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METHODS – APPROACHES – DEVELOPMENTS
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The catchword

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Events

The catchword

Healthy Life Years – Assessing the quality and informative value of an EU structural indicator

Healthy Life Years (HLY), sometimes called "Disability Free Life Expectancy" (DFLE), is a composite indicator calculated on the basis of period life tables and the prevalence of long-term activity limitations as determined from the Global Activity Limitation Indicator (GALI). The method employed to calculate the indicator is based on a principle developed by Sullivan in the seventies which makes it possible to use different questions. Various health expectancies may then be computed, depending on the prevalence determined in each case. The indicator is to provide information about the lifespan spent without health limitations and, in contrast, that part of life which is characterised by activity limitations. The reason for designing the indicator was the constant rise in life expectancy observed in European countries for many years. The HLY is to show whether the additional years of life are healthy or non-healthy years, whether morbidity increases or decreases in old age, so it rates the quality of the years won. The Lisbon Strategy to increase participation in employment by those aged 55 to 64 added to the indicator's importance.

When one looks at HLY results at European level, it is striking that the results of the European member states differ strongly and that Germany's performance is below average: the figures recorded for HLY at birth as a European average were 61.7 years for men and 62.6 years for women in 2010. In Germany, the figure recorded for men in 2010 was 57.9 years and female newborns had a "healthy life expectancy" of 58.7 years. Eurostat's note to HLY results states that because of deviations, comparability is limited at European level. Differences in the results may be due to indicator methodology and to the collection of data required.

The components of the indicator are widely acknowledged both theoretically and practically. Life tables are a common instrument for determining the life expectancy of a population at a specific age. In health measurement, great significance has been attached also to subjective indicators for many years now. They "[...] are strong predicators of future morbidity and mortality [...] and by no means inferior in this respect to complex objective biomedical measuring procedures." (MUELLER et al. 2001, p. 16). However, there always is the danger that subjective health ratings are subject to bias. "Judgements about health may not be so dispassionate: in real life, people often have a personal stake in the estimation of their health. Bias refers to ratings that depart systematically from true values." (MCDOWELL 2006, p. 25). The coverage of prevalence plays an important part in assessing HLY because the results have much influence on the indicator. Their comparability at international level depends largely on the method used: "The general frameworks of the surveys used to derive prevalence also need to be the same to allow comparisons. The estimates of the prevalence of ill-health are very sensitive to the way the data are collected (e.g. face-to-face interview, telephone interview, postal questionnaire)." (JAGGER et al. 2006, p. 3). Since 2004, the prevalence component of the indicator, GALI, has been covered as part of the "Minimum European Health Modules" (MEHM) by the European household survey "Statistics on Income and Living Conditions" (EU-SILC). That survey, which in Germany is called "Leben in Europa", has been conducted decentrally by the statistical offices of the Länder since 2005. Participating households provide information voluntarily in written form (one household questionnaire per household and one individual questionnaire per person).

It is a problem that the way in which the survey is held differs in the European member states. For instance, it is conducted in the form of a Computer Assisted Telephone Interview (CATI), too. The Robert Koch Institute (RKI) also uses that method to collect information on activity limitations for the European Health Interview Survey (EHIS) in Germany. Since 2008, the questions have been the same as those of "Leben in Europa". The prevalence of persons without activity limitations was 67.8% for men and women of all age groups (EU-SILC 2009) compared with 69.5% (EHIS). That difference may be due to the survey methods used (questionnaire versus telephone), but

sampling errors, too, may cause deviations in the results. There may also be a bias on account of the fact that participation in the survey is voluntary and that people living in institutions like those providing nursing care for the elderly are not covered. This has an even stronger influence on the comparison of results by country because the percentages of people living in institutions may vary between countries as may the pattern of non-response: "Response patterns to the survey may differ between countries. In some countries non-respondents may mostly be the frail and ill, in others it may be the healthy who don't have time to answer surveys." (EHEMU 2007, p. 4).

