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European Data Watch

This section offers descriptions as well as discussions of data sources that are of interest to social scientists engaged in empirical research or teaching courses that include empirical investigations performed by students. The purpose is to describe the information in the data source, to give examples of questions tackled with the data and to tell how to access the data for research and teaching. We focus on data from German speaking countries that allow international comparative research. While most of the data are at the micro level (individuals, households, or firms), more aggregate data and meta data (for regions, industries, or nations) are included as well. Suggestions for data sources to be described in future columns (or comments on past columns) should be send to: Joachim Wagner, Leuphana University of Lueneburg, Institute of Economics, Campus 4.210, 21332 Lueneburg, Germany, or e-mailed to wagner@leuphana.de. Past “European Data Watch” articles can be downloaded free of charge from the homepage of the German Council for Social and Economic Data (RatSWD) at: http://www.ratswd.de.

The GESIS Microcensus-Trendfile – A New Database for the Study of Social Change

By Andrea Lengerer, Julia H. Schroedter, Mara Boehle, and Christof Wolf

1. Introduction

The description and explanation of social change is a core task of the social sciences. The fulfillment of this task requires data that are available and comparable over a long period of time. For Germany, respective studies are thus often based on the German General Social Survey (ALLBUS) or the German Socio-Economic Panel Study (SOEP), which have been collected on a regular basis since the beginning of the 1980s. The German Microcensus is the only dataset in Germany that goes back further in time, covers a similar broad range of topics and is representative for the whole population. As part of the official statistics it has been conducted since 1957 for West Germany and since 1991 for East Germany.
However, the Microcensus is still relatively rarely used for analyses of social change. On the one hand, older micro data were prepared retrospectively and made accessible to scientific usage only a few years ago. On the other hand, single datasets of the Microcensus are not directly comparable. Therefore, it is very costly and time-consuming for researchers to analyze them over time.

Against this background, the German Microdata Lab at GESIS (Lüttinger et al., 2004) has carried out a project of harmonizing and cumulating the Microcensus. With financial support from the Leibniz Association a total of 30 surveys of the Microcensus from 1962 to 2006 were made comparable and merged into one dataset. This dataset, the GESIS Microcensus-Trendfile, covers about 150 variables from different ranges of topics and has altogether nearly 15 million cases.

The GESIS Microcensus-Trendfile is introduced in this paper. It is structured as follows: In Section 2 we discuss the strategies and problems of harmonizing the German Microcensus. In Section 3 we give an overview of the content of the new dataset, followed by information on services for users provided by GESIS (Section 4). Data access is described in Section 5. After a brief introduction of analyzing social change with repeated cross-sectional data, we provide an insight into the analytical capability of the Trendfile by example (Section 6). The paper ends with a brief outlook on future work (Section 7).

2. Strategies and Problems of Harmonizing the German Microcensus

The Trendfile is composed of data from the German Microcensus covering a period of over 40 years. Data from 1973 onwards come from the respective Scientific Use Files (SUF) provided by the Federal Statistical Office and the statistical offices of the Länder. These files are reasonably anonymized 70 percent subsamples of the original Microcensuses and are available for selected years from 1973 onwards and for all years beginning in 1995. Data from the 1960s are available at GESIS only (see Section 5). Those data cover the full one percent sample, but do not contain all variables of the original datasets.

Altogether, a total of 30 datasets from 1962 to 2006 are incorporated into the Trendfile (see Table 1). From these initial datasets, the most important variables are selected, converted into a comparable form and then cumulated into a single data file.

Although the Microcensus’ questionnaire is fairly stable, not all variables are surveyed continuously in the same way. There are substantial differences between years, mostly caused by the commencement of a new Microcensus Law.

1 Apart from the authors Tobias Hubert was involved in the project.
defining the content of the survey. Some variables are available only for certain years, from a certain year onwards or up to a certain year. Even if the same variable is contained in a dataset, the wording of the questions may vary. In other cases, similar variables have different values and/or values with different meanings. Furthermore, the mode of data collection varies and the response is not always, though mostly, mandatory. Apart from that, the variables differ formally between the years. They have different names, labels and codes – whether their meaning has changed or not.

