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Linked Employer-Employee Data from the IAB: LIAB Cross-sectional Model 2 1993 – 2014
(LIAB QM2 9314)

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Die FDZ-Datenreporte beschreiben die Daten des FDZ im Detail. Diese Reihe hat somit eine doppelte Funktion: zum einen stellen Nutzerinnen und Nutzer fest, ob die angebotenen Daten für das Forschungsvorhaben geeignet sind, zum anderen dienen sie zur Vorbereitung der Auswertungen.

FDZ-Datenreporte (FDZ data reports) describe FDZ data in detail. As a result, this series of reports has a dual function: on the one hand, those using the reports can ascertain whether the data provided is suitable for their research task; on the other hand, the data can be used to prepare evaluations.

Contents

Abstract

This data report describes the LIAB Cross-sectional Model 2 1993 – 2014 of the Linked Employer-Employee Data from the IAB (LIAB QM2 9314).

Data availability

The dataset described in this document is available for use by professional researchers. Further information can be found on the website http://fdz.iab.de/.

1   Introduction and outline

1.1 Introduction

The LIAB QM2 9314 is one of the Linked Employer-Employee datasets from the Institute for Employment Research (IAB) provided for research analyses by the Research Data Centre (FDZ) of the Federal Employment Agency (BA) at the IAB. The Linked Employer-Employee Data from the IAB (LIAB) contain both establishment data from the annual waves of the IAB Establishment Panel and individual data from the process-generated data of the BA. The LIAB data are generated by linking these two data sources.

The IAB Establishment Panel is an annual representative survey on various topics such as the determinants of labour demand. It has been conducted by the IAB since 1993 in West Germany and since 1996 in East Germany, too. The IAB Establishment Panel is the central basis for the analysis of labour demand in Germany. The establishments of the IAB Establishment Panel are the basis for the sampling of the individual data from the Integrated Employment Biographies (IEB) of the IAB.

Data on individuals were taken from the Integrated Employment Biographies (IEB) of the IAB. The IEB comprises all individuals who showed one of the following statuses at least once during the observation period:

– employment subject to social security (recorded from 1975 onwards)
– marginal part-time employment (recorded from 1999 onwards)
– receipt of benefits in accordance with Social Code Book III (recorded from 1975 onwards) or Social Code Book II (recorded from 2005 onwards)
– registered with the Federal Employment Agency (Bundesagentur für Arbeit - BA) as a jobseeker (recorded from 2000 onwards)
– participation in an employment or training measure (recorded from 2000 onwards)

These data, which come from different sources, are merged in the IEB and the statuses are depicted exact to the day.
Whilst the Employee History (Beschäftigtenhistorik - BeH) is the origin of the information on employment subject to social security and marginal part-time employment, the receipt of benefits in accordance with Social Code Book III (SGB III) and Social Code Book II (SGB II) is recorded in the Benefit Recipient History (Leistungsempfängerhistorik - LeH) and the Unemployment Benefit II Recipient History (Leistungshistorik Grundsicherung - LHG). The Jobseeker Histories (Arbeitsuchendenhistoriken - ASU and XASU) are the data source for the

periods of job search recorded by the BA, whilst participation in employment and training measures is recorded in the Participation-in-Measures History File (Maßnahmeteilnahmehistorik - MTH).

The data report focuses on the description of the individual data in the LIAB QM2 9314. Further information on the IAB Establishment Panel can be found [here](). An overview of the different LIAB datasets can be found [here]().

The data report on the LIAB QM2 9314 is structured as follows. Besides the introduction, Chapter 1 contains information on data access, as well as, an outline of the data, the volume structure and a list of variables. A description of the individual data sources can be found in Chapter 2. Data preparation and data quality are discussed in Chapters 3 and 4, whilst the individual variables are described in Chapter 5.

1.2 Data use

1.2.1 Data access

The weakly anonymous LIAB data may only be analysed on-site at the FDZ and through subsequent remote data access.

In order to be able to use the data, it is first necessary to submit an application to the Research Data Centre (FDZ). The Federal Ministry of Labour and Social Affairs (Bundesministerium für Arbeit und Soziales – BMAS) makes the decision regarding the approval of the research project. When approval has been granted, a data use agreement is concluded with the researcher's institution. Details on applying for the dataset and possibilities for data processing can be found on the FDZ homepage.

Certain variables which make it possible to identify individuals or establishments are only disclosed in their original form (e. g. *wo_bula*). If it is necessary for the analysis objective and justified explicitly in the application for data access, these variables can be provided, too (e. g. *wo_kreis*). The variables which are particularly sensitive from the viewpoint of data protection legislation are:

Individual data:
– nationality (nation)
– Berufsuntergruppe (beruf2010_4)
– place of residence: employment agency area (wo_aa)
– place of residence: district (Kreis) (wo_kreis)

Establishment File:

- place of work: district (Kreis) (ao_kreis)
- economic activity 93 – sub-class of economic activity (five-digit code) (w93_5)
- economic activity 03 - sub-class of economic activity (five-digit code) (w03_5)
- economic activity 08 - sub-class of economic activity (five-digit code) (w08_5)
- Date of first appearance (grd_dat)
- Date of last appearance (lzt_dat)

IAB Establishment Panel:

- type of local authority (BIK-Gemeindetyp, since 1998)
- district key number (Kreiskennziffer, since 1998)
- economic activity – sub-class of economic activity (wz93)

  sub-class of economic activity for 2000, 2001, 2003; economic group for 2002

- economic activity – sub-class of economic activity (wz03)
- economic activity – sub-class of economic activity (wz08)

1.2.2 Data management

The LIAB data have a modular structure and include labels both in German and English language[1]. The LIAB data are stored in several files (see figure 1). The first module contains the waves of the IAB Establishment Panel. In these waves you can find information about job trends, business policies and development of business, company investments, innovations in business, public funding, personnel structure, vocational trainings and training posts, worker inflow and outflow, personnel search, wages and salaries, working hours, further trainings or general data of the company.

The individual data is stored annually in the second module. These files contain identifiers (individual IDs and establishment IDs), personal variables, information on employment, benefit receipt and job-search activity, variables regarding place of residence as well as technical and biographical variables.

The third module, the Establishment File, contains the establishment number, the year and variables regarding the place of work and economic activities in aggregate form as well as

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[1] With the Stata commands `label language de` or `label language en` labels can be switched to English or German.

other non-sensitive establishment information as of the reference date of 30 June. The Establishment File is extracted from the Establishment History Panel (BHP). The BHP is a 50% sample of all establishments in Germany, which cover at least one employee liable to social security on the 30 June of a year. Since 1999 marginal part-time employees are included, too. The source of the BHP is the Employee History (BeH) of the Institute for Employment Research (IAB). In the BHP individual data of the BeH is aggregated on the establishment level via the establishment numbers. Further information on the BHP can be found here. Variables, which are marked with a "*" in the list of variables (see Table 4), are stored in the Establishment File. Following a justified application further establishment variables from the BHP can be provided.
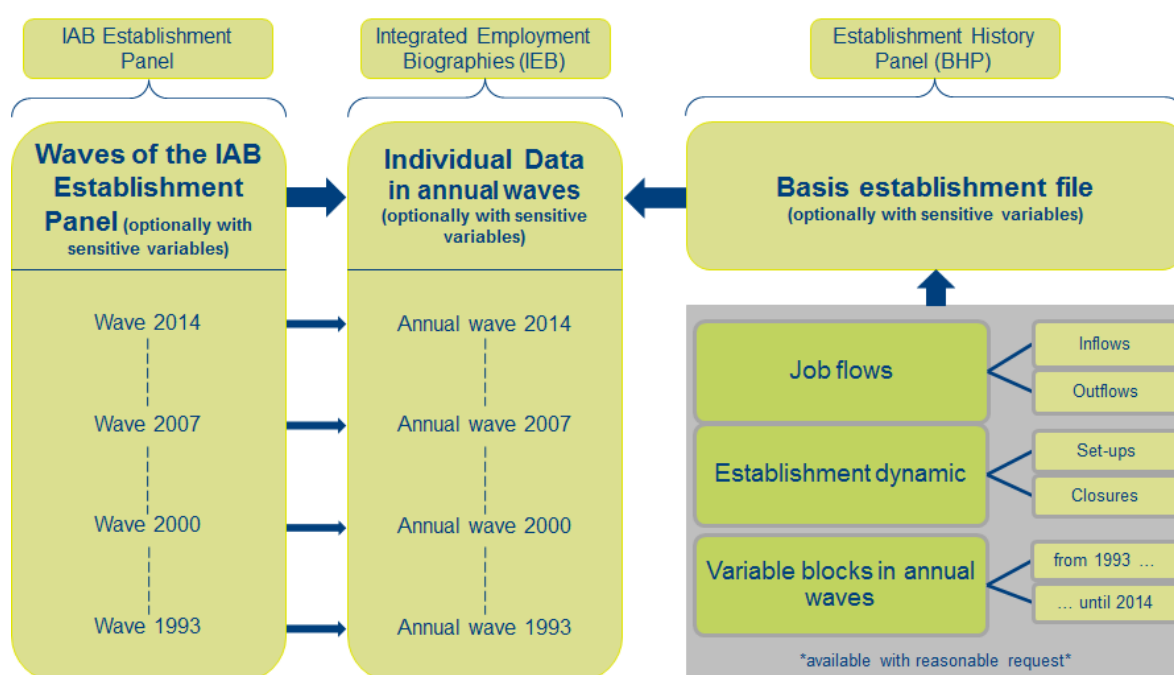
Figure 1: Data management of the Linked Employer-Employee dataset Cross-sectional Model 2.

Establishment and individual variables are therefore organized separately, which makes the structure of the data clear and saves storage space in the data management system. The linkage between the waves of the IAB Establishment Panel and the individual data is based on the establishment number, which is included in both modules (*idnum*; see Box 1). In contrast, the Establishment File and individual data are linked via artificial establishment number (*betnr*; see Box 2) and the year of the data set. The same applies for the extension files of the BHP. The linkage between single files is provided by different program-specific commands for data formatting and data analysis of the used software packages. For example, the linkage in Stata can be conducted by the "`merge`"-command.

All sensitive variables listed in the previous section are located in the corresponding files, as long as the files have been requested and approved.

```
use liab_qm2_9314_v1_pers_2000.dta
sort idnum
merge m:1 idnum using iabbp_2000.dta
```

Box 1: Example for Stata 14; Linkage between the individual data and a single wave of the IAB Establishment Panel (here 2000)

1.2.3 File names of LIAB QM2 9314

Waves of the IAB Establishment Panel

iabbp_*jjjj*.dta,   *jjjj* = 1993 – 2014

Individual data

liab_qm2_9314_v1_pers_*jjjj*.dta,   *jjjj* = 1993 - 2014

Basis Establishment File

liab_qm2_9314_v1_bhp_basis_v1.dta

Extension Files BHP

Core dataset with variable blocks

liab_qm2_9314_v1_bhp_v1_*jjjj*.dta,   *jjjj* = 1993 - 2014

Worker flows

liab_qm2_9314_v1_bhp_inflow_v1.dta

liab_qm2_9314_v1_bhp_outflow_v1.dta

Establishment dynamics

liab_qm2_9314_v1_bhp_entry_v1.dta

liab_qm2_9314_v1_bhp_exit_v1.dta

1.3 Developments compared to former versions

1.3.1 Observation period

The LIAB QM2 9314 is an update of the LIAB QM2 9310. Therefore, both data sets differ in the covered the time period.

1.3.2 Incorporation of the Participants-In-Measures History Files (MTH)

Unlike the previous version, the LIAB QM2 9314 also contains information from the Participants-In-Measures History Files (Maßnahmeteilnahmehistoriken (MTH)), which are also contained in the IEB, though the categories of measures are only provided in aggregated form.

1.3.3   Introduction of the occupation code 2010

Information on vocational training, the occupation/activity performed and the occupational status is transmitted by means of notifications made by the employer in accordance with the Data Collection and Transmission Regulation (DEÜV) (see Section 2.1) using a so-called occupation code. The new occupation code 2010 was adopted for periods with an end date later than 30.11.2011 (for further details see Bertat et al., 2013). The decision to switch to the new occupation code was made by the central organisations of the social security agencies as a number of facts could no longer be recorded in a way that was up-to-date and realistic using the occupation code 2003.

As the notifications made by employers in accordance with DEÜV go into the Employee History (BeH), the change of the occupation code impacts almost exclusively on observations from this source. The measurement of the following characteristics already reported using the occupation code 2003 is affected by this change: working hours, occupation, occupation-al status and school and vocational qualification level. In addition, since the switch to the new occupation code, details are also available about whether an employment relationship is fixed-term and whether a person is employed by a temporary work agency to be hired out to other firms. The most important consequence is the switchover to a new occupational classification. Instead of the previous Classification of Occupations 1988 (Klassifikation der Berufe 1988 (KldB 1988)), the more highly differentiated KldB 2010 is reported with the new occupation code.1.3.3 shows which new variables are added as a result of the switch to the new occupation code, which variables are discontinued and which are contained in the data in a different form in future.[2] Another important change is the discontinuation of the variable 'occupational status and working hours' (*stib*), as most of the values given in this variable can no longer be traced using the new occupation code. The categories of the previous *stib* variable that are available consistently across the entire observation period (employment status as an apprentice, distinction between part-time and full-time) can be traced in other variables in future. Section

Section 4.2 shows what consequences the switch to the new occupation code has on the quality of the data in the BeH observations. One of the most serious consequences of the switchover is a temporary increase in the number of missing values in the variables reported by the employers via the occupation code. This was also the case with the new 'working time' variable, which is why an imputed version of the variable was used for the LIAB. The problem of increased numbers of missing values mainly concerns the years 2011 and 2012.

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[2] See Paulus/Matthes, 2013, for details regarding the Classification of Occupations 2010.

1.3.4 Set of variables

For reasons of data economy and due to lack of demand, some variables that were contained in the LIAB QM2 9310 are no longer included.

Actual users of the LIAB models were contacted in an online survey. The analysis showed that several generated biographical variables are hardly used.

In addition, some variables had to be removed as they would no longer have been available for the entire observation period as a result of the switch to the new occupation code. The adoption of the new occupation code made it possible to include a number of variables that were not contained previously. In some cases this was possible for the entire period, by means of recoding, but in other cases it was only possible for observations from the time of the switch-over at the end of 2011 on-wards. Table 1 provides an overview of the changes in the set of variables across all sources.