EU-SILC is a rather new set of statistics. The question asked from 2005 to 2008, in the initial years after the introduction of EU-SILC, was changed twice in Germany so three different wordings were used. This makes comparisons difficult over that period. For instance, when the question had been modified from 2007 to 2008, the number of persons with "considerable activity limitation" rose by more than 2 percentage points. The number of those "without activity limitation" aged 75 to 84 years fell by about 8 percentage points. From 2007 to 2008 the HLY at birth went down by one year for women and three years for men. Since 2008, the question used for GALI in the survey "Leben in Europa" has remained unchanged. The German question is: "In welchem Ausmaß sind Sie durch Krankheit in Ihren alltäglichen Arbeiten dauerhaft eingeschränkt? Mit dauerhaft meinen wir seit mindestens einem halben Jahr? - To what extent have you been permanently limited in your daily work by illness? By permanently we mean for at least half a year?", the answer categories being "severely limited", "limited but not severely" and "not limited at all", and there is a non-response category: "don't know". This makes it possible to compare German time series results from that point in time. Since then, the percentage share of people who are severely limited in their activities has remained constant at about 10% (2008: 10.2%; 2009: 9.8%; 2010: 9.9%; 2011: 9.6%). The original English question is: "For at least the last 6 months have you been limited because of a health problem in activities people usually do?" (EHLEIS 2011, p. 3). One problem of the Healthy Life Years and the MEHM as a whole are the international differences in the wording of the GALI questions, which may be a cause of the differing results and thus complicate international comparisons. To solve these problems, a general standardisation of the wording is aimed for by Europe (see also the website of the European Joint Action "EHLEIS" www.eurohex.eu on the subject). The Eurostat working group on "Public Health Statistics" highlighted four elements of the question in accordance with the dimension of the indicator. It is about being limited (a) in activities people usually do (b) because of a health problem (c) for at least the last 6 months (d). The working group thought that in 2010 the wording was comparable with the original GALI question in 18 countries, partly comparable in 8 countries and not comparable at all in 5 countries. According to the working group, there are deviations in the German wording in 3 of the 4 elements: (a) The German version adds the word "permanently". (b) It addresses personal patterns of behaviour or "work". (c) The German questionnaire names illness as the underlying cause.

If the wording of the question was changed once more on the basis of the assessment, this would cause further breaks in the results and make time series comparisons more difficult again. The question is in how far this would be useful at all because it may well be doubted that the elements can at all be conveyed completely and without reservations by the various languages of the European member states. The impact of cultural differences may also contribute to a poor comparability of results. Cultural changes, for example in the concept of health or way of living, may also influence the indicator and thus wrongly indicate a change in the health status.

The strengths of the HLY indicator seem to be its simplicity and generally comprehensive informative value, but this may also be misleading. Assuming that there are activity limitations during large part of our lives, we must also ask what kind of limitations these are and whether their character differs internationally. The HLY indicator alone cannot provide this information as the question do not permit a clear allocation of causes. The degree of limitations would have to be covered with more detail to make the indicator more informative. In line with this, an expert group confirms that MEHM generally has a good informational value while GALI is regarded as the least reliable within MEHM (see COX et al. 2009, p. 58). It is also striking that 8.2% responded to

the general MEHM health question of 2010 that their health was bad or very bad while 10.2% stated that they had had severe activity limitations for at least 6 months. It seems short-sighted to ask only one single question, all the more as GALI is based on a very complex concept. The intention is to convey the four dimensions in one question, presupposing that the respondent will consider the question thoroughly and in detail. It cannot be assumed that all respondents understand the concept the way it is intended.

Although the Sullivan method is considered a time-tested and uncomplicated procedure to calculate health expectations, it has to be borne in mind that this method has not changed significantly since the seventies. There were suggestions in the nineties already to reconsider the methodology and develop a better suited indicator. Mathers and Robine still called it an "interim solution" ten years ago (see ROBINE et al. 1992, p. 12) and others also pointed out that the indicator needed to be developed further: "Further political demands about the quality of life of populations will come in the near future and policy makers will have more experience and higher expectations of such indicators. To be ready to meet these, the scientific community should work on second generation summary measures: true period indicators (using incidence in place of prevalence), less subjective (using measured in place of self-reported morbidity and disability and covering the whole population (rather than excluding those living in institutions such as long-term care establishments)." (JAGGER et al. 2008, p. 303).

At present, the HLY indicator varies considerably between European member states, a fact which cannot be explained only by health status differences actually existing among the populations. It is rather due to differences in the survey methods used by the individual countries, some of which have been presented in this article. It may at least be doubted that these differences can be eliminated in the end. It will not be possible to achieve perfect comparability of the results also on account of existing cultural differences. A solution to the problem may be a restriction to time series comparisons.

The poor comparability of the indicator is the more problematic as great significance is attached to HLY. A near choice would be to draw upon further indicators to assess the health situation in the countries and not rely upon a single one.

HLY seems to be disputable as an EU structural indicator, and this is the more so as one of its primary functions, indicating older people's ability to work, is being doubted: "In conclusion the lack of relationship between the employment rate of older people in the European countries and the healthy years of life in the decade prior to retirement suggests that increasing HLY will not necessarily increase the potential for reaching the Lisbon Strategy target." (JAGGER et al. 2009, p. 11).

