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BIBB/BAuA-Employment Survey 2005/06

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1. Introduction

The BIBB/BAuA-Employment Survey is a representative survey on qualification and working conditions of the German active labour force. To date, five cross-sections (in 1979, 1985/86, 1991/92, 1998/99 and 2005/06) were conducted. The first four surveys were implemented in cooperation with the Institute of Employment Research (Institut für Arbeitsmarkt- und Berufsforschung, IAB) of the German Federal Employment Office (Bundesagentur für Arbeit). Since the 2005/06 survey the Federal Institute for Vocational Education and Training (Bundesinstitut für Berufsbildung, BIBB) cooperates with the Federal Institute for Occupational Safety and Health (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, BAuA).

With each cross-section between 20.000 and 35.000 individuals were questioned. The data collected include measures regarding qualification, first and current job and job characteristics in Germany. As the surveys are constructed as repeated cross-sections, main variables were surveyed with every cross-section. Additionally, each survey contains measures regarding a changing focal topic. In 2005/06 the focus was on adequacy of achieved educational level to required vocational level (at the workplace). Data collection methods changed from personal face-to-face interviews to computer-assisted personal interviews (CAPI) to computer-assisted telephone interviews (CATI). See table 1 for a brief overview on the cross-sections' characteristics. For further information cf. Hall (2009) and Rohrbach (2009).

This article gives an insight into the latest BIBB/BAuA-Employment Survey, conducted in 2005/06. Major facts about sample design and methodology are provided. The article concentrates on illustrating possible fields for research and on giving examples of recent research based on BIBB/BAuA-Employment Survey 2005/06. For those who are interested in using the data, procedures for gaining data access are described. Finally, a short outlook on the forthcoming BIBB/BAuA-Employment survey in 2011/12 is given.

Table 1

Overview of Employment Surveys

Year	People Surveyed	Net-Sample	Institute and *Methods*
1979	Active Population aged 15 to 65 – incl. unemployed – no apprentices – no foreigners	28.828	GfK Nürnberg Marplan Offenbach *face-to-face interview with standardised questionnaire*
1985/ 1986	Active Population aged 15 to 65 – no unemployed persons – no apprentices – no foreigners In cooperation with IAB, but two distinct surveys with differing questionnaires.	26.361 14.846 (IAB-part) 11.515 (BIBB-part)	 Getas Bremen Emnid Bielefeld Intratest München *face-to-face interview with standardised questionnaire*
1991/ 1992	Total Old Federal States Employed Persons – no unemployed persons – no apprentices – incl. foreigners with adequate language ability New Federal States Employed Persons – incl. unemployed persons – incl. retrainees – no apprentices – no foreigners	34.277 24.090 10.187	 Infratest München Marplan Offenbach Infratest Burke Berlin EMMAG Berlin *both:* *face-to-face interview with standardised questionnaire*
1998/ 1999	Active Population over 15 Years regularly working more than 10 hours per week – no unemployed persons – no apprentices – incl. foreigners with adequate language ability	34.343	Infratest Burke Berlin Infas Bonn *CAPI*
2005/ 2006	Active Population over 15 Years regularly working more than 10 hours per week – no unemployed persons – no apprentices – incl. foreigners with adequate language ability	20.000	TNS Infratest *CATI*

2. BIBB/BAuA-Employment Survey

2.1 Sample Design

The BIBB/BAuA-Employment Survey 2005/06 is based on information on 20.000 individuals belonging to the German active labour force. Employment is measured as core-employment ("Kernerwerbstätigkeit"). It covers all employees and workers aged 15 or older, with working hours of at least 10 hours per week. Individuals attending a qualification scheme which besides are in paid employment (e.g. students or apprentices with side jobs of more than 10 hours/week) are included. Helping family members are also included, as well as employees whose employment is interrupted for a maximum of three months (e.g. due to maternity leave). In contrast, employees whose employment is a compulsory part of a qualification measure (e.g. vocational education) are not questioned. The employment needs to be the principal occupation. The dataset does not include information about paid voluntary work, employees in compulsory military or community service or voluntary work in the social or environmental sector[1] (for more detailed information cf. Hall, 2009).