Variable	Type of change	Explanation
Number of benefit receipt spells (anz_lst)	D	Discontinued without replacement
Place of work: employment agency (ao_aa)	D	Discontinued without replacement; relevant information contained in wo_aa
Place of work: regional directorate (ao_rd)	D	Discontinued without replacement; relevant information contained in wo_rd
Contract period (befrist)	N	Introduced with new occupation code; available from 2011 onwards
Original start date (begorig)	D	Discontinued without replacement; annual notifications can still be identified by the variable *grund*.
Occupational group – current/most recent (KldB 2010), 3-digit (beruf2010_3)/ 4-digit (beruf2010_4)	N	Introduced with new occupation code; available for entire period by recoding old variable.
School education and vocational training (bild)	D	Replaced by vocational education and training
Original end date (endorig)	D	Discontinued without replacement; annual notifications can still be identified by the variable *grund*.
Employment status 2, 8 days before first day in establishment (estat2_8tv)	D	Discontinued without replacement
Employment status 5 years after reference day (estat5jn)	D	Discontinued without replacement
Employment status 8 days before first day in establishment (estat8tv)	D	Discontinued without replacement

Variable	Type of change	Explanation
Employment status prior to job search (estatvor)	D	Discontinued without replacement
Health problems (gesund_ein)	D	Discontinued without replacement
BA client group (kunden_gr)	D	Replaced by client profile
Type of benefit (lart)	D	Discontinued without replacement
Temporary work (leih)	N	Introduced with new occupation code; available from 2011 onwards
Daily wage 5 years after reference day (lohn5jn)	D	Discontinued without replacement
Daily wage 8 days before first day in establishment (lohn8tv)	D	Discontinued without replacement
Level of requirement – current/most recent (KldB 2010) (niveau)	N	Introduced with new occupation code; available for entire period by recoding old variable.
Client profile (profil)	N	Replaces old variable kunden_gr
Skills level (quali)	D	Now contained in vocational education and training
School leaving qualification (schbild)	D	Now contained in variable 'schule'
Severe disability status (schweb)	D	Discontinued without replacement
Occupational status and working hours (stib)	D	Discontinued because no longer recorded in notification procedure; distinction between full-time and part-time can be traced in variable 'part-time'; employment status "apprentice" recorded in variable 'erwstat'.
Number of days in previous job or unemployment (tage_estat2_8tv)	D	Discontinued without replacement
Number of days of benefit receipt / Number of days of benefit receipt 2 (tage_lst, tage_lst2)	N	Instead of two variables for the number of days with benefit receipt there is only one left (tage_lst). It corresponds to tage_lst2 in the LIAB QM2 9310 with the difference, that only periods of unemployment benefits are included in the calculation. For example unemployment assistance is no longer considered.

Table 1: Changes in the set of variables; N = new, D = dropped

With regard to the discontinuation of the variables 'place of work: employment agency / regional directorate' (ao_aa / ao_rd) it should be noted that the local employment agency responsible is defined by the place of residence and not by the place of work. The distinction is therefore not useful anyway, so discontinuing the two variables does not lead to any loss of information.

1.4 Outline

Table 2: Outline

Topics/ groups of variables	**Employee History (Beschäftigten-Historik - BeH):** Annual notifications and end-of-employment notifications submitted to the social security agencies for employees covered by social security and employees in marginal part-time employment. **Benefit Recipient History (Leistungsempfänger-Historik - LeH):** Information on benefit receipt in accordance with Social Code Book III (SGB III) for recipients of unemployment benefit, unemployment assistance and maintenance allowance. **Unemployment Benefit II Recipient History drawn from A2LL (Leistungs-Historik-Grundsicherung aus A2LL - LHG):** Data on individuals in receipt of basic social security benefits in accordance with Social Code Book II (SGB II) (Types of institution: cooperation of employment agencies and municipalities/joint facilities, separated responsibilities/municipalities exercising their duties separately, authorised municipalities) **Jobseeker History (Arbeitsuchenden-Historik - ASU):** Information on job search activity **Jobseeker History drawn from XSozial-BA-SGB II (XASU):** Information on job search activity reported via the transmission standard XSozial-BA-SGBII to the BA by authorised municipalities. **Participants-in-Measures History File (MTH):** Information on participation in employment and training measures (not including measures of the authorised municipalities) **IAB Establishment Panel** Information from the annual Establishment Panel with shifting priorities.
Data unit	Establishments, Employees covered by social security (including marginal part-time employees from 1999 onwards), benefit recipients, jobseekers, participants in measures
Number of cases	Linked establishments: 4,188 to 15,061 per year, 60,124 in total Individuals: 1,592,874 to 2,536,470 per year, 11,581,550 in total
Period covered	The period covered depends on the data source. BeH 01 January 1993 – 31 December 2014 (2012: 30-month file; 2013: 18-month file; 2014: 6-month file) LeH 01 January 1993 – 31 December 2014 LHG 01 January 2005 – 31 December 2014 ASU 01 January 1997 – 31 December 2014 XASU 01 January 2005 – 31 December 2014 MTH 01 January 2000 – 31 December 2014

Time reference	Establishment data: reference date 30 June
	Individual data: referance date 30 June
Date of territorial allocation	Territorial allocation updated as of 31.12.2014
Institutions involved	Social security agencies, Federal Employment Agency (Bundesagentur für Arbeit), TNS Infratest Munich, SÖSTRA Institute Berlin (Institute for Socio-economic Structural Analysis)
Update frequency	Individual data/ Establishment data: continuous
	Data of the IAB establishment panel: once a year
File format and size	Stata
	Establishment data (without sensitive variables):
	IAB Establishment Panel: about 1.5 to 10 MB per year
	Establishment file: about 68 MB
	Individual data (without sensitive variables):
	about 120 to 187 MB per year
File organisation	The LIAB data on individuals are stored in one file per year.
	A file with establishment information taken from the BHP can be linked to the data on individual data via *betnr* and *year*.
	Following a justified application further establishment variables from the BHP can be provided.
	The IAB Establishment Panel files remain unchanged as one file per wave and can be linked to the data on individuals by idnum.
Data access	On-site use at the FDZ of the BA at the IAB and subsequent remote data access
Degree of anonymisation	Weakly anonymous

Sensitive variables	Individual file: Nationality (nation) (beruf2010_4) Place of residence: district (Kreis) (wo_kreis) Place of residence: employment agency area (wo_aa) Establishment file: Place of work: district (Kreis) (ao_kreis) Economic activity - sub-class of economic activity (five-digit code) (w93_5) Economic activity - sub-class of economic activity (five-digit code) (w03_5) Economic activity - sub-class of economic activity (five-digit code) (w08_5) First appearance of establishment (grd_dat) Last appearance of establishment (lzt_dat) IAB-Betriebspanel: type of local authority (BIK-Gemeindetyp, since 1998) district key number (Kreiskennziffer since 1998) Economic activity 1993 (wave 2000, 2001, 2003 5-digit code, wave 2002 3-digit code of WZ93) Economic activity 2003 (up to wave 2004 5-digit code of WZ03), Economic activity 2008 (up to wave 2009 5-digit code of WZ08)
Citation method	Linked Employer-Employee Data from the IAB, Cross-sectional Model 2 1993 – 2014 (LIAB QM2 9314), Nuremberg 2016 Data: "The data basis of this paper is the Cross-sectional Model 2 (version 1993 – 2014) of the Linked Employer-Employee Data from the IAB. The data were accessed on-site at the Research Data Centre of the Federal Employment Agency at the Institute for Employment Research (FDZ) and/or via remote data access at the FDZ." Data documentation: Klosterhuber, Wolfram; Lehnert, Patrick; Seth, Stefan (2016): Linked Employer-Employee Data from the IAB: LIAB Cross-sectional model 2 1993 – 2014 (LIAB QM2 9314). FDZ-Datenreport, 05/2016 (en), Nuremberg.
Current data version	Linked Employer-Employee Data from the IAB, cross-sectional model 2 1993 – 2014 (LIAB QM2 9314)

1.5 List of Variables

The overview of variables lists the variable names and the longer descriptions of the variables.

It also shows which variables are available for which data sources:

Table 3: Degrees of completeness of the Variables

	Variable is available for the data source. Degree of completeness always > 0.85.
	Variable is available for the data source. Lower or varying degree of completeness, see description of variable and frequency count.
	Variable is not available for this data source. Degree of completeness always < 0.05.

Example: the variable "Daily wage, daily benefit rate" (*tentgelt*) is only available for BeH and LeH observations; the observations of the other data sources contain ".n" in this variable. Another characteristic is that some variables have different contents depending on the data source. For instance, for BeH observations the employment status variable (*erwstat*) contains the person group of the employment notification procedure, for LeH observations it contains the type of benefit, for LHG observations it contains the SGB II status and for ASU and XASU observations the job search status and for MTH the Participation-in-Measures History. These differences are not immediately obvious from the variable name for every variable.

Table 4: List of variables with degree of completeness

List of variables	Module	Page	BeH	LeH	ASU	LHG	XASU	MTH
Identifiers		**38**						
Individual ID (persnr)		38						
Establishment number (betnr)	*	39						
Establishment-ID acc. to Survey (idnum)		40						
Generated technical variables		**40**						
Source of spell (quelle)		40						
Year (jahr)	*	40						

List of variables	Mo-dule	Page	BeH	LeH	ASU	LHG	XASU	MTH
Status of establishment number (betr_st)		41	■					
Personal information		**42**						
Gender (frau)		42	■	■	■	■	■	■
Year of birth (gebjahr)		42	■	■	■	■	■	■
Nationality (nation)		42	■	■	■	■	■	■
Nationality, grouped (nation_gr)		42	■	■	■	■	■	■
Marital status (famst)		43		■	■	■	■	▩
Number of children (kind)		43		■	▩	■	▩	▩
Vocational training (ausbildung)		44	■		■		▩	▩
School leaving qualification (schule)		46	■		■		▩	▩
Information on employment, benefit receipt and job search		**47**						
Daily wage / daily benefit (tentgelt)		47	■	■				
Occupation – current/most recent (KldB 1988) (beruf)		48	■		▩			▩
Occupational group – current/most re-cent (KldB 2010), 3 digit (beruf2010_3)		49	■	▩	▩		▩	▩
Occupational sub-group – current/most recent (KldB 2010), 4-digit (beruf2010_4)		50	■	▩	▩		▩	▩
Level of requirement – current/most re-cent job (KldB 2010) (niveau)		51	■	▩	▩		▩	▩
Part-time (teilzeit)		51	■					
Employment status (erwstat)		52	■	■	■	■	■	■

List of variables	Module	Page	BeH	LeH	ASU	LHG	XASU	MTH
Transition zone (gleitz)		54	░					
Temporary agency work (leih)		54	░					
Fixed-term job (befrist)		54	░					
Reason of cancellation/notification/termination (grund)		55	▓	▓	░	░	░	
Client profile (profil)		56			░			░
Reason for end of previous employment (art_kuend)		57			░			░
Working hours of job application (arbzeit)		57			░			░
Residual claim/ planned duration (restanspruch)		58		▒				▒
Type of provider (traeger)		58			▒	▒	▒	▒
Location data		**59**						
Place of residence: district (Kreis) (wo_kreis)		59	░	▒	▒	▒	▒	▒
Place of residence: federal state (Bundesland) (wo_bula)		60	░	▒	▒	▒	▒	▒
Place of residence: employment agency (wo_aa)		60	░	▒	▒	▒	▒	▒
Place of residence: regional directorate (wo_rd)		61	░	▒	▒	▒	▒	▒
Establishment variables		**62**						
Classification of economic activities 73 (w73_3)	*	62	░					
Classification of economic activities 93, sub-classes (w93_5)	*	62	░					
Classification of economic activities 93, groups (w93_3)	*	63	░					

List of variables	Mo-dule	Page	BeH	LeH	ASU	LHG	XASU	MTH
Classification of economic activities 03, sub-classes (w03_5)	*	63						
Classification of economic activities 03, groups (w03_3)	*	64						
Classification of economic activities 08, sub-classes (w08_5)	*	64						
Classification of economic activities 08, groups (w08_3)	*	65						
w73_3 completed by extrapolation/imputation (w73_3_gen)	*	65						
Type of imputation w73_3 (group_w73_3)	*	65						
w93_3 completed by extrapolation/imputation (w93_3_gen)	*	66						
Type of imputation w93_3 (group_w93_3)	*	66						
Year of first appearance (grd_jahr)	*	66						
First appearance (grd_dat)	*	67						
Year of last appearance (lzt_jahr)	*	67						
Year of last appearance (lzt_jahr)	*	68						
Total number of employees (az_ges)	*	68						
Number of full-time employees (regular workers + others) (az_vz)	*	68						
Total number of marginal part-time workers (az_gf)	*	69						
Mean imputed wage all full-time employees (te_imp_mw)	*	69						
Place of work: district (Kreis) (ao_kreis)	*	70						
Place of work: federal state (Bundesland) (ao_bula)	*	70						

List of variables	Mo-dule	Page	BeH	LeH	ASU	LHG	XASU	MTH
Generated biographical variables		**70**						
First day in employment (ein_erw)		70	▓	▓	▓	▓	▓	▓
Number of days in employment (tage_erw)		71	▓	▓	▓	▓	▓	▓
First day in establishment (ein_bet)		71	▓					
Number of days in establishment (tage_bet)		72	▓					
First day in job (ein_job)		73	▓					
Number of days in job (tage_job)		73	▓					
Number of days with benefit receipt (tage_lst)		74	▓	▓	▓	▓	▓	▓

1.6 Volume structure

The second column in table 5 shows the number of establishments with a valid interview in the IAB Establishment Panel. Not all of the surveyed establishments can be linked to the individual data. The number of establishments, which can be linked to the individual data, is listed in the third column. The number of individuals per year is presented in the fourth column. It should be taken into account that the number of data lines in the individual data is higher than the explicit number of individuals. Parallel employment contracts, benefit receipt and job search are documented respectively in one data line. The last column refers to the number of different artificial establishment numbers in the individual data. Due to parallel employment in establishments which did not participate in the IABEstablishmentPanel, these numbers are much higher than the numbers in the second and third column. It is apparent that the number of establishments has quadrupled whereas the number of employees remained on the same level. This is caused by a decline in the share of large establishments in the IAB Establishment Panel.