Table 1

**Years and number of cases incorporated into the GESIS Microcensus-Trendfile (resulting in a total number of 14,909,706 cases)**

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Year</th>
<th>N</th>
<th>Year</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>576,694</td>
<td>1982</td>
<td>406,779</td>
<td>1999</td>
<td>506,897</td>
</tr>
<tr>
<td>1965</td>
<td>582,482</td>
<td>1985</td>
<td>392,851</td>
<td>2000</td>
<td>503,185</td>
</tr>
<tr>
<td>1966</td>
<td>590,854</td>
<td>1987</td>
<td>389,757</td>
<td>2001</td>
<td>503,961</td>
</tr>
<tr>
<td>1967</td>
<td>589,601</td>
<td>1989</td>
<td>385,831</td>
<td>2002</td>
<td>503,075</td>
</tr>
<tr>
<td>1969</td>
<td>599,673</td>
<td>1993</td>
<td>513,830</td>
<td>2004</td>
<td>499,849</td>
</tr>
<tr>
<td>1976</td>
<td>415,322</td>
<td>1996</td>
<td>509,243</td>
<td>2006</td>
<td>496,815</td>
</tr>
</tbody>
</table>

\[a\] After deleting duplicated cases (see below) and cases with information on second employment in the GESIS-Files 1962 to 1969 and in the SUFs 1973, 1976, 1982, 1985 and 1987.

Given this situation, the comparability of variables is achieved afterwards by *output harmonization*. On the one hand, formal harmonization is done by assigning consistent names, labels and codes to sufficiently similar variables or values. This includes the consistent coding of missing values. Where the initial variables vary substantially in their categories, they are transformed into a uniform scheme, usually by merging some of the categories. To minimize the concomitant loss of information, as few categories as possible are merged, meaning that variables are reduced to their highest common denominator. Moreover, for some variables different versions are made available: A fully harmonized version, which is comparable across all years, and a version that offers more differentiation but is merely comparable across certain years.

The described procedure is illustrated by an example of the occupational qualification, which has been surveyed in the Microcensus regularly since 1976: Up to and including 1995 the completion of apprenticeship (*Lehrausbildung*) and of training on the job (*Anlernausbildung*) were gathered in one cate-
category. From 1996 onwards they were gathered in different categories, but training on the job was combined with vocational traineeship (berufliches Praktikum), which had been a separate category before. Since 1999, an additional category measures the completion of a job preparation year (Berufsvorbereitungsjahr). Harmonization across all years is achieved by merging the above-mentioned categories (variable bab_1, see Table 2).

However, because neither vocational traineeship nor job preparation year have a status equal to an apprenticeship, and training on the job is no longer equal to an apprenticeship since the commencement of the Vocational Training Act (Berufsbildungsgesetz) of 1969, this is a quite heterogeneous category. For this reason apprenticeship is reported separately in a second harmonized variable (variable bab_2, see Table 2). A separate category for the degree of vocational school (Fachschulabschluss) of the former GDR, which was previously grouped with master craftsman and technician degree, is included as well. In return, this variable is only available from 1996 onwards.

Table 2

<table>
<thead>
<tr>
<th>Information on the occupational (vocational and tertiary) qualification in the GESIS Microcensus-Trendfile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976 to 2006</td>
</tr>
<tr>
<td>Occupational qualification (bab_1)</td>
</tr>
<tr>
<td>-2 not applicable</td>
</tr>
<tr>
<td>-1 no answer</td>
</tr>
<tr>
<td>0 no qualification</td>
</tr>
<tr>
<td>1 vocational training (Ausbildungsabschluss)</td>
</tr>
<tr>
<td>2 master craftsman/technician degree</td>
</tr>
<tr>
<td>3 degree of a university of applied sciences</td>
</tr>
<tr>
<td>4 degree of a university</td>
</tr>
<tr>
<td>6 degree of a university</td>
</tr>
</tbody>
</table>

Source: Lengerer et al. 2010: Chap. F.

