in his practice (excepting check-ups and children) has also been included in the calculation of the index. With the weighting share of dental services amounting to 5.28 per mille, the introduction of the quarterly charge for seeing a dentist has made the prices rise by 0.05 percentage points.

- for services of non-medical professions in public health

Services of non-medical professions in public health include the services of medical laboratories, the services of auxiliary therapists, such as massages and physiotherapy and other services, such as e.g. temporary home care of sick people. For the calculation of the consumer price index, data are collected in a decentralised way on price changes regarding physiotherapy and of late also regarding home care for sick people. With the weighting share of the respective services amounting to 1.60 per mille, the changes in the rules for extra payments have made the prices rise by 0.08 percentage points.

- for in-patient services

The changes in the prices of services of hospitals are measured in a decentralised way on the basis of two selected typical services (delivery and treatment of cardiac insufficiency). As the weighting share amounts to 5.63 per mille, the changes in extra payments per day and the rise in the maximal number of days , for which extra payments are needed, have made the prices go up by 0.11 percentage points.

Special approach to exemptions from extra payment

A special case in index calculation is related to persons who are exempted from the payment of extra charges or to persons whose extra payments are subject to a limitation owing to low income or high public health expenditure. Such persons are, for example, children without an income of their own, social welfare recipients or persons with a chronic disease. After the reform of public health, children are the only group to be completely exempted from extra payments, while thresholds are applied to all other groups (maximally 1 or 2 % of the income). This is explicitly taken into account, when price changes are determined for the various services described above.

The newly calculated results are not likely to be revised

When the figures were calculated for the first time, some practical topics of implementing the reform of public health were not clarified yet. By now, this has been done (e.g. rules of cost coverage for compulsory health insurance in accordance with a listing of exceptions in terms of ethical drugs) and that has been considered in the calculations. However, some structural assumptions need still to be made in the calculation (for example: how often does a person covered by compulsory health insurance pay the fee for seeing a doctor?) Nevertheless, the analyses made by the Federal Statistical Office have indicated that the results obtained with a degree of accuracy of one decimal point are quite robust concerning these assumptions.

The frequently expressed assumption that an increase in the share of expenses on goods and services necessarily entails an upward adjustment of results during the next revisions is wrong. The price-related increase in shared spending – i.e. the effect which the reform of public health is supposed to have – is correctly portrayed from the very beginning. In addition, extended collection of price data covering decentralised elements of non-prescribable medicaments allows portraying the desirable extent of price competition between pharmacies. From this it follows that the figures now published will not be revised. The results that might be subject to revision are those from 2005 onwards, when the reform of public health will lead to a possible change in the patients' behaviour.

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Ensuring and Improving the Quality of Cause of Death Statistics

Introduction

The figures of cause of death statistics serve as an elementary basis for the determination of major health indicators, such as death rates, years of life lost, and avoidable deaths. They are used to derive recommendations for action and strategies, needed, amongst other things, for epidemiological research, measures of prevention, and health politics. Valid data are indispensable for this purpose. For that reason, the review, the protection and the improvement of data quality have been given top priority.

Criticism concerning data quality of cause of death statistics refers to possible regional discrepancies in coding the causes of death. For that purpose, the Statistical Offices of the Federation and the Federal States (*Länder*) have developed two techniques to examine qualitative and quantitative discrepancies in coding the causes of death.

Background

The coding of the causes of death is done by so-called coders at the Statistical Offices of the Federal States (*Länder*). The coders evaluate the doctor's statement on the post-mortem certificate, based on the rules of the World Health Organisation (WHO). For that purpose they examine all diagnoses and manually select the underlying disease, i.e. that disease that has actually been the cause of death. Then they assign the respective code to that underlying disease on the basis of the WHO International Statistical Classification of Diseases and Related Health Problems (ICD), which is in world-wide use for that purpose. Finally, the generated code is used to compile statistics on the causes of death.

This approach to data processing has three possible vulnerabilities:

- Coders (as a rule, office clerks) do not receive a standardised medical training before they start doing their jobs. Nevertheless, they are supposed to be able to evaluate and to correctly interpret the doctors' statements according to the rules of WHO.

- The underlying disease is selected manually.