Table 5: Volume structure

Year	Establishments with an interview in the IAB Establishment Panel	Establishments with an interview in the IAB Establishment Panel and a linkage to individual data	Individuals	Establishments in the LIAB QM2 9314 in total
1993	4,265	4,188	2,584,428	10,787
1994	4,154	4,041	2,223,882	9,312
1995	4,114	3,933	1,884,539	9,023
1996	8,604	8,292	2,472,577	13,637
1997	8,917	8,385	2,121,134	13,042
1998	9,334	8,787	2,080,464	13,823
1999	9,915	9,433	2,019,158	54,181
2000	14,083	13,462	2,343,767	69,511
2001	15,782	14,981	2,536,470	73,630
2002	15,682	14,698	2,396,839	67,204
2003	16,165	15,061	2,184,614	74,257
2004	16,063	14,832	2,385,653	98,790
2005	16,280	14,870	2,396,946	105,538
2006	15,976	14,460	2,229,583	104,362
2007	16,181	14,590	2,017,019	101,360
2008	16,058	14,388	1,961,733	102,596
2009	16,145	14,414	1,909,731	105,725
2010	16,296	14,515	1,640,595	96,752
2011	15,967	14,171	1,763,957	102,833
2012	16,270	14,469	1,851,776	110,794
2013	16,495	14,660	1,784,282	110,086
2014	16,385	14,473	1,592,874	99,406

2 Data sources

The administrative individual data were drawn from the Integrated Employment Biographies (IEB) of the IAB. They unite data from five different data sources, each of which may contain information from different administrative procedures. In addition, some supplementary variables from these data sources which are not part of the IEB are incorporated into the administrative individual data. Observations from all of the data sources shown, with the exception of participation in employment and training measures (MTH), are incorporated from the IEB.
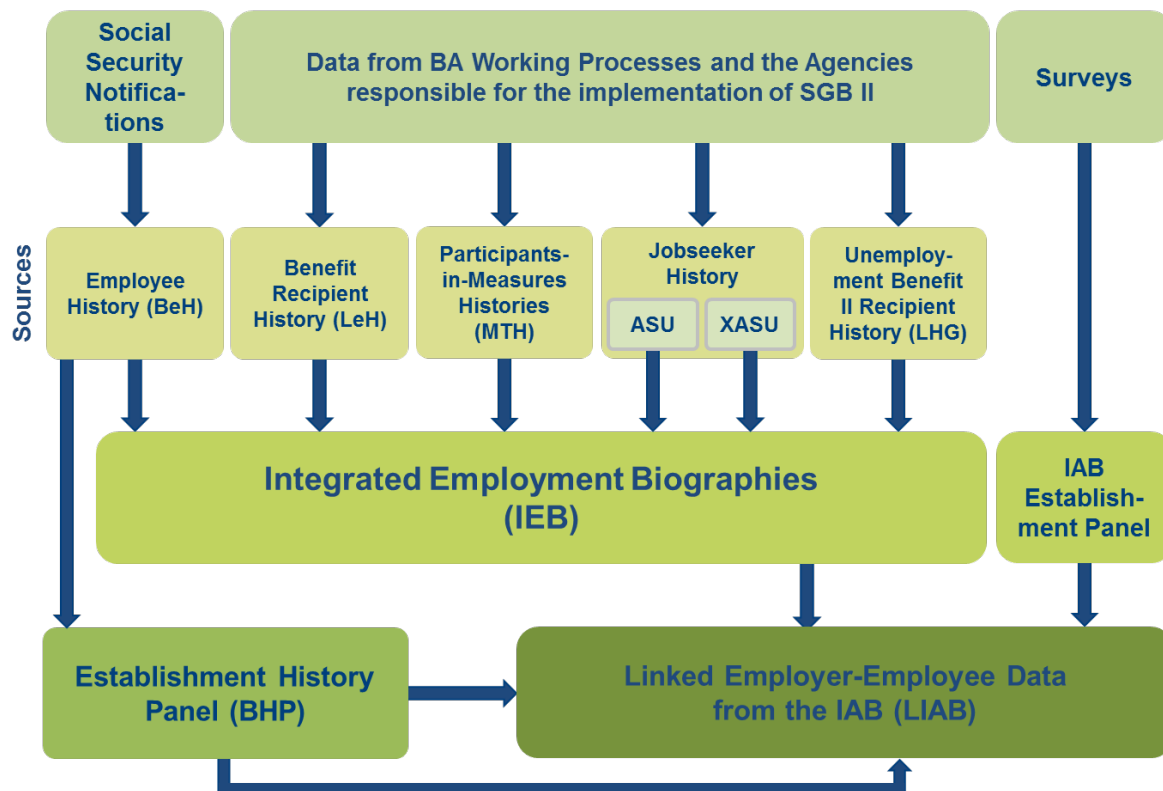
Figure 2: Data sources of the LIAB

2.1 Employee History (BeH)

The source of data regarding employment is the Employment History (Beschäftigten-Historik - BeH) of the IAB. The data basis is the integrated notification procedure for health, pension and unemployment insurance, which came into effect as of 01 January 1973 (and was extended to cover Eastern Germany as of 01 January 1991) and is known by the abbreviation DEÜV (previously DEVO / DÜVO) (for further details see: Bender et al. 1996, p. 4 et seq.; Wermter /Cramer 1988). Under this procedure employers are required to submit notifications to the responsible social security agencies concerning all of their employees covered by social security at least once a year. The BeH covers all white- and blue-collar workers as well as apprentices as long as they are not exempt from social security contributions. This means that civil servants, self-employed persons and regular students (see Cramer 1985) are in principle not recorded in the BeH. Since the notification procedure was changed on 01 January 1999, employees in marginal part-time employment and unpaid family workers have also been recorded (not contained in the data until 01 April 1999). The data are recorded by the health insurance companies, collected and edited by the Federal Employment Agency (BA) and subsequently integrated into the History File by the IAB.

The administrative individual data are supplemented with establishment data (basic establishment data and BHP extension file). They are taken from the Establishment History Panel (Betriebs-Historik-Panel - BHP), which is also based on the BeH.

When linking individual data with establishment data it has to be taken into account that the variables in the Basis Establishment File as well as in the BHP Extension Files are aggregated on 30 June of a year. Unlike the data on individuals, the establishment variables are therefore not spell data but are only valid on 30 June precisely each year.[3]

The Establishment File is linked with the Individual File via the programme-specific commands of the software packages used for preparing and analysing the data. In Stata, for instance, the two files can be linked using the "merge" command in connection with the relevant paths (see Box 2).

```
use liab_qm2_9314_v1_pers_2000.dta
sort betnr jahr
merge m:1 betnr jahr using liab_9314_v1_bhp_basis_v1_2000.dta
```

Box 2: Example code for Stata 14; Linkage between the individual data and the Establishment File

2.2 Benefit Recipient History (LeH)

The Benefit Recipient History (Leistungsempfänger-Historik - LeH) of the IAB covers periods during which individuals receive earnings replacement benefits from the Federal Employment Agency. The benefits comprise unemployment benefit, unemployment assistance and maintenance allowance, in other words not benefits under the sphere of Social Code Book II (e.g. unemployment benefit II). Since the entitlement to receive benefits depends on meeting certain legal requirements, unemployment periods in which the requirements are not met (e.g. no entitlement for receipt of benefits in case of unemployment assistance, or non-completion of the qualifying period for unemployment benefit) are not reported in the Benefit Recipient History.

2.3 Unemployment Benefit II Recipient History (LHG)

The Unemployment Benefit II Recipient History (Leistungshistorik Grundsicherung - LHG) contains information about individuals who are eligible for benefit and capable of work, about the members of their benefit community (Bedarfsgemeinschaft) in accordance with § 7 SGB II and about certain individuals associated with the benefit community. In the SIAB it is not possible,

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[3] An extreme example: an employment notification exists from 01 January 2006 to 30 May 2006; the establishment goes bankrupt in June 2006. There is then no information about this establishment in the BHP for 2006.

however, to link individuals with benefit receipt in accordance with Social Code Book II (SGB II) at the level of benefit communities. The receipt of benefits in accordance with SGB II covers both basic social security benefits (e.g. Unemployment Benefit II) and supplements to unemployment benefit or additional benefits. The LHG does not contain any information about the benefit rates, however. As the amount of benefit received is not determined at the level of the individual but at the level of the benefit community in the case of Unemployment Benefit II, it is difficult to assign an individual benefit rate and this is not done in the LIAB.

Unlike the benefits in the sphere of Social Code Book III, the Federal Employment Agency (BA) is not the sole institution responsible for administering the benefits. The data therefore distinguish between the three possible types of institution responsible for implementing SGB II:

– Cooperation of employment agencies and municipalities (Arbeitsgemeinschaften – ARGE) until the end of 2010 / joint facilities (gemeinsame Einrichtungen) since 2011), in which the BA and the municipality deal with tasks jointly,

– separated responsibilities (getrennte Trägerschaft) / municipalities exercising their duties separately (until 2011) – here the tasks are divided between the BA and the municipality[4],

– authorised municipalities, which are also called opting local authorities or opting municipalities according to the initial experimental clause of Section 6a - here the local authority is responsible for all tasks in the sphere of SGB II.

The data of the "Unemployment Benefit II Recipient History drawn from A2LL" (LHG) come from different reporting procedures. As a rule, the IT procedure A2LL was used in all ARGE cooperation projects until 2010, and in joint facilities from 2011 onwards[5]. Authorised municipalities use various IT procedures of their own and transmit their data to the BA by means of the XSozial-BA-SGB II standard. Both of the procedures are used by municipalities with separated responsibilities. The different data standards affect the scope and quality of the data supplied.

The earliest available data in the LHG are from 1 January 2005. However, the data source is incomplete until the beginning of 2007 (see Section 4).

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[4] The municipality pays the costs for housing and heating (Section 22 SGB II) and additional one-off benefit payments to cover extra costs (Section 23 (3) SGB II) and the additional benefits to support integration in accordance with Section 16 (2) Clause 2 No. 1 - 4 SGB II. The BA, on the other hand, covers the costs for regular benefits, social security contributions and integration benefits (SGB III and SGB II) and specific benefits excluding the additional benefits to support integration cited above.

[5] In 2014 A2LL was gradually replaced by ALLEGRO as the new IT procedure for Unemployment Benefit II in the sphere of SGB II in joint facilities.

2.4 Jobseeker History (ASU / XASU)

Data about jobseekers are stored in the Jobseeker History (Arbeitsuchendenhistorik – ASU / XASU). The ASU data source contains information on jobseekers who are registered with employment agencies, and from 2005 onwards also includes ARGE cooperation projects and separated responsibilities for the implementation of SGB II. The XASU data source, on the other hand, contains the data of jobseekers in receipt of Unemployment Benefit II (ALG-II) from authorised municipalities from 2005 onwards. These data are reported in accordance with the X-Sozial-BA-SBG II standard.

2.5 Participants-in-Measures History File (MTH)

The Participants-In-Measures History Files (Maßnahmeteilnahmehistoriken - MTH) contain information that can be assigned to different legal spheres. First, they contain active labour market policy measures in accordance with Social Code Book III and participation in such measures. Second, the MTH contain measures in the legal sphere of Social Code Book II if these are recorded in BA administrative procedures. This means in particular that no measures implemented by the authorised municipalities are recorded in the MTH as these are reported via a different standard, XSozial. Information from these institutions is not included in the IEB due to a number of data problems. The earliest available data in the MTH are from 1 January 2000.

3 Data preparation and sampling procedure

3.1 Corrections and validation procedures

Before the data from the data sources specified in Chapter 2 are merged to form the IEB they undergo source-specific correction procedures (see the following chapters). The IEB as a whole undergo the following corrections:

– Observations in which the age is under 13 or over 75 are deleted.

– Observations whose end date precedes the start date are deleted.

Inconsistent information on gender or date of birth within an account is corrected, datasets without information on the date of birth are deleted. Further corrections, like in the IABS (Completion procedure of presumably missing notifications, strike corrections) do not happen.

3.1.1 Employee History (BeH)

– To capture a person group that is as constant as possible over time, some person groups for which data are not available throughout the entire observation period are excluded. To

be precise, from 1999 onwards only the person groups 101, 102, 103, 105, 106, 112, 118, 119, 120, 140, 141, 142, 143, 149, 201, 203 and 205 are supplied, as well as the two groups 109 and 209, which indicate people in marginal part-time employment. Groups that are not included from 1999 onwards include people in short-term employment, i.e. person groups 110, 202 and 210.

- Observations with earnings amounting to zero or with no details on earnings, and the value 101 for the person group variable, and the value 50 for the reason for notification (annual notification) are not incorporated into the IEB.

    - Gender and date of birth are taken from the social security number. This information is harmonised across data sources.

    - The territorial allocations for place of work and place of residence are updated to the status as of 31 December 2010.

3.1.2 Benefit Recipient History (LeH)

- It must be taken into account that in cases of ongoing receipt the end date corresponds to the end of the period for which the benefit is allowed and not the end of the benefit receipt period. LeH observations which go beyond 14 July 2011 thus depict the period for which the benefit is allowed. Observations with no end date or an invalid end date are excluded from further processing, since in these cases it cannot be assumed that a benefit payment was made at all.

- Observations without a valid start date are excluded.

- Observations whose end date precedes the start date are excluded.

- If the end date for the receipt of unemployment assistance precedes the start date by one day, then the end date is increased by one year.

- The territorial allocations are corrected analogous to the BeH.

3.1.3 Unemployment Benefit II Recipient History (LHG)

- It only contains observations of people who are capable of work and people over the age of 65.

- Individual-related variables that are available for the (X)LHG sources are valid for the entire observation period.

- The territorial allocations are corrected analogous to the BeH.

3.1.4 Jobseeker History (ASU / XASU)

- Observations whose end date precedes the start date are not included in the ASU.

- There is no consolidation of the ASU observations of individual persons. Therefore, overlaps between ASU observations might occur.

- Individual-related variables that are only available for the (X)ASU sources always refer to the beginning of the spell.

- A new ASU spell is generated as soon as a change of status (e.g. from job-seeking to unemployed) occurs. This also applies if the type of institution (employment agency, joint facility, authorised municipalities, separated responsibilities) changes. The ASU data basis only distinguishes between observations with the status "unemployed", "job seeker" as well as since 2006 "seeking advice" and "without status". In the IEB, however, an additional status "ill / not able to work" is available. The employment status "ill / not able to work" is assigned to IEB spells when in the ASU data basis

  o a preceding observation with the status "unemployed" exists which joins the next observation without a gap and has "incapacitated for work" as the reason for exit, and

  o a subsequent observation with the status "unemployed" exists which also follows without a gap, and

  o the observation itself does not have the status "unemployed" but "jobseeker".

- In contrast to the ASU source, the XASU only distinguishes the status

  o "not unemployed, but seeking job" or

  o "unemployed and simultaneously seeking job".

- Unlike the ASU, periods of illness are not taken into account when generating the "employment status", since there is no information about illness available in the XASU data. When calculating the unemployment duration with XASU observations, gaps due to illness cannot be identified.

- The XASU contains non-overlapping time periods for individuals. If one of the following variables changes, in each case a new data spell is generated for the XASU:

  o Change of job search status

  o Change of availability

  o Change of SGB II institution (due to notification procedure)

  o Change of place of residence

  o The territorial allocations are corrected analogous to the BeH.

3.1.5 Participants-in-Measures History File (MTH)

- Observations whose end date precedes the start date were excluded.

- Observations generated more than a year after the end of the measure are deleted if another observation exists that was generated within the year after completion of the measure.

- Only the most recent record of an individual case of participation in a measure is used.
- Only cases of participation in measures that are classified as "actually took place" are included in the IEB. Cases of participation that did not take place or have not yet taken place are deleted. Cases of participation are also classed as not having taken place when a deletion date is set during the participation in a measure.
- Certain types of measure are not included. These include services to support careers advice and job placement, mobility assistance and pure rehabilitation measures.

3.2 Sampling procedure

The foundation of the sampling procedure in the LIAB are the establishments from the IAB Establishment Panel.

The IAB Establishment Panel is an annually conducted survey. The sample is drawn from the population of all German establishments with at least one employee liable to social security. The sample is stratified according to industry, firm size, and federal state.

The data on individuals in the LIAB QM2 9314 are taken from the IEB according to the following procedure. At first all of the establishments in the IAB Establishment Panel, which have a valid interview in the respective year (1993 to 2014) are selected. In a second step, all observations of individuals are drawn from the IEB that have been employed at one of these firms on 30 June. For these individuals, all observations are made available which contain the 30 June of the respective year.

3.3 Missing values

In the LIAB, missing values are coded as follows:

Term	Value	Description
No (valid) details available	.z	Values of a variable which are not systematically missing, i.e. the variable is available in principle for the data source, but no details are available for the value considered or rather cannot be interpreted reasonably.
Systematically not available	.n	A variable is not available in principle for a data source (dark grey cells in the overview of variables in Chapter 1.5) or is not available for a certain period.

4   Data quality and problems

4.1 Entire IEB

The IEBs contain employment histories. Not each kind of employment is included in the administrative data, though. Certain persons with certain courses of life are not represented in the IEBs at all.

For evaluation purposes, it is often relevant to know gaps in the included biographies (e.g. for control group creation, course of life analyses, etc.) The gaps listed in the following are defined as periods of time after the end of school education for which no data is included in the IEBs. These gaps can be divided into

- gaps with no information available, and
- gaps for which information may be available from the reason for notification / reason for end of benefit receipts / reason for discontinuation of SGB II / reason for deregistration characteristic of the direct preceding dataset (if a corresponding dataset exists).