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Methods of federal statistics – Further development

Update: Hedonic methods in official price statistics

Ten years ago, hedonic quality adjustment was introduced in price statistics of the Federal Statistical Office. This method is applied especially where the products monitored to calculate the inflation rate are subject to substantial changes within a short period.[1] The products for which hedonic quality adjustment is currently performed in official price statistics are desktop PCs, printers, hard disks, notebooks, processors, RAMs, servers and second-hand cars. The results of the adjustment are included in various price indices, with relevant weights. At present, these indices are the consumer price index, the producer price index for industrial products, import and export price indices and the wholesale price index. The table below shows the percentage share of products in the relevant overall index which are subject to hedonic quality adjustment.

Index	Percentage share of hedonics	Products
Consumer price index	0.836%	Desktop PC, notebook, second-hand car
Producer price index	1.133%	Desktop PC, printer, hard disk, notebook, processor, RAM, server
Import price index	6.235%	Desktop PC, printer, hard disk, notebook, processor, RAM, server
Export price index	4.250%	Desktop PC, printer, hard disk, notebook, processor, RAM, server
Wholesale price index	3.028%	Desktop PC, printer, hard disk, notebook, RAM

Quality adjustment is indispensable in the calculation of price indices because the goal in official price statistics is to measure price changes that are not influenced by qualitative or quantitative changes. If quality adjustment were not carried out, this would either mean that we assume that product changes are irrelevant from the purchaser's point of view or that price increases occurring in product replacements were due only, for example, to quality improvements. Both assumptions usually do not apply globally. Therefore it is necessary that qualitative improvements of the products are quantified in price measurement and that they are eliminated when calculating the price development.

In hedonic quality adjustment, regression analysis is used to measure – on the basis of representative selling prices observed for different product variants – what price consumers are willing to pay on average for specific quality characteristics. The "monetary value of the difference in quality" thus determined is taken into account in price measurement to make products of different quality comparable through calculation. Hedonic price measurement is not the only quality adjustment method possible – there are a number of other methods applied in German and European official statistics. The influence of hedonic quality adjustment on the results, however, is limited. For example, the average inflation rate – measured by the change in the consumer price index in Germany – was 1.6% from 2005 to 2010. If we generally assumed that the prices of technical goods had remained completely constant, the average inflation rate would have been 1.7%.

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[1] Methodological descriptions and specialised articles on hedonic quality adjustment for individual products are available at:
https://www.destatis.de/EN/FactsFigures/NationalEconomyEnvironment/Prices/HedonicMethodsOverview.html.

Until 2005, the prices of and information on products that are subject to hedonic quality adjustment were collected only centrally, that is, by the Federal Statistical Office.[1] In a test phase from 2005 to 2011, price and data collection for hedonic quality adjustment was done in a decentralised way for washing machines and TV sets, which, however, was not satisfactory from methodological aspects. It also turned out that it would have been too costly and time-consuming to additionally collect the product information everywhere[2]. Since 2011, the traditional method has been applied again, that is, decentralised price collection and replacement without hedonic quality adjustment methods applied.

At present, the introduction of price indices involving hedonic quality adjustment for smartphones and tablet PCs is being prepared. The question of whether hedonic quality adjustment is suitable for both products – smartphones and tablet PCs – has been checked on the basis of test data. Currently, reliable market data are used to develop a model specification that will be unchanged over the test period. Provisional estimates are already available and detailed documentation on the development and methodology will be compiled after the introduction in 2013.

In addition, a methodological project is planned for next year. Its purpose is to compare alternative methods with the method of estimation based on the ordinary least squares method (OLS) with subsequent double imputation, which is usually applied in the calculation of hedonic indices[3]. More concretely, the advantages of OLS regression such as relatively easy handling of the method and easy interpretation of the data, will be weighed against the disadvantages such as vulnerability to violation of assumptions caused by restrictive assumptions in parametric tests and will be compared with the advantages and disadvantages of less restrictive methods like non-parametric or semi-parametric estimation methods.

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Forthcoming changes to insolvency statistics

Insolvency statistics serve the purpose of collecting reliable and nationally comparable data on all insolvency proceedings. Thus, the statistics do not only provide information on the insolvency situation in the Federal Republic of Germany, but also are important as a lagging cyclical indicator. On 1 January 2013, the Insolvency Statistics Act (InsStatG) will enter into force, replacing the previous legal basis of insolvency statistics, i.e. Section 39 of the Act Introducing the Courts Constitution Act. The entry into force of the Insolvency Statistics Act will involve changes in the composition of the group of respondents, the list of variables and the deadlines for delivering insolvency statistics data.

Composition of the group of respondents

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[1]   See Linz, Dexheimer 2005: *Dezentrale hedonische Indizes in der Preisstatistik*, in: *Wirtschaft und Statistik* 3/2005, Wiesbaden, pp. 249-252.