The decisions made during the harmonization process were guided by the aim to achieve the highest level of comparability. However, often there will be
more than one way to harmonize a variable. Therefore, it is of utmost importance to document the harmonization process in detail. For the Trendfile we tried to achieve maximum transparency by explicating all steps we took during the harmonization process in a user handbook. Thereby researchers can retrace in detail which categories of a particular initial variable are assigned to which categories of the harmonized target variable, which considerations were important for that decision and what kind of particularities still have to be taken into account (see Section 4). Differences between the initial variables that cannot be harmonized ex-post are documented as well. In the example mentioned, the question wording and the mode of response have changed: The question up to and including 1995 is about the last occupational qualification and from 1996 on about the highest occupational qualification. Furthermore, all questions on education are mandatory only up to, and including 1989, and from 2005 onwards. In the years in-between, those questions are voluntary either for all respondents (1991 to 1995) or for all respondents aged 51 and older (1996 to 2004). Whether analyses are made more difficult by such differences has to be considered in each particular case based on the provided documentation.

Beside these more general problems of output harmonization, special problems occur in regard to the Microcensus. One is related to the weighting procedure, which differs in content, but even more so in the way it was implemented in the different datasets. In the Microcensus SUFs from 1989 onwards, weighting factors are included, which allow an adjustment to the reference values of the population update (Bevölkerungsfortschreibung) in a simple way. In the older Microcensuses, this adjustment is more complex; it is achieved by means of randomly duplicating and deleting cases. Cases are duplicated if their characteristics are underrepresented in the sample (compared to the reference distribution of the population update), resulting in a dataset containing several identical cases. Other cases with characteristics that are overrepresented in the sample are marked for deletion. In order to harmonize the weighting procedure, the duplicated cases are not transferred to the cumulated file. Instead, the original surveyed cases receive a weight that corresponds to their factor of duplication. Cases marked for deletion remain in the cumulated file and receive a weight of zero.

Another problem, which has to be taken into account when analyzing the Trendfile, is multiple counting. Although the Microcensus is – in principle – a repeated cross-section, the selected households remain in the sample for four years. A congruent mapping of household structures in the data is also ensured by this procedure.

In the Microcensus GESIS-Files of the 1960s the numerical weighting has to remain incomplete. The duplicated cases are not marked reliably and cannot be identified retrospectively without a doubt. Similar problems occur within the Microcensus SUF 1980 (see Lengerer et al. 2010: Chap. B).
consecutive years.\textsuperscript{4} Each year, a quarter of the households are omitted and replaced by new households. Depending on the observed period of time, different numbers of households are included in the cumulated dataset several times. This is irrelevant for descriptive purposes, in so far as the samples are representative for each year. In analyses, however, the assumption of independent samples is violated. One should examine here whether the results remain stable when using data with a minimum interval of four years.

3. Content of the GESIS Microcensus-Trendfile – Topics and Variables

The Microcensus-Trendfile provides variables which cover a wide array of topics. The main subjects are: regional information, employment, education, income, household and family, nationality and migration, and health. These subjects are supplemented by information on standard variables including the most essential demographic characteristics as well as a topical block on methodological items (see Table 3). The variables mainly provide information on individuals, but also on larger units such as households or families.

The main topics are described in more detail below, following the data documentation that is available online (see Section 4). The methodological part contains variables on weighting and projection as well as some features on characteristics of the sample (e.g. subsample, mode of survey). The standard variables comprise identifiers (e.g. number of person and household, year of survey), different population concepts, and demographical information (age, sex, marital status). The regional section contains some broader information on the place of residence of the interviewees (e.g. federal state, size of the municipality), and the section on employment offers, amongst others, information on profession, type of labor contract, number of hours worked regularly and occupational prestige (measured by the magnitude prestige scale). Variables on education are only available since 1976. This section comprises variables on educational degrees, but also information on participation in educational institutions such as kindergarten, school or further education. Moreover, two well-established social scientific classifications on education are provided (CASMIN and ISCED). The section on income provides variables on individual and household income, main means of subsistence as well as information on equivalent income (in real terms) and on relative income position. Position within the household and the family, number of children, and different forms of household arrangements and partnerships are among the variables in the section.