These gaps were identified using the manifestation of the reason for notification / reason for end of benefit receipts / reason for discontinuation of SGB II / reason for deregistration and employment status characteristics in the various sources. The list makes no claims of being complete.

Table 6: Biographical gaps and identification possibilities

Biographical gap	Information on gap, identifiable using the details in the "grund" variable in the preceding observation of the source, if necessary
Civil servants, professional soldiers, judges, employees of bodies or foundations under public law	XASU
Self-employed persons without support	LeH, ASU
Students, persons in school-based further education	LeH, LHG, ASU, XASU
Persons who are ill / not able to work for more than 6 weeks (illness during unemployment, however, is represented in the ASU source under certain circumstances, see Section 3.1.4)	BeH, LeH, ASU
Persons receiving old-age pension without employment if not a member of a benefit community	LeH, LHG, ASU
Individuals on maternity leave / parental leave	XASU
Recipients of early retirement benefits	LeH, ASU
Trade professionals working from home	

Biographical gap	Information on gap, identifiable using the details in the "grund" variable in the preceding observation of the source, if necessary
Employees working short-time	ASU
Persons in youth welfare facilities, in vocational training centres, approved workshops or similar facilities for disabled persons	ASU
Participants in programmes to support participation in working life (people in rehabilitation)	ASU
(Sideline) farmers	
Caregivers according to Section 19 SBG XI	
Conscripts	BeH, LeH, LHG, ASU, XASU
Persons in reserve duty training	BeH, LeH, LHG, ASU, XASU
Persons fulfilling community service	BeH, LeH, LHG, ASU, XASU
Persons fulfilling a voluntary social or ecological year instead of community service	
Other people not registered with the statutory pension insurance or the Federal Employment Agency (e.g. sabbatical, funding from personal assets or pensions, emigration, employment abroad, voluntary work etc.)	BeH, LeH, ASU
Strikers in cases where the strike lasts more than a month	LeH
Social assistance recipients (prior to the introduction of SGB II in 2005), recipients of welfare payments (according to SGB II)	
Recipients of compensation according to FELEG (Gesetz zur Förderung der Einstellung der landwirtschaftlichen Erwerbstätigkeit, Act on Support in Case of Termination of Farming Activities)	

In terms of table 5 it should be noted that generally not the complete employment biography of an individual, like it exists in the IEB, is included in the individual data of the LIAB QM2 9314. This is because the LIAB QM2 9314 only contains spells including the 30 June of the respective year. Other spells of the employment history, which do not include this date are therefore not part of the LIAB QM2 9314. Furthermore the LIAB QM2 9314 only includes information about individuals over time if the employing establishment participates with a valid interview continuous at the IAB Establishment Panel.

4.2 Employee History (BeH)

- Due to the introduction of the employment notification procedure in the federal states of Eastern Germany, the notifications for Eastern Germany can only be assumed to be sufficiently complete from 1993 onwards. For the same reason, a great deal of spells in 1991 show missing values for several variables (such as employment status).

- The increase in the number of BeH observations from 1999 onwards is due to the introduction of the obligation to submit employment notifications for people in marginal part-time employment from 01 April 1999 onwards.

- Especially in 1999, observations with part-time employment increase significantly. This is caused by the actually observed increase in part-time work as well as by the fact that since 1999 employment notifications have been completed more properly.

- Within the employment notification procedure, a certain time lag is unavoidable. Although changes in employment relationships have to be reported immediately, and existing employment relationships have to be confirmed annually by April of the following year, some notifications actually arrive years later. The History File of the IAB is not updated continuously, however, but at certain intervals. This is done using files of employment notifications for one particular year which were submitted 36, 18, 12 or 6 months after the end of the reporting year (e.g. the 18-month file for 2007 can be created in July 2009 at the earliest). Notifications submitted more than three years late are not taken into account at the IAB, which means that a 36-month file shows a 100 % degree of completeness by definition.

- In the version of the IEB on which the LIAB data are based the degree of completeness of the BeH observations last stood at 100 % in 2007. 18-month files were used for 2008 and 2009, and the observations for 2010 come from a 6-month file. It can therefore be assumed that the BeH observations for 2008, 2009 and in particular for 2010 are slightly underreported. However, this should not reduce the ability to analyse the data at individual level. The missing notifications occur more frequently in a few establishments, however. This means that in individual cases the establishment data, e.g. establishment size, are grossly incorrect and will change considerably in subsequent versions.

- In 1984, a change was made in the employment notification procedure. From that time onwards, one-off payments of gross earned income were reported as part of

the annual earnings subject to social security contributions, which leads to an increase in the average daily wage. In particular, the proportion of wages and salaries above the upper earnings limit has increased considerably from that year onwards (see Bender et al. 1996).

– For the years 1992 until 2000 noticeable drops and rises in the number of notifications were noticed. Drops can be observed especially for the following 10 districts: Braunschweig (03101), Wolfsburg (03103), Emden (03402), Kassel (06633), Essen (05113), Neuss (05162), Erftkreis (05362), Hersfeld-Rotenburg (06632), Miltenberg (09676) and Kempten (Allgäu) (09763). This is due to notification problems of single or several establishments in these regions.

– Considerable drops were also observed for the districts Salzgitter (03102) und Hoyerswerda (14264).

– Concerning the notifications for full-time employment, especially the districts Main-Taunus (06436) und Alzey-Worms (07331) are noteworthy. They feature above-average rises. Also in this case, the reasons are notification problems at single or several establishments in these regions.

– In the years 1996 to 1998, the values 841-844 (doctors and pharmacies) within the "occupation – activity performed" variable are very rare compared to the neighbouring years.

4.3 Benefit Recipient History (LeH)

– Caused by an internal change of systems, there is a break in the collection of periods of exclusion of benefits and of benefit suspension in 2004 due to failure to comply in 2004.

4.4 Unemployment Benefit II Recipient History (LHG)

– With regard to the completeness of case numbers or benefit histories from the LHG data sources, there are substantial gaps in the years 2005 and 2006. We therefore strongly advise against analysing the data for this time period based merely on the LHG sources.

– Longitudinal analyses of individuals are affected by inaccuracies as it is not possible to distinguish between changes in the benefit entitlement status and relocations into and out of districts whose institutions had problems delivering data.

– Also from 2007 onwards, cases of underrecording occur at times. These generally last one month and occur mainly in the authorised municipalities.

- Underrecording and overrecording occur in connection with changes in the type of institution responsible for implementing SGB II:
  - In the context of the reform of the territories covered by the institutions, which came into force on 1 January 2011, cases of underreporting occurred in the districts covered by the employment agencies of Dessau-Roßlau, Halberstadt, Halle and Sangerhausen.
  - Double notifications due to the territorial reforms in 2009/2011 and the changes in the form of the institutions as of 1 January 2012 are already corrected as far as possible in the IEB. Nonetheless double notifications may still occur.
- In the following job centres there are inaccuracies with regard to the allocation of benefit cases:
  - between Emden and Norden between September and December 2009
  - between Döbeln and Mittelsachsen from October to December 2012
  - between Tirschenreuth and Wunsiedel from November 2012 to March 2013
- Some individuals for whom a (X)LHG spell exists are excluded entirely or partly from benefit receipt according to SGB II, for instance because they take part in a subsidised training programme, receive an old-age pension, live in an in-patient facility or a residential institution or receive insurance payments aimed at avoiding need. This affects on average 3 to 5 percent of all cases. In XSozial this person group is sometimes underrecorded by some institutions. Exclusion from benefits can not be identified in the LIAB.

4.5 Jobseeker History (ASU / XASU)

4.5.1 ASU

- The registered periods of job search activity in the ASU source have been regarded as complete from the year 1997 onwards. Therefore, the analysis potential of the ASU spells before 1996 is limited.
- For the placement experts it is not possible to always immediately record the allocation to the legal sphere, since frequently it is only known after some time which institution is primarily responsible due to a possible entitlement to SGB II benefits. Therefore, we recommend comparing the manifestation of the "type of institution" characteristic from the ASU with the manifestation of the LHG and/or XLHG during the same period of time. Due to the recording gaps in the LHG and XLHG between 2005 and 2006 this is not always possible.
- For some people for whom an opting municipality has been responsible since 2005, "artificial" ASU datasets were created by the Federal Employment Agency in parallel. These can be identified via estatvor (transfer to an authorised municipality).

- From mid-2005 until mid-2006, the coArb IT procedure, from which the jobseeker and applicant pool data originate, was superseded by the VerBIS procedure at the Federal Employment Agency. In July 2005, coArb was first replaced by VerBIS in the employment agency in Wiesbaden as a pilot project. From December 2005 onwards, it was then gradually replaced by VerBIS in several stages in all employment agencies. The information for many of the variables recorded was gathered with different levels of differentiation and different qualitative weighting in the two systems. It is therefore very difficult to integrate these variables into the IEB, which is only possible using a special procedure (mapping). Unfortunately, a full conversion of the affected variables from coArb to VerBIS cannot be achieved by means of mapping, so for some variables there is an unusually large number of the values "no details available", "other" or "missing". Moreover, striking differences may occur in frequency counts, depending on whether the original source of the data was co-Arb or VerBIS. Important limitations of the analysis potential are mentioned in the corresponding description of variables.

4.5.2 XASU

- In contrast to the job search spells from the cooperation of employment agencies and municipalities (ARGE) and the separated responsibilities, systematic cases of underrecording have emerged for the 69 authorised municipalities since 01 January 2005. Thus, data from the XASU source should only be analysed from June 2006 onwards.

- A variety of variables sometimes have only a very low degree of completeness for the XASU. Variables which are affected by this include "school-leaving qualification", "severe disability status", "reason for notification" as well as "employment status prior to job search". Although the degree of completeness of these variables improves over time, they are still partly unsatisfactory. The beruf "occupation – activity performed" variable is not available in the XASU for almost the entire period available.

- For a number of institutions (districts), the proportion of registered recipients of unemployment benefit II who are also registered jobseekers is implausibly large at times or continuously in the IEB. One possible reason for this could be an incorrect determination of the status "not unemployed but seeking work" by these institutions.

- The institution-related and period-related plausibility of the XASU data should be examined before use, taking the research question into account.

4.6 Participants-in-Measures History File (MTH)

– The MTH is incomplete for measures with a start date before 01.01.2000.

– As of 01.01.2005 there is an inconsistency in the data as participants in measures were allocated to different institutions with the introduction of Social Code Book II (see Sections 2.2 and 2.4).

– The MTH contains only notifications that are recorded in BA procedures. The use of these procedures in cooperations of employment agencies and municipalities/separated responsibilities/municipalities exercising their duties separately increases continuously between 2005 and 2007. The notifications for these institutions are complete from March 2007 onwards.

– Measures that are reported via the XSozial standard are not contained in the MTH or in the LIAB.

– As a result of the reorganisation of the institutions responsible for implementing SGB-II, the documentation of participation in measures in the MTH may end or begin again when there is a change in the reporting procedure.[6]

– In the case of notifications regarding the bridging allowance (Überbrückungsgeld) the maximum permissible duration of six months is sometimes exceeded. In most cases this can be explained by a default setting in the input mask of the data recording system.

– The MTH is supplemented by applicant characteristics (e.g. vocational training) from other BA procedures. For these variables the administrative procedure was switched from coArb to VerBIS in 2006. The same quality limitations as for the ASU apply here.

5 Description of variables

Frequency counts and overviews of the individual values and labels of the variables can be found in separate files under http://fdz.iab.de.

5.1 Identifiers

5.1.1 Individual ID (persnr)

Variable label	Individual ID
Variable name	persnr
Category	identifiers

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[6] Further information concerning the territory structure of the institutions responsible for implementing Social Code Book II and relevant changes can be found at: http://statistik.arbeitsagentur.de/Navigation/Statistik/Grundlagen/Regionale-Gliederungen/Gebietsstruktur-Traeger-Grundsicherung-Nav.html

Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none
Detailed description	The artificial individual ID indicates which observations belong to the same person. Artificial means that it is not possible to infer any of the person's characteristics or any original identifiers from this individual ID. As there is no uniform individual identifier in the different data sources, the allocation of the information from different data sources (e.g. employment and benefits) to individuals is not always unambiguous. In such cases, implausible employment histories may arise. The formation of the individual identifier which spans all data sources is based on a heuristic developed by the BA.

5.1.2 Establishment number (betnr)

Variable label	Establishment ID
Variable name	betnr
Category	identifiers
Origin	BeH
Data type	numerical
Hierarchy	none

Detailed description	The artificial establishment number indicates which observations belong to the same establishment. It is based on the establishment number allocated by the BA, which was replaced by an artificial number. (Further information on the allocation of establishment numbers by the BA can be found in Bender et al. 1996: p. 15 et seq. and pp. 27-30.) The establishment ID and year specification can be used to merge individual and establishment information.
	
	For the establishment number, the following should be observed in general:
	  a) If the company has one office only, or if the company has one office only in one municipality, this office is the establishment and receives an establishment number.
	  b) If the company has **several** branch offices in **one** municipality, these establishment premises / workplaces must be merged into a single establishment under one establishment number, if they are part of the same economic class. Vice versa, if they are **not** part of the same economic class, each branch office is an establishment and receives an establishment number each.
	  c) If the company has **several** branch offices in **several** municipalities, each of these branch offices is an establishment and receives an establishment number each.
	
	In this context, the following definitions with regards to the allocation of establishment numbers as part of the notification procedure for social security must be observed:

	a) An **establishment** is a regionally and economically delimited unit in which employees work and to which, according to the above-mentioned principles, an establishment number is to be allocated.
	b) A **workplace** is a unit in which employees work and to which, according to the above-mentioned principles, no establishment number is to be allocated.
	c) A **company** as a term combines establishment premises and workplaces of the same employer.
	d) An **employer** is any natural person or legal entity that employs at least one employee subject to social insurance contributions or in marginal part-time employment.
	e) Establishment and establishment premises are synonyms; branch office is a synonym for subsidiary, district office, out-sourced office, workplace, etc. if it is no establishment.
Note on quality	The establishment ID is only missing in a very limited number of cases. These observations are notifications for the person group "205" (earnings notifications for casual workers). As establishment variables (place of work, economic activity, establishment size, etc.) are merged via the establishment number, they are missing in these observations.

5.1.3 Establishment-ID acc. to Survey (idnum)

Variable label	Establishment-ID acc. to Survey
Variable name	idnum
Category	Identifiers
Origin	IAB Establishment Panel
Data type	Numeric
Hierarchy	None
Detailed description	The Establishment ID acc. to Survey is adopted from the IAB Establishment Panel. The variable is only filled in the Individual File, if the person is employed in an establishment, which is in the IAB-Establishment Panel on the reference date with a valid interview.

5.2 Generated technical variables

5.2.1 Source of spell (quelle)

Variable label	Source of spell
Variable name	quelle
Category	generated technical variables
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none
Detailed description	The variable indicates the data source.

5.2.2 Year (jahr)

Variable label	Year

Variable name	jahr
Category	generated technical variables
Origin	BeH
Data type	numerical
Hierarchy	none
Detailed description	This variable is only included in the Establishment File. It indicates the year of validity of the establishment data as of the reference date of 30 June. This variable can be used together with the establishment number to link the Individual File and the Establishment File.