[2] Linz 2009: Weighting of Outlet-types and Regions – a new Weighting System for the German Consumer Price Index, http://www.ottawagroup2009.ch/bfs/ottawagroup2009/en/index/05.parsys.63473.DownloadFile.tmp/linz.pdf and Linz, Dexheimer 2005: *Weiterentwicklung der Stichprobe der Verbraucherpreisstatistik*, in: *Wirtschaft und Statistik* 6/2005, Wiesbaden, pp. 582-586. https://www.destatis.de/DE/Publikationen/WirtschaftStatistik/Preise/StichprobeVerbraucherpreise62005.pdf?__blob=publicationFile.

[3] A more detailed presentation of common practice is provided in Linz, Eckert 2002: *Zur Einführung hedonischer Methoden in die Preisstatistik*, in: *Wirtschaft und Statistik* 10/2002, Wiesbaden, pp. 857-863, https://www.destatis.de/EN/FactsFigures/NationalEconomyEnvironment/Prices/HedonicPC.pdf?__blob=publicationFile.

In contrast to the previous legal basis, the Insolvency Statistics Act defines differing groups of respondents for the data that are collected for insolvency statistics. After the entry into force of InsStatG, the variables recorded every month for the statistics on filed insolvency proceedings will be delivered, as before, by the local courts. The data for the annual statistics on completed insolvency proceedings and the discharge of residual debt, however, will have to be provided by the insolvency administrators, insolvency monitors or trustees. Up until now, the local courts have also transmitted these data to the statistical offices. The reason behind the change in responsibilities is that the local courts cannot, or only with great difficulty, report specific variables to the statistical offices, which will be collected starting in 2013.

Extension of the list of variables

Following the entry into force of InsStatG, the list of variables covered will be extended as of 2013. The legislator expects this extended list of variables to provide additional information on the efficiency of the Insolvency Statute and the performance of the insolvency administration.

The monthly statistics will be extended by just one additional piece of information, namely the international dimension of insolvency proceedings. The annual statistics on completed insolvency proceedings and the discharge of residual debt, however, will contain several additional variables which have so far not been covered by the statistics. This includes, for example, information on the success of business restructuring and on how long a business continued to exist during the insolvency application proceedings or after insolvency proceedings were opened. Apart from that, future official statistics will comprise data on the reasons for not granting a discharge of residual debt and on advance distributions. Advance distributions are payments to the creditors, which insolvency administrators make well before the insolvency proceedings are completed. The aim of such advance distributions is that creditors need not wait until the end of the proceedings to have their claims satisfied.

Deadlines for data delivery

Another change resulting from the entry into force of InsStatG is that the deadlines for delivering data for the statistics on completed insolvency proceedings and the discharge of residual debt will be altered. The current rules state that the data have to be delivered to the statistical offices at the latest after the end of the second year following the year in which insolvency proceedings were opened. From 2013, the variables will have to be forwarded within four weeks after the end of the calendar year in which the proceedings were discontinued or terminated. This does not apply to data concerning decisions on the discharge of residual debt. These data will have to be provided four weeks after the end of the sixth year following the year in which proceedings were opened. If a granted discharge of residual debt is retracted, the insolvency administrator, insolvency monitor or trustee will have to report that information within four weeks after the end of the seventh year following the year in which proceedings were opened.

The changes in the deadlines for the statistics on completed insolvency proceedings and the discharge of residual debt are aimed at improving the quality of the data. The last years have shown that, in many cases, the local courts were not able to supply the required data at the scheduled time. This concerns, for example, information on the claims of the creditors, which are often still disputed two years after insolvency proceedings were opened. Proceeds, too, are often obtained only at a later stage of the proceedings. Due to the change in the delivery dates, the results of future statistics on completed insolvency proceedings and the discharge of residual debt will be available later than specified in the current legal basis.

The delivery dates for the statistics on filed insolvency proceedings will not change. As before, the data have to be forwarded to the statistical offices within two weeks after the end of the calendar month in which the respective court order was issued.

Publication of the results obtained on the basis of the Insolvency Statistics Act

Insolvency proceedings of, in particular, large businesses usually take several years. To ensure that informative data from the modified statistics on completed insolvency proceedings and the

discharge of residual debt are available as soon as possible, Section 6 of InsStatG lays down that the insolvency administrators, insolvency monitors and trustees are obliged to provide information on insolvency proceedings opened after 31 December 2008. If insolvency proceedings were discontinued or terminated or notification of the discharge of residual debt was issued after 1 January 2009 but prior to the entry into force of InsStatG on 1 January 2013, the data have to be delivered within four months after the Act has entered into force. This will make it possible to publish first results from the modified statistics on completed insolvency proceedings and the discharge of residual debt already in 2014. The results of the statistics on filed insolvency proceedings are to be published, as before, at the latest two and a half months after the end of the relevant reporting month.