\textsuperscript{4} Strictly speaking the selected districts remain in the sample for four consecutive years as the Microcensus is a cluster sample of areas. If a household moves away from the district, it will not be pursued. Instead the household that has moved in will be surveyed.
on household and family. The topics nationality and migration comprises of information on citizenship, year of migration and for older data on displacement status. Variables on health, which are available for a long time span, contain information on the health insurance. Further variables like smoking, body weight and height, dependency on care, disease or disability are only available for a few years since 1989.

**Table 3**

**Overview of main subjects in the GESIS Microcensus-Trendfile**

<table>
<thead>
<tr>
<th>Main subject</th>
<th>Exemplary variables (selection)</th>
<th>Available since</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methodological variables</td>
<td>Variables on weighting and projection, Mode of survey</td>
<td>1962, 1996</td>
</tr>
<tr>
<td>Standard variables</td>
<td>Number of person in household, Population at main place of residence, Year of birth, Sex</td>
<td>1962, 1962, 1962</td>
</tr>
<tr>
<td>Regional information</td>
<td>Federal state, Size of the municipality</td>
<td>1962, 1962</td>
</tr>
<tr>
<td>Education</td>
<td>Type of currently attended school, Level of occupational qualification</td>
<td>1976, 1976</td>
</tr>
<tr>
<td>Income</td>
<td>Net income of the household, Main means of subsistence, Net equivalent income (in real terms), Income position</td>
<td>1962, 1962, 1962</td>
</tr>
<tr>
<td>Household and family</td>
<td>Position within the household, Type of family, Non-marital cohabitation</td>
<td>1962, 1966, 1996a</td>
</tr>
<tr>
<td>Nationality and migration</td>
<td>Citizenship, Year of migration of foreigners</td>
<td>1962, 1976</td>
</tr>
</tbody>
</table>

*a*: Estimates are available since 1985.
4. Service for Users of the GESIS Microcensus-Trendfile

After having given readers an idea of the wide range of topics that could be analyzed with the Microcensus-Trendfile we now want to show how this file can be generated and handled. Because the Trendfile cannot be obtained as a finished product, it has to be generated by researchers themselves based on the initial cross-sectional datasets of the German Microcensus (see Section 5). For this purpose, the German Microdata Lab at GESIS offers (a) special program routines as well as (b) a User Handbook for the data.

(a) Syntax for generating the Microcensus-Trendfile

The German Microdata Lab provides the program routines that are needed to generate the Microcensus-Trendfile. These syntax files are available online via a database on the web portal of GESIS for the statistical packages SPSS and STATA (www.gesis.org/mz-trendfile). For each year of the Microcensus and for every topic there is a separate syntax file. This is necessary because the original material varies substantially over the years (see Section 2). Moreover, not all users might possess the whole range of available SUFs or not all might be interested in all topics. Accordingly, users can choose the syntax for the years and the topics in which they are interested. This also ensures that the generation of the Trendfile does not take more time than necessary. After selecting the relevant syntax, users automatically get a zip file with all required syntaxes, including program routines (in SPSS or STATA format) for each topic and each year plus a so-called “meta-job”. The meta-job is central as it starts the procedure to generate the Trendfile. In detail, this includes the generation of single harmonized data sets (for each year) and their cumulation into the final Trendfile. Users only have to do some manual adaptations at the beginning of the meta-job, i.e. to specify the path and the folder of the original datasets. It should be noted that the sections on methodological and standard variables are included by default as these modules generate variables that are used by other routines. Furthermore, each subject of the syntax files contains a variable that displays the version number. Users are advised to use the most recent syntax as newer versions are uploaded whenever a new year was added or a bug was fixed. In the end, researchers only have to adjust and run the meta-job. However, due to the large number of cases and also depending on the processing power of the hardware and the number of Microcensus years included, the generation of the Trendfile will take some time.