The data collection was conducted by TNS Infratest Munich from October 2005 to March 2006. Contrary to previous surveys, computer-assisted telephone interviewing techniques (CATI) were used. To guarantee for representative data, respondents were identified using a two stage random sampling procedure. In the first step households were chosen according to a procedure by Gabler-Häder. In the second step the Kish-selection grid was used to randomly appoint the respondent within the household. This two stage method was applied to BIBB/BAuA-Employment survey for the first time. Thus, for changes in both, sampling methods and data collection mode, the current datasets comparability to previous surveys is partially limited. For further information cf. Hall (ibid.).

To correct for biased data, caused by the sampling procedure and survey non-response, two sample weights are calculated. A design weight corrects for differing probabilities of households and individuals to be selected into the survey, which may vary due to household size or numbers of telephone connections in the household. Also, systematic bias due to non-contact or interview refusal is corrected. An adjustment weight is then calculated by implementing a multi-stage, iterative procedure, factoring for the distribution of important characteristics in the German population (the German microcensus 2005 serving as reference). The weighted dataset shows high structural congruence compared to census data from the year 2005 (Hartmann, 2006 14 ff.).

[1] "Freiwilliges Soziales Jahr" or "Freiwilliges Ökologisches Jahr".

2.2 Main Variables and Fields of Research

2.2.1 Main Variables

Main topics covered in BIBB / BAuA-Employment Survey 2005 / 06 are the individuals' current employment, the link between qualification and employment, first and current job and number of job changes, education history, conducted tasks, skills and expertise, occupational requirements, working conditions and their influence on the individuals' health and psyche and the workload.

An individuals' current employment is described by a set of variables concerning the labour contract, occupation-related characteristics, skill requirements and working conditions. Particularly, a huge variety of variables on e.g. job requirements (19 items), job characteristics (9 items) and skill requirements (32 items overall) is provided. For example, skill requirements are not solely captured by formal education, but by surveying skills in specific subject areas (e.g. computer literacy, project management skills or mechanical skills), language proficiency, general / analytical or managerial skills (e.g. problem solving expertise or competence in decision making).

With the current employment as initial point, retrospective information on occupational and educational attainment, including school and academic education, vocational training and further education, is collected. Hence, the researcher is able to overlook an individuals' educational history, accounting for up to five schemes.

A further set of variables allows for analysing matching between qualification and employment. Specifically, the matching process might be described by a measure of the usability of qualifications for the current job or assessments on how well one is coping with the occupations' demands or the reasons for change of occupation. Figure 1 gives an overview of structure and content of the BIBB / BAuA-Employment Survey 2005 / 06 dataset.

Among the variables in Figure 1 some are surveyed since the very first survey in 1979. Besides sociodemographic variables, these include occupational skill requirements, information on work equipment used primarily at the workplace and respondents formal education. Using those, comparisons of cross-sections over time might be carried out.

2.2.2 Fields of Research

The BIBB / BAuA-Employment Survey 2005 / 06 is designed to answer questions in the fields of qualification research and research on occupations and their change.