Outlook

In the middle of this July, the Federal Government presented draft legislation to shorten the proceedings regarding the discharge of residual debt and to strengthen creditors' rights. The draft legislation is part of a three-stage reform of insolvency law, which is to be completed by a readjustment of the group insolvency rules. If the Act on shortening the proceedings regarding the discharge of residual debt and on strengthening creditors' rights enters into force next year as planned, it will bring about further changes to insolvency statistics. The same holds for the reform of group insolvency that is scheduled for a later time.

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"Survey for special purposes" on income and expenditure of child day care centres operated by non-government providers

Project background and purpose

In 2010, 3.1 million girls and boys in Germany attended one of the 51,000 child day care centres, in which 400,000 nursery school teachers did educational work. The term "child day care centres" comprises crèches, nursery schools, day care centres for school children and institutions for children of all age groups. However, the boundaries between the types of institution are becoming more and more permeable. Due to the declining birth rate, many nursery schools now accept children from the age of 2 years. The children's age ranges from a few weeks in crèches to 14 years in day care centres for school children. The attendance rate among 4 and 5 year olds is over 95% all over Germany.

Nearly 2 million children (64%) attended one of the 34,000 day care centres operated by non-government providers. Non-government providers are considered to be all non-public providers. As regards child day care centres, such providers usually are charitable associations, youth organisations, religious communities, enterprises or other legal associations such as sports clubs. The situation is characterised by a high level of heterogeneity and plurality regarding both providers and educational concepts. The quantitative importance of child day care centres operated by non-government providers has markedly increased in the last few years. Despite these developments, the information available on the finances of child day care centres operated by non-government providers was either incomplete or obsolete. However, the statistical offices urgently need reliable data on the expenditure and income of the institutions in the educational sector. Due to Regulation (EC) No 452/2008 of the European Parliament and of the Council of 23 April 2008 concerning the production and development of statistics on education and lifelong learning, the Federal Republic of Germany is obliged to report annual data on the educational institutions operated by public and non-government providers.

The Federal Ministry of Education and Research therefore asked the Federal Statistical Office to conduct a survey on income and expenditure of non-government child day care centres. This is to provide a data basis that can be used to develop a solid procedure for annual updating which meets the demanding requirements of international organisations. The results will also be included in the national budget for education, research and science and in the national Education Finance Report. The results will thus be available to all actors operating in the educational sector either in practical, administrative or political terms and to the general public interested in issues of education policy. The survey was conducted by the Federal Statistical Office in co-operation with five Land statistical offices. The legal basis of the survey was Article 7 of the Federal Statistics Law. In a survey for special purposes according to Article 7, a maximum of 20,000 respondents can be covered. Participation is voluntary. To achieve maximum acceptance and, consequently, high response rates when conducting the survey, various provider associations in the field of child day care centres had been informed in advance.

Survey concept

According to the survey concept, child day care centres operated by non-government providers all over Germany should be covered. Generally, these are crèches, nursery schools and day care centres for school children or institutions for children of all age groups which have an operating licence according to Section 45 of the Social Code VIII (SGB VIII) or a comparable licence. In these centres, children are admitted for full days or part of the day and taken care of by relevant staff in terms of education and care. The survey focused on the institutions' income and expenditure in 2010. For data editing, extrapolation and updating of the results, information on the institutions, such as provider, staff and number of children by age group and care hours, was collected, too. On the whole, care was taken to make the questionnaire short and well structured, so that the burden on the selected day care centres could be kept to a minimum. For legal reasons, it was not possible in the survey to use the address lists available from official statistics of public children and youth welfare. Therefore, the Federal Statistical Office compiled public lists of addresses of child day care centres for all Länder, after requesting them from the relevant Land statistical offices, ministries and authorities. As the addresses came from different data sources, the lists had to be processed and standardised. Some of the lists still contained public day care centres. Information on the provider, the staff and the children taken care of was not available everywhere. Also, up-to-dateness and completeness of the lists of addresses were not always guaranteed, which however had to be accepted because of the framework conditions. A total of 28,048 addresses of child day care centres operated by non-government providers were compiled in this way. In the statistics of public children and youth welfare, about 33,700 non-government child day care centres are shown for reference year 2010. The sample size of the survey was fixed at 12,000 institutions. Using data from the statistics of public children and youth welfare, a sample design was set up for the individual Länder. Small Länder with fewer non-government day care centres were included overproportionally. This was to ensure that sufficient numbers of cases are available in every Land, which contributes to the reliability of the survey results.