5 Further information on the Microcensus, i.e. questionnaires, codebooks, frequencies, are also available at MISSY, the Microdata Information System of GESIS (www.gesis.org/missy).
As described above, the Microcensus-Trendfile User Handbook (Lengerer et al. 2010) documents the whole process of data preparation and harmonization, including the wording of the various questions used to survey certain items as well as information concerning different sampling fractions, voluntariness of questions and further important details relevant for the comparability of different years within the Trendfile. In our view, it is an indispensable tool when using the file. Accordingly, we would recommend that users familiarize themselves with the User Handbook. The Handbook is structured by the different subjects mentioned in Section 3 and provides detailed descriptions of all available variables of the Trendfile.

In some cases the implemented harmonization procedures might not be optimal for users’ research question or might constrain the analytical potential (and by that the interpretation of results). Even then, the information given in the User Handbook will most likely help users to modify the syntax according to their needs.

In addition to the database with the syntax files and the User Handbook, workshops on the Microcensus in general, but also on the Trendfile are provided by GESIS on a regular basis. Also, every second year a User Conference on the Microcensus is organized where scholars are encouraged to present their work and share their experiences with the data. On top of this, German Microdata Lab staff provides further assistance for the Trendfile whenever needed.

5. Data Access

As mentioned in Section 2, the Trendfile is based on the different files of the German Microcensus and contains data currently covering a period over 40 years: Eight GESIS-Files (1962 to 1969) and 22 Scientific Use Files (all available files in the period from 1973 to 2006). The GESIS-Files are currently only accessible through a research stay at the German Microdata Lab at GESIS. These stays are free of charge. All available survey years from 1973 onwards on which the Trendfile is based are available as SUF from the Research Data Centres (RDCs) of the Federal Statistical Office and of the statistical offices of the Länder. They currently charge a fee of 250 Euros per file, which grants usage of the files for up to three years. Prerequisite for data usage is the conclusion of a user contract with the Federal Statistical Office. Besides, the use of the data has to be bound to scientific research. Only members of research insti-
tutions that are governed by German law are allowed to order and analyse the data. However, foreign researchers who are not employed by a German research institution may work under special arrangement with the data at the German Microdata Lab at GESIS.

6. Exemplary Analyses Using the GESIS Microcensus-Trendfile

Social change, that is the change of aggregates, can best be studied with repeated cross-sections representing a given population at a given time (Firebaugh, 1997). In contrast to panel designs, repeated cross-sections do not suffer from attrition. Additionally, repeated cross-sections such as the Microcensus often span much longer periods than panel studies could. In the following, we present two examples of analyzing social change using the Trendfile in which we focus on changes over time (6.1) as well as on trends over cohorts (6.2). The first one refers to period effects, i.e. changes triggered by events or processes affecting the entire population by changing the opportunity structure for individual behaviour. The second example refers to the process of cohort succession by which older cohorts are replaced by younger cohorts. This is thought to be a major driving force for social change since members of different cohorts have been exposed to different conditions which should have affected their attitudes and behaviour.

6.1 Labour Market Changes

As the Microcensus serves as the central employment statistic in Germany, the Trendfile is especially appropriate to analyze the labor market changes that have taken place since the 1970s – such as the tertiarization, the intense rise of the labor force population as well as the increasing rate of (structural) unemployment. The variables needed to analyze these changes are available in the Trendfile since 1962.

Beyond that, the rise of labor market flexibilization can be portrayed: Since the 1970s the “Normalarbeitsverhältnis” (Mückenberger, 1985), i.e. the regular, labor law-related full-time employment with permanent contract, is increasingly displaced by atypical or flexible forms of employment such as part-time or marginal employment as well as fixed-term contracts. Since flexible employment jobs are often related to low wages and insufficient security against social risks, their expansion has led to increased unemployment and poverty risks among individuals.