- The respective ICD code is assigned manually.

Because of these aspects there is always some scope for interpretation, which leads to the following theses:

Thesis 1:   There are regional discrepancies between the results obtained from the coding of identical post-mortem certificates.

Thesis 2:   Those discrepancies curtail the national and international comparability of the data.

The above theses are being examined by applying double coding and circular coding to post-mortem certificates. The two approaches have several things in common: The choice of post-mortem certificates is based on a random sample, certificates are blindly coded by the coders involved (i.e. coders do not see another coder's result), and these operations are done on a monthly basis.

On double coding

The following chart shows the sequence of double coding operations:
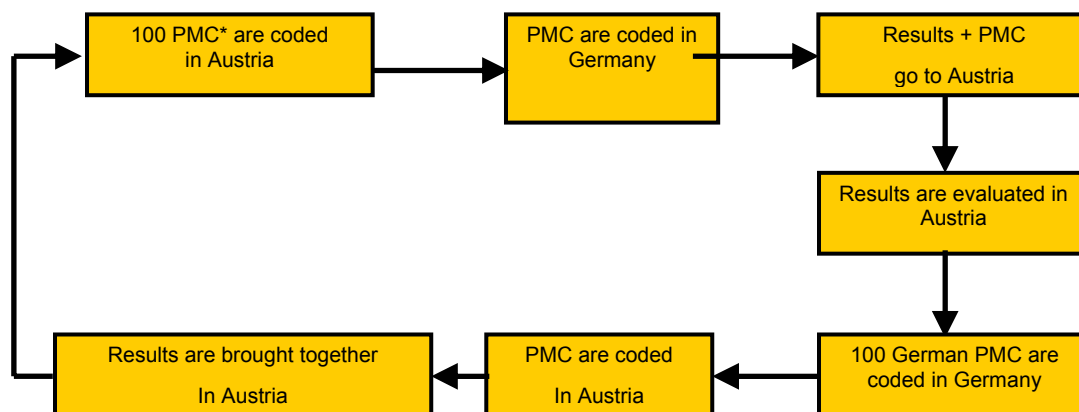
*PMC=Postmortem certificates

The double coding technique is applied to the coding of 100 identical post-mortem certificates per month at a State (*Land*) Statistical Office or at Austria's Office for Statistics (Statistics Austria). The results are brought together and compared in a database. The cycle described above recurs every two months.

Because of the large number of post-mortem certificates, no attempt has been made to identify the results that agree with a given pattern, which would show whose coding was correct and whose coding was wrong. The sole objective has been to identify the size of the coding discrepancies between two coders (in terms of quantity). Double coding has been applied since March 2004.

On circular coding

Unlike double coding, circular coding refers only to the Statistical Offices of the Federal States (*Länder*).The sequence of operations is as follows:
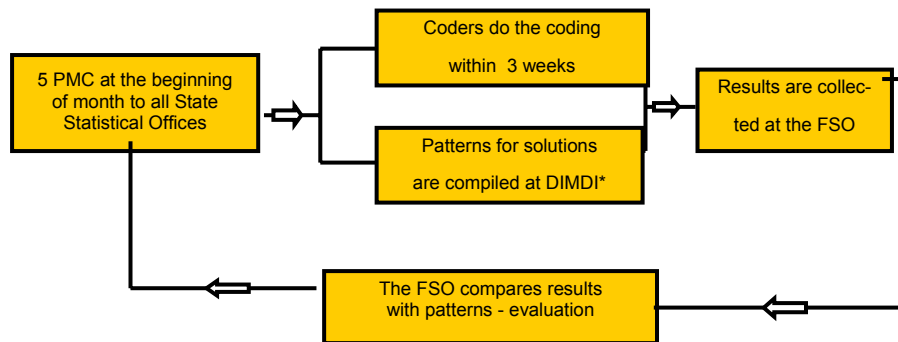
*DIMDI = *D*eutsches *I*nstitut für *M*edizinische *D*okumentation und *I*nformation (*German Institute for Medical Documentation and Information*)

Unlike double coding, this technique examines 5 post-mortem certificates only. At the same time, DIMDI has compiled patterns for possible solutions, which are assigned to all cases. The cycle described above recurs every month. The use of patterns makes it possible to define the size of discrepancies in terms of quality. Circular coding has been used since June 2004.