Extrapolation method

To extrapolate the raw data of the survey to the population of child day care centres operated by non-government providers, the following steps were required. First, the data on the different numbers of hours children are taken care of in a day care centre are taken to calculate a full-time care equivalent. The information on the contractually agreed care hours was covered in three size classes in the survey. Using averages of the daily care hours from official statistics of public children and youth welfare, it was then weighted and put in relation to 8 care hours per day or 40 hours per week. Also, reports from day care centres with children in several age groups were divided analytically. This was methodologically useful because the child-staff ratio and, consequently, the expenditure are influenced by the age of the children taken care of. Also, a distinction by age group and type of institution is required for national and international monetary reporting on education. Also, it was planned to extrapolate the data taking account of the children by age group. The reports were divided using empirical weighting factors obtained

from information on the use of resources per capita as determined in the survey. Reports referring to children in only one age group were taken as a reference value. The figures show that taking care of children under three years requires one and a half times the resources needed for taking care of a child aged between three and enrolment in primary school in an institution similar to a nursery school. Taking care of school children up to under 14 years, however, requires four fifth of the resources needed for a nursery school place.

Extrapolation of the survey results was based on a method where many benchmarks are included as extrapolation variables. The information on those benchmarks is obtained from the official statistics of public children and youth welfare for reference year 2010. The anonymised individual data were requested through the research data centre of the Land of Thüringen. This provided a reliable data source for determining the benchmarks in the desired delimitation. To obtain full-time care equivalents at the level of individual children, the same weights were used as for the survey data. The goal of extrapolation was to draw conclusions from the survey parameters for the parameters of the population, using suitable estimators. The regression estimator used is a linear estimator and one of its characteristics is that the benchmarks, which are used to extrapolate the survey data, are met. This approach was applied for the extrapolation of the number of educational staff and the total number of children taken care of (always in full-time equivalents). Also, the relative standard error was calculated to indicate the random error.

A total of 1,797 usable reports with a number of children of 124,564 (headcount) or 106,002 (full-time care equivalents) were received and were available for extrapolation. The basis for extrapolation was benchmarks determined from the official statistics of public children and youth welfare. They included the number of children in full-time care equivalents by three age groups (1,631,322) and a total of 212,790 full-time educational staff. The benchmarks were calculated in the following groups (number of values in brackets):

- number of children in full-time care equivalents by age group and Land group (9),

- number of children in full-time care equivalents by age group and provider (18),

- educational staff in full-time equivalents by Land group (3),

- educational staff in full-time equivalents by provider (6).

The extrapolations were carried out in SAS, using the CLAN macro package.

Updating procedure

Data to be supplied for international education statistics, the education budget and the Education Finance Report have to be compiled every year. As the "survey for special purposes" cannot be conducted every year among child day care centres operated by non-government providers, an updating procedure has been developed on the basis of the data material available. What is used for the procedure is the numbers of children of the current reference year as a quantitative framework as well as updated expenditure rates that have been determined in the survey of income and expenditure of child day care centres operated by non-government providers for 2010. A distinction is made by type of institution (crèche, nursery school and day care centre for school children) and by Land group (non-city Länder West, non-city Länder East and city states). It consists of three steps and is briefly outlined below.

Step 1:

First, four ratios are determined for the reference year on the basis of the survey:

- PAP_{ig} = staff expenditure per educational staff by full-time equivalents per type of institution i and Land group g

- SAS_{ig} = material expenditure per child (headcount) per type of institution i and Land group g

- IAS_{ig} = investments per child (headcount) per type of institution i and Land group g

- ISS_i = investments (funded from special programmes) per child per type of institution i

Step 2:

To estimate changes that have occurred in the meantime, auxiliary variables are used, i.e. results of national accounts on the price development of the gross domestic product and of public finance statistics on special programme funds used:

- DEF_j = rate of change of the deflator of the gross domestic product in year j

- ISS_j = rate of change of special programme funds used in year j

The ratios of the survey year are then multiplied by the auxiliary variables for survey year j to obtain ratios for reference year j in the delimitation by type of institution and Land group:

- $PAP_{igj} = PAP_{ig} \times DEF_j$

- $SAS_{igj} = SAS_{ig} \times DEFj$

- $IAS_{igj} = IAS_{ig} \times DEFj$

- $ISS_{ij} = ISS_i \times ISS_j$

Step 3:

In the next step, the updated expenditure rates are multiplied by the number of children and of educational staff, obtained on the basis of the statistics of public children and youth welfare for the reference year and broken down by type of institution and Land group. In this way, the expenditure of child day care centres operated by non-government providers are updated, taking account of the development of the numbers of children and of staff. By adding up the individual items, total expenditure for non-government child day care centres in reference year j is obtained. Children under 3 years who already attend a nursery school are multiplied by the rates for crèche children.