5.2.3 Status of establishment number (betr_st)

Variable label	Status of establishment number
Variable name	betr_st
Category	generated technical variables
Origin	BeH
Data type	numerical
Hierarchy	none
Detailed description	The variable indicates for the current episode in the individual data if there is information from the IAB Establishment Panel for this episode. 1 – Employment in establishment of Establishment Panel with interview in same year, establishment selected for LIAB model 2 – Employment in establishment of Establishment Panel without interview in same year, establishment selected for LIAB model Establishment chosen for LIAB-model 3 – Employment in establishment of Establishment Panel, establishment not selected for LIAB model 4 – Employment in establishment not of Establishment Panel The values 1-3 indicate employments in establishments, which have taken part in the IAB Establishment Panel at least once, whereas value 4 marks the employment in establishments, which have never taken part in the IAB Establishment Panel. 1 and 2 describe employments in establishments, which are in the IAB Establishment Panel, which has been chosen for the respective LIAB model. Number 3 defines employments in firms, which have not been chosen for the respective LIAB model. The difference between 1 and 2 depends on the fact, whether the episode includes the 30 June of the respective year, for a firm that has been interviewed, or not. Value 3 does not appear by definition in a Cross-sectional Model of the LIAB, because all firms of the IAB Establishment Panel have been interviewed at least once and due to construction chosen for the LIAB Cross-sectional Model.

5.3 Personal information

5.3.1 Gender (frau)

Variable label	Gender
Variable name	frau
Category	personal variable
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none
Detailed description	Gender dummy (0 - man, 1 - women). The gender information is constant within one individual account.

5.3.2 Year of birth (gebjahr)

Variable label	Year of birth
Variable name	gebjahr
Category	personal variables
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none
Detailed description	The year of birth is constant within one individual account.
Note on quality	In the original data, it may happen that the year of birth changes between the data sources. This is corrected during the data preparation process. The information from the social security number is given highest priority here.

5.3.3 Nationality (nation)

Variable label	Nationality
Variable name	nation
Category	personal variables
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none
Detailed description	The variable contains the nation codes used by the Federal Statistical Office (Statistisches Bundesamt).
Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases.

5.3.4 Nationality, grouped (nation_gr)

Variable label	Nationality, grouped
Variable name	nation_gr
Category	personal variables
Origin	BeH, LeH, LHG, XLHG, ASU, XASU

Data type	numerical
Hierarchy	none
Detailed description	The variable contains a grouped version of the nation codes used by the Federal Statistical Office.

5.3.5 Marital status (famst)

Variable label	Marital status
Variable name	famst
Category	personal variables
Origin	LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none

Detailed description	This variable describes the marital status. The characteristic in the LeH source has only two manifestations (0 - not married, 1 - married), while in the ASU / XASU sources, a distinction is made between four manifestations, and in the LHG / XLHG sources between seven manifestations. The information from the sources was not compared.
	
	1) ASU / XASU
	Marital status includes categories of living in a joint household with children or a partner. However, it is not possible to distinguish clearly whether
	  • a married person / person living in a joint household is bringing up children,
	  • a married person / person living in a joint household / single person has any children at all,
	  • a lone parent / person living in a joint household / single person is married
	
	2) XLHG
	The quality of the variable is reduced due to a break in the notification logic in 2007.

5.3.6 Number of children (kind)

Variable label	Number of children
Variable name	kind
Category	personal variables
Origin	LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none
Detailed description	This variable has a different meaning depending on the data source. Except for the LeH source, it indicates the number of children aged under 15 living in the household / in the benefit community (Bedarfsgemeinschaft) at the time when the application was made.

1) LeH

The LeH only distinguishes between whether the number of children is zero or at least one. The following values are therefore available:

0   no children

100   One or more children

The variable is not updated when there are changes in the type of benefit or the approval of benefits, but only when a new case of benefit receipt occurs after a period of employment.

Children are generally included in the LeH up to their 18th year of age, under certain conditions also beyond that date if these conditions constitute a higher benefit rate for the beneficiary.

2) ASU

Here, the value of the variable corresponds to the number of children.

Until 30 June 2006, only up to nine children could be recorded. The value 0 does not exist. For datasets prior to 30 June 2006, the zero value was recoded to "missing", since it is not clear whether zero should be interpreted as "no children" or as "field not filled in". For datasets after 30 June 2006, the characteristic is only filled in if children exist.

3) LHG, XLHG, XASU

The variable shows the number of children in the benefit community (Bedarfsgemeinschaft). In the LHG and XLHG sources, the value is valid for the entire original period.

5.3.7   Vocational training (ausbildung)

Variable label	Vocational training
Variable name	ausbildung
Category	personal variables
Origin	BeH, ASU, XASU, MTH
Data type	numerical
Hierarchy	none
Detailed description	It must be taken into account that this variable has a different meaning depending on the data source: **1) BeH** For BeH observations the variable contains the vocational education and training reported by the employers in the employment notification procedure. The following values exist: 1 No vocational training 2 In-company voc. training/traineeship/external voc. training 11 Degree from a university of applied sciences 12 University degree

	In notifications using the new occupation code (see Section 1.3.3) it is no longer possible to identify graduates of universities of applied sciences clearly, as the new occupation code no longer has a separate category for this vocational qualification. They are assigned to category 12.
	"Changes in the vocational training status frequently occur at the same time as a change of establishment. This is because the notification data are compiled anew in the new firm. If, for example, an employee has gained a higher qualification via a part-time further training course while still working then this change of status is probably not recorded until he/she joins a new firm. It can generally be assumed that when a person is employed in a firm for a longer period, the personal data that they reported when they joined the firm is simply continued." (Meinken / Koch 2004, p. 63).
	A method for correcting missing values or temporal inconsistencies in the education and training data in the predecessor sample, the IABS, can be found in Fitzenberger et al. (2006) and in Drews (2006). Only the BeH data source is used for this, however, as this was the only data source with information on education and training in the IABS.
	2) ASU, XASU, MTH
	For these observations the vocational education or training completed most recently is reported. The following values exist:
	1 no completed vocational training
	2 in-firm vocational training/external vocational training
	3 full-time vocational school (Berufsfachschule)
	4 technical college (Fachschule)
	5 university of applied sciences (Fachhochschule)
	6 university
	7 vocational education/training not recognised in Germany
	8 university degree not recognised in Germany
	Values 7 and 8 are only valid for the MTH data source.
Notes on quality	The number of missing values increases continuously over time. In the most recent data more than 40% of values are missing. Missing values occur especially frequently in the following person groups: persons in marginal part-time employment, persons working part-time, foreign employees and eastern German workers. The reason for this is that the variable is not of particular importance as regards social security (see Meinken/Koch, 2004, p. 63).

	As a result of the switchover from coArb to VerBIS it is not possible to distinguish correctly between "no completed vocational training" and "no information available" in the ASU and MTH data sources between 2006 and 2008. A missing value in this period therefore does not necessarily mean that the person has no vocational training or that there is no information available on vocational education and training, but may also mean that it was not possible to apply the relevant data generation procedure. The degree of completeness in the XASU data source is generally low.

5.3.8 School leaving qualification (schule)

Variable label	School leaving qualification
Variable name	schule
Category	personal variables
Origin	BeH, ASU, XASU, MTH
Data type	numerical
Hierarchy	none
Detailed description	This variable contains the school leaving qualification. Different values are possible depending on the source. **1) BeH** The possible values change when the new occupation code is adopted (see Section 1.3.3). The values with the old occupation code are: 5 Grade-/lower secondary school with or without leaving certificate, intermediate school leaving certificate or equivalent qualification 8 Upper secondary school leaving certificate from a specialised upper secondary school (Fachoberschule), general upper secondary school leaving certificate, A-level equivalent, qualification for university 9 General upper secondary school leaving certificate, A-level equivalent, qualification for university With the new occupation code the values are: 1 No school leaving certificate 4 Lower secondary school certificate/ grade school certificate 6 Intermediate school leaving certificate 8 Upper secondary school leaving certificate from a specialised upper secondary school/general upper secondary school leaving certificate, A-level equivalent, qualification for university **2) ASU, XASU, MTH** The following values are possible for these data sources: 1 No school leaving certificate 4 Lower secondary school certificate/ grade school certificate 6 Intermediate school leaving certificate

	7 Upper secondary school leaving certificate from a specialised upper secondary school (Fachoberschule) 9 General upper secondary school leaving certificate, A-level equivalent, qualification for university They are valid at the beginning of the period of job-search or participation in a measure. In the case of people seeking an apprenticeship position, the variable may also contain the school qualification they are working towards in the XASU data source.
Note on quality	The degree of completeness has been decreasing continuously over time in the BeH and has stood at under 2/3 in recent years. In the XASU it has been increasing continuously and has stood at over 2/3 since 2012. In ASU and MTH the degree of completeness is good on the whole.

5.4 Information on employment, benefit receipt and job search

5.4.1   Daily wage / daily benefit (tentgelt)

Variable label	Daily wage/daily benefit
Variable name	tentgelt
Category	information on employment, benefit receipt and job search
Origin	BeH, LeH
Data type	numerical
Hierarchy	none
Detailed description	**1) BeH** In BeH observations, this variable shows the employee's gross daily wage. It is calculated from the fixed-period wages reported by the employer and the duration of the (unsplit) original notification period in calendar days. The daily wage is shown in euros. Until 1998, employers in principle only reported the earnings which were subject to social security contributions. Earnings below the marginal part-time income threshold were not reported. Earnings exceeding the upper earnings limit for statutory pension insurance are only reported up to this limit. There are two upper earnings limits in the statutory pension insurance scheme. The earnings limit of the miners' pension insurance is generally higher than the earnings limit of the pension insurance for wage and salary earners. However, in the data a differentiation between these two insurance carriers is not possible. Since the inclusion of marginal part-time employees in the employment notification procedure on 01 April 1999, earnings below the marginal part-time income threshold have also been recorded; the upper earnings limit still applies as the upper ceiling. In some cases, however, the reported earnings nonetheless exceed the upper earnings limit. Generally, this can probably be attributed to the payment of annual bonuses which the employer can add to the regular earnings in the annual, employment interruption or end of employment notifications. In this case, it is irrelevant whether the upper earnings limit in the statutory pension insurance which is decisive for the notification period is exceeded as a result of this addition. However, such earnings notifications could also

be due to incorrect details in the employment period. (The earnings information, however, may be considered less error-prone due to their insurance relevance.) The marginal part-time income threshold and the upper earnings limit for statutory pension insurance differ from year to year as well as between Eastern and Western Germany (the decisive factor is the location of the establishment). An overview of these limits and thresholds can be found under http://fdz.iab.de.

A daily wage reported as 0 euros can be put down to "employment interruption notifications". During these periods, the employment relationship continues to exist in legal terms, but without pay. This is the case for periods of illness after the end of continued payment of wages, for periods of maternity leave and for sabbaticals.

The daily wage is shown with two decimal places. All values greater than 0 and smaller than 0.01 were rounded up to 0.01. This makes it possible to identify the above-mentioned employment interruption notifications with the condition daily wage = 0.

2) LeH

For LeH observations, the variable shows the daily benefit rate, converted into euros in each case. It must be taken into account that for observations with an original start date prior to 01 January 1998 the daily benefit rate applies to working days, while for observations with an original start date from 01 January 1998 onwards it applies to calendar days.

Since 01 January 2005, a daily benefit rate reported as 0 euros can be put down to benefit suspension periods or interruptions of benefit payments. If a reason for end of benefit is reported for an observation with a daily benefit rate equal to 0, then it is a notification of interruption of benefit payments. In the case of observations that reflect a period of benefit suspension, the entitlement is the same as before the start of the benefit suspension period.

5.4.2 Occupation – current/most recent (KldB 1988) (beruf)

Variable label	Occupation – current/most recent (KldB 1988)
Variable name	beruf
Category	employment / benefit receipt
Origin	BeH, ASU, XASU
Data type	numerical
Hierarchy	none

	1) BeH
	The occupational title of the job performed by the employee during the notification period is a component of the 'employment details' submitted by the employer.
	For this, the employer encodes the employee's job in accordance with the "Classification of Occupations. Systematic and Alphabetical Directory of Job Titles" (published by the Federal Employment Agency, Nuremberg, 1988), which contains approx. 25,000 job titles. The occupational classification consists of a 3-digit code and comprises about 330 values.
Detailed description	If more than one job title with different classification codes applies to one employee, the employer is required to select the job title that best defines the main activity performed (see BA 2005, p. V).
	2) ASU / XASU
	For ASU observations, this variable contains the occupation of the last activity performed.
	For XASU observations, the variable contains the last successfully completed vocational training.

5.4.3 Occupational group – current/most recent (KldB 2010), 3 digit (beruf2010_3)

Variable label	Occupational group - current/most recent (KldB 2010), 3-digit
Variable name	beruf2010_3
Category	information on employment, benefit receipt and job search
Origin	BeH, LeH, ASU, XASU, MTH
Data type	numerical
Hierarchy	none
Detailed description	**1) BeH** The occupational title of the job performed by the employee during the notification period is a component of the 'employment details' submitted by the employer. If more than one job title with different classification codes apply for one employee, the employer is required to select the job title that best defines the main activity performed (see Bundesagentur für Arbeit, 2005, p. V). For this the employer encodes the employee's job in accordance with the "Classification of Occupations 2010" (Klassifikation der Berufe 2010, KldB2010, Bundesagentur für Arbeit, 2011). The occupational class consists of a 5-digit code and comprises about 1300 values. The less detailed occupational group is recorded by the first three digits of the code. The skill level required for a job, which is recorded in the fifth digit of the codes in the KldB2010, is made available separately in the variable 'level of requirement' (niveau). Employment notifications with an end date earlier than 30.11.2011 are reported using the old occupation code 1988 (KldB 1988) (see Section 1.3.3). These values are recoded to the KldB2010 by transferring the key area. As the new occupation code is considerably more detailed than the old one, this results in substantial inaccuracies. This must be taken into account when analysing the data.

	2) LeH, ASU, XASU, MTH
	The variable contains the occupation of the last job. See 1) with regard to the occupation code.
Note on quality	There is a considerable increase in the number of missing values in 2011 due to the change in the reporting procedure.

5.4.4 Occupational sub-group – current/most recent (KldB 2010), 4-digit (beruf2010_4)

Variable label	Occupational sub-group - current/most recent (KldB 2010), 4-digit
Variable name	beruf2010_4
Category	information on employment, benefit receipt and job search
Origin	BeH, LeH, ASU, XASU, MTH
Data type	numerical
Hierarchy	none
Detailed description	**1) BeH** The occupational title of the job performed by the employee during the notification period is a component of the 'employment details' submitted by the employer. If more than one job title with different classification codes apply for one employee, the employer is required to select the job title that best defines the main activity performed (see Bundesagentur für Arbeit, 2005, p. V). For this the employer encodes the employee's job in accordance with the "Classification of Occupations 2010" (Klassifikation der Berufe 2010, KldB2010, Bundesagentur für Arbeit, 2011). The occupational class consists of a 5-digit code and comprises about 1300 values. The less detailed occupational sub-group is recorded by the first four digits of the code. The skill level required for a job, which is recorded in the fifth digit of the codes in the KldB2010, is made available separately in the variable 'level of requirement' (niveau). Employment notifications with an end date earlier than 30.11.2011 are reported using the old occupation code 1988 (KldB 1988) (see Section 1.3.3). These values are recoded to the KldB2010 by transferring the key area. As the new occupation code is considerably more detailed than the old one, this results in substantial inaccuracies. This must be taken into account when analysing the data. **2) LeH, ASU, XASU, MTH** The variable contains the occupation of the last job. See 1) with regard to the occupation code.
Note on quality	There is a considerable increase in the number of missing values in 2011 due to the change in the reporting procedure.

Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases. Otherwise the occupational group (beruf2010_3) is the only occupation-related information using KldB2010 that is made available.

5.4.5   Level of requirement – current/most recent job (KldB 2010) (niveau)

Variable label	Level of requirement - current/most recent job (KldB 2010)
Variable name	niveau
Category	information on employment, benefit receipt and job search
Origin	BeH, LeH, ASU, XASU, MTH
Data type	numerical
Hierarchy	none
Detailed description	**1) BeH** The occupational title of the job performed by the employee during the notification period is a component of the 'employment details' submitted by the employer. If more than one job title with different classification codes apply for one employee, the employer is required to select the job title that best defines the main activity performed (see Bundesagentur für Arbeit, 2005, p. V). For this the employer encodes the employee's job in accordance with the "Classification of Occupations 2010" (Klassifikation der Berufe 2010, KldB2010, Bundesagentur für Arbeit, 2011). The occupational class consists of a 5-digit code and comprises about 1300 values. The less detailed occupational sub-group is recorded by the first four digits of the code. The skill level required for a job, which is recorded in the fifth digit of the codes in the KldB2010, is made available separately in the variable 'level of requirement' (niveau). Employment notifications with an end date earlier than 30.11.2011 are reported using the old occupation code 1988 (KldB 1988) (see Section 1.3.3). These values are recoded to the KldB2010 by transferring the key area. As the new occupation code is considerably more detailed than the old one, this results in substantial inaccuracies. This must be taken into account when analysing the data. **2) LeH, ASU, XASU, MTH** The variable contains the occupation of the last job. See 1) with regard to the occupation code.
Note on quality	There is a considerable increase in the number of missing values in 2011 due to the change in the reporting procedure.

5.4.6   Part-time (teilzeit)

Variable label	Part-time
Variable name	teilzeit
Category	information on employment, benefit receipt and job search

Origin	BeH
Data type	numerical
Hierarchy	none
Detailed description	The employee's occupational status during the notification period is reported by the employer in the "employment details".
	The variable "occupational status" distinguishes between full-time and part-time employees. The decisive factor here is the ratio between the contracted hours and the usual working hours in the establishment. For part-time employees the variable only records whether their working hours exceed a certain limit or not. Until 1978 this limit was 20 hours of work per week, between 1979 and 1987 it was 15 hours per week and since 1988 it has been 18 hours per week.
	The variable only provides actual details regarding the occupational status for full-time employees, distinguishing among other things between blue-collar and white-collar employees in full-time employment and trainees/apprentices. When the new occupation code was introduced (see Section 1.3.3), however, this distinction was no longer available. The variable 'teilzeit' therefore only distinguishes between full-time and part-time employment in the entire reporting period. No further information about the occupational status is used.
Note on quality	There is a considerable increase in the number of missing values in 2011 due to the change in the reporting procedure. In order to reduce this problem, the working hours were imputed at the IAB for the period in question. Further information about the procedure can be found in Ludsteck/Thomsen (2016).

5.4.7 Employment status (erwstat)

Variable label	Employment status
Variable name	erwstat
Category	personal variables
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none
Detailed description	This variable assumes different values with different meanings for each data source.
	1) BeH
	For BeH observations, the variable 'employment status' corresponds to the person group recorded in the new notification procedure (DEÜV) from 1 January 1999 onwards. It indicates contribution- or benefit-related particularities of the employment relationship.
	If multiple codes apply to an employment notification, the smallest must be indicated by the reporting employer. The majority of these cases are employment relationships subject to social security contributions without any distinctive characteristics, which are recorded under code number 101. Accordingly, it is possible that these employment relationships are slightly overestimated.

The notification procedure stipulates that changes in the employment status - e.g. when an apprentice is taken on by his/her training company after completing his/her vocational training - must be indicated by a new notification (cf. Deutsche BKK 2012, p. 31).

The person group can be contained in employment notifications that refer to the years prior to 1999 but were not received until 1999 or later. For notifications which were received before 1999, an attempt is made to allocate the notifications to the person groups on the basis of certain rules and with the aid of the vocational education and training', 'occupational status and working hours' and 'occupation' variables as well as other information. In many cases, however, conclusive allocations are not possible.

Since 1 April 1999, employees in marginal part-time employment have also been recorded in the DEÜV notification procedure. This persongroup can be distinguished via the values 109 and 209. For employees in marginal part-time employment, no data prior to the introduction of the notification obligation in 1999 could be collected.

2) LeH

For LeH observations, the variable 'employment status' contains the grouped benefit type. Thus, it is possible to distinguish whether a person receives unemployment benefit, unemployment assistance or maintenance allowance or whether contributions to private long-term care insurance are paid by the BA.

3) ASU/XASU

For ASU observations, the 'employment status' variable reports the job search status. Recipients of unemployment benefits (Unemployment Benefit I or II) over the age of 58 who receive benefits under the relaxed conditions according to Section 428 of Social Code Book III (or Section 65 Para. 4 of Social Code Book II) and individuals aged over 58 who are not benefit recipients and are not willing to be placed in employment in the sense of Section 252 Para. 8 Social Code Book VI are recorded as individuals seeking advice.

The status 'without status' (statistics: 'not set') mainly implies individuals who cannot be expected to be activated or placed in employment in accordance with Section 10 SGB II. Individuals who are classed as unfit for work for more than 42 days but continue to receive Unemployment Benefit II are also recorded under this status in the system.

In XASU observations, the variable 'employment status' has so far also contained the values 'not unemployed, but seeking work' as well as 'unemployed and simultaneously seeking work'.

4) LHG

For LHG datasets, the 'employment status' variable shows whether the person is registered as an employable minor, an employable person of full age or not employable from the old-age pension threshold.

5) MTH

	For MTH observations the 'employment status' variable indicates the measure-type category. This is the highest level in the hierarchy of the measure-type classifications of the BA.
Note on quality	In the LHG it can be observed that there is an above-average number of 15-year-olds and to a lesser extent 16- and 17-year-olds classed as unable to work. 15- and 16-year-old benefit recipients of the authorised municipalities may therefore be under-represented, as 'individuals who are unable to work' are not included in the IEB.

5.4.8 Transition zone (gleitz)

Variable label	Transition zone
Variable name	gleitz
Category	information on employment, benefit receipt and job search
Origin	BeH
Data type	numerical
Hierarchy	none
Detailed description	This variable has only been available from 2003 onwards and only for BeH observations. It indicates whether the employment notification relates to employment in the low-wage sector, within the so-called transition zone. Jobs in the transition zone have a gross monthly wage of € 400.01 to €800.00 (so-called midi jobs) for which the employee only has to pay a reduced overall social security contribution. As employees with earnings in the transition zone can voluntarily pay the "regular" social security contribution, not all employees with corresponding earnings are automatically classified as being in the transition zone. The corresponding legislation has been in force since 01 April 2003.

5.4.9 Temporary agency work (leih)

Variable label	Temporary agency work
Variable name	leih
Category	information on employment, benefit receipt and job search
Origin	BeH
Data type	numerical
Hierarchy	none
Detailed description	The variable reports whether the person's employment is a temporary job via an employment agency. The variable is derived from the occupation code 2010 and is only available for notifications with an end date later than 30.11.2011.
Note on quality	There is a considerable increase in the number of missing values in 2011 due to the change in the reporting procedure.

5.4.10 Fixed-term job (befrist)

Variable label	Fixed-term job
Variable name	befrist
Category	information on employment, benefit receipt and job search
Origin	BeH

Data type	numerical
Hierarchy	none
Detailed description	The variable reports whether the person's employment relationship is fixed-term or permanent. The variable is derived from the occupation code 2010 and is only available for notifications with an end date later than 30.11.2011.
Note on quality	There is a considerable increase in the number of missing values in 2011 due to the change in the reporting procedure.

5.4.11 Reason of cancellation/notification/termination (grund)

Variable label	Reason of cancellation/notification/termination
Variable name	grund
Category	information on employment, benefit receipt and job search
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none
Detailed description	**1) BeH** In BeH observations, the 'reason o notification' variable indicates the reason why the employer submitted the employment notification in question to the social security agencies. However, not all of the possible reasons for submitting a notification that may occur in the context of the notification procedure are available in the IEB. For instance, the IEB only includes notifications that have information on earnings (i.e. annual, employment interruption and end of employment notifications), whilst initial registrations are not contained as they contain no information on earnings. However, this does not involve a loss of information, as the details from a registration are transmitted again with the following annual, employment interruption or end of employment notification. The reasons for submitting employment notifications are encoded according to the regulations of the notification procedure which has been in effect since 01 January 1999 (in accordance with DEÜV). **2) LeH** In LeH observations, the variable indicates the reason for the end of receipt of unemployment benefit, unemployment assistance or maintenance allowance. In contrast, the LeH contains no information about the reasons for the start of benefit receipt, as the information for the LeH comes from the notifications submitted by the employment agencies to the health insurance institutions regarding finished periods of benefit receipt. **3) LHG / XLHG**

	The LHG and XLHG datasets contain the 'reason for discontinuation of Unemployment Benefit II' and indicate the reason why current benefits have been discontinued. The 'reason for discontinuation of Unemployment Benefit II' variable **refers to the individual**, not to the benefit community. If the Unemployment Benefit II receipt of a different member of the benefit community is discontinued, all observations of the members of the benefit community are split on this date, but the reason for discontinuation of Unemployment Benefit II is only available for the individual whose benefit is discontinued. If the Unemployment Benefit II receipt of one member of the benefit community is discontinued, new observations for all members of the benefit community are started at this date, while the reason for end / discontinuation of benefit is only available for the person concerned. This variable is valid exactly at the end of the original observation. **4) ASU / XASU** In the case of ASU records, the variable contains the deregistration or exit reason. It must be taken into account here that the number of values of the variable has been reduced from 26 April 2003 onwards. For analysis over long periods of time, the old values can be recoded to the currently valid ones using the table below: ``` old -> new old -> new old -> new old -> new 29 -> 60 36 -> 61 44 -> 74 51 -> 74 30 -> 60 37 -> 66 45 -> 77 52 -> 76 31 -> 61 38 -> 66 46 -> 67 53 -> 68 32 -> 60 39 -> 71 47 -> 67 54 -> 78 33 -> 60 40 -> 69 48 -> 78 34 -> 60 42 -> 65 49 -> 69 35 -> 60 43 -> 70 50 -> 75 ```
Note on quality	Proportion of valid values (degree of completeness) for the reason for notification in the LHG, XLHG, ASU and XASU data sources: ``` Source	2005 2006 2007 2008 2009 2010 ----------+-- LHG	0.157 0.150 0.182 0.179 0.160 0.154 XLHG	0.077 0.098 0.119 0.126 0.193 0.271 ASU	0.703 0.968 0.948 0.932 0.924 0.931 XASU	0.254 0.361 0.363 0.367 0.383 0.409 ```

5.4.12 Client profile (profil)

Variable label	Client profile
Variable name	profil

Category	information on employment, benefit receipt and job search
Origin	ASU, MTH
Data type	numerical
Hierarchy	none
Detailed description	The variable reports the client profile assigned to the client in the profiling process. The profiling process serves to create a client profile, i.e. a list of the client's skills, experiences and interests with labour-market relevance, in order to identify the client's position in the labour market more easily. Towards the end of the profiling process, the items are summarised to create a client profile. To this end, the client's overall integration prospects are first ascertained. The following options are available: • good integration prospects (integration into the regular labour market within 12 months is realistic) • complex (integration into the regular labour market within 12 months is not realistic) • other The allocation of the client profile depends on the identification of the integration prospects. Clients whose integration prospects are classed as good can be assigned the client profiles 'market profile', 'activation profile' and 'assistance profile', while clients with complex prospects are assigned the client profiles 'development profile', 'stabilisation profile' or 'support profile'. The selection of the specific client profile is based on the need for action as assessed by the placement officer. If the client's prospects are classed as 'other', the option 'assignment not required' or – only for SGB II clients – 'integrated but in receipt of benefits' may be selected as the client profile.
Note on quality	The variable was introduced in 2009 but was mapped back to 2006 using other variables. The quality has been assessed as reliable by the BA statistics department since 2010.

5.4.13 Reason for end of previous employment (art_kuend)

Variable label	Reason for end of previous employment
Variable name	art_kuend
Category	information on employment, benefit receipt and job search
Origin	ASU
Data type	numerical
Hierarchy	none
Detailed description	This variable describes how the last employment or training relationship was terminated before a new period of job search. It can therefore be used to identify job-to-job placements.

5.4.14 Working hours of job application (arbzeit)

Variable label	Working hours of job application
Variable name	arbzeit
Category	information on employment, benefit receipt and job search

Origin	ASU
Data type	numerical
Hierarchy	none
Detailed description	During the placement procedure, jobseekers indicate how many working hours the job they are seeking should have.

5.4.15 Residual claim/ planned duration (restanspruch)

Variable label	Residual claim/planned duration
Variable name	restanspruch
Category	information on employment, benefit receipt and job search
Origin	LeH
Data type	numerical
Hierarchy	none
Detailed description	Remaining entitlement is the entitlement that remains after the end of the current period of benefit receipt. The remaining entitlement used to remain in place for seven years, since February 2006, this has been four years. If the end date of the benefit receipt is before 01 January 1998, the remaining entitlement is reported in working days, after this date it is reported in calendar days. This entitlement counts up to a maximum of the longest possible duration for the individual's respective age. This information does not refer to the start date of the episode, but to the start of the original time period.

5.4.16 Type of provider (traeger)

Variable label	Type of provider
Variable name	traeger
Category	information on employment, benefit receipt and job search
Origin	LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	none
Detailed description	Until 2011, this variable shows the three possible types of institution responsible for the sphere of Social Code Book II (cooperation of employment agencies and municipalities (ARGE), authorised municipalities (zkT), separated responsibilities (gT)) and the type of institution for the sphere of Social Code Book III (Federal Employment Agency). From 2011 onwards, ARGEs have generally been organised as joint facilities (gE). By 01 January 2012 at the latest, separated responsibilities formed joint facilities or authorised municipalities. The characteristics manifestation 2 indicates the cooperation of employment agencies and municipalities (ARGE) type of institution until 2010, since 2011 it has been joint facilities (gE).

The cooperation of employment agencies and municipalities (ARGE) is formed by the Federal Employment Agency and municipalities dealing with tasks jointly. In the case of authorised municipalities (zkT) (at first also called "opting local authorities" according to the experimental clause of Section 6a), the relevant municipality takes on the tasks in the field of SGB II independently. In the case of separated responsibilities (gAw), also called municipalities exercising their duties separately (gAw), the federal and/or municipal SGB II benefits are granted on their own responsibility.

It must be taken into account that the district territories covered by the institutions are not always clear and thus may not necessarily correspond to the boundaries of the districts. The same applies to the employment agencies.

ASU and XASU observations contain the type of institution that holds the records of the Applicant Pool Data.