First results

As the two techniques have been used for a short time only, the results obtained so far are not representative. However, they clearly indicate that there are regional discrepancies in the coding of identical post-mortem certificates. Discrepancies have been identified on very different levels. Thus, it is true that discrepancies were discovered in circa 25 % of all doubly coded cases, but most of the discrepancies referred to the fourth digit of the ICD code. The need for action that can be derived from this finding consists in standardising and automating the data processing routines.

Conclusion

Using double and circular coding it is possible to identify discrepancies in terms of both quantity and quality. It means that concrete figures will be available to underpin former conjectures about possible regional discrepancies in the coding of causes of mortality. The evaluation of a representative set of coded post-mortem certificates will show the total extent of discrepancies and the level on which they occur.

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Publications

ICT in Germany, information and communication technologies 1995 - 2003; computers, Internet and more

Since 1995, modern information and communication technologies (ICT) have spread rapidly in Germany. Since then, the Federal Statistical Office has reported on the trends of selected areas in more or less regular intervals.

A cross-sectional publication that has now become available gives a comprehensive overview of the uses and implications of information and communication technologies. It describes important fields, such as

- the importance of ICT to the entire economy as an economic sector (including its implications on the labour market),

- the equipment of households and enterprises with facilities and appliances required for ICT,

- the use made by individuals and enterprises of these new technologies (including possible reasons for obstacles),

- the effects of ICT on the working and living conditions in the widest sense (e.g. from environmental aspects, concerning their safety and abuse).

For the sake of inter- and supranational comparability, the figures of economic statistics, closely following the classification used by the Organisation for Economic Cooperation and Development (OECD), are presented by both sector and product, if possible, on the most detailed level.

The publication informs readers of the developments after 1995 and provides an insight into the present state of the art. In does so, as a rule, by making reference to the developments occurring in the various fields as a whole. Each of the five chapters "Overall economic data", "Economic importance of the ICT sector", "Education and research", Application and use of ICT", and "Implications for the society, the business world and politicians" begins with a text contribution. It explains the most important results and developments, partly even at a regional level as well as in the form of international comparisons, the details of which are then presented in charts and tables. This volume not only provides an insight into the topics and issues of relevance to ICT, but it is, quasi, a kind of concise briefing about the economy and the society in Germany.

The publication is available online on the Internet under
http://www-ec.destatis.de/csp/shop/sfg/vollanzeige.csp?ID=1015030

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Events

13th Scientific Colloquium: Demographic Change – Implications for the Educational System

On 18 and 19 November 2004, the Federal Statistical Office in cooperation with the German Statistical Society hosted the 13th joint scientific colloquium on the subject "Demographic Change – Implications for the Educational System", which took place in the Gerhard Fürst hall of the Federal Statistical Office in Wiesbaden. Prof. Dr. Manfred Weiß from the German Institute for International Pedagogical Research (Deutsches Institut für Internationale Pädagogische Forschung) in Frankfurt on the Main, who gave an introduction into the subject, acted as the moderator of the colloquium.

The discussion on the subject was started by Olga Pötzsch and Bettina Sommer from the Federal Statistical Office, who presented models and projections of demographic development based on alternative assumptions. The following discussion shed light on the implications of demographic development for various fields in the educational sector. Prof. Dr. Horst Weishaupt from Wuppertal University (*Bergische Universität Wuppertal*) examined the changes in elementary and secondary education induced by the changed demographic situation. Apl. Prof. Dr. Manfred Nutz from Dortmund University (*Universität Dortmund*) highlighted the effects of population

development on university education and Prof. Dr. Dieter Timmermann from Bielefeld University (*Universität Bielefeld*) spoke about lifelong learning, advanced vocational training and migration. The subject of advanced vocational training was rounded out by Hartmut Buck from the Fraunhofer Institute for Industrial Engineering and Organisation in Stuttgart, who delivered a lecture on "Learning enterprises coping with the ageing of personnel".