- $GA_{igj} = (PAP_{igj} \times P_{igj}) + (SAS_{igj} \times S_{ij}) + (IAS_{igj} \times S_{igj}) + (ISS_{ij} \times S_{igj})$

With:

- P_{igj} = educational staff in full-time equivalents by type of institution i and Land group g in reference year j

- S_{ijg} = number of children by type of institution i and Land group g in reference year j

- GA_{ij} = total expenditure in type of institution i in reference year j

It should be mentioned that this is a rough updating procedure. Especially investments are made discontinuously, but the real development of staff and material expenditure, too, can differ from the updated values, which is due to education-specific effects. It would therefore be necessary to check and adjust the basic data used for updating at two to four-year intervals.

Results

The survey among child day care centres operated by non-government providers produces information at various levels of detail on the availability and use of resources. At an aggregated level, it shows that a total 12.6 billion euros was spent in 2010 in non-government child day care centres on the care of almost two million children. Staff remuneration accounts for 77% of the total expenditure. Staff expenditure comprises not only the expenditure on educational staff but also the salaries of persons employed in the housekeeping and technical areas and of staff released for management and administrative functions. The proportion of current material expenditure in total expenditure is 16% and that of total expenditure on investments is 6%. More than half of investment expenditure was funded on the basis of special political programmes, most of which are in the context of general increases in capacity. This distribution over the three

types of expenditure is typical of the service sector in general and of educational institutions in particular. Staff expenditure is the main item here. For Germany, 74% of the funds available for the expenditure come from public sources, 26% from private sources. An average of about 6,400 euros per child was spent at child day care centres operated by non-government providers in 2010. The level of expenditure per child at non-government day care centres differed, depending on the age group. 9,900 euros were spent on children under 3 years in 2010, 6,100 euros on children from 3 years to school enrolment and 4,500 euros on school children under 14 years. Differences in funds available are mainly due to varying staffing ratios and care hours.

More detailed results on child day care centres operated by non-government providers are contained in the special report *Finanzen der Kindertageseinrichtungen in freier Trägerschaft*. It is available for download at www.destatis.de.

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Events

2012 Statistical Week in Vienna

The 2012 Statistical Week was held in Vienna from 18 to 21 September. This time, the German Statistical Society and the Union of German Municipal Statisticians organised the conference together with the Austrian Statistical Society. The German Association for Demography and the Italian Statistical Society had sections of their own. High-level speakers had been recruited for the programme with the main issues of education, environmental statistics and statistics of high-frequency data. Among others, Mr. Pieter Everaers (Head of Eurostat Directorate A "Cooperation in the European Statistical System; international cooperation; resources") and Mr. Aurel Schubert (Director General Statistics at the European Central Bank) spoke about quality requirements and the political relevance of statistics.

Another paper from the European perspective was provided by Mr. Gorja Bartsch (Statistical Officer for regional statistics at Eurostat), who presented the new support policy of the Directorate-General for Regional and Urban Policy on the basis of small-area data. The Regional Statistics Section attracted great interest, especially when the evaluation methods of the 2011 Census were presented. Another well-attended event was the Business and Market Statistics Section, with focuses on labour market reporting and the representation of research and development. The programme was divided into a total of 22 sections, which were held in different lecture halls between the plenary presentations. Traditionally, there has been a wide range of topics at the Statistical Week, ranging from official statistics and practical analysis to fundamental research. The international character of the event was reflected by the audience: participants came from all over Europe, Egypt, the USA and Australia.

For the second time since its introduction in 2011, a Heinz-Grohmann Lecture was held. This plenary speech is given by the Society to honour scientists who, in their research, link scientific theory to practical application. The topics are selected especially with a view to their economic or societal relevance. The award is named after Prof. Dr. Heinz Grohmann, who is Honorary Chairman of the German Statistical Society and has rendered outstanding services to linking theory to practice. This year, the lecture was held by Prof. Dr. Wolfgang Lutz (Vienna University of

Economics and Business) on his research on cohort demography. Under the title "Modeling and Forecasting Social Change with Demographic Methods", he described how societies and societal values change when a cohort is replaced by a subsequent one.

Traditionally, during the Statistical Week, the German Statistical Society has also held its board meeting and its annual meeting. This time, a new board was elected: Prof. Dr. Schmid (European University Viadrina, Frankfurt/Oder) takes over the chairmanship from Prof. Dr. Seidel (Helmut Schmidt University, Hamburg). Other members of the board are: Director at the Federal Statistical Office Jürgen Chlumsky, Prof. Dr. Waltraud Kahle (Otto von Guerike University, Magdeburg), Prof. Dr. Walter Krämer (TU Dortmund University), Prof. Dr. Karl Mosler (University of Cologne), Prof. Dr. Yarema Okhrin (University of Augsburg) and Prof. Axel Werwatz, Ph. D. (TU Berlin University), board member Eckart Methner (Land Office for Statistics and Communication Technology of Niedersachsen, Hanover) and Dr. Ralph Wiechers (German Engineering Federation, Frankfurt/Main). At the annual meeting, the board announced that 2013 had been declared International Year of Statistics. In 2013, the Statistical Week will be held in Berlin, with focuses on "labour market and social security", "quantile regression" and "statistical analysis of high-dimensional data". On the occasion of the Statistical Week, a special event will take place on "Open Data". In 2014, the Statistical Week will be organised in Hanover, with an expected focus on the "census", in 2015 in Hamburg and in 2016 in Augsburg.