5.5 Location data

5.5.1 Place of residence: district (Kreis) (wo_kreis)

Variable label	Place of residence: district (Kreis)
Variable name	wo_kreis
Category	location data
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	federal state | district
Detailed description	In BeH and LeH observations, the place of residence at district level is only available for the years from 1999 onwards. The variable indicates the district (urban district or rural district) in which the social security contributor lives. The first two digits of the 5-digit district code (Kreisschlüssel) show the code for the federal state (Bundesland), positions 1-3 indicate the regional authority (Regierungsbezirk), and positions 1-5 show the district authority (Kreis). Federal states without a regional authority have a 0 in the third position. In the BeH, the place of residence is determined at the end of each year and added consistently to all datasets of a year. For the LHG, XLHG and XASU sources, the place of residence applies to the period of the original observation. For the ASU and LeH, the characteristic contains the place of residence at the beginning of the original period of time. In order to guarantee consistent regional allocations across the entire observation period, the information on the district was recoded with reference to the territorial allocation of 31 December 2010 for all sources, i.e. in all calendar years, a place of residence is assigned to a district in accordance with the boundaries that the district had on 31 December 2010. As the district boundaries have changed over time, cases would occur in which the district code changes without the individual concerned having relocated if the territorial allocations of the districts were not updated.

	For observations with an original start date after 2010, the location data was set to "missing", because changes in the territorial allocation implemented from 2011 onwards cannot be recoded precisely to the allocation of 31 December 2010. For LHG, XLHG and XASU observations, the variable is available from 2005 onwards.
Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases. Otherwise, only the federal state (wo_bula) is shown as regional information.

5.5.2   Place of residence: federal state (Bundesland) (wo_bula)

Variable label	Place of residence: federal state (Bundesland)
Variable name	wo_bula
Category	location data
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	federal state | district
Detailed description	This variable is an aggregation of the "district" variable to the 16 German federal states. In BeH observations, the federal state of the place of residence is only available for the years from 1999 onwards. Further information on the district of the place of residence can be found under 5.5.1 Place of residence: district (Kreis) (wo_kreis).

5.5.3   Place of residence: employment agency (wo_aa)

Variable label	Place of residence: employment agency (Arbeitsagentur)
Variable name	wo_aa
Category	location data
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	regional directorate | employment agency
Detailed description	This variable contains the employment agency of the employee's / BA client's place of residence. This information is extracted from the residence address. For the LHG, XLHG and XASU data sources, the place of residence is valid for the period of the original observation. In the case of the LeH and ASU, the variable contains the place of residence at the start of the period of unemployment or the job search. For the BeH and LeH, it is available from 1999 onwards, for the LHG, XLHG and XASU from 2005 onwards, and for ASU observations, the variable is already available before 1999.

	In order to guarantee consistent regional allocations across the entire observation period, the information on the employment agency was re-coded to the territorial allocation of 31 December 2010 for all data sources observations, i.e. in all calendar years, a place of residence is assigned to an employment agency area in accordance with the boundaries that the employment agency area had on 31 December 2010. As the boundaries of the employment agency areas have changed over time, cases would occur in which a person's employment agency area changes without him/her having relocated if the territorial allocations were not updated. Berlin constitutes a problematic case with regard to updating territorial allocations, however: The boundaries of Berlin's employment agency areas have been changed repeatedly over the years, which could not be fully corrected even by recoding the territorial allocations. For observations with an original start date after 2010, the location data was set to "missing", because changes in the territorial allocation implemented from 2011 onwards cannot be recoded precisely to the allocation of 31 December 2010.
Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases. Otherwise, only the area of the regional directorate in which the social security contributor's place of residence is located is shown.

5.5.4 Place of residence: regional directorate (wo_rd)

Variable label	Place of residence: regional directorate (Regionaldirektion)
Variable name	wo_rd
Category	location data
Origin	BeH, LeH, LHG, XLHG, ASU, XASU
Data type	numerical
Hierarchy	regional directorate | employment agency
Detailed description	This variable contains the regional directorate of the place of residence. For the LHG, XLHG and XASU data sources, the place of residence is valid for the period of the observation. A change of place of residence (already at the level of local employment office (Geschäftsstelle) or local authority district (Gemeinde)) causes a new observation. In the case of the LeH and ASU, the variable contains the place of residence at the start of the period of unemployment or the jobseeker status. The variable is available for the BeH and the LeH from 1999 onwards, and for the LHG, XLHG and XASU from 2005 onwards. For ASU observations, the variable is already available before 1999.
	For all data sources, the territorial allocations were corrected to the status of 31 December 2010. For observations with an original start date after 2010, the location data was set to "missing", because changes in the territorial allocation implemented from 2011 onwards cannot be recoded precisely to the allocation of 31 December 2010.

5.6 Establishment variables

5.6.1 Classification of economic activities 73 (w73_3)

Variable label	classification of economic activities 73
Variable name	w73_3
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	division (1-digit code) | group (2-digit code) | class (3-digit code) of economic activity
Detailed description	This variable indicates the economic activity as a 3-digit code in accordance with the WS73 classification and is available from 1975 up to and including 2002. WS73 stands for the "Classification of Economic Activities for the Statistics of the Federal Employment Services, edition 1973" ("Klassifikation der Wirtschaftszweige für die Statistik der Bundesanstalt für Arbeit, Ausgabe 1973"). Using a 3-digit code, the classification distinguishes between 269 classes of economic activity, whereby the first digit of the code defines the division of economic activity of a total of 10, and the first two digits together define the particular group of economic activity of a total of 95. Each establishment is only assigned one code. The assignment to the relevant class of economic activity is carried out under consideration of the institutional orientation of the establishment.

5.6.2 Classification of economic activities 93, sub-classes (w93_5)

Variable label	classification of economic activities 93, sub-classes
Variable name	w93_5
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	section (1-digit code) | division (2-digit code) | group (3-digit code) | class (4-digit code) | sub-class (5 digit code) of economic activity
Detailed description	This variable indicates the economic activity as a 5-digit code in accordance with the WZ93 classification and is available from 1998 up to and including 2003. WZ93 stands for the "Classification of Economic Activities for the Statistics of the Federal Employment Services, edition 1993" ("Klassifikation der Wirtschaftszweige für die Statistik der Bundesanstalt für Arbeit, Ausgabe 1993"). The WZ93 is based on the Statistical Classification of Economic Activities in the European Community NACE Rev. 1 („Nomenclature génerale des activités économiques dans les communautés européennes") which has four levels the first two of which are based on the international standard ISIC Rev. 3 („International Standard Industrial Classification of All Economic Activities"). Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected.

Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases. Otherwise, the economic activity is only shown as the 3-digit code (w93_3).

5.6.3 Classification of economic activities 93, groups (w93_3)

Variable label	classification of economic activities 93, groups
Variable name	w93_3
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	section (1-digit code) | division (2-digit code) | group (3-digit code) | class (4-digit code) | sub-class (5 digit code) of economic activity
Detailed description	This variable indicates the economic activity as a 3-digit code in accordance with the WZ93 classification and is available from 1998 up to and including 2003. WZ93 stands for the "Classification of Economic Activities for the Statistics of the Federal Employment Services, edition 1993" ("Klassifikation der Wirtschaftszweige für die Statistik der Bundesanstalt für Arbeit, Ausgabe 1993"). The WZ93 is based on the Statistical Classification of Economic Activities in the European Community NACE Rev. 1 („Nomenclature génerale des activités économiques dans les communautés européennes") which has four levels the first two of which are based on the international standard ISIC Rev. 3 („International Standard Industrial Classification of All Economic Activities"). Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected.

5.6.4 Classification of economic activities 03, sub-classes (w03_5)

Variable label	classification of economic activities 03, sub-classes
Variable name	w03_5
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	section (1-digit code) | division (2-digit code) | group (3-digit code) | class (4-digit code) | sub-class (5-digit code) of economic activity
Detailed description	This variable indicates the economic activity as a 5-digit code in accordance with the WZ03 classification and is available from 2003 up to 2008. WZ03 stands for the "Classification of Economic Activities, Edition 2003" ("Klassifikation der Wirtschaftszweige Ausgabe 2003") of the Federal Statistical Office (eds.). Like the WZ93, the WZ03 is based on the Statistical Classification of Economic Activities in the European Community NACE Rev. 1 (see description of variables w93_3, w93_5). The classification of the economic activity has been updated, whereas the structure of the WZ93 has been largely maintained. Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected.

Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases. Otherwise, the economic activity is only shown as the 3-digit code (w03_3).

5.6.5 Classification of economic activities 03, groups (w03_3)

Variable label	classification of economic activities 03, groups
Variable name	w03_3
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	section (1-digit code)	division (2-digit code)	group (3-digit code)	class (4-digit code)	sub-class (5 digit code) of economic activity
Detailed description	This variable indicates the economic activity as a 3-digit code in accordance with the WZ03 classification and is available from 2003 up to 2008. WZ03 stands for the "Classification of Economic Activities, Edition 2003" ("Klassifikation der Wirtschaftszweige Ausgabe 2003") of the Federal Statistical Office (eds.). Like the WZ93, the WZ03 is based on the Statistical Classification of Economic Activities in the European Community NACE Rev. 1 (see description of variables w93_3, w93_5). The classification of the economic activity has been updated, whereas the structure of the WZ93 has been largely maintained. Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected.

5.6.6 Classification of economic activities 08, sub-classes (w08_5)

Variable label	classification of economic activities 08, sub-classes
Variable name	w08_5
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	section (1-digit code)	division (2-digit code)	group (3-digit code)	class (4-digit code)	sub-class (5-digit code) of economic activity
Detailed description	This variable indicates the economic activity as a 5-digit code in accordance with the WZ08 classification and is available from 2008 onwards. WZ08 stands for the "Classification of Economic Activities, Edition 2008" ("Klassifikation der Wirtschaftszweige Ausgabe 2008") of the Federal Statistical Office (eds.). The WZ08 is based on the Statistical Classification of Economic Activities in the European Community NACE Rev. 2. Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected.
Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases. Otherwise the economic activity is only shown as the 3-digit code (w08_3).

5.6.7 Classification of economic activities 08, groups (w08_3)

Variable label	classification of economic activities 08, groups
Variable name	w08_3
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	section (1-digit code) | division (2-digit code) | group (3-digit code) | class (4-digit code) | sub-class (5 digit code) of economic activity
Detailed description	This variable indicates the economic activity as a 3-digit code in accordance with the WZ08 classification and is available for the years since 2008. WZ08 stands for the "Classification of Economic Activities, Edition 2008" ("Klassifikation der Wirtschaftszweige Ausgabe 2008") of the Federal Statistical Office (eds.). The WZ08 is based on the Statistical Classification of Economic Activities in the European Community NACE Rev. 2. Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected.

5.6.8 w73_3 completed by extrapolation/imputation (w73_3_gen)

Variable label	w73_3 completed by extrapolation/imputation
Variable name	w73_3_gen
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	division (1-digit code) | group (2-digit code) | class (3-digit code)
Detailed description	This variable indicates the economic activity as a 3-digit code in accordance with the WZ73 classification. From 1975 up to and including 2002, the variable contains the original values from w73_3. From 2003 onwards, the information is either continued or replaced with the help of recoding tables. Thus the variable provides time-consistent information on the economic activity based on the economic activity classification WS73. A detailed description can be found in Eberle et al. (2011). Further information on the WS73 classification can be found in the description of variables w73_3.

5.6.9 Type of imputation w73_3 (group_w73_3)

Variable label	Type of imputation w73_3
Variable name	group_w73_3
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	None

| Detailed description | This variable indicates the type of completion for the w73_3_gen variable. It is denoted whether the relevant value in w73_3_gen is consistent with the original value from w73_3, still missing / extrapolated or imputed based on recording tables. |
| | A detailed description of the procedure can be found in Eberle et al. (2011). |

5.6.10 w93_3 completed by extrapolation/imputation (w93_3_gen)

Variable label	w93_3 completed by extrapolation/imputation
Variable name	W93_3_gen
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	section (1-digit code)	division (2-digit code)	group (3-digit code)	class (4-digit code)	sub-class (5 digit code) of economic activity
Detailed description	This variable indicates the economic activity as a 3-digit code in accordance with the WZ93 classification. From 1998 up to and including 2003, the variable contains the original values from w93_3. Before 1998 and after 2003, the information is either written back / continued or replaced with the help of recoding tables, so that the variable contains time-consistent information on the economic activity based on the economic activity classification WS93. A detailed description can be found in Eberle et al. (2011).
	Further information on the WS93 classification can be found in the description of variables w93_3.

5.6.11 Type of imputation w93_3 (group_w93_3)

Variable label	Type of imputation w93_3
Variable name	group_w93_3
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	None
Detailed description	This variable indicates the type of completion for the w93_3_gen variable. It is denoted whether the relevant value in w93_3_gen is consistent with the original value from w93_3, still missing / extrapolated or imputed based on recording tables.
	A detailed description of the procedure can be found in Eberle et al. (2011).

5.6.12 Year of first appearance (grd_jahr)

Variable label	year of first appearance
Variable name	grd_jahr
Category	establishment variables
Origin	BeH
Data type	numerical

Hierarchy	none
Detailed description	This variable indicates the first appearance of the establishment number in the dataset. If an establishment number is only determined for the first time after 1975 (or after 1992 in Eastern Germany), this variable could indicate the date when the respective establishment was founded. However, it could also be an establishment that has been in existence for a longer time but has been allocated a new establishment number following a change of owner or a change in the legal form of the establishment. (For the allocation of establishment numbers see Bundesagentur für Arbeit 2007, p. 9-11). It might also be that the establishment already existed before, but did not have any employees liable to social security, or from 1999 onwards, neither marginal part-time workers.

5.6.13 First appearance (grd_dat)

Variable label	first appearance
Variable name	grd_dat
Category	establishment variables
Origin	BeH
Data type	date
Hierarchy	none
Detailed description	This variable indicates the first appearance of the establishment number in the BeH to the day. If an establishment number in Western Germany is determined for the first time only after 1975, or after 1992 in Eastern Germany, this variable could indicate the date when the respective establishment was founded. However, it could also be an establishment that has been in existence for a longer time but has been allocated a new establishment number following a change of ownership or a change in the legal form of the establishment. (For the allocation of establishment numbers see Bundesagentur für Arbeit 2007, p. 9-11). It might also be that the establishment already existed before, but did not have any employees liable to social security, or from 1999 onwards, neither marginal part-time workers.
Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases. Otherwise, the economic activity is only shown as the 3-digit code (grd_jahr).

5.6.14 Year of last appearance (lzt_jahr)

Variable label	year of last appearance
Variable name	lzt_jahr
Category	establishment variables
Origin	BeH
Data type	numerical
Hierarchy	none

| Detailed description | This variable indicates the last appearance of the establishment number in the dataset (see Bender et. al. 1996).

If the existence of an establishment number in the BHP already ends before 2008, it could indicate the closure of the establishment. However, other possible reasons for this are an "arbitrary change of the establishment number following a change of owner or a change in the legal form of the establishment", the "outsourcing of parts of the firm under a new establishment number" or other administrative changes (see Bender et. al. 1996 or Bundesagentur für Arbeit 2007, p. 9-11). |
|---|---|

5.6.15 Last appearance (lzt_dat)

Variable label	last appearance
Variable name	lzt_dat
Category	establishment variables
Origin	BeH
Data type	date
Hierarchy	none
Detailed description	This variable indicates the last appearance of the establishment number in the dataset to the date (see Bender et. al. 1996). If the existence of an establishment number in the BHP already ends before 2008, it could indicate the closure of the establishment. However, other possible reasons for this are an "arbitrary change of the establishment number following a change of ownership or a change in the legal form of the establishment", the "outsourcing of parts of the firm under a new establishment number" or other administrative changes (see Bender et al. 1996 or Bundesagentur für Arbeit 2007, p. 9-11).
Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases. Otherwise, the economic activity is only shown as the 3-digit code (lzt_jahr).