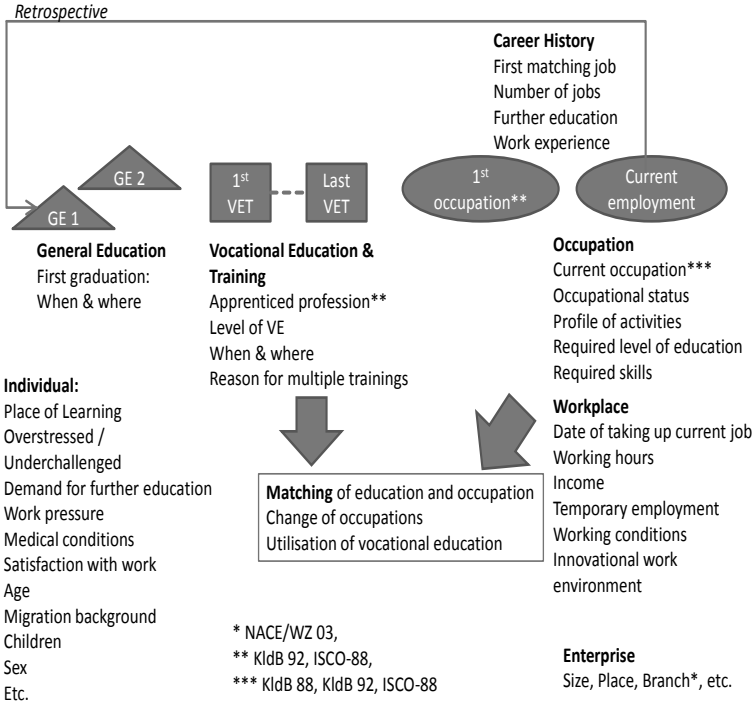

Figure 1: Central Variables

Qualification research

In social and economic science the highest educational level accomplished (as in ISCED) is often used as a single indicator for qualification. The BIBB/BAuA-Employment Survey 2005/06 can enhance scientific discussion by applying important further differentiation. It offers both the highest and the most recent (general and vocational) education achievement as well as respondents' educational history up to five vocational qualifications. The researcher might distinguish between subject of study, occupation or type of schooling. This allows, for example, to acquire vocational qualification specific to the German system of vocational education[2].

Besides, one can use BIBB/BAuA-Employment Survey 2005/06 data for exploring questions regarding the association between respondents vocational

[2] Types of schools are for example: "Berufsschulen" (differentiating between vocational (mostly full-time) schools in- and outside the dual system of vocational education and training), "Fachschulen' (vocational schools mainly for further vocational education), "Schulen des Gesundheitswesens" (health sector schools), "berufliche Gymnasien" (vocational high schools), "Fachoberschulen" (specialised secondary schools).

education and current employment. The dataset might thus serve as a basis for approaches concerning access to occupational careers (cf. e.g. Hall, 2010a; Hall, 2010b).

Research on occupations and their change

Due to the availability of (subjective assessments of) information on job tasks, skill requirements, working and health conditions, the BIBB / BAuA-Employment Survey 2005 / 06 can be used to analyse occupational requirements and their change. The great variety of variables concerning skill requirements (e.g. characteristic education, skills in 13 subject areas, 19 task requirements) for example can be used when studying which job skills are required in today's labour markets. This is done prominently in the skills-requirements or task-approach where job tasks are used to explain changes in wage and occupational structure (cf. e.g. Rohrbach-Schmidt / Tiemann, 2010; Spitz-Oehner, 2006).

3. Application of BIBB / BAuA-Employment Survey 2005 / 06 in Research

The BIBB / BAuA-Employment Survey 2005 / 06 is being widely used. BIBB-FDZ (Research Data Centre at the Federal Institute for Vocational Education and Training), where data-requests are collected, is listing more than one hundred data users. Applications have been filed from individuals to universities, from (doctoral) students to (public and private) research institutions. In this section some examples for recent research are provided.

Giesecke / Verwiebe (2009), as well as Antonczyk / Fitzenberger / Leuschner (2009) use data from BIBB / BAuA-Employment Survey 2005 / 06 and BIBB / IAB survey 1998 / 1999 to investigate dynamics of labour income inequality in Germany. The analysis conducted by Giesecke / Verwiebe (2009) aims at explaining differences in labour market income between members of different occupational groups. Therefore the authors contrast two theoretical concepts: the economic theory of skill-biased technological change and a structural theory, based on the works of sociologist Aage B. Sørensen. By empirical investigation they show that occupational groups are still an important factor in explaining labour income inequalities. Recently increasing inequality is especially determined by the degree of credential closure of occupational groups and their structure, especially with respect to duration of employment and amount of labour income. The results indicate the importance of the sociological theory considered, whereas the authors didn't find evidence for the theory of skill-biased technological change.