For the Year of Statistics, the German Statistical Society is currently preparing the website www.statistik2013.de. Prof. Dr. Münnich (Trier University), Prof. Dr. Rendtel (Freie Universität Berlin) and Prof. Dr. Rässler (Bamberg University) will offer a ten-day Summer School on "GDP and beyond" in 2013.

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Federal Statistical Office presents the 2012 Gerhard Fürst Awards

The Federal Statistical Office has presented the Gerhard Fürst Awards for outstanding scientific projects for the 14th time. Two further papers were each awarded a Prize for Young Researchers.

In the category of doctoral theses, the Federal Statistical Office's 2012 Gerhard Fürst Award was given to Dr. Steffen Schindler for his doctoral thesis on "Pathways to the Higher Education Entrance Qualification – Pathways into Higher Education? A Study of Social Inclusion and Diversion Processes". The award-winning doctoral thesis was supervised by Prof. Dr. Walter Müller at Mannheim University. The award money is 5,000 euros.

In the "master's/bachelor's dissertations" category, the bachelor's dissertation of Saskia Pohl entitled "Statistical Analysis of the Impact of Climate-relevant Factors on the Development of Ozone Concentrations at Measuring Stations in Sachsen-Anhalt" was rated as excellent and honoured with the 2012 Gerhard Fürst Award. The award money is 2,500 euros. The bachelor's dissertation was supervised by Professor Dr. Jürgen Köhler at Magdeburg-Stendal University.

Two other junior academics each received a Prize for Young Researchers. First, Dr. Stephanie Eckman was honoured for her doctoral thesis on "Errors in Housing Unit Frames and Their Effects on Survey Estimates", which was prepared at the University of Maryland under the supervision of Professor Dr. Frauke Kreuter. The prize in the "doctoral theses" category comes with 2,000 euros. Second, the Federal Statistical Office awarded a prize to Hauke Feil for his bachelor's dissertation entitled "Post-communism, Wealth of Resources and Authoritarianism: A Possible Correlation? The Resource Curse and its Consequences for the Democratic Structures of the Formerly Communist States in Europe and Asia", which was written at Bremen University and supervised

by university lecturer Dr. Heiko Pleines. The prize in the "master's/bachelor's dissertations" category carries a value of 1,000 euros.

The Federal Statistical Office gives the awards on the basis of recommendations by an independent expert jury. The awards were presented by Vice-President Sarreither at the 21st Scientific Colloquium on "Statistics in the Light of the European Banking and Debt Crisis", which was held by the Federal Statistical Office together with the German Statistical Society in Wiesbaden on 22 and 23 November 2012 (see next article).

The laudatory speeches on the award-winning papers were delivered by Prof. Dr. Ullrich Heilemann (Leipzig University), the chairman of the expert jury. The speeches will be published in the December issue of the periodical "Wirtschaft und Statistik". Early in 2013, the award winners will publish detailed articles on their papers in that periodical.

Short versions of the award-winning papers and more detailed information on the presentation of the Gerhard Fürst Awards can be found on the Federal Statistical Office's website at www.destatis.de. There, you will also find further information on the Colloquium's programme and abstracts of the contributions.

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21st Scientific Colloquium held on "Statistics in the Light of the European Banking and Debt Crisis"

On 22 and 23 November 2012, the 21st Scientific Colloquium was held on "Statistics in the Light of the European Banking and Debt Crisis" at the Wiesbaden Museum. Some 200 participants attended the conference that was organised by the Federal Statistical Office together with the German Statistical Society (DStatG).

"Never in the 21-year history of colloquia has a topic been so politically sensitive. The European banking and debt crisis is on the daily agenda of the governments and dominates the news almost every day," Vice-President Dieter Sarreither pointed out in his welcome address.

It was very important for the Federal Statistical Office and the German Statistical Society as hosts of the colloquium that the papers presented at, and the institutions participating in, the conference should cover a mix of academic economic research, applied research, politics and official statistics. Apart from renowned researchers from universities and economic research institutes, talks were given in particular by scientists from the Bundesbank, ECB (European Central Bank), the Federal Ministry of Finance, Eurostat and the Federal Statistical Office. Professor Dr. Ullrich Heilemann of Leipzig University moderated the colloquium.

The conference documentation comprising the accompanying presentations and the programme, which contains abstracts of the contributions, is available from the website of the Federal Statistical Office.

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