5.6.16 Total number of employees (az_ges)

Variable label	no. employees
Variable name	az_ges
Category	generated establishment variables
Origin	BeH
Detailed description	This variable contains the total number of an establishment's employees reported to the social security agencies as of 30 June of a year. Since the introduction of the new notification regulations in 1999, people in marginal part-time employment have also been recorded. Part-time employees and dormant employment relationships (daily wage of zero) are also included.

5.6.17 Number of full-time employees (regular workers + others) (az_vz)

Variable label	No. full-time (regular workers + others)
Variable name	az_vz

Category	generated establishment variables
Origin	BeH
Hierarchy	none
Detailed description	This variable contains the number of an establishment's full-time employees on 30 June of a year. People in marginal part-time employment and dormant employment relationships (daily wage of zero) are not included here.

5.6.18 Total number of marginal part-time workers (az_gf)

Variable label	no. marginal part-time workers
Variable name	az_gf
Category	generated establishment variables
Origin	BeH
Hierarchy	none
Detailed description	The number of employees in marginal part-time employment is generated using the person group code – values 109 and 209. This variable has only been contained in the dataset since 1999 as it has only been included in the social security notification procedure since that year.

5.6.19 Mean imputed wage all full-time employees (te_imp_mw)

Variable label	Mean imp. wage all full-time employees
Variable name	te_imp_mw
Category	generated establishment variables
Origin	BeH
Data type	numerical
Hierarchy	none
Detailed description	This variable contains the mean imputed gross daily wage of the full-time employees in an establishment. It does not include the wages of marginally part-time staff, apprentices or individuals participating in partial retirement schemes. The values are reported in euros for all years. According to the social security notification regulations, employers must indicate the employee's gross wage subject to social security contributions for a certain period of time (fixed period wage). Until the end of 1998, employers had to report the gross wage subject to social security contributions only. So only wages above the marginal part-time income threshold and below the contribution assessment ceiling were recorded. Since 1999, wages below the marginal part-time income threshold have also been recorded as part of the new notification procedure. Gross wages above the contribution assessment ceiling, however, are still cut. In order to calculate the gross daily wage, the fixed period wage is divided by the number of calendar days in the period. To calculate the mean, these censored wages were imputed (see Section 8.2 in Schmucker et al. 2016). These data were then aggregated at establishment level.

5.6.20 Place of work: district (Kreis) (ao_kreis)

Variable label	Place of work: district (Kreis)
Variable name	ao_kreis
Category	location data
Origin	BeH
Data type	numerical
Hierarchy	federal state | district
Detailed description	The variable indicates the district (urban district or rural district) in which the employee's establishment is located. The first two digits of the 5-digit district code (Kreisschlüssel) show the code for the federal state (Bundesland), positions 1-3 indicate the regional authority (Regierungs-bezirk), and positions 1-5 show the district authority (Kreis). Federal states without a regional authority have a 0 in the third position. In order to guarantee consistent regional allocations across the entire observation period, the information on the district was recoded to the territorial allocation of 31 December 2010, i.e. in all calendar years, a place of work is assigned to a district in accordance with the boundaries that the district had on 31 December 2010. As the district boundaries have changed over time, cases would occur in which the district code of the location of the establishment would change without the establishment concerned having relocated, if the territorial allocations were not updated.
Notes	Owing to its particular sensitivity with regard to data protection legislation, this variable is only made available in non-aggregated form on application and only in well-founded cases. Otherwise, only the federal state (ao_bula) is shown as regional information.

5.6.21 Place of work: federal state (Bundesland) (ao_bula)

Variable label	Place of work: federal state (Bundesland)
Variable name	ao_bula
Category	location data
Origin	BeH
Data type	numerical
Hierarchy	federal state | district
Detailed description	The variable indicates the federal state in which the establishment is located. This variable is generated from the district key number (ao_kreis). The first two positions of the district key number indicate the federal state.

5.7 Generated biographical variables

5.7.1 First day in employment (ein_erw)

Variable label	First day in employment
Variable name	ein_erw
Category	generated biographical variables

Origin	generated from BeH
Data type	date
Hierarchy	none
Detailed description	This variable specifies the date of start of employment subject to social security in the IEB. Training periods are not included (*erwstat* == 102, 121, 122, 141). Persons have always a missing value, if they pass a training period in the IEB but do not have an employment covered by the social security system. The first day in employment (*ein_erw*) can occur a long time after the first day in establishment (*ein_bet*) and the first day in job (*ein_job*) because in the latter cases training periods are included.
Note on quality	For West Germans the variable is left censored on 1.1.1975. For East Germans the censoring is not so clear. Entries on 1.1.1990 are censored for sure, but often also entries on 1.1.1991 and 1.1.1992 may be affected because in 1990 and 1991 many employment notifications are missing.

5.7.2 Number of days in employment (tage_erw)

Variable label	Number of days in employment
Variable name	tage_erw
Category	generated biographical variables
Origin	generated from BeH
Data type	numerical
Hierarchy	none
Detailed description	The variable contains the number of days, which an individual has worked till the 30 June of a year (Cross-sectional Model) or to the end date of the respective episode (Longitudinal Model). Training periods are not taken into account (*erwstat* == 102, 121, 122, 141). If an individual was just in training, the variable adopts the value 0. The number of days in employment (*tage_erw*) can be zero, even though the variable first day in employment (*ein_erw*) is filled. This happens, when individuals have not entered the work force until the 30 June of the respective year (Cross-sectional Model) or still not entered the work force until the end of the episode (Longitudinal Model).
Note on quality	For West Germans the variable is left censored on 1.1.1975. For East Germans the censoring is not so clear. Entries on 1.1.1990 are censored for sure, but often also entries on 1.1.1991 and 1.1.1992 may be affected because in 1990 and 1991 many employment notifications are missing.

5.7.3 First day in establishment (ein_bet)

Variable label	First day in establishment
Variable name	ein_bet
Category	generated biographical variables
Origin	generated from BeH
Data type	date
Hierarchy	none

Detailed description	This variable contains the start date of the first employment notification in the current establishment in the IEB. Training periods are also considered. An interruption of the employment in the establishment does not change the start date, i.e. it is constant for each combination of individual and establishment number. The first day in employment (*ein_erw*) can occur a long time after the first day in establishment (*ein_bet*) and the first day in job (*ein_job*) because in the latter cases training periods are included. This variable is coded missing (.n) if the establishment ID is missing or if the *grund* variable indicates a lump sum payment (*grund* == 54).
Note on quality	For West Germans the variable is left censored on 1.1.1975. For East Germans the censoring is not so clear. Entries on 1.1.1990 are censored for sure, but often also entries on 1.1.1991 and 1.1.1992 may be affected because in 1990 and 1991 many employment notifications are missing.

5.7.4 Number of days in establishment (tage_bet)

Variable label	Number of days in establishment
Variable name	tage_bet
Category	Generated biographical variables
Origin	Generated from BeH
Data type	numeric
Hierarchy	none

Detailed description	The variable contains the number of days a person has been working in the respective establishment. In the Cross-sectional Model the duration is calculated until the 30 June of this year, in the Longitudinal Model until the end of the episode. Training periods are also included, meanwhile employment gaps are not.
	
	 If the number of days in the establishment is alternatively calculated with the variable First day in establishment (ein_bet)
	 `in QM: gen tag_bet_neu = mdy(6,30,jahr) – ein_bet + 1`
	 `in LM: gen tag_bet_neu = endepi – ein_bet + 1`
	
	 the values, which are obtained, are larger than or equal to the variable tage_bet, because tage_bet does not include interruptions of employment.
	 Number of days in establishment (*tage_bet*) can be larger than Duration of a working life (*tage_erw*). The variable *tage_bet* includes periods of education, *tage_erw* doesn't include these periods.
	
	 This variable is coded missing (.n) if the establishment ID is missing or if the *grund* variable indicates a lump sum payment (*grund* == 54).

Note on quality	For West Germans the variable is left censored on 1.1.1975. For East Germans the censoring is not so clear. Entries on 1.1.1990 are censored for sure, but often also entries on 1.1.1991 and 1.1.1992 may be affected because in 1990 and 1991 many employment notifications are missing.

5.7.5 First day in job (ein_job)

Variable label	First day in job
Variable name	ein_job
Category	generated biographical variables
Origin	generated from BeH
Data type	numerical
Hierarchy	none
Detailed description	This variable contains the start date of the first employment notification in the current job.
	Training periods (*erwstat* == 102, 121, 122, 141) in the same establishment are treated as separate jobs, even if they follow directly or are followed directly by a job in the same establishment.
	An employment in the same establishment after a gap is considered a new job if
	- the reason for notification of the last employment record before the gap indicates the end of the last job (*grund* = 30, 34, 40 or 49) and the gap is longer than 92 days or
	- the reason for notification of the last employment record before the gap does not indicate the end of the last job and the gap is longer than 366 days.
	The first day in job (ein_job) cannot occur before the first day in establishment (*ein_bet*), but it can occur before first day in employment (*ein_erw*).
	This variable is coded missing (.n) if the establishment ID is missing or if the *grund* variable indicates a lump sum payment (*grund* == 54).
Note on quality	For West Germans the variable is left censored on 1.1.1975. For East Germans the censoring is not so clear. Entries on 1.1.1990 are censored for sure, but often also entries on 1.1.1991 and 1.1.1992 may be affected because in 1990 and 1991 many employment notifications are missing.

5.7.6 Number of days in job (tage_job)

Variable label	Numbers of days in job
Variable name	tage_job
Category	generated biographical variables
Origin	generated from BeH
Data type	numerical
Hierarchy	none

Detailed description	The variable counts how many days a person has been working in the current job.
	Training periods (*erwstat* == 102, 121, 122, 141) in the same establishment are treated as separate jobs, even if they follow directly or are followed directly by a job in the same establishment.
	An employment in the same establishment after a gap is considered a new job if
	- the reason for notification of the last employment record before the gap indicates the end of the last job (*grund* = 30, 34, 40, or 49) and the gap is longer than 92 days or
	- the reason for notification of the last employment record before the gap does not indicate the end of the last job and the gap is longer than 366 days. In the Cross-sectional Model this duration relates to 30 June of the year, in all other LIAB data it relates to the end of the episode. Training periods in the establishment are included, employment gaps not. If the number of days in the current job is alternatively calculated with the first day in job variable (*ein_job*),
	`in QM:gen tage_job_neu = mdy(6,30,jahr) – ein_job+1` `in LM:gen tage_job_neu = endepi – ein_job+1`
	the values obtained are larger or equal than the variable *tage_job* because it does not include interruptions of employment.
	This variable is coded missing (.n) if the establishment ID is missing or if the *grund* variable indicates a lump sum payment (*grund* == 54).
Note on quality	For West Germans the variable is left censored on 1.1.1975. For East Germans the censoring is not so clear. Entries on 1.1.1990 are censored for sure, but often also entries on 1.1.1991 and 1.1.1992 may be affected because in 1990 and 1991 many employment notifications are missing.

5.7.7 Number of days with benefit receipt (tage_lst)

Variable label	Number of days of benefit receipt
Variable name	tage_lst
Category	generated biographical variables
Origin	generated from LeH
Data type	numerical
Hierarchy	none
Detailed description	The variable contains the number of days of benefit receipts of a person until the 30 June of each year (Cross-sectional Model) or the end date of the respective episode (Longitudinal Model). If there are no benefit receipts, the variable adopts the value 0.
	Other payments (e.g. benefits according to SGB II, the former unemployment assistance, etc.) than unemployment benefits (Arbeitslosengeld) have not considered for this variable. This allows a consistent evaluation of this variable over time. Moreover, periods of parallel employment have not been considered for this variable.

Note on quality	For West Germans the variable is left censored on 1.1.1975. For East Germans the censoring is not so clear. Entries on 1.1.1990 are censored for sure, but often also entries on 1.1.1991 and 1.1.1992 may be affected because in 1990 and 1991 many employment notifications are missing.

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7   Appendix

7.1 Frequency tables

Frequency tables and overviews of the individual values and labels of the variables can be found in separate files under http://fdz.iab.de.

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8   List of abbreviations

ALG	Arbeitslosengeld	unemployment benefit
ARGE	Arbeitsgemeinschaft	co-operation of employment agencies and municipalities
ASU	Arbeitsuchendenhistorik	Jobseeker History
A2LL	Arbeitslosengeld II – Leistungen zum Lebensunterhalt	unemployment benefit II - benefits to secure a livelihood
BA	Bundesagentur für Arbeit	Federal Employment Agency
BeH	Beschäftigtenhistorik	Employee History
BHP	Betriebs-Historik-Panel	Establishment History Panel
BMAS	Bundesministerium für Arbeit und Soziales	Federal Ministry of Labour and Social Affairs
coArb	Computerunterstützte Arbeitsvermittlung (operatives Verfahren zur Verwaltung der Vermittlung (Altverfahren))	computer-aided job placement (procedure for the administration of job placements – old procedure)
DEÜV	Verordnung über die Erfassung und Übermittlung von Daten für die Träger der Sozialversicherung – Datenerfassungs- und –übermittlungs-Verordnung –	Data Collection and Transmission Regulation - regulation on the collection and transmission of data for the social security agencies
DEVO	Zweite VO über die Erfassung von Daten für die Träger der Sozialversicherung und für die BA – Datenerfassungs-Verordnung –	Data Collection Regulation - second regulation on the collection of data for the social security agencies and for the Federal Employment Agency
DÜVO	Zweite VO über die Datenübermittlung auf maschinell verwertbaren Datenträgern im Bereich der Sozialversicherung und der BA – Datenübermittlungs-Verordnung –	Data Transmission Regulation - second regulation on the transfer of data on machine-readable data media in the field of social security and the BA
EDV	Elektronische Datenverarbeitung	Electronic data processing
FDZ	Forschungsdatenzentrum	Research Data Centre
FELEG	Gesetz zur Förderung der Einstellung der landwirtschaftlichen Erwerbstätigkeit	Act on the Support in Case of Termination of Farming Activities
gAw	Träger mit getrennter Aufgabenwahrnehmung	Municipalities exercising their duties separately
gE	Gemeinsame Einrichtungen	Joint facility
IAB	Institut für Arbeitsmarkt- und Berufsforschung	Institute for Employment Research
IABS	IAB-Beschäftigtenstichprobe	IAB Employment Samples
IEB	Integrierte Erwerbsbiographien	Integrated Employment Biographies
ISIC	International Standard Industrial lassification of All Economic Activities	International Standard Industrial Classification of All Economic Activities
KldB	Klassifikation der Berufe	Classification of Occupations
LeH	Leistungsempfängerhistorik	Benefit Recipient History
LIAB	Linked-Employer-Employee-Daten des IAB	Linked Employer-Employee Data of the IAB
LHG	Leistungshistorik Grundsicherung	Unemployment Benefit II Recipient History

MTH	Maßnahmeteilnehmer-Historik	Participants-in-Measures History File
NACE	Nomenclature génerale des activités économiques dans les communautés européennes	Nomenclature génerale des activités économiques dans les communautés européennes
SGB	Sozialgesetzbuch	German Social Code
VerBIS	Vermittlungs- und Beratungsinformationssystems	Information System for Placement and Counselling
XASU	Arbeitsuchenden-Historik aus XSozial-BA-SGB II	Jobseeker History from XSozial-BA-SGB II
zkT	Zugelassene kommunale Träger	Authorised municipalities

Imprint

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