Antonczyk / Fitzenberger / Leuschner (2009) similarly analyse the impact of task assignments on labour market income inequality. Furthermore, to separate

effects of task assignments from effects of job requirements, they implement two measures for job complexity. By applying a regression model and a Blinder-Oaxaca type decomposition, they find that a task-based approach cannot explain recent increase in wage inequality in Germany. In contrast, the changes in occupation and task assignment work towards reducing wage inequality, as shown by the decompositions. Only at the bottom of the wage distribution, the regression results indicate a contribution of changing task assignments to rising labour income inequality.

Within the framework of the task approach Rohrbach-Schmidt / Tiemann (2010) contribute to the debate on qualification- and skill-based mismatching. Their analysis offers in-depth figures on the incidence and wage penalties of mismatching in Germany. Contrary to most existing studies they apply a differentiation between formal and skill-based (mis)matching and test a set of different theories for the explanation of mismatching. The results show that beyond the common human capital compensation and job mobility hypotheses, job heterogeneity has a substantial share in explaining mismatching and its real or apparent wage penalties. Furthermore the study identifies differences in the matching process between subgroups of employees. A result worth mentioning is that graduates from a vocational training in the German dual system seem to perform equally well in finding a matching job than university graduates.

Due to numerous information on working conditions and workload, BIBB/BAuA-Employment Survey 2005/06 is used in research on occupational safety and health. Beermann / Brenscheidt / Siefer (2008) use the dataset to compare working conditions, workload and career prospects between men and women in Germany and contrast the results with other European countries. They find considerable differences between the genders, which are in line with theories about labour market segregation. Especially men often face physically demanding working requirements and environmental factors, like noise, cold, heat, smoke or vibration. Women, on the contrary, are often exposed to mental strains. When it comes to the question whether mental strain is perceived as burden, however, differences between women and men are small.

BIBB/BAuA-Employment Survey 2005/06 provides detailed information for the analysis of changes of occupation throughout the life cycle. Hall (2010b) gives an overview of recent research on the subject, with a specific focus on measurement. She further implements a new method for measuring changes of occupation. She distinguishes between complete and partial changes and discusses reasons for the change of one's occupation.

Furthermore, BIBB/BAuA-Employment Survey 2005/06 is used to compare the value of different qualifications. For example, Hall (2010a) uses the dataset to test for adequacy of employment for people who accomplished vocational education and training. She focuses on female individuals and ana-

lyses their job prospects when graduating from dual vocational training in contrast to school-based training. This comparison is relevant, as women are predominantly going through school-based training. The results indicate that for women school-based training is more valuable on the labour market than dual vocational training. However, the results seem to be biased by formal general education, which usually is higher in school-based training than in dual vocational training. After controlling for formal general education, the differences vanish. Therefore the author concludes that differences between adequate employment after training are based on differences between trained professions and not so much on differences in training institutions.

Due to the nature of the data a number of other analyses in diverse fields have been conducted: further education (Hall / Krekel, 2008), specific vocational fields (for specific occupational groups see e.g. Hall, 2007a; Hall, 2008), for a definition of occupational groups cf. Tiemann u. a. (2008), for an exploration of these see Tiemann (2008), knowledge intensive occupations (Hall, 2007b; Tiemann, 2010) and more.

4. Data Access

Researchers might choose one of three ways of accessing BIBB / BAuA-Employment Survey 2005 / 06 data:

- Scientific-use-file,
- remote access or
- safe centre at BIBB-FDZ .

The factually anonymized *scientific-use-file* can be ordered from dataservice at GESIS – Leibniz Institute for the Social Sciences. Access to previous BIBB / BAuA- or BIBB / IAB-surveys (1979, 1985 / 86, 1991 / 92, 1998 / 99) is also possible. Costs vary according to purchasers' status (academic, non-academic user, student). More detailed information is provided via the internet[3], where one can also find the terms of use. Contact person at GESIS is Oliver Watteler (Oliver Watteler[at]gesis.org).

Via *remote access* researchers gain access to more detailed information than included in the scientific-use-file. Data provided, in this case, include sensitive characteristics (e.g. Raumordnungsregionen: 97 regions instead of 16 Federal States) and full texts not included in the scientific-use-file. Example data (SPSS or STATA-file) can be downloaded free of charge on the website of BIBB-FDZ (http:// www.bibb.de/de/50817.htm in German language). Since the example dataset is similar to the original dataset in structure and characteristics, it might be used for preparing syntax-files that are applicable to original

[3] See http:// www.gesis.org/en/services/data/retrieval-data-access/data-archive-service/.

data. Syntaxfiles are processed by BIBB-FDZ and the researcher is provided with the data output.