The first day of the scientific colloquium was concluded by the ceremony of Gerhard Fürst Awards being bestowed by Mr. Hahlen, President of the Federal Statistical Office. This year awards were granted to a total of four scientific contributions closely related to official statistics. For more details on the Gerhard Fürst Award of the Federal Statistical Office, please, refer to the Internet under: http://www.destatis.de/allg/e/veroe/fue_txt.htm.

The second day began, as planned, with the presentation of three lectures dealing with the issues of educational resources. Heinz Werner Hetmeier from the Federal Statistical Office provided information about education expenditure in international comparison, taking into account the structure of population. Prof. Dr. Helmut Seitz from the Dresden Technical University (*Technische Universität Dresden*) highlighted the effects of the demographic change on the federal budget for education in the context of an empirical analysis. This thematic block was concluded by Thomas Baumann from the Federal Statistical Office, who presented model calculations on the changes in education expenditure by 2020, taking into account the development of population.

In conclusion, Prof. Dr. Erich Thies from the Bonn-based Conference of the Ministers for Education spoke about the answers that educational policies can give to face up to the challenges of demographic change.

For the summaries of all contributions, please, refer to the Internet pages of the scientific colloquiums under: http://kolloq.destatis.de/. From the beginning of 2005 you will find there the full text of the contributions as well, which you may download free of charge.

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Calendar of events

14th Scientific Colloquium: "New Ways of Statistical Reporting – Micro and Macro Data as a Basis for Socio-Economic Modelling"

On 28 and 29 April 2005, the Federal Statistical Office in cooperation with the German Statistical Society will host the 14th Joint Scientific Colloquium on the subject "New Ways of Statistical Reporting – Micro and Macro Data as a Basis for Socio-Economic Modelling", which will take place in the Gerhard Fürst hall of the Federal Statistical Office in Wiesbaden. Further information about this event can be found shortly on the Internet page of the scientific colloquiums under: http://kolloq.destatis.de/.

6th Scientific Meeting: "Data Fusion and Data Integration"

On 30 June and 1 July 2005, the Federal Statistical Office in cooperation with the Working Association of German Institutes for Market and Social Research (ASI) will host the 6th joint scientific meeting on the subject "Data Fusion and Data Integration", which will take place in the Gerhard Fürst hall of the Federal Statistical Office in Wiesbaden. Participants of the meeting will be personally invited by the organisers.

CALL FOR PAPERS to be submitted to the 4th users' conference "Research Based on the Microcensus: Analysis of the Social Structure and the Labour Market", which is to be held in autumn 2005 at ZUMA in Mannheim

Social and economic scientists can use the data of the microcensus as Scientific Use Files for empirical research starting from 1989 as the period of reference. At present, the data for 1989, 1991, 1993, 1995-2001 are available as Scientific Use Files (for more detailed information, please, refer to: http://www.gesis.org/en/social_monitoring/GML/news/index.htm und http://www.destatis.de/micro/e/micro_c1a.htm).

The conference addresses researchers who have already worked with the Scientific Use Files of the microcensus or who wish to use these figures in their future work. The users' conference is aimed at discussing the latest findings of research work done on the basis of these data and promoting the exchange of experience between the users themselves as well as with the statistical offices as the producers of the data.

You find the results and contributions of the past users' conferences under: http://www.gesis.org/Dauerbeobachtung/GML/Service/Veranstaltungen/index.htm.

Contributions may be submitted from all fields of work, dealing with the use of Scientific Use Files of the microcensus with the focus being laid on the following subjects:

- Development and characteristics of the labour market in East and West Germany
- Social status and economic situations of families and households
- Use of the supplementary and additional programmes (e.g. characteristics of migrants and commuters, health care insurance, retrospective questions)
- European and international comparisons
- Methodological aspects related to the secondary analysis of the microcensus

Interested persons are requested to send in abstracts of the planned contributions **by 28 February 2005**. The abstracts should not exceed two pages and contain the title of the contribution and data about the author. Abstracts can be submitted to ZUMA (address see below) by using the forms in WWW (see http://www.gesis.org/Dauerbeobachtung/GML/Service/Veranstaltungen/index.htm) by email or on diskettes.

The conference will be held and organised by the German Microdata Lab (ZUMA) and the Statistical Office, Division III C – Microcensus, Labour Force Sample Survey, Households and Families.

For possible questions to ZUMA, please, contact:

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