Within the area of labor market flexibilization, the increase in part-time employment is most important. In West Germany, it is primarily a result of the increased labor participation of women. The proportion of part-time employ-
ment among women has increased from 30 to 55% between 1973 and 2006 (men: 2 to 14%). Given the fact that the Trendfile provides a wide range of demographic, educational and occupational data, analyzing it promises further insights whether the risks of working in part-time employment are unequally distributed and whether the risks have changed over time. To go with the labor market segmentation theory, for example, one could assume that female part-time workers are predominantly included in low-skilled labor market segments. Thus, it is reasonable to analyze how the increase in part-time employment among women is related to different occupational groups, especially by considering different educational levels. One could easily do this by using the occupational classification proposed by Blossfeld (1985) which is available in the Trendfile since 1973.

6.2 Change of Living Arrangements

Given the fact that the Microcensus is a household sample, the Trendfile provides an excellent base for studying the changes of household and family structures, which have been discussed extensively and controversially in the social scientific literature in the last decades (e.g. Wagner/Franzmann, 2000). Although these changes are long-term, many studies are limited to a relatively short period of time and a small age range, potentially resulting in biased impressions.

Unlike most other data, the Trendfile allows to examine the change of living arrangements not only over a long period of time, but also over the life course of different cohorts. This can be achieved by constructing synthetic cohorts. Drawing on the example of married couples living together, Figure 1 illustrates this. In West Germany, the proportion of women living together with their spouse shows a falling trend in younger ages, indicating that marriage is postponed. A falling trend is also visible in middle adulthood, indicating that marriage is decreasing and/or divorce is increasing. At the same time, we monitor a rising trend in the proportion of married women in old age, mainly because of unbalanced sex ratios in the cohorts affected by World War II and more balanced sex ratios in younger cohorts (Lengerer, 2011).

The spread of non-martial cohabitation that goes along with the decline of marriage can be retraced with the Trendfile as well. Even though the Microcensus does not collect data on cohabitation until 1995, there are reasonably reliable estimates of cohabiting couples available from 1985 onwards. Results show that there is a pronounced increase of non-martial cohabitation over the cohorts, especially in early and middle adulthood. This implies that a large part of the decline of marriage is compensated by the rise of cohabitation.

9 Although there is no appropriate variable available, married couples can be identified by year of marriage in the Trendfile from 1962 to 1969 and by type of family in the Trendfile from 1973 onwards.
Beyond mere description, the data allows the study of particular trends and differentials. Important educational differences in the timing and the extent of living together and the change of these differences across cohorts have been analyzed recently (Lengerer, 2012).

Persons with German nationality living in private households at the main residence.  


Figure 1: Proportion of women living together with their spouse, by age and cohort (West Germany, in %)

We hope that the two examples give some insight into the analytical potentials of the Trendfile. Further research based on this dataset includes analyses of the marriage patterns of migrants (Kalter/Schroedter, 2010; Schroedter/Kalter, 2008), inquiries into the determinants of vocational training (Hubert/Wolf, 2007), historical developments of social reproduction (Hillmert, 2011) as well as analyses on causes and change of family poverty in Germany (Boehle, 2010; Hartmann 2011).

7. Outlook

The GESIS Microcensus-Trendfile offers unique possibilities to study social change in Germany over a long time period. The German Microdata Lab staff will continue to provide services for the Trendfile and will further extend it in several ways. More recent instances of the Microcensus will be added to the file in the near future. Another important issue is related to data availability and cost. Researchers who want to work with the full Trendfile would have to obtain all 22 SUFs from the RDC of the Federal Statistical Office or the RDC of
the statistical offices of the Länder. This would amount to a total sum of 5,500 Euro (250 Euros per file). Probably only a few institutions would be able and willing to pay this price. We therefore believe that the research community should aim at negotiating possible alternatives with the statistical offices. A further challenge is posed by the datasets from the 1960s, the so called GESIS-Files. At this stage these data are exclusively available at GESIS and researchers who want to work with these data can do so only during a guest stay. In this respect, we also hope to find a better solution in the near future, e.g. the distribution of these datasets via the GESIS Data Archive or the RDCs.

Finally, we would like to encourage everyone with an interest in issues of social change to explore the possibilities of this new data source and give feedback to the German Microdata Lab on errors and shortcomings, further material that should be included, additional variables that could be harmonized over several years or general suggestions to improve the service for the GESIS Microcensus-Trendfile.

References