Data access via remote access has to be requested at BIBB-FDZ. The request form and terms of use can be found online at http://www.bibb.de/de/50919.htm (in German). For further information Daniela Rohrbach-Schmidt (Rohrbach[at]bibb.de) can be contacted.

Equally broad data access as offered by remote access is attained by using the *safe centre at BIBB-FDZ.* Several stand-alone-pcs are installed for this purpose. They are equipped with SPSS 17.0, STATA SE and STATA MP (version 10.1) and Microsoft Office 2007, whereas additional software is available on request. Internet access is provided separately. Access to the safe centre at BIBB-FDZ has to be requested by using the online form on http://www.bibb.de/de/52000.htm (in German). Within a maximum of two weeks a formal contract is issued if access can be granted. The researcher will not get access to the data unless the contract is signed. Hence it is recommended to contact BIBB-FDZ in due time. Table 2 summarizes types of data access.

Table 2

Types of Data Access, According to Rohrbach (2009)

Variable description	**SUF**	**Remote access**	**Safe centre at BIBB-FDZ:** Data from SUF plus
Place of residence	Federal State (20.000)[1]	Raumordnungsregion[2] (20.000)	Raumordnungsregion[2, 3] (20.000)
Mother tongue: other than german	Not included	Full text (486)	Full text (486)
Industry branch	NACE Rev 1.1 Division (19.831)	Full text (19.514)	Full text (19.514)
Current job	ISCO-88 (19.996), KldB88 (19.995), KldB92 (19.996)	as in SUF plus Full text (20.000)	as in SUF plus Full text (20.000)
First job	ISCO-88 (19.921), KldB92 (15.871)	as in SUF plus Full text (15.871)	as in SUF plus Full text (15.871)
Most important work equipment	Recoded (19.368)	Full text (19.368)	Full text (19.368)
Further frequent job activities	Not included	Full text (2.044)	Full text (2.044)
Further knowledge in foreign languages	Not included	Full text (768)	Full text (768)
General education degree abroad: name of country	Not included	Full text (830)	Full text (830)

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Table 2 (continued)

Variable description	SUF	Remote access	Safe centre at BIBB-FDZ: Data from SUF plus
Vocational education degree abroad: name of country	Not included	Full text (593)	Full text (593)
Reasons for 2nd, 3rd etc. vocational education: other, namely	Not included	Full text (2nd: 1.676, 3rd: 347, 4th: 49)	Full text (2nd: 1.676, 3rd: 347, 4th: 49)
Reasons for change in occupation / profession: other, namely	Not included	Full text (1.850)	Full text (1.850)
Institutions / places where skills required at current job were acquired in the first / second place: other, namely	Not included	Full text (1.080; 1.338)	Full text (1.080; 1.338)

[1] No. of cases in parentheses.

[2] There are 97 regions (= "Raumordnungsregionen") covering the 16 federal states.

[3] It is planned to supply researches at BIBB-FDZ with context information (e.g. unemployment rates) at the level of these or more aggregated regional units.

5. Outlook

The next BIBB / BAuA-Employment Survey is planned for 2011 / 12. Major parts of the previous survey will be repeated, so comparability with the survey in 2005 / 06 will be given. Moreover, as most variables are the same since 1998 /99, the subsequent survey will offer the opportunity to analyse a short, but comprehensive "time series". If focussing on main variables this might as well be expanded to 1979 (see section 2.2). Nevertheless, changing interview methods and sampling procedures between 1998 / 99 and 2005 / 06 are still to be considered.

Additional focal topics of the forthcoming survey are currently discussed. Most likely the topics will be related to the transfer of general and specific human capital and the subjective assessment of qualification and job history. Beyond, the data collection might have a focus on the analysis of shape and definition of occupations